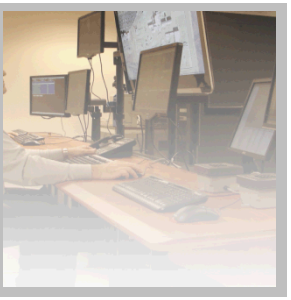
How It All Fits Together:

SAND2017-3975C

Implementing an End2End Service to Realize the Mission Value of IT Service Management



Showcasing ITSM End2End Service
Environment, Safety, & Health System Services

Julie Fillinger, ITSM Lead

Sandia National Laboratories

SANDxxxxxxxxx

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Unclassified

Sandia's vision is to be the laboratory that the nation turns to first for technology solutions to its most challenging *national security problems*

Albuquerque, New Mexico

Livermore, California

Kauai, Hawaii

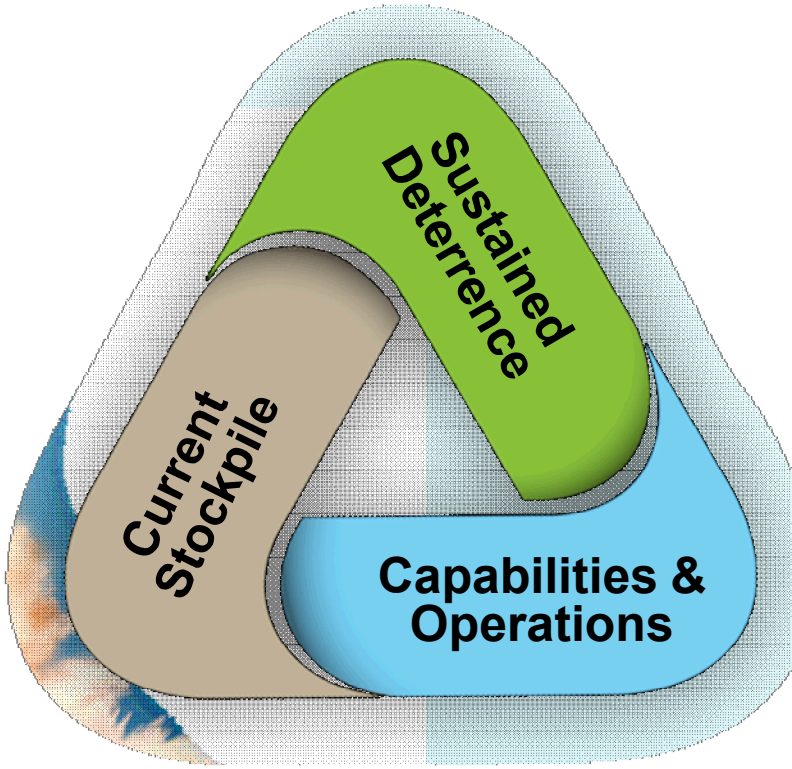
Waste Isolation Pilot Plant, Carlsbad, New Mexico

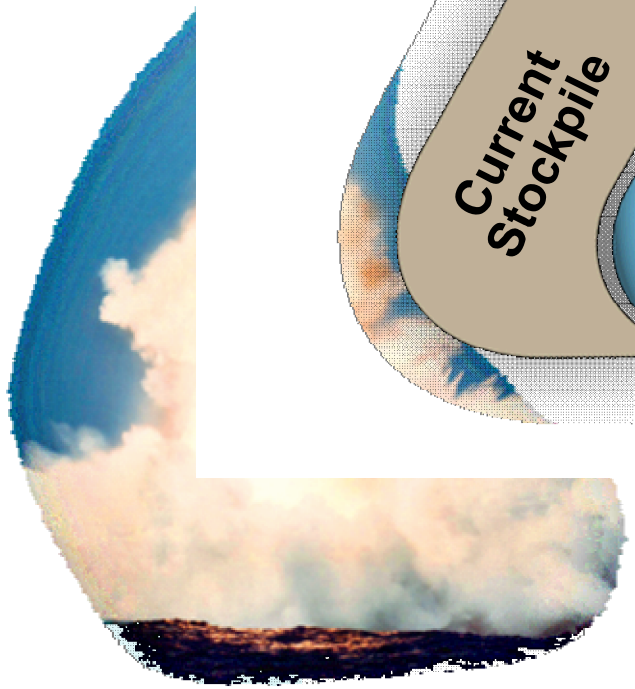
Pantex Plant, Amarillo, Texas

Tonopah, Nevada

Sandia's Nuclear Weap

- Maintain the current U.S. nuclear weapons stockpile
  - Annual Assessment, Surveillance Life Component Exchanges, Sign Finding Investigations
- Sustain the stockpile into the futu
  - Life Extension Programs, Alterati technology maturation
- Steward the long-term vitality of capabilities, infrastructure and op
  - Persistent commitment to multi- disciplinary staff, state-of-the-art equipment, facilities and safe/secure/quality/affordable c





