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The First Three Years

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Sandia's Computer Support Units: The First Three Years

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Abstract

This paper describes the method by which Sandia National Laboratories has deployed information technology to the line organizations and to the desktop as part of the integrated information services organization under the direction of the Chief Information officer. This deployment has been done by the Computer Support Unit (CSU) Department. The CSU approach is based on the principle of providing local customer service with a corporate perspective. Success required an approach that was both customer compelled at times and market or corporate focused in most cases. Above all, a complete solution was required that included a comprehensive method of technology choices and development, process development, technology implementation, and support. It is our hope that this information will be useful in the development of a customer-focused business strategy for information technology deployment and support. Descriptions of current status reflect the status as of May 1997.

Acknowledgments

The author wishes to acknowledge the following people, who significantly contributed to the formation and success of the Computer Support Unit (CSU):

Contents

Section 4: Assessment 27

Appendixes

Figures

Foreword

As the computing environment has moved from centralized to distributed, the need for field support that would pervade the Laboratories became apparent. A model existed in the Components Division that was felt to be scaleable to the enterprise, based on the operational success of that model over several years. The personnel associated with providing that service were identified and transferred to the Integrated Information Services organization in 1994 with the expressed purpose of sharing their lessons learned and broadening the reach of their methodology. This report documents that process and represents one of only a few instances in my experience of the instantiation of a service that leads to a fundamental change in the relationship between the individual and the organization. Direct access to information is now facilitated for every employee, and the responsibility for the maintenance of that linkage has now been assumed by the Laboratories.

—L. Herb Pitts, Information Services Center Director

Introductory Note

This report covers the origin and development of Computer Support Units from the beginnings of the concept in 1992 to May 1997. It is not a comprehensive history, but a set of organized notes or vignettes that present important themes, events, methods, etc. The purpose is to record enough about the CSUs so that important decisions and their reasons will be available to future planning processes, to aid in tracking and assessing further evolution of CSUs, and to provide a general picture of CSUs up to the time of an evolution in Integrated Information Services toward network-centric computing. References to organizational names and numbers reflect those existing just before the date of this report.

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Sandia's Computer Support Units: The First Three Years

Section 1: CSUs Come on the Scene

1.1 Prologue: The Origins of CSUs

In 1992, Sandia began a product realization experiment. The objective of this experiment was to colocate engineering design staff with manufacturing staff of the Integrated Manufacturing and Design Initiative (IMDI) so that concurrent engineering efforts that combine the right person with the right information at the right time could be conducted. Physical colocation was impossible: many of the people were located across the United States from Culman, Alabama and Kansas City, Missouri to Phoenix, Arizona and Livermore, California. Virtual colocation was the practical and strategic method of achieving the necessary environment.

The IMDI program manager, Gary Ferguson, established the Integrated Engineering Information Technology (IEIT) project, with Rick Harris as Project Manager. The goal of the IEIT project was to develop, deploy, and support enabling technology for concurrent engineering in support of all IMDI engineering projects. The relationship between the IEIT project and other IMDI projects changed over time. IEIT began using formal Quality Function Deployment (QFD) methods to gather customer requirements and align them with capabilities. As IEIT awareness of needs increased and project trust was established, the projects moved from customers to clients. At times, the IEIT project played the role of benevolent dictator to its clients, making the technical choices to implement information technology support.

Formal and informal quality methods served to ensure that IEIT directions matched customer needs. The IEIT project team procured and deployed computer networks, servers, desktops, and applications to meet customer and security requirements. Revolutionary at the time, accommodations were made so that all networking could be done within the Internal Restricted Network (IRN), which entailed encryption of data rather than using physical barriers. This paradigm shift enabled the creation and use of the IRN network link to Allied Signal KCD, allowing hundreds of people outside of IMDI to share mechanical design (PRO/Engineer) data between sites. The IEIT team supported the IMDI initiative for two years, until the IMDI program was successfully completed in 1994.

In April 1994, Sandia named Mike Eaton as Chief Information Officer (CIO) and formed the Integrated Information Services (IIS) organization under his direction. At that time, virtually every line organization had its own computing, networking, and e-mail infrastructure. These local installations represented a variety of technologies, implementation styles, and philosophies.

Among his other tasks, the CIO was to unify desktop computer support and local area network (LAN) management. The IEIT's distributed servers and services represented one option for the IIS. This option was a viable candidate because of its inherent ability to work in and between extremely heterogeneous LANs, and because of the enormous customer attention that was required to convince the enterprise that a CIO-directed organization could understand and address enterprise business needs as well as the enterprise could. The IEIT model was selected by the CIO and took form within the Integrated Information Services organization as the Customer Service Unit (CSU). Prior to organizing the CSU, the principles were developed in the *Integrated Information Services Division Customer Service Unit (CSU) Definition Document* (Appendix A).

1.2 Historical Summary of CSU Development, 1994-1997

1.2.1 CSUs Are Sized and Located to Match Customer Geography

Customer Service Units (CSUs), as they were initially called, were established with a charter to provide local support with a corporate perspective. The strategy was to develop 11 CSUs, one for each of 10 regions in Albuquerque and one in Livermore, and to designate a CSU Project Manager for each. Each region included about 1000 potential customers in size. Each CSU had a hub in the building where those 1000 customers' network connections met the backbone of the internal restricted network. Servers were placed in these hub locations to provide access from desktops to mail and file services without requiring connections across the Wide Area Network (WAN).

Until 1996, the WAN had substantial reliability issues caused by different router hardware and software; numerous protocols (such as TCP/IP, DECNET, IPX-SPX, SNA, AppleTalk, and NETBEUI) and broadcast storms were caused by loose LAN management practices. During this period, the IIS invested much effort into improving the network quality to enable Network Centric Computing.

2

1.2.2 Subscriptions Form the Initial Financial Base

In the beginning, the CSUs had no paying customers (usually referred to as subscribers) other than those that were already in place due to IMDI. Most of the IMDI customers were willing to pay for the services since these customers viewed the capabilities as essential and the service from IEIT as first rate. The CSUs' initial goal was to develop a model that met customers' needs sensitive to lines of business. Though viewed as change agents on an enterprise-wide scale, the CSUs were to be financially supported through voluntary subscription. Customers of the CSU generally paid the CSU through center support corporate indirect cases, but sometimes through project cases where appropriate.

The CSUs developed a set of services, including electronic mail, post office support, access to the Sandia Intranet, access to the Internet, electronic mail at the desktop, printer services (in some locations), file services, web servers, and—most importantly—desktop support for corporate applications and any support needed by subscribers to meet their PC and Macintosh computing needs. From the beginning, the CSUs also supported hundreds of UNIX workstations through tailored service level agreements (SLAs). Unlike the utility service provided for PC and Macintosh customers, services for UNIX machines varied from basic agreements calling for installation of operating systems and e-mail to more inclusive agreements, including maintenance contracts for the hardware/software application contracts and application installations like Pro/Engineer.

1.2.3 CSUs Are Centralized into a Single Department

Because of the projected size of CSUs, they were initially divided among three departments, managed by George Connor, Rick Harris, and Bill Swartz. Two of the departments had other responsibilities besides CSUs. The sole responsibility of the third department (Harris' CSU Operation and Development Dept. 4423) was CSUs. Besides the direct CSU activities of desktop support, LAN management, post office management, etc., Dept. 4423 was also the parent organization of Technology Development 4423-1, a team directly supporting CSUs by doing the necessary "productionization" of software before CSUs deployed it to their customers.

Although the intent and effort was to operate all the CSUs consistently, division among three departments proved to be an obstacle to putting this intent into practice. The inevitable differences both in managerial philosophy and in day-to-day operational style necessitated discussions, which consumed time and delayed implementation of action in the CSUs. In April 1996, Information Services 4400

Director Herb Pitts directed that all CSUs be moved into Dept. 4423. Technology Development remained a team within 4423.

1.2.4 "CSU" Becomes "Computer Support Unit"

In the summer of 1996, the meaning of "CSU" changed from Customer Service Unit to Computer Support Unit. Some observers expressed reservations about the apparent abandonment of the explicit focus on customer service. The change was made, however, in recognition that the average Sandian has other things to think about than his or her computer. The term Customer Service Unit was a vestigial remnant from an organization where computing was the assumed focus of life, but customer service was considered a distinctive and localized characteristic. In that older view, the CSU would be the "customer service" part of an IIS that had many activities not normally visible to customers.

The customers themselves had a different view. They were customers for many types of service providers, not just the IIS and CSU. Thus the change to the new name was a recognition that CSU customers do not have computers constantly on their minds, and that a more precise name was needed. "Computer Support Unit" was chosen as a compromise to gain precision while keeping the increasingly familiar "CSU." Customers can call for "computer support" when they need it. For CSUs, "customer service" remains a chief value even if not part of the official name. The customer base has validated this approach as seen from the rapid growth in customers from a few hundred in 1994 to nearly 8000 in 1997.

4

Section 2: The CSU Business

This section describes the business aspects of CSUs—the way CSUs were managed, operated, and developed throughout the period covered in this report. Unless otherwise indicated, information in this section describes facts or methods as they existed at the end of the period.

2.1 Organization, Management, and Operation

2.1.1 The Nature of the CSU Project Management Position

The CSU Project Manager reports to the CSU Department Manager with the intent of leading 10–20 people, managing a budget of 1–4 million dollars, operating local CSUs that served up to 1000 customers, and balancing the requirements of different lines of business with the corporate commitments. Since the beginning of FY97, each Project Manager also had a particular focus area of responsibility, such as computer security, e-mail, software deployment, etc. The Project Manager positions were filled by Sandia staff members.

The CSU Project Manager is intended to be part of a team of Project Managers (Figures 1 and 2) whose mission is to provide customers with needed support and develop the infrastructure needed to support these initiatives while meeting the corporate departmental standards set by the IIS architectural center, the integrated services centers, and the CSU department. In cases where the technology was not fully productionized or fully developed by the CIO or CSU, the CSU Project Managers were obligated to develop tactical solutions within their CSU until resources could be directed towards building a corporate-production-worthy solution. This resulted in limited-life tactical solutions that were customer focused and not delayed by the more rigorous approach taking during productionization.

As the CSUs grew, the Project Management position became the glue that held together the dichotomy of customer-compelled and market-focused principles. The CSU Project Managers meet every week for two hours with the CSU Department Manager where progress on projects is discussed and tactical decisions are made rapidly. In addition, the Project Managers met during the first two years once every two weeks and then later once a month in what was called the CSU Senate.

Figure 1. 1995 CSU Project Managers and Department Managers (left to right): Larry Cox, J. C. Kelly, Tom Klitsner, Pete Warner, George Connor (4421), David Ortiz, Rick Harris (4423), Kathy Marder, Jeff Lundsford, and Diane Janni.
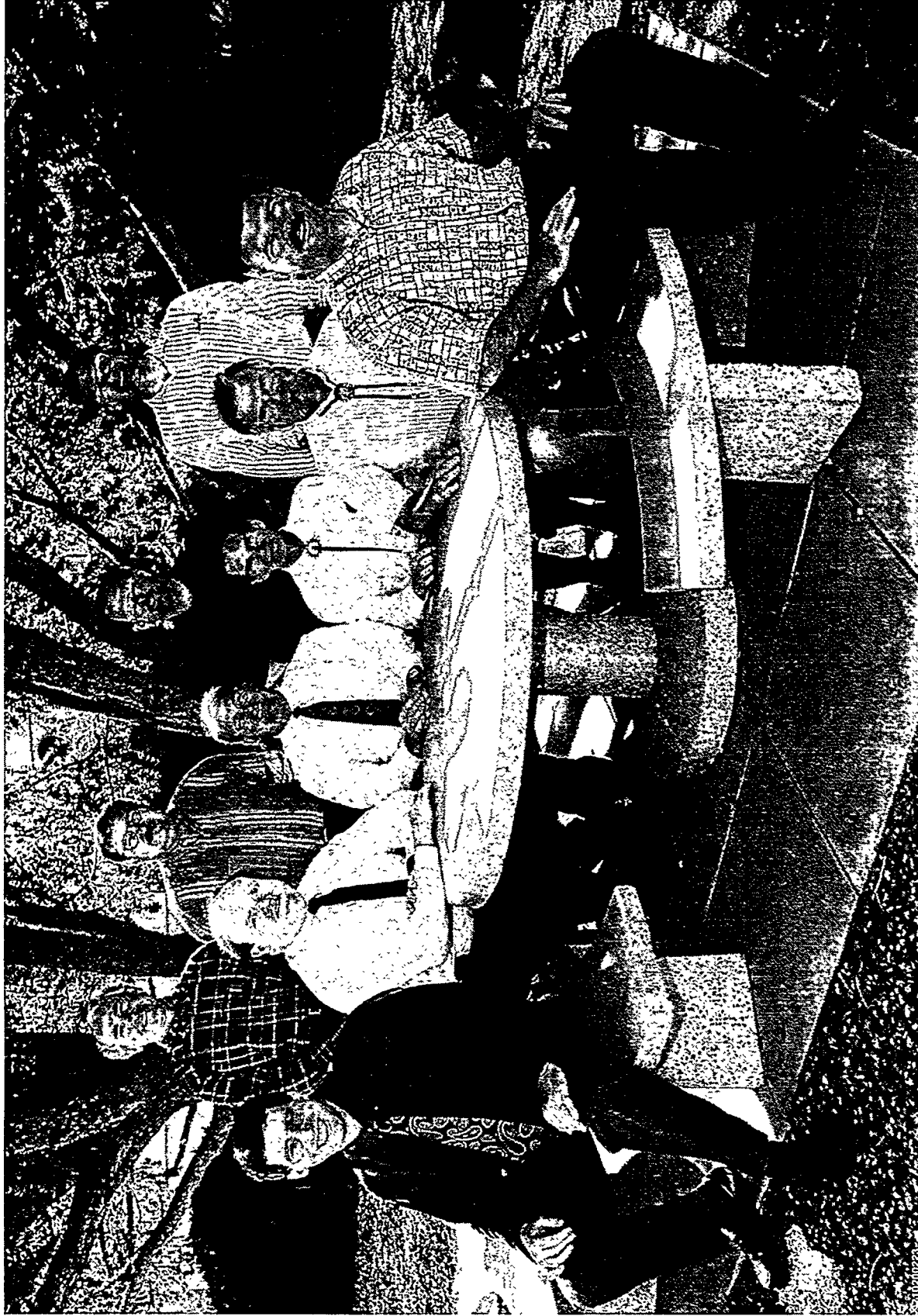
Figure 2. 1996 CSU Project Managers (back, left to right): J. C. Kelly, David Ortiz, Michael Schalip, Wayne Shirley; (front, left to right): Tom Klitsner, Rich Dougherty, Rick Harris (4423), Bill Chambers, Steve Lambert, and Scott Rogers.

To fully develop a self-directed Project Manager Work Team, the department manager asked each Project Manager to accommodate a special assignment, referred to as a focus area, that included key elements of importance across the entire enterprise. In this way, Project Managers would have daily interaction in fulfilling the responsibilities for their own CSUs, yet also have global responsibility for directing all CSUs. These focus areas included Application Deployment, Computer Security, Process Improvement, Pro National Security projects, and Server Consistency.

2.1.2 The Definition of CSU Service

Before the CSUs were created, George Connor, Rick Harris, J. C. Kelly, and Bill Swartz together drafted a vision of what CSUs could and should be. Through the next several years, this resulting Definition Document played an important role in keeping the CSUs directed toward the original goals and objectives. The authors of the Definition Document worked in a concentrated two-day session to develop the necessary level of detail. The purpose was to ensure agreement, once CSUs were established and functioning, on essentials of how the CSUs would operate, how they would be structured, what services they would provide, etc.

The resulting CSU Definition Document (version 1.0, 31 January 1995) refers to the principle that CSUs would "first provide a baseline service capability for all Sandia customers." This document also refers to CSUs' "extensive use of service agreements to ensure that quality of service is reached and maintained." Within two years of producing this document, however, it was apparent that a separate service level agreement (SLA) with each customer organization was administratively and technically too complex for the needed CSU consistency, unless the SLA incorporated a standard set of services by reference. Therefore, a uniform set of services was developed and included with other standard CSU policies on the CSU website. This method allows SLAs to refer to the standard services and explicitly address only the exceptions required by customers' mission needs or other special circumstances. CSU services thus remain flexible to meet specific customer needs. The tendency, however, will be toward the standard defined services, since exceptions rather than the services themselves have to be explicitly developed and negotiated. Review and approval of the large number of SLAs by the CSU department is also made much simpler, since the reviewer (typically the department manager) will be reviewing documents on the basis of a set of explicit variances from the norm, rather than explicit inclusion of each service.

CSU service definitions have also been streamlined by reducing three levels of service to two and prospectively to one. Originally, CSUs offered comprehensive support ($3200 per person per year), information access and licenses (IAL, $1200 per person per year), and "infrastructure" support (no charge). Comprehensive support is, for all practical purposes, the only level of support remaining at this time, since IAL includes software licenses with no assistance for installation or troubleshooting.

IAL was established to provide laboratory management access to Electronic Commerce applications and other customers with current versions of software, but not to provide installation, troubleshooting, etc. (unless the customer wished to pay a per-hour charge for such service). IAL has been made essentially obsolete by site licenses and electronic software distribution. Customers have not been charged for it since early 1996, when a corporate indirect contribution of $1200 was applied toward the charge for each CSU subscriber yearly.

"Infrastructure" service was an initial, free-to-the-customer service that implemented the corporate commitment for every employee to have a network connection, an e-mail account, and web access. The CSUs provided the first-time installation of these. Essentially all employees who have computers now have these services, so basic service has been discontinued as a CSU service category.

2.2 Staffing

The original plan for CSU growth was to populate the IIS with computer support staff who were currently supporting their own individual line organizations. Although line organizations conceptually accepted the idea of collecting staff into a unified and integrated computer environment across the enterprise, they were faced with a substantial staff shortage because of corporate hiring restrictions and could not afford to give up staff to the CSUs. The solution was to collect a majority of the CSU staff from contract staffing (see next paragraph) and to build a team whose members were wholly committed to laboratory-wide computer support. This staffing solution not only allowed line organizations to keep their computer support people, it also gave managers the freedom to redirect their current technical staff from computer support to engineering and science.

Although CSU subscription by line organizations was voluntary, the demand for CSUs grew rapidly throughout the entire enterprise, creating a need for quick staffing increases. We were forced to use every method available to populate the CSUs with qualified technicians, including recruiting Sandians

who were trained in IT, Sandians who required training, and contract personnel from as many as 10 companies around the Albuquerque area. In many cases, these contracting companies recruited people from outside New Mexico. CSU staff grew from 3 people to 209 in less than 2 years.

2.2.1 Contractor Staffing Has Been the Norm

Staffing in IEIT in 1992 was primarily accomplished through contracts between Sandia and local suppliers of highly qualified computer professionals. This pattern continued after IEIT transitioned into CSUs. The CSU staff who reported to the Project Managers included a few Sandians playing critical roles, but most positions were still filled by contract personnel. The use of contract personnel was motivated both by Sandia's FTE ceiling requirements and by the need to quickly bring additional expertise within Sandia. During the first two years of the CSUs' history, contract employee turnover was very small.

2.2.2 Importance of Communication with Contractor Firms

During the course of this staffing arrangement it was necessary for various elements of the CSU, especially the department manager, to meet with contractor companies and help them understand current and future staffing requirements. The written contract statements of work often would not readily convey the nuances of upcoming technology requirements, the contingencies and provisional plans, etc. Occasional meetings with contractor firms thus helped ensure that staffing needs could be met in a timely fashion. For example, when post office consolidation was on the immediate horizon, those needs were explained; in short order, staff was assembled to meet the business needs and timeline.

2.2.3 Essential Skills Came through Contractors

The availability of experts in networking, Novell, Windows NT, and UNIX was too limited inside Sandia to meet the needs of the IEIT program. This was even more true when CSUs were formed and began to expand. It was not considered possible to build the necessary expertise through hiring because of a limited head count and because highly skilled computer professionals were available through contract mechanisms. The majority of the CSU workforce was acquired through contract staffing.

10

Therefore the CSUs pursued contracts with companies such as ReSpec, TechSource, PC Support, Southwest Engineering, Alliance, and others and produced a staff of around 170 contractor personnel. This staff met technical desktop requirements and server requirements but also handled the help desk trouble ticket dispatching and entering data into Sandia's proprietary Network Information System (NWIS). This contract staff viewed the CSU jobs in a "higher good" manner even though we work very hard to define all of these jobs as different but important. They viewed the server management job as the most prestigious, most sought-after position. The number of server managers required became slightly less, due to the technologies that we were using, Windows NT, the size of the servers, and the collection and reduction of servers.

2.2.4 Staffing Issues with Respect to Server Management

The rapid growth of the CSUs was catalyzed by adopting many line organization LANs, complete with servers, mail systems, etc. This early consolidation of line organization LANs into the CSUs resulted in an abundance of servers. Many servers were underutilized because many LANs were built for a few people (20-80), whereas operationally sound servers that we put into the CSU were capable of serving multiple subnet LANs and hundreds of people. Consequently we were able to reduce the count of servers considerably, resulting in a reduced demand for server managers and an increase in staffing difficulties because many desktop support staff wanted to become server managers.

As we move closer to the third phase of CSUs—that is, network-centric computing—this fundamental shift toward higher skilled server managers and away from large numbers of able server managers continues to be a source of contention. Starting in June of 1997, we focused on managing servers throughout the organization from an enterprise server team who views the CSUs as its customers. The first phase will provide network disk space from an enterprise class system operating within a 7x24 support model and including state-of-the-art backup capability. The CSU will continue to make desktop configuration changes but the operating system, account generation, backup, and capacity panning will be handled by the network-centric server team. Subsequent phases will include application servers to provide the effectiveness and efficiency of a network-centric computing infrastructure for Sandia.

2.2.5 Help Desk Dispatchers and Operations Managers

Throughout FY96 the CSUs experienced enterprise-wide growth, moving from 4000 to 6000 customers, and the need for process development across the CSUs became more and more obvious.

