OREGON | Office of the State

Chief Information Officer

W&M General Government.

Budget Overview

16 February 2017

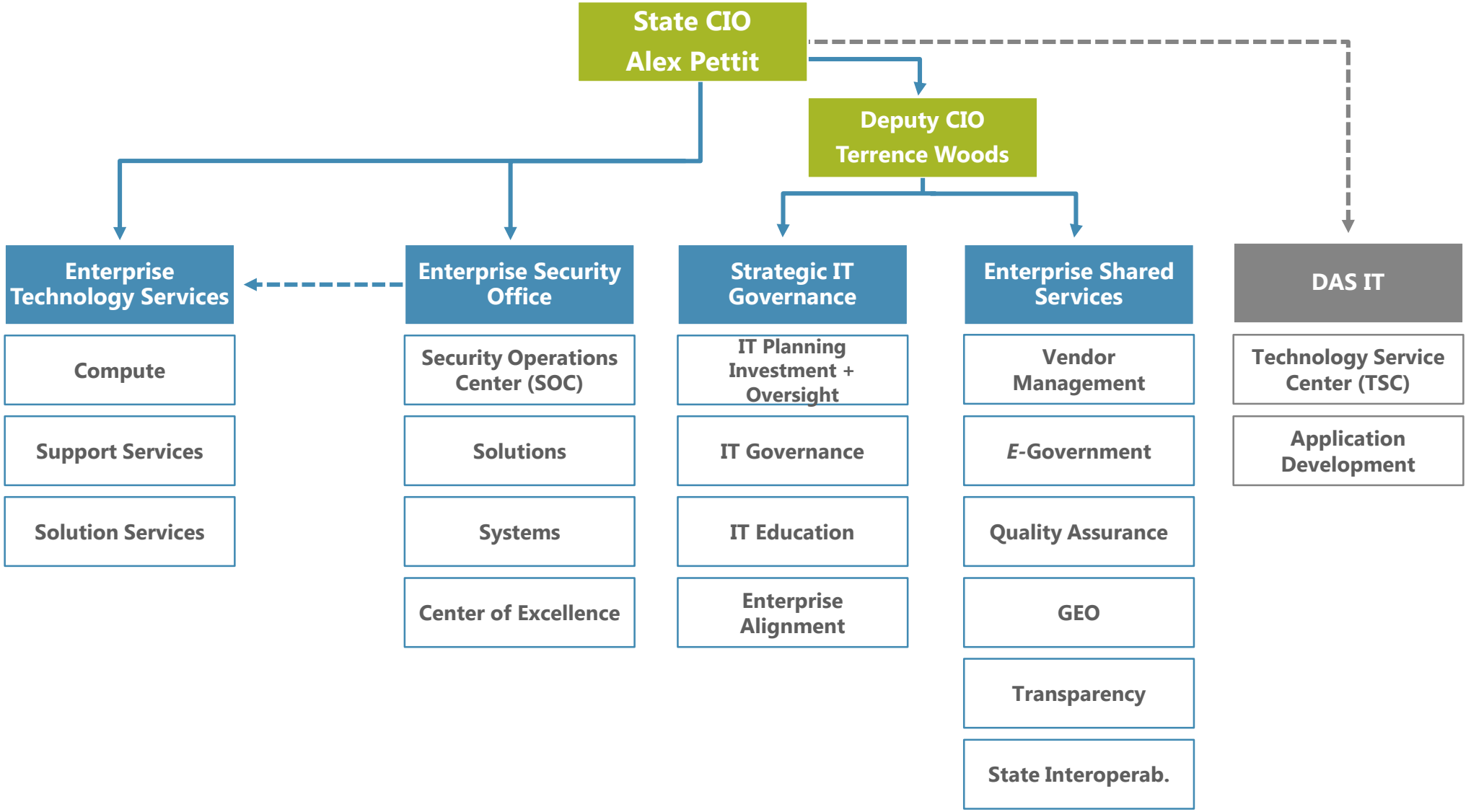
OSCIO Vision. *Enabling state agencies and partner jurisdictions to better serve Oregonians through enterprise technology solutions.*

OSCIO Mission. *Mature enterprise technology governance, leverage investments in shared services, ensure transparency, provide oversight and deliver secure and innovative solutions.*

Customer-centered. Listening and understanding our customer's needs.	**Deliver value.** Doing the right things right to meet our customer's desired outcomes.	**Be a partner.** Forging trusting partnerships across the enterprise.	**Innovation.** Providing solutions in creative ways.

Office of the State Chief Information Officer (OSCIO)

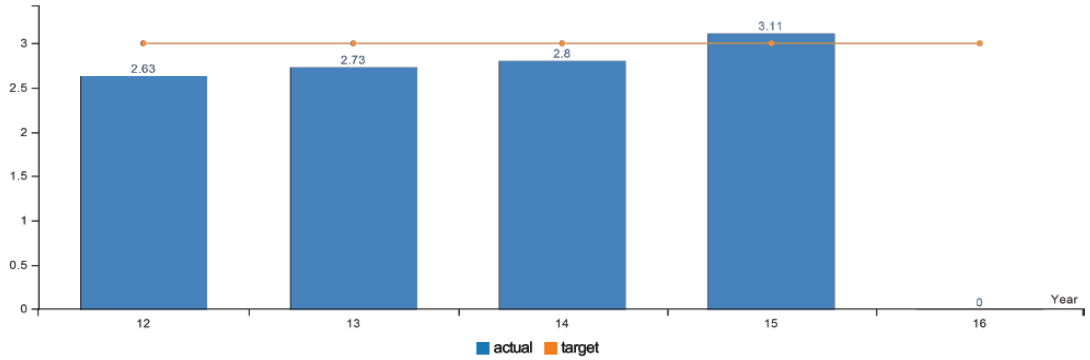
OSCIO high-level organization

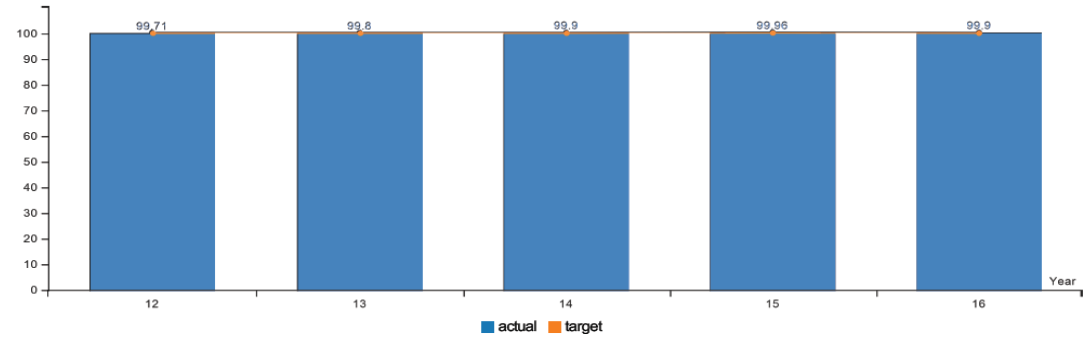


Key Performance Metrics

OSCIO KPMs

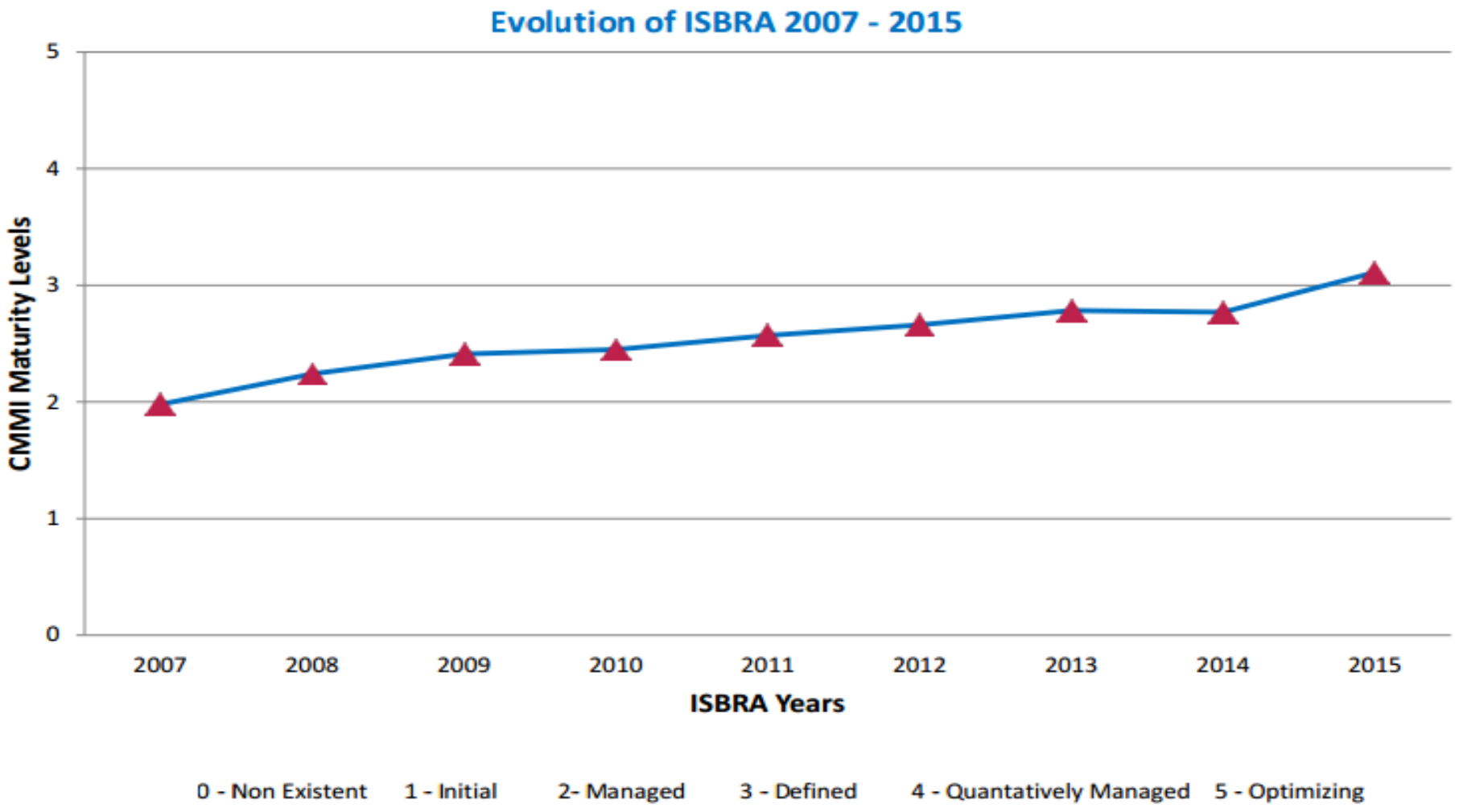
Legislatively Proposed KPM	Current	Target 2016	Target 2017
8 - INFORMATION SECURITY - Overall information security maturity rating based on a sample of state agencies. Rating achieved using a compilation and aggregate score based on the ISO 27002 standard and assigning a rating using the Carnegie-Mellon Capability Maturity Model. (3rd party conducting information security business risk assessments)	3.11	3.00	3.00
13 - DATA CENTER - Percentage of time systems are available	99.90	99.99	99.99





IT Security and CMMI Maturity Over Time

over 8 years the state has seen only modest improvement

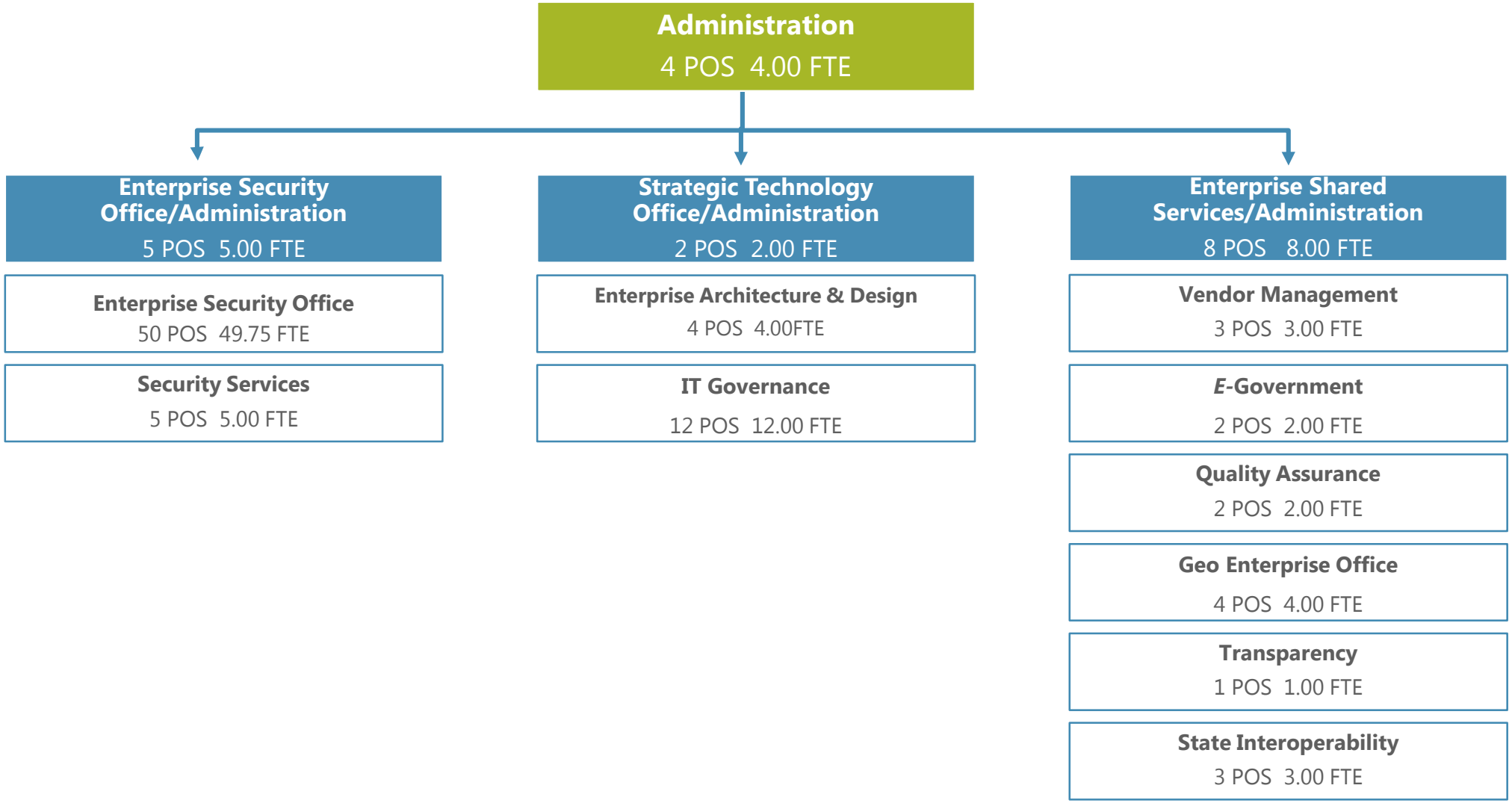


Office of the State CIO

IT Governance & Shared Services

Office of the State Chief Information Officer (OSCIO)

organization chart | 2017-19 | 105 positions (104.75 FTE)



OSCIO Budget Drivers and Environmental Factors

IT security and vendor management

IT Security Unification. Continued implementation of E.O. 16-13, "*Unifying Cyber Security in Oregon"* and passage of SB 90 would result in a substantial workload shift—moving as many as ***36 positions (35.75 FTE)*** from their respective agencies and increasing the OSCIO budget by ***$11,446,351***.

HB 3099 Implementation. Continued implementation of HB 3099 (2015), Stage Gate oversight and Enterprise Project and Portfolio Management (PPM) remains a high priority.

