WaTech

Washington Technology Solutions

"the consolidated technology services agency -RCW 43.105.006"

WaTech Advisory Council

Strategy for Moving the Washington State Enterprise to Microsoft Office 365

Dan Mercer
March 22, 2016

Questions We Will Address Today

❑ What is Microsoft Office 365?

❑ Why Should The State Move To Office 365?

❑ How Does The State Move To Office 365?

❑ What Have We Done So Far?

❑ Where Do We Go From Here?

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

What Is
Microsoft Office 365?

What is Microsoft Office 365?

- **Microsoft Office Professional** desktop software

    PLUS

- Web versions of some Office products (Word, Excel, etc.)

- Collection of **Microsoft Cloud Services**

- All licensed as a /user/month subscription

- Government subscription plans offer:
    - Data segregated from the commercial Office 365 cloud
    - Data stored 100% in United States
    - Data access restricted to screened Microsoft personnel
    - Compliant with HIPAA, FedRAMP, CJIS and others

What Changes With Office 365?

- Shared services run in Microsoft data centers (a.k.a. "cloud") instead of SDC (e.g. Exchange e-mail, SharePoint, Skype)

- User files can be moved from on-premises file servers to OneDrive cloud storage

- Some new cloud-only products

- Some new products not yet available in Government Cloud (e.g. Sway, Power BI) or not compliant (e.g. Yammer)

- SharePoint less functional than on-premises versions
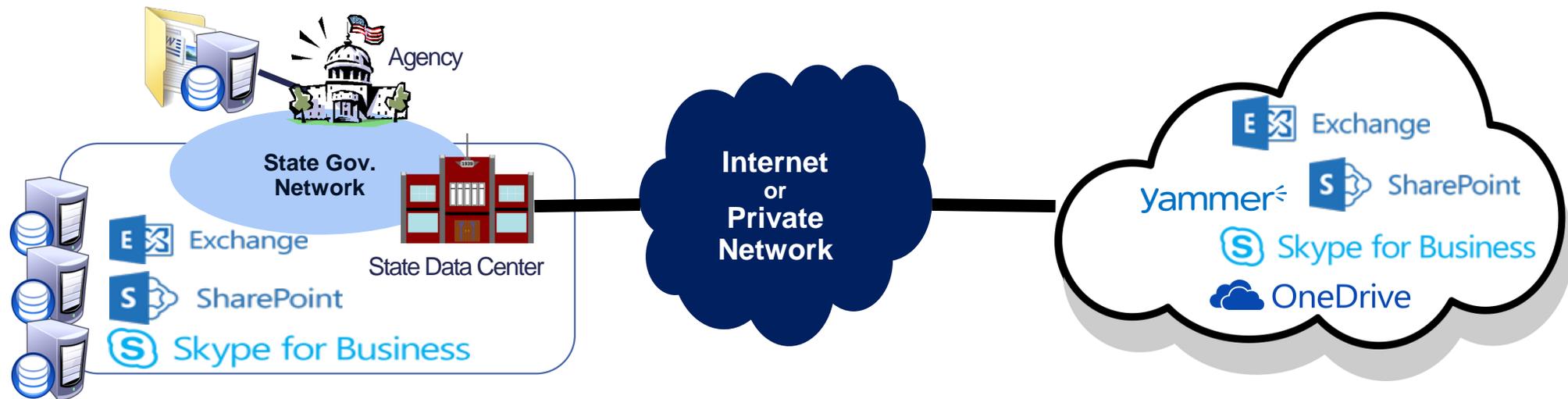
What Stays the Same?

The User Experience!

The same Word, Excel, PowerPoint and Outlook you use today, running on the same computer, laptop, tablet or phone

What Else Stays the Same?

- WaTech continues to provide critical enterprise services:
  - Network infrastructure, management and monitoring – Cloud connectivity
  - Data and network security
  - E-Mail & shared services administration
  - Identity Management (global not agency)
    - Enterprise Active Directory – including directory management in the cloud
    - Directory Federation & synchronization
    - Single sign-on to cloud services