11

In addition to developing processes that were common across all CSUs, a similar CSU staffing structure was developed, which included the concept of a help desk dispatcher who performed a basic triage of help desk recalls and dispatched the calls to CSU staff on duty. The real advantage was that these dispatchers were familiar with the various skills of the CSU staff and could direct the appropriate people toward individual problems. The dispatchers were also aware of whether someone was here or on vacation, so calls were not delayed until a person returned from vacation.

In addition to the Trouble Ticket Dispatchers (TTDs), Operations Managers were added in large CSUs. The Operations Manager reported to the CSU Project Manager. The Operations Manager essentially ran the day-to-day business of the CSU, helping to solve problems that staff encountered, ensuring that the right mix of people were dedicated to the right problems, tracking progress, and helping to meet corporate CIO and enterprise goals.

2.2.6 Performance Based Contracting

Over the first two years of CSU growth, many companies were used to supply contract staff under the direction of CSU Project Managers. As time went by, it became increasingly apparent that a preferred method would involve fewer companies supplying staff and would increase the responsibility and risk shared with these companies. We developed a collective idea that Performance Based Contracting for a subset of the CSUs would be a prudent approach for staff resources, from the operations lead down, in the given CSU. This way the desktop, server, mail, operations lead staff , and TTD would all be from the same company. Vacations, sickness, etc., would be handled internally by that company as well as prioritizing calls and adjusting staff to meet some of the Project Managers' goals.

2.3 Financial: Cost-Per-Unit Work

During the first three years of operation, CSUs increased their level of service and capabilities by adding a number of new services that customers required. Technicians must do more and more to deal with the increasingly complex technology elements that are produced by commercial suppliers—a phenomenon sometimes called "technology creep." In addition, customers' administrative needs grew, in areas such as computer security. It became apparent that we needed a way to measure cost-per-unit work, so that the actual value being delivered by CSUs could be tracked.

We maintained a $3200 cost model throughout these years by offsetting additional required functionality with cost savings on the previous set of services. With these changing work elements, the CSU costs were tracked and managed using a concept of cost-per-unit of work. For this analysis (details are in Appendix B), work elements were listed beginning in FY94 and continuing for succeeding years, including projected additions for future years. On the basis of Project Managers' judgment, effort-level categories of 1, 5, or 10 were assigned to each element. For instance, an item in category 1 would mean that it is one of the simpler and less time-consuming tasks. Something in category 5 is at least five times as time-consuming as an item in category 1. Similarly, an item is assigned a 10 if it is at least 10 times as time-consuming as a simple category 1 item.

The category numbers were chosen to represent units of work so that they could be summed for all work and then divided into the $3,200 standard price. This resulted in a cost-per-unit work of $32.50 for FY94. In FY95, four items were added to CSUs' required work. Calculated similarly, the cost-per-unit work was reduced from $32.50 to $22.70.

The value of this model of cost-per-unit work is in enabling CSU management to understand, measure, and manage the efficiencies that were increasingly realized as CSUs matured. Lacking such a tool, it is difficult to determine, on an analytical basis, whether efficiencies are being realized as the environment undergoes intentional technology creep and increasing customer requirement changes. This cost-per-unit work model was used by CSU management to size investment funds and to measure affect. Beginning in FY96, all technology development activities were funded by CSU operational funds and therefore the return on investment was directly linked. This same rational will be used to fund network-centric computing solutions aimed at reducing the frequency, inefficiency, and cost of desktop visits by the CSU.

2.4 Partner Relationships (CCHD, leasing, etc.)

The nature of the work that the CSU was accountable for involved a great deal of interdependency with LANs run by line customers with business practices that depended upon information technology and especially with organizations within the CIO such as Networking, Database, Central Site Sever Management, Help Desk, etc. Managing these interdependencies proved to be absolutely vital to the success of the CSUs and therefore several activities directed toward building relationships and sharing information were established.

2.4.1 CSU Senate

The CSU Senate was formed to provide a forum for customers to voice concerns and to hear CSU deployment plans, budget, progress, technical discussions, etc. The CSU Senate, chaired by the CSU department manager, became very popular for many CIO staff such as the people in networking, remote access, and central site computing, to engage with CSU Project Managers and the CSU Management team. These meetings were very important early on; however, they reached a point of diminishing return when weekly decisions and tactics began to do much to the meeting.

In November 1996 the Senate was disbanded and its functions were assumed by three different forums: The first was a weekly meeting between CSU Project Managers and the department manager. This allowed regular discussions of CSU issues in a small, focused group. The second was the monthly CSU/IIS Partners Roundtable. The Roundtable provided a forum for brief presentations of "news highlights" and issues; detailed discussions of these issues were pursued or settled in other venues rather than at the Round Table. The third forum was CSU customer brown bags, which had already been instituted in some CSUs and which were included as an objective in the CSU strategic planning process of December 1996–January 1997.

2.4.2 Corporate Application Deployment

One of the primary purposes of creating the IIS Organization was to build an infrastructure that would support corporate application deployment, that is, applications that the company deemed necessary for employees (and some on-site contractors) to perform their work effectively and efficiently. These corporate applications included such things as the electronic time card, electronic timecard review, electronic voucher, financial data available through the web, and other applications.

The process by which corporate applications were deployed included meeting with a designated person referred to as a "general contractor." As an example for the purpose of this report, the time card application serves suitably. Tom Ferguson, manager of Business Systems Development Department 4813, served as the general contractor for the time card and held weekly meetings of IIS and other organizations (such as Payroll) involved in the time card project. A CSU representative, the Project Manager whose special focus area was deployment, attended these meetings and was thus kept aware of the issues that arose in the development and correction of the time card application. The CSU representative reported to the other representatives on the status of CSUs' planning and progress in

deployment and support of this time card application. This meeting grew to be very useful for cross teaming and also kept team members energized and moving forward as quickly as possible.

2.4.3 Leasing Program

The brand, model, and configuration of desktop computers—more precisely, the great variety of these—has been an important factor in CSUs delivery of service. Heterogeneity or complexity makes it difficult to deliver reliable service and increases the cost of the service. Sandia has long had a very heterogeneous population of computers. Not only were there many brands (10 to 20 PC brands), there was also enormous variety in the configuration in terms of peripherals, memory, hard disk, CPU, etc. In some cases, computers had very small disks and depended on servers to serve applications in a very small local area network. In other areas, the opposite was true—computers had large hard disks. This situation caused considerable conflict and slowed our efforts toward network-centric solutions, as many customers felt they had the right to buy any kind of machine they wanted and configure it as they preferred, and that conversely it was the CSUs' responsibility to support that machine. This was true not only in PC/compatible brands, but in a variety of UNIX and MacIntosh machines.

The IIS approach to reducing total cost to the Laboratories in computer acquisition, use, support, and disposal was to inaugurate a leasing program, managed by George Connor in his Workgroup Computing Dept. 4421. This leasing program, implemented through Sandia's Just-In-Time procurement system in July 1996, allowed customers to obtain computers very quickly. Their lease price was less than 100% of the value of the machine and the lease period was three years. The total cost of ownership of the desktop computer was reduced through total cost of ownership, including predictable technology refresh, lower purchase costs, simplified equipment disposal, and the achievement of standard configurations. This lease period means that computers are rotated after three years, ensuring that machine capability will be relatively modern. The major advantages of this rotation cycle is that application developers will have a more predictable environment and that support staff will be more effective and efficient.

The lease program is not without obstacles. In some organizations older machines have been a way of life. In many cases, organizations have depended upon hand-me-down computers from other departments that required current computer systems. The organizations with the hand-me-down computers had to be shown that the apparent departmental savings that they enjoyed due to this older technology was lost to the corporation because of the increased support and configuration costs by the CSU and others. Over time, the goal is for essentially 100% of computers at Sandia to be leased (except

15

where there is a specific reason for purchasing) and to become recognized as part of the normal technology refresh cycle just as software upgrading is widely accepted.

2.4.4 Corporate Computing Help Desk

The partnership between the CSU and the Corporate Computing Help Desk (CCHD) proved to be an important interdependency, helping us scale solutions for the entire laboratory. When CSUs were first formed, they had individual help desk or hotline telephone numbers. This approach provided very quick and highly technical service for the customer, through rotation of CSU staff through the hotline position. However, we collectively realized that this CSU hotline approach was not scaleable and we began the transition to a single phone number CCHD model.

In FY96, the CSU and CCHD went though a number of iterations, all aimed at helping the CCHD add value for the customer, and tremendous accomplishments were realized. One improvement occurred when the CCHD choose to leverage technologies developed by catalog companies such as L.L. Bean, and began to implement automatic call distribution (ACD). This technology decreased the delays that customers had been encountering with CCHD.

Another improvement was in call prioritization, accomplished through the CSU's trouble ticket dispatcher (TTD). Customers had been accustomed to seeking out their desktop technicians within their building and interrupting their technicians' current tasks. Once located, these desktop technicians were required to enter the customer request information into the ARS Tracking System. All of these interruptions reduced the efficiency of the CSU technician. Establishing the TTD position eliminated this problem. Within the CSUs, the TTD performed triage on all trouble tickets, prioritizing them based on criticality and need. In one instance, a First Response Team was implemented within the CSU to ensure that even before prioritization a CSU person was on sight within 15 minutes of the call to gather information useful to the TTD.

By implementing the new automatic call distribution system and establishing the CSU ticket dispatcher to prioritize incoming calls, computer support became more usable, centrally managed, and consistent across all CSUs.

2.5 Communication and Marketing

Establishing the CSUs as an enterprise-wide service was charged with political controversy from the very beginning. The idea was to remove line organizations from the vertical computing infrastructure and provide a horizontally oriented, cross-organizational service that would optimize the entire enterprise. This issue was (and to some extent still is) politically divisive for some people who have a locally optimized solution or perhaps just the perception of a locally optimized solution. In addition, the staff who moved into the CSU organization experienced some discomfort, feeling they were moving from being a big fish in a little pond to a big fish in a gigantic pond. Many of these had become used to being the benevolent dictator of technology and implementation strategy for dozens or even hundreds of people. Making sure that they felt appreciated was not trivial. For all these reasons, internal and external communication was very critical to the success of the CSUs.

To quickly achieve a critical mass of CSU customers, subscribership was marketed initially through many personal contacts with potential customers at the department and center level. Much of this work was done by Herb Pitts, Rick Harris, Bill Swartz, and George Connor. Subscribership began to grow rapidly, too rapidly for conventional methods of operation to assimilate easily. The marketing and growth philosophy that followed was that described in *Inside the Tornado* (Geoffrey Moore), which deals with environments where change and growth are rapid and where opportunities must be swiftly seized. The balance between customer-compelled and market-focused principles required careful attention.

2.5.1 Three-Pronged Communication Strategy

The strategy that the CSUs adopted for communication was three pronged: First, they needed to do communications external to the IIS organization; that is, to the customers and to their line management within Sandia. Second, communication inside the IIS was needed. There was, at times, as much resistance to CSUs inside the IIS as there was outside the IIS. A major issue here was the methods the CSUs used to grow and to produce results, resulting in what might be perceived as excessive attention to CSUs at the expense of other IIS organizations. Third, effective communications within the CSUs were vital to the communication strategy.

2.5.2 Customer Communication

Communication to CSU customers was in several forms, which evolved during the first years of the CSUs. This communication followed a multiphase, multipronged approach. First, the CSU communicated information with all of its customers through brochures (Appendix C), describing CSU services and contacts. Next was communication of what the CSUs were doing and various CSU successes to the laboratory through inclusion in Dan Hartley's 4000 Division newsletter (Appendix D). Each newsletter included a CSU article that explained some of the successes occurring in the CSUs.

In addition, many CSUs invited customers to bring their lunches to brown bag sessions so that Project Managers could discuss what was happening in the CSU (for example, what corporate applications were coming) and have a question-and-answer session. Guest speakers might be invited, for example from the library and the expense voucher projects before that software was deployed. The brown bags very effectively reached many people. Pioneered in CSU 821 and later extended to other CSUs, was the use of local vendors and CSU staff at brown bags to provide training material and teach such things as how to make more effective use of Word or Excel, how to use cc:Mail or Microsoft Mail, etc.

Beginning in FY97, a special format was developed for a memo (called a Post-Up) that would be sent every month to six weeks from the department manager, Rick Harris, to all line management (department managers and above). Each salmon-colored, one-page memo included a brief description of some recent major success or new approach for the company, for example, the common operating environment, software site licenses, and extended-hours e-mail post-office support (Appendix E). We also designed these memos to be posted in hallways to give the same message to passers by. These memos proved to be a very successful way to communicate what we were doing and why, and how our efforts would make our company better.

Additional media for communicating with customers were *Weekly Bulletin* articles about specific CSU-related information and a major *Lab News* articles (September 1996 and June 1997) about the CSU concept and operations (Appendix F).

2.5.3 CSU/IIS Partner Communication

Among the important communication vehicles between the CSUs and their integrated information (IIS) partners were a Project Manager and CIO Roundtable discussion every six months; senate meetings, mentioned previously in connection with customers; and following the senate, the CSU/IIS Partners Roundtable.

As the senate evolved, it gradually included more IIS partners than customers. It also became more of an operational meeting and was phased into the weekly meeting between the Project Managers and the CSU Department Manager (described earlier).

The other function of the senate communicating with IIS partners was taken over by the monthly CSU/IIS Partners Roundtable. People throughout the IIS are invited to this monthly meeting to hear brief (five minutes or less) messages highlighting any news, issues, and concerns. These messages are presented but not discussed—partners have the opportunity to deal with the issues and information later, in other forums. The Roundtable also allows for one longer feature presentation, in which a topic is discussed in depth. This forum has been very well received, as was the concept of receiving brief information while holding debate and discussion for a later meeting.

A CSU and IIS partner communication vehicle that is more in the line of direct management is the Project Manager CIO Roundtable held every six weeks. At this meeting, the Project Managers, the CSU Department Manager, and the CSU director meet with Chief Information Officer to discuss issues, future directions, and matters of that sort.

Another communication elements was the CSU Review. It was written by Project Managers and submitted to Linda Baca, who sent it to managers in the IIS and to those who were interested in the details of what the CSU had accomplished recently. This information gave readers the opportunity to glean an overview of what was occurring in the CSU and what obstacles the CSU may be facing.

2.5.4 Intra-CSU Communication

The internal communication was the communication that was necessary between the department manager, the Project Managers, and staff. The greatest efforts in terms of internal communication were the CSU handbook and technology updates.

The *CSU Operations Distributed Computing Configuration Handbook*, designed by Charles Shirley, included installation procedures and configuration information for a variety of elements in the CSU suite. The handbook explained to technicians how to install Netscape, what drivers to add and where they could be found, etc. The handbook did not contain information that the technicians did not already know, but it did provide them with a central point of reference where they could go if any questions arose during installations. It also gave them points of contact within the CSUs, points of contact within the IIS, and some process diagrams that were important to the CSU.

The second material that was very important in terms of communication was the Technology Update and Tech Flash. Pete Warner and his Technology Development team (4423-1) were responsible for the technology updates, a biweekly training session for CSU staff. Between these tech updates, Tech Flashes were e-mailed to all CSU staff and Project Managers served to inform them of changes in technical approach, lessons learned, etc. It also informed CSU staff on progress made in many areas such as corporate application servers, bugs found in various software packages and how to deal with them, information on how to do installations, etc.

Section 3: Key Efforts and Initiatives

3.1 Technical and Service Initiatives

3.1.1 Post Office Consolidation

Hank Witek (Electronic-Mail Program Manager) set in place a process for centralizing the existing distributed LAN-based electronic mail system. The principles defined included:

- Reduction of cc:Mail & MS Mail post offices (software) to ten
- Reduction of e-mail distributed servers to ten
- Consolidation of all distributed SMTP gateways into a central SMTP gateway

When the CSUs began, approximately 120 LAN-type post offices serviced cc:mail, Microsoft mail, the Word Perfect Office, Banyan Vines mail, SMTP mail, and others. Initially, CSUs procured 10 identical Hewlett Packard Netserver Windows NT computers serving Microsoft Mail and cc:Mail post offices. CSU subscribers and nonsubscribers were migrated to these post offices, reducing the post office server count from nearly 140 to 10. A consequence of this activity was that the number of people managing servers and e-mail post offices was reduced by similar numbers because the post office function was consolidated within the CSUs, even for nonsubscribers. This effort by itself significantly reduced the complexity of the mail system and added the ability to manage the mail system in a timely matter. While many saw the benefit as stemming from reduced servers, the greatest benefit came from a smaller, more focused staff working e-mail issues. In fact, the software issues resulting from consolidating using LAN-based e-mail solutions introduced new problems that prior to consolidation did not exist.

Prior to consolidation, most of 140 e-mail post offices had individual SMTP gateways providing e-mail from the desktop to the Intranet and Internet. This configuration was extremely fast and efficient with virtually no delays whatever, even with relatively large file attachments. The consolidation to the 10 post offices included the creation of a central site e-mail hub, which moved messages between different systems and converted all PC files for the Internet. The mail hub and associated central gateways had a variety of startup difficulties and support issues, occasionally causing delays. One great challenge of the central e-mail team stemmed from the decision to centralize a LAN-based e-mail solution. Fundamental scalability problems were encountered primarily because the e-mail solutions were being utilized in a

manner for which they were not designed. Predictions by CSU staff and many LAN managers had been ignored as "self interested obstacles to progress and efficiency." If only we had analyzed this problem a bit better we would not have blamed technology for the massive e-mail clogging problems we were about to experience.

This consolidation effort was led by Tom Klitsner and was composed of all of the CSUs postmasters, as well as the central site e-mail team. This team set standards and provided support, especially during this migration and consolidation but also on an ongoing basis in terms of necessary utilities, development of business practices, back-up processes, etc. This team now is a very important part in the migration to out-of-hours (7x24) electronic mail support operation, which began April 7, 1997.

3.1.2 Electronic Software Distribution

The CSUs were asked to take ownership for automated software distribution in October 1996. At that time, they were deploying EDM and having massive widespread problems in the implementation of EDM on PC and Macintosh platforms. The deciding factor in the procurement of EDM was its enterprise capability across multiple platforms. As it turned out, the product had substantial problems within the PC architecture, was never capable or stable within the Macintosh platform, and was not deployed to UNIX. Our first major success with EDM was the staged deployment of the electronic expense report corporate application. Using only EDM, the CSUs deployed approximately 300 nodes of the expense report to frequent travelers. This success tempered a growing view that the value-added of EDM was restricted to the authentication of our corporate timecard application.

Under the leadership of Pete Warner and his Technology Development team, the CSU organization performed an assessment of electronic software distribution needs and EDM capabilities. It found that EDM was providing capabilities that were needed by the CSUs; however, there was a large gap between the requirements and capabilities. As a result, an electronic software distribution augmentation element was formed to obtain the necessary capabilities. In December 1996, the product selected to fill this inventory collection gap was Microsoft SMS (Systems Management Server). This was a pragmatic 80% solution that represented a departure from our insistence on multiple platform solutions.

22

3.1.3 Common Operating Environment

The notion of a Common Operating Environment (COE) has been present at Sandia for many years, but widespread implementation has been elusive. In the early days of IMDI, the IEIT project referred to plateaus of software, types, and versions with an emphasis on ensuring that the technical solutions enabling concurrent engineering were stable for a managed period. Because concurrent engineering requires the sharing of data, success requires file compatibility. File compatibility, in turn, requires version control. When one person is using Microsoft Word Version 7 and another person is using an earlier Microsoft Word Version that cannot read Version 7 files, the resulting file compatibility causes an editing nightmare. The COE is a clear solution to that problem: The enterprise will be upgraded to the enterprise COE on a two-times-per-year (January and July) cycle. This was first done in January 1997 and included major items such as advancing from Windows NT 3.51 to Windows NT 4.0. Software considered for a COE upgrade must be released commercially at least one month prior to the COE release date and must go through a productionization exercise within the CSU technology development team. This productionization phase ensures that the applications integrate with other elements of the COE, which is critical to enterprise effectiveness and CSU support.

3.1.4 Technology Development

In the early stages of the IEIT project, the desktop and COE technology development was handled by the same staff that produced the infrastructure and delivered the services. Essentially the technology development involved integrating various commercial elements and commercial products. As time went by, the integration became more and more complex—not only the integration between PC, Mac, and UNIX, but also integration issues (such as SMTP Gateways, file attachment issues, and various types in capsulation) between different mail systems and even the integration of a common mail system. As the CSUs grew, it became necessary to extract the technology development portion from each individual CSU to avoid duplication in terms of technology assessment and development, and to maintain efficiencies and require business efficiencies.

In February 1996, we formed the technology development team. This teams charter was to take customer requirements that came in through the CSU Project Managers and develop solutions to meet these customer needs. In parallel with this, the technology development team is constantly assessing technology so as to have a tool set that would be available for meeting customer needs as they come in,

with a focus on improving operational capacity and quality. This team handled UNIX, PC, and Macintosh and was charged with developing a common operating environment. In addition, this team developed the electronic software distribution mechanism, software packages integration, etc., which included both EDM and SMS product computing into a sequel data base and both feeding into the NWIS. The down side of having a technology development team extracted from the CSU is that the computing professionals began to be less a part of technology selection and a little more distanced from the technical reasons for various decision making. To deal with this issue and to fully leverage the capabilities that exist within the CSU, we included service providers who have first-hand experience with every possible complication, on technology-development and process-development teams. Their inclusion on technology development teams such as the Microsoft Exchange Pilot, among others helped foster a spirit of camaraderie between the operations staff and the technology development staff but it also met a real need. The technology development team needed the ability to have a contingency staffing depending on the work load, the number of items on their project plan at a given time.

3.1.5 Common Processes

In managing the CSUs, especially as they became enterprise-wide and large in number, realization and attention was placed on process definition and adherence. These processes proved to be vital to ensure consistency of operation across the CSUs. Our rationale for standardization is to reduce technical complexity and cost, although we recognized very early that "not fully standard" did not mean "substandard." Even though most of the operations were standard, there were some elements that were nonstandard by design. This was managed by the CSU program managers in their quest to maintain enterprise focus and also understand and accommodate local needs.