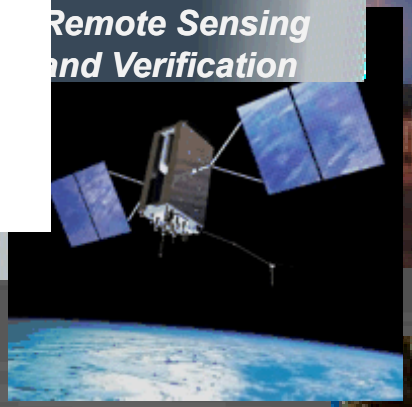
Defense Systems & Assessments Programs

Information Operations

Surveillance & Reconnaissance

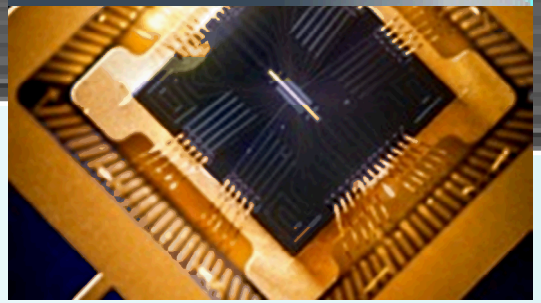
Integrated Military Systems

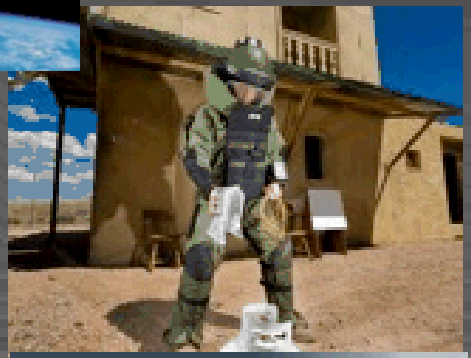
Remote Sensing and Verification



Space Mission

Science & Technology Products





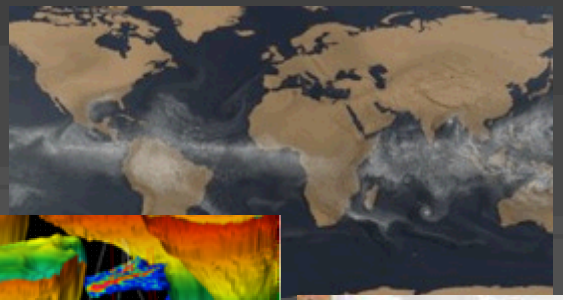
Proliferation Assessment

Energy & Climate

Energy Research

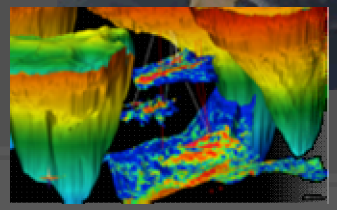
Climate & Environment

Measurement & Modeling, Carbon Management, Water & Environment, and Biofuels



Nuclear Energy & Fuel Cycle

Commercial Nuclear Power & Fuel, Nuclear Energy Safety & Security, DOE Managed Nuclear Waste Disposal