Why Should the State Move to Office 365?
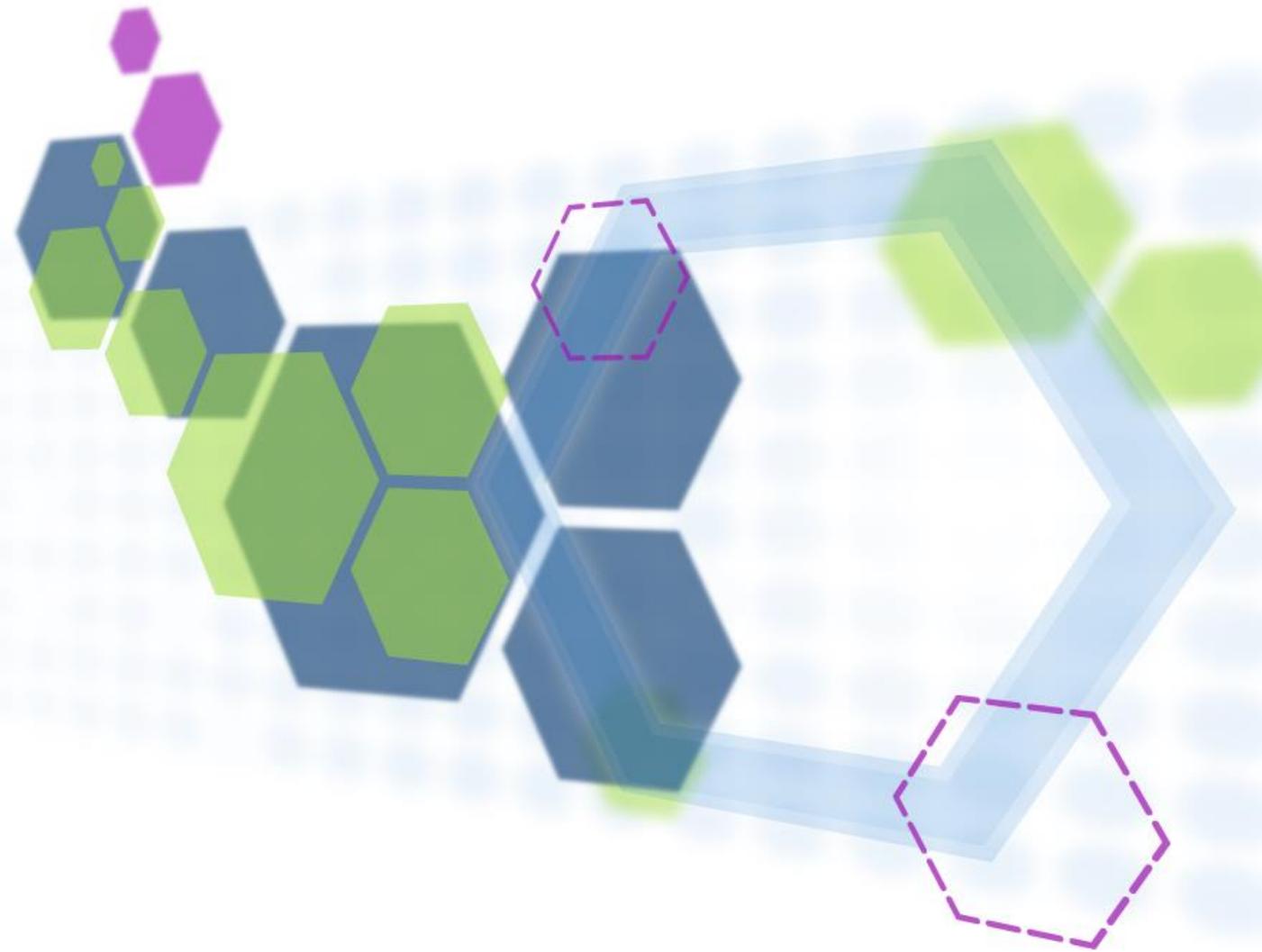
Why Move to Office 365?

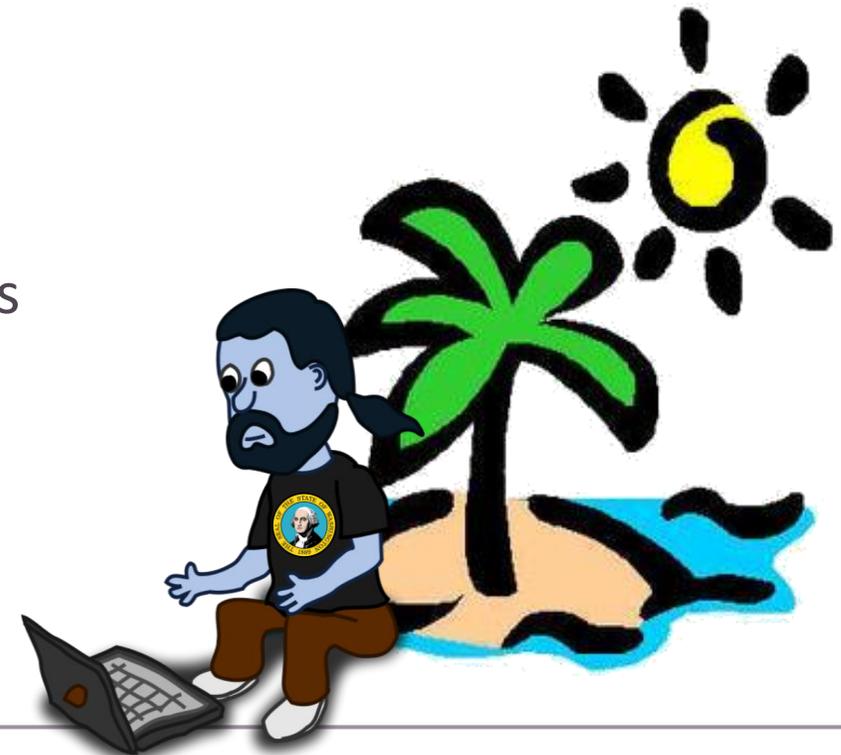- **Boost Agility and Productivity**
  - Anywhere, anytime access to email, documents, contacts, and calendars on nearly any Web-enabled device