The process development occurred in many ways. In the early stages, the CSUs developed processes somewhat on their own, which were shared with other CSUs. The best practices that met the test of time were then used across all CSUs. In 1997, we formally defined the ten processes needing process improvement and a team led by Wayne Shirley addressed these processes. Processes that were addressed in 1996 included Network Information System Process development and Out of Hours Support development, both included in Appendix G. Process development is an ongoing activity that is necessary in the operation of a service organization like the Computer Support Units. It is recognized so. These process maps once defined were signed off by all CSU Project Managers and the CSU Department

Manager, then placed in the CSU Handbook for all staff members to reference, and all processes were taught to the CSUs through their Project Manager.

3.1.6 Server Strategy

Since the time of its instantiation, the CSUs embarked on a server strategy of migrating from Novell file and print servers to Windows NT oriented file and print services, NT application servers, and NT at the desktop. This strategy was based on technical preference and on moving towards a more simplistic environment: simplistic where the server and the client were of the same operating system, simplistic where the server and the desktop utility tools were integrated more completely, simplistic where we went from two network operating systems to one. This process was successful, yet riddled with political controversy, especially on the part of those who believed that Novell was a better choice for the server operating system, focusing only on its superior directory services. In addition, the migration to NT allowed us to migrate from IPX, SPX to more of a TCP/IP-only network environment, which allowed for simplicity in router configurations and troubleshooting.

3.2 Strategic Planning

A strategic planning process for CSUs began in October 1996 and continued into 1997. A strategic plan has been created and is presented as Appendix H. This process essentially took a bottom-up view of CSU activities and needs to develop from hundreds of issues, questions, and ideas into a set of overall goals and more detailed objectives and metrics that could be used as a way of planning future CSU directions. These specific objectives are not included in the Appendix; however the basic plan with overall goals is there. This bottom-up approach reflected the situation of the CSU where operational requirements were coming in day by day, where it was uncertain at times what a CSU actually should be doing for its customers, where customers might demand one kind of service or one kind of support as necessary to their operation and where the CSU had difficulty determining how well this requirement fit into the overall CSU model and CSU direction (in other words, it was a question of how local support fit into the enterprise view).

The strategic planning process was essentially completed a few months before this reports was created. Many of the objectives were put into place such as the extended brown bag sessions to the CSU

and the Project Manager focus areas. To reach its full potential, the strategic plan should be reviewed in conjunction with operational planning and with Project Managers and the department's project plans to check the coverage to see what gaps there are and to adjust as necessary both the operational plans and the strategic plan.

Section 4: Assessment

4.1 Measures of Success: An Interim Assessment (examples/cases, statistics)

4.1.1 Customer Satisfaction

The attitude of CSU customers toward their CSU service can be gauged from two major survey efforts that have occurred: One has been an ongoing point of service type survey where customers are requested each time they receive service to fill out a four item questionnaire on the web page. This questionnaire asks how satisfied they were with the timeliness of the response, the results, the cost, customer service, how well the CSUs are communicating, and how the CSUs met the customer's desktop needs and implemented corporate computer policies. On this survey, the CSU service receives consistently high marks. On a scale of one to five it averages well over 4.5 from week to week and month to month.

The other indication of customer satisfaction is a comprehensive survey done in February of 1997 in which approximately 660 comprehensive CSU customers were requested to go to a web site to fill out a survey and to submit it to be tabulated (Appendix I). Approximately 200 did so, for about a 30% response rate which is considered statistically significant. The major items discovered in this survey were that customers are generally satisfied at what might be called about a two-thirds to three-quarters range. That is, about two-thirds to three-quarters, on average, of the responses to individual items were in the satisfactory range. Two of the important exception areas were CSU communications and the way CSUs plan, communicate, and carry out deployments. These areas have been addressed by communications programs such as the CSU post up (the memos to all managers, which had been begun before the survey but have been targeted in a more precise way since then) and by the CSU brown bags, which give customers the opportunity to hear from the Project Managers' deployment plans and other things. In addition, the deployment web page has been updated and filled out.

Another important finding from the survey is that most customers found that the CSUs were best at providing the services that the customers also thought were most important. The general satisfaction level is probably typical of a service group like this, according to Gartner Group analyst Diane Tunnick. This does not translate into loyal customers because research shows that customers can be considered

loyal if they have satisfaction rates of closer to 85 or 90 percent rather than the two-thirds rate that we saw. There is a strategic CSU issue here that has not been directly addressed: how CSUs will increase their customer satisfaction while at the same time dealing with the pressure to lower their costs.

4.1.2 Case Study: Reducing a Department's Computer Population

Many line organizations, previously managing the deployment of information technology for their own staff, have subscribed to CSU services and redirect their staff to the mission of their organization. An example is Larry Dalton's High Integrity Software Systems Engineering Department, Org. 2615. In this case, Ray Berg, who previously had been the Information Technology leader, and his team were spending approximately $150K a year to service UNIX and PC workstations on the staff's desktop. After subscribing to the CSU, the CSU utilized its UNIX staff to come up with a cost-effective solution to reduce the number of desktop computers for each person from two to one. In this scenario, the cost to the end customer Larry Dalton was reduced by 50%, due to CSU efficiencies and effectiveness.

The CSU solutions that were used in this case were also being used in many other places, and we were able to leverage not only software but hardware and, most importantly, expertise through those efficiencies. We are able to provide a superior environment for approximately half the cost. This resulted in a substantial reduction in direct costs. However, when funded through the CSU Service Center, the net effect was to reduce direct costs by $150K but increase the indirect cost by $75K. This illustrates that looking at only indirect costs does not give a true measure of the value of CSU or similar services.

The solution provided all customers with NT functionality, including Microsoft Office and UNIX functionality for their specialized engineering application. In this example, the CSUs choose UNIX as the preferred platform at the desktop, mainly because their primary applications functioned only on UNIX. As time has gone by, these UNIX only applications have become more rare. In fact, most engineering applications are migrating to Windows NT.

Another example of effectiveness was the 891 PC net previously managed by Paul Plunkett. Prior to 1994, Paul Plunkett had managed the network for two years and had tremendous turnover in LAN managers. The last LAN manager prior to CSU subscription, Art Minsor, approached the CSUs and subscribed his entire PC network LAN to CSU services. We initially contacted all customers, especially

28

the administrative assistants who were funding this activity, and proposed a solution that would be much more comprehensive. In fact, we expanded from one LAN manager to three.

Previously there was a 200:1 ratio of customers to LAN managers. People were simply not getting the service they needed. The time between calls for service and delivery of service was many days and any help that was needed that went beyond simple connectivity to the network was not possible.

This previous scenario caused both the customer and the support person to be very frustrated. The frustration was so great that the turnover in the 891 PC LAN was about three people in the year previous to CSU subscription. Since the CSUs started running the 891 PC LAN, we have had two years with zero turnover until one person left to make a career change. We have also migrated this LAN from a single local server that was a common fault point to the CSU server system, which is always backed up, is not a single point of failure, is maintained by system administrators, and makes available an integrated help desk that makes service calls. The 891 LAN costs increased from 200K of direct funds to 500K of indirect funds. The total real cost to those customers was reduced, due to their reduction of staff time.

4.2 Lessons Learned

This section records several lessons learned during the CSUs' first three years. The intention is to capture key ideas and experiences that were not anticipated at the outset.

- A computer-related capability (for example, e-mail) can go rapidly in customers' minds from "why bother?" to "must have."

- Because CSUs operate in a dynamic, unpredictable business and technical environment, the CSU operation itself must be uniform, consistent, and predictable, while remaining agile. This can be achieved by applying the concepts of mass customization: that is, applying tailored solutions in a production manner.

- Technology advances faster than the cycle time for incorporating it reliably and consistently into the Sandia environment.

- New technical tools for customers increase their capabilities, but customers require a substantial investment in training, communication, and multiorganizational planning.

- Customers see computers as theirs rather than the Laboratories'.

- Customers' time-scarcity increases the demand for and acceptance of efficient, targeted help and training.

- Consistent CSU processes must incorporate the necessary flexibility for local implementation—for example, details of execution can vary between CSUs, even though the process is the same.

- It is important for both CSUs and customers to understand the scope of standard CSU services; otherwise, the CSU is vulnerable to argumentative customers who feel under-served if they do not receive what the CSU considers nonstandard, non-cost-effective service.

- An active partnership between CSUs and other IIS organizations is critical to the success of both.

Appendix A

Integrated Information Services Division Customer Service Unit (CSU) Definition Document

Version 1.1
June 1, 1995

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(**Note:** The page numbers in Appendix A are the original page
numbers that appeared in this CSU Definition Document.
They correspond with the page numbers in Appendix A's Table
of Contents.)

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TABLE OF CONTENTS

1. Executive Summary

This document describes the corporate Customer Service Unit (CSU) approach to desktop delivery of information technology utility service and support at Sandia National Laboratories. At the level of individual customers, information technology involves things such as: e-mail based on a connection to a Local Area Network (LAN), network access to corporate applications and Internet, and LAN management. The corporate emphasis brings in the notion of baseline services in such areas as: corporate supported productivity tools, common desktop configurations, network services in support of line organization needs, and access to corporate business data.

As with telephones, water, cable, etc., use of the terminology here of "utility" service and support indicates an intention to fulfill customer expectations such as:

1. The service and the support are available to all Sandia customers and can be taken for granted to be competent and reliable.
2. The baseline services will be available on an everyday basis.
3. Sign-on and subsequent receipt of the service is routine and is accomplished via standard operating procedures.
4. Costs are geared to a baseline service (see Appendix B for baseline services and Appendix C for a cost breakdown), with provision for added consumption-based costs.

A guiding principle for determining service and support priorities is to first provide a baseline service capability for all Sandia customers.

A CSU team is an alliance of mutually interdependent people and organizations. A CSU team is led by a CSU Project Manager from Information Services Center, 13400, and includes LAN server managers from various line organizations and network communication and hardware specialists. Each CSU will support a geographically localized set of buildings determined by the locations of Tech Control Centers.

Each CSU will provide a baseline level of utility service to all customers. In addition, CSUs will accommodate unique needs of organizations within the CSUs. The Laboratory strategy will be to match services above and beyond baseline utility services with customer requirements and resources.

Sandia's corporate experience has led to the formation of the CSU approach. Service and support of the PC and workstation classes of desktop machines needs to be distributed and kept close to individual customers. However, from a site-wide perspective, past methods by line organizations of implementing LANs on their own have resulted in the following:

1. Resources of line organizations have been taken from their mission-related work and absorbed in the complexities of desktop support, LAN management, and interconnectivity (both inside of and outside of the Laboratories). This has led to enormous hidden costs.
2. Wide variation among Sandians in their computing quality of life.
3. No organized means to address the increasing needs of users to share information, which have resulted in increased interdependency among users.
4. Lack of a sufficient corporate emphasis and standard ways of doing things.
5. Ineffectiveness in interconnecting disparate departmental LANs and achieving reliable enterprise-wide connectivity for the good of the Laboratories.

The CSU support paradigm was developed to improve this situation. It provides for front line support in individual customer offices, and will foster proactive LAN management and enterprise-wide connectivity. In addition, the CSU approach will provide the conduit between front line desktop and server support staff and central network and applications support personnel. It will ensure competent providers, delighted customers, and cost-effective scalability for the Laboratories.

2. Introduction

This document describes the corporate Customer Service Unit (CSU) approach to desktop delivery of information technology utility service and support at Sandia National Laboratories. Information technology utility service and support is one of the responsibilities of the Integrated Information Services Division, 13000. Delivery of information technology utility service and support to individual customers involves areas such as: e-mail based on a connection to a Local Area Network (LAN), access to corporate applications and Internet, and LAN management.

A guiding principle for determining service and support priorities is to first provide a baseline service capability for all Sandia customers. This baseline will run on the corporate Internal Restricted Network (IRN). Customer-specific services and support will follow this. Thus, secure networks, the corporate Internal Secure Network (ISN), and open computing networks such as the External Open Network (EON) will become part of the services provided by the CSU approach, but will be secondary functions in the short term. It is recognized that secure information services are inherently important at Sandia.

The CSU approach is a team approach. A CSU team is an alliance of mutually interdependent people and organizations. A CSU team is led by a CSU Project Manager from Information Services Center, 13400, and includes LAN server managers from various line organizations and network communication and hardware specialists. Each CSU will support a geographically localized set of buildings determined by the locations of Tech Control Centers (TCCs). There is one TCC per CSU, so that all LANs within a CSU access a corporate network through the same TCC. The building location of the TCC defines the name of the CSU. As an example, the 891 CSU includes LANs in all buildings accessing the corporate network via the TCC in Building 891. This includes 891, 892, 893, 894, 862-865, 868, 639-643, 672, and 15 T and M facilities. A CSU serving 1000 customers would be considered a large but not a prohibitively large CSU.

CSU teams along with a representative from the application organization will meet regularly to maintain a match between customer requirements and services provided, and also to strive for continuous improvement in LAN services for the application organization. The CSU Project Managers and a delegate from each CSU will meet monthly as the CSU Senate. The Senate will discuss and act on issues of common concern, and will be a prime customer feedback mechanism to the Integrated Information Services Division. CSU Senate areas of emphasis will include:

> Planning & Metrics
>
> Technology Deployment
>
> Help Desk Requirements & Strategy
>
> Postmaster Team
>
> Technology Integration & Exchange
>
> Other Areas Of Global Concern

The CSU concept encourages LAN managers to work as a team regardless of their organization. Each CSU, and in fact each LAN within a CSU, may be unique at the outset. However, over time, all LANs within a CSU and throughout the corporation will provide at least a basic level of "utility" service. The Laboratory strategy will be to match services above and beyond baseline utility services with customer requirements and resources. This responsible and responsive information technology service represents a major role in the process of continuous improvement and competitiveness of the Laboratories.

There are many risks associated with asking organization LAN managers to work toward corporate objectives. Historically, LANs have been exceedingly autonomous. These risk factors will be mitigated by taking time consistently to meet with LAN managers and being sensitive to their issues.

3. Background

Sandia, along with other organizations, is witnessing a radical change in computing philosophy, from centralized mainframe class machines to workstation and PC class desktop machines. As a result of this change, service and support at the level of the individual user or the individual line organization has become more complex. Whereas, in the past, centrally supported applications ran essentially the same on all terminals, there are now problems resulting from a large number of combinations possible at each desktop. In this environment, customer service delivered from a central location has proven to be sluggish, dated, and generally unable to solve the unique, detailed problems which, unfortunately, have become mainstream.

At the same time, and occasionally because of these types of problems, individual users and individual line organizations have made time and dollar investments on their own to implement and use information technology. From a site-wide perspective, the main results of this trend have been:

1. Resources of line organizations have been taken from their mission-related work and absorbed in the complexities of desktop support, LAN management, and interconnectivity (both inside of and outside of the Laboratories). This has led to enormous hidden costs associated with individuals throughout the Laboratories solving their information technology problems themselves. On top of this, the complexities are increasing at a rapid rate.

2. Wide variation among Sandians in their computing quality of life.

3. No organized means to address the increasing needs of users to share information, which brings with it the need for increased interdependency.

4. Lack of a sufficient corporate emphasis and standard ways of doing things.

5. Ineffectiveness in interconnecting disparate departmental LANs and achieving reliable enterprise-wide connectivity for the good of the Laboratories.

The CSU support paradigm was developed to help improve this situation. It represents a practical, middle ground between the centralized computing building approach and the completely individualistic approach. We refer to the new CSU paradigm as local customer support with a corporate emphasis.

The CSU approach pushes the support for LANs, network printers, etc. out closer to the customer. It provides for front line support in individual customer offices, and will foster proactive LAN management and customer interaction. At the same time, it provides a means and a site-wide perspective for organizing the support providers for meeting and addressing areas of mutual concern (e.g., network design, support bottlenecks, standardized software, etc.), and for reducing the number of implementation strategies, and leveraging resources.

In short, the CSU approach ensures competent providers, delighted customers, and cost-effective scalability for the Laboratories.

4. Benefits Of A CSU

CSUs will benefit Sandia at multiple levels. They will benefit individual line organizations and individual customers through better support, and at the same time releasing them from the burdens of desktop support and LAN management. This will allow employees to go back to doing science and engineering

jobs. CSUs will benefit the Laboratories by reducing the number of implementation strategies being pursued, and by leveraging resources.

Examples of specific benefits are:

1. Increased customer effectiveness through reliable, production worthy LANs

2. Improved connectivity between LANs and to the corporate backbone network

3. More timely, organized local customer service

4. Building network design tailored to customers

5. Reduction in computing support costs resulting from increased uniformity in desktop configurations (hardware and software)

6. Continuous improvement based on systematic use of quality metrics

7. Consistency of hardware and utility applications

8. Personnel replacements for individual LAN managers during vacation and sickness periods

5. Objectives Of A CSU

The CSU objectives include:

1. Provide a single point of contact to customers for setup and service of desktop productivity tools and for access to corporate applications

2. Promote communication and generate alliances among organization LAN administration personnel within a building or geographic region

3. Identify opportunities for consolidation and/or co-location of resources (e.g., migration of LAN servers to a location where multiple servers can be administered by a minimal number of people)

4. Migrate toward common utility configurations for desktops.

5. Broaden support for standardized applications: For example, the current focus is:

   - Microsoft Office (word processing, spreadsheets, presentations, project management)

   - Spyglass and Netscape (Mosaic HTML browsers for access to corporate applications and to Internet)

   - cc:Mail, MS Mail, SMTP

6. Electronic distribution of a variety of software and changes to the desktop.

The immediate technical objectives are:

1. A router-to-desktop network connection for everyone, supported locally 7:30AM to 5PM weekdays, with 24 hours a day, 7 days a week centralized support for the IRN backbone

2. Definition of a base configuration to support migration toward a set of common desktop environments

3. Desktop management for customers for network and standardized applications

4. A suite of corporate e-mail servers located in TCCs and connected via the central e-mail hub. Organizational e-mail servers will migrate into this suite of corporate CSU e-mail servers.

5. Access to corporate applications from the desktop, including

   - Mosaic with both IRN and (proxy) EON connectivity

   - Client piece of corporate applications

   - Distribution of applications from a CSU server to desktops

6. Help desk support and call dispatch (also available via e-mail)

7. Operation and maintenance of CSU servers which have been provided by Organization 13000

8. LAN support of some Department-specific computing needs

9. Maintenance of LAN security plans (Security plans for stand-alone PCs will be negotiated with CSU Project Managers.)

10. Disaster recovery plans including data file disaster

11. Increased reliability and availability of performance monitoring and proactive trouble shooting

12. Facilitation of customer access to applications on other LANs

13. Information requirements gathering from customers

Long term objectives include:

1. Consolidated Security Plans (per building/CSU basis)

2. LAN support of some Department-specific computing needs

3. Full support services for all information service environments (IRN, ISN, EON)

6. Service Model

6.1 Technical Responsibilities Of CSUs

Each CSU will have unique support services based on its customers. Each CSU will, however, provide baseline utility service first. Additional services, with cost based on consumption, will be available second. The baseline services are detailed in this section.

Although Network Communication Specialists from 13914 are included in CSU teams, throughout the following discussion it is assumed that the physical network plant such as computer wires, fibers, distribution cabinets, hubs and routers are already installed, operational and maintained.

6.1.1 Baseline Services

The following list is intended to be definitive and exhaustive.

1. Computer Network. The primary responsibility for monitoring the corporate backbone will reside in 13900, the Center for computing and communication systems. Individual CSUs will be provided the tools to monitor their own local networks.

- Keep the router-to-desktop network operational. Hours of operation - 7:30AM to 5:00 PM Monday - Friday (minimum) (can be expanded if customers require, can pay for, and service agreements with suppliers can be negotiated)

- Respond to customer problems. Response time goals: return customer's initial call within one hour and begin to resolve problem. Resolve any customer problem within a few hours, maximum 24 hours, or else make special arrangements for resolution with individual customers. Maintain spare servers and enough spare PC and MAC desktop machines to support rapid installation at customer work locations for temporary use when lengthy repairs or upgrades are required

- Maintain subnet details within each CSU and provide input to corporate personnel via a single point of contact

- Administer TCP/IP address and Domain Name Servers as appropriate

- Administer consistent e-mail addresses

- Procure and install all network hardware and software listed below on client computers

  - TCP/IP Stack

  - Network interface cards

  - Network interface software

  - Printer Drivers

  - Virus scans

  - Screen Locks where sensitive data is involved

- Handle procurement logistics, installation, and maintenance for current versions of MS Office on PCs and MACs

- Provide timely software distribution from CSU servers to desktops of Sandia utility software and negotiated commercial software.

- Maintain sufficient hardware location information to effectively manage and operate any customer LAN

- Monitor application usage

- Provide customer support for the client piece of corporate applications

- Procure and install preferred software upgrades for PCs, MACs, and UNIX

- Procure and install electronic mail software on client computers

- Troubleshoot compatibility problems between corporate baseline utility applications and customer-supplied software

- Maintain network security plans and perform compliance audits in fully staffed CSUs (Computer Security Representative functions will be brought into CSUs at a later date)

- Provide or help customers arrange for training in the use of network software, e-mail, etc. Orientation and/or introductory training will be provided by the CSUs. More involved training will be arranged by the CSU but will be an additional charge to the customer.

- Provide desktop access to computer services on other LANs

- Perform network monitoring for reliability, performance, and maintainability of LAN servers and applications (this does not include repairs to the physical network)

- Provide server Management

  - network operating system (NT, Novell, and Unix - DNS) (**QUESTION!!!!** Does this mean Unix or not?)

  - daily backup of server & server-based user data

  - **account administration**

2. Desktop hardware

   - define standard baseline configuration options

   - coordinate warranty and post-warranty repair

3. Coordinate shared resources (eg., Web, e-mail, and application servers)

4. Help Desk services. The Corporate Computing Help Desk will be established as a single point of contact for all customers for problems, with the idea of successfully dealing with many problems on the initial call. The remainder of incoming calls will be referred to the appropriate CSU personnel (e-mail postmaster, LAN manager, desktop support personnel, etc.) or other corporate support organization. Customers will still be able to contact individual members of CSUs directly for help if that is their preference, and CSUs will respond in these cases. Help Desk activities include:

   - Providing immediate answers to commonly asked questions about applications and bootup issues

   - Getting help for problems unable to be answered

   - E-mail support (providing customers the capability to e-mail their problems to the Help Desk in lieu of calling)

   - Maintaining a history of problems and solutions by customer and type of problem in a central database

   - Publishing metrics that meet customer and CIO requirements

   - Dispatching calls from the Help Desk to service providers, such as CSUs, for resolution.

