

Sandia National Laboratories

Site Update

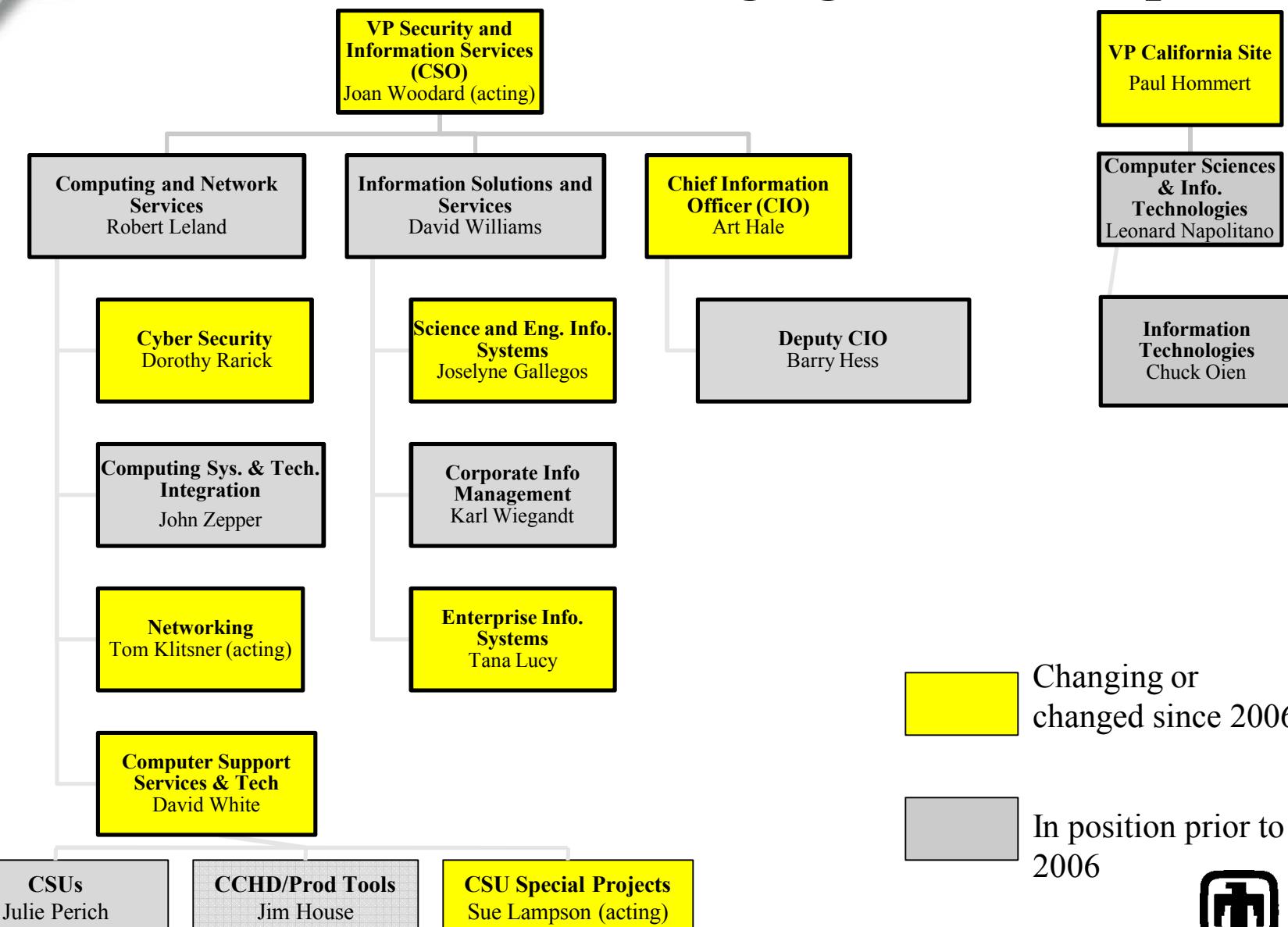
2007 NLIT Summit

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Sandia National Laboratories

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



Sandia's Changing IT Landscape



Changing or
changed since 2006

In position prior to
2006



Sandia Corporate IT Services

- **Computer Support Services**
 - Computer Support Units (CSUs) (7 in NM, 1 in CA, 1 Special Projects CSU)
 - Corporate Computing Help Desk (~11,000 calls/month, 60% of calls are desktop support related, also provide application support)
 - Technology Development (Patching, preferred systems list, Anti-virus etc)
 - Production Tools (ESS/remedy ticketing, NWIS, Scanning, SMS, DMS etc...)
- **Networking**
 - 3 production networks (open, restricted, classified)
 - Wireless (hotel/sandia)
 - Telephones
- **Corporate Compute Services**
 - Thunderbird cluster (8000 Node Dell “super” cluster) #6 on Top 500 list
 - Sandia’s Enterprise Electronic Messaging Service (Exchange, Communicator, SharePoint, etc...)
 - Central Data Repository (SDSS, DropZone)
- **Information Management/Collaboration**
 - Web File Share (electronic document control system)
 - Video Conferencing and Collaborative Technologies
 - Unstructured Search/Enterprise Content Management
- **Enterprise Infrastructure Development/Support**
 - Database Admin
 - Server Refurb and Admin
 - Sandia’s Internal Web
 - Software Configuration Management
 - Application Infrastructure Support
- **Enterprise Resource Planning Information Systems**
 - Oracle/PeopleSoft (Enterprise Personal, financial, manufacturing, HR Info. Systems)
 - Management Reporting