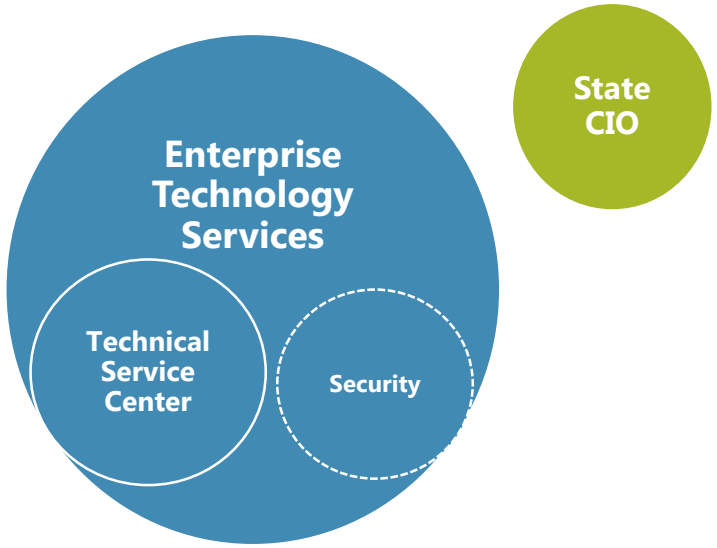
IT Vendor Management & basecamp. Package 101 includes ***2 positions (2.00 FTE)*** and ***$449,678*** for continued implementation of the IT vendor management program and basecamp–a valued-added IT procurement initiative focused on establishment of statewide price agreements shared services

OSCIO Reduction. Elimination of standard inflation for Services and Supplies – a ***reduction*** of ***$1,232,536***

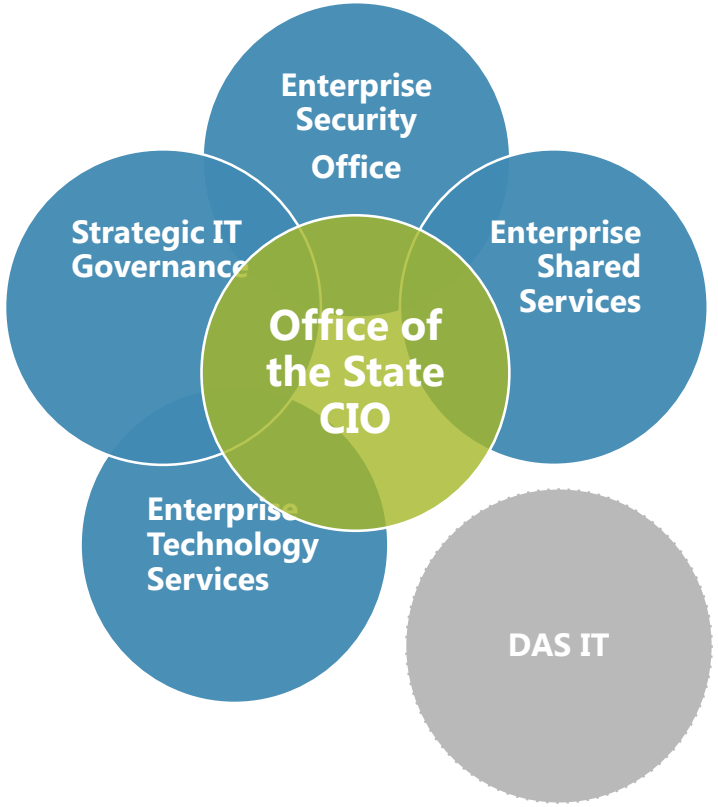
HB 3099 (2015)

statutory impacts and *OSCIO redesign*

pre-HB 3099



post-HB 3099



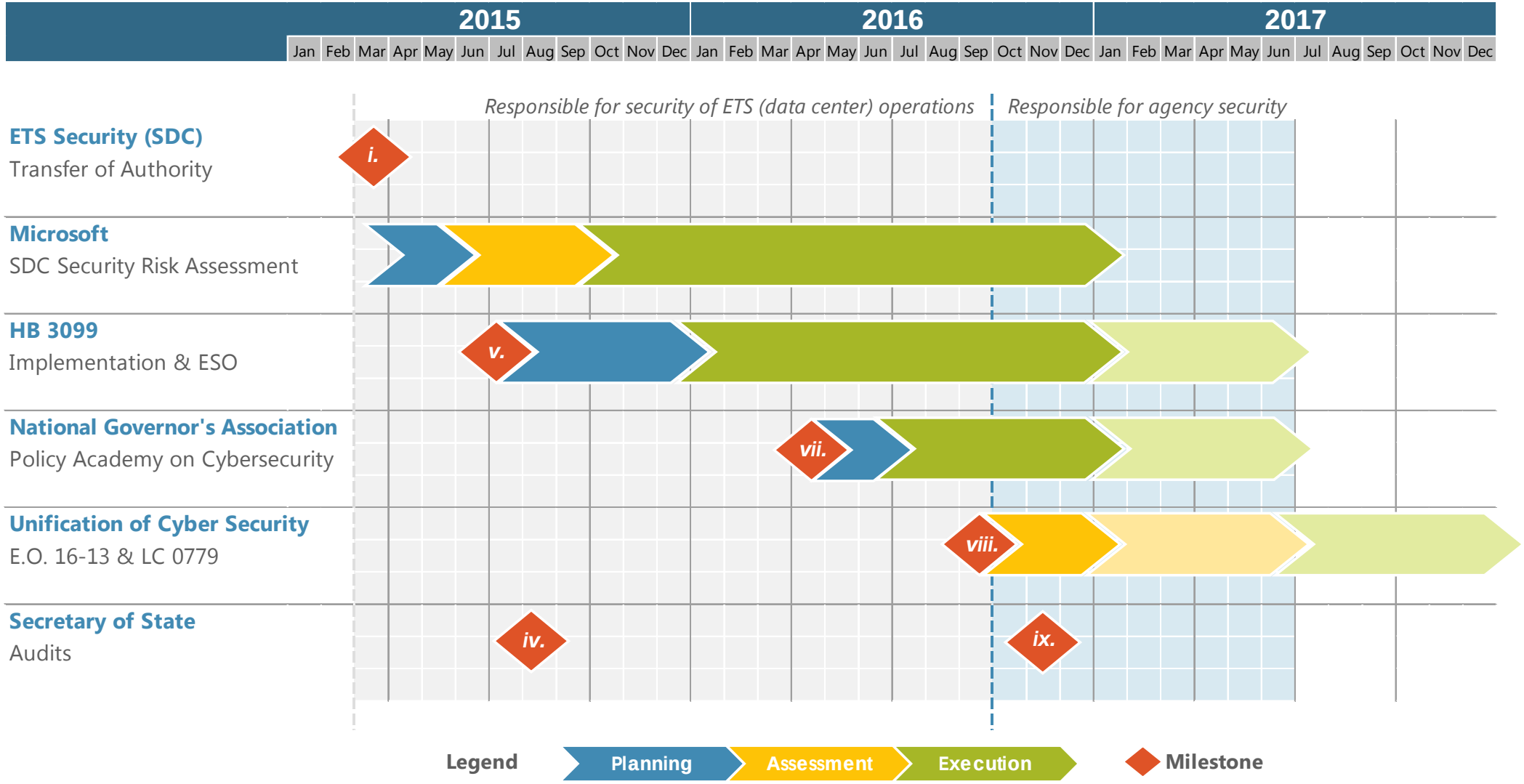
- *State CIO independence + accountability*
- *Joint authority over statewide policy and infrastructure service delivery*
- *Stage-gate review process for IT projects > $1 million*
- *Independent procurement, oversight and contract enforcement authority*

Unifying Cyber Security in Oregon

E.O. 16-13 and SB 90

IT Security in Oregon

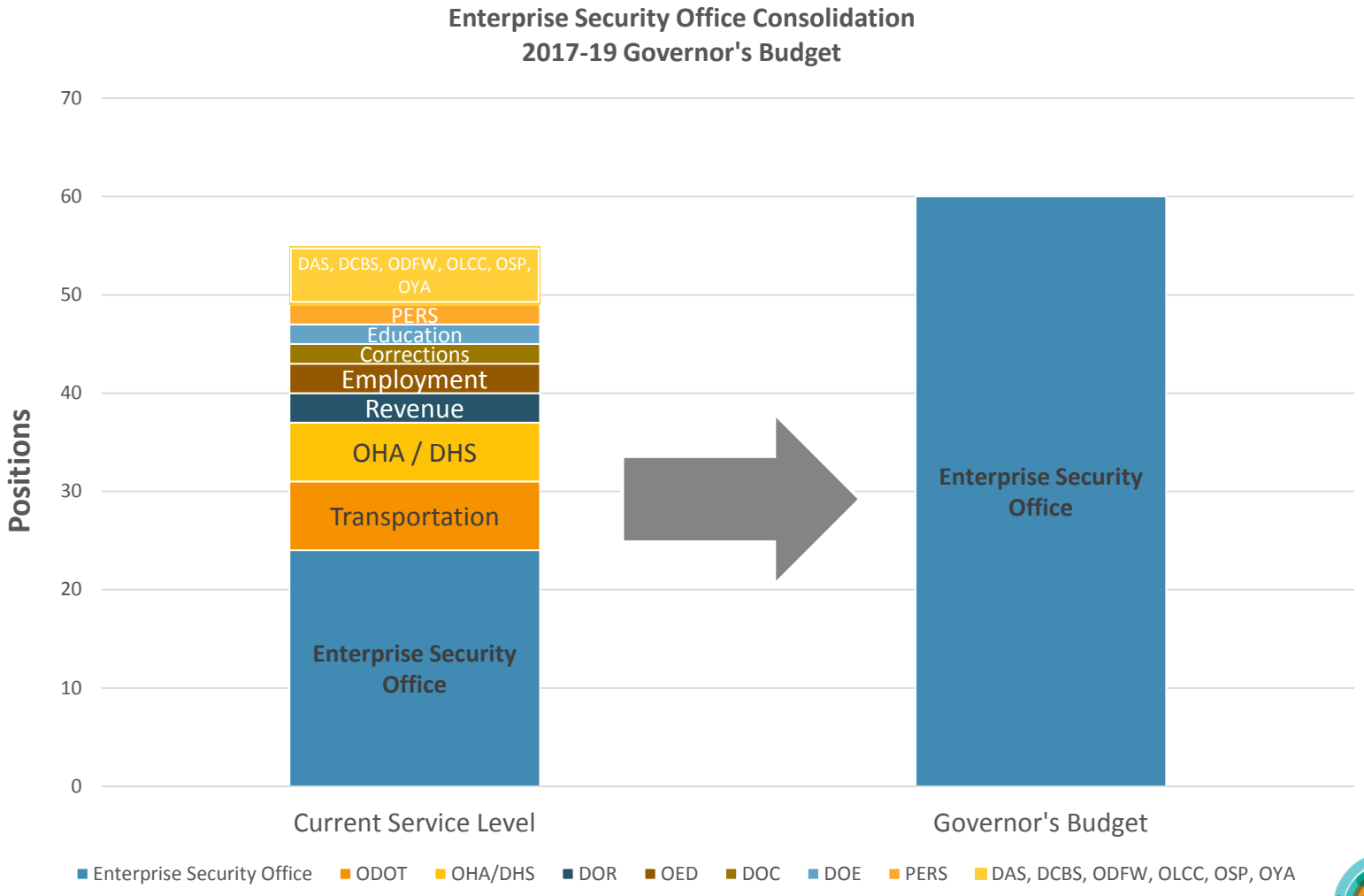
timeline of recent developments



IT Security Positions

positions transferred under E.O. 16-13

- **Existing Positions.** 31 IT security positions were transferred from Executive branch agencies to the Enterprise Security Office (ESO)
- **Current Funding.** Positions were funded by agencies according to available funds
- **New Positions.** 5 new positions requested in ARB (3 by PERS, 2 by ODOT) were transferred to ESO
- **Assessment.** All security positions are now funded by a statewide assessment



E.O. 16-13 Implementation

Enterprise Information Security Risk (EISR) a NIST-based* modular assessment approach

1

Internal Nessus Scan

Internal scanning using ESO Tenable scanning tools

2

Cybersecurity Profile

NIST-based profile of agency security posture

3

IT Infrastructure

Evaluation of agency IT technical practices, architecture and infrastructure

4

External App Scan

Inventory and assessment of all external-facing web applications

5

App Security Assess.

Assessment of all applications, application development practices and training

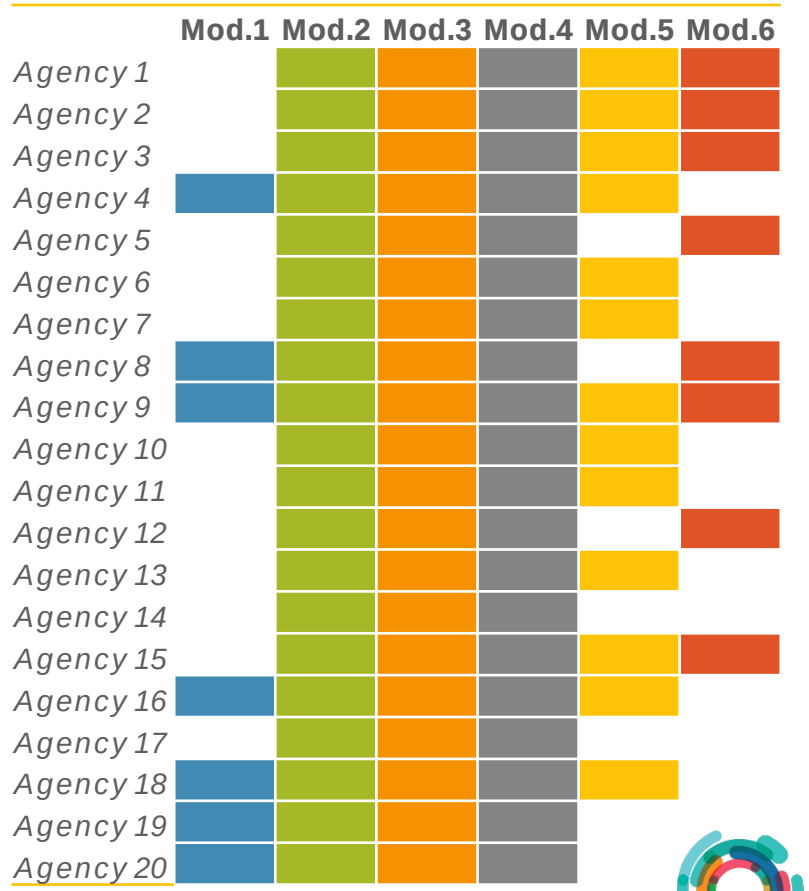
6

Level 4 Data

Assessment of how agencies handle data classified as Level 4

NIST

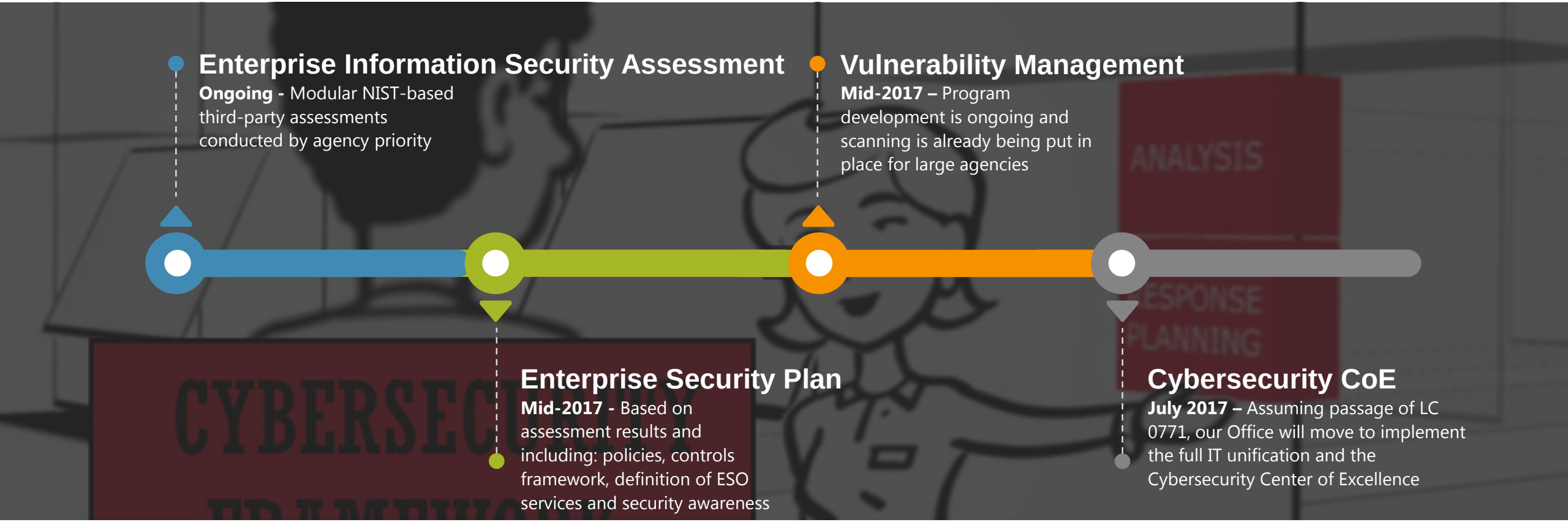
https://www.nist.gov/cyberframework



*National Institute for Science and Technology

E.O. 16-13 Implementation Milestones

"Unifying Cyber Security in Oregon"