   - Providing for sharing of problem solutions among CSUs

6.1.2 Additional Services

Additional services include, but are not limited to, the items listed below. In each case, funding for CSU labor charges, equipment, software, etc., will be paid for by the customer.

1. Procurement of desktop hardware

2. Procurement of software

3. Procurement (capital equipment) and installation of specialized network printers such as

   - Highspeed 81/2 x 11 duplex

- Color viewgraph
- 11" x 17"

4. Installation, maintenance of, and training for, Department-specific computing requirements

6.1.3 Customer Service Agreements

The CSUs will make extensive use of Customer Service agreements, surveys, and metrics to ensure that quality of service is reached and maintained. Appendix A contains a sample Customer Service Agreement. It will be customized by each CSU as required to meet customer requirements in a CSU or in a specific building or location. Efforts will be made to keep service as uniform as possible across the Labs, but it is not a requirement that all service agreements be identical.

CSUs will also negotiate service agreements with primary suppliers in Division 13000. It is anticipated that there will be one service agreement with the Help Desk function and one other with the Center for Computing & Communications Systems dealing with network support and production support. Other supplier service agreements will be identified as the needs arise.

6.2 Cost Model

A cost model is being developed for FY96 for baseline services. This cost model includes a utility fee which will cover the cost of baseline services. Additional services will be funded by Service Center charges between the customer and the service providers. A copy of the Cost Model is included as Appendix C.

6.3 Contact With Customers

A CSU, including its desktop support people, is responsible for all customer contacts, and will maintain knowledge of its customers' concerns. This knowledge will be achieved through structured requirements gathering sessions such as Quality Function Deployment to ensure that the entire scope of customer needs is met.

In addition, less structured activities used to ensure customer contact are:

1. regular routine customer visits

2. problem resolution (telephone and personal visits)

3. hardware and software acquisition assistance

4. coordination of training with corporate training and Dept 13412 as appropriate

5. proactive education

6. formation of user groups

7. best practices, products information

8. special occasions

9. maintenance of network connection during change in employment status (hire/termination/promotion/transfer)

10. keeping current with infrastructure/network changes

6.4 CSU Staff (Future View)

The composition of a typical CSU could possibly evolve as follows:

Role	Responsibility	Rate/Customers
Department Manager	Management accountability and responsibility	1 per 1000
Secretary	Administrative support	.5 per 1000
CSU Project Manager	Operational responsibility for CSU, overall leadership and coordination.	1 per CSU
LAN Project Lead	Lead a team of server managers, network managers, mail specialists, and customer service representatives. Play player/coach role contributing in all areas.	1 per 1000
Business Leader	Organize and track costs of LANs, metrics of LANs. Lead procurement activities including capital equipment. Run contractors' contracts.	1 per 1000
Desktop Service Representatives (DSRs)	Solve desktop issues including e-mail, client, memory management, application conflict, computer security. Must be able to re-configure printer and print services, change/add user accounts including rights and groups. Add accounts on servers.	1 per 100
Server Managers	manage and administrate Windows NT, Novell or UNIX Servers.	2 per 1000
Network Communications Specialists	Manage hardware hubs, concentrators, wiring to the desktop. Solve traffic problems and subnet issues. Must be responsive to CSR network difficulties. Security Plan.	2 per 1000
Mail Post Master	Manage LAN-based e-mail including post offices and connectivity to corporate e-mail hub.	1 per 1000
Help Desk	Answer calls, log problems, and monitor network.	1 per 1000

According to this projection, a CSU of 1000 customers would require 20.5 FTEs, which is essentially one FTE for every 50 customers. Future technology such as advanced server technology, network monitoring, and automated software distribution will allow this ratio to approach 1 FTE for every 100 customers.

6.5 Education and Training Goals For CSU Team Members

Role	Education and Training Goals
CSU Project Manager	Sandia PE704 LTREE 290 (Effective Skills for Technical Managers) Sandia PE712 Quantitative Project Planning Techniques
LAN Project Lead	Sandia PE704, LTREE 290 (Effective Skills for Technical Managers)
Business Leader	Sandia PE704

Customer Service Representatives (CSR)	PC, MAC, and Unix courses comparable to the following for PCs:
	LTREE PC Service & Support Certified Professional Courses:
	    PC Configuration and Troubleshooting(HO) (145)
	    Advanced PC troubleshooting (HO) (150)
	    Hands on PC Networking (HO) (253)
	    Windows Configuration (HO) (152)
	    Windows NT Workshop (HO) (155)

Server Managers	Windows NT Servers: LTREE Courses:
	    Introduction to Client Server Computing (369)
	    Multivendor networking (361)
	    Introduction to TCP/IP (HO) (367)
	    Windows NT (HO) (155)
	Novell Servers: LTREE CNA Certification Courses:
	    Netware 3.x Admin (HO) (261)
	    Advanced Netware 3.x Admin (HO) (262)
	    Netware 3.x Install & Config (HO) (267)
	    Netware Service & Support (HO) (269)
	    Networking Techniques (HO) (270)
	    Netware NFS (HO) (272)
	    Introduction to Client Server Computing (369)
	    Multivendor networking (361)
	    Introduction to TCP/IP (HO) (367)
	UNIX Servers: LTREE UNIX Systems Certified Professional Courses
	    UNIX Hands-on workshop (HO) (336)
	    Hands -on UNIX System and Network Administration (HO) (366)
	    UNIX Tools and Utilities (HO) (396)
	    Introduction to Client Server Computing (369)
	    Multivendor networking (361)
	    Introduction to TCP/IP (HO) (367)
	    UNIX (or C) programming (HO) (333 or 336) (155, 361, 367, 369)

Network Communications Specialists	LTREE: Internetworking Certified Professional Courses:
	    Introduction to Data Comm & Networks (350)
	    LAN: Implementation & Configuration (352)
	    LAN troubleshooting (HO) (254)
	    Multivendor networking (361)
	    Introduction to TCP/IP HO) 367)
	    Bridges, Routers and Gateways (364)

Mail Post Master	X.400 Class LTREE Courses: 361 and 369

The detailed curriculum for CSU team members will be maintained by Dept 13412, Help Desks, Passwords & Training.

7. CSU Senate

The CSU Senate is the mechanism for addressing areas of mutual concern among CSU, and for providing customer feedback to the Integrated Information Services Division. The Senate consists of the CSU Project Manager and perhaps one technical delegate from each CSU. The Senate will meet monthly.

Items the Senate will be concerned with include:

Planning & Metrics

    Planning Documentation

    Metrics Databases

Technology Deployment

    Standard Desktop Definitions

    Named Services Architecture (Domain Name Services, NT Services, WWW Services, etc.)

    Technical Underpinnings For Service Agreements

Help Desk Requirements & Strategy

    Single Point Of Contact For Customers

E-mail

    Feedback to users and to E-mail Project Team

Technology Integration & Exchange

    LAN/Network Technologies Forum

    Vehicle For Professional Development Of LAN Managers

Other Areas Of Global Concern

8. Corporate Application Support

The Integrated Information Services Division will deploy corporate servers as part of a Client Server approach to corporate applications and data. The CSU will be responsible for ensuring that customer desktop computers have access to these applications. This responsibility includes software installation.

It is proposed that servers running corporate applications such as Property Management, On-Line Financial, etc., be located centrally in building 880. Later, if customer response time or IRN traffic considerations indicate the need to position servers elsewhere, servers will be moved to TCCs or customer building locations appropriate for the situation. E-mail and IRN Web servers will be exceptions to this proposed policy in that they will be located in each TCC.

Support and operation, including backup, of servers in the TCCs will be provide by CSU personnel. Details regarding support and operation of servers will be defined by CSUs. Policy for operation of servers in CSUs will be defined by the CSU Senate.

The CSUs will ensure that customers are put in contact with the Division 13000 Mosaic team, which contains members who are specialists in information for the WWW. Customers desiring to add HTML data to the servers need to work with a Center 13400 MOSAIC team member for education and training assistance in deploying information to these servers.

Staffing in the CSUs may be an issue if additional servers are relocated to CSUs over the coming months and years.

The CSUs, including LAN managers, will handle all elements of desktop computing pertaining to access of corporate applications. CSUs will not be responsible for modification of corporate application codes on the server, but will aid in the coordination of training for corporate applications.

9. Secure And Open Computing

The baseline service capability for Sandia customers will run on the Internal Restricted Network (IRN). Customer-specific services and support will follow provision of this baseline service. Thus, secure and open computing and the Internal Secure Network will become part of the services provided by CSU approach, but will be of secondary priority until baseline utility service is available to all customers with a CSU.

As the CSUs are deployed there will be opportunities to leverage resources into a position to support additional customer requirements in the secure and open computing environments. These opportunities will be capitalized on where it makes sense. For example, the following capabilities can be provided:

1. CSUs will answer connection requests and ensure the proper wiring is provided.

2. Connectivity to servers can be provided.

Items such as specific security plans will require additional support and therefore will be provided at increased costs. In the short term, security plans, software connectivity tools, etc., provided expressly for secure and open computing will be provided by classified service providers, with the cooperation of the CSU. In summary, we will use existing resources where practical and provide special capabilities in a cost-effective manner.

10. Near Term CSU Plans

The near term operational strategy is to get some CSUs up and running. The following CSUs will be organized in the near term:

CSU	Dept Manager	CSU Proj Mgr
802	George Connor	Kathy Marder
807	Rick Harris	Pete Warner(Acting)
821	George Connor	Tom Klitsner
836	Rick Harris	Diane Janni
880	Bill Swartz	Dave Ortiz
890	Rick Harris	Pete Warner
891	Rick Harris	JC Kelly
897 (IMRL)	Bill Swartz	Larry Cox
810 (CINSAC)	Rick Harris	TBD
Area 3/5	George Connor	TBD
Area 4	Bill Swartz	Jeff Lunsford
SNL-CA	Ron Fugazzi	TBD

11. Appendix A - Sample Service Agreements

Sample Service Agreement Between CSU xxx And Customers

A. How to get service - Primary - send e-mail to CSUHELP or if network connection down, call CSUHELP at 845-xxxx

B. What service is provided by your CSU in Building xxx:

1. Computer Network

   - . Hours of operation - 7:30AM to 5:00PM Monday - Friday (minimum) (can be expanded if customers require, can pay for, and service agreements with suppliers can be negotiated)

   - Response time goals: return customer's initial call within one hour and begin to resolve problem. Resolve any customer problem within a few hours, maximum 24 hours, or else make special arrangements for resolution with individual customers. Maintain enough spare desktop machines to allow rapid installation at customer work locations for temporary use when lengthy repairs or upgrades are required

   - Design subnet details and provide input to corporate personnel via a single point of contact.

   - Administration of TCP/IP addresses and CSU Domain Name Servers

   - Procure and install all network hardware and software on client computers

     - TCP/IP Stack

     - Network interface cards

     - Network interface software

     - Printer Drivers

     - Virus scans

     - Screen Locks

   - Procurement logistics, installation, and maintenance of current versions of MS Office on PCs and MACs

   - Timely organized software distribution of all commercial and Sandia utility software from CSU servers to desktops

   - Maintain sufficient hardware location information to effectively manage the LAN

   - application use monitoring

   - Client piece of corporate applications

   - Procure and install preferred upgrades for PCs, MACs, and UNIX

- Procure and install electronic mail software on client computers
- Ensure compatability with customer provided applications
- Maintain network security plans and perform self assessment.
- Provide or arrange for training in the use of network software, e-mail, calendaring etc.
- Provide desktop access to computer services on other LANs ..
- Network monitoring for reliability, performance, and maintainability
- Server Management
    - Network operating system
    - backup of server & user data daily
    - account administration

2. Desktop hardware repair

- recommend procurement of hardware
- coordinate warranty and post-warranty repair

3. Coordinate shared resources

4. Help Desk services. Help Desk functions include:

- Getting help for problems unable to be answered
- Providing immediate answers to commonly asked questions about applications and bootup issues
- E-mail support (allowing customers to e-mail their problems to the Help Desk in lieu of calling)
- Maintaining a history of problems and solutions by customer and type of problem in a central database
- Publishing metrics that meet customer requirements
- The Help Desk will "own" a problem from start to finish. Should the Help Desk staff need to consult others, the Help Desk staff will later close the loop with the customer
- Providing sharing of problem solutions between CSUs

C. Be proactive in monitoring networks and desktops so that many problems can be identified and resolved before customers actually encounter these problems.

D. Appeal process - any service Quality problems should be reported to the CSU Project Manager or a CSU Department manager or the Director of Information Services, 13400.

E. Customers will be asked to provide feedback via e-mail about services they receive from CSU personnel upon receipt of service and again semi-annually.

F. Service above and beyond that identified in (B) above will be provided on request if manpower is available. Customers will be required to pay directly for any additional service provided on a one-time or regular basis.

Approved ---------------------------------   ----------   ------------------------------------   ----------
                CSU project Leader   Date   Customer Representative   : Date

Sample Service Agreement

Between CSU Senate And Center 13900

A. Communications consisting of, but not limited to, the IRN FDDI wiring, routers, & hubs, will be available for use and maintained 24 hours a day, 365 days a year.

B. Communications problems on the IRN will be diagnosed within 15 minutes of occurrence, and repair will be initiated within 30 minutes during prime shift and within 4 hours on other shifts and on weekends. CSUs will be notified in advance of any scheduled maintenance outages.

C. The Network Database will be maintained by Center 13900 and available to CSUs 16 hours a day, 365 days a year.

D. Communications reliability metrics will be maintained and shared with CSUs on a regular basis.

E. Networks will be monitored routinely to proactively identify and resolve problems before customers are impacted.

F. Wiring for secure computing will be provided as identified in corporate plans. Individual connections will be handled via customer request through CSUs to the Communication group.

G. Corporate applications servers located in the CCF will be maintained and operated, including backup, by Center 13900 on a regularly published schedule which will cover at least the period from 7 AM to 6 PM (an extra hour to accommodate California), 5 days a week. Any e-mail servers/hubs/gateways located in the CCF will be operated and maintained by Center 13900 24 hours a day, 365 days a year.

H. Provide central backup of data on local LAN servers, for a fee yet to be determined.

12. Appendix B - Baseline Services
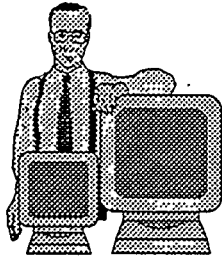
MARKETING PLAN
SERVICE CENTER PHASE-IN
CUSTOMER SERVICE CENTERS (CSUs)

A CSU team is led by a CSU Project Manger from Information Services Center, 13400 and various support personnel. CSU responsibilities include support for desktops, Org. LAN servers, Lab CSU mail & World Wide Web (WWW), and network communications (Router to desktop). Each CSU includes a geographically localized set of buildings determined by the locations of Tech Control Centers (eleven in NM, one in CA).

CSU Baseline Services:
- Lab-wide E-mail systems implementation and support (cc:mail, MS mail SMTP)
- Local desktop support (7:30 A.M. - 5:00 P.M.)
- Server establishment and management
- Internal Restricted Network (IRN), External Open Network (EON), Internal Secure Network (ISN), WWW connectivity and service
- Client piece of corporate applications
- Computer Help Desk support
- Process requests for Telephone additions and changes
- Maintenance of LAN security plans
- Standardized desktop environment defined and maintained
- Timely organized software distribution (purchase of some commonly used office SW)
- Handle trouble calls within one hour; escalation, if needed, within twenty-four hours
- Spare hardware to replace desktop or servers quickly
- Network traffic monitoring
- Provide or arrange for customer training

Cost Per Desktop: $3200/year

> Service arrangements and billings will be handled only at the Center level or above to minimize service center overhead and cost to customers.

This service center will not reach all desktops until FY98. Service will reach, at a minimum, the following buildings in FY96:

802, 807, 821/823, 836, 890, 891

For detailed cost and other planning information, please contact any of the following managers:

George Connor, 13421	Phone 845-8003	FAX 844-2067
Richard Harris, 13422	Phone 844-4828	FAX 844-3593
William Swartz, 13411	Phone 844-2237	FAX 844-9512

To obtain services in FY96, contact the Computer Help Desk, 845-2243, and give them your building location(s). They will collect some limited information and have a CSU project leader in the appropriate area call back.

13. Appendix C - Cost Pool Breakdown

CSU COST POOL DETAIL ESTIMATE - 5/1/95
INTEGRATED INFORMATION SYSTEMS DEPLOYMENT COSTS
FOR 1000 PEOPLE COVERED IN A CUSTOMER SUPPORT UNIT(CSU) - FY96

$ Thousands

$2,550	Labor estimate (1 support person per approx. 50 customers) 18 people - (split roughly 15 contractors($150k ea) and 3 employees($100k ea))
$40	Space - facilities $20 x 20 x 100 square feet
$14	Telephone charges - ($51 x 12 x 20)+($100x20)
	Purchases
$80	MS Office $399 x 200
$50	MS Office Upgrade $99 x 500
$5	Server SW Upgrades
$20	SW Distribution System $600 + ($20 x 1000)
$5	SNMP Agents $5 x 1000 Desktops
$16	HW Desktop Spares 4 x $4000
$100	HW Server upgrades to improve performance for 4 consolidated servers/CSU ($25k ea.)
$50	HW maint and parts for 4 large servers ($10k ea.) and misc. client workstation parts & cards $10k
$25	Service Charge from Purchasing Service Center
$10	Vendor Technical Support
$40	Training(one course/person @ $2k)
$20	Travel ($1k/person)
$75	Central Help Desk Charge - $75 per person
$50	CSU Administrative Overhead costs(~ 1/2 person)
$50	Facilities Move Charges

$3,200 - Cost per Desktop/year

14. Appendix D - Acronyms Used

CCF - Central Computing Facility

CIO - Chief Information Officer

CNA - Certified Netware Analyst

CSR - Computer Security Representative

CSU - Customer Service Unit

DSR - Desktop Service Representative

EON - External Open Network

FDDI - Fiber Distributed Data Interface

HTML - HyperText Markup Language

IRN - Internal Restricted Network

ISN - Internal Secure Network

LAN - Local Area Network

LTREE - Learning Tree

MAC - Macintosh Computer

MS - Microsoft

NT - New Technology

PC - Personal Computer

SMTP - Simple Mail Transport Protocol

SNMP - Simple Network Management Protocol

TCC - Tech Control Center

TCP/IP - Transport Control Protocol/Internet Protocol

WWW - World Wide Web

Appendix B

Cost-Per-Unit Work

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Cost-Per-Unit Work

FY94 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$1,122.81
CCHD Support	0	-
MS Office, Netscape, OS	5	$ 280.70
Corp Applications	0	-
Server Management & E-Mail	10	$ 561.40
Network Access	5	$ 280.70
Technology R&D	0	-
Customer Training	0	-
Total Units		40
Cost per Unit		$ 80.00
Total Cost		$3,200.00
Cost for FY94 Units		$3,200.00

FY95 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$1,122.81
CCHD Support	5	$ 280.70
MS Office, Netscape, OS	5	$ 280.70
Corp Applications	5	$ 280.70
Server Management & E-Mail	10	$ 561.40
Network Access	5	$ 280.70
Technology R&D	1	$ 56.14
Customer Training	1	$ 56.14
Total Units		52
Cost per Unit		$ 61.54
Total Cost		$3,200.00
Cost for FY94 Units		$2,461.54

FY96 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$1,122.81
CCHD Support	5	$ 280.70
MS Office, Netscape, OS	5	$ 280.70
Corp Applications	10	$ 561.40
Server Management & E-Mail	10	$ 561.40
Network Access	5	$ 280.70
Technology R&D	1	$ 56.14
Customer Training	1	$ 56.14
Total Units		57
Cost per Unit		$ 56.14
Total Cost		$3,200.00
Cost for FY94 Units		$2,245.61

FY97 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$ 876.71
CCHD Support	5	$ 219.18
MS Office, Netscape, OS	5	$ 219.18
Corp Applications	10	$ 438.36
Server Management & E-Mail	10	$ 438.36
Network Access	5	$ 219.18
Technology R&D	1	$ 43.84
Customer Training	1	$ 43.84
Remote Access	5	$ 219.18
Site Software	1	$ 43.84
Group Scheduling	5	$ 219.18
Computer Security	1	$ 43.84
Out-of-hours support	1	$ 43.84
PC Emulation for Mac & UNIX	1	$ 43.84
Network Printers	1	$ 43.84
Procurement Logistics	1	$ 43.84
Total Units		73
Cost per Unit		$ 43.84
Total Cost		$3,200.00
Cost for FY94 Units		$1,753.42

FY98 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$ 727.27
CCHD Support	5	$ 181.82
MS Office, Netscape, OS	5	$ 181.82
Corp Applications	10	$ 363.64
Server Management & E-Mail	10	$ 363.64
Network Access	5	$ 181.82
Technology R&D	1	$ 36.36
Customer Training	1	$ 36.36
Remote Access	5	$ 181.82
Site Software	1	$ 36.36
Group Scheduling	5	$ 181.82
Computer Security	1	$ 36.36
Out-of-hours support	1	$ 36.36
PC Emulation for Mac & UNIX	1	$ 36.36
Network Printers	1	$ 36.36
Procurement Logistics	1	$ 36.36
Automated Data Collection	5	$ 181.82
Enterprise File Service	5	$ 181.82
Remote Troubleshooting	5	$ 181.82
Total Units		88
Cost per Unit		$ 36.36
Total Cost		$3,200.00
Cost for FY94 Units		$1,454.55

FY99 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$ 587.16
CCHD Support	5	$ 146.79
MS Office, Netscape, OS	5	$ 146.79
Corp Applications	10	$ 293.58
Server Management & E-Mail	10	$ 293.58
Network Access	5	$ 146.79
Technology R&D	1	$ 29.36
Customer Training	1	$ 29.36
Remote Access	5	$ 146.79
Site Software	1	$ 29.36
Group Scheduling	5	$ 146.79
Computer Security	1	$ 29.36
Out-of-hours support	1	$ 29.36
PC Emulation for Mac & UNIX	1	$ 29.36
Network Printers	1	$ 29.36
Procurement Logistics	1	$ 29.36
Automated Data Collection	5	$ 146.79
Enterprise File Service	20	$ 587.16
Remote Troubleshooting	5	$ 146.79
COE Network Installation	1	$ 29.36
Function 99b	5	$ 146.79
Total Units		109
Cost per Unit		$ 29.36
Total Cost		$3,200.00
Cost for FY94 Units		$1,174.31

B-4

FY00 Tasks	Work Unit	Cost-Per-Unit Work
Desktop Support	20	$ 581.82
CCHD Support	5	$ 145.45
MS Office, Netscape, OS	5	$ 145.45
Corp Applications	10	$ 290.91
Server Management & E-Mail	10	$ 290.91
Network Access	5	$ 145.45
Technology R&D	1	$ 29.09
Customer Training	1	$ 29.09
Remote Access	5	$ 145.45
Site Software	1	$ 29.09
Group Scheduling	5	$ 145.45
Computer Security	1	$ 29.09
Out-of-hours support	1	$ 29.09
PC Emulation for Mac & UNIX	1	$ 29.09
Network Printers	1	$ 29.09
Procurement Logistics	1	$ 29.09
Automated Data Collection	5	$ 145.45
Enterprise File Service	20	$ 581.82
Remote Troubleshooting	5	$ 145.45
COE Network Installation	1	$ 29.09
Function 99b	5	$ 145.45
Function 00a	1	$ 29.09
Total Units		110
Cost per Unit		$ 29.09
Total Cost		$3,200.00
Cost for FY94 Units		$1,163.64

NOTES:

Work unit values of 1, 5, or 10 were assigned by Project Managers and were based on the relative effort of each task. For example, a task with a work unit of 1 is a simpler, less time-consuming task. A task with a work unit of 10 is at least 10 times as time-consuming as the task with a work unit of 1.