- **New Products and Features**
  - Many available only in cloud, not in on-premises versions

- **Attractive User-based Licensing**
  - Each user is licensed for 5 PC/Mac + 5 Tablets + 5 Phones

Why Move to Office 365?

- **Reduced Capital Investments**
  - May eventually retire many on-premises servers

- **Improved Product Security**
  - Cloud software always current and patched

- **Positions the State Strategically**
  - Microsoft investing and innovating in cloud products, not in on-premises versions
  - "On-premises costs may increase and on-premises roadmaps are uncertain". (Gartner, March 2015)
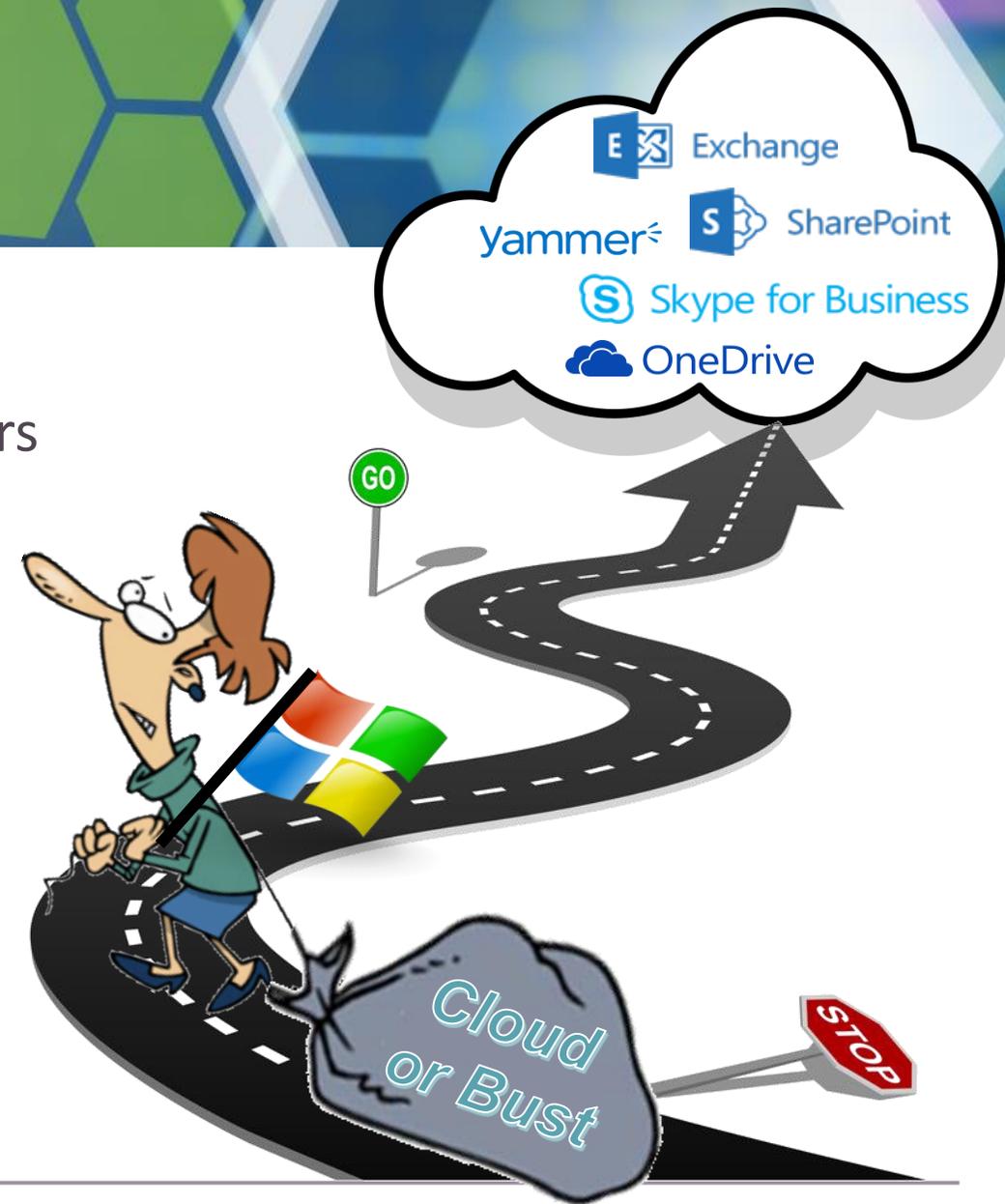
How Does the State Move to Office 365?