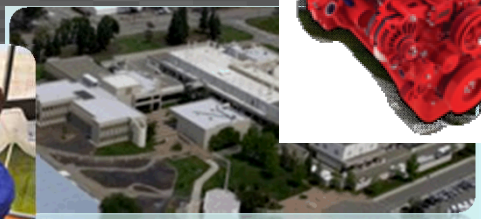


Renewable Systems & Energy Infrastructure

Renewable Energy, Energy Efficiency, Grid and Storage Systems

Transportation Energy & Systems

Vehicle Technologies, Biomass, Fuel Cells & Hydrogen Technology



International, Homeland, & Nuclear Security

Global Security

Homeland Security Programs

WMD Counterterrorism and Response

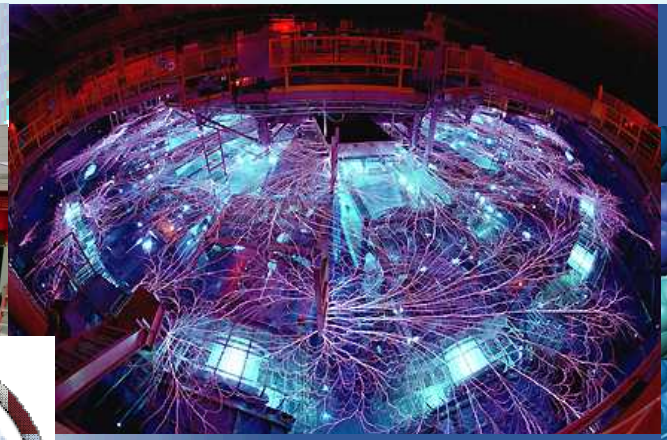
Cyber and Infrastructure Security

Homeland Defense and Force Protection

Our Research Framework

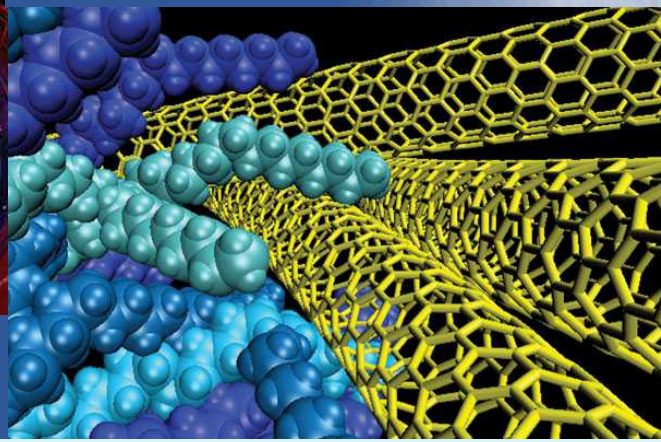
Strong research foundations

Computing & Information Sciences

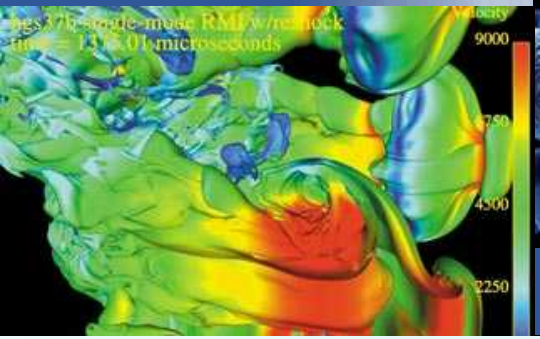


Radiation Effects & High Energy Density Science

Materials Sciences

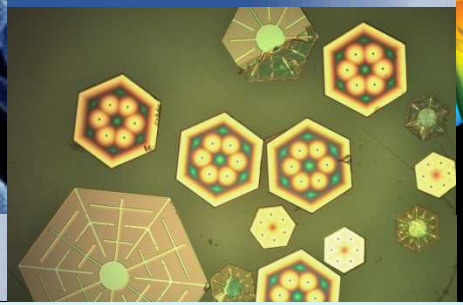


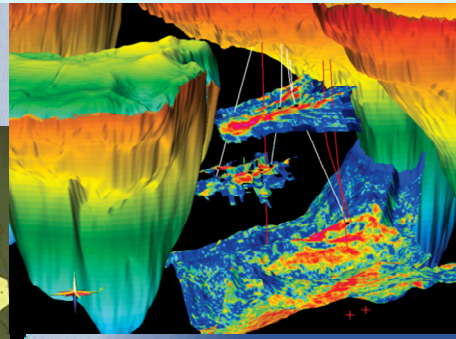
Engineering Sciences



Bioscience

Nanodevices & Microsystems





Geoscience

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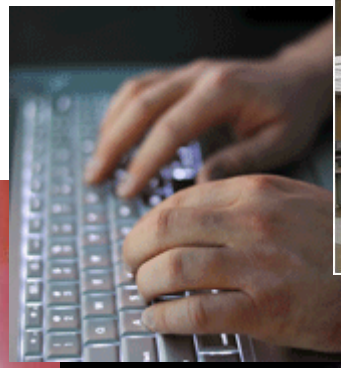
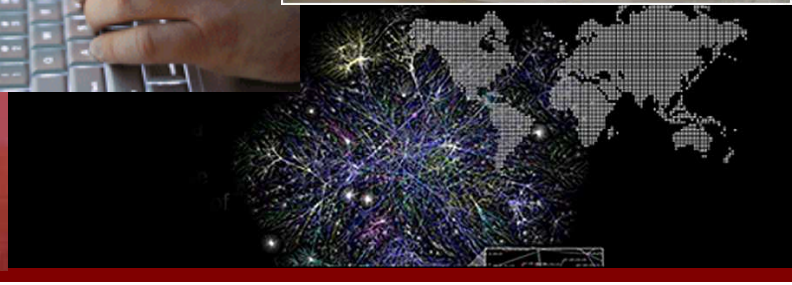
IT SERVICE MANAGEMENT
COLLABORATE.INNOVATE.DELIVER

IT Supporting the Mission





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ITIL Progression To-Date

Service teams are:
-- aware/trained in the model
-- starting to work together
-- starting to use metrics to manage the services
-- we've had some wins

(2016)
SACM
Event

(2012-2015)
Developed/released PM, RF
Began development SACM, Event
Began development – BRM, SPM
Re-developed KM

(2011)
Developed/released: IM, KM, CM
Developed/released: first service catalog
Developed/released: CSI
Developed/released: new toolset

Starting point:
Technical Silos

ES&H End2End Services Pilot

Why?

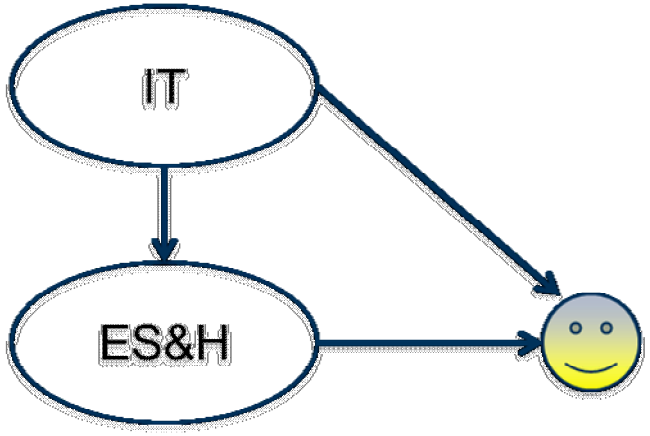
- Demonstrate to ES&H stakeholders the value of IT
  - Operate as a service, leveraging ITSM best practices
  - Data driven decisions to improve the service
- Demonstrate how the model works (for internal IT)
  - Use all developed ITIL processes as a collection
  - Show from an end-to-end service perspective
  - The ITSM team used this service to try out new ideas
  - Demonstrate, to the other IT services, how this *should* work
- Lay the foundation for understanding of full cost of services
- Develop a template/mini-Service-Design-Package to help all services follow the full model
- The Service Owner owns, the ITSM team supports
- Provided a forum for regular updates to senior management

ES&H – business highlights

- Overall - worker health and safety and care for the environment, high level of tracking and reporting required

- Environment
  - Environmental Programs (Air Quality, Ecology, etc.)
  - Radioactive Waste/Nuclear Material Disposition
  - Waste Management & Pollution Prevention
  - Environmental Management Systems

- Safety & Health
  - Industrial Hygiene
  - Radiation Protection
  - Safety Engineering
  - Medical



- Work Planning & Control

ES&H IT Services

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Environment, Safety, & Health (ES&H)

Radiation Protection, Industrial Hygiene & Safety

- Safety Engineering
- Safety Basis
- Industrial Hygiene
- Instrument Calibration Laboratory Operations
- Radiation Protection
- RP Dosimetry Operations

Operations

- Performance
- Operations
- Chemical Operations
- Assurance
- Occurrence Reporting
- Work Planning & Control
- Environmental Compliance

Environmental Programs & Waste Management

- Stewardship & Analytical Services
- Analytical Services Laboratory Operations
- Environmental Programs
- Sampling Operations
- Waste Management
- Waste Facilities Operations
- Pollution Prevention

Describes a grouping of individuals, skills, and process and capabilities

SNL Defined Services (at this time)
ES&H Services End-to-End

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Workforce Computing Services

1. Service Desk
2. NM Desktop Computing Services
3. Desktop & Mobile Enabling Technologies
4. CA Desktop Computing Services
5. Unified Communications Services
6. Collaboration Services
7. Video Services

Enterprise Business Services

8. Environment, Safety, & Health Systems Services
9. Corporate Governance Systems Services
10. Financial Management Systems Services
11. Human Resources Systems Services
12. Supply Chain Systems Services
13. Manufacturing Systems Solutions

Information Management Services

14. Information Content Services
15. Information Analytics Services
16. Records Management Services
17. Technical Library Services
18. Web Content Services
19. Enterprise Database Services

Mission Business Management Services

20. Project Management Services
21. Configuration Management Services
22. Facilities & Asset Management Systems Services

IT Enabling Systems & Infrastructure Services

23. Application Enabling Technologies
24. Computing Platform Services
25. Computing Infrastructure Services
26. Network Services
27. Telephone Services
28. Wired Infrastructure Services
29. Radio Infrastructure Services

ITIL 26 Processes and 4 Functions

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Service Strategy – 5 processes

1. IT Strategy Management for IT Services
2. ☑ **Business Relationship Management**
3. Financial Management for IT Services
4. Demand Management
5. ☑ **Service Portfolio management**

