Fermilab Site Report

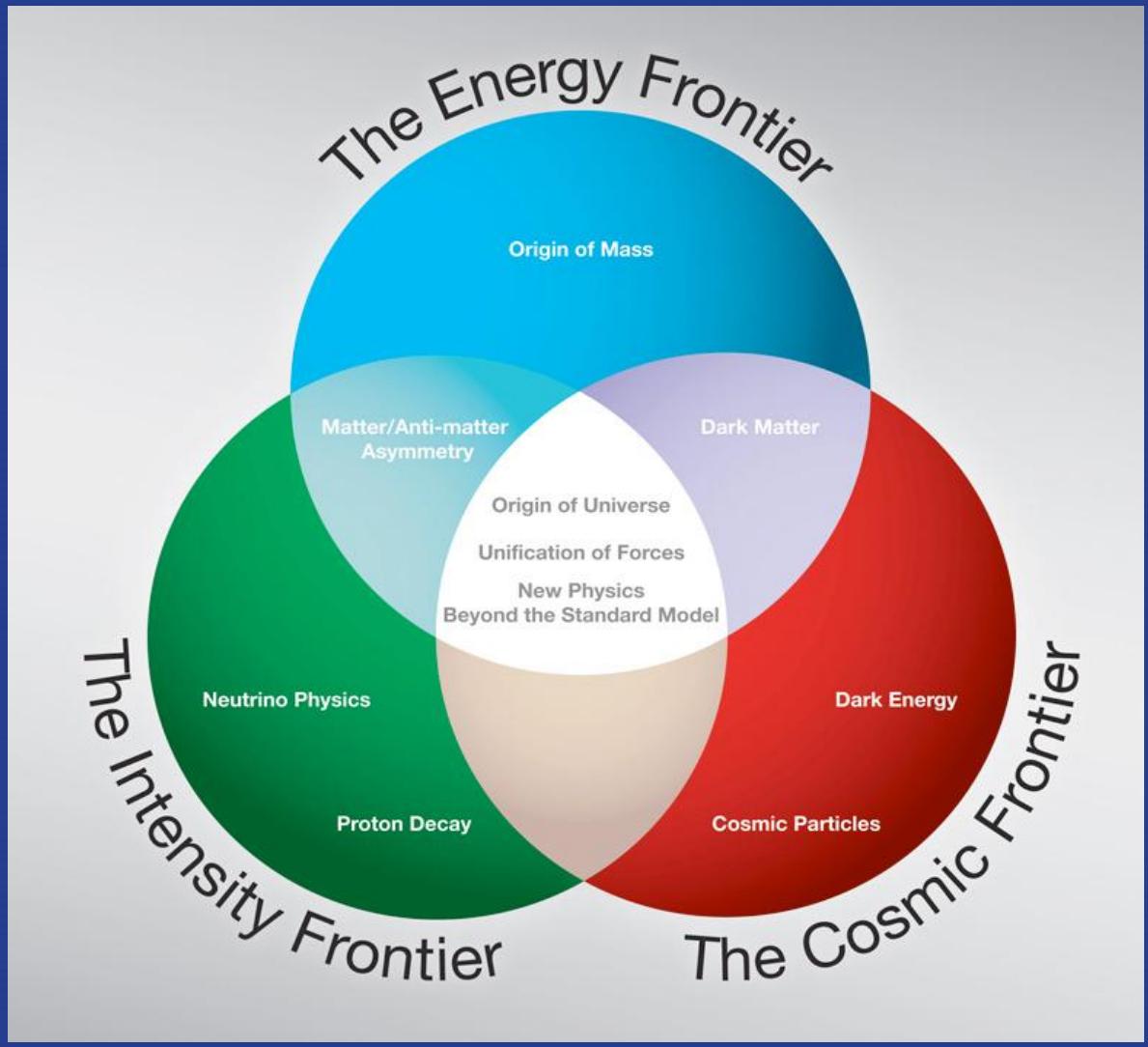
Mark O. Kaletka, Deputy Head
Core Computing Division

Agenda

- Mission and Science
- ITIL & ISO20000 Certification
- Governance Activities:
  - Enterprise Architecture
  - Portfolio Management
- Major Portfolio Initiatives & Programs
- Managed Services
- Authentication

Fermilab Mission and Science

- At the Intensity Frontier, we explore new physics in unprecedented breadth and detail using intense beams of neutrinos, muons, kaons and nuclei.
- At the Energy Frontier, we discover new particles and directly probe the architecture of the fundamental forces using high-energy colliders.
- At the Cosmic Frontier, we reveal the nature of dark matter, dark energy, and other phenomena of new physics using particles and light from the cosmos.



Fermilab Mission and Science

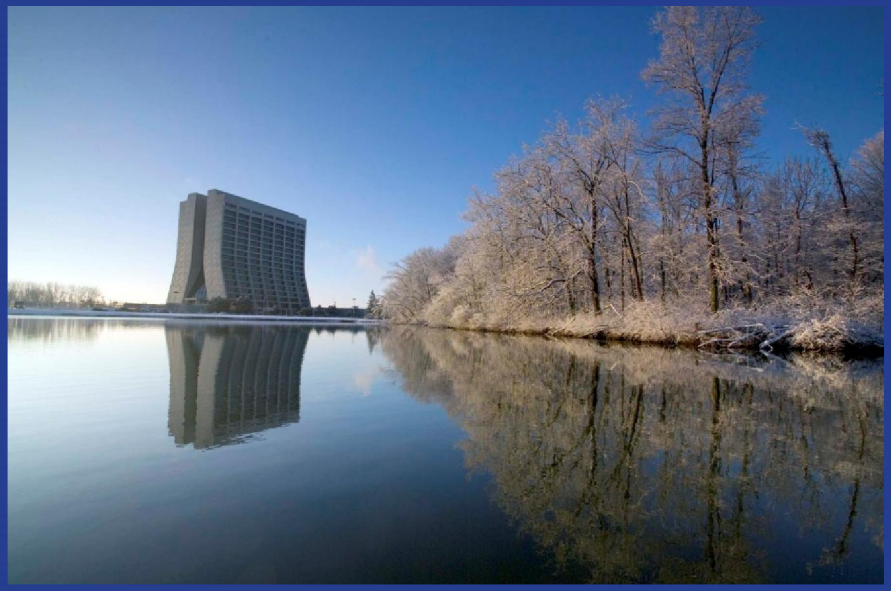
Our vision is to inspire the world and enable its scientists to solve the mysteries of matter, energy, space and time for the benefit of all.

Our mission is to drive discovery in particle physics by:

- Building and operating world-leading accelerator and detector facilities;
- Performing pioneering research with global partners;
- Transforming technologies for science and industry;

Fermilab Mission and Science

- ~1700 employees;~$400M budget;
- DOE funded with help from NSF;
- 2300 users (visiting scientists);
- 6800 acres, park-like site;
- Tevatron: Flagship machine for 25 years – now off and lab is in transition to its new priority;



- Highest intensity neutrino beams (low and high energy);
- World class astrophysics, particle theory and computation programs;
- Advanced detector and accelerator technology R&D;

ISO20000 Certification Achieved!

CERTIFICATE

This is to certify that

Fermi National Accelerator Laboratory

Kirk and Wilson Roads
Batavia, IL 60510
United States of America

has implemented and maintains a
Service Management System.

Scope:
The IT Service Management System of Fermi National Accelerator Laboratory (Fermilab) supports the provisioning of Core IT Services (Authentication, Backup and Restore Service, Central Web Hosting, Database Hosting, Datacenter Services, Desktop Services, FermiMail, IT Server Hosting, Network Services, Networked Storage, Service Desk, Video Conferencing, and Virtual Server Hosting) to internal customers from the Fermilab site at Batavia, IL.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO / IEC 20000-1 : 2011

Certificate registration no.	10011856 SMS11
Date of original certification	2012-12-13
Date of revision	2013-01-18
Date of certification	2012-12-13
Valid until	2015-12-12

APMG-International ISO/IEC 20000

UL DQS Inc.

Ganesh Rao
Managing Director

Accredited Body: UL DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA

- 13 core services were certified for ITIL v3 processes:
  - Service Desk
  - Desktop Services
  - FermiMail
  - Central Web Hosting
  - Database Hosting
  - Video Conferencing
  - Networked Storage
  - Network Services
  - Authentication
  - Data Center
  - IT Server Hosting
  - Virtual Server Hosting
  - Backup and Restore

10011856 SMS11 — UL REGISTERED FIRM — ISO / IEC 20000-1 : 2011

Fermi National Accelerator Laboratory

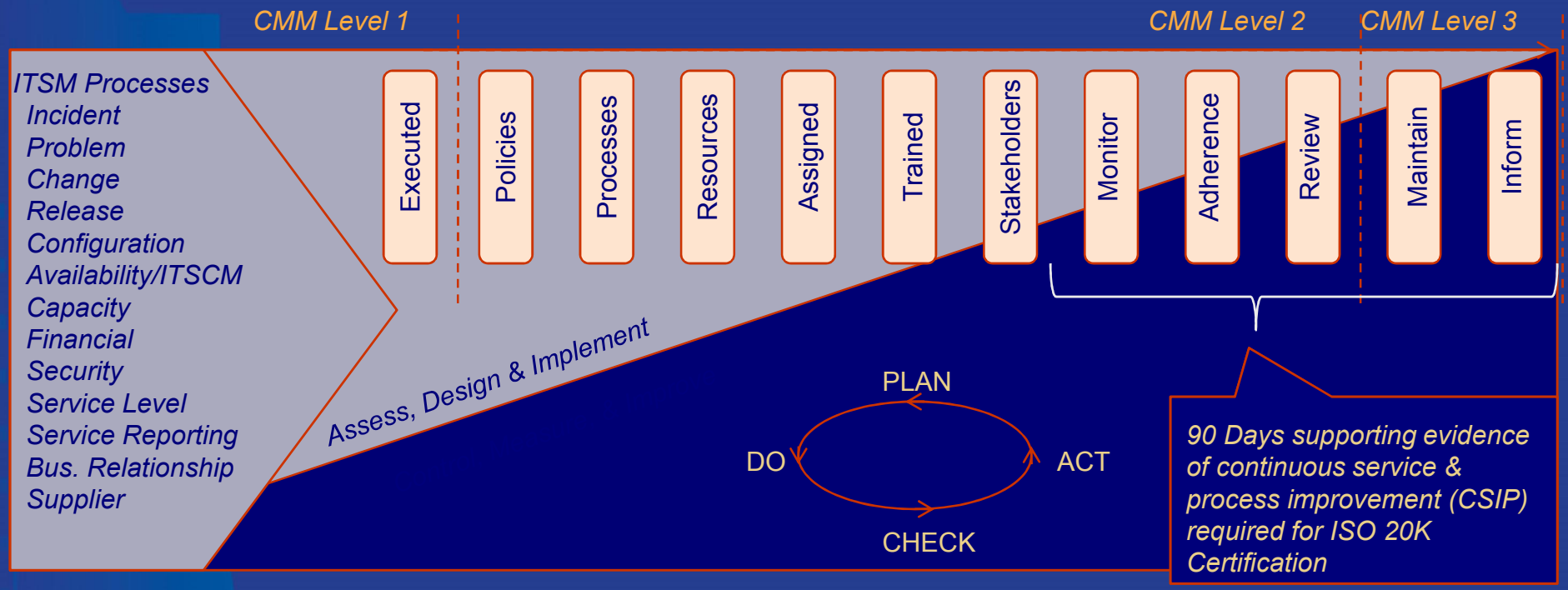
ISO20000 Certification Achieved!

"Fermilab recently became the first DOE national laboratory to earn ISO 20000 certification for excellence in information technology (IT) service management processes. The certification was the culmination of a five-year program led by Fermilab's Computing Sector."

http://www.fnal.gov/pub/today/archive/archive_2013/today13-02-14.html

"Fermilab should be proud of this significant accomplishment," said Michael Weis, Fermi site manager, Office of Science, Department of Energy. "ISO 20000 certification demonstrates the lab's continuing commitment to excellence and the staff's ability to build strong systems to improve performance."

ISO20000 Certification



Dec 2012: Certification

Late 2013: 1st Continuous

Late 2015: Recertification

Established

- Policies, procedures defined
- Trainings provided
- Required resources provided
- Roles and responsibilities assigned
- Processes are performed

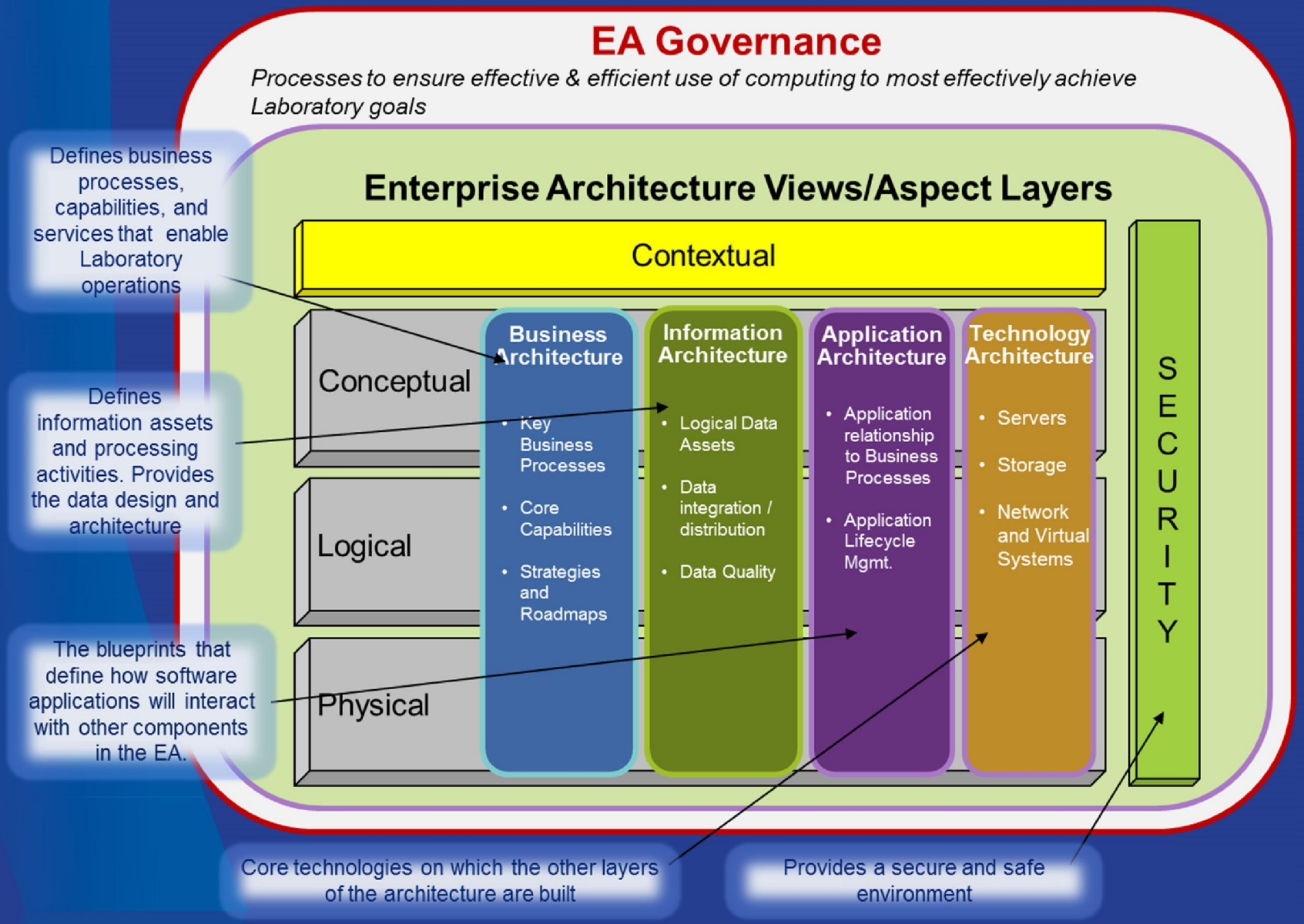
Effective

- Consistency of process performance
- Process improvements initiated based on process performance data
- Service improvements initiated
- Improved budgeting and accounting

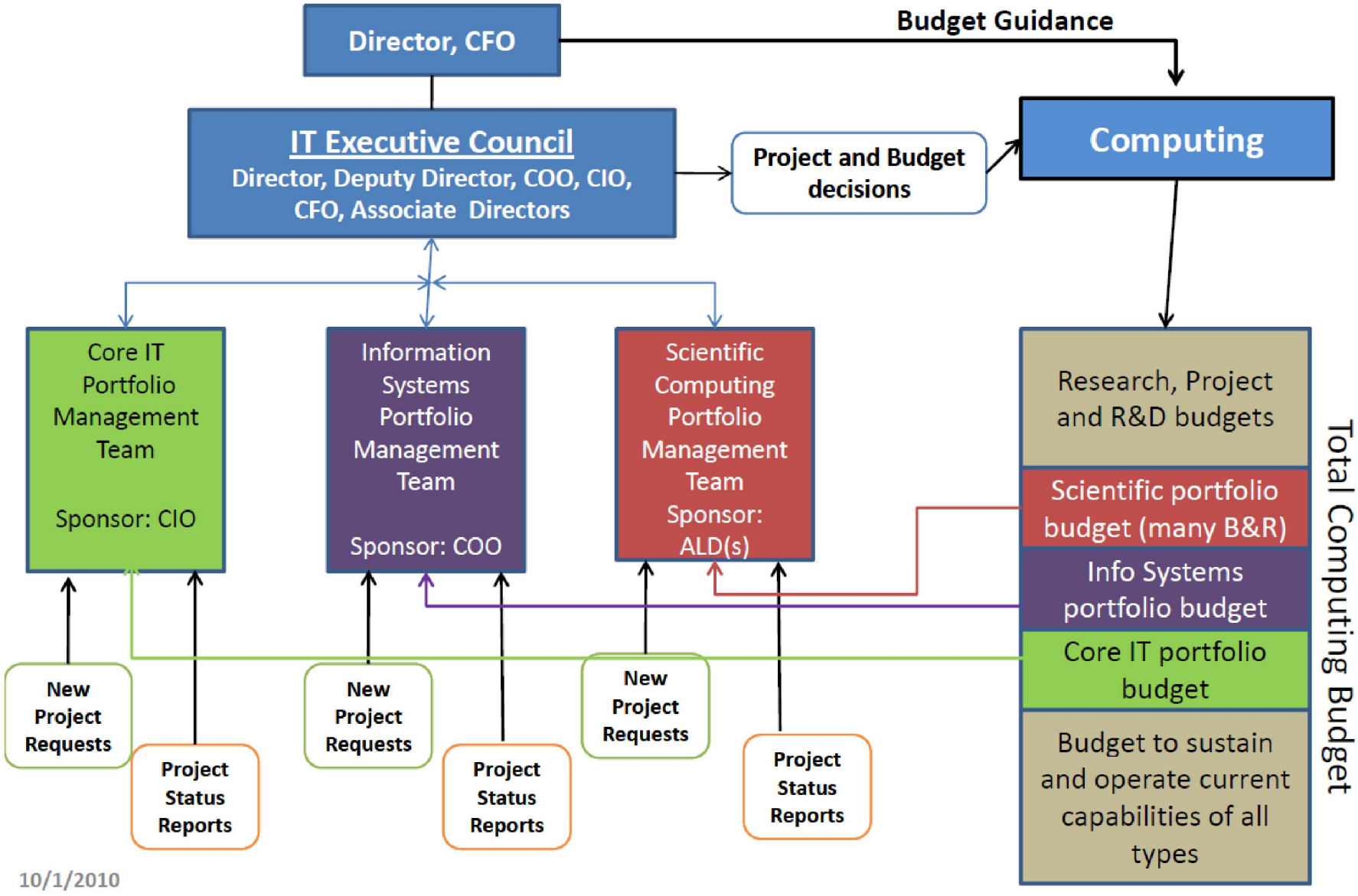
Efficient

- Demonstrate performance improvements
- Optimize process performances
- Higher degree of automation
- Demonstrate ROI

Enterprise Architecture



Portfolio Management Processes



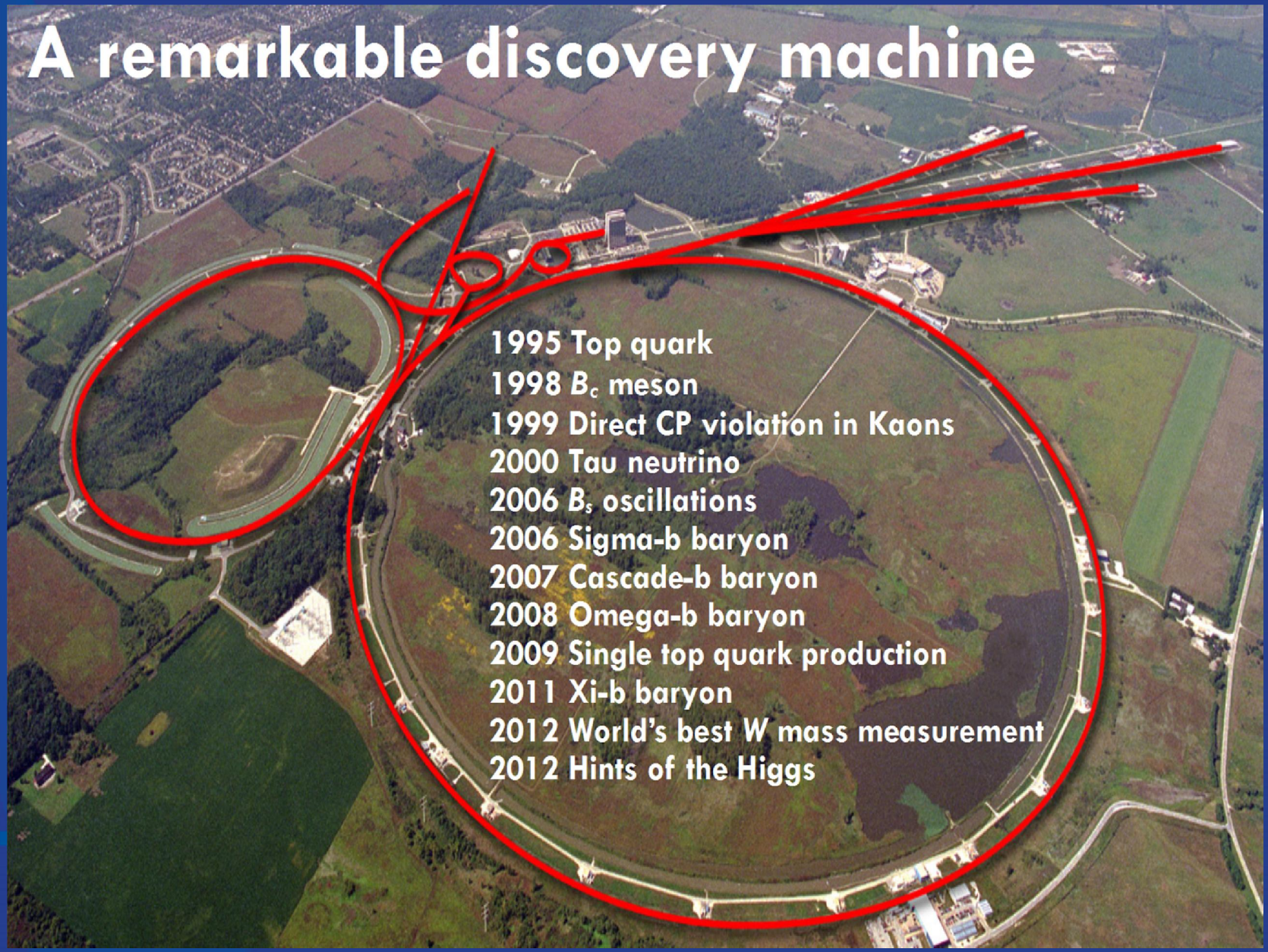
Portfolio Initiatives

- Complete
  - Promise Project Management Software Services
  - TeamCenter Engineering Document Management
- Ongoing
  - FermiDash Contractor Assurance Dashboard
    - *(Presented previously at NLIT 2012)*
  - Human Capital Management (HCM)
  - Tevatron Run II Data Preservation
- Planning
  - Budget & Planning System
    - Requirements Analysis

Human Capital Management (HCM)

- Currently, multiple and non-synchronized HCM systems:
  - PeopleSoft, CNAS, ESHTRK, EBS, Kronos…;
  - In addition, most Divisions, Sections, Centers, and Projects create their own versions of organization information and charts;
- Project is to implement a new HCM system as SaaS.
- Phase 1 will move standard workforce management functions to the new system leaving payroll functions in current system:
  - All person information (employees, users, contractors) will be moved into the new system and be the primary source business processes accessing person information;
  - Will allow workforce performance and succession planning, talent management, skills and competency management, and absence management;
- Phase 2 will move payroll functions from PeopleSoft:
  - Connect with Oracle EBS and Kronos;
  - Decommission PeopleSoft and remove workforce management functions from CNAS and ESHTRK;

Tevatron Run II Data Preservation



Tevatron Run II Data Preservation

- The CDF and D0 experiments ran for 10 years and acquired a unique and important data set that will most likely never be replicated;
  - There is approximately 10 petabytes of data and about an equal amount of Monte Carlo Simulations;
- Data Preservation is more than just curating the data – that is the easy part;
  - Its about providing the tools, and documentation that can analyze the data in a proper fashion that will be useable for a decade or more
- To date, particle physics has done little in terms of data preservation because the next experiment superseded the previous one.
  - For the Tevatron, this is no longer the case…

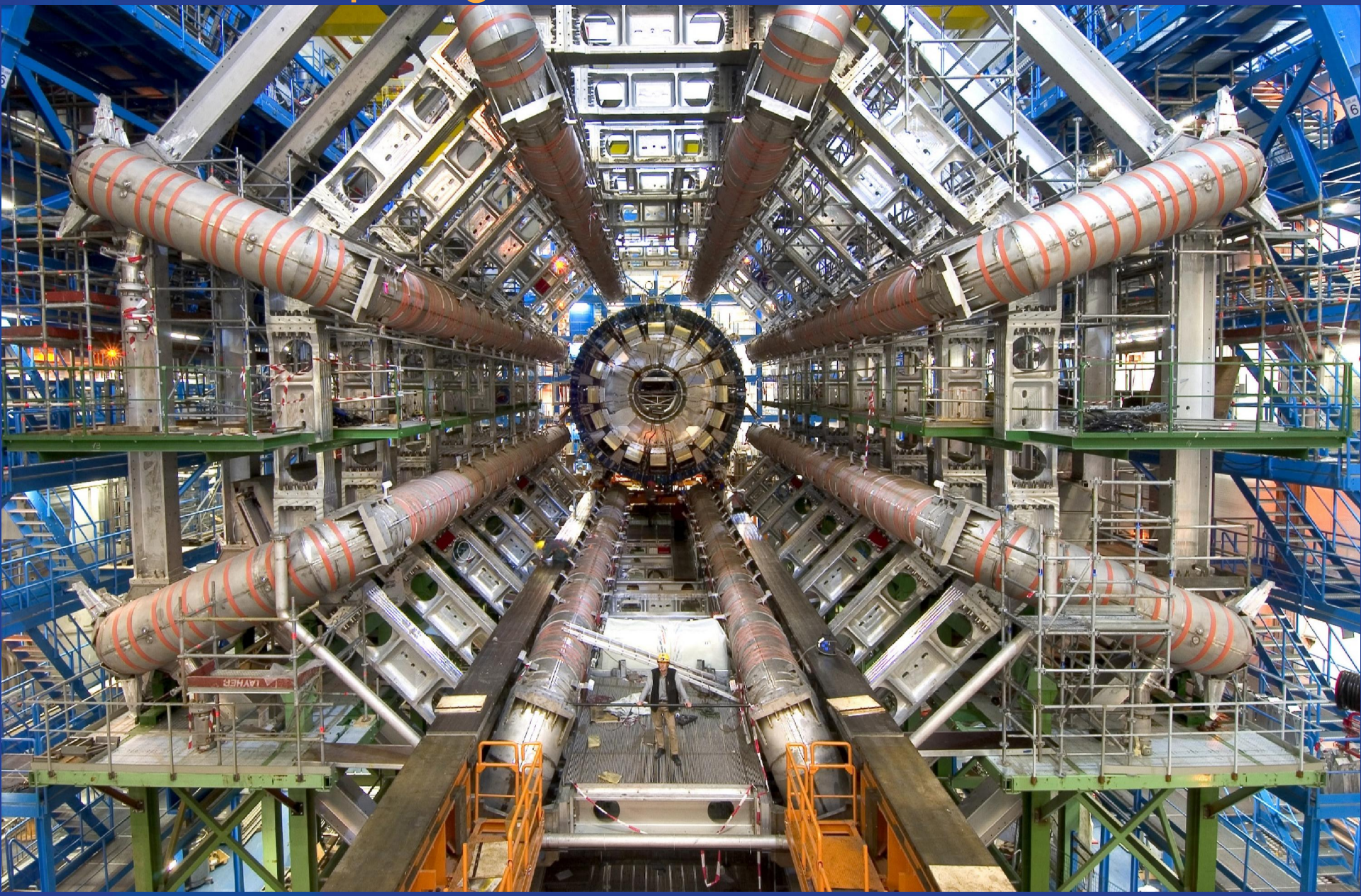
Tevatron Run II Data Preservation

The approach for this project will be to:

- Curate the data from CDF and D0 Run II (both simulated and actual) by continuously migrating the data to modern storage media;
- Maintain the full infrastructure ability to generate new Monte Carlo samples, simulate them, reconstruct them, and process them;
- Maintain the ability to perform physics analysis on both the simulated and actual data;

The goal is to develop and implement a management system that will insure that the resulting data curation and analysis systems are supported and sustainable through *at least 2020*.

LHC Computing



LHC Computing

- Science at an unprecedented scale:
  - Currently collecting data samples whose size in one year match the entire Tevatron output – 10's of petabytes/year;
  - They have ambitions to increase this by a factor of 10 or more in the coming years;
- *This is "big data" personified!*
  - Experiences in curating both the data and our tools to make sense of it will guide us in preserving this data set;

Programs of Work

- TeamCenter EDMS
- ServiceNow
- SharePoint Services

SharePoint Program Roadmap

FY13

NewsCenter/Fermilab Today
- NewsCenter Phase II
- RWD – Phase III

Computing Bits

SharePoint Governance
- Branding
- Taxonomy
- Roles & Responsibilities

SP2010 Infrastructure Improvements
- Authentication*
- Profile Import
- Admin Tools
- Integrated Systems (Lync/Outlook)

FermiDash Enhancements

Notes Migration

Small Projects
- WDRS Job Descriptions ✓
- Finance✓
- ComPASS✓
- PEMP✓
- LBNE Change Request
- PFX
- Tactical Plan Aggregator

Consulting Services
- Outreach
- Training
- Site Design Guidance's

Lab Wide Strategy
- Information Strategy
- Web Strategy

FY14

SP2013 Infrastructure
- New SP2013 Farm & Site Taxonomy
- New Internal Team Sites/Templates
- Migrate SP2010 Internal Team Sites
- Admin Tools

New SP 2013 External Web Application
- New External Collaboration Sites
- Migrate SP2010 Pilot External Collaboration Sites

New SP 2013 Internet Web Application
- Migrate Intranet SP2010 Pilot Internet Sites

Notes Migration

FermiDash SP2013 Upgrade

Fermilab Intranet

Social Networking/MySites Enhancements

DocDb Migration

Plone Migration

Small Projects

FY15

DocDb Migration Cont.

Plone Migration Cont.

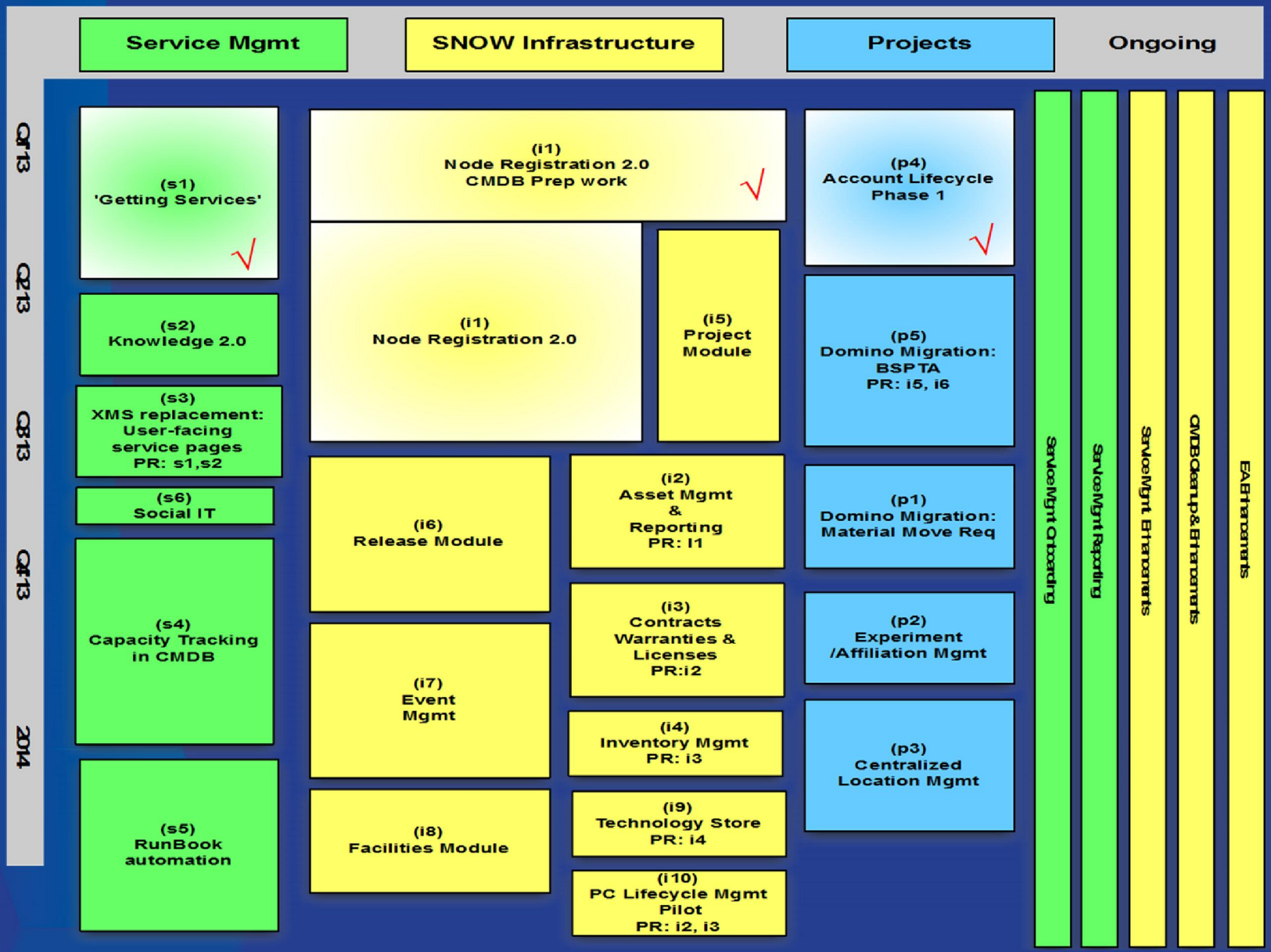
Small Projects

Next Generation Evaluation

NewsCenter/Computing Bits Migration

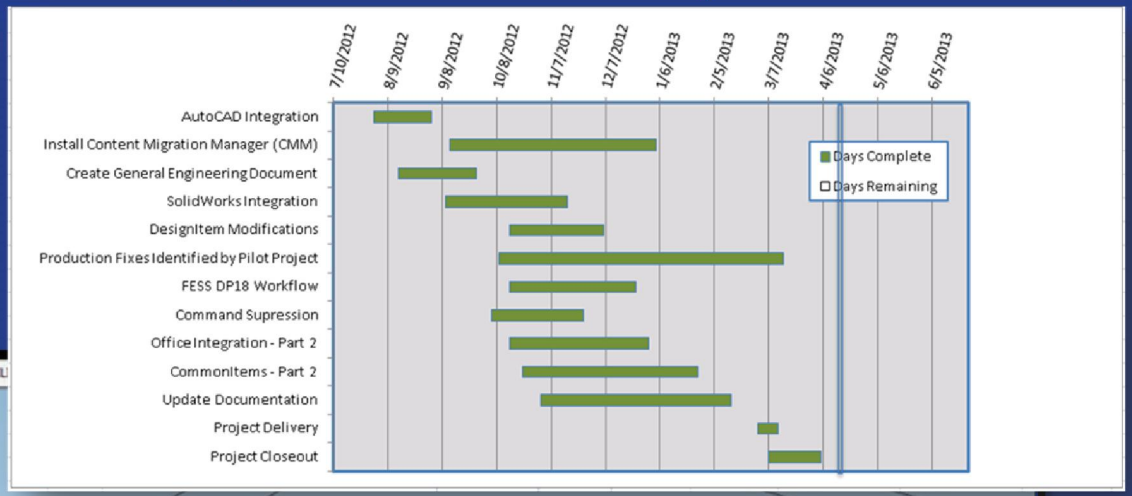
SP2010 Infrastructure Turndown

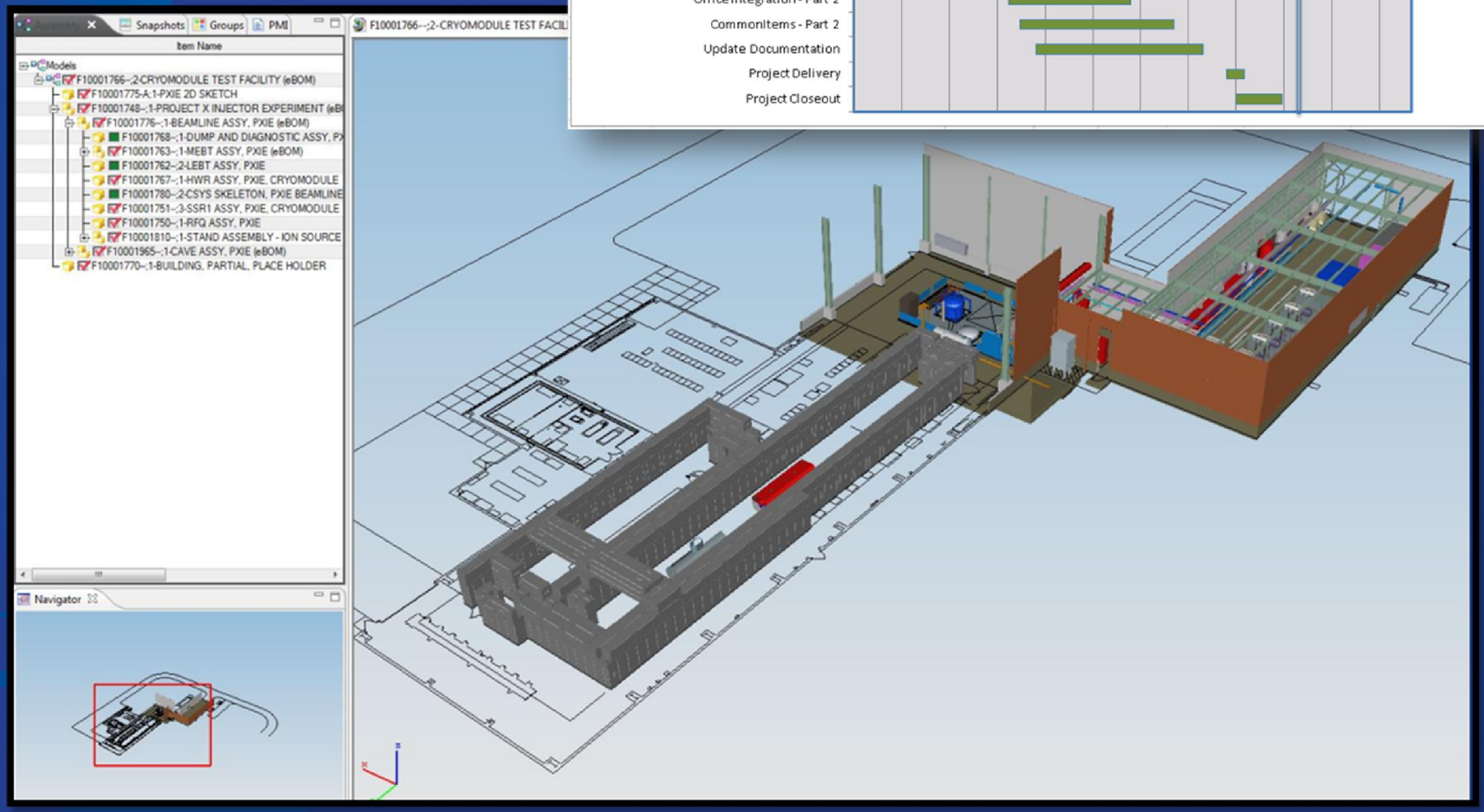
ServiceNow Program Roadmap



TeamCenter EDMS Program Roadmap

- Project phase 2 completed in April
  - Phase 3 not funded
- Developing program roadmap



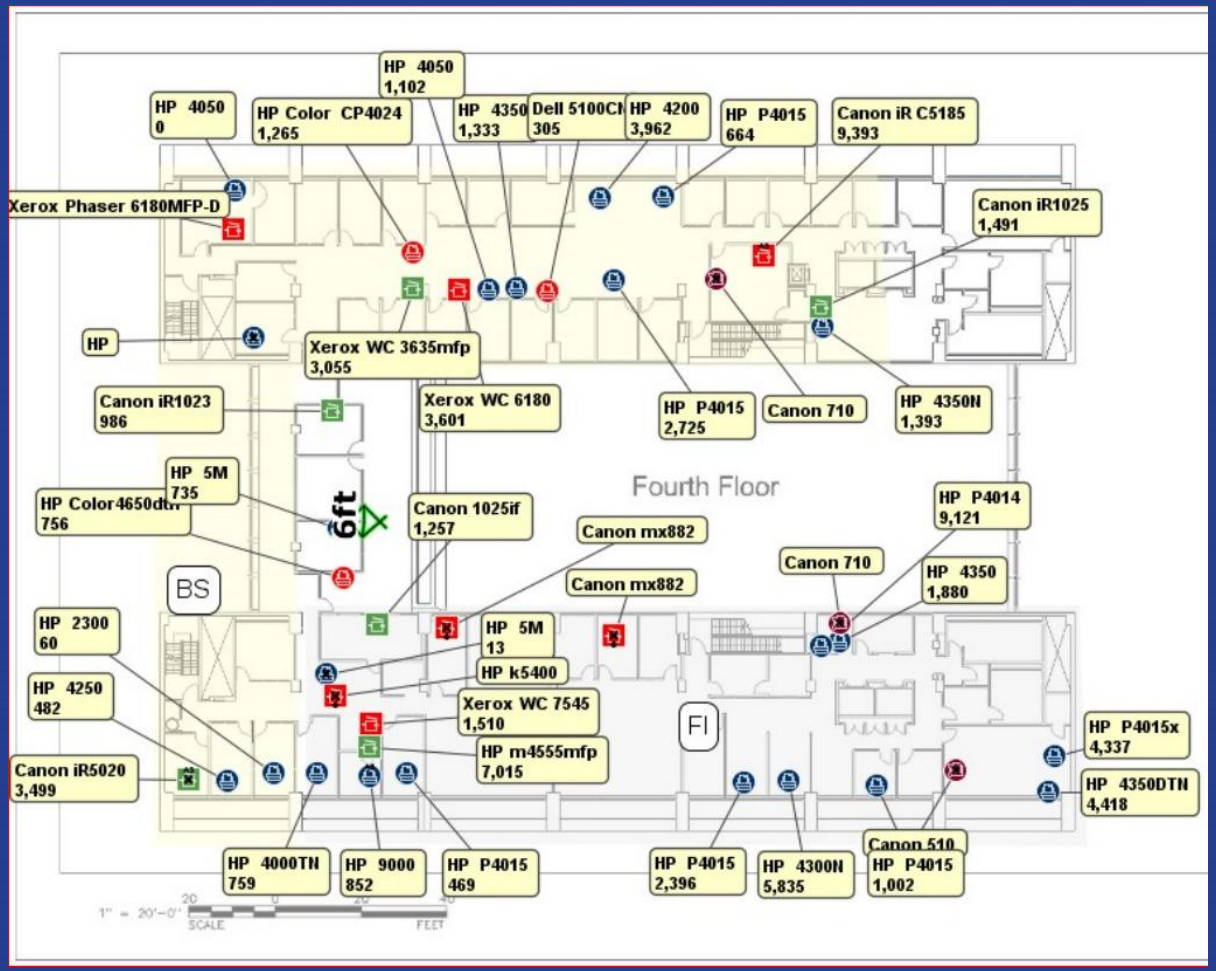


Managed Services

- Dell Services Federal Group provides managed services for:
  - Service Desk
  - Desktop Support & SCCM
  - Hardware IMAC & Repairs
  - Data Center Logistics
  - Network Cable IMAC, Repairs & Design Review
  - “Expert on Demand”
- In place for about a year now.

Managed Printing

- Dell SFG partnered with GES Global Print Solutions for managed printing:
  - Site-wide printing “as-is” assessment completed;
  - Next step is pilot to demonstrate cost & benefit;
  - Followed by lab-wide rollout;



Authentication

- Authentication Task Force
  - Assess our current authentication and identify and recommend improvements, with risk analysis;
  - Specifically looking at our multi-domain architecture:
    - Active Directory & Kerberos for system login;
    - Active Directory-based LDAP for web application login;
  - Two AD domains w/ no trust doesn't play well with Microsoft apps:
    - Although it's more secure (we believe);
  - Report is pending;

Authentication

- ADFS2
  - Allows single signon across multiple apps in LDAP domain;
  - ADFS2 service in production, applications being migrated:
    - ServiceNow, followed by SharePoint;
  - Future: federation with Windows logon;