Moving to Office 365

Planning – Design - Testing

| Procure Appropriate Office 365 Licenses | Define Enterprise Office 365 Tenant Architecture | Design Enterprise Identity and Access Mgmt (IAM) Architecture | Engineer Optimal Network and Security Solution | Establish Hybrid Environment for Migration | Begin Migration to Appropriate Tenant |

Enterprise Project Management and Governance

Procure Appropriate Office 365 Licenses

- 34 Agencies purchased Office 365 licenses - 97% of EAD customers (55,170 users)

- 29 agencies have not yet moved to Office 365 licenses (1,854 users)

- All users also need licenses for Azure Active Directory Premium and Azure Rights Mgmt.
  - Only WaTech has purchased licenses so far
  - Enterprise Mobility Suite (EMS) bundle is most cost-effective way to purchase - also includes InTune MDM and Advanced Threat Analytics

- Office 365 licenses entitle users to access services in the Microsoft cloud OR on premises (e.g. existing WaTech Shared Services E-mail)
  - An Office 365 license does not *require* an agency to rush into using Microsoft cloud services
  - The state can take the time necessary to adequately prepare and to migrate in a manner that does not create risk or over-burden state resources

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

Identity and Access Management (IAM)

- ## IAM is the Foundation of a Secure and Manageable Enterprise

  - Enforces security and privacy - ensuring the right agencies, groups, and individuals can access the right resources at the right times for the right reasons

- ## Enterprise Active Directory (EAD) is the State's IAM Standard

  - OCIO/ISB Policy 183.20.10 - *Identity Management User Authentication Standards,* mandates executive branch agencies use the state's Enterprise Active Directory as the standard identity management solution

- ## We must maintain the integrity of our name space

- ## Crucial to a variety of strategies beyond O365

  - All enterprise applications (ERP, AFRS, HRMS)
  - Single Sign-On for enterprise applications

License Tenant IAM Network Hybrid Migrate

The IAM / Office 365 Tenant Connection

- **A "Tenant" is the Basic Administrative Construct for Office 365**

  - Virtual container in which all an organization's data and IAM info is stored and managed

  - A tenant acts as a natural boundary, isolating one organization from another (think: Pepsi and Coke)

- **Office 365 Tenant Management = Identity Management**

  - EAD is the foundation for Integrating and Managing Office 365

  - The state's Enterprise Active Directory (EAD) is extended and integrated into the Office 365 Tenant

  - All Office 365 organizations and users are authenticated against the state's EAD

License | Tenant | IAM | Network | Hybrid | Migrate

Tenant Design Options

Single Shared Tenant

Identity Access Mgmt
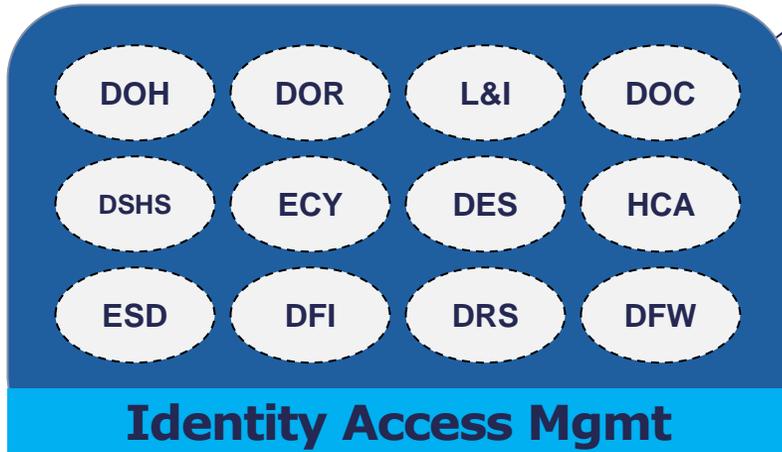
Replicates current EAD structure - Collaboration and single sign-on are inherent to tenant. WaTech manages tenant IAM, ensures isolation between agencies.