Sandia's Diverse and Voluminous “End User” Computer Environment

- **~22,000 desktop computers (Linux, Unix, Mac, Windows- ~90% Windows XP SP2)**
- **~10,000 laptop computers (Linux, Mac, Windows)**
- **~2000 PDA devices**
 - **New policy requiring built-in encryption, using HP iPAQ**
- **~750 Blackberries (up from 400 last year)**
 - **External use only**
 - **Investigating business/security case for some internal use**
- **All Devices Registered/Managed in Sandia's Network Information System (NWIS) (See talk later in conference)**
 - **Registration required for network authentication and IP provisioning**
 - **Major backbone for “governance”**
 - **Inactive machines are not allowed on the network**
 - **Machines that are not patched, not configured properly or unregistered are deactivated and removed from the network (through NWIS).**



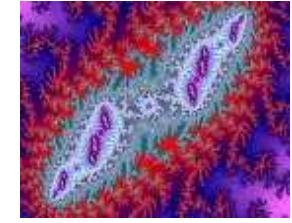
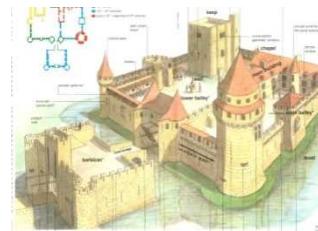
IT Is Valued By Its Users

- **Sandia's top customer scores across all indirect services in both importance and satisfaction**
 - **Computer Support Units (CSUs)**
 - Includes backend TechDev support
 - **Corporate Computing Help Desk (CCHD)**
 - **Sandia's Enterprise Electronic Messaging Service (SEEMS)**
A.K.A. Email...
 - **Telephone Services**



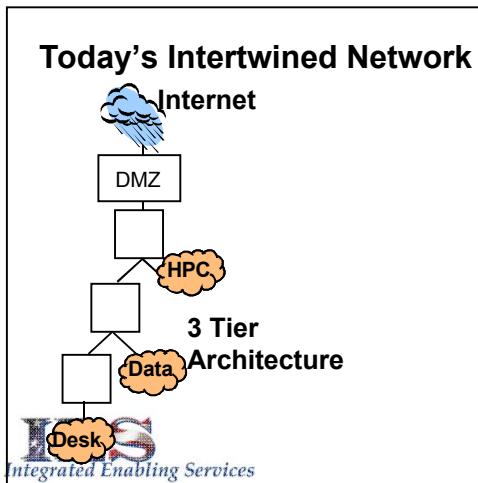
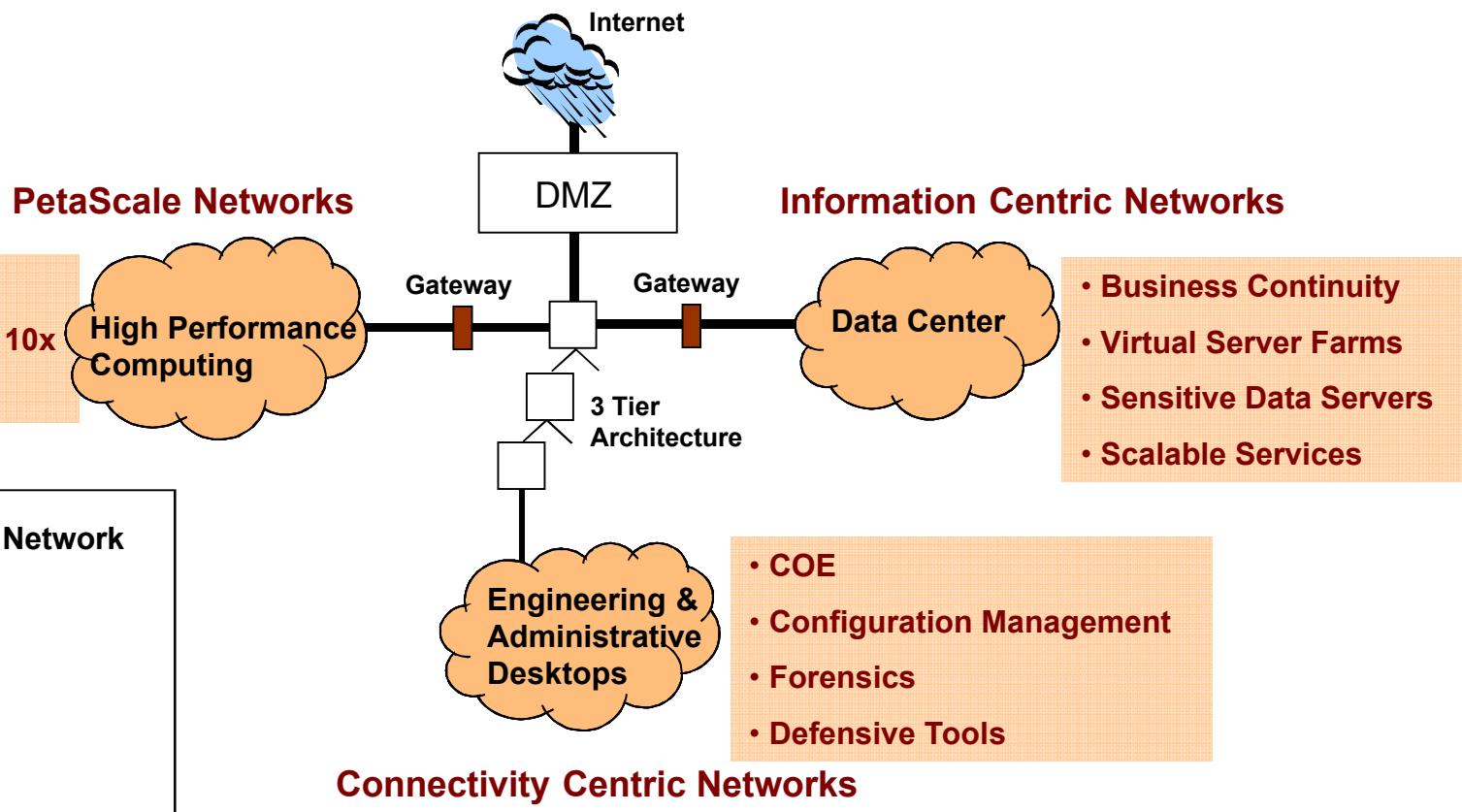
IT “Highlights” from 2007