Service Design – 8 processes

1. Design Coordination
2. **Service Catalog Management**
3. ☑ **Service Level Management**
4. Availability Management
5. Capacity Management
6. IT Service Continuity Management
7. Information Security Management
8. Supplier Management

Service Transition – 7 processes

1. Transition Planning and Support
2. ☑ **Change Management**
3. ☑ **Service Asset and Configuration Management**
4. Release and Deployment Management
5. Service Validation and Testing
6. Change Evaluation
7. ☑ **Knowledge Management**

Service Operation – 5 processes

1. ☑ **Event Management**
2. ☑ **Incident Management**
3. **Request Fulfillment**
4. ☑ **Problem Management**
5. Access Management

☑ Continual service improvement

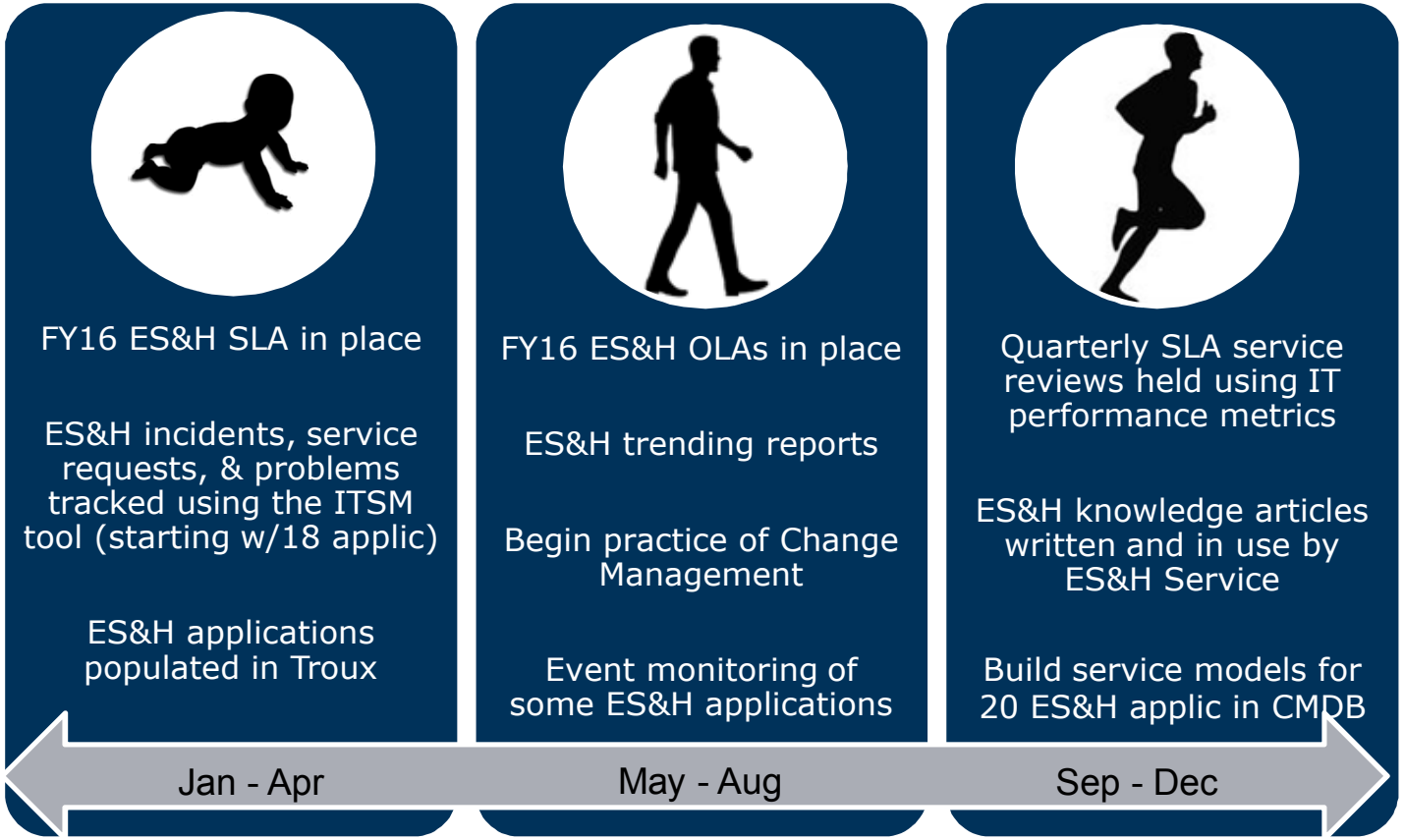
1. The 7-step improvement process

ITIL Functions

1. ☑ **Service Desk**
2. Application Management
3. Operations Management
4. Technical Management

Blue – fully institutionalized across Sandia
Green – formal process developed at SNL, in practice by many teams
Yellow – formal process developed at SNL, practice less mature
Red – formal process in-development

ES&H End2End Services – Phased Approach



ES&H End2End Services

How will we know if we're successful?

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Establish Critical Success Indicators

1. **SLA and OLA:** The ES&H IT service will develop a service level agreement (SLA) and operations level agreements (OLAs). Perform quarterly service reviews with the ES&H key customers. *(SLM)*

2. **Practice the Processes:** The ES&H IT service practices the formal IM, PM, and CM processes and manages incidents, problems, changes and service requests in a single tool. Trending reports are reviewed regularly internally and quarterly with the customer. *(IM, PM, CM) - COMPLETE*

3. **Root Cause Analysis:** The ES&H service will resolve at least one high priority problem and be able to provide evidence of improvement to the service as a result. (PM, CSI)

4. **Event Management:** The ES&H service is able to proactively monitor its systems so that the IT support personnel knows when a problem is occurring before the users do (Event, SACM)

5. **Knowledge Articles:** The ES&H service has contributed new knowledge articles to the knowledge base, allowing the Service Desk to more efficiently resolve incidents (KM, IM)

6. **Data Trends:** The ES&H IT Service owner regularly reviews ITSM data trends and discusses process maturity progress with the service teams. (CSI) - *COMPLETE*