Enterprise Information Security Assessment

Ongoing - Modular NIST-based third-party assessments conducted by agency priority

Vulnerability Management

Mid-2017 – Program development is ongoing and scanning is already being put in place for large agencies

Enterprise Security Plan

Mid-2017 - Based on assessment results and including: policies, controls framework, definition of ESO services and security awareness

Cybersecurity CoE

July 2017 – Assuming passage of LC 0771, our Office will move to implement the full IT unification and the Cybersecurity Center of Excellence

IT Security in Oregon

breaking with a failed model

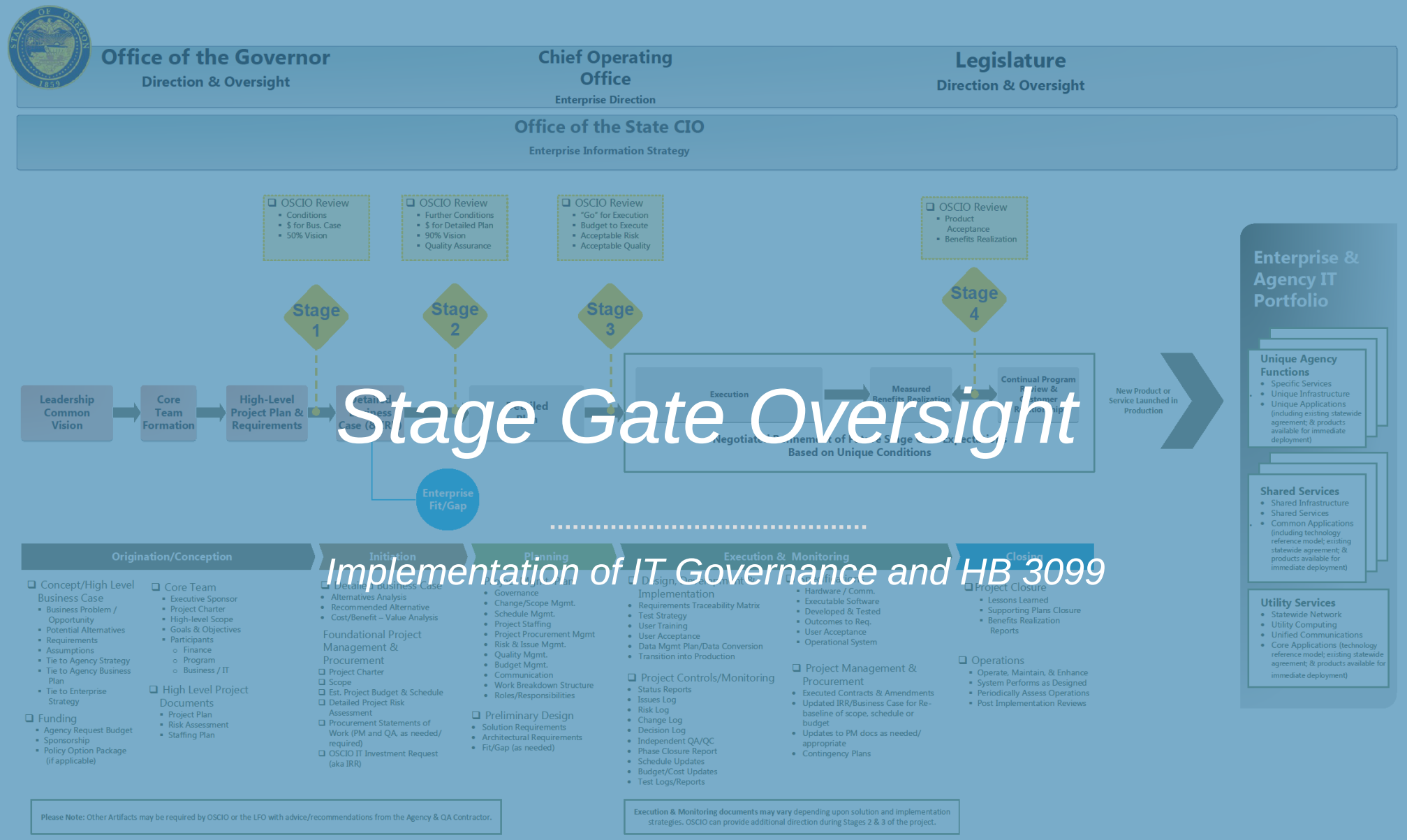
where we've been

- Reactive
- Decentralized
- Uncoordinated
- Under-resourced (inefficient)
- Insular
- Ineffective (recurrent breaches)
- Focused on blame assignment
- Compliance-based

the road ahead

- Strategic
- Unified
- Uniform standards, security protocols and firewalls
- Better use of existing resources
- Cross-sector engagement
- Solution-focused
- Risk-based

Despite eleven IT security audits in the last decade focused solely on the security of the state data center, the IT security posture of the state of Oregon remains fundamentally inadequate. As stated in the audit, "[o]verall, [agency] planning efforts were often perfunctory, security staffing was generally insufficient, and critical security functions were not always performed." Given widespread underinvestment in IT security, persistent breaches and agency non-compliance with existing IT security statutes and policies, the state of Oregon requires a new approach. While comprehensive IT security standards are certainly important, they are clearly not self-executing—leadership is required.



Stage Gate Oversight

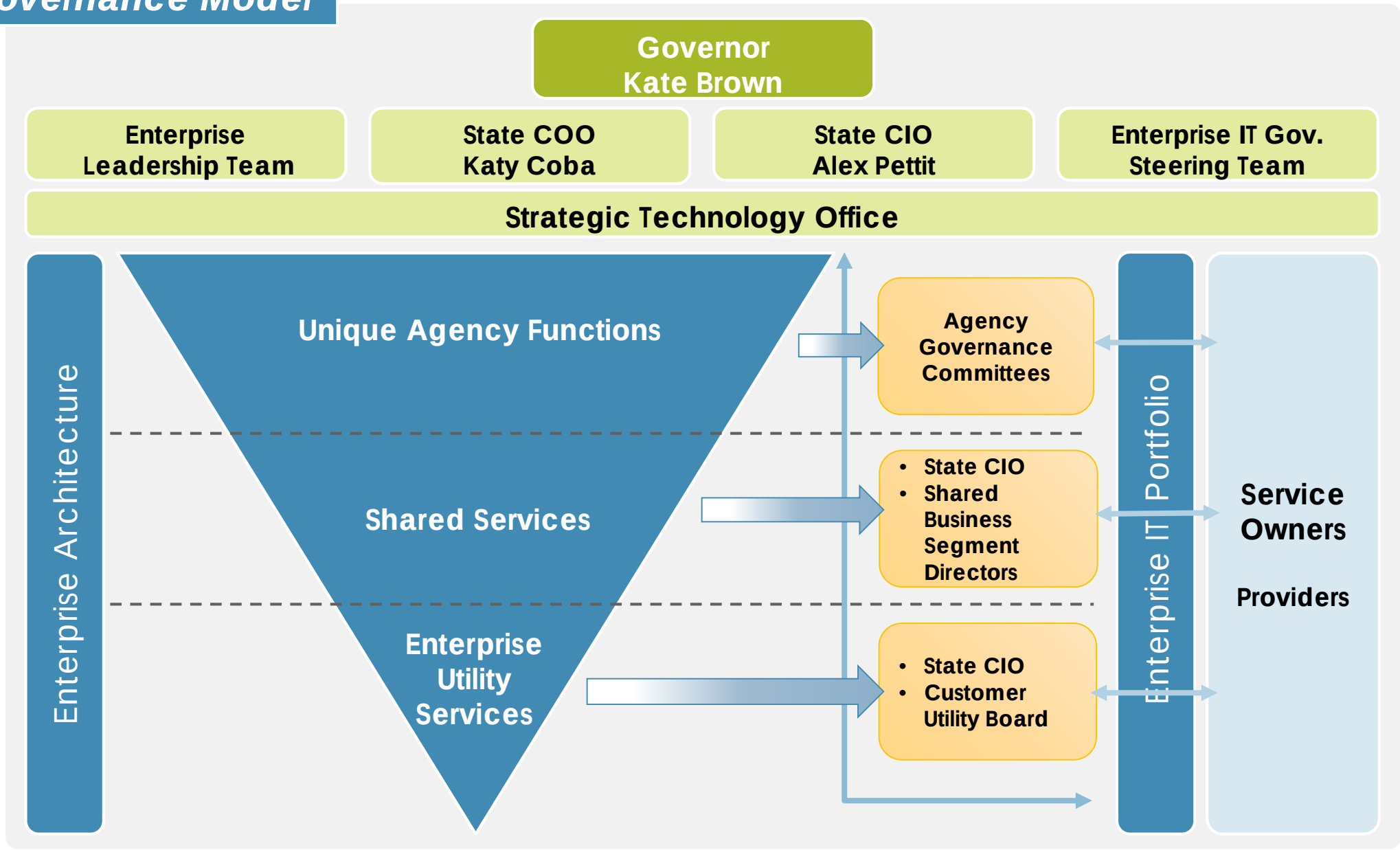
Implementation of IT Governance and HB 3099

EIRM Strategic Initiatives

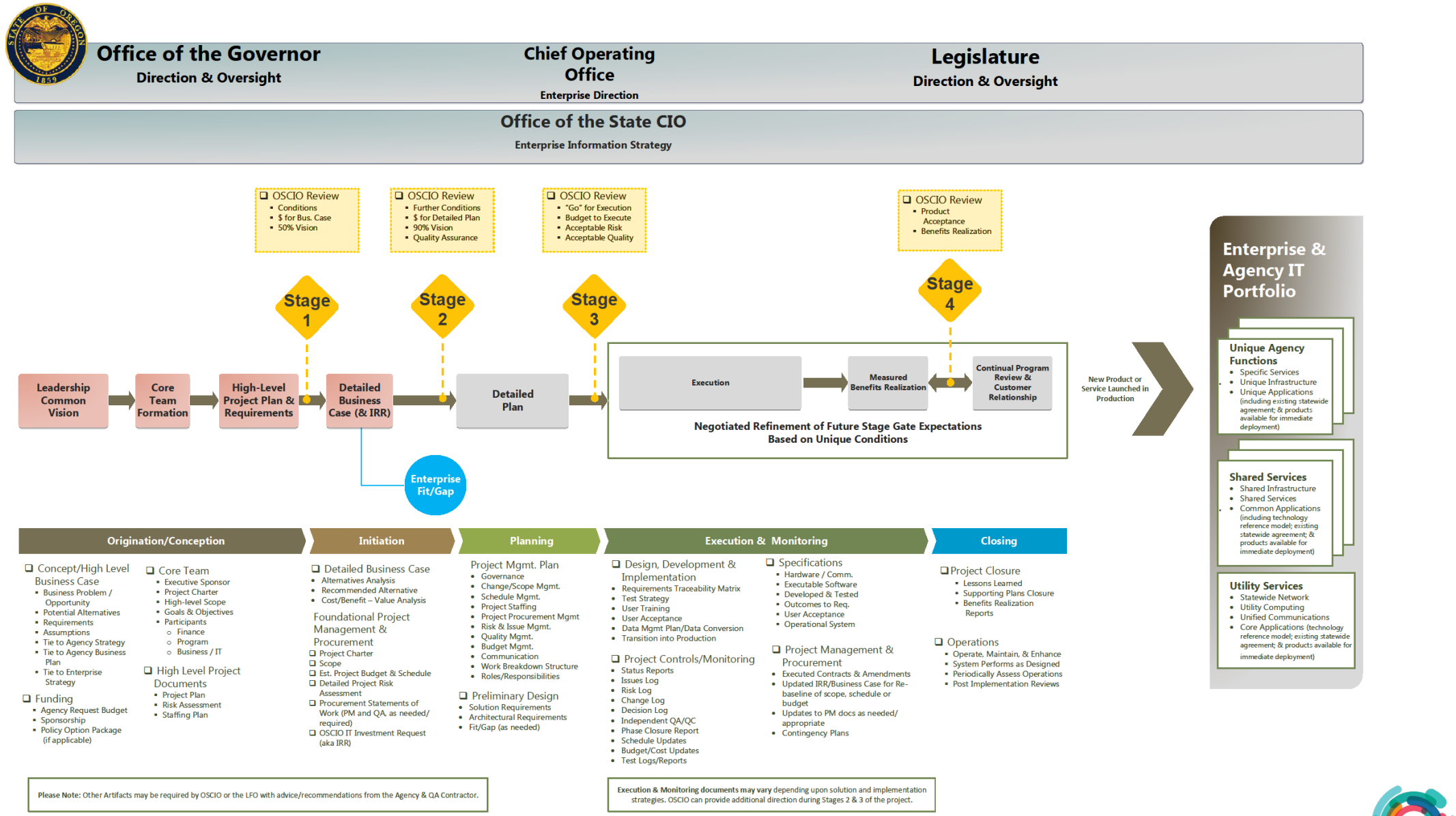
EIRM Plan 2015-20 Initiatives

Stage Gate Review	• Linking incremental funding for IT projects to **specific performance targets** or **"stage gates"**
PPM	• Providing **access to real-time data** on IT projects across the enterprise with a Project and Portfolio Management (PPM) tool
Service Review	• Reducing **system duplication,** identifying opportunities for **shared services** and reevaluating the market for IT services
Enterprise Architecture	• Aligning business processes and IT investments to better serve the citizens of Oregon