- Planning, management, etc...
 - Computing Support Services (CSUs, TechDev, ProdTools, CCHD) receives ISO 9001:2000 certification
 - Disaster recovery/business continuity site chosen and system established in Sandia CA.
 - Transition of CSUs in CA to service level contract (now same as NM)
 - Reduction of ~5000 computers from active status prior to Microsoft true up saving hundreds of thousands of dollars in license fees (driven through NWIS initiative...)
 - Stood up IT support for the Yucca Mountain Project when Sandia took over as Lead Laboratory for repository systems.
- Cyber Security
 - Cyber Security and Networking partner to create SURE, a design for secure computing on Sandia's restricted and classified networks.
 - Beginnings of Cyber Security “doctrine” to take us beyond compliance (more details next year...)
 - Wireless upgraded to use “802.11.i” for improved security inside Tech Area (approved for use in 4 buildings, roll-out occurring as funded)



Sandia's Unclassified Restricted Environment (SURE) will prepare Sandia for new business and new threats

Balancing Performance, Engineering, Information, Security Drivers



IT “Highlights” from 2007

• Technologies

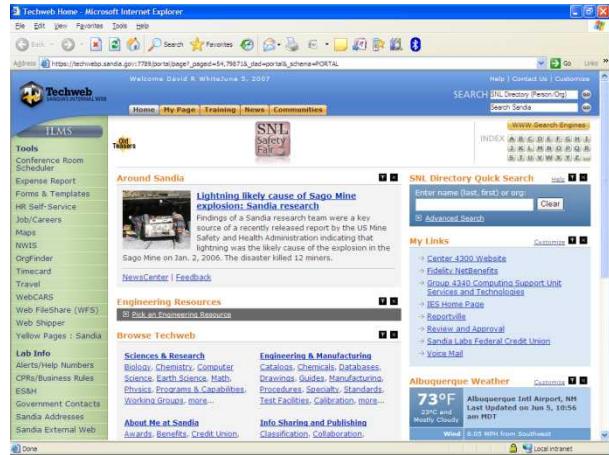
- Switch to Oracle portal technology for Sandia’s internal website
- SharePoint tidal wave of use (and wiki’s too...): 1/2 of Sandia access’s SharePoint sites each day, 100 GB data (not official SNL storage location), and 650 sites on internal network
- 7500 active Instant messaging users; generating over 16,000 messages a day
- Decision to use VoIP at new Sandia facility (outside of Tech Area housing HR, Facilities, etc...) with ~700 Occupants

• Computing

- 10368 Single Core Opteron Processors Available (will sell to serious bidders only...) due to Red Storm upgrade (41 T to 120 T)
- 38% system software performance improvement in Thunderbird (Sandia’s capacity cluster)

