



Infrastructure Consolidation Program (ICP) Overview

March 10, 2010

Timeline



- **January 27, 2010 – Team kickoff meeting**
- **February 9, 2010 – Governor issues Executive Order S-03-10**
- **February – March, 2010 – Seven workgroups formed with 138 team members**
- **13 Executive Sponsors**
- **26 Initiatives running simultaneously**
- **February – December, 2010 - Workgroup and breakout meetings held to complete deliverables**

California's Opportunity



As such, the challenge ahead is not just to “do IT better” in the context of the past models for government operations, it is to truly transform the way the state delivers programs and services so that they are more integrated, focused, cost-efficient and effective in achieving beneficial policy outcomes. - 2010 California Information Technology Strategic Plan

CALIFORNIA'S EXISTING IT ENVIRONMENT



Floor Space
409,000 sq. ft.
in 405 Locations



10,000 IT
Employees
130 Individuals
Serving as CIOs



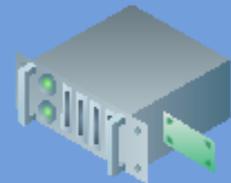
Approximately
170,000 PCs



70+ Wide Area Networks
7,000 Circuits



180,000 E-Mail Users



10,000 Servers
1,500 Web Servers

Why Consolidate IT?

- In this time of financial challenge, it is more important than ever to be organized in the best way possible to manage systems in most effective way.
- Consolidation at this time will help us to meet increasing demands in a time of acutely constrained resources.
- No action related to the consolidation should introduce instability in our systems or projects.
- Indeed, we sincerely believe consolidation will help to ensure greater stability in the future.

EXECUTIVE ORDER S-03-10 mandates the following:

reduce the total amount of **energy** utilized by information technology and telecommunications equipment by 10 percent by July 1, 2010, by 20 percent by July 1, 2011, and by 30 percent by July 1, 2012.

reduce the total amount of **data center square footage** currently utilized by state agencies by 25 percent by July 2010, and by 50 percent by July 2011.

begin to transition the hosting of all mission critical and public-facing applications to a **Tier III data center** designated by the OCIO by no later than September 2010

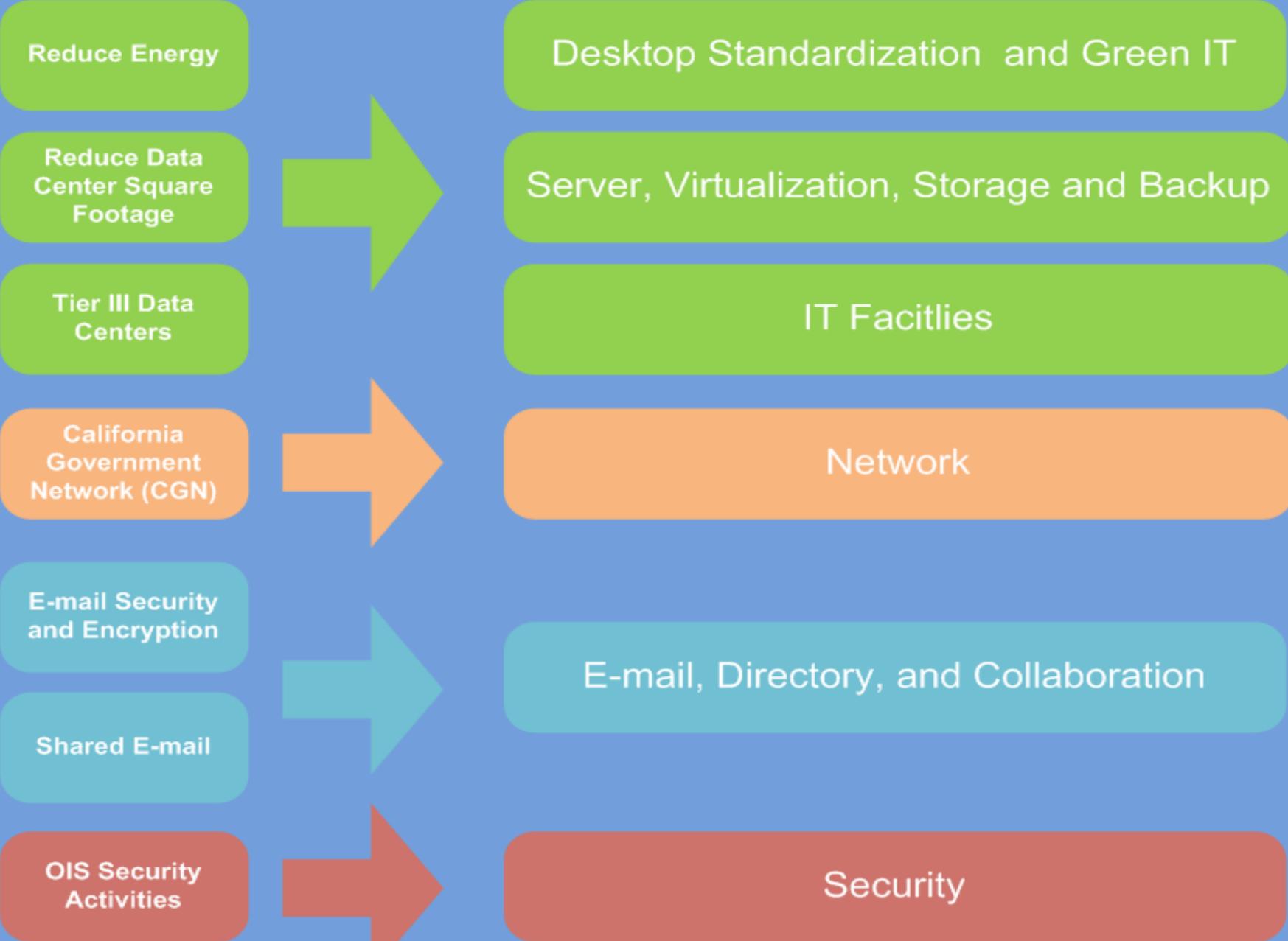
begin migration from their existing network services to the **California Government Network (CGN)** by no later than July 2010

shall transition to the state's shared **e-mail security and encryption solution** by no later June 2010, and shall work with the OCIO to migrate to the state's **shared e-mail solution** by no later than June 2011

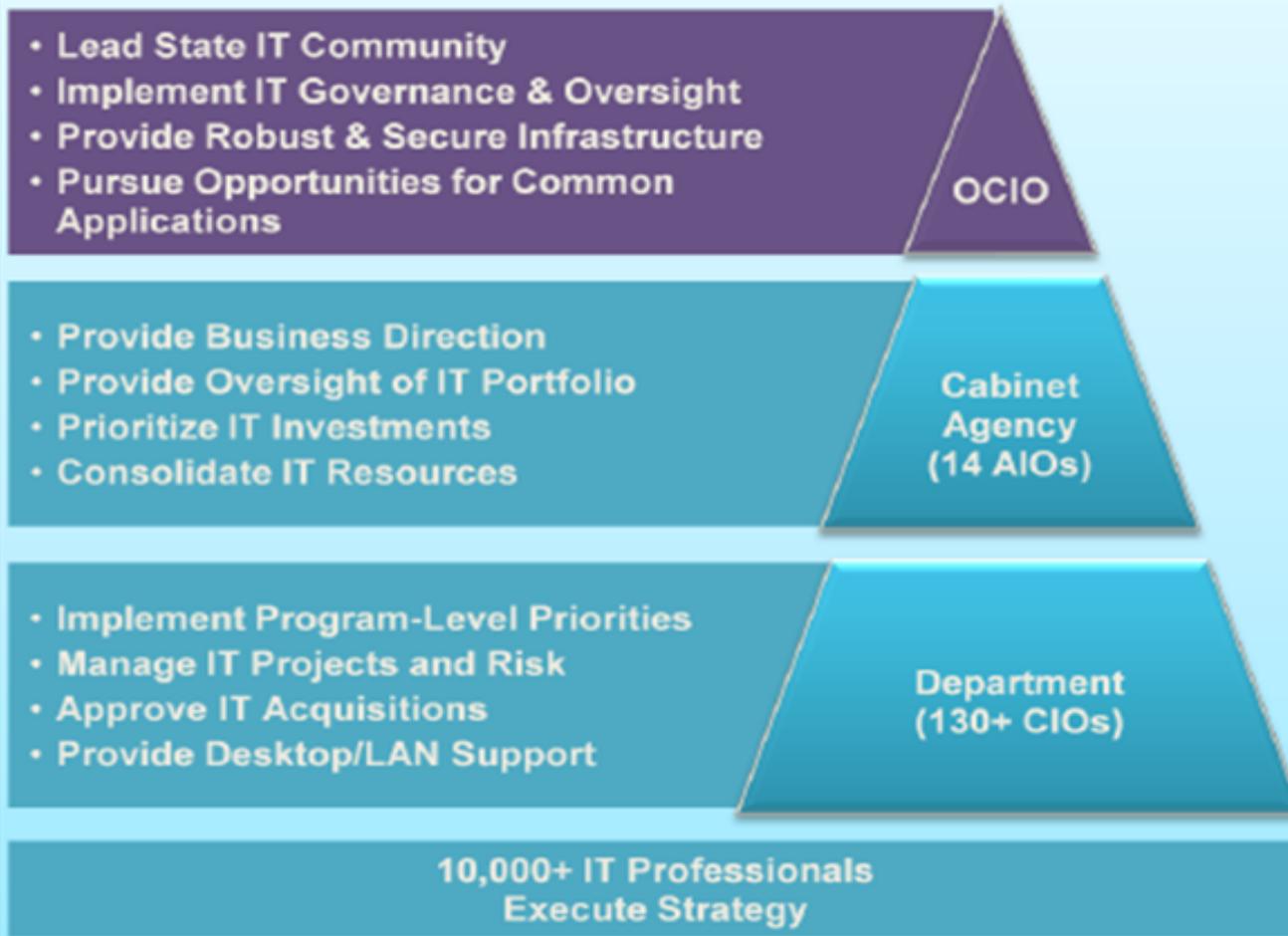
participate in activities coordinated by the OIS in order to better understand and address security incidents and critical cyber security threats to the state.

INFRASTRUCTURE CONSOLIDATION FRAMEWORK

Scope



Federated Governance Model



EXECUTIVE ORDER S-03-10 establishes the following goals

Efficiency

Cost Savings

Environmental Sustainability

Information Security

“Since the beginning of my Administration, I have been a strong advocate for rebuilding the state's technology systems to make them work better and more efficiently for the people of California,” said Governor Schwarzenegger. “With today’s action we are acknowledging the progress that has been made, while laying the framework to make further improvements in the state’s IT operations. This action will increase transparency in spending, promote greater cost savings and define specific targets to reduce energy usage in our IT systems and further consolidate services.”

Glossary: Tier III Data Center



■ Concurrently Maintainable Site Infrastructure

- Redundant Capacity Components and Multiple Independent Distribution Paths Serving Computer Equipment. Typically Only One Distribution Path Serves the Computer Equipment at Any Time.

- All IT Equipment is Dual Powered

■ Performance Confirmation Tests

Reference: Uptime Institute White Paper

Background

Economics of Data Centers



- Estimated worldwide 11.8 million servers in data centers
- Average Servers are used at only 15% of their capacity
- 800 billion dollars spent yearly on purchasing and maintaining enterprise software
- 80% of enterprise software expenditure is on installation and maintenance of software
- Data centers typically consume up to 100 times more per square foot than a typical office building
- Average power consumption per server quadrupled from 2001 to 2006.
- Number of servers doubled from 2001 to 2006

SOURCE: NIST.GOV



Background

Energy Conservation and Data Centers



- Standard 9000 square foot costs \$21.3 million to build with \$1 million in electricity costs/year
- Data centers consume 1.5% of our Nation's electricity (EPA)
 - .6% worldwide in 2000 and 1% in 2005
- Green technologies can reduce energy costs by 50%
- IT produces 2% of global carbon dioxide emissions

Change Imperative

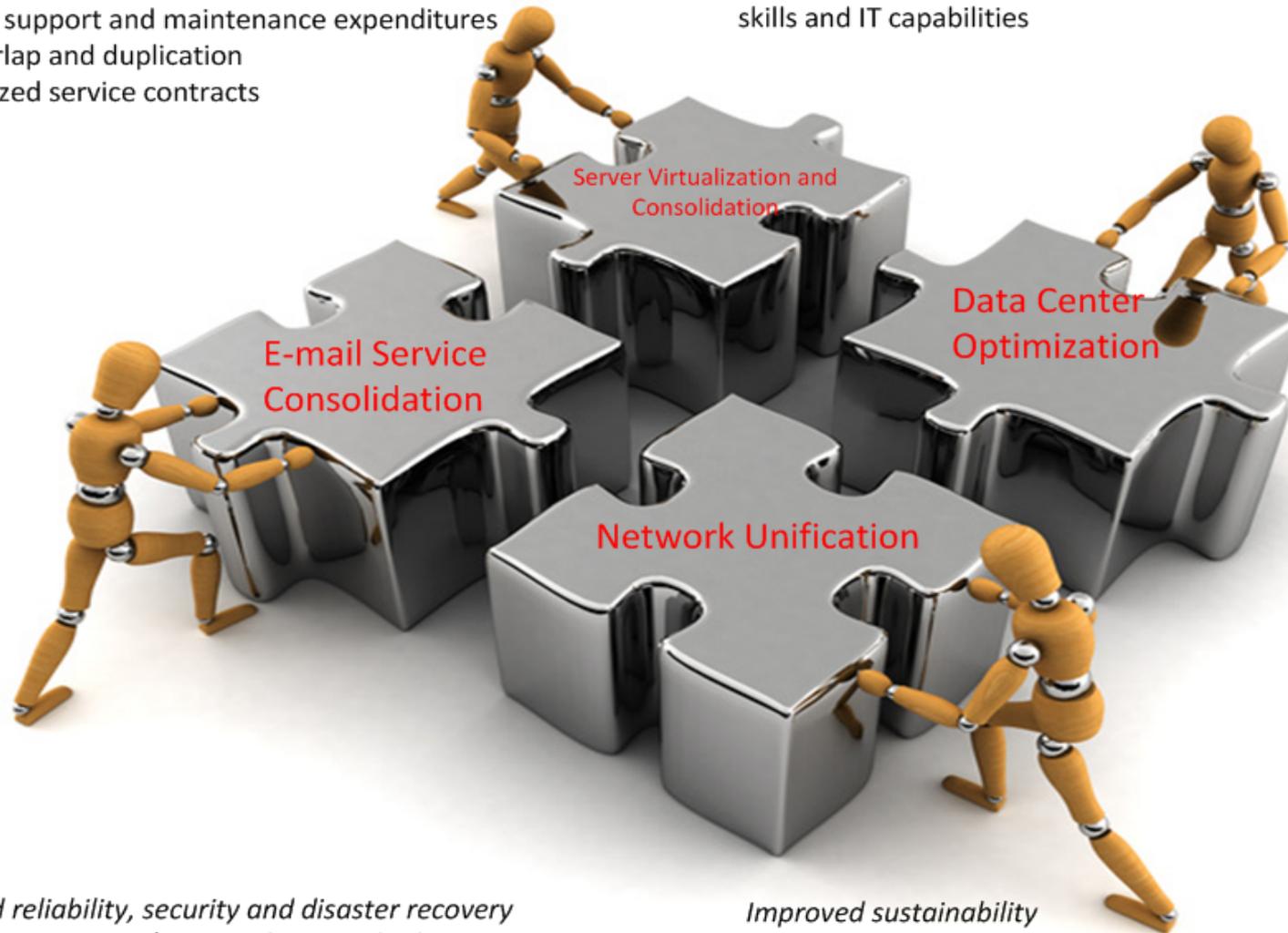
- **Current IT management approach is unsustainable**
 - California's IT is complex
 - Difficult to maintain
 - Costs to maintain
 - Difficult to secure

Increased cost-effectiveness

- Economies of scale that lower costs
- Reduced support and maintenance expenditures
- Less overlap and duplication
- Rationalized service contracts

Effective management of human capital

- Standard processes and technologies help maintain skills and IT capabilities



Enhanced reliability, security and disaster recovery

- Consistent service/support for use of infrastructure
- Enterprise data center, with back-up and recovery, for mission critical and public facing applications

Improved sustainability

- Reduced energy consumption and CO2 emissions



Alignment with Industry Leading Practices

- 72% of states have either completed e-mail consolidation or have a project in progress
- Models range from voluntary participation to fully-outsourced
- Voluntary consolidations are typically not successful
- Many states are currently moving toward a hybrid model of consolidating IT services
- Other states have realized cost savings of 10% to 30%
- Consolidation efforts typically take 3-5 years to complete, including a thoughtful and collaborative planning process
- States that have aggressively consolidated have become IT service leaders (e.g., MI, NC, WA, GA, PA)

Performance Metrics



Infrastructure Rationalization		
Metric	Baseline in FY2008/09	Target in FY2013/14
# of servers	10,000	5,000
Data center capacity (sq. ft.)	364,000	182,000
# of Wide Area networks	70+	1
# of email boxes in E-hub	0	180,000

Reliability		
Metric	Baseline in FY2008/09	Target in FY2013/14
% of state agencies with current IT disaster recovery plans (per year)	84.86%	100.00%
System availability	99.90%	99.99%
Network availability	92.70%	99.00%

Service		
Metric	Baseline in FY2008/09	Target in FY2013/14
Public satisfaction with online services	N/A	80.00%
Service level agreements met	N/A	90.00%

Sustainability		
Metric	Baseline in FY2008/09	Target in FY2013/14
Energy used (MWh/year)	170,000	125,000
Carbon dioxide emissions (Metric Tons)	85,000	50,000

Project Management		
Metric	Baseline in FY2008/09	Target in FY2013/14
% of projects delivered on time and within budget	58.00%	80.00%
% of projects completed within budget	75.00%	85.00%
% of projects delivered on time	68.00%	80.00%

Security		
Metric	Baseline in FY2008/09	Target in FY2013/14
# of electronic data breaches (per year)	90	9
# of breaches resulting in the loss of Personally Identifying Information (PII)	3	0
# of websites compromises	70	7

Area-by-Area Phased Consolidation



Generally, each consolidation area will follow a three phase plan:

- Phase I – With key stakeholder involvement, agreement on consolidation end-states, approach, standards, and the implementation framework.
- Phase II – Initial implementations, creating a critical mass
- Phase III – Consolidation steady state, general implementation across all executive branch departments

End State – Network

- **Enterprise Managed Services Network**
 - MPLS based – positions for future
 - Provided by CALNET II suppliers, AT&T and Verizon
 - Consistent rates
- **I-Hub's**
 - Providing network interfaces between MPLS clouds
 - Secure Internet hub (security services)
 - Located at Gold Camp and Vacaville



End State – E-Mail

- **Two alternatives**
 - **OTech CA.Mail**
 - **Optional services including archive and e-discovery**
 - **Hosted Solution**

- **Mail Hygiene and Encryption**
 - **E-Hub (Microsoft Forefront Online Protection for Exchange)**

End State – E-Mail

- Active Directory Standardization
 - E-GAL is first component
 - Federated employee directory services

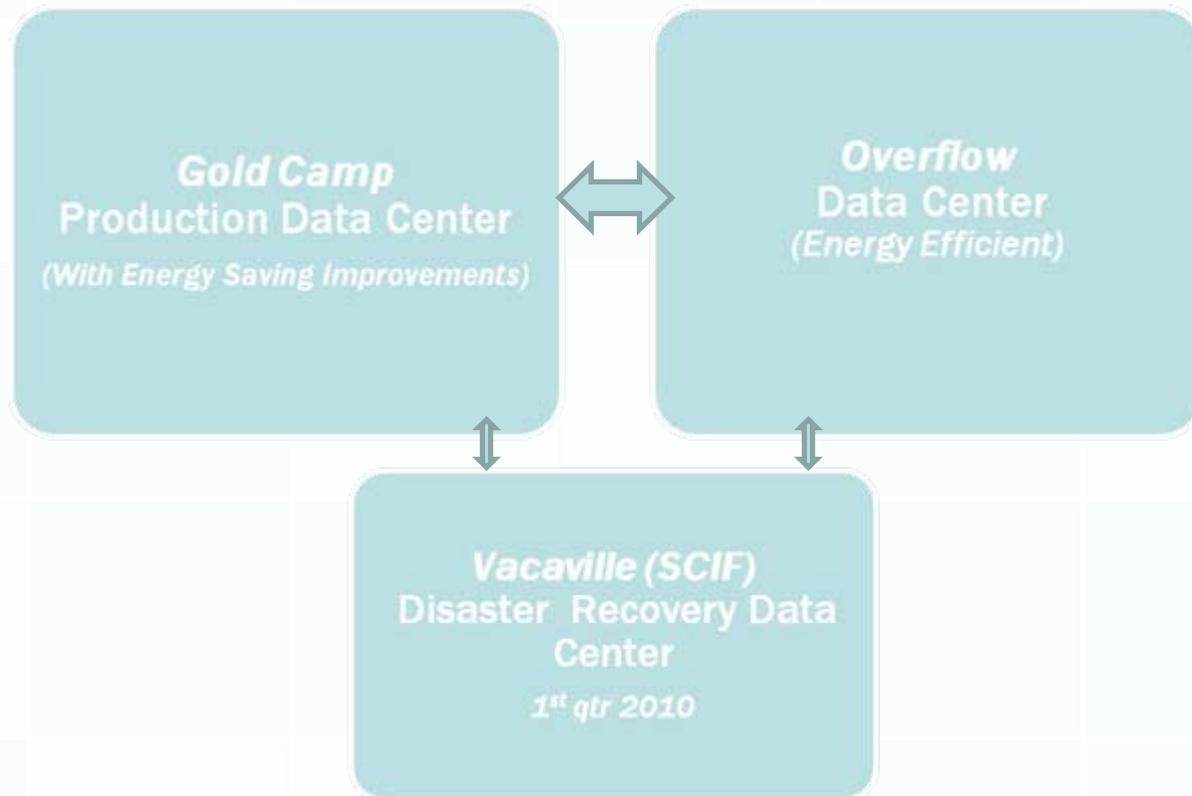
- Collaboration tools and services
 - TBD



End State – IT Facilities

1. Gold Camp – OTech mainframe, OTech open systems managed services, and departmental applications data center, failover for Departmental Co-op data center
2. New location Sacramento area – Overflow
3. SCIF Vacaville – Disaster recovery, selected production data center, and disk based data vault

IT Facilities Plan



Classic three center design with two centers located in the Sacramento metro area for synchronous replication and rapid recovery; and a remote DR site providing asynchronous replication capabilities, selected production (initially mainframes), and a disk based data vault

End State – Servers and Virtualization



- To the extent possible, virtualized servers will be used for test, development, and production

- Components of this end state include:
 - Develop configuration practice for virtual environments including servers, network, storage and security zoning
 - Define standard management tools for virtual environments
 - Define server standards for virtualization use

- Virtualization environments
 - VMware
 - Microsoft HyperV

End State – Storage and Backup



- Establish configuration practices for products, tools and processes
- Develop common backup practices and approaches
- Move to shared storage consistent with other infrastructure consolidation areas

Key Take Away:

To effectively implement a virtualization environment and receive the expected results we must take a “Holistic Approach” and address all of the key elements: servers; storage; backups; and network.

End State – Security

- State Enterprise Cyber Security Risk Assessment
- Secure.ca.gov Domain Name System Project
- Secure I-Hub will provide first level security for Internet connections; all Internet connectivity will be provided via the I-Hub's
- OCIO/OTech will develop compliant infrastructures in order to host applications that store, transmit or process: credit card data, health information and confidential tax information.

End State – Desktop Standardization and Green IT



- **For desktop standardization:**
 - Standard modular desktop loads
 - Standard desktop management tools and processes
 - Once standards are finalized, vendors will provide desktops to meet the specs developed
 - Need to consider possible licensing implications
 - Memory, storage, patch management specs will be included
 - Ability to provide cross Department/Agency help desk and desktop support

End State – Desktop Standardization and Green



- For Green IT

- Standard power management reducing the carbon footprint

High Priority Area's

■ E-mail

- E-Hub implementation completed by June 2010
- Hosted Solution

■ IT Facilities

- Firm departmental requirements
- Develop and agree upon operational model

■ Servers, virtualization, storage and backup

- Storage bid completed and issued
- Virtualization shared processes and standards

■ Network

- CSGNet replacement with managed services
- Develop approach for non-CSGNet departments to migrate to managed services

The Road Ahead



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