Work units were assigned to specific tasks beginning in FY94, and they continued to be assigned for succeeding years; work units were also used in projected analyses for future years.

We maintained a $3,200 cost model over the years by offsetting additional required functionality with cost savings on the previous set of services.

Cost per Unit Work vs Fiscal year
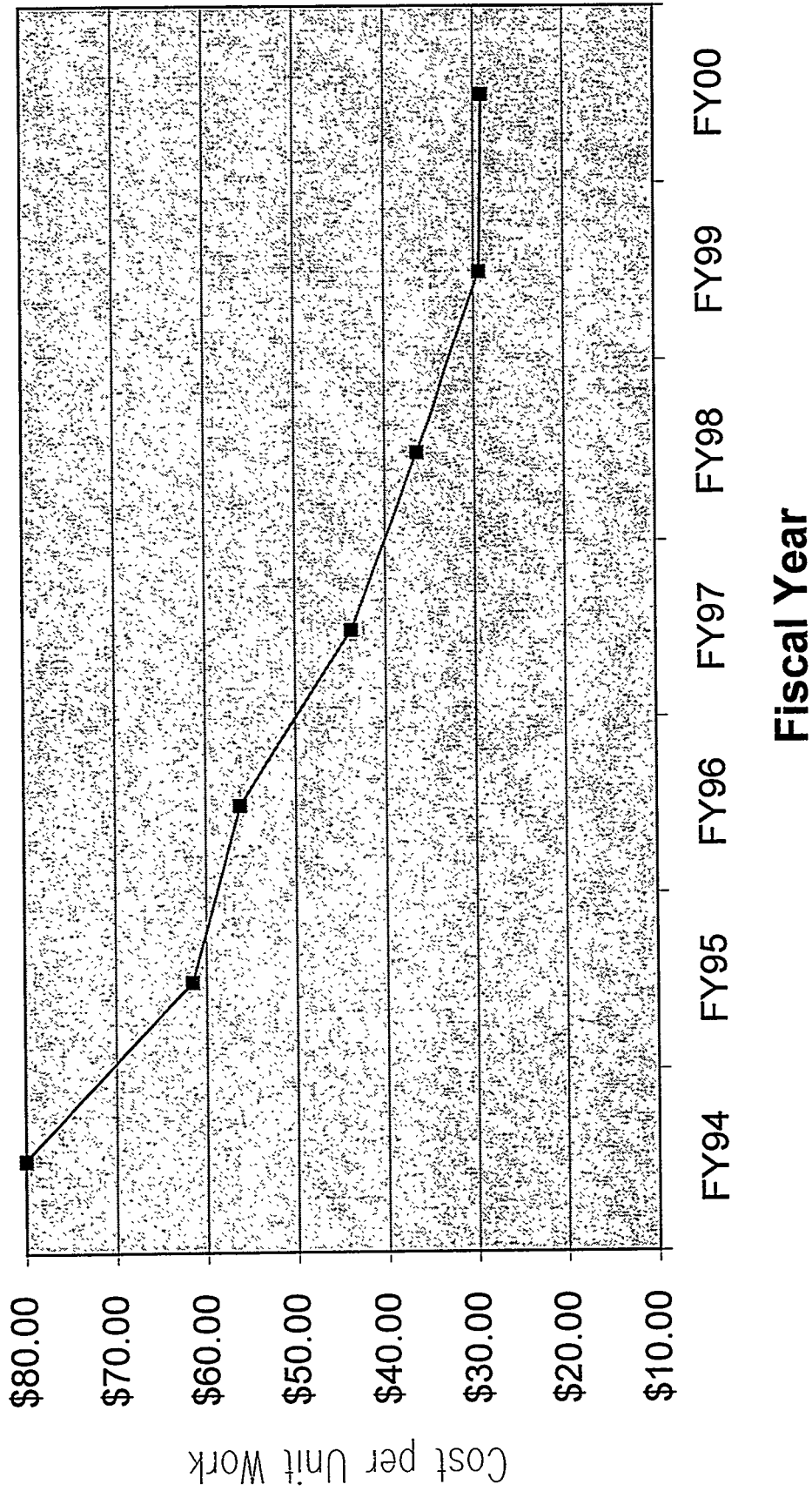
Appendix C

CSU Brochures

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COMPUTER SUPPORT UNIT

CSU

an Integrated Information Services organization

Computer Support Units

providing local computer support with a Labs-wide perspective

Sandia National Laboratories

For more information

For general information about Computer Support Units, visit the CSU web site — just click the "CSU Information" directory button on your Sandia browser. (You can also enter http://www-irn.sandia.gov/csu.html in your browser window.)

E-mail general questions or comments to csu@sandia.gov.

For answers to specific questions about how CSUs can help you, call your local CSU project manager as listed below. (CSUs are designated by the building that houses the Tech Control Center connecting them to the Sandia network.) If you're not certain which CSU you're in, feel free to call the one that seems closest to you. Or you can check the map at the CSU web site.

CSU802: Rich Dougherty, 845-7568
CSU807*: Steve Lambert, 844-7876
CSU821: Tom Klitsner, 844-1901
CSU836: Scott Rogers, 844-8725
CSU880: David Ortiz, 845-9124
CSU890: Bill Chambers, 845-8131
CSU891: J.C. Kelly, 844-5437
CSU897: Wayne Shirley, 844-9870
CSU960 (Area 4): Scott Rogers, 844-8725
Area 3/5: Michael Schalip, 844-6798
Sandia/California: Don Hall, (510) 294-2611

*CSU807 information effective 4/1/97. Prior to that date: Jeffrey Utter, 844-6102.

How to get help

If you have trouble with your computer, or if you need CSU service, your first call should go to the Corporate Computing Help Desk at 845-CCHD (or e-mail cchd@sandia.gov).

The Help Desk works closely with Computer Support Units. If your request or problem cannot be resolved over the phone by the Help Desk analyst, the analyst notifies the appropriate CSU. A CSU support person then works with you to fulfill the request.

For help with your computer, call 845-CCHD

Examples of CSU services

In addition to the general support described under "Desktop support," here are a few specific examples of how CSUs are helping work go better at Sandia:

Advice and facilitation – advise on hardware and software acquisition ... facilitate leases and purchases ... develop security plans

System/network design and maintenance – design new networks ... support file servers ... integrate Unix/PC/Mac systems ... implement scheduling/calendaring systems ... carry out special customer projects ... provide regular server backup

Assistance with organizational or individual changes – help coordinate moves ... erase hard disks before reapplication ... act as interface for rewiring projects

Troubleshooting and recovery – troubleshoot servers ... recover data from failed hardware ... provide virus troubleshooting and recovery

---

Desktop support

Computer Support Units provide computer support according to a standard service list. Comprehensive support for desktop computers includes

- procuring, distributing, installing, and troubleshooting corporate standard software (e-mail, office productivity, web browser)

- distributing, installing, and trouble-shooting corporate applications (electronic timekeeping, electronic expense report, etc.)

- installing and configuring computer hardware

- resolving problems with supported hardware and software

- coordinating services and support for access to other applications and services

Other services, including projects to meet particular customer requirements, can be negotiated as needed.
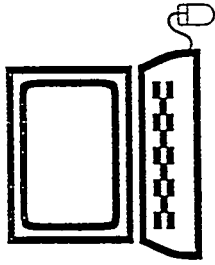

Computer Support Units

Sandia's answer to the personal computer explosion and the need for data at the desktop

Desktop computers and computer networks have mushroomed at Sandia during the past few years. That can make service, support, and information access complex for individual users and organizations. To provide local support while keeping a Labs-wide perspective, eleven Computer Support Units were formed in 1995.

CSUs are a practical middle ground between the old centralized computing approach and a completely individualistic environment. CSUs bring computer support close to you, not only by maintaining your own computer, but also by giving you access to the Sandia information system.

COMPUTER SUPPORT UNIT

an Integrated Information Services organization

COMPUTER SUPPORT UNIT

an Integrated Information Services organization

Computer Support Units

Customer Services

providing local computer support with a Labs-wide perspective

Sandia National Laboratories

For more information

For more information about Computer Support Units, visit the CSU web site — just click the "CSU Information" button on your Sandia web browser. (You can also enter http://www-irn.sandia.gov/csu.html in your browser address window.)

E-mail general questions or comments to csu@sandia.gov.

For answers to specific questions about how CSUs can help you, call your local CSU project manager as listed below. (CSUs are designated by the building that houses the Tech Control Center connecting customers to the Sandia network.) If you're not certain which CSU you are in, feel free to call the one that seems closest to you. Or you can check the map at the CSU web site.

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CSU890: Bill Chambers, 845-8131
CSU891: J.C. Kelly, 844-5437
CSU897: Wayne Shirley, 844-9870
CSU960 (Area 4): Scott Rogers, 844-8725
Area 3/5: Michael Schalip, 844-6798
Sandia/California: Don Hall, (510) 294-2611

Hardware Support

The CSU does the following to support your computer hardware:

- Consults on repair, upgrade, or replacement of your computer

- Assists with acquisition of computers through the Sandia lease program

- In case of lengthy repair or upgrade, lends you a desktop computer for temporary use

- Provides quick hardware repairs by stocking commonly used parts

Network Support

The CSU does the following to ensure that you can use Sandia's computer network:

- Procures and installs network hardware and software

- Monitors your local area network for reliability and performance

- Supports network printers and other network resources

- Manages network servers: e-mail, file, web, etc.

- Provides you with desktop access to computer services across Sandia

Customer Services

The following information describes the standard services provided by CSUs to comprehensive subscribers.

For any CSU service — troubleshooting or otherwise — call the Corporate Computing Help Desk at 845-CCHD (845-2243).

General

◆ Number of systems supported: One desktop computer and one portable computer per customer (both must be Sandia-owned)

◆ Standard hours: 7:30 a.m. – 5 p.m., Monday – Friday.

◆ Out-of-hours support: Calls to Help Desk are forwarded to Network Control Center, which answers questions if possible or generates Help Desk ticket for next-day response. (Note: Extended CSU support hours for e-mail begin April 7, 1997.)
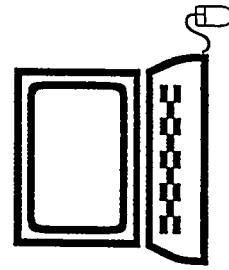
General services (continued)

◆ Diagnosis and resolution of trouble: If the CSU technician's diagnosis is a software problem, the CSU resolves it. If a hardware problem, the CSU coordinates repair service.

◆ Network Information System: Using Sandia's Network Information System (NWIS), your CSU tracks information about your computer's hardware and software for troubleshooting.

◆ Computer Security: The CSU supports your Computer Security Representative by doing required technical tasks (if the majority of your center are CSU comprehensive subscribers).

◆ Training Advice: Your CSU provides advice about training for corporate-supported software.

Software Support

The CSU does the following to support your computer software:

◆ Provides, installs, and maintains current versions of Sandia standard commercial software

◆ Maintains older software versions if already installed on computers unable to run current software

◆ Provides, installs, and maintains corporate application software

◆ Develops, publishes, and carries out deployment plans for installing new or upgraded software

◆ Consults with you on the compatibility of Sandia-standard software and network configurations with other software you need to do your job

View the Standard Service List at http://www-irn.sandia.gov/csu.html → "Description of services"

COMPUTER SUPPORT UNIT CSU

an Integrated Information Services organization

Appendix D

Excerpts from

LABORATORY DEVELOPMENT NEWS

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CSU Helps Multiple-Personality Computers Serve Unified Need

Split-personality computers have become the rule in Command and Control Software Dept. 2615. It wasn't like that a year ago, says manager Larry Dalton: "If you had walked down our hall then, you would have seen a SPARC station 5 plus a separate PC on most desks." Now, thanks to the efforts of several people in Customer Service Unit 891, most members of Larry's group have regained some desktop space—and reduced costs—by having a single computer that switches instantly between a Windows NT environment and full Unix support. All it takes is the click of a mouse.

The department simply couldn't keep supporting two computers per person, says Larry. To meet his customer's requirements while trimming costs, he needed service beyond standard CSU comprehensive support. That model—a well-defined Labs-wide computer infrastructure along with logical extension where required—will be increasingly important to CSUs and their customers in the future. In this case, CSU 891 project manager J.C. Kelly negotiated an agreement that included developing the Unix/Windows system and providing support for both sides of it. While maintaining its normal operations, the CSU then organized the resources to carry out the special project.

Larry attributes the resulting success to his department staff's willingness to accept changes and to the skill and hard work of CSU staff. Having previously supported his own local network, he likes the decreased costs and the fact that, unlike an organization that can spare only one person for computer support, the CSU can always have someone there. "If we were a basketball team," says Larry, "I'd say the CSU gives us a deep bench." *(For more information call Charles Shirley, Org. 4423, 844-3652; FAX: 844-2018.)*

Electronic Timecards Reaching Critical Mass

The Customer Service Unit (CSU) EDM/Timecard deployment team has succeeded in making a major impact in the way Sandians interact with the Labs' business systems. The team has deployed the application to 850 managers and secretaries/OAAs Labs-wide and has achieved particular success in specific CSUs that include 807, 836, and 890, according to word from the Chief Financial Officer (CFO) organization.

Besides its value to individual line organizations and to the CFO operations, the process has provided the CSUs with practical experience in widely deploying corporate software across the Labs. One important lesson: the process goes much more smoothly in organizations that are already CSU customers or otherwise have well-maintained, predictable desktop computer configurations. *(For more information, contact Rick Harris, Org. 4423, 844-4828, FAX: 284-3824.)*

CSU821 Brown Bag Sessions Draw a Crowd

CSU821 (computer support team for Bld. 823) is conducting a series of brown bag lunch time training sessions for their customers. Tom Klitsner (CSU821 project leader) introduced the first session in the series by describing the value-added services provided by the CSU. Herb Pitts, Center 4400 Director, defined to the same audience the concept of the CSU. Connie Souza from the Technical Library gave a brief overview of the "Search" and other features of the new HORIZON system. The remaining time was devoted to an introductory review of the Sandia internal Web page, and the CSU821 Web Page's features.

The series will continue through the rest of the fiscal year and classes will be given on Microsoft operating systems (Windows 95, Windows NT, Windows 3.11). Microsoft Office (Office 95 and Office 4.3), cc:Mail, Microsoft Mail, and others (basic hardware maintenance, etc.). The Microsoft software classes will be conducted by Microsoft staff, and other classes by local CSU staff. *(For more information call Tom Klitsner Org. 4423, 844-1901, FAX: 284-3824 or Roddy Dambrino, Org. 4423, 844-3164.)*

Distributed Computing Configuration Handbook Makes Its Debut

Customer Service Units have a new tool to help them work on Sandia's ubiquitous PCs, Macs, and Unix machines. Ironically, the tool isn't electronic – it's printed on paper.

Sandia National Laboratories

CSU Operations

Distributed Computing Configuration Handbook
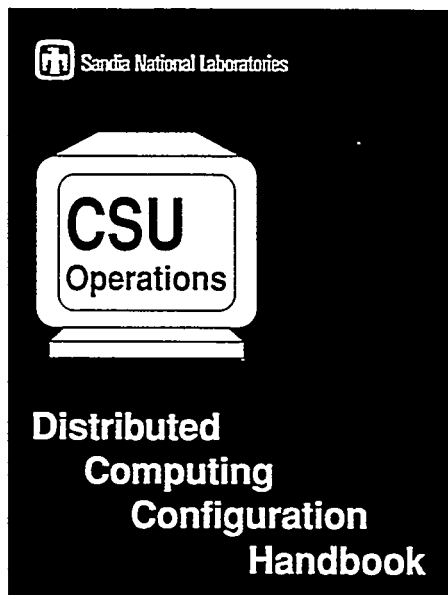
In May, each of the CSU support staff received a CSU Operations *Distributed Computing Configuration Handbook.* Scheduled for monthly updates, the handbook will be a current and consistent source of information about procedures for installing, configuring, and troubleshooting the basic necessities of the modern worker: e-mail software, Microsoft Office products, Web browsers, operating systems such as Windows NT, and so on.

"Our first thought was to make this a Web-based manual," says Rick Harris, Manager of CSU Operations and Development. "But we soon recognized the value of a handbook that would be easy to carry and usable even when someone was working with a PC that hasn't been set up yet, or is totally down. A Web-based manual isn't much good when you can't access the Web!"

The *Distributed Computing Configuration Handbook* is a major step in standardizing computer support across the Labs. More than just an instruction manual, it's tailored for the Sandia environment. The consistency that it fosters should save time, frustration, and cost as CSUs deal with the computers of thousands of people. *(For more information, call Rick Harris, Org. 4423, 844-4828, FAX 284-3824.)*

Customer Service Units Subscriptions Approach 5000

Sandia employees and on-site contractors have a myriad of computers on their desktops. That's not just fancy language. "Myriad" originally meant 10,000 – which is the usual estimate for the number of desktop computers at Sandia. By the end of July, half of those should belong to CSU subscribers.

"More and more Sandia organizations are seeing the benefits of being CSU subscribers," says Herb Pitts, Director of Information Services Center 4400. "Besides the increasing numbers, CSUs are also getting other recognition. For example, Carol Yarnall, the Director of Military and Operations Services Center 14700, gave an award on June 10 to J.C. Kelly, Scott Stephens, and Dominick Vacca of CSU891 for their contributions to her center's network connectivity."

The Chief Information Officer made a commitment earlier this year to an aggressive goal of gaining 5,000 subscribers by the end of the fiscal year. As of early June (the most recent actual statistics available at press time), the number was just above 4,700. That compares to about 2,500 who were subscribers at the beginning of 1996.

The long-term value of CSUs to Sandia is their promotion of capability in distributed computing, consistency in computer and network configurations, and reduced cost to the Labs. The increasing number of subscribers is expected to make this value more evident as time goes on. *(For more information, call Rick Harris, Org. 4423, 844-4828; Fax: 284-3824.)*

Help Desk and CSUs Give Up a Saturday to Create a Plan

What do you do when customer needs keep you from taking a day off to plan, but concentrated, interactive planning is the only way to meet those same customer needs? It's like overhauling a locomotive without stopping the train. That's the dilemma the Corporate Computing Help Desk recently found itself in, along with the Customer Service Units (CSUs) to which a lot of Help Desk calls are referred. With a 9.000-per-month volume of calls, the Help Desk can't just shut down for a day. So 28 members of the CCHD and CSU staffs devoted a Saturday to planning.

Wide-angle shot captures three of the CCHD's 12 analysts at work.

"We've heard lots of things from customers that help us see improvement opportunities." says Jim Hamilton. Manager of Computing Help Desk and Passwords Dept. 4412. "The Help Desk and CSUs are really extensions of each other. From the customer's point of view. we're one entity. We did our planning on that basis." Among important customer concerns are timely service. being kept informed about progress, courtesy, and so on. But tops on the list. says Jim, is customers' expectation of talking to a Help Desk analyst directly rather than to voicemail. The team set a goal that 100 percent of calls would be answered in person by an analyst. This goal requires some procedural changes. For example, Help Desk people will be divided into one group handling normal calls and another handling emergency or mission-critical calls. The team also recommended that analysts refer training-related questions to the training organization, rather than try to teach over the phone. Analysts reported that sometimes they spend more than an hour helping a caller do routine tasks covered in Sandia's computer training courses; meanwhile, genuine trouble calls might go to voicemail.

Bringing the CCHD and CSUs together also showed that streamlined ways of meshing their efforts would be valuable, and the team proposed several. "I really appreciate the dedication of these people in volunteering their Saturday and giving such serious attention to serving customers during a time of limited resources." says Herb Pitts. Director of Information Services 4400. "They came up with innovative solutions to some tough problems." Herb points out that the industry standard for computer help desks is one analyst to every 300-500 people. depending on the complexity of the environment. Sandia has one analyst for every 750 people. Even if the Help Desk can gain staff and get closer to the industry standard. good customer service demands a continuous improvement of customer support procedures. *(For more information about the Corporate Computing Help Desk, call Jim Hamilton, Org. 4412. 844-2740, FAX: 844-4354. For more information about Customer Service Units, call Rick Harris, Org. 4423, 844-4828. FAX: 284-3824.)*


Corporate Computing Help Desk analyst Michael Werner gets the facts from a caller and enters them into an action request ticket for a Customer Service Unit.