Isolation enforced by tenant boundaries – better for compliance but federated identity infrastructure more complex and costly to manage.

Separate Agency Tenants
(1 agency per tenant)

Basic Choice: Shared Tenant or Separate Tenants?

The choice of tenant design has a big impact on total cost of ownership.

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

Tenant Design Options

Identity Access Mgmt

DOR, DFW, ECY, DES, ESD, DFI, DRS

Identity Mgmt & Directory Federation

DOH — IAM, DSHS — IAM, DOC — IAM, L&I — IAM, HCA — IAM
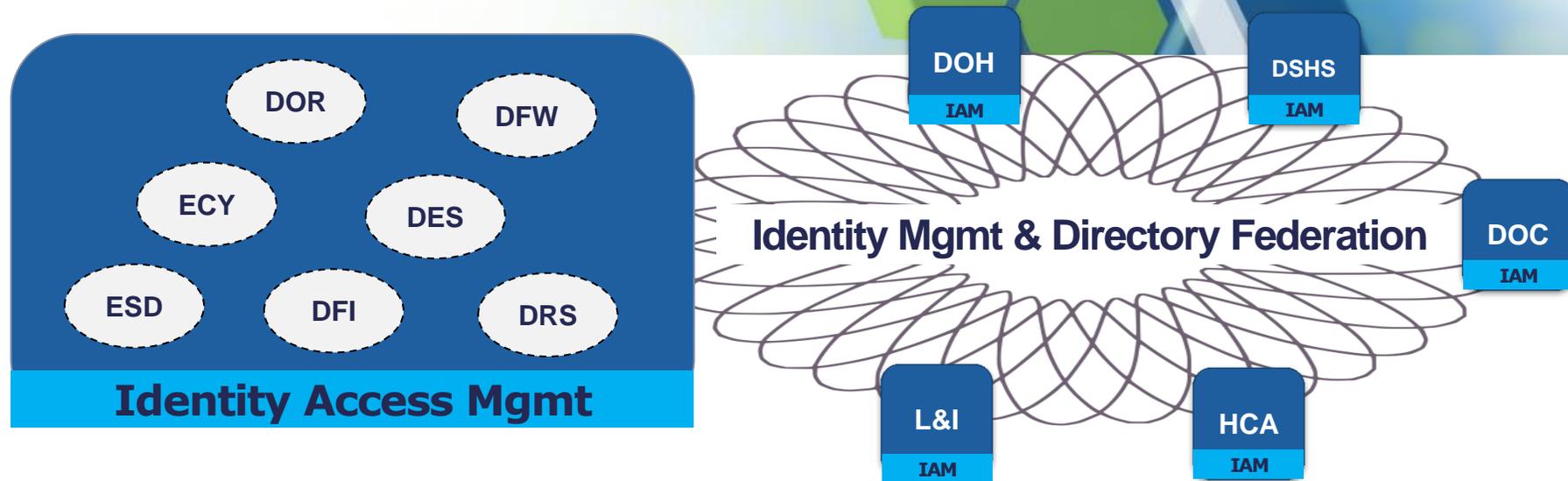
Single Shared Tenant + A Few Separate Tenants

This option accommodates most agencies in the shared tenant for simplified administration, collaboration and single sign-on. Separate tenants for agencies with exceptional business needs. Separate tenant agencies must bear additional costs for migration, identity management, directory federation, and tenant administration.

Tenant Design Options

General Gov. Shared Tenant

DOR   DES

ECY   ESD   DNR

DFI   DRS

Identity Access Mgmt

Identity Mgmt & Directory Federation

High Security Shared Tenant

HCA

DOH   L&I

DSHS

DOC   DFW

Identity Access Mgmt

Multiple Shared Tenants

Most agencies occupy the General Government Shared Tenant. One or more Shared Tenants are established to segregate agencies with special security or compliance requirements, such as Health Insurance Portability and Accountability Act (HIPAA) or Criminal Justice Information Services (CJIS). Agencies share costs for migration, identity management, federation, and tenant administration.

License > Tenant > IAM > Network > Hybrid > Migrate

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

IAM / Tenant Design Summary

- Identity and Access Management (IAM) = Tenant Management
  - EAD is the state standard – O365 tenant is integrated with and managed by EAD
  - Consistent, centralized management of identity is crucial to "One Washington", and the security, stability and availability of the state's data and IT resources

- Tenant Design Choices
  - *Single Shared Tenant* is best for collaboration and least cost, but a mistake could expose personally identifiable information to multiple agencies
  - *Separate Agency Tenants* best for compliance, but more complex and expensive
  - Consider a few Shared Tenants to group agencies with similar compliance requirements rather than many Separate Agency Tenants
  - Some combination of Shared Tenants with a few exceptions seems the most reasonable Tenant Design Strategy – criteria yet to be defined