Enterprise IT Governance Model

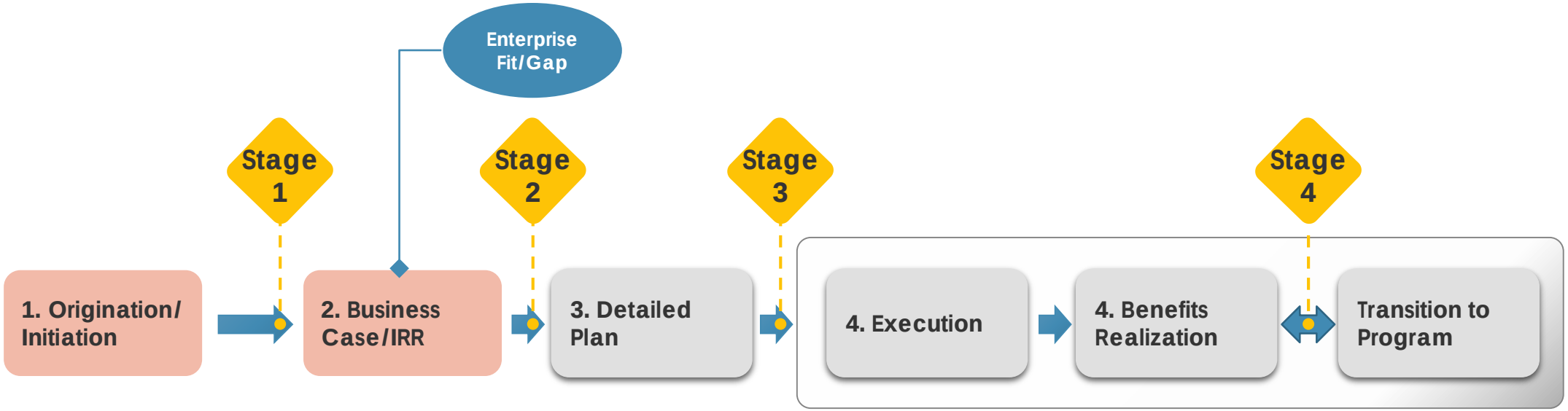


Stage Gate *Oversight Model*



Stage Gate Oversight

simplified reference model with Enterprise Fit/Gap



Determination Of Business Need

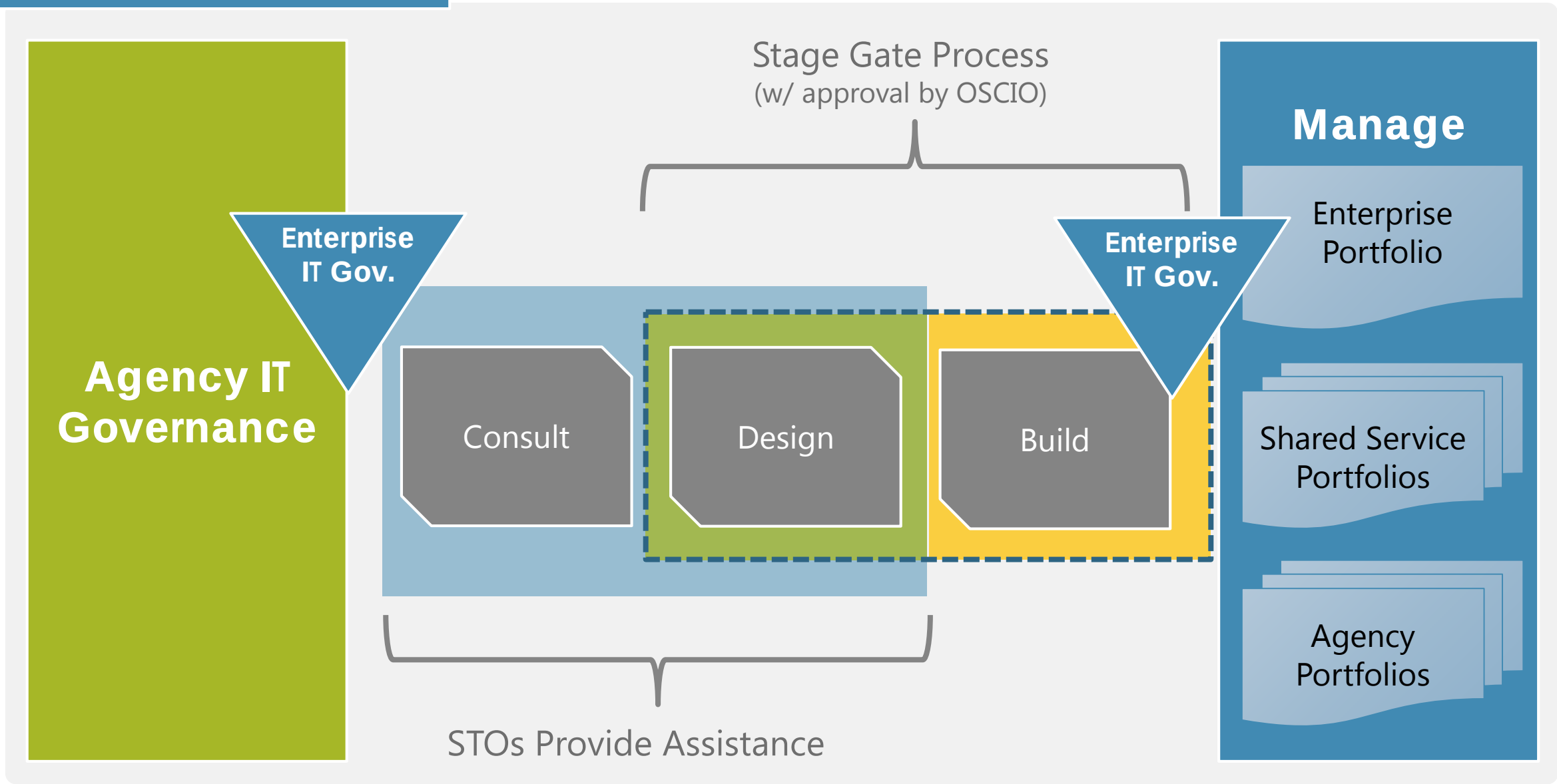
Detailed Business Case: Scoping Requirements & Alternatives Analysis

Detailed Project Planning: Obtain Project Resources, Detailed Plan & Solution Design

Provisioning, Development, Quality Management, Testing & Implementation

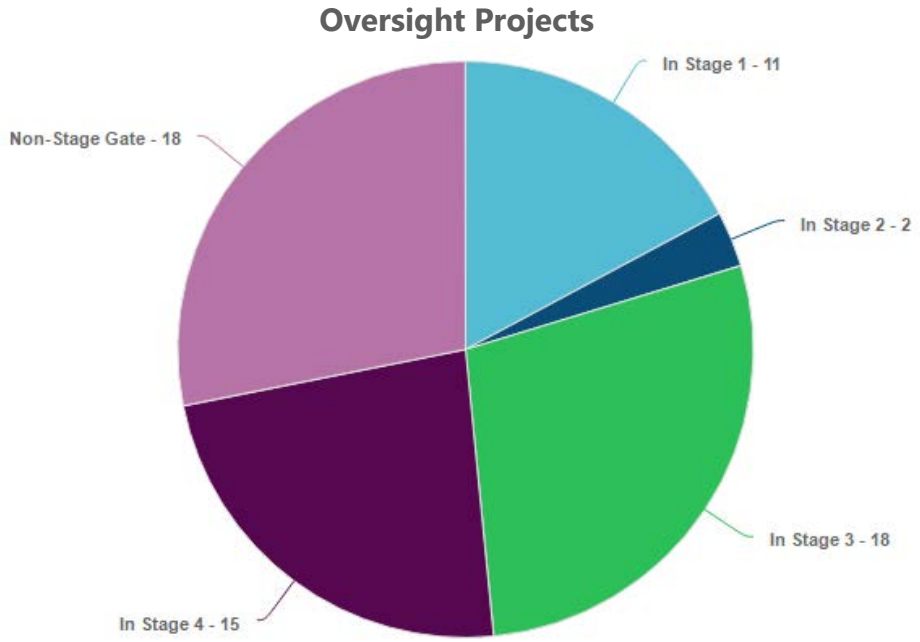
Project Closeout, Transition To Maintenance & Operations

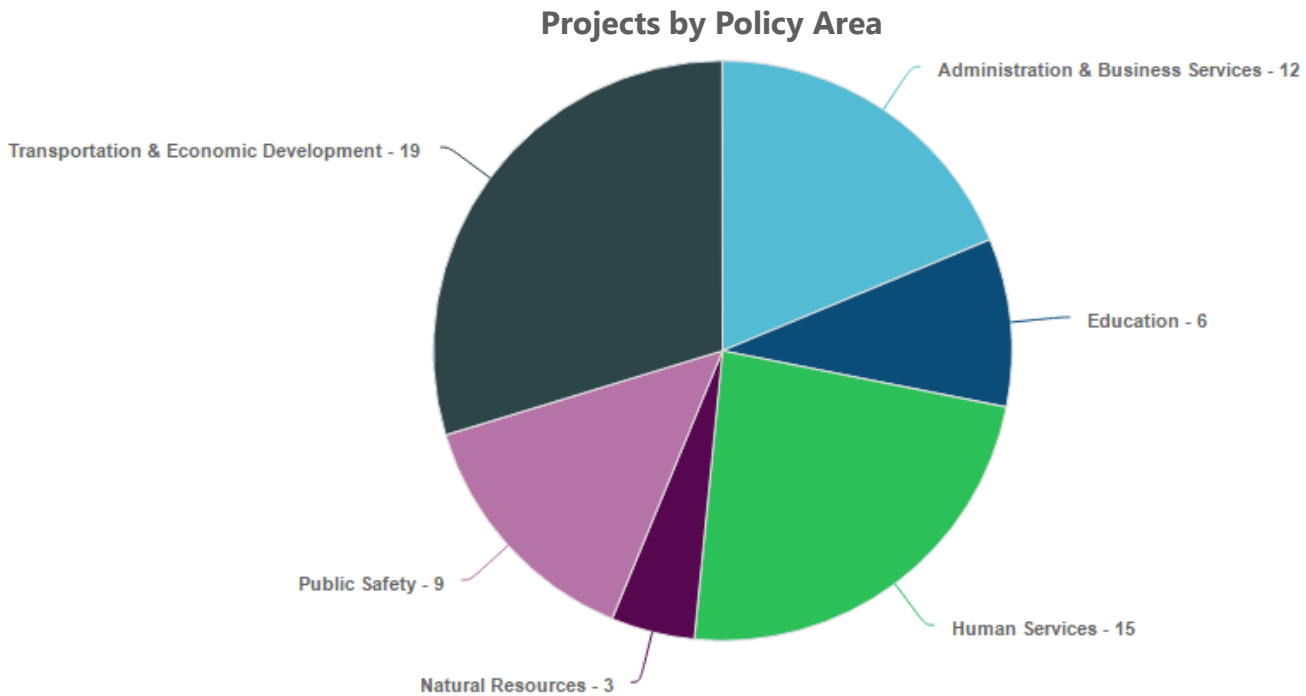
IT Governance in Action

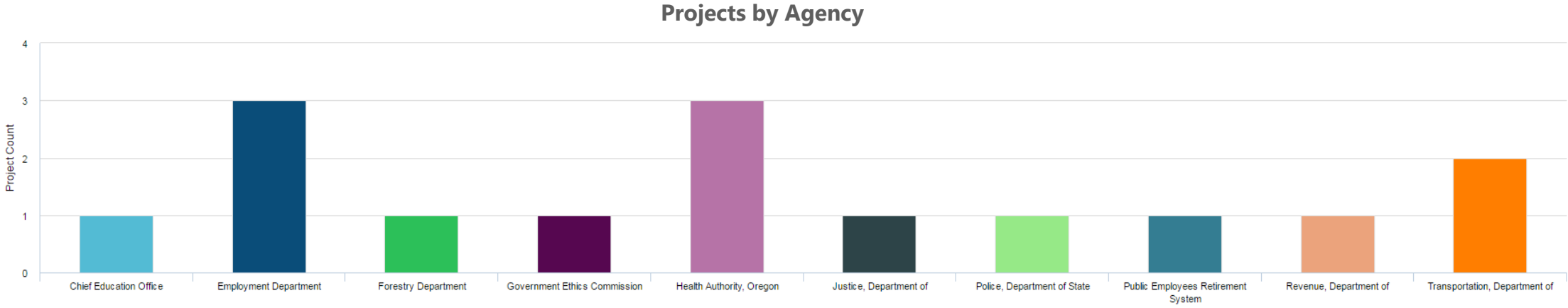


Stage Gate Oversight

distribution of the statewide IT portfolio by stage, policy area and agency



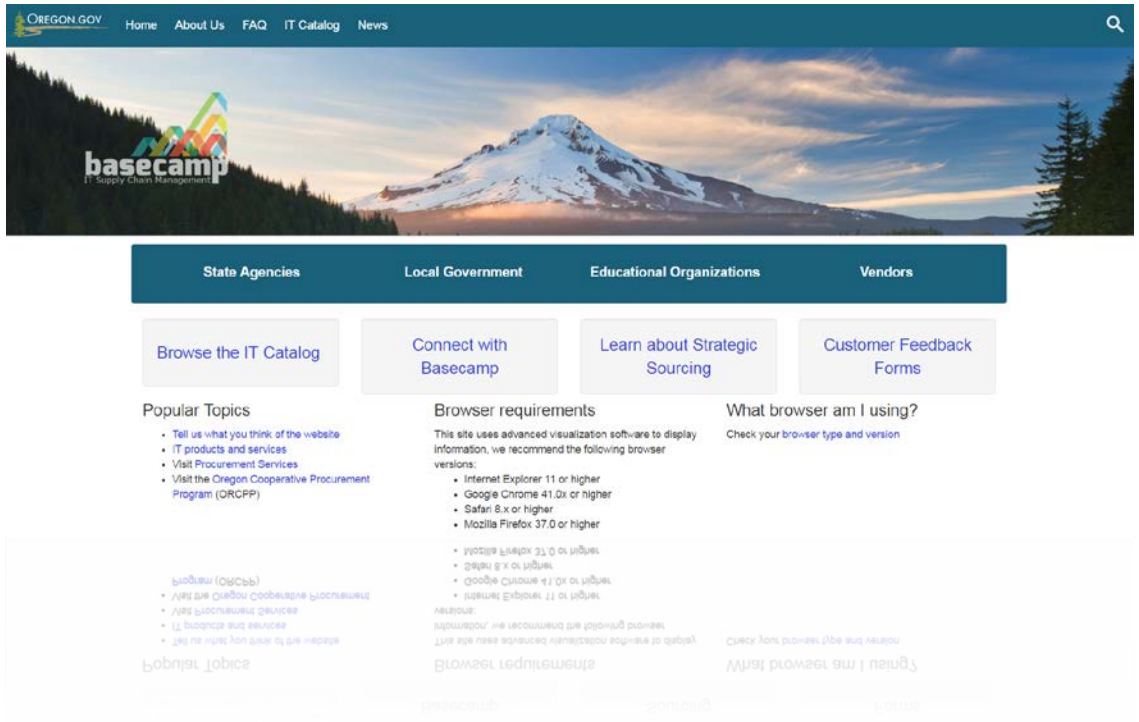


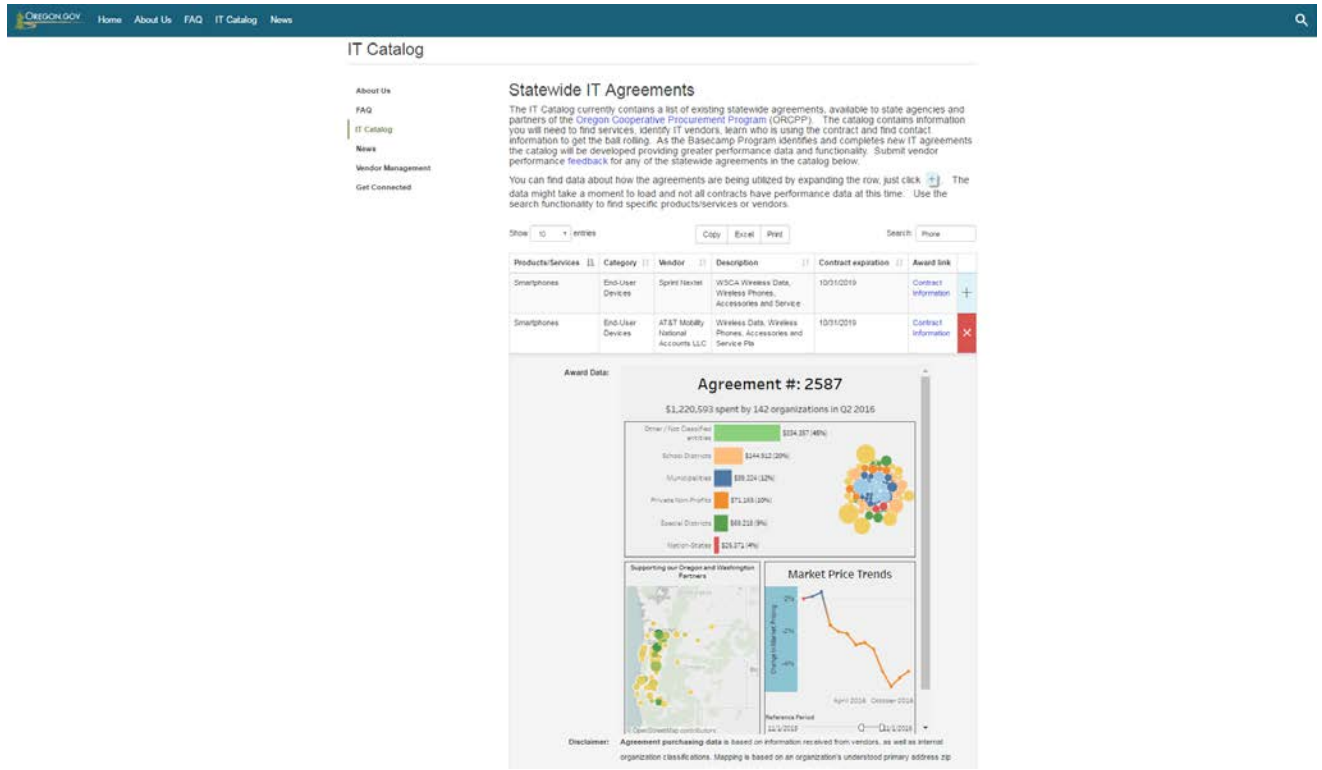


IT Vendor Management

basecamp Online

establishing a platform for valued-added IT reselling and vendor management | http://www.oregon.gov/basecamp/Pages/default.aspx