CSUs Get New Name

Customers are still the focus, and service is still the commitment, but instead of Customer Service Unit, CSU now stands for Computer Support Unit. The new name more precisely indicates the purpose of CSUs. That should help customers and potential customers better understand what CSUs can do for them. Most visible to CSUs' nearly 6000 customers is the desktop support they receive when a CSU staff member visits to fix a problem or install an upgrade on a PC or engineering workstation. Behind the scenes — and definitely part of the "support" — is the work CSUs do in maintaining e-mail post offices,

COMPUTER SUPPORT CSU UNIT
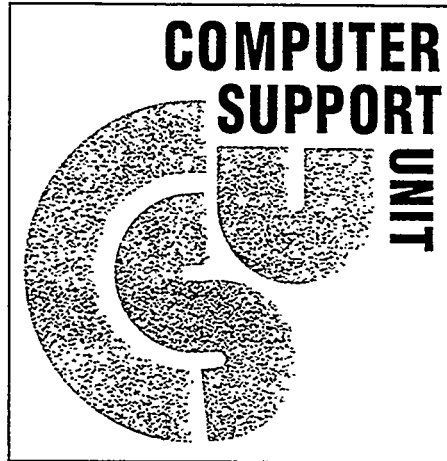
taking care of network file servers, and other tasks that ensure Sandians can easily work and communicate in an environment that grows ever more information-dependent. So even though the new name is more precise, CSUs hope customers will realize that "computer" means more than the computer on their desk, and "support" means more than straightening out a scrambled disk drive. CSUs are the customers' front door to Sandia's Integrated Information Services. *(For more information, call Richard N. Harris, Org. 4423, 844-4828; FAX: 284-3824.)*

COMPUTER SUPPORT CSU UNIT

Netscape Navigator 3.0 Appears on Sandia's Desktops

Computer Support Units last month began deploying Netscape Navigator 3.0 to Sandia's desktops. The long-awaited web browser upgrade, rescheduled several times and finally released by the Netscape Corporation in August, adds new power to Sandia's enterprise information system.

CSU Technology Development Team (4423-1) and the Internal Web team worked with pre-release beta versions and then the production version to develop a quick and reliable installation package customized for the Sandia intranet. Navigator 3.0 will be able to interact with upcoming corporate application software such as vouchers, expense reports, workflow systems, and an upgraded time-card system. CSU subscribers should already have heard from their CSU about Navigator 3.0. Nonsubscribers who haven't yet made arrangements for installation can call the Help Desk (845-CCHD). *(For more information, call Richard N. Harris, Org. 4423, 844-4828; FAX: 284-3824.)*

Electronic Expense Reports Hit the Desktops

Sandia's frequent travelers have, in the past several weeks, been receiving something besides frequent-flyer miles and bags of peanuts. Many of them now have a new electronic expense report (EER) to save time and reduce the cost of processing.

Computer Support Units (CSUs) began installing the EER on selected Sandia computers in November and will continue for several months. Developed through a collaboration between Integrated Information Services and the Treasury and Travel Services Department, the EER is Sandia's second large-scale experience with electronic distribution of corporate applications. The first was electronic timecards. "Unlike with timecards, this time we could feel the advantage of electronic software distribution," says Rick Harris, Manager of CSU Operations and Development Department. "The process hasn't been flawless, but we got the 247 in our pilot group installed in three days. We've learned from problems and made corrections to our process."

Valuable as this version of the Electronic Expense Report should prove to many Sandians, it will be extended as technology advances. A Web-based version is in the works and expected to appear next summer. *(For more information, call Rick Harris, Org. 4423, 844-4828; FAX: 284-3824.)*

CSU Web Site Gets a New Look

The Computer Support Unit Web site has undergone a metamorphosis. Now much more oriented toward CSU subscribers, it's still "under construction" – but what Web site isn't?

The CSUs have long had an area on the internal Web, but the site grew up as a mixture of material for customers and CSU staff. Though still there, Web pages that CSU staff use for their jobs are now tucked unobtrusively into a special part of the site. A more distinct customer focus became especially important when the Sandia-customized Netscape browser acquired a "CSU Information" button that puts Sandians only a click away from the CSU site.

One important addition for CSU subscribers is a description of standard services. This customer-oriented listing emphasizes CSU's dedication to providing a consistent mode of operation across the Labs. The description draws common elements from a number of service-level agreements and will eventually replace part of the individually negotiated agreements.

Planned as an enhancement to the Web site is a "flash alert" capability that will display a message at the top of the CSU home page when an unusual condition exists, such as some shared resource (for example, a special printer) being down or an outage being planned. When that's in place, clicking the "CSU Information" button will bring the latest word on computing conditions. *(For more information, call Rick Harris, Org. 4423, 844-4828; FAX: 284-3824.)*

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Appendix E

Post-Ups

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Would you pay your Mastercard bill twice?

Not likely.

And Sandia shouldn't pay twice for software.

Sandia has negotiated cost-saving site licenses for the Labs' most widely used software. If you use Sandia's money to buy a commercial version of site-licensed software, Sandia pays twice.

What software is site-licensed?

- Windows NT 3.51 (don't use NT 4.0 until there's a fix for incompatibilities with Microsoft Project and cc:Mail)
- Windows 95 (computers that can't run NT, or other special reasons)
- Macintosh Operating System
- Microsoft Office for Windows and Macintosh
- Netscape Navigator for Windows, Macintosh, and Unix
- McAfee VirusScan for Windows, Macintosh, and Unix (with PC emulator)

Getting site-licensed software

If you're a CSU subscriber, call or e-mail the Corporate Computing Help Desk (845-CCHD, cchd@sandia.gov) to have your CSU install it. CSU subscribers also receive all other Sandia standard software without additional cost.

If you're not a CSU subscriber, you can install the software (see http://www.csu.sandia.gov/csu_info/source.html), or you can contact the Help Desk and have the CSU install the software at an hourly rate.
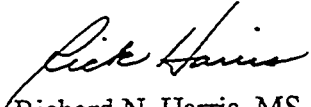
COMPUTER SUPPORT UNIT

an Integrated Information Services organization

Sandia National Laboratories

date: December 5, 1996

to: All SNL Department Managers and Above

from: Richard N. Harris, MS-0662 (4423)

subject: "Free" software for you and your staff

Introduction and action requested

You don't want to use your budget to pay for something Sandia already provides you. This memo from the Computer Support Units (CSUs) – part of Sandia's Integrated Information Services – reminds you and your staff that Sandia has paid for Labs-wide use of several types of software.

I'm requesting that you
- **post this memo with the reverse side visible**
- let your staff know they **shouldn't purchase commercial versions** of site-licensed software.

Why site licenses?

Your awareness of site licenses is important because, as the other side of this page points out, Sandia pays twice whenever an employee uses Sandia funds to buy a commercial package of site-licensed software. That's obviously not the way we want to run our business.

Even aside from the question of site licenses, computer users should think twice before rushing out to buy the latest software version. For example, some users have already purchased Windows NT 4.0. Before NT 4.0 can be adopted as standard Sandia software, however, it will have to incorporate fixes for troublesome bugs. For example, the current version of Microsoft Project won't run under NT 4.0, and cc:Mail crashes when the user tries to open an attachment.

Questions/comments?

If you have questions or comments about CSUs, send e-mail to csu@sandia.gov (or select CSU from the global e-mail address list). For more about site licenses, see internal web pages at http://www-irn.sandia.gov/organization/div1/comp_std/ms_selct.htm.

RNH/cs

Copy to:
MS-0662   Communications File, 04423

Please Post with the Other Side Visible

Exceptional Service in the National Interest

Save some time!
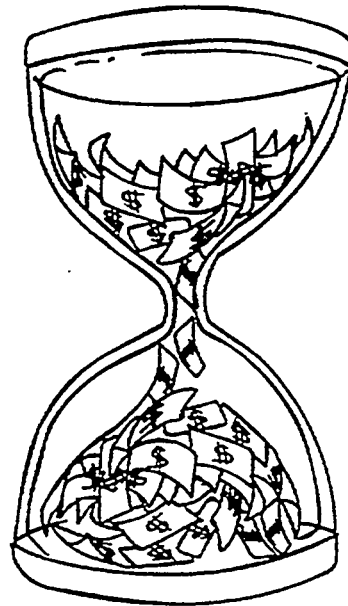
Stay in step with Sandia's Common Operating Environment for desktop computing. You'll avoid time-wasting incompatibilities.

Sometimes, staying in step means waiting.
Example: Microsoft Office 97

The January 1997 COE did not adopt the recently released Office 97 suite. Why? Here are a few of the reasons:

- INCOMPATIBILITY — some Office 97 file formats are incompatible with Office 95, so we must plan an orderly update that includes all Windows users

- FILE CORRUPTION — Office 97's Outlook scheduler can corrupt information previously stored by Schedule+

- VIRUS VULNERABILITY — virus protection for Office 97 applications is still untested or lacking

> *Common Operating Environment . . . in brief*
>
> The COE defines Lab-wide software and hardware, with updates each January and July. This orderly update process gives you more reliable computing.

COMPUTER SUPPORT UNIT
CSU

an Integrated Information Services organization

Learn more about COE and related topics at
http://www-irn.sandia.gov/csu.html
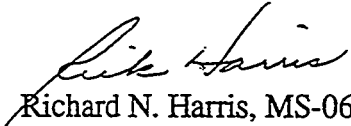
Sandia National Laboratories

date: March 7, 1997

to: All SNL Department Managers and Above

from: Richard N. Harris, MS-0662 (4423)

subject: **More time for you!**

Introduction and action requested

We can give you more time — or at least help you and your staff save some of the time you already have. Your part: just stay in step with Sandia's Common Operating Environment.

I'm requesting that you
- **post this memo with the reverse side visible**
- **remind your staff to stay with Sandia's standard software**

How does this save time?

An example: Many Sandians have had the frustration of sending a file by e-mail attachment, only to discover a recipient can't open it. Sender and receiver waste time searching for a common format. The disappointing answer may be a plain unformatted text file, or (worse yet) fax or paper mail. As more Sandians work within the bounds of the Common Operating Environment, we'll all have less trouble with this kind of information babel. That means more time for productive work.

About the Common Operating Environment

The Integrated Information Services organization defined the first Common Operating Environment (COE) in January 1997. Building on an environment already supported by Computer Support Units, the COE enables orderly updates of hardware and software standards twice a year, each January and July. This schedule allows
- determining what new technologies work best in the Sandia environment
- developing expertise, documentation, and training to support them
- preparing tools for deploying them smoothly and rapidly to Sandia computers

A key future capability is automatic updating of software through the Sandia network.

About this format of this memo and poster sheet

Approximately 80% of respondents from a random sample of managers said we should continue providing information in this format. If you have questions or comments, please e-mail them to csu@sandia.gov.

RNH/cs
Copy to: MS-0662 Communications File, 04423

Please Post with the Other Side Visible

Exceptional Service in the National Interest

We're here for you

even when you're not here
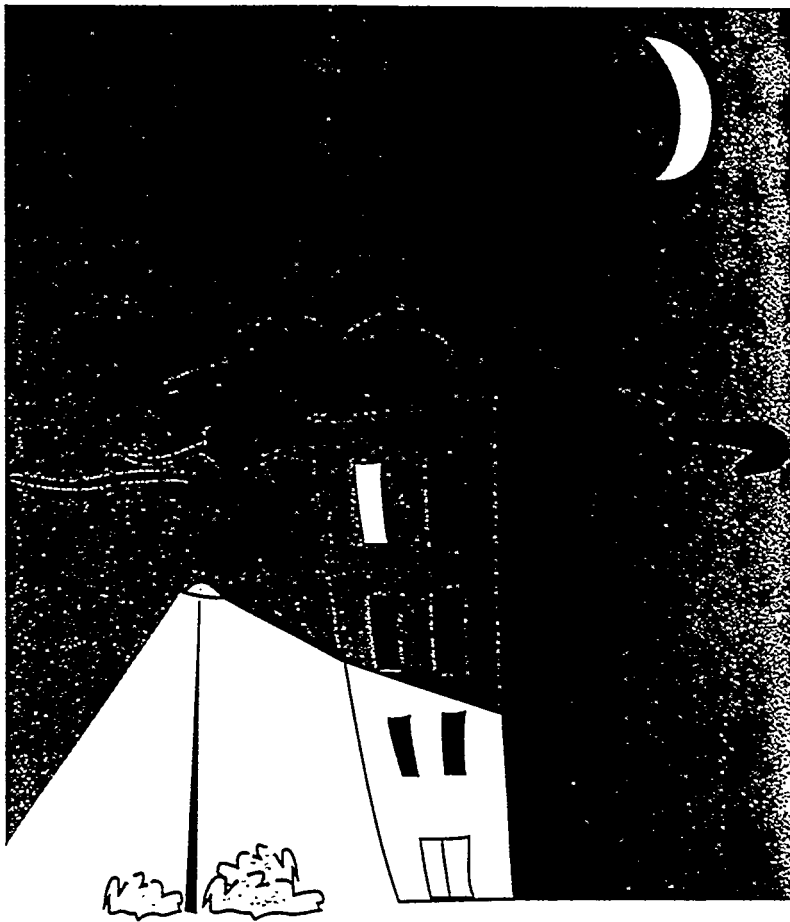
Support for e-mail post offices is now available 24 hours a day ... it works like this:

1. You discover **e-mail** isn't working at night or on a weekend

2. You call the Corporate Computing Help Desk (845-CCHD) and take the recorded option to be transferred to Computer Operations

3. Computer Operations checks the status of your **e-mail** post office. If it's down, the on-call **e-mail** postmaster is phoned or paged

4. The postmaster comes in and takes care of the problem

5. If you requested a call-back, you learn when the post office is working again

This expanded service is especially valuable for e-mail users at home or on travel. According to a recent survey, as many as 40% of Sandia managers and staff regularly access their e-mail from off-site locations.
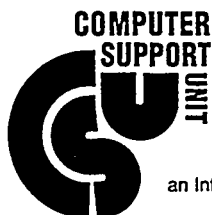
COMPUTER SUPPORT UNIT

an Integrated Information Sevices organization

Sandia National Laboratories

date: April 7, 1997

to: All SNL/New Mexico Department Managers and Above

from: Richard N. Harris, MS-0662 (4423)

subject: **Getting the e-mail through to you**

Introduction and action requested

Rain, snow, or gloom of night may not deter the traditional mailcarrier, but a halted e-mail server stops electronic messaging cold. That can mean trouble for the 40% of Sandia managers and staff who use e-mail outside normal business hours, often from home or on travel. Now a partnership of Integrated Information Services organizations ensures that e-mail post offices having problems at night or on the weekend will get timely attention.

To let your employees know about the expanded service, I'm requesting that you
- **post this memo with the reverse side visible**
- tell your staff to **call the Corporate Computing Help Desk (845-2243 / 845-CCHD)** about e-mail problems even at night or on weekends, at work or off-site

How the expanded support works

When an after-hours e-mail user discovers e-mail isn't functioning, a call to the Help Desk gives the option of transferring to Computer Operations' 24-hour desk. If the problem is in an e-mail post office, a phone call or page immediately goes to an on-call postmaster from the Computer Support Units (CSU).

(Note that cc:Mail and Microsoft mail systems do automated backup and maintenance each night between midnight and 5 a.m., so e-mail will continue to be unavailable at those times.)

What if the problem is in your computer, not the e-mail post office?

If it turns out that the post office is OK, the on-call postmaster will notify the Help Desk and you will be contacted the next workday. Technical support by telephone is currently limited to normal working hours, though it is being studied as a future out-of-hours service.

RNH/cs
Copy to: MS-0662 Communications File, 04423

Please Post with the Other Side Visible

Like you, it works for Sandia

```
\\CSU880CAPP\NETLOGON\DEPLOY\LOGIN.BAT

INTEGRATED INFORMATION SERVICES
Automated Hardware and Software Management

Microsoft Systems Management Server (SMS)

Installing Microsoft Systems Management Server on
this client........

   Microsoft Systems Management Server has been
   successfully installed.
```
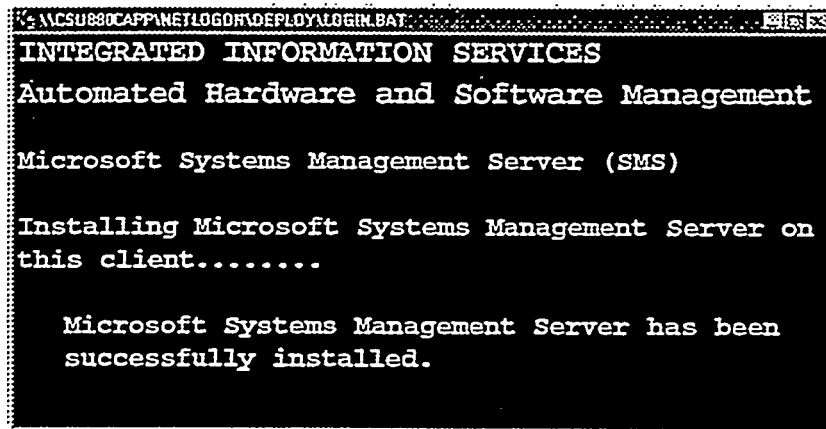
If you use Windows NT or Windows 95, don't be surprised when a new window automatically appears.

- *The good news: you don't need to do anything.*

- *Plus it will help monitor the status of your computer and aid electronic software distribution.*

It's called SMS: Systems Management Server. You'll be hearing more about what it does for you.

iis *customer service unit*

an INTEGRATED INFORMATION SERVICES organization
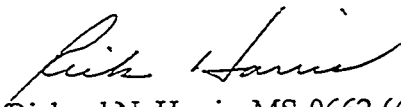
Sandia
National
Laboratories

date: May 7, 1997

to: All SNL/New Mexico Department Managers and Above

from: Richard N. Harris, MS-0662 (4423)

subject: **Something new on your desktop computer**

Thanks for listening – and au revoir

For several months I've been sending Sandia managers these Computer Support Unit "Post-Ups" to help you inform your staff about developments in Integrated Information Services. The response has been positive and supportive – thanks! Now I leave the CSU Department in the capable leadership of Dorothy Rarick, as I move to a new assignment: Manager of Laboratories Computing Dept. 4911.

Action requested

- Please **post this memo** with the reverse side visible.
- Let your staff know that the unfamiliar window they may see appearing occasionally on their computer (pictured on the reverse side) is part of Sandia's plan for upgrading network computing

Introducing Systems Management Server

Within a few weeks, SMS (Systems Management Server) software will be deployed to computers connected to Sandia's network. This will happen automatically, without a CSU technician visiting the computer. Thus it's important that members of your department understand the following key points:

- SMS is part of Sandia's plan for electronic software deployment, aimed at automatically updating the Common Operating Environment (COE) software across Sandia.
- SMS will go to network-connected computers, including Windows NT and Windows 95.
- Computer users shouldn't be alarmed when they see the SMS message box appear on their screen.
- SMS will collect up-to-date information about each computer's configuration to help with meeting DOE security requirements, planning software upgrades, etc.
- Eventually, computer support technicians may do remote troubleshooting through SMS.

You'll hear more about SMS, electronic software distribution, and new network file storage capabilities. These are examples of Sandia's progress toward network-centric computing. The goal is to let Sandians make better use both of their individual computers and the resources available via computer networks.

RNH/cs
Copy to: MS-0662   Communications File, 04423

Please Post with the Other Side Visible

Appendix F

Sandia Lab News Articles:

"Computer Support Units think globally, act locally"

"It's automatic: New System Management Server software enables near real-time profile of Labs' computer base"

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F-2

Computer Support Units think globally, act locally

Customers like the CSUs' deep bench

The initials are the same, but the name has changed. The former Customer Service Units (CSUs) are now Computer Support Units.

"Both names really apply," says Rick Harris, Manager of CSU Operations and Development Dept. 4423. " 'Customer service' expresses our attitude and ideal. But 'computer support' is a clearer description of our business, of what we provide to Sandia."

CSUs were formed in 1994 as a way to help create consistent computing capabilities across the Labs, explains Mike Eaton (4010), who as Chief Information Officer has the job of leading Sandia's Integrated Information Services. "That especially means being able to share information with other Sandians and to interact with corporate information," he says. "Our goal for Sandia information is that it's entered once and then shared often."

The 11 CSUs — 10 in New Mexico and one in California — are usually named for the building where they're based, such as CSU 802 or CSU 821. Each serves several other buildings in its vicinity.

Customers double in FY96

In a rapid expansion that makes them seem like an adolescent in a growth spurt, CSUs have almost doubled their customer count this year. The number of subscribers is now about 5,800. By the end of fiscal 1997, subscribers are expected to increase to 8,000. Most subscribers choose "comprehensive" service, which includes troubleshooting whenever needed, installation of standard computer software, setup of new computers when they're acquired, and similar services.

CSU staff also manage local area networks (LANs), run the corporate e-mail post offices, maintain file servers and web servers, and do related jobs that make up the contemporary cyberspace. A CSU team develops procedures to make sure new software can be reliably distributed and installed on thousands of Sandia computers.

"The CSUs are the first link in the chain between each Sandian and our enterprise information system," says Herb Pitts, Director of Information Services Center 4400.

Many Sandia organizations, of course, need scientific or engineering computing support. Since the CSUs' job is primarily to ensure corporate information sharing via a common collaborative environment, meeting such customers' needs requires that scientific or engineering computing be included in CSU services. The result might be a LAN that combines PCs and Unix machines, or a classified network and its associated security plan. "By offering such services," says J.C. Kelly (4434), Project Manager of CSU 891, "we provide a complete solution."

In addition, says Rick Harris, the CSUs make sure "local solutions" mesh with Sandia's overall information needs and directions. "When we were first setting up the CSUs," he says, "we found ourselves constantly using phrases like 'local computer support with a Labs-wide perspective.' That really describes what we offer. Our CSU staff people and the project managers who lead each CSU are fiercely loyal to their local customers.

"But they aren't blindly loyal," Rick says. "They make sure the right choices are made to keep customers' systems compatible. The CSUs bring distributed computing standards to Sandia — not in a confining way, but in the sense of standards that liberate all of us to exchange information with one another."

A large part of the benefit for customers is the freedom to stop worrying about computers and concentrate on their own primary work. "It minimizes the amount of time my design staff have to spend keeping their PCs and software up and running," says Jim Wilder, Manager of Firing Set and Mechanical Design Dept. 2674. "That's a major point."