WaTech Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

License ⟩ Tenant ⟩ IAM ⟩ Network ⟩ Hybrid ⟩ Migrate

Network & Security Infrastructure

- **Option 1: Public Internet**
  - Requires multi-million $ upgrades to existing firewalls
  - Unpredictable performance, high security threats
  - If we don't act soon – state will devolve into this option

Option 2: Private Network (MS ExpressRoute)
- Extends State's internal network routing and security
- Best performance and most cost-effective option
- Connected via network aggregation vendor
- Strategically positions State to integrate other cloud services

Exchange
SharePoint
Yammer
Skype for Business
OneDrive

ExpressRoute

Office 365 Traffic

Network Aggregator

to Azure
to Amazon
to other s...

State Gov. Network

State Data Center

State Gov. Network

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"
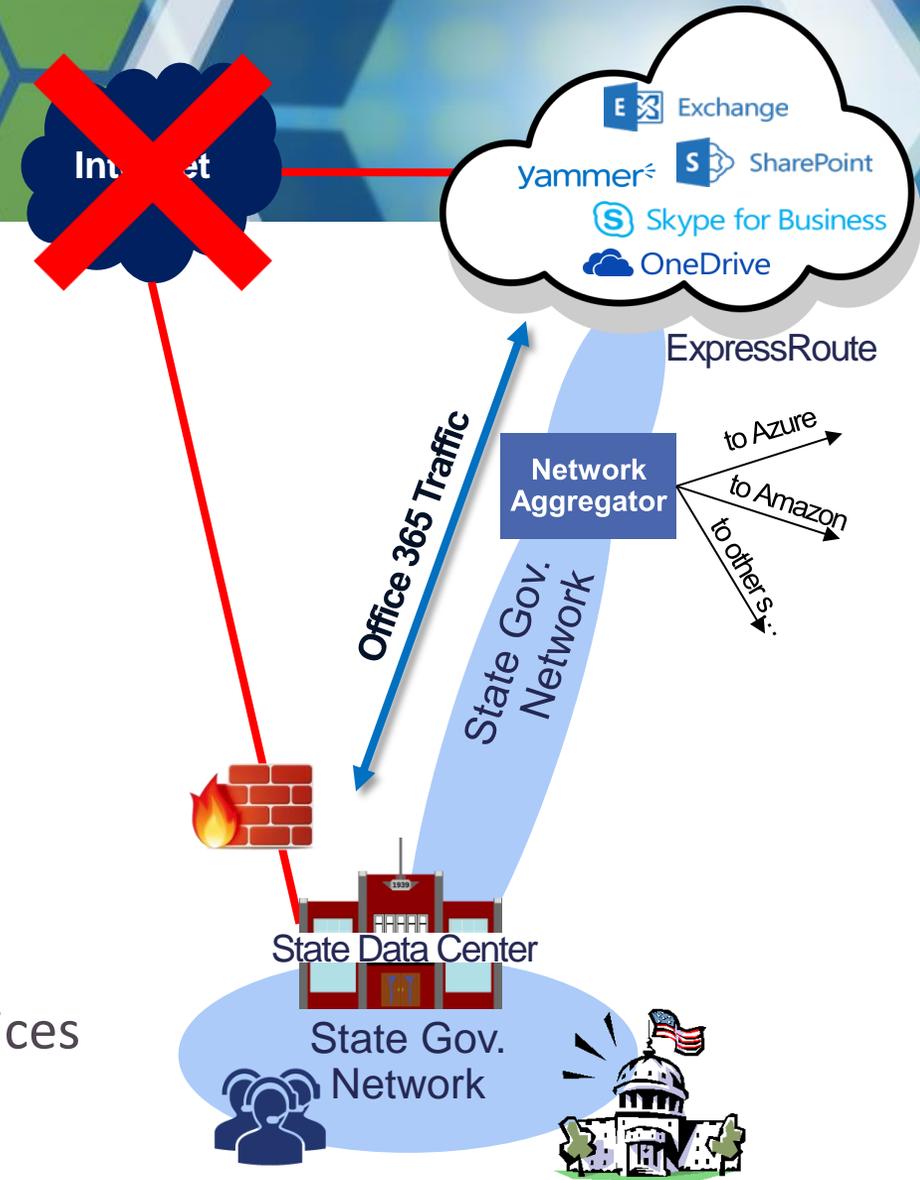
Hybrid Environment for Migration

- Hybrid integration with Enterprise Active Directory and on-premises server products
  - Exchange e-mail
  - Skype for Business
  - SharePoint

- Allows migrating users or information to Office 365

- Hybrid enables some users or some information on-premises and some in the cloud – transparently