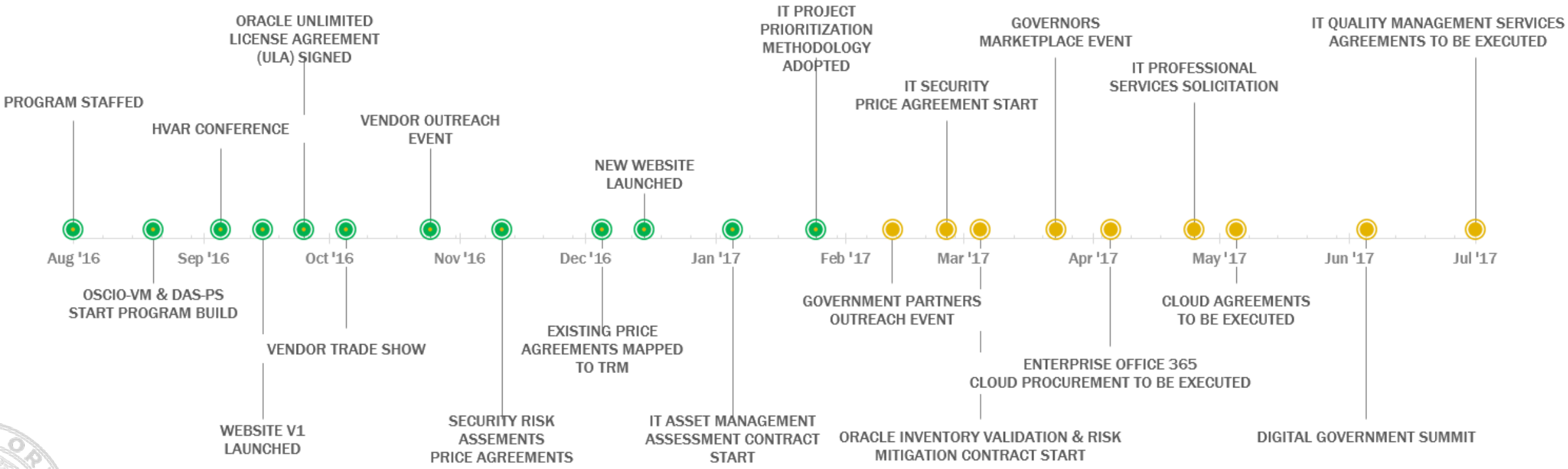
Gartner. Framework for Effective IT Vendor Management

basecamp Roadmap

historical expenditures and revenues at the state data center

completed

planned



Enterprise Technology Services

OSCIO Vision. *Enabling state agencies and partner jurisdictions to better serve Oregonians through enterprise technology solutions.*

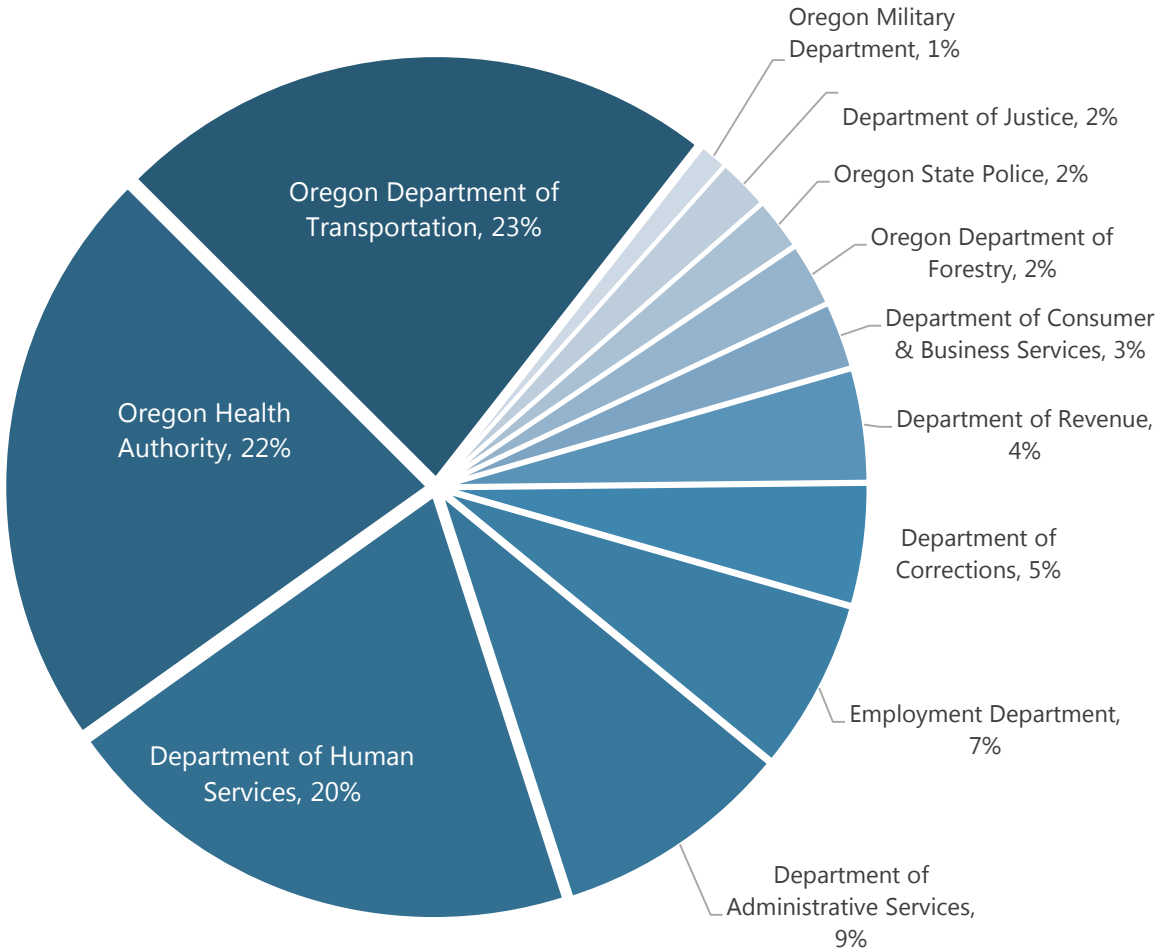
ETS Mission. *To be the IT infrastructure provider of choice to state agencies and partner jurisdictions and to be a great place to work.*

Customer-centered. Listening and understanding our customer's needs.	**Deliver value.** To leverage state IT infrastructure spending and provide reliable service.	**Be a partner.** Forging trusting partnerships across the enterprise.	**Innovation.** Providing scalable solutions.

ETS Customers

agencies and partner jurisdictions

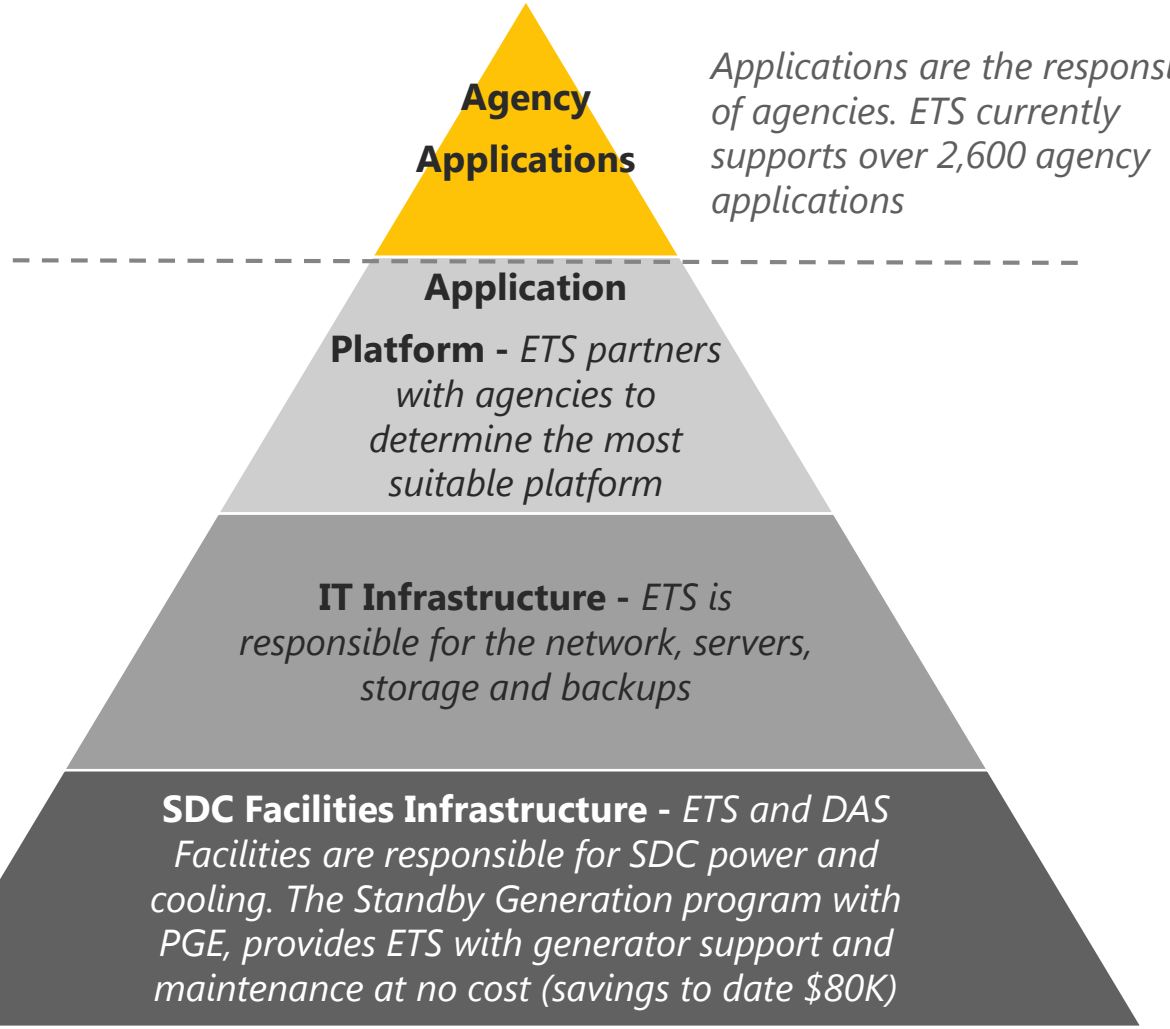
- Agencies
- Board & Commissions
- Cities & Counties
- Educational Service Districts
- Other



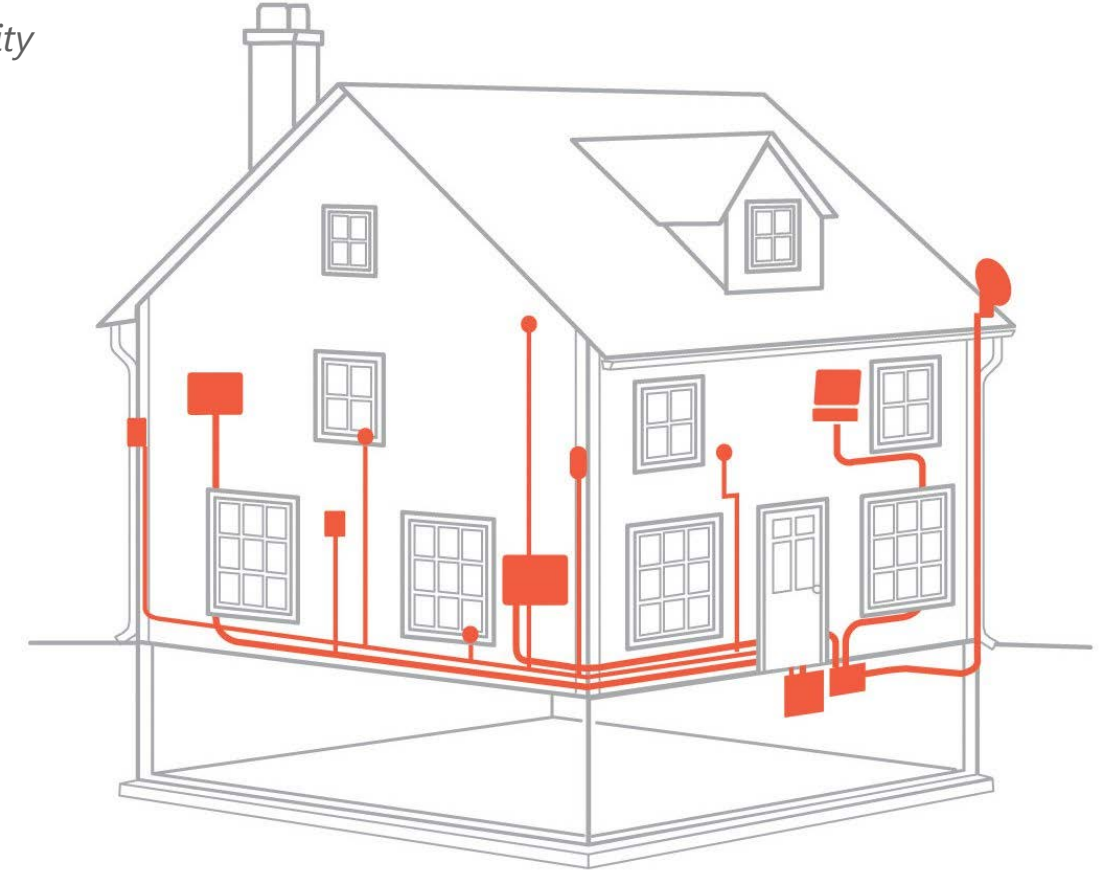
Based on Customer Billings as of December 2016 (top 12)

ETS Services

ETS provides IT infrastructure and platforms

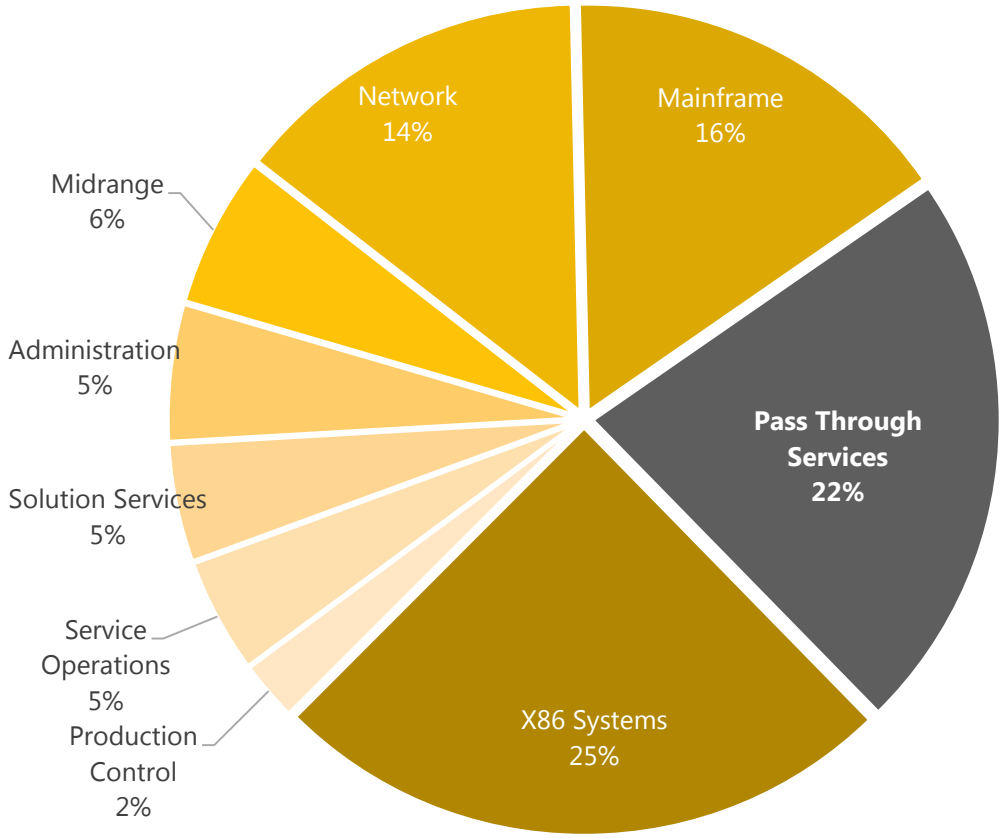


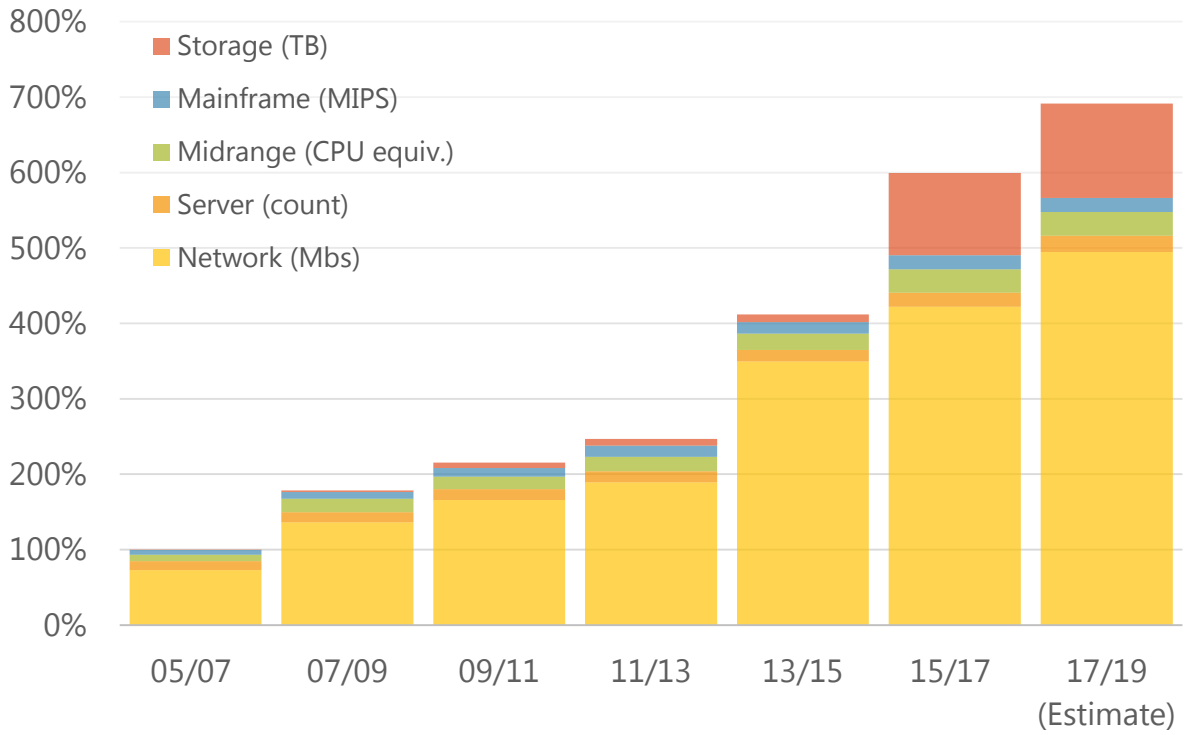
Applications are the responsibility of agencies. ETS currently supports over 2,600 agency applications