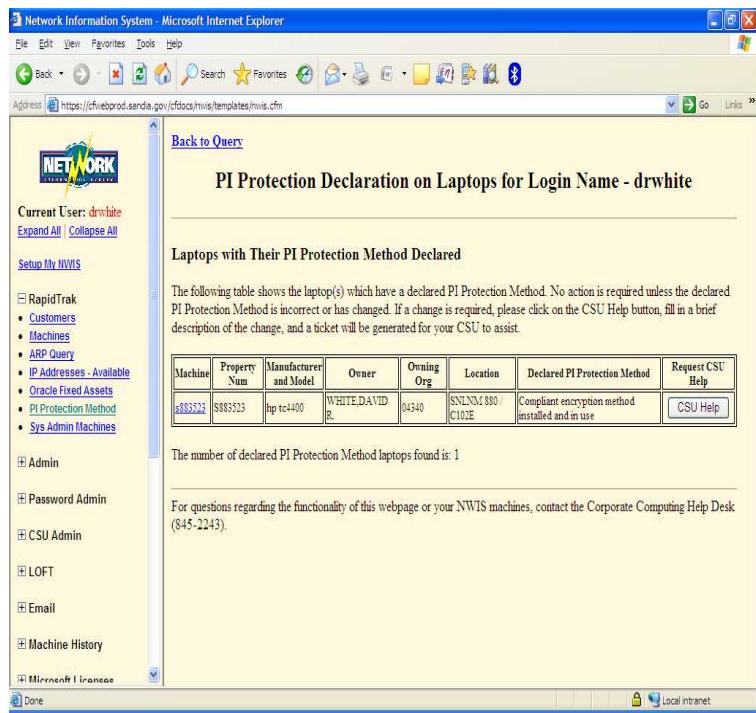
• Services

- Initial development of Sandia’s Common Engineering Environment
- Roll-out of LOFT (Laptop’s On Foreign Travel) Program (See talk later in conference)



IT “Opportunities” in 2007

- **Personal Identifiable Information (PII) directive in August 2006**
 - SNL's initial response: Entrust/ICE folder based encryption for all laptops
 - **Problems:**
 - Offline Folders
 - Requires User Education, Do you really know what PII means?!?
 - **Things that did work:**
 - Record of customer statement that they are protecting their PII in NWIS, per machine.
 - Ensures continual end-user compliance
 - **Future:**
 - Beyond PII, Sensitive Information...
 - Near term: add EFS protection to default areas (and key recovery for enterprise)
 - Longer term: Whole disk encryption through either BitLocker or third-party vendor





IT “Opportunities” for 2007-08

- **Budget pressures**
 - NW funding decreasing
 - Fringe Costs (Pension, Medical, etc...) Increasing
 - Must investigate new ways of delivering service
 - Investment requests for “Desktop Support Automation”
- **USB Port Blocking**
 - In-house software used to initially meet DOE requirements
 - Purchasing 3rd party tool for port blocking summer '07
- **Vista/Office 2007**
 - Early pilots going on now
 - Users already asking for it
 - Planned deployment for Spring/Summer 2008 (cyber pending...)