- Important Constraint:
  Can only hybrid with one tenant

Exchange, Skype, SharePoint Servers

Shared Tenant

Identity Access Mgmt

Hybrid

State Gov. Network

Exchange, Skype, SharePoint Servers

State Data Center

State Gov. Network

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"
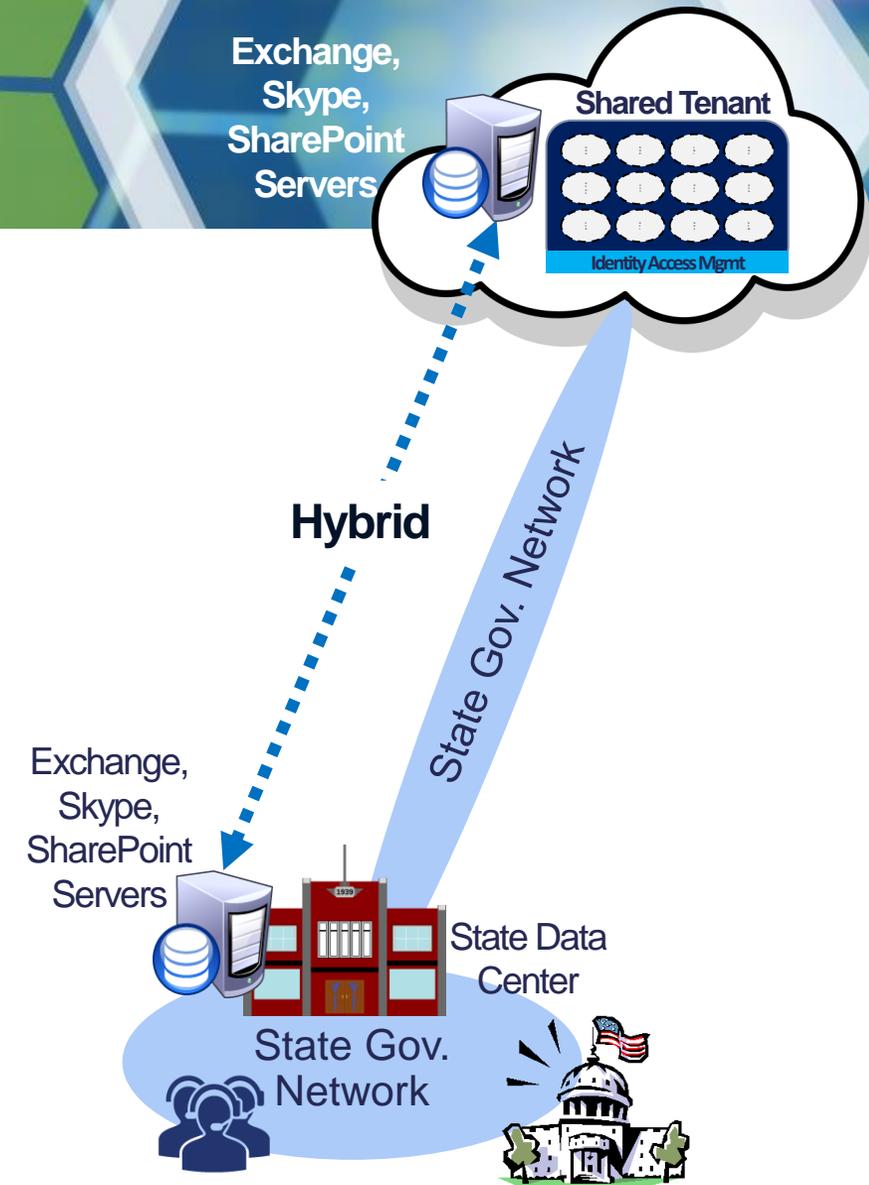
Migration to Office 365

- Migration requires planned, coordinated effort across all participating agencies, both shared and separate tenants

- Hybrid connection and migration can be made to only one tenant – the Shared Tenant

- Separate tenant agencies cannot hybrid - must purchase 3rd party migration tools and migration services

- After migration, the State continues in Hybrid mode, requiring some on-premises servers for IAM and some long term archives

1. Plan for Migration
- Meet with Client to review migration strategy
- Perform discovery and information gathering on current infrastructure and accounts.
- Determine migration method and tools to be used.

2. Migration Prep
- Prepare new accounts in Office 365 environment
- Prepare network and DNS requirements
- Prepare on-premises configurations for migration
- Configure synchronization and deployment

3. Migration
- Migrate and synchronize mailbox data
- Migrate and synchronize contacts
- MIgrate and synchronize calendars and sharing
- Perform service validation and testing

4. Connect, Test and Archive
- Configure and connect email software.
- Configure and connect mobile devices.
- Perform connectivity testing
- Archive any remaining mailbox data

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

What Have We
Done So Far?