Cost savings

Another customer, Larry Dalton, Manager of Command and Control Software Dept. 2615, can point to cost savings. Before becoming a CSU customer, he identified as much as possible of the actual cost of maintaining his organization's computers and LAN. For FY95, he says, those costs came to a quarter of a million dollars for a department of 25 to 30 people. As a CSU

customer, he has had considerably smaller costs, partly because of a system that lets each person work both in a Unix environment and a Windows environment from a single computer. Previously, most of the department staff had to have two computers.

Larry is also pleased that he no longer has to worry about who's taking care of the computers when a support person is ill or on vacation. "If our computer support was a basketball team," he says, "I'd say the CSU gives us a deep bench."

Much as CSU staff and project managers enjoy compliments, they keep their ears tuned for hints of things gone awry. "A good relationship with a customer doesn't mean the customer never complains," says Tom Klitsner (4423), Project Manager for CSU 821. "It means the customer complains in a timely way and gives feedback that lets us correct trouble."

CSU customers agree. "If you decide to invest money in CSU services, I think you also have to invest effort into making it a relationship and working with the CSU so they understand your requirements," says Lorraine Sena-Rondeau, Manager of Information Systems and Documentation Dept. 14307.

"We've had some issues," says Lorraine, "such as not always getting the services we anticipated, or not having it in the time frame we expect. Those are the kinds of service issues we're working with the CSU."

Gary Beeler, VP of Defense Programs Products & Services Division Div. 14000, says, "There's room for improvement. But from what I've heard, the attitude of the people providing CSU support is very supportive in wanting to make improvements. So I think we'll get there."

Says Jim Wilder, "Our service has been good. I've been very, very pleased. Is it perfect? No. There isn't any service in this company which is perfect. For that matter"— referring to the business of his own

organization — "there isn't any engineering design group which is perfect!"

Jim also applauds CSUs' efforts to respond to customer complaints. "If something isn't working right, I let them know," he says. "But they have also been very proactive about wanting feedback. 'What isn't right? Tell us?' After we tell them, they go out and try to fix it."

Help Desk is entry to CSU services

Computer Support Unit subscriber or not, anyone at Sandia (including on-site contractors) can call or e-mail the Corporate Computing Help Desk to get information, report a problem, request help in leasing a new computer, or ask other computer-related questions. The Help Desk phone is 845-CCHD (845-2243). E-mail is cchd@sandia.gov.

Needs that can't be handled immediately by a Help Desk analyst are referred to a CSU via a computerized message known as an "action request." If the caller is a member of a subscribing organization, the CSU takes care of the need. If the caller isn't a subscriber, a CSU representative explains options for getting aid, which can include help from CSU staff paid for at an hourly rate.

"We've been upgrading Help Desk procedures and the link between the Help Desk and CSU," says Jim Hamilton, Manager of Computing Help Desk & Passwords Dept. 4412. "In the past, some callers have experienced delays in getting answers, and we're working together to make sure we always give the prompt, excellent service our customers deserve."

JIM BANKS (1111) works in the Heavy Ion Backscattering Photometry lab, collecting data with a computer maintained by Computer Support Unit 897.

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It's automatic: New System Management Server software enables near real-time profile of Labs' computer base

Attention, Windows 95 and Windows NT users: Don't sound the alarm when — not if — a new message appears on your computer screen sometime soon. You haven't caught a virus, and the millennium bug hasn't taken a bite out of your system.

The screen you'll see (if you haven't already) indicates that the Labs' new Microsoft Systems Management Server (SMS) software is being installed on your computer.

It's all automatic and is being installed initially on all Windows 95 and Windows NT computers connected to Sandia's Internal Restricted Network.

The SMS software enables system administrators to collect data about the computer hardware on the network. As such, says Jay Smith of Laboratories Computing Dept. 4911, SMS is "a powerful asset-management tool." Once the software is installed on a computer, system administrators can use SMS to keep running tabs on such things as: computer processor type (i.e., Pentium, 486, Pentium Pro), installed memory, hard disk size, cards installed, and more.

Jay notes that the SMS installation represents the first time at Sandia that computer software has gone automatically to a large number of computers without a human being installing it.

SMS is part of Sandia's plan for automatically keeping software up-to-date. The goal is to be able to install software Labs-wide automatically from a server on the network, so that a computer-support technician doesn't have to visit each computer.

Why? Jay explains: "Suppose it takes 15 minutes to install the latest version of Word or Excel on 8,000 computers at Sandia; by the time

we're done, we would have invested 2,000 hours on the process, the equivalent of one person working full-time for a year. We can put that time to better uses.

"We also need to be able to do updates more quickly than the weeks or months it takes individually, because we can't afford to have periods when part of the Labs may be creating memos or spreadsheets in file formats that are incompatible with the software being used by the rest of the Labs."

While remote software deployment is a goal, SMS will not be used for that purpose — currently another program called EDM, which will work in conjunction with SMS, does that.

Common Operating Environment

The software to be automatically updated is that defined in the Common Operating Environment (COE). The COE is a corporate initiative that establishes a Labs-wide standard for 32-bit computers required to work with some of the network-based corporate business applications. The COE is aimed at ensuring that Sandia's personal computers (PCs, Macs, Unix) can work together without unnecessary barriers of incompatible software.

Because the SMS software gathers technical data about the Labs' installed computer base, Jay says, it will be an especially useful tool for making cost projections. If the Labs decides to upgrade to a new version of Office, for example, it will have the data to determine which computers will have to be upgraded or replaced to make the transition possible. And the information about the installed base

of computers will always be current: When the system is fully operational, SMS will update the Labs' Network Information System database about the configuration of computers every seven days.

Here's another way the Labs can tap into SMS's capabilities: The software can let computer-support technicians connect to a computer and troubleshoot it remotely. Although there are no immediate plans to use that capability, it can ultimately result in a much more efficient use of the Labs' Computer Support Unit of maintaining every desktop [computer] in the system," he says.

Jay acknowledges that some Sandians who have heard about the SMS process are concerned that it represents an invasion of the individual's workspace, or even an invasion of privacy. In response, Jay notes that SMS "has nothing to do with waste, fraud, and abuse."

SMS, he says, does not tell system administrators what files or applications are installed on a given computer.

"I can't use SMS to determine if you're running a home business from your computer," he says. "As a Sandian, it's still up to you to use it [your computer] in an appropriate, work-relevant manner. SMS does nothing to change that."

—Bill Murphy

F-7

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Appendix G

Process Examples:

Network Information System Process
&
Out of Hours Support

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OVERALL CSU AFTER HOURS PROCESS

Customer | CCHD/Computer Operations | CSU On-Call

Customer Initiates After Hours Request

— Phone →

1
Initiate Automatic Phone Transfer to Computer Operations

— Phone call transfer →

What time is the request?

6:00pm-7:00am M-F Sat, Sun all day, holidays

5:00pm-6:00pm M-F

3
Respond to Customer call and create trouble ticket

— Customer Interface By Phone →

2
Respond to Customer call and create trouble ticket

— Customer Interface By Phone →

4
Page CSU On-Call Personnel, 15 min then call on-call, call CSU, call CSU project mgr. until contact made

Server Alarm

5
Automatic Server Monitoring create trouble ticket

Can CCHD Fix It?

— No →

— Yes →

CCHD closes ticket

— Phone contact →

6
CSU On-Call Personnel contact Computer Operations to get trouble information and customer name and phone number

— Yes →

7
Initiate Customer contact Determine nature of problem-emergency? 1 hr max from Computer Operations.

— Remote Login to Network →

1

CSU PROCESS CODING

Use Arrows to Indicate Flow
Identify Inputs/Outputs to
Processes
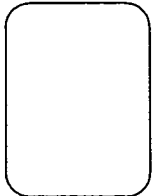
Process – All Processes Must
Be Numbered 1, 2... on 1st level.
1.1,1.2,... on second level etc.

End Action/
Deliverable

Decision

Tie Point To
Complete Process
Diagram on
Separate Sheet
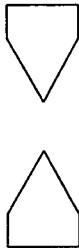
Same Process
Continuation on
Separate Page

Exit Page   Enter Page

Process with Process
Details Diagram on
Separate Page

Circle Subprocess
for Same Dept on
Same Page

Processes to be
Defined
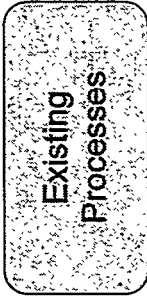
Existing
Processes
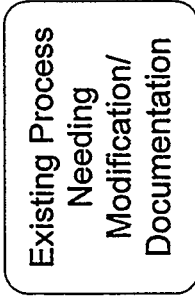
Existing Process
Needing
Modification/
Documentation

Future Color

G-4

Draft

1
Customer

Send Computer to Reclamation

Request Computer Move or new setup

Request Telephone and computer Move

Update selected fields on own machine, query on any machine

Reclamation Form

TSR/DCR

20
Computer Setup Required?

Process

No

No Action by CSU

Query and Update

DCR
YES

2
CCHD

Issue Ticket

New Ticket

4
CSU Ticket Dispatcher

Dispatch Tickets | Create Ticket From NWIS Reports

Create Ticket

ARS Ticket

3
ARS

5
CSU Desktop Support Staff

Update ARS | Resolve NWIS Tickets

Update Machine

CSU Staff Updates

21
Router Hardware

22
Router Process

8
HRIS

Auto Updates

6
NWIS Web Interface

Query

7
Property Coordinators

Updates

Normal Updates

23
Router Table Dump

Query

9
NWIS

10
Automated List of Changes

12
EPMS

13
Management/CSU Staff Queries

Generated DNS Table

11
DNS

Auto Updates

Generated List of Reclaimed Machines

14
Converts Notification to NWIS Update

Matched record

15
Periodic Report Processing

Unmatched record

24
SMS/EDM Processes

16
Automated List of Changes

17
Person/Machine Location Mismatch Report

18
Missing Information Report

19
Metrics Management/CSU Staff Report

Last Modified: 5/6/1997

NWIS Process
Revised DRAFT

14.
EPMS
DATABASE

13.
ARS
DATABASE

15.
EDM

16.
SQL
DATABASE
(SMS)

4.
EPMS Update
Process

5.
EDM Update
Process

6.
SMS Update
Process

3.
ARS Update
Process

2.
NWIS WEB
Interface

1.
N.W.I.S.

7.
Reporting
Process

17.
Trouble Ticket
Dispatcher

8.
DNS
Generation
Process

18.
DNS

12.
Router
Information
Update Process

9.
NWIS Database
Application

21.
Router Table

11.
HRIS Update
Process

10.
NWIS DB
Query/Update

19.
Requestor

20.
HRIS
Database

5/2/1997

G-6

7 X 2 4   E - M A I L   S U P P O R T   P R O C E S S E S

Process Outline
- Starts April 7, 1997
- SLA between CCHD/Annex, E-Mail Backbone, and CSU's.
- Physical Access to Servers
    - Clearances (Q, N, L)
    - Cipher Lock Combinations (Location, Permission).
- Administrative Access to Servers and PO's.
    - Admin Passwords for PO's.
    - Admin rights on PO servers.
- Special Instructions and Training.
    - Map to Server Rooms - location of PO Server and PDC.
    - Special Instructions for Local CSU Procedures, Accounts, etc.

SLA
- Out-of-hours support from 5pm - 7:30am weekdays and all weekend.
- 1 or 2 on-call personnel rotated between all Postmasters on a weekly basis.
- On-call personnel carry designated pager(s) and cell phone(s).
- Response time for on-site visit is 2 hours.
- Response time for call back support is ASAP, but no later than 1 hour.
- Annex pages on-call support after determining that problem resides with PO and not the E-Mail backbone, network backbone, or general facilities problem. However, on-call support is called if any of these problems causes a local PO problem that requires attention (e.g. - PO server doesn't come back up after power outage).
- For hardware problems: On-call personnel initiates call to HP maintenance support and notifies that CSU's postmaster and server manager of the problem.

Physical Access
- Clearances
    - Personnel with Q's should have N added - L's will need Annex personnel to escort for 880..
    - Q and L paired if 2 people on-call.
- Cipher locks
    - TCC cipher locks use common individual codes.
    - Standalone cipher lock codes stored in secured on-call database.
    - Personnel cleared and badges encoded (e.g. 823) for out-of-hours access.

Administrative Access
- On-call personnel added to e-mail admin global group (if secured)
  - Global group added to PO and PDC servers with admin privileges
  - If Global group cannot be secured, individual accounts added to each PO and PDC Server.
- Local admin accounts added to each PO.
- PO Passwords stored in secured on-call database (accessible only by on-call personnel in the same manner as above) and/or common PO Password used on all PO's and changed monthly.

Special Instructions/Training
- On-site visits to each CSU server room.
- Map of each CSU server room with location of room and servers (stored in on-call database).
- Standard procedures (e.g. - dir synch's, backups) are documented in the E-Mail Policies and Procedures Handbook.
- Special instructions for each CSU system stored in on-call database.
- New postmasters and server managers go through the same training.

G-8

Computer Operations Agreement
for
Out-of-Hours Support of CSU E-Mail Post Offices

Introduction:
This agreement defines the procedures to be followed when out-of-hours e-mail support
is required. Out-of-hours support is defined as support outside the regular operational
hours of the CSU's (i.e. - 5:00pm - 7:30am). Computer Operations (Annex staff) will
provide first level support, generate trouble tickets, and page on-call personnel (second-
level support) when problems need escalation. The E-mail Backbone Team will provide
second-level support when problems are determined to reside in the e-mail backbone
infrastructure (Mailhub, MTA's, Gateways, ...). Agreements for out-of-hours e-mail
backbone support are already in place. The CSU's will provide second-level support for
problems that occur at local CSU e-mail post offices. However, if Operations is unsure
as to whether the problem resides at the backbone or the local post office, then the E-Mail
Backbone Team on-call staff should be paged/called to determine how the problem
should be resolved.

Trouble Ticket Procedure:

Trouble tickets can be initiated by users that call the Corporate Computing Help Desk
(CCHD) and zero-out to Computer Operations after hours. Trouble tickets can also be
initiated directly by the Computer Operations staff when automated and manual
monitoring indicate a problem has occurred. If the problem is determined to reside at a
local CSU post office, the Computer Operations staff will page the CSU on-call support
personnel. On-call support personnel will respond to this page by returning a call to
Computer Operations as soon as possible, but no longer than 30-minutes after receiving
the page. If, after consultation with Computer Operations, it is determined that on-site
support is needed, the on-call personnel will arrive on-site as soon as possible, but no
longer than 2-hours after the initial page was received. If a user has initiated the trouble
call and has requested a return-call, the on-call support personnel will call the user
immediately after conferring with Computer Operations.

Note: On-call CSU support is designed to resolve emergency problems occurring at local
e-mail post offices and is not intended for support of e-mail client problems (e.g -
configuration of mobile clients) that may occur out-of-hours. Problems with e-mail
clients that are reported should be entered as trouble tickets that are deferred until the next
business day. If out-of-hours support for e-mail clients is determined to be needed in the
future, this will be addressed in a subsequent support agreement.

In the event that on-call personnel do not respond to a page within 30 minutes, the
Computer Operations staff can escalate the trouble call by: 1) Calling the home phone
number of the on-call staff, 2) Paging the designated secondary on-call support staff, 3)
Paging/Calling the E-Mail Backbone Team on-call support staff, 4)Paging/Calling the e-
mail subteam project manager.

Computer Operations Post Office Monitoring and Response

Computer Operations monitors CSU post office operations in several ways:

1) Mail cannot be delivered to a post office, hanging the mail routing operations. **Out-of-hours Response:** Computer Operations removes the post office from the call-list and pages on-call personnel.

2) Dial-in connections cannot be routed to the downstream post office, hanging the mail routing operations. **Out-of-hours Response:** Computer Operations removes the post office from the call-list and pages on-call personnel.

3) Automatic Baranoff monitoring detects mail delivery problems with a post office. **Out-of-hours Response:** Computer Operations removes the post office from the call-list and pages on-call personnel.

4) Standard post office scripts notify Computer Operations of failures in nightly maintenance operations. **Out-of-hours Response:** To be determined (based on which operations fail).

Modifications:

Modifications to this agreement will be made as necessary with the concurrence of Computer Operations, the CSU's, and the E-Mail Backbone Team.

Mark Stilwell is the on call postmaster.

The on call postmasters are:

1. Craig Lightle	Home Phone: 281-7575
2. Robert Shinn	Home Phone: 281-4703
3. Mark Stilwell	Home Phone: 898-5357
4. Tim MacAlpine	Home Phone: 266-1794

On call rotation is 1, 2, 1, 3, 1,4.

The ANNEX (844-4390) and Jake Romero (844-3461) will be notified of any deviation from this rotation.

The rotation change is made every MONDAY. Current postmaster is responsible for transfer to new person.

The following post offices are covered by this on call group: 802-807-821-836-880-890-891-897-A3/5

If there is a problem with a COVERED post office NCC should call the PageNet pager number first, (if no response within 15 minutes the PageNet number should be RECALLED), if still no response then the old Sandia pager number, and finally the home phone of the ON CALL person. (the cell phone is used only for the on call person to contact NCC when needed and is normally not turned on). ANNEX will then "Open" a trouble ticket and check the "Assigned" button and assign it to "CSUPMADMIN".

If the on call person cannot be reached within one hour, call the PREVIOUS on call person.

The on call person will update the history, select PO-PMADMIN from Keywords/Host and close the ticket.

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Appendix H

Excerpts from the FY97 CSU 2001
Strategic Planning Session

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Introduction

This strategic plan, *CSU 2001,* aims to outline the long-term directions and some shorter-term objectives and tasks that will guide Computer Support Units (CSU) through the next five years.

Besides being a continuation of a process that has been going on throughout the (still brief) history of CSUs, this plan is also a response to the 1996 Independent Technical Review of Sandia National Laboratories Information Systems and Information Technology Processes (hereafter referred to as ITR). The report from that review presents several points that are foundational in CSU strategic planning:

- "The IS/IT process is an infrastructure process ... that must add real value to the Corporate and Business processes of the enterprise" (3-1)

- "Information infrastructure stewardship assures that all enterprise information users have the desktop access required for enterprise agility" (3-2)

- Among the IIS infrastructure necessary to enable enterprise agility and efficiency is a "commercial-like" CSU direction (3-3). In this context, commercial-like means "producing an affordable product or service in a competitive environment." (5-1)

The CSU "Virtual Project"

As a final, cautionary note from the ITR: In a recent survey of information systems managers at 365 Fortune 1,000 companies, the Standish Group International, Inc. in Dennis, Mass., found these results in 8,380 projects: *Sixteen percent were completed on time, within budget, and with all the features originally planned.* Fifty-three percent were completed late, over budget and with limited functionality. Thirty-one percent were canceled before completion (6-18, quoting a Gartner Group report; emphasis added). Because CSUs are still in a state of active growth and rapid change, the CSU enterprise might be described as a virtual project whose goal is to bring all Sandia distributed computing support into a single effective, efficient structure. (Once that goal is reached, CSUs then change from a project-type undertaking to a fully developed operation-type activity.) One purpose of this plan is to put the CSU "virtual project" into the 16% of successful projects.

CSU Evolution

From Computing-Centric to Customer-Centric

Originally termed "Customer Service Units," CSUs began to take shape within an immediate organizational environment where computing was the assumed focus, but customer service was considered a distinctive characteristic of certain computing-related activities, and worthy of being explicitly named. In other words, the innovative concept referred to as a "CSU" developed within a computer-centered organization that had to learn a hard lesson: customers are not particularly interested in their computers, only what the computer can do for them. Gradually the CSU focus has shifted to recognize explicitly and organizationally that computing is not the main activity on customers' minds. Customer service was always a chief CSU value, but it has required time, growth, and some pain to recognize the operational implications of that value.

The change in the summer of 1996 to the more precise name "Computer Support Unit" is an acknowledgment that customers do not constantly think about computing. Rather, customers think about their jobs or their administrative needs, and computers are simply one of the tools for doing a job or taking care of a need. Customers call for "computer support" when they need it—and they expect and deserve to receive that support from a group whose chief value is "customer service." The hurdle for CSUs has been to develop ways to provide exceptional customer service in a routine way.

Changing Environment, Changing Responses

As CSUs took form and began to grow, Sandia's distributed computing environment was one in which (as a benchmark example) universal e-mail did not exist. E-mail is a landmark useful in illustrating the spotty and chaotic nature of information technology at Sandia in the recent past. It is also a good gauge of the changing technical and organizational environment from then to now and into the future. When CSUs were first being created, some Sandians had e-mail and some didn't. A message from one a user on one post office to a user on another post office might or might not get through. Dozens of locally run post offices might go up or down without warning, causing messages to bounce back to the sender as undeliverable. Additionally, there was a constant problem of e-mail attachments becoming scrambled in incompatible formats, a problem which has not yet been entirely overcome. E-mail is a clearcut example of an information-related service that has gone from modest customer demand (sometimes even disdain) to a "must have" status that attracts bitter complaints any time it fails. Such is the nature of the fast-changing world of information services.

Even in their short history—since 1994—CSUs have undergone substantial changes in response to their evolving business and technical environment. As developed on the basis of the then-existing situation at Sandia and assumptions about the future, the original vision for CSUs incorporated what might be called a federated model. The CSU Senate would have CSUs and non-CSU computer support organizations working together to provide distributed computing services at Sandia.

To briefly sum up many months of experience, it became apparent that meeting Sandia's distributed computing needs required that CSUs be more pervasive—essentially the only source of local computer support at Sandia—and more unified than originally envisioned. Even the distribution of CSUs among several departments within the same Center of Integrated Information Services led to more variability than was acceptable. The technical and business environments within which CSUs operate are so dynamic and so unpredictable that the CSU operation itself must be uniform, consistent, and predictable.

This is not to say the CSU operations must be unchanging. Rather, the uniformity, consistency, and predictability refer to a cross-CSU view at any one time. By linking CSUs together, these qualities contribute to the agility of the entire CSU system, making it possible for changes to be implemented rapidly and consistently in response to changes in the customer environment.