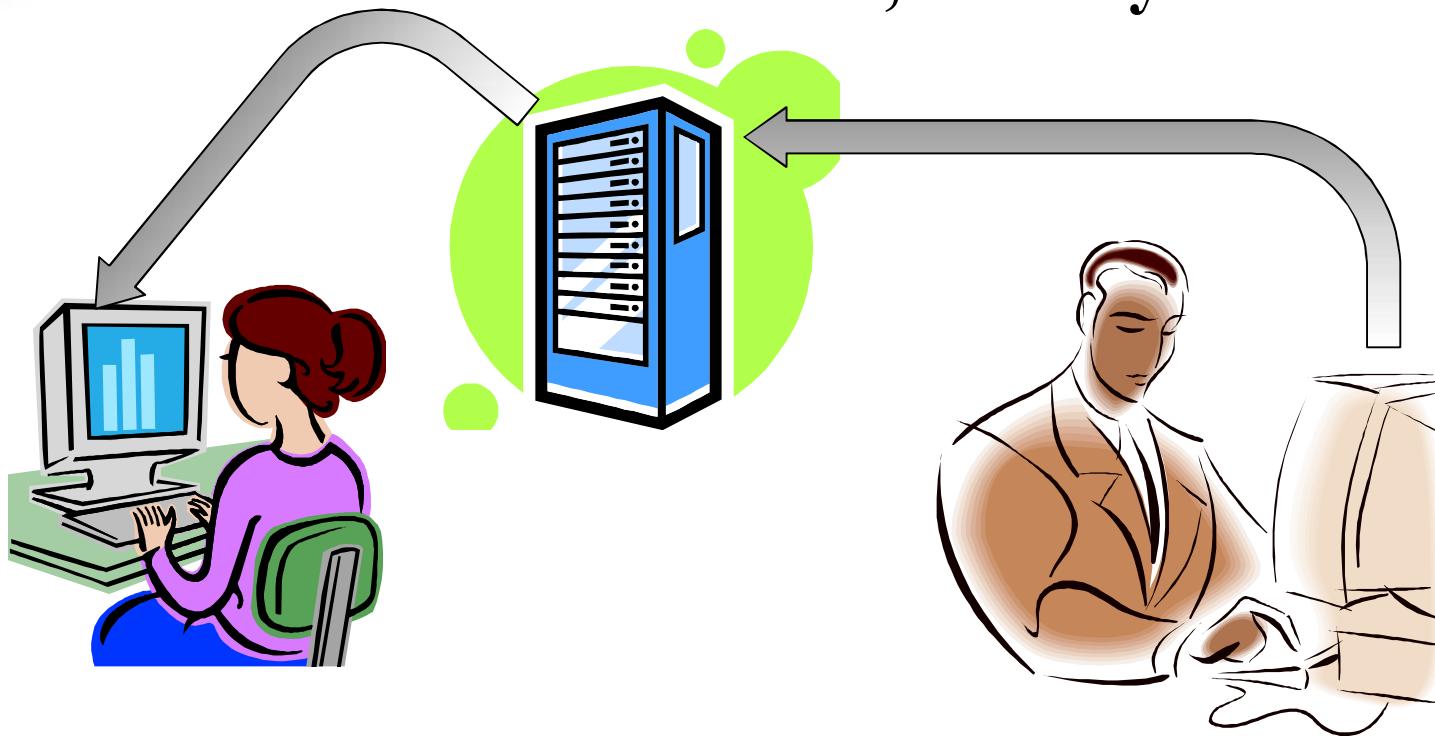




IT “Opportunities” for 2008 and beyond...

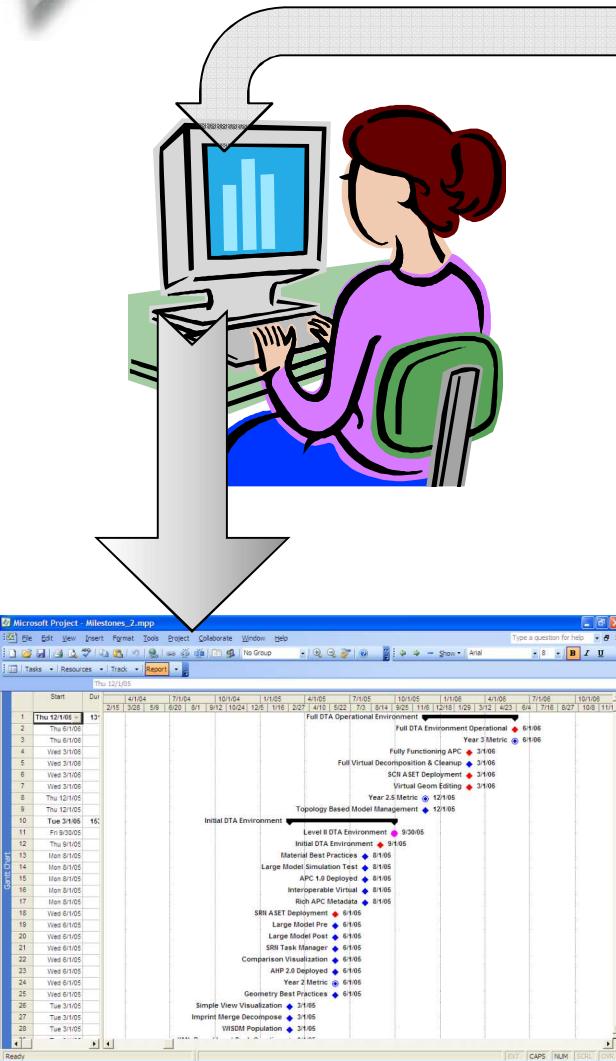
- **Direct Mission Support**
 - CSU customer survey revealed: “You have delivered what you set out to do (Desktop Support), but now what are you going to do for me?!?”
 - Sandia’s IT and indirect services (IES) are being asked to transform and provide more direct support to mission activities
 - **What does that mean?**
 - Common Engineering Environment
 - Enterprise Content Management
 - Big Data Services
- **So now what???**

The vision, as story...



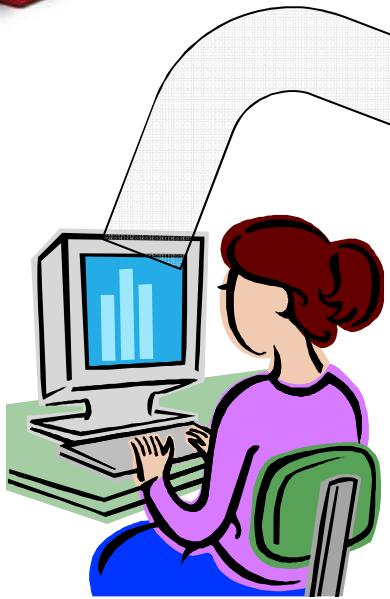
Jane Engineer is a new member of the XYZ engineering design team. Her project leader adds Jane to the project as part of Sandia's Enterprise Person Management System

The vision, as story...