Process To Reach Strategy Decisions

05/12 – 10/12
Office 365 Business Case Assessment

03/15 - 07/15
MCS Assessment of Primary Tenant Design Options

11/2015
Decision Lens Workshop to Review Tenant Design Selection Criteria

Review Tenant Data from Other States

01/16 - 03/16
Financial Analysis for Tenant Options

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"
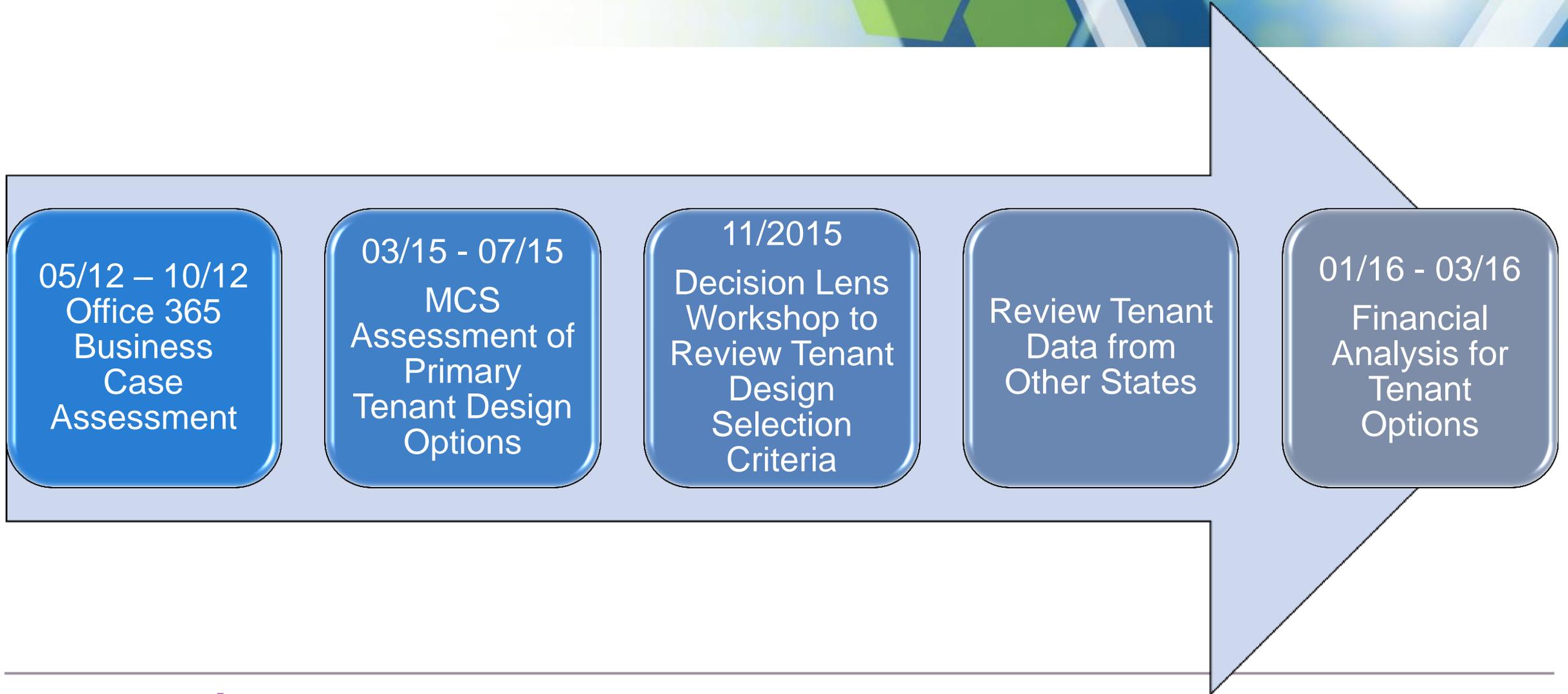
Office 365 Business Case Assessment

- ## May 2012 – October 2012: Cloud Based Email and Collaboration Project

  - Multi-agency initiative to determine if Office 365 would reduce costs, increase productivity, improve quality of service, position state for the future

  - Steering committee included: OCIO, CTS, DNR, DSHS, ESD, ECY, DOC, DFI, DOR, DRS, COMM, OIC,

  - Technical support provided by Microsoft

- ## Outcome:

  - Committee determined that there was insufficient business case to move forward
  - March 2014: CTS reviewed business case again with a similar outcome

O365 Business Case Assessment | MCS Tenant Assessment | Decision Lens Workshop | Data from Other States | Financial Analysis