One characteristic of CSUs to date is a steep growth curve. For example, the customer count more than doubled during FY96. That rapid growth, along with other organizational changes, made FY96 a period of consolidating the CSUs into an established, accepted feature of Sandia's business landscape. It also brought difficulties in assimilating new customers and consistent operating procedures at the same time. By contrast, FY97 appears to bring opportunities for continuing customer growth at a more moderate pace, as the CSUs gradually approach the 100% mark, while instituting practices and processes that create a more stable operational environment.

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CSU Mission

The function carried out by CSUs has a clear and direct connection to Sandia strategic objectives. The 1996 update to the Sandia Strategic Plan says

> In order to have a laboratory that works better and costs less, we will create an infrastructure that is a competitive advantage for our strategic missions. . . . We will place high priority on our information infrastructure to ensure that integrated information provides strategic advantage to our technical programs and makes our administrative tasks dramatically easier and faster.

Part of the challenge for CSUs is consistently to be, and be perceived as, a direct contributor to Sandia's strategic advantage. This requires constant attention, because discussion and planning related to CSUs has a tendency to move quickly from the "what" to the "how," focusing on the ubiquitous, demanding operational demands imposed by rapid growth and impatient customers. To ensure that strategic and operation planning is linked to a basic purpose for CSUs to exist at Sandia, this plan is built on an understanding that the mission of CSUs is

Enabling distributed computing at Sandia

Deliberately brief, this statement avoids extension into how distributed computing is enabled, how CSUs will balance enterprise effectiveness with local/organization efficiency, exactly what is embraced in distributed computing, what will be the metric for success, or any of the other questions that arise when putting a mission into practice. All of those other questions are addressed explicitly or implicitly elsewhere in this plan. "Enabling distributed computing at Sandia" is fundamentally *what* CSUs do; all else is *how* they do it.

CSUs' Purpose in the Enterprise

From an enterprise point of view, a high-level view might lead to the question of *why* CSUs exist, in terms somewhat less generic than "competitive advantage for Sandia." Or the question may not be so much why CSUs exist as why distributed computing exists. Some of the reasons for distributed computing in general and CSUs in particular are

- support the conversion of information into a corporate resource for business-critical activities

- ensure the ability to have information flow across the Laboratories, regardless of organizational structure, so that every employee will be able to provide or access information when and where needed

- ensure that computer support not only meets needs of individual customers at a given moment, but fits within corporate strategic direction

- ensure that as technology changes, customers will have a continuing ability to share information

- support the process of changing information technology from a local productivity enhancer to a means of integrating enterprise process and eventually to a means of enterprise capability through agility and innovation

- foster a shift to a line-of-business approach to distributed computing, rather than a localized organization emphasis

- return employees who have informally become computer support personnel to the jobs they were trained and hired for (or give them a chance to convert explicitly to distributed computing support)

- advance the view of computing technology and information as a corporate resource, rather than a personal possession of individuals or "information brokers"

Conveying the Mission to Customers

The above statement of the CSU mission is essentially internal to the CSU organization, to help keep it focused on the end and not just the means. For most customer communications, the purpose of CSUs is better translated into the form "local computer support with a Labs-wide perspective." Many other specific customer benefits can be stated as corollaries to this mission, such as providing customers with a fully working capability for information (rather than a set of discrete services that the customer must assemble).

CSU Operating Environment

This section outlines assumptions on which CSU strategic planning rests.

Technical Assumptions

1. Technology will continue to advance faster than the cycle time for incorporating it reliably and consistently into the Sandia environment.

2. New tools will increase capabilities but will demand substantial effort to put into operation.

3. Multiplatform requirements will continue, but may gradually be reduced to Windows/Intel and Unix.

Business Assumptions

1. Sandia budgets will be flat or reduced.

2. Sandia senior management will recognize widely shared information as a strategic resource.

3. Contracting methods will continue current trends such as staff augmentation and performance-based contracting.

Customer Assumptions

1. Some customers will increasingly demand powerful, reliable, intuitive electronic tools.

2. Some customers will demand to be insulated from changes in technology.

3. Customers will need a complete solution, with CSUs taking ownership of service requests from start to finish.

4. Customers will tend to see computers as "theirs" rather than "the company's."

5. Customers' time-scarcity will increase demand for efficient, targeted training.

Partner Assumptions

To provide their end-user customers with a single integrated solution, CSUs need close relationships with the following activities of Integrated Information Services:

1. Corporate Computing Help Desk

2. Site Licensing

3. Computer Leasing

4. Computer Operations (for network issues)

5. Applications Development (for deployment, training, and maintenance issues)

6. Training

CSU Strategic Objectives

The Desired Future State

The CSU strategic planning process included discussing the question "what would success over the next two years look like?" Narrowing from dozens of specific points, the following emerged as a consensus view:

- CSUs fiscally sound, funded fully or primarily by indirect at the corporate level

- Everyone at Sandia a customer

- Multiple business points of contact—for example, division business offices are a key CSU interface

- Common Operating Environment adopted

- Turf battles replaced by partnerships

- Costs lowered (for example, through remote desktop management, electronic software distribution, automated inventory)

This strategic plan is aimed at taking CSUs to this desired state by defining task areas, major subtasks in each area, and connections to operational planning (such as metrics)

Strategic Objectives

Management Strategic Objectives

CSU management consists of two related but distinct parts:

- CSU operations

- Departmental organization and management

CSU Operations

CSU operations means the delivery of consistent services to CSU customers using standard processes.

Goal for CSU Operations

The goal for CSU operations is to define, document, and implement a consistent, useful, and effective set of services and processes across the enterprise.

This goal implies the importance of balancing individual customer needs (which may be varied) with corporate needs (chiefly consistency and standardization). That is, this is a point, along with technology, where the CSUs experience the tension between demand for individual/organizational productivity and the demand for enterprise effectiveness. To manage this tension, CSUs must have two essentials in place:

- standard services and computing environment that Sandia management endorses, the CIO enforces, the CSUs apply, and customers accept

- processes that are consistent at the overall level and allow the necessary flexibility for local implementation (for example, details of execution will vary between small CSUs and large CSUs, yet the process will be the same)

A major issue in operations is how CSUs and customers understand the scope of standard CSU services and how CSUs enforce them. At this time, CSU technicians feel vulnerable to argumentative customers who insist that subminimum computers be supported, nonstandard software be installed or maintained, etc. Related to this issue is the COE, including its definition of augmentation to standard environments (see "Technology").One essential is to define the point at which a particular type of service goes beyond the bounds of standard services and should either incur an extra charge or be defined as a tailored service.

CSU Management Approach

Management of the entire CSU structure is based on several principles.

- CSU project managers and other team leaders in CSU development and operations report to a single department manager. (Organizational unity)

- CSU project managers develop internal methods to carry out top-level CSU processes and achieve common CSU goals and objectives. (Consistent management and operation carried out in diverse local environments.)

- (others?)

Staffing Strategic Objectives

Staffing means providing human resources to achieve a high level of customer service.

Goal for Staffing

The goal for staffing is to define and develop policies for

- staff acquisition/hiring

- staff utilization

- staff development

These policies will be developed and distributed as a "staffing constitution" to be followed by all CSUs. This "staffing constitution" will be analogous to the common service description or service level agreement.

Technology Strategic Objectives

Technology (or *technology development*) means as the definition of the desktop environment and the development or definition of methods and products for the support and use of that environment

Customer Relations Strategic Objectives

Customer relations means all CSU interactions with the end-user customer.

Goal for Customer Relations

The goal for customer relations is to create and maintain an active partnership between the CSUs and Sandia management and staff to continuously improve CSU support of the distributed computing environment.

Partner Relations Strategic Objectives

Partner relations means all CSU interactions with partner organizations in IIS that are part of the process of delivering value to customers

Goal for Partner Relations

The goal for partner relations is to create and maintain an active partnership between the CSUs and other IIS organizations to continuously improve CSU support of the distributed computing environment.

Five-Year Timeline

CSU strategic planning takes place in a context of unpredictable technology advances and changing (always escalating) customer expectations. In addition, IIS is itself in the process of developing an Enterprise Information Plan that could introduce changes in the CSU environment. These facts mean that the CSU planning process is partly reactive. Unlike a major construction project—such as a large new R&D facility—CSUs cannot create a project plan that says in year one we will accomplish the grading and exterior shell, in year two we will finish the interior and design and fabricate cryogenics and superconducting magnets, in year three the data collection system will be completed, etc. Even lacking such a specific outline, however, it is possible to make some educated guesses for the next five years. The following are a combination of "ends" and "means" for CSU operations.

Five-Year Timeline

	FY97	FY98	FY99	FY00	FY01
Management	Formal CSU-wide processes begin to be implemented	15 CSU-wide processes in place by end of year	• 30 CSU-wide processes in place by end of year • Proj Mgrs primarily doing strategic/operational planning	Technical/organizational advances enable CSUs to eliminate geographic distinctions, embrace organization-based support	
Financial		CSUs demonstrate lowered cost-per-unit work			
Staffing	Plans completed for integrating performance-based contracting				
Technology	COE introduced, regular update process in place			Remote desktop management is fully implemented	
Customer Relations	COE and standard services become recognized norm	• All customer requests go to Help Desk (attempts to bypass are rare) • 75% of customers "satisfied" on survey	• Customers see continuity when changing CSUs (do not need to be aware of CSU identity) • 80% of customers "satisfied" on survey	85% of customers "satisfied" on survey	85% of customers "satisfied" on survey (asymptote reached)
Partner Relations		Help Desk may have tailored services (e.g., executive secretaries)			

The following bulleted list repeats the information in the table, with more detail:

FY1997

- Common Operating Environment is introduced and regular update process is in place

- COE and standard services list become the recognized norm for CSU services
- Tools such as the Network Information System and top-level CSU processes are implemented, with provision for maintenance

FY1998

- All requests for CSU service go to Help Desk; no customers try to get service directly from CSU (Help Desk may have developed tailored forms of help, e.g., for executive secretaries)
- 15 top-level CSU processes in place by end of year (full documentation and training, with audits)
- CSUs can demonstrate lowered cost-per-unit work
- CSU department manager and team supervisors are primarily doing strategic tasks
- Annual survey shows 75% of customers satisfied with CSU service

FY1999

- Customers see no differences when they move from one CSU to another; do not even need to be aware of which CSU they are in
- 30 top-level CSU processes in place by end of year (full documentation and training, with audits)
- Customers abandon massive e-mail attachments and use other means of sharing information
- CSU project managers are primarily doing strategic/operational planning
- Annual survey shows 80% of customers satisfied with CSU service

FY2000

- Technical and/or organizational developments enable CSUs to eliminate geographical constraints and embrace organization-based support
- Remote desktop management is fully implemented
- Annual survey shows 85% of customers satisfied with CSU service

FY2001

- Annual survey shows 85% of customers satisfied with CSU service (asymptote reached)

Appendix I

Computer Support Units (CSUs) Assessment

February 10, 1997

Karen Current

Mike Tebo

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Jonnie Banks

Sally Landenberger

Teresa Torres

Background

Customer Satisfaction Measurement

The Red Team Report on the Information Systems and Information Technology (IS/IT) Processes discussed the importance of a Customer Satisfaction work ethic within the CIO organization. It identified a need for Customer Satisfaction metrics such as surveys and interviews to directly assess feedback from customer organizations. The Computer Support Units (CSUs) are the first formalized customer contacts from the CIO organization. The CSUs have been in existence since 1994, and have more than doubled their customer base in the past fifteen months.

In the past year, Account Managers were named as the second formalized customer contact mechanism within the IIS organization. They fulfill a customer-partnering "liaison role". The account managers' were getting mixed feedback on customer and CSU satisfaction levels. There were indications of confused customer expectations.

Taking both of these into consideration, a team was chartered to establish a baseline customer satisfaction level of CSU services.

CSU Assessment Purpose

The purpose of the CSU assessment is three fold. First, a baseline of customer satisfaction with CSU services needed to be established. This baseline includes an assessment of the satisfaction with services currently provided as defined by the CSUs. In addition, the baseline will identify services expected by the customer, but are not receiving at this time as well as services they are receiving, or desire that are not included in the CSU definition of services. The second purpose is to align the Account Managers with the CSU activities. The final purpose is to get some commitment to actions on behalf of the CSU and IIS organizations. These actions include prioritizing services, managing customer expectations, and communicating with our customers.

Questionnaire Summary

Questionnaire

The questionnaire was divided into five areas. First, an assessment of the general satisfaction is measured with respect to five key areas which form the definition of value. These areas are Timeliness, Results, Communications, Customer Service, and Value. The respondents are asked to rate questions in these areas on a four point scale (Very Dissatisfied, Somewhat Dissatisfied, Somewhat Satisfied, Very Satisfied).

Second, eleven specific services are listed. The respondents are asked to indicate which services they are aware of and which they had used. In addition, for the services used, they are asked to identify the three services they believe the CSUs do the best job of providing, and which three they do the worst job of providing. Similarly, they are asked to indicate the three services they believe are most important for Sandia, and the three they believe are the least important for Sandia.

The third section was comprised of only one question. It asked the respondents to indicate their overall satisfaction rating on a six point scale from Very Dissatisfied to Very Satisfied.

The fourth section contains four open ended questions requiring written responses. The first question allows respondents to identify services they expect to be receiving, but are not. The second identifies services they are receiving but did not expect to, and the third allows them to identify services they would like to see provided. Finally, they are asked for any additional comments.

The final section of the questionnaire is the demographics section. Here the user identifies the computer platform(s) they use (PC, MAC, UNIX), their primary job function (Management, Technical or Scientific, Administrative), and their computer knowledge (Just Use - don't understand how they work; Fairly well - understand fairly well, may do some installations and troubleshooting; Expert - understand them very well). In addition they are asked to indicate what they use their computer for, which building they are located in, and which center they belong to.

The actual questionnaire is included in Appendix B.

Mechanism

The questionnaire was implemented as an web form for users to fill out. An email message was sent from the CIO explaining the purpose, indicating the questionnaire location, and asking for their response. A pilot survey was sent to 23 people, 10 of which responded with suggested improvements. The final survey was sent to 60 randomly selected people from each CSU, including California, as well as all Directors identified as CSU customers. This resulted in approximately 680 requests for response. The survey team received 199 responses (30% response rate) which were evaluated.

Conclusions and Recommendations

In this report, "satisfied" is the combination of all satisfied components, and "dissatisfied" is the combination of the dissatisfied components. Demographics were only broken according to computer platform, job function, and computer knowledge. The "fence" is defined as the areas in the middle of the scale (Somewhat Dissatisfied combined with Somewhat Satisfied).

General Quality of CSU Services—"How satisfied are you in the following areas?"

Overall

Conclusions:

We are doing O.K. 66% of the respondents were generally satisfied with the CSU services. However, 46% of the respondents sit on the "fence". These are people who could more easily go either direction in the future. Management is less satisfied with 58%, but the data shifts here as well. Only 2% of Management is Very Satisfied, where overall 20% are Very Satisfied. Similarly, respondents identified as Experts are less satisfied at 57%. Again, the data shifts. 20% of Experts are Very Dissatisfied versus 7% Very Dissatisfied overall. On the other side, the Just Users are more satisfied than overall with 86%.

Recommendations:

Choose stretch goals with a specified time and repeat a satisfaction measurement. This is the baseline, we should identify a target improvement indicator, assign a time frame for making the improvements and re-assess the satisfaction of the customers.

Timeliness—response to service calls and response to solutions

Conclusions:

Generally high satisfaction ~75%
- ✓ Expert 23% Very Dissatisfied vs. Overall 7% Very Dissatisfied
- ✓ Just use 51% Very Satisfied vs. Overall 34% Very Satisfied

Recommendations:

Focus on expert users by finding the basis for their dissatisfaction. These could indicate improvements in training, communications, understanding needs, and expectation management.

Results—solutions, ease on the customer, consistency in services

Conclusions:

Finding solutions without undue burden on customers - 78% satisfied
- ✓ Administrative more satisfied - 88% satisfied

Consistency shows relatively lower - 67% satisfied
- ✓ Experts only 53% satisfied
- ✓ Just Use 84% satisfied

I-6

Recommendations:

Focus on expert users by finding the basis for their dissatisfaction. These could indicate improvements in training, communications, understanding needs, and expectation management.

Communications—on available services & how to get them, schedules for installations and deployments, service request status

Conclusions:

These questions rated 3 of lowest 5 - 58% satisfied
- ✓ deployment communications at lowest with 49% satisfied
- ✓ deployment dissatisfaction significant
    - > UNIX - 57%, MAC - 65%, Management - 60%, Experts - 70%

Recommendations:

Improve communications in all three areas. These are some of the lowest scoring satisfaction ratings. We need to develop and provide consistent stories both internal to the IIS and across CSUs for deployments. We may be able to utilize communications and marketing team to accomplish this.

Customer Service—ownership of request even if not completed by CSU, accepting feedback, understanding needs of the customer

Conclusions:

Accepting feedback is very good - 78% satisfied
- ✓ Just Use - 98% satisfied, Administrative - 91% satisfied

Understanding needs is lower - 66% satisfied
- ✓ Significant dissatisfaction: Experts 54%, MAC 40%, UNIX 50%

Taking ownership is lower too - 66% satisfied
- ✓ Just Use - 88% satisfied, Experts - 49% satisfied

Recommendations:

Develop process for identifying who can solve "specialized" problems and the mechanism for assigning the resources. This may result in changes in training, staffing

levels, and resource assignment. This could also impact the "corporate decision" on platform strategy.

Value—meeting desktop computer needs, implementing corporate computer policies, cost of services

This section distinguishes between the two roles being performed by CSUs. One role is the "desktop helper". They are there to make the desktop operate according to the needs of the customer. The second role is that of "corporate enforcer". In this role, they are the implementers of corporate policies.

Conclusions:

Cost - second lowest in satisfaction at 59%
✓ Management sitting on fence 81%, with 56% dissatisfied and only 6% Very Satisfied

Overall satisfied with value of roles at 73%
✓ Corporate role shifts toward middle
> Very satisfied: desktop 35%, corporate 27%
> Management less satisfied with corporate role 55% vs. 76% overall

Recommendations:

Focus on management view of value of CSU services. We need to find the basis for their dissatisfaction or mediocre feelings for costs. These are the decision makers. With declining budgets we should pay close attention to the 81% sitting on the fence. We should also understand their dissatisfaction with Corporate role.

Specific Services

This section of the questionnaire listed eleven specific services being provided by the CSUs. The reference to "SS#" refers to the Specific Service number on the questionnaire. The questionnaire is included in Appendix B.

Aware and Used

72% were Aware of the services listed - exceptions:
- ✓ consulting on special services (SS#11)
- ✓ consulting on compatibilities w/ other tools (SS#4)
- ✓ lending computers (SS#7)
- ✓ assisting with lease program (SS#6)

80% of people Aware of a service, had Used it

Most Used Services:
- ✓ Providing standard commercial software (SS#1)
- ✓ Providing software for corporate applications (SS#2)
- ✓ Providing network connections and servers (SS#9)
- ✓ Consult on repairing, upgrading or replacing computers (SS#5)

Three Services CSUs are BEST at Providing

Providing Sandia standard commercial software (61%-SS#1)
Providing software for corporate applications (32%-SS#2)
Providing servers for storing and sharing across Sandia (22%-SS#9)
Consult on repairing, upgrading or replacing computers (21%-SS#5)

Three Services CSUs are WORST at Providing

Develop, publish and carry out deployment plans (26%-SS#3)
Consult on compatibilities with other software (24%-SS#4)
Consult on repairing, upgrading or replacing computers (18%-SS#5)

Three Most Important Services for Sandia

Providing Sandia standard commercial software (66%-SS#1)
Providing software for corporate applications (40%-SS#2)
Providing servers for storing and sharing across Sandia (28%-SS#9)
Develop, publish and carry out deployment plans (24%-SS#3)

Three Least Important Services for Sandia

Assist with acquiring computers through lease program (32%-SS#6)
Provide specially negotiated services (29%-SS#11)
Lend a desktop computer when yours is being serviced (26%-SS#7)

Performance and Priority of Services

"Best" Conclusions:

We are doing the "best" job at three of the four most important services ...
- ✓ Providing Sandia standard commercial software (SS#1)
- ✓ Providing software for corporate applications (SS#2)
- ✓ Providing servers for storing and sharing across Sandia (SS#9)

"Best" Recommendations:

Keep up the good work here. Continue to improve these "best" services. Keep these processes running smoothly, these are the core CSU services.

"Worst" Conclusions:

We are doing the "worst" job at the three least important services
- ✓ Assist with acquiring computers through lease program (SS#6)
- ✓ Lend a desktop computer when yours is being serviced (SS#7)
- ✓ Provide specially negotiated services (SS#11)

"Worst" Recommendations:

Assess if resources needed to maintain these services are worth the benefits.
Observation: new and/or custom services. Are processes in place and used?

Divided Data Conclusions:

Fourth most important is rated as highest "worst"
- ✓ Develop, publish and carry out deployment plans (SS#3)

One split in best and worst, and split in importance

- ✓ Consult on repairing, upgrading or replacing computers (SS#5)

Divided Data Recommendations:

- ➢ Deployment process needs to be better developed for consistency.
- ➢ Process for upgrading, repairing and replacing computers needs to be better developed for consistency

Assessment Summary

Baseline -- now at "C+" Satisfaction level
- ➤ Set a "Stretch" goal and re-assess satisfaction level

Communications in all areas
- ➤ Develop consistency within IIS and CSUs

Deployment -- plan, communicate, and implement
- ➤ IIS and CSU-wide processes needed, interdependencies

Management focus -- Cost and Value
- ➤ Understand "luke cold" feelings of these decision-makers

Expert focus -- demanding, difficult requests
- ➤ Process to tap into cross-CSU expertise

Observations and Recommendations from Account Managers

CSU satisfaction level higher than expected.

Services are defined in terms of activities
- ➤ Redefine services in terms of benefits to the customer, in their language.

Manage Customer Expectations
- ➤ By linking customer requirements to plans and actions, report plan/action status, and request feedback.

Confusion on CSU Business operations
- ➤ Know and focus on customers, update customer database
- ➤ Consistent CSU Services list

Completion Activities

Identified need for IIS and CSU Action Plans
- ✓ CSU, IIS need to follow through in creation and implementation

Questionnaire database to be transferred to CSU

Provide Assessment results on web to surveyees

Happy Hour!!!

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