As a member of project XYZ, desktop automatically loaded with project's software including project/requirements management software, data tools, simulation tools, etc...

The vision, as story...

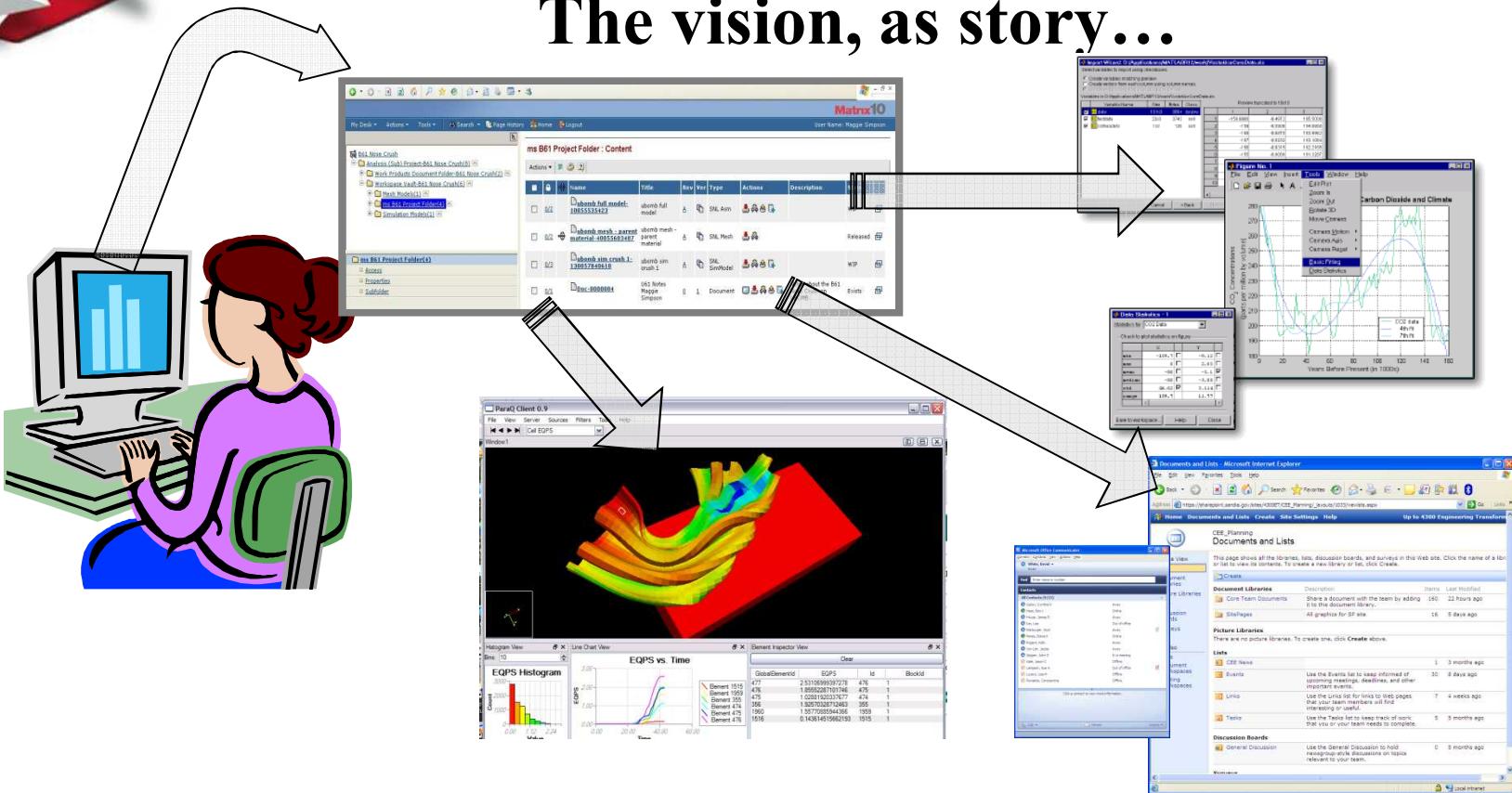


	Name	Title	Rev	Ver	Type	Actions	Description	State
0/2	ubomb full model-10055535423	ubomb full model	A		SNL Asm			WIP
0/2	ubomb mesh - parent material-40055603407	ubomb mesh - parent material	A		SNL Mesh			Released
0/3	ubomb sim crush 1-130057840610	ubomb sim crush 1	A		SNL SimModel			WIP
0/1	Doc-0000004	U61 Notes	0	1	Document		Notes about the B61 Nose Crush on UBOMB	Exists

The Enterprise Content Management System helps her navigate the work content of her project. With this, Jane can:

- Access previous work done by her project
- Search/Discover/Access work done on other projects where she has need-to-know.
- Save, share and publish her own work.