ETS Services

current distribution (2015-17 LAB) and historical growth of core services

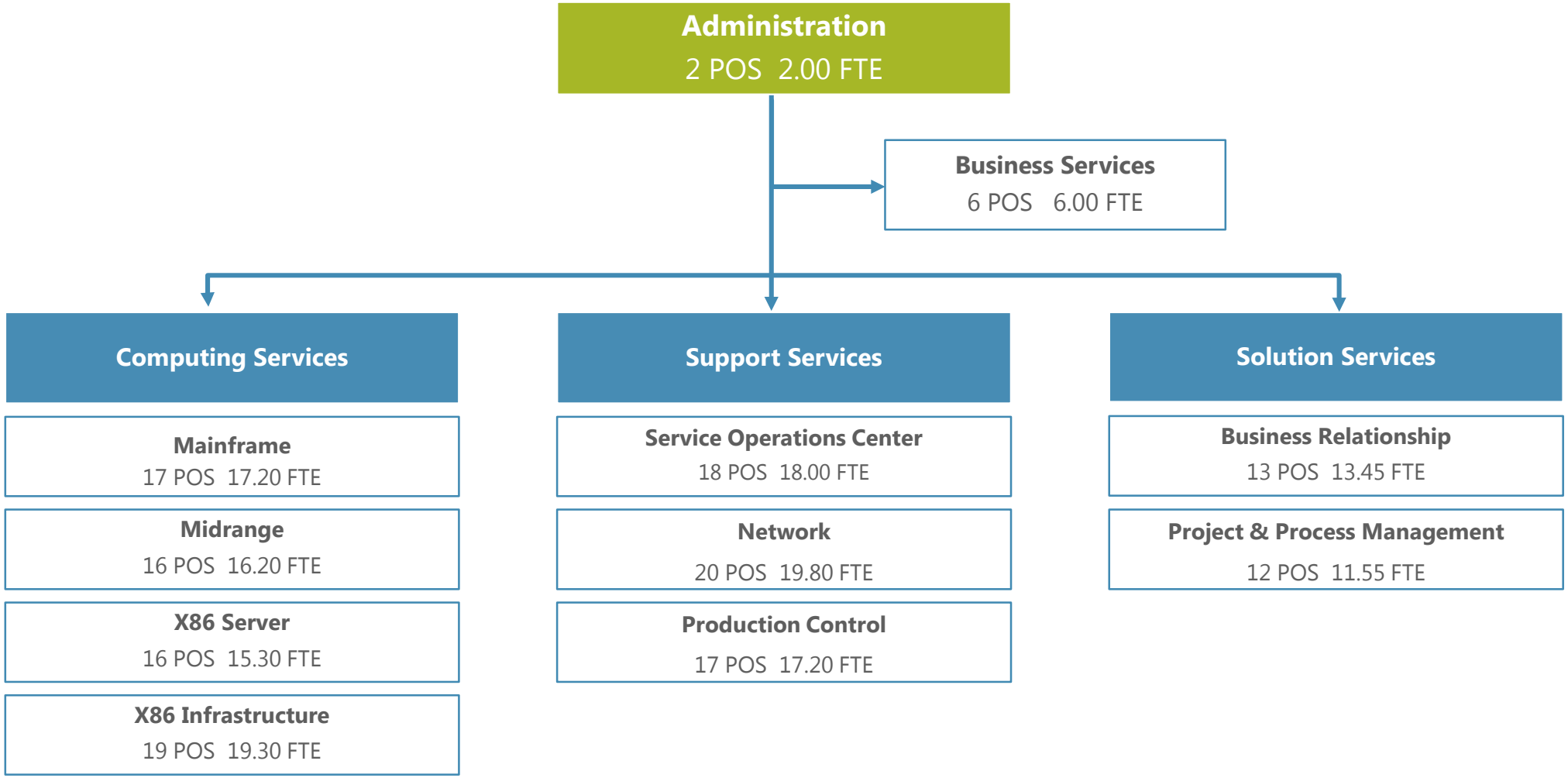




Service	05/07	07/09	09/11	11/13	13/15	*15/17	17/19 (Estimate)
Network (Mbs)	10,402	19,517	23,750	27,087	50,066	60,464	70,863
Server (Server Count)	1,749	1,906	2,052	2,125	2,196	2,659	3,122
Midrange (CPU Eqiv.)	1,220	2,568	2,360	2,714	3,121	4,449	4,449
Mainframe (MIPS)	888	1,292	1,675	2,147	2,147	2,694	2,694
Storage (TB)	69	284	1,024	1,263	1,502	15,607	17,948

Enterprise Technology Services

organization chart | 2017-19 | 156 positions (156.00 FTE)



ETS Budget Drivers and Environmental Factors

increasing demand and power constraints

Growing Demand & Windows Server. Packages 105 and 108 add 6 positions (6.00 FTE) but are offset by a corresponding reduction in contracted IT professional services (services and supplies account no. 4315) – a ***net $0 increase***

SDC Power Constraints. Core infrastructure at the State Data Center (SDC) was only ***deployed at 50%*** – half of the 16,000 square feet of the floor space in the SDC cannot be used. This increases rates and limits the ability to add new data center customers, including co-location services

Disaster Recovery (DR). Despite a strong DR partnership with Montana, the state of Oregon needs to increase investment in DR to ensure a rapid systems recovery given increasingly large and complex agency application environments—an ***additional capital investment*** (likely <$1 million) is required to update and test DR capabilities

ETS Reductions. Service reductions and elimination of maintenance within services and supplies – a total ***reduction*** of ***$9,111,378***

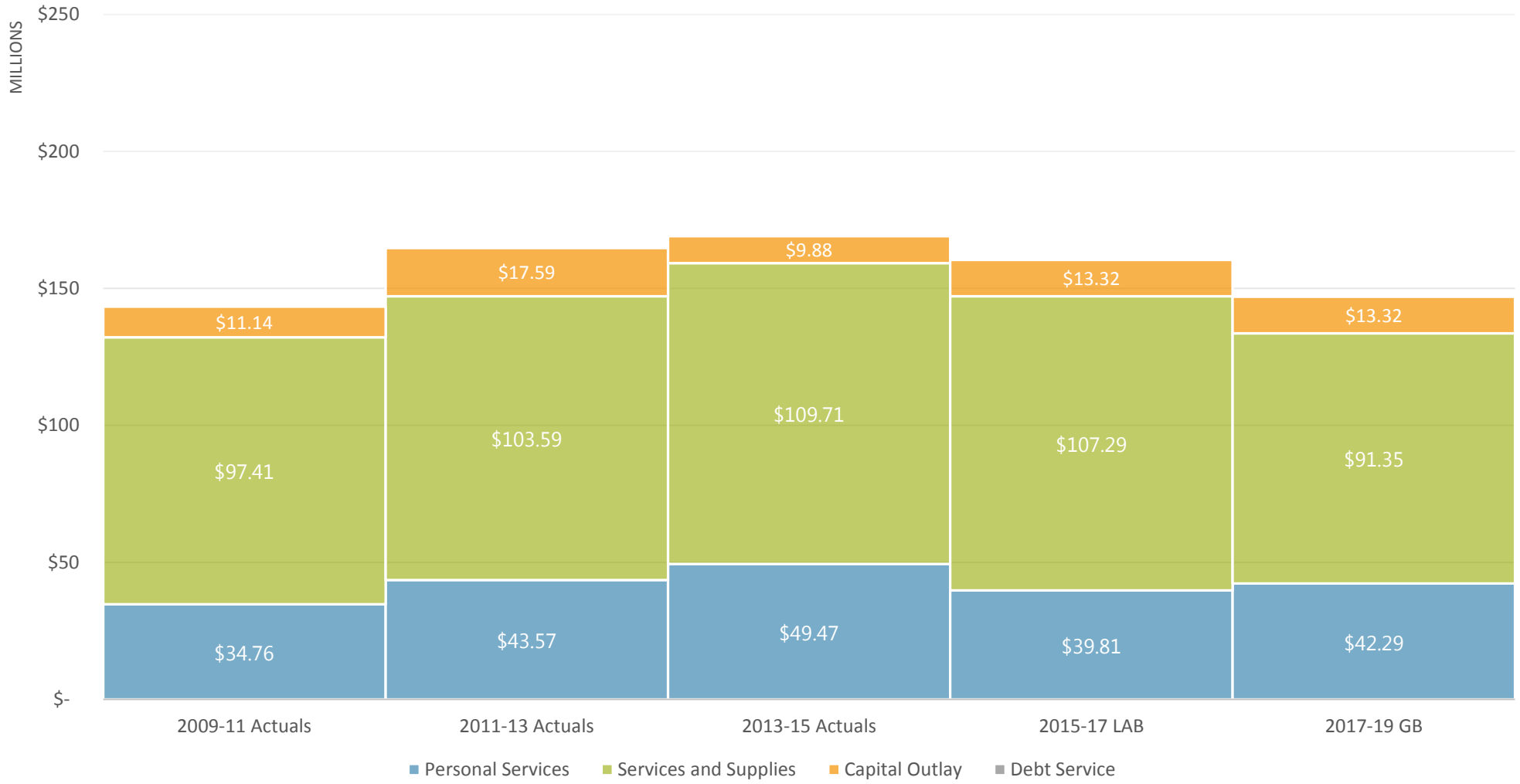
• Terminate maintenance on end-of-life hardware and software.	*-$148,224*
• Reduce Mainframe Data Processing.	*-$2,700,000*
• Eliminate 17-19 S&S standard inflation (excludes SGSC & rents).	*-$3,943,975*
• Eliminate IBM System Architect annual software maintenance.	*-$484,793*
• Eliminate contract support for ETS Administration.	*-$635,418*
• Reduce Microsoft Premier support.	*-$200,000*
• Reduce Mainframe Software consolidation.	*-$600,000*
• Reduce Server Professional Services.	*-$99,328*
• Reduce Midrange Systems Consolidation.	*-$300,000*