7. **Service Portfolio:** The IT ES&H Service owner will demonstrate to the ES&H customers where to better spend IT dollars toward improvements. (SPM/BRM) - *COMPLETE*

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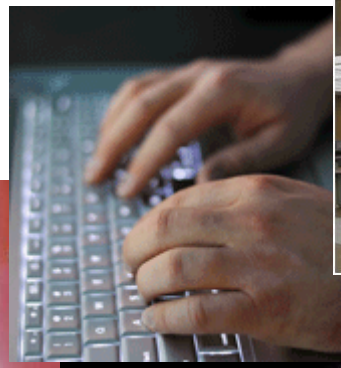
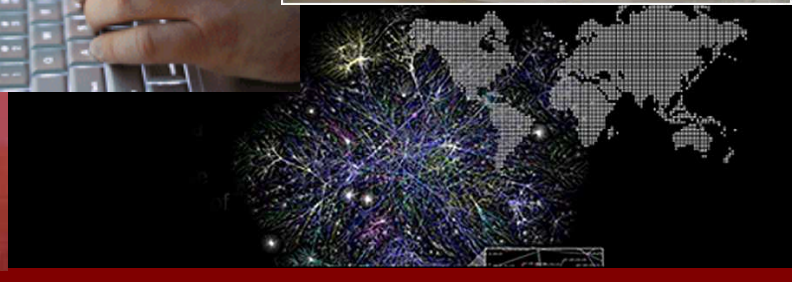
Results (so far) from the pilot





SLA/OLA

Started with 3 SLA Targets:

1) Service Performance – discussion points for the review –
   - How are the applications performing? Meeting/exceeding expectations?
   - Are response times met for incidents and service requests? (target is 80%)
   - Created a survey upon closing an incident or SR (customer satisfaction)
2) Service Availability during negotiated service hours (target is 99%)
   - 2 apps using event monitoring so we're able to get an availability measure for these apps; goal to add more applications
   - Better understanding of our incidents/outages
3) Service Reliability (target is no more than 3 outages per quarter)
   - No measures in place yet

Established OLA with Middleware

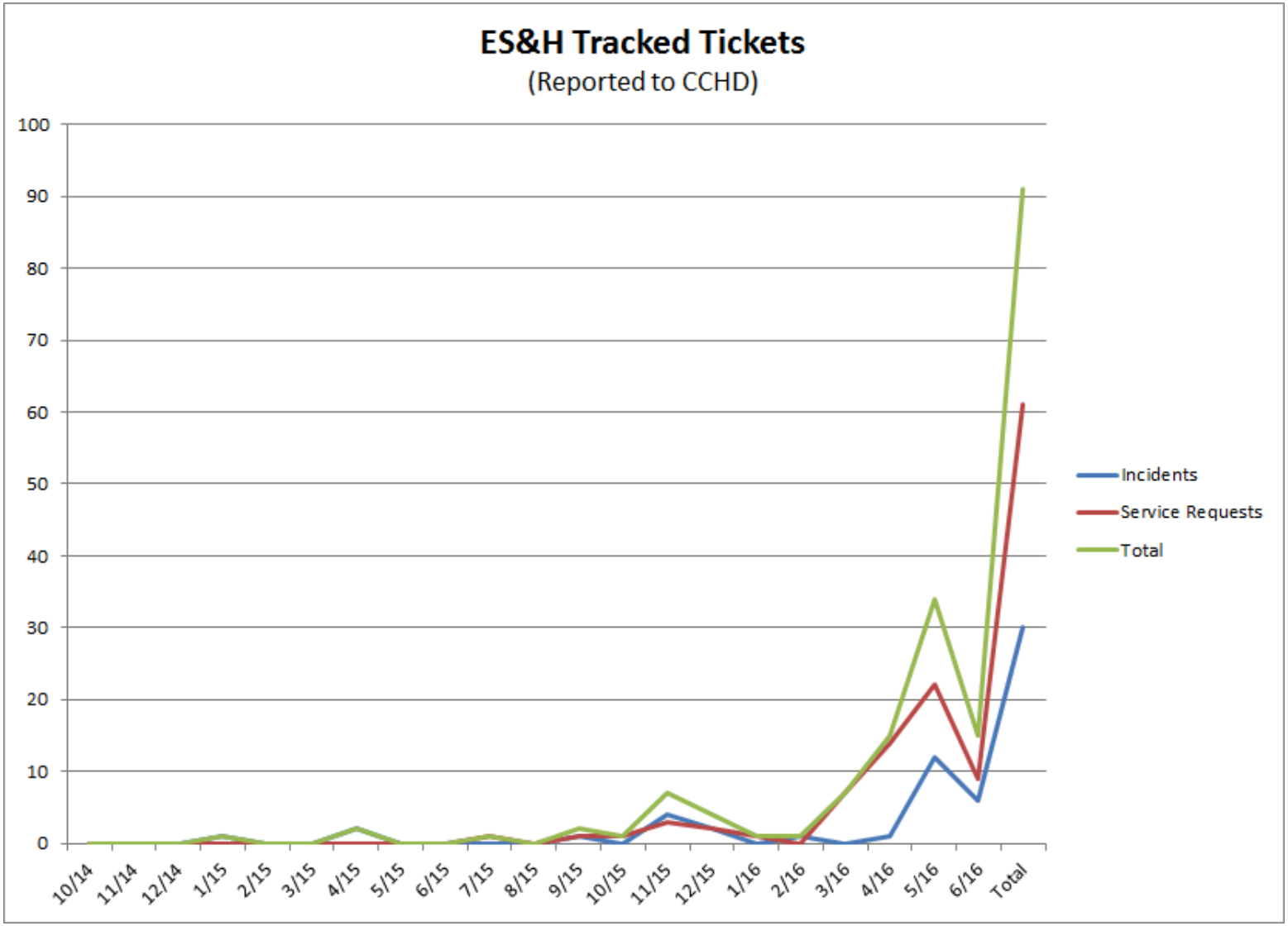
- Middleware has a generic OLA used across services. The targets align to the ES&H SLA.
- Opened some communications between the ES&H service and the Middleware service