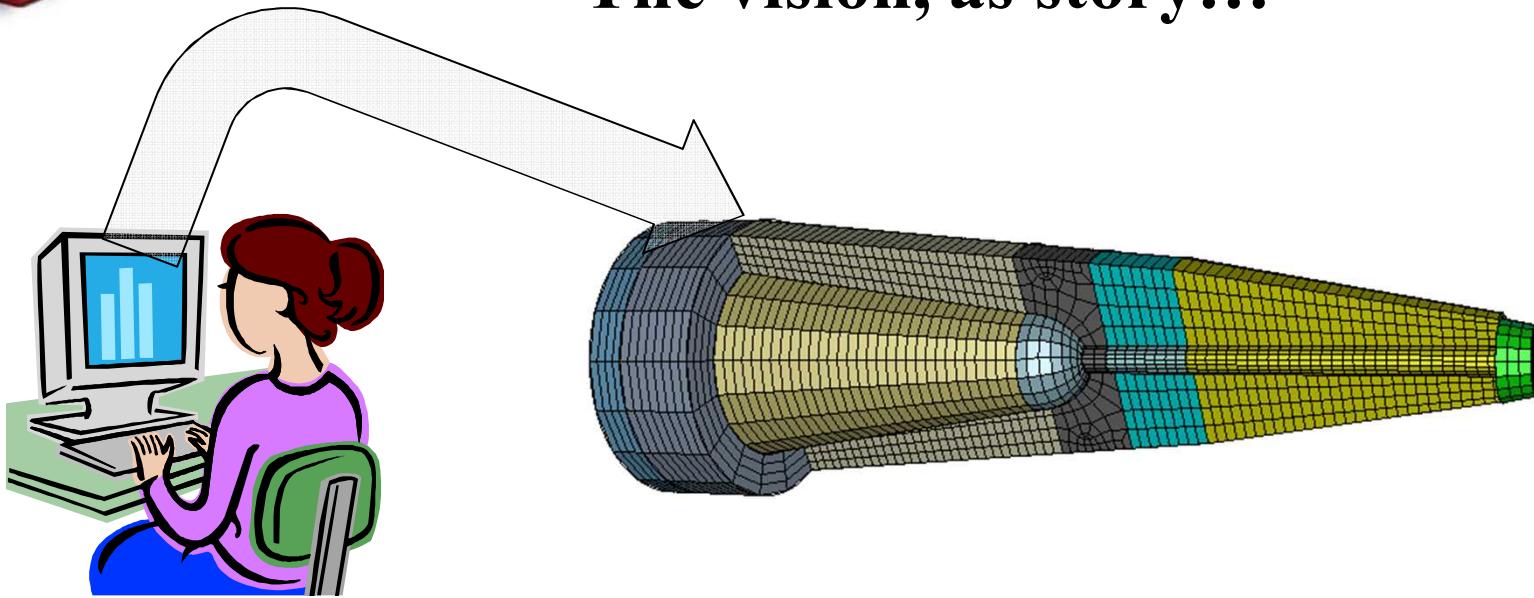
The vision, as story...



From the project/content management system, Jane has access to files, software, databases, and communication tools to help her get her job done. The service knows of her tools, and assists in the integration and facilitation between them.



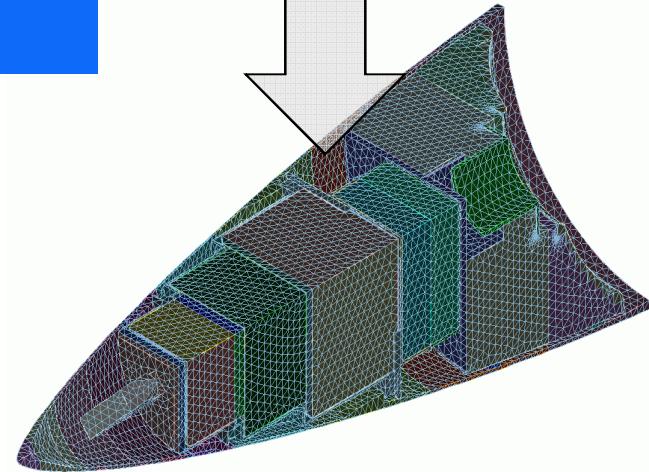
The vision, as story...



Jane, in her role as the system engineer, has a constant battle trying to integrate the various components. Since the component engineers and herself use the same COTS product, they now integrate their components easily for systems modeling and simulations.