IT Finance

Putting ETS Finances in Context

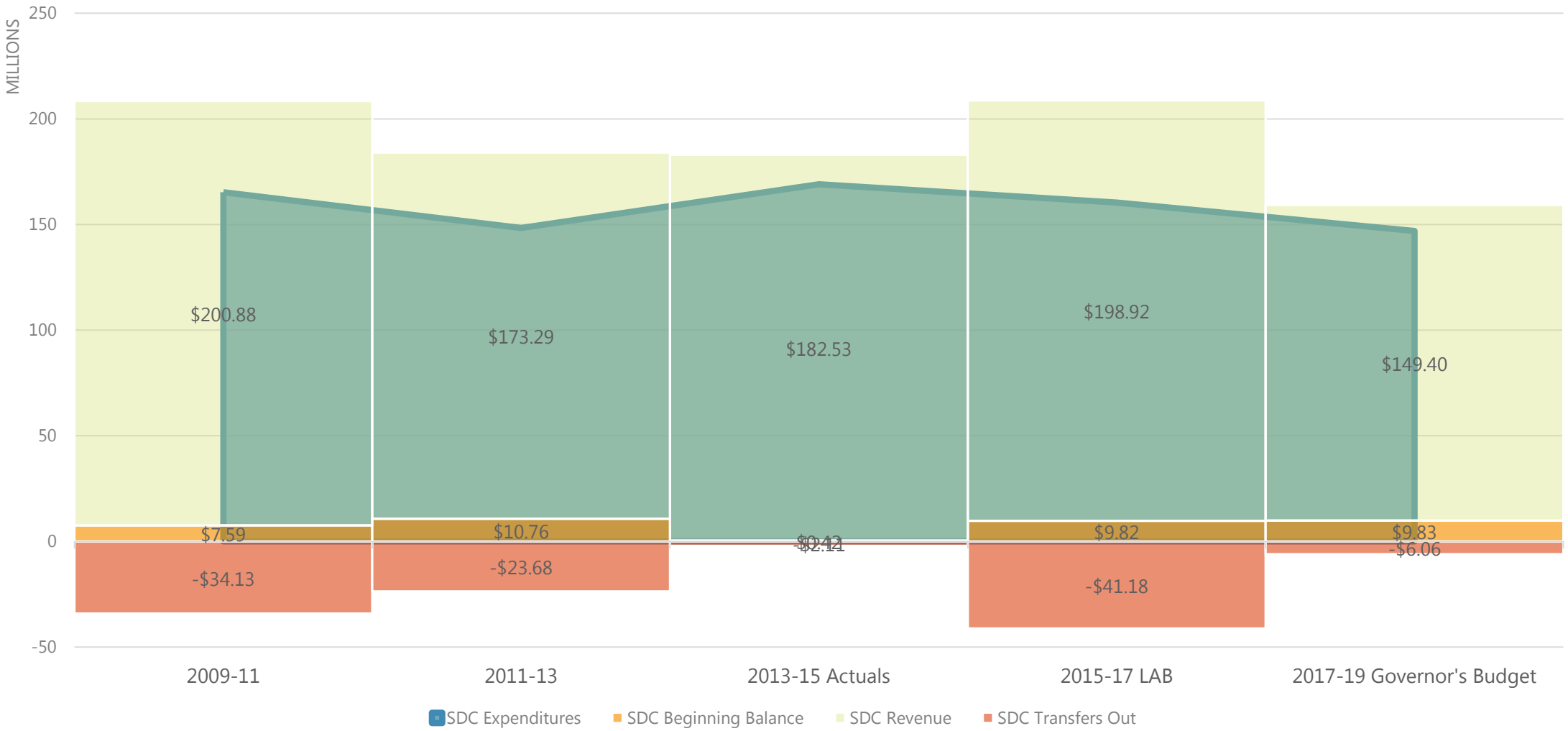
IT Finance at ETS

historical expenditures at the state data center



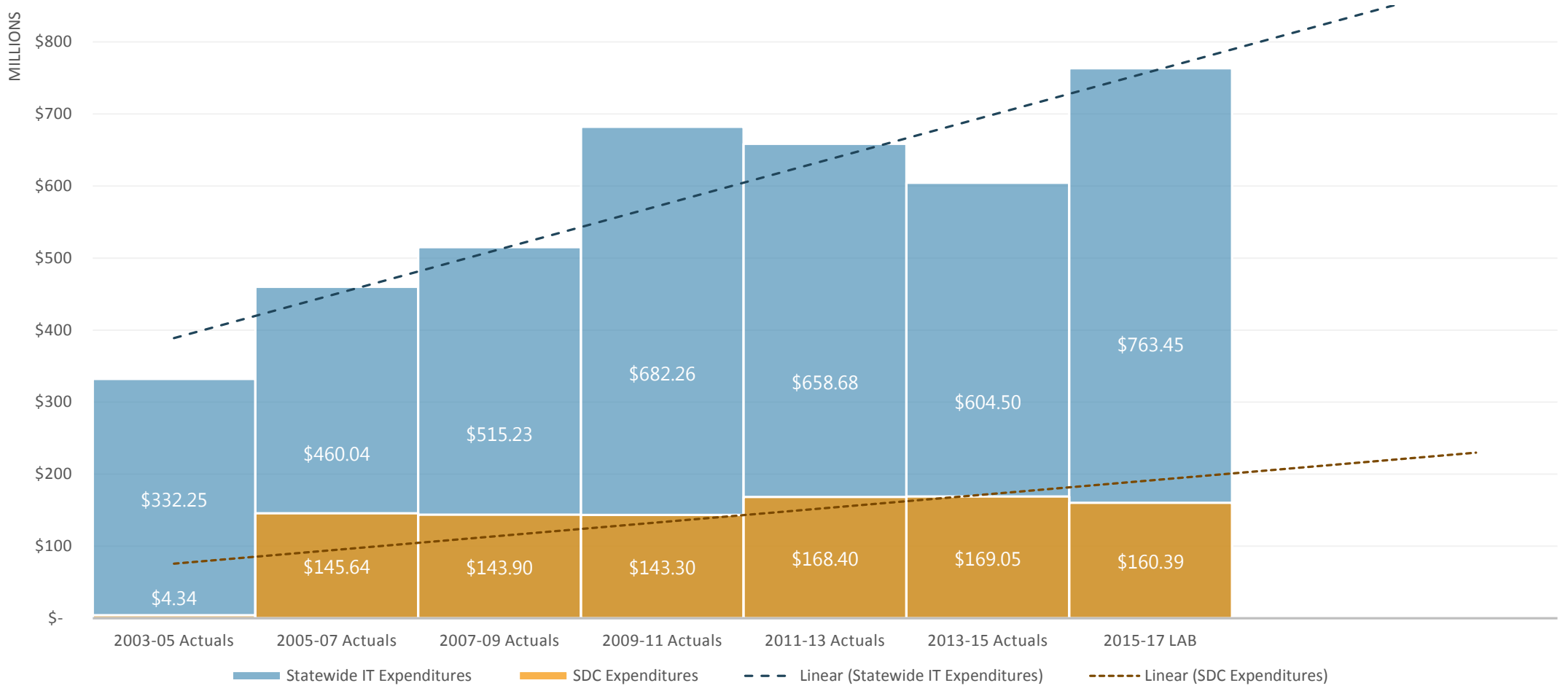
IT Finance at ETS

historical expenditures and revenues at the state data center



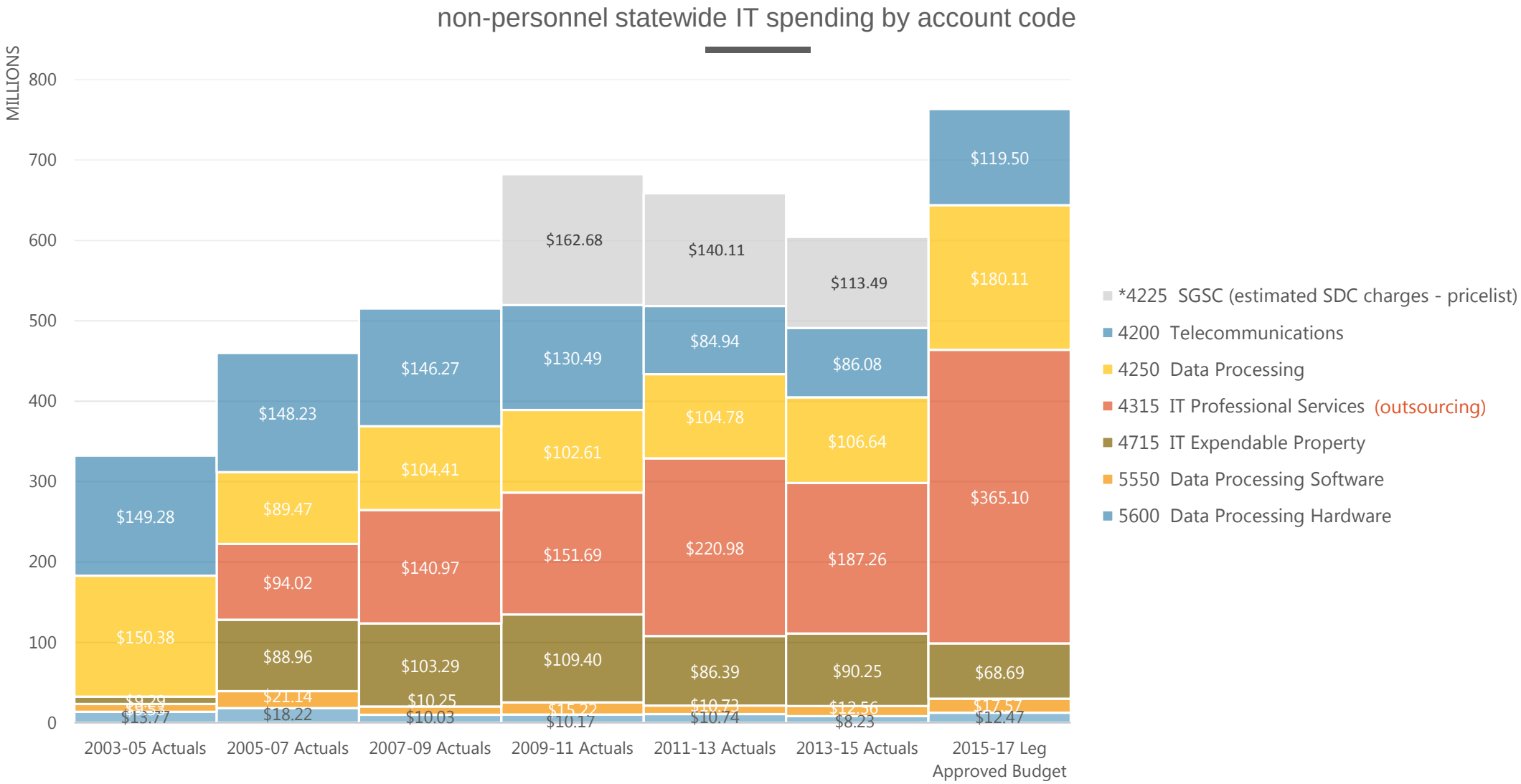
Non-Personnel Statewide IT Spending*

comparing non-personnel statewide IT spending (services and supplies) and SDC expenditures



** Limited to services and supplies – account numbers: 4200, 4250, 4315, 4250, 4315, 4715, 5550, 5600 and pricelist estimates for SDC expenses included in 4225.*

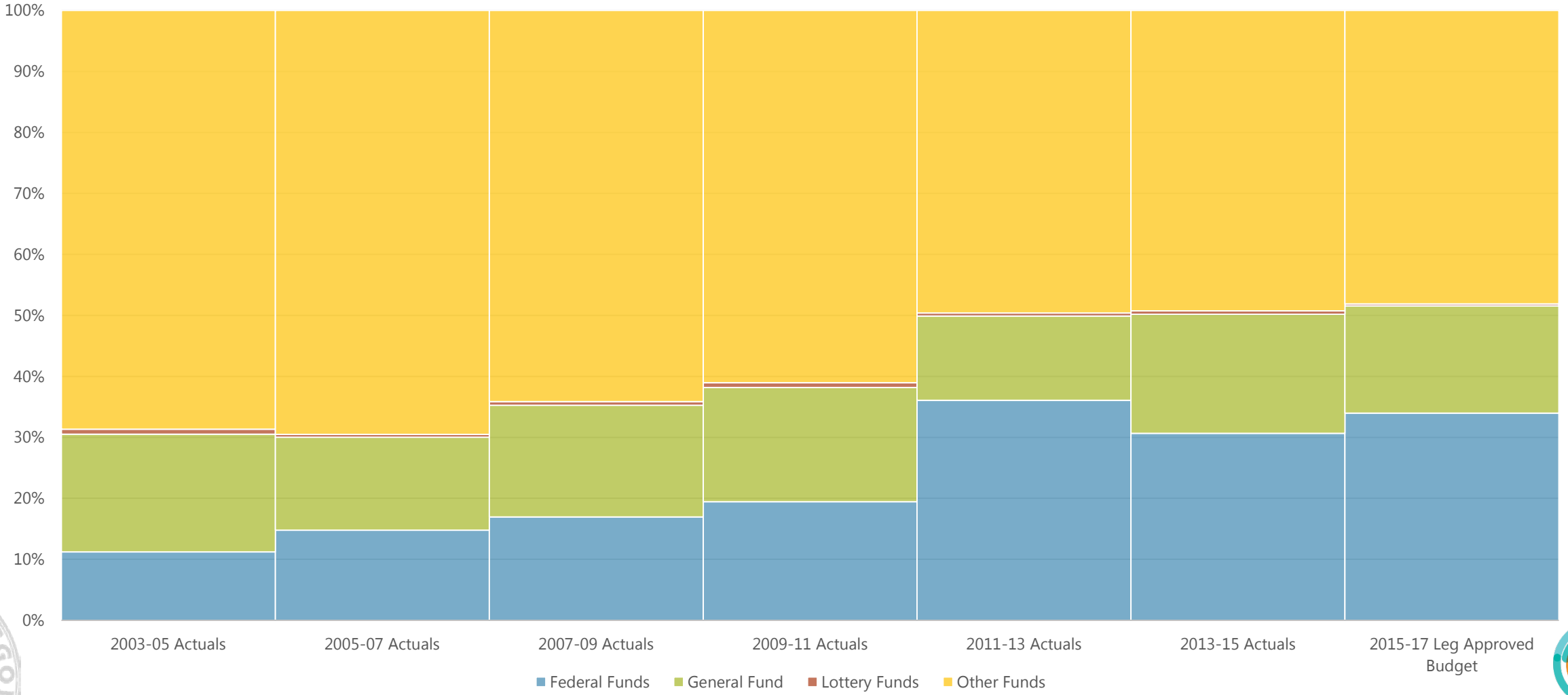
Non-Personnel Statewide IT Spending*

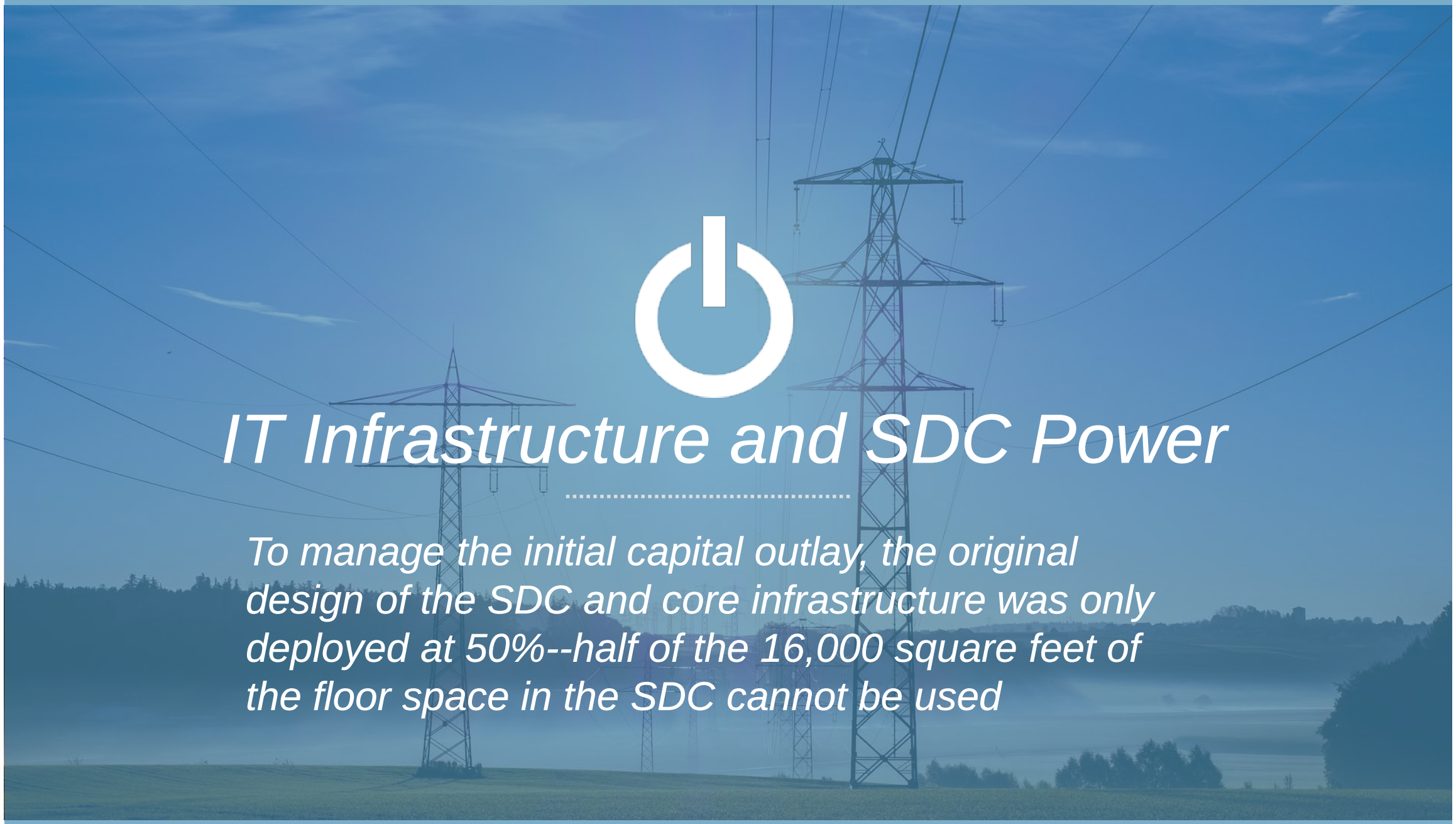


** Limited to services and supplies – account numbers: 4200, 4250, 4315, 4250, 4315, 4715, 5550, 5600 and pricelist estimates for SDC expenses included in 4225.*

Statewide IT Finance

distribution of IT spending by fund type





IT Infrastructure and SDC Power

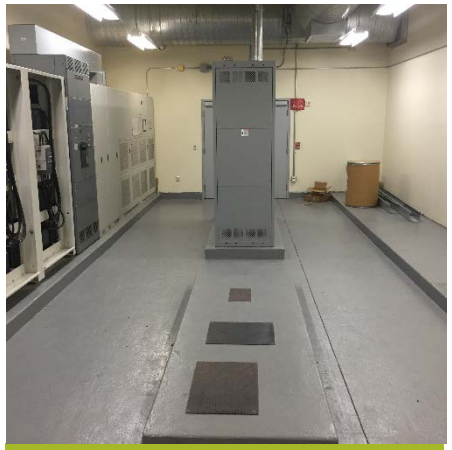
To manage the initial capital outlay, the original design of the SDC and core infrastructure was only deployed at 50%--half of the 16,000 square feet of the floor space in the SDC cannot be used

Designed for Future Capacity

unfinished infrastructure at the SDC

right

Empty reinforced floor built for an additional power distribution unit (PDU).