Use of the Service Desk

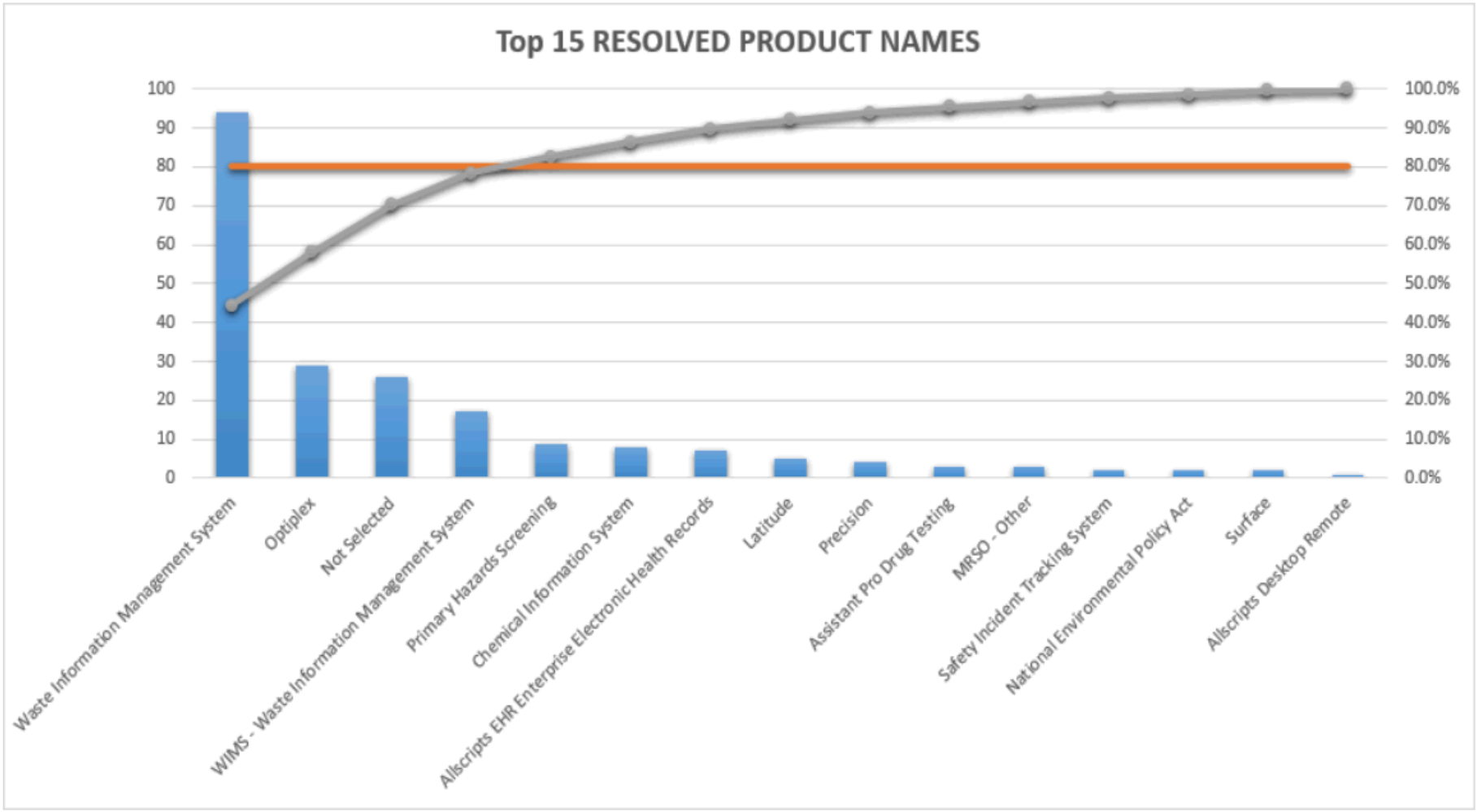
- At the start of the project the IT teams were fielding incidents and service requests through several means and using several tools for tracking
  - Enlisted the users to start requesting support through the Service Desk
  - IM refresher training for the IT teams

- Started with a "route only" philosophy
  - After a few weeks, **the data was immediately visible!**
  - The feedback from the IT support team was positive for this step. This reduced the multiple "doors" through which the team was receiving requests and reduced the firefighting.
  - Users had to get used to the new way of requesting service
  - Users have stopped putting in "wish list" work, thinking through whether the request is really needed

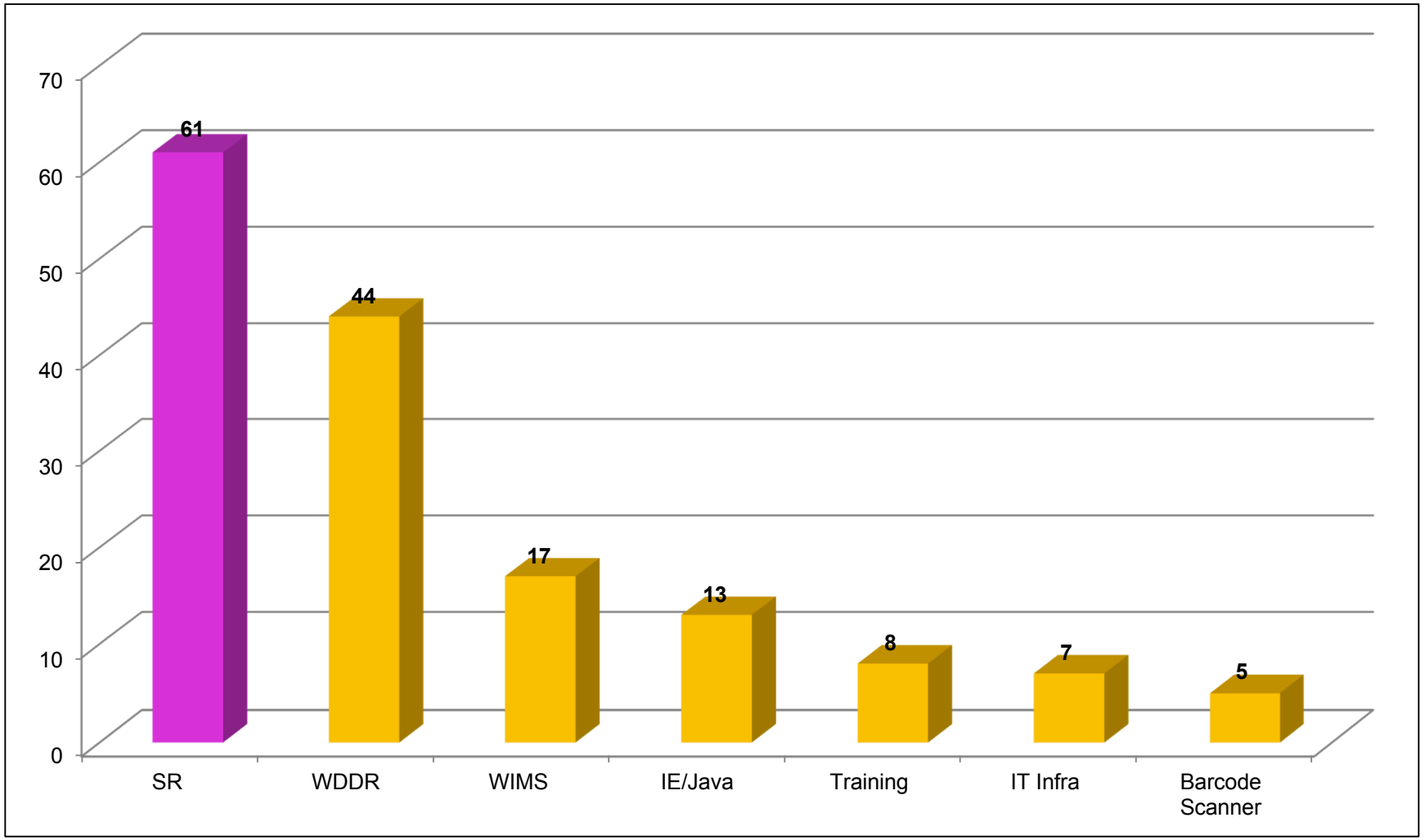
Incidents & Service Requests Adoption Curve



ES&H Top Record Generators



Drill down into WIMS



WIMS/WDDR

What's happening? Why do we have so many incidents for this one component application?

1) Performed review & evaluation of the incidents
2) Almost all incidents were defects introduced to the product when the app was last updated
3) The outside vendor was not addressing the issues (records were in "pending" status)
4) Since the IT team now had visibility to the incidents, they were able to ensure the vendor resolved the issues. Incidents decreased dramatically.

Use of the Service Desk (cont.)

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After using the "route only" philosophy for several months, the service is ready to go to the next level

Two pain points with the current way of working:

- Incidents/SRs don't have enough detail in them when they arrive at the IT team.
- When SRs develop into changes, the ES&H team has to interact with 2 toolsets.
  - ALM tools in use prior to practicing ITSM Change Management (Team Forge)
  - Team Forge feeds to Rally board so that the development lifecycle for the change is managed
  - Concern: duplicating data, double the work for the team in terms of record keeping
  - Currently working on an integrated workflow

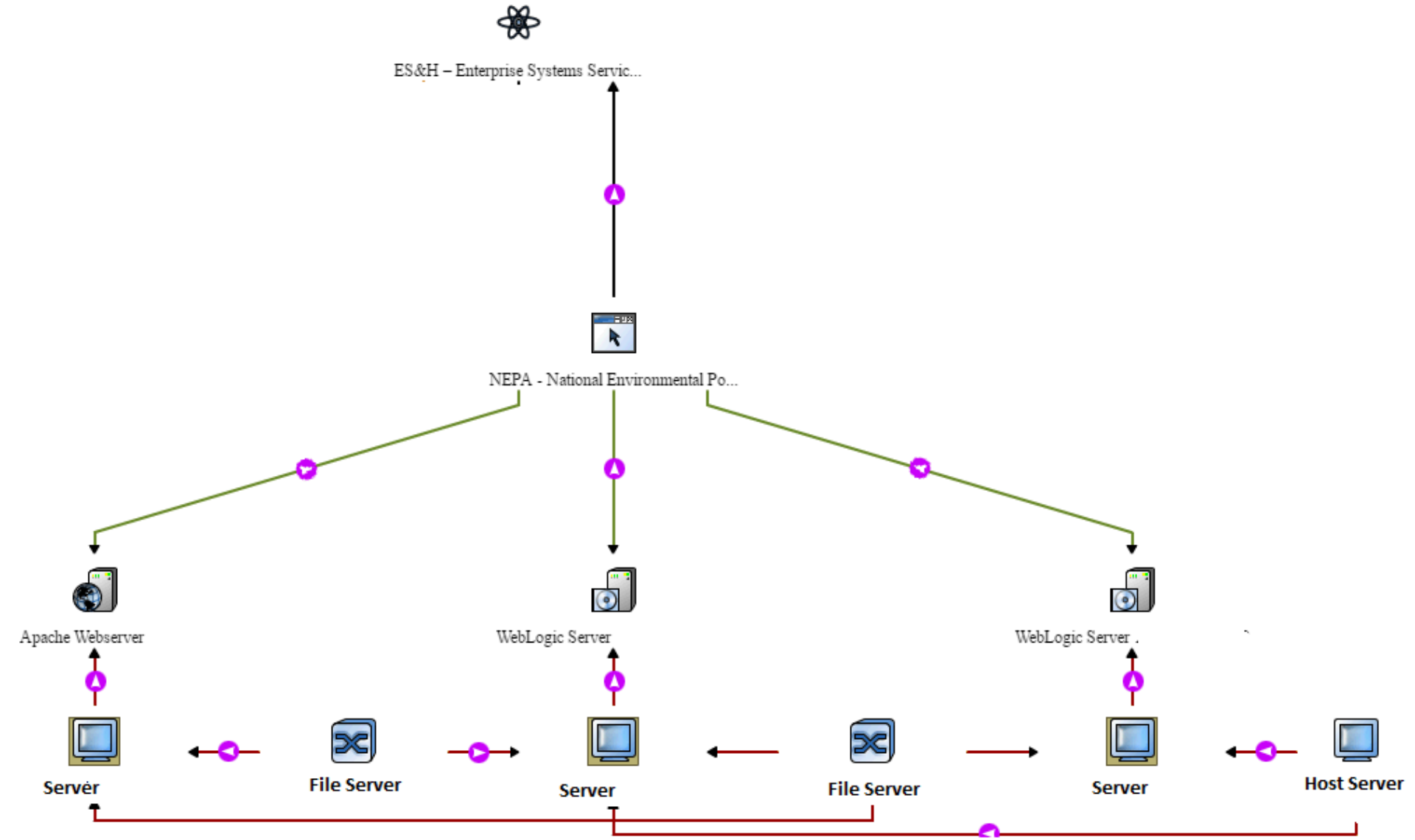
Problem Management

Current State: Have worked a few problems but not consistent in the PM practice

A WIN! As the teams began formally practicing *Incident Management*, the data indicated a pattern of increased incidents on Wednesday of every week. The team started a *problem investigation*. The root caused turned out to be the manner and order of systems being brought back on line after patching. The IT team was able to implement manual procedures as a workaround until the ideal fix was implemented.

SACM/Event Management

- Ensured that key CIs are in the CMDB
- Created end-to-end application models in the CMDB for some apps
- Initiated event monitoring (synthetic transactions) for the modeled applications
- Starting to gather baseline information
- Event Monitoring revealed inefficient code on some of the older applications - a success for monitoring!


ES&H – Enterprise Systems Servic...
NEPA - National Environmental Po...
Apache Webserver
WebLogic Server
WebLogic Server .
Server
File Server
Server
File Server
Server
Host Server

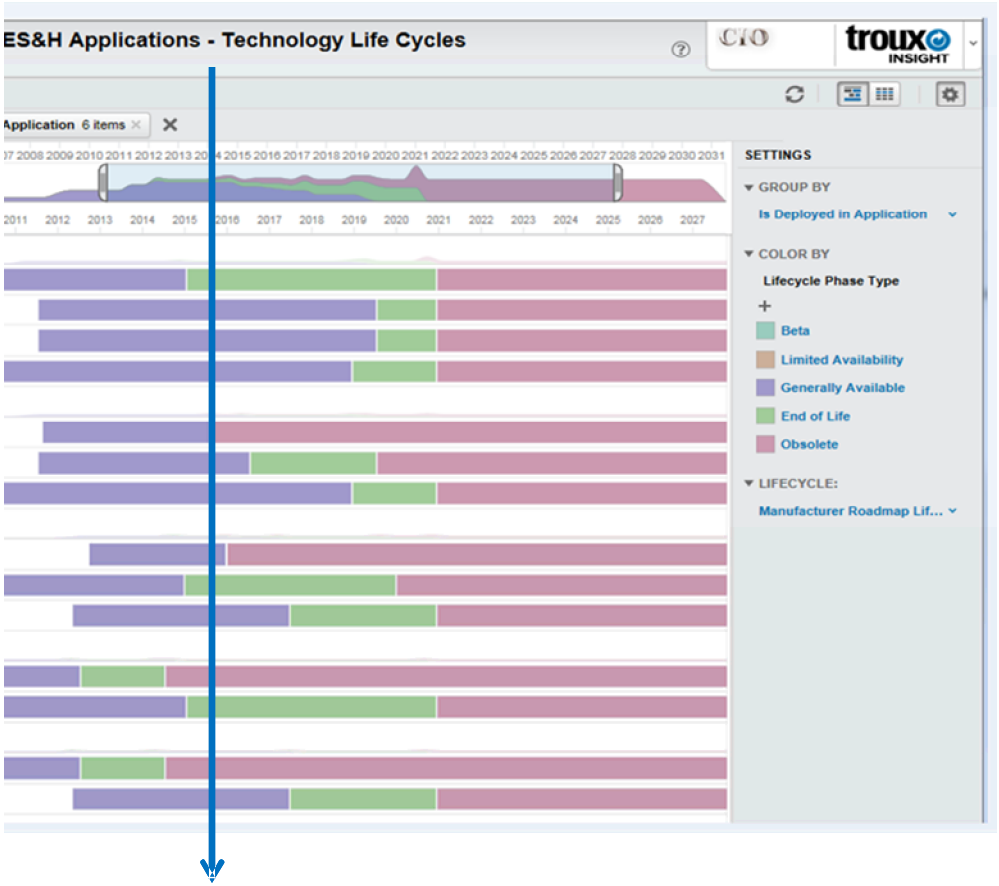
ES&H Use of Metrics/Reports

- Teams/Managers reviewing service metrics together
  - Weekly operational meeting with the entire service team
    - # of records processed
    - review of open records
    - issues
    - upcoming changes/releases

- Monthly review with senior management across services
  - SLA performance related to incident/SR response & resolution times
  - Same target for resolution times across services

Portfolio Management

- Use of Troux toolset for single source of truth for application inventory.
- 18/100 applications are loaded in Troux with the metadata about what technologies make up the application stack.
- Assigned criticality to all applications
- Discussions in progress between IT and the business about where M&O dollars should be spent
- Developed a 3 year investment strategy



Business Relationship Management

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IT and the business are working together!

- The business completed a mapping exercise to understand the current state of how IT enables them
- The business includes IT in their strategic planning
- The teams are communicating regularly

It’s more of a partnership now!

Lessons Learned (so far)

- We do not have standard support hours across services
- SLA and OLA templates may need to be leaned
- Some tool changes would help with usability, especially in the area of automation (routing, etc.)
- Need a dedicated service manager assigned to the service whose primary role is to ensure the health of the service.
- Adoption was hard - would involve customers and the IT teams in the project from the start (not just the management/leads)

Next Steps

- ES&H IT continues working toward fully practicing end-to-end service management
  - Use of the full service model in the CMDB for impact analysis and event management
  - Matures the practice of Change Management
  - Identifies issues that affect the end user regardless of where it occurs in the technical stack
  - Need more robust metadata in CMDB
- Service Improvement Project initiated for ES&H
  - Identify targeted improvement areas for the service
  - Measure, implement improvements and then measure again
- ITSM Program:
  - assists the enabling services to mature
  - uses the template/mini-Service-Design-Package to help other services follow the full model
  - improves the ITSM suite and the reports

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Questions?