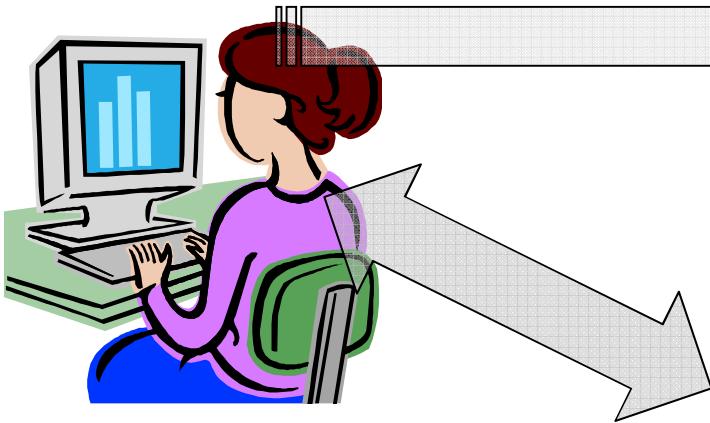
The vision, as story...



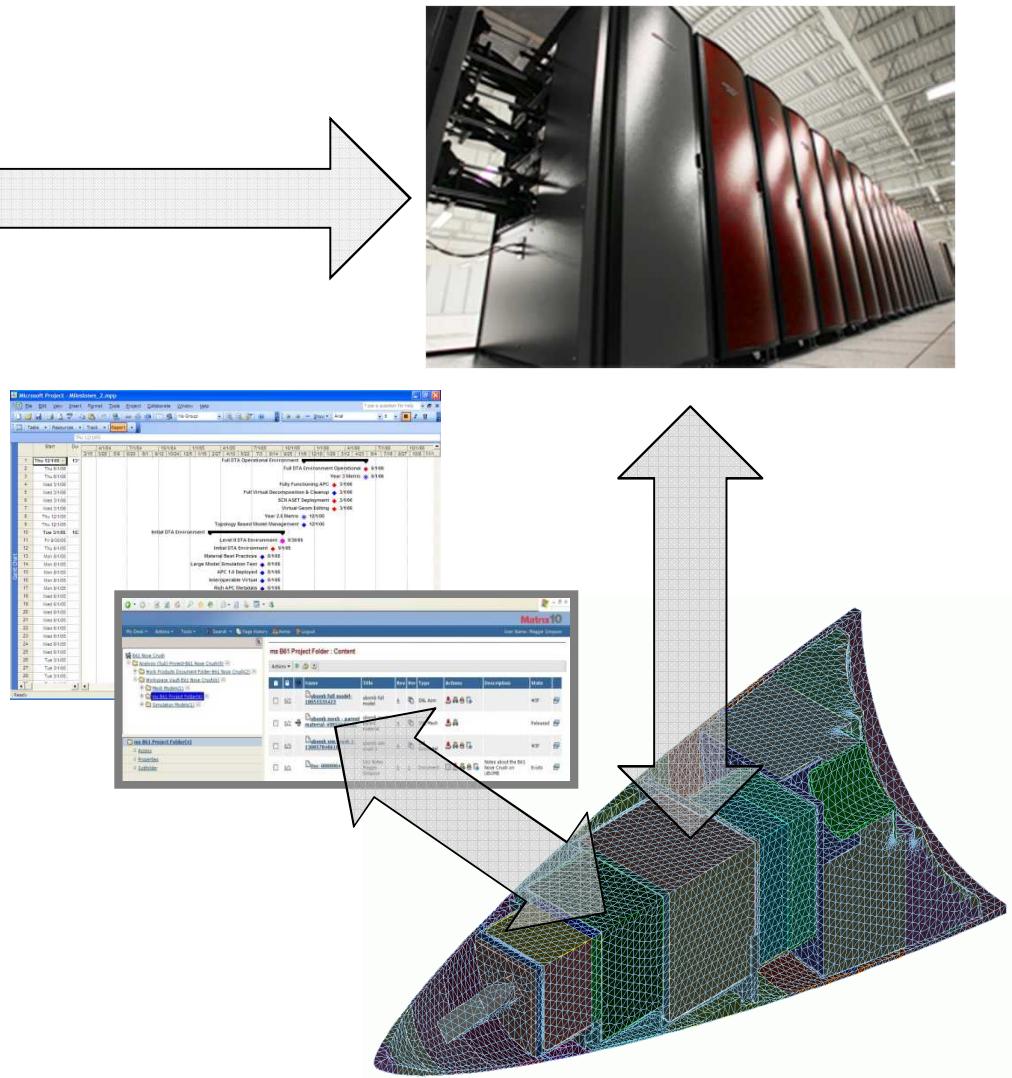
When Jane's system model is too complex to run on her desktop, she works with the Engineering Support Center to easily transfer her data from a COTS tool, to Sandia's high end analysis tools for a detailed simulation.



The vision, as story...



With Jane's detailed simulation, uses advanced optimization techniques to understand uncertainty in her design which she feeds back into her requirements management system makes available to the rest of her team in the content management system.





The vision, as story...



Things so perfect, Jane doesn't think about:

- Networking, including bandwidth for her data that ranges from big simulations to text search
- Break/Fix/Build Computer Support
- Accessibility (available when she or customers need the results, and wherever they need it from)
- Data loss prevention (backups, DRBC, etc...)
- Sufficient Compute Resources





Questions?