right

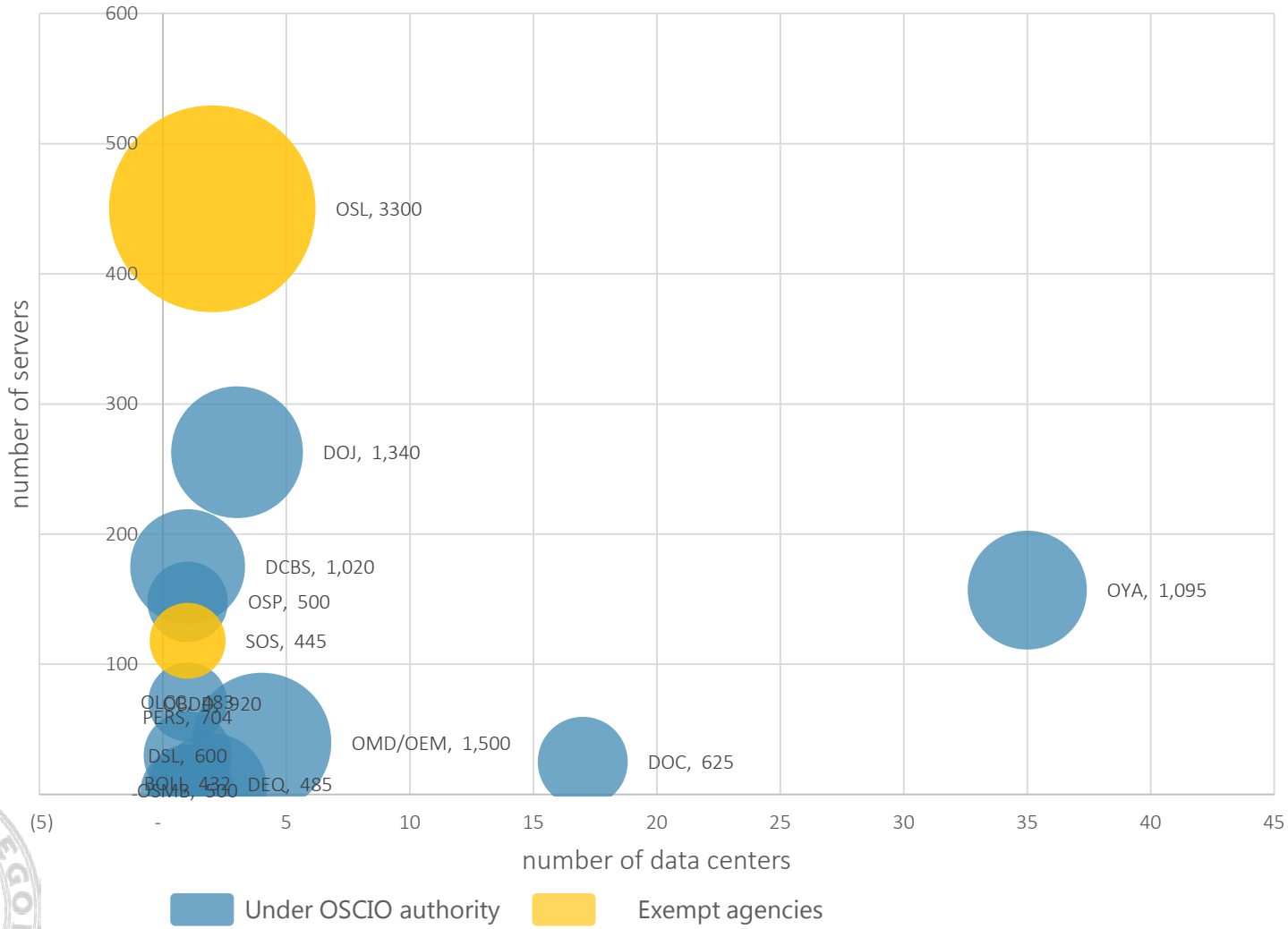
Space for a third generator.

left

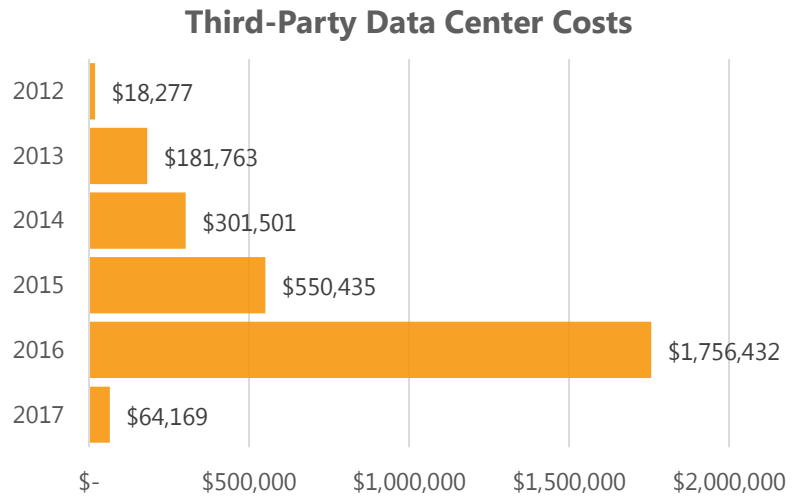
One of two rooms with space for uninterruptable power source (UPS) units.

Statewide IT Infrastructure

agency data centers and servers



- ***106 data centers*** are being operated outside of the state data center
- ***2,024 servers*** are being supported by agencies
- non-ETS data center operations are consuming ***18,008 square feet*** of floor space
- use of ***third-party data centers*** is accelerating

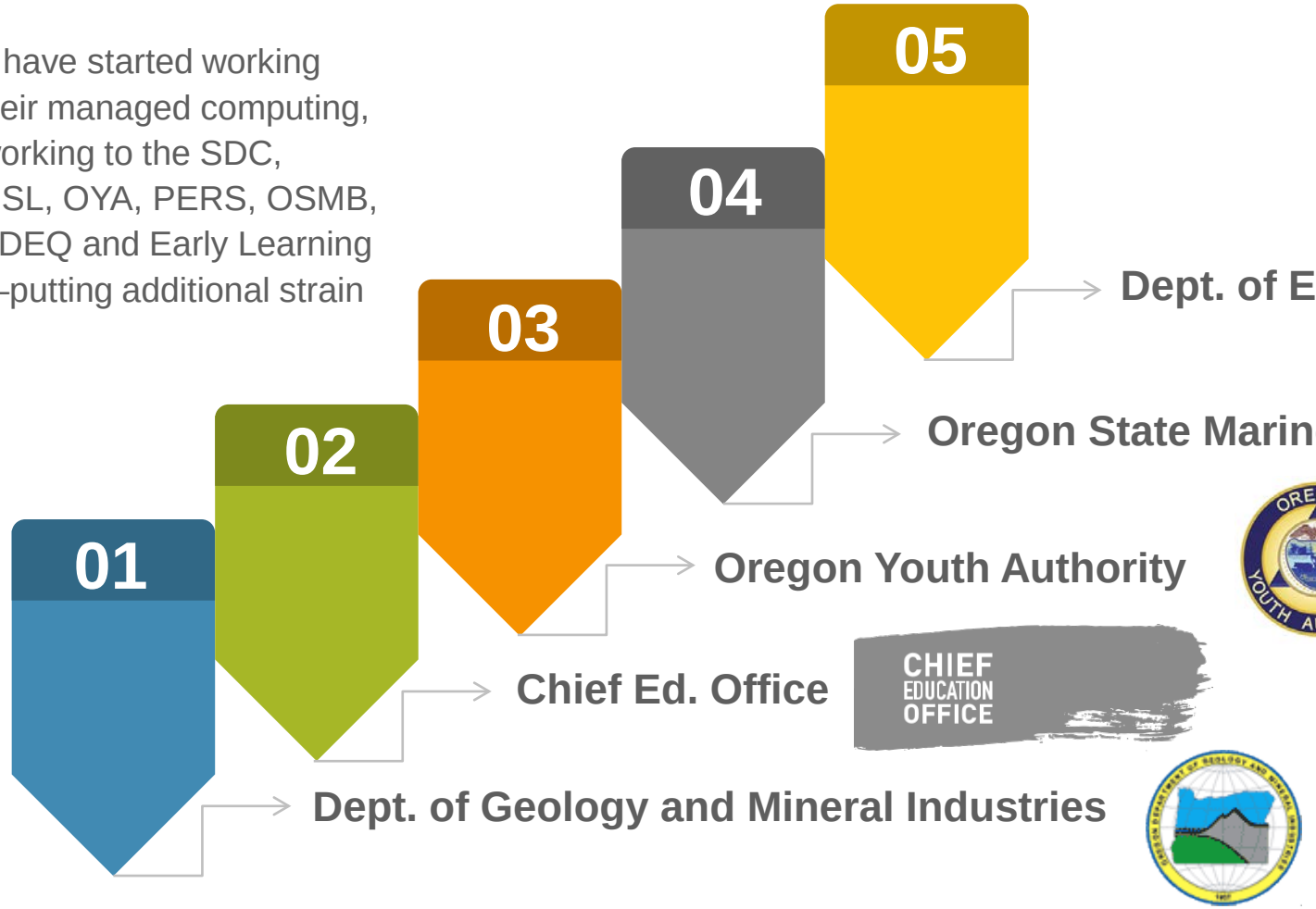


Meeting Future Demand

agencies are increasingly turning to the SDC

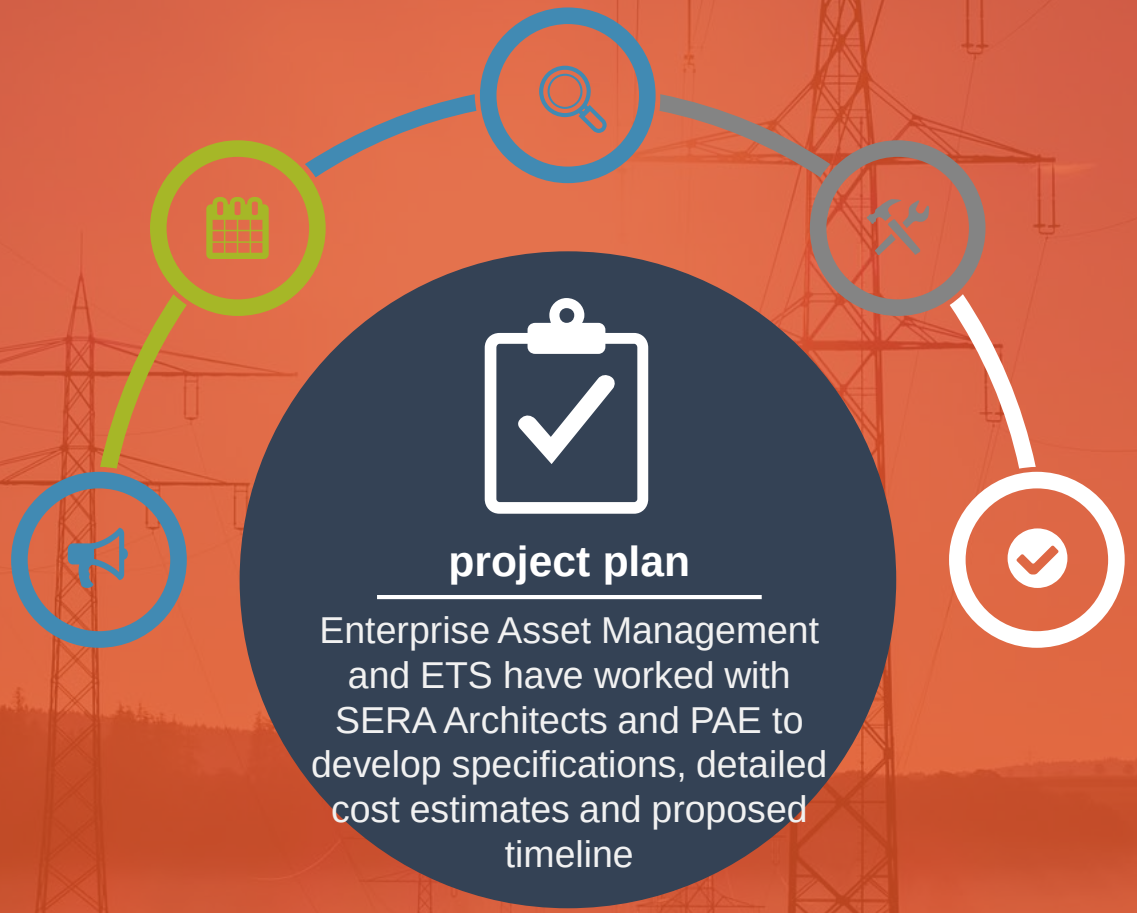
Recent Trends

A number of agencies have started working with ETS to migrate their managed computing, data storage and networking to the SDC, including: DOGAMI, OSL, OYA, PERS, OSMB, Public Health, CeDO, DEQ and Early Learning Information Systems—putting additional strain on existing capacity.



Planning for Future Power

developing a project plan



STATE DATA CENTER
DRAFT PROPOSAL

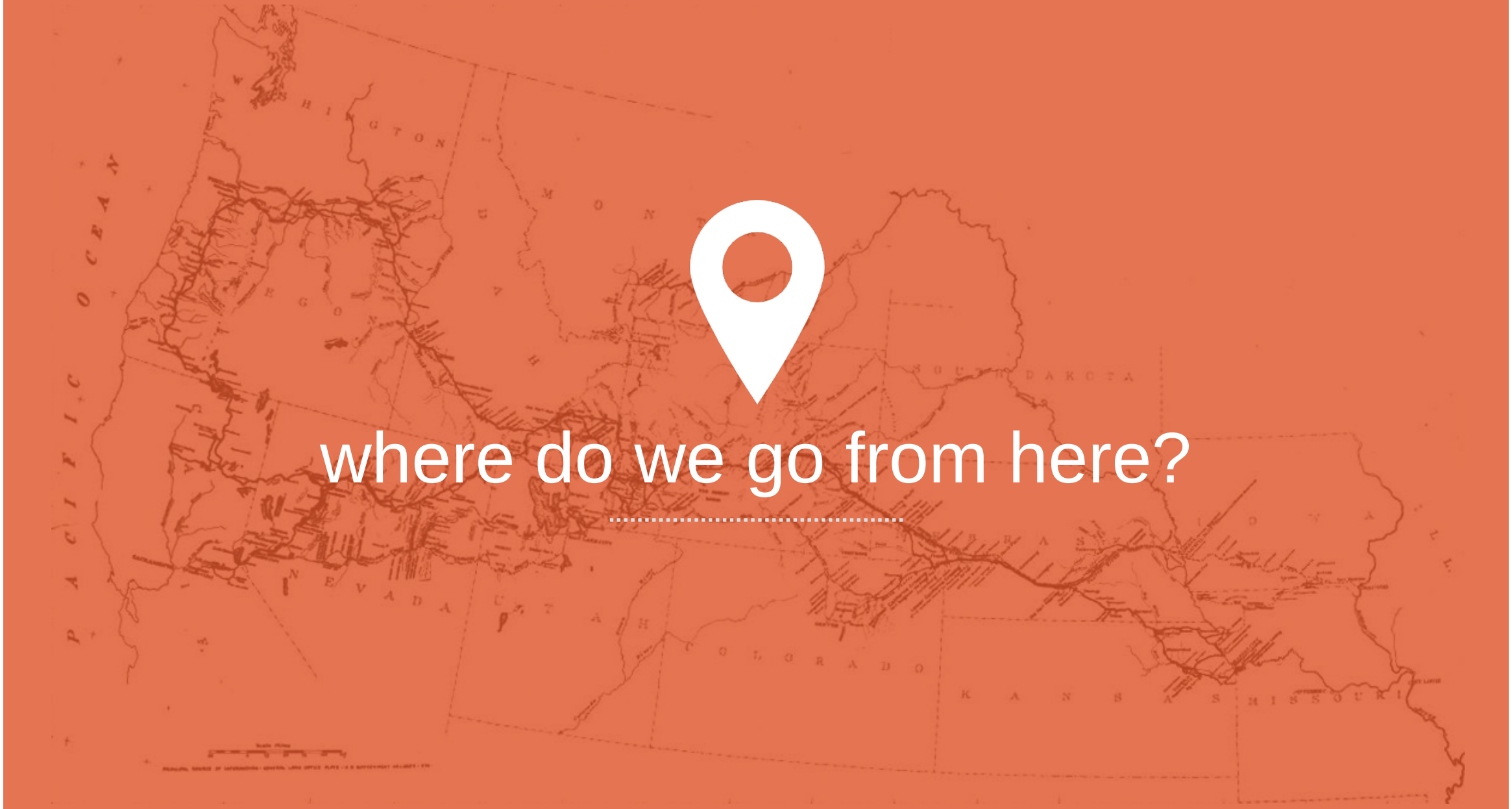
Proposed Investment

investing in future capacity

At this time, the estimated one-time capital costs are estimated at ***~ $13 - $18 million***, and include the following major infrastructure components:

- Third 2000kVA utility feed and transformer
- Third 3000A, 480V switch gear
- Third 1285kW diesel generator with 12,000 gallon fuel tank
- Four 695kW MGE UPS systems and output boards
- Six MGE Power Distribution Units
- Third 300-ton centrifugal chiller
- Primary and secondary chiller pumps
- Two condenser pumps
- Seven air handlers

Absent additional data center capacity, IT infrastructure will either need to remain within existing agency facilities or relocated using third-party data center space using brokered agreements—underutilizing the capabilities of the state's own purpose built data center.



where do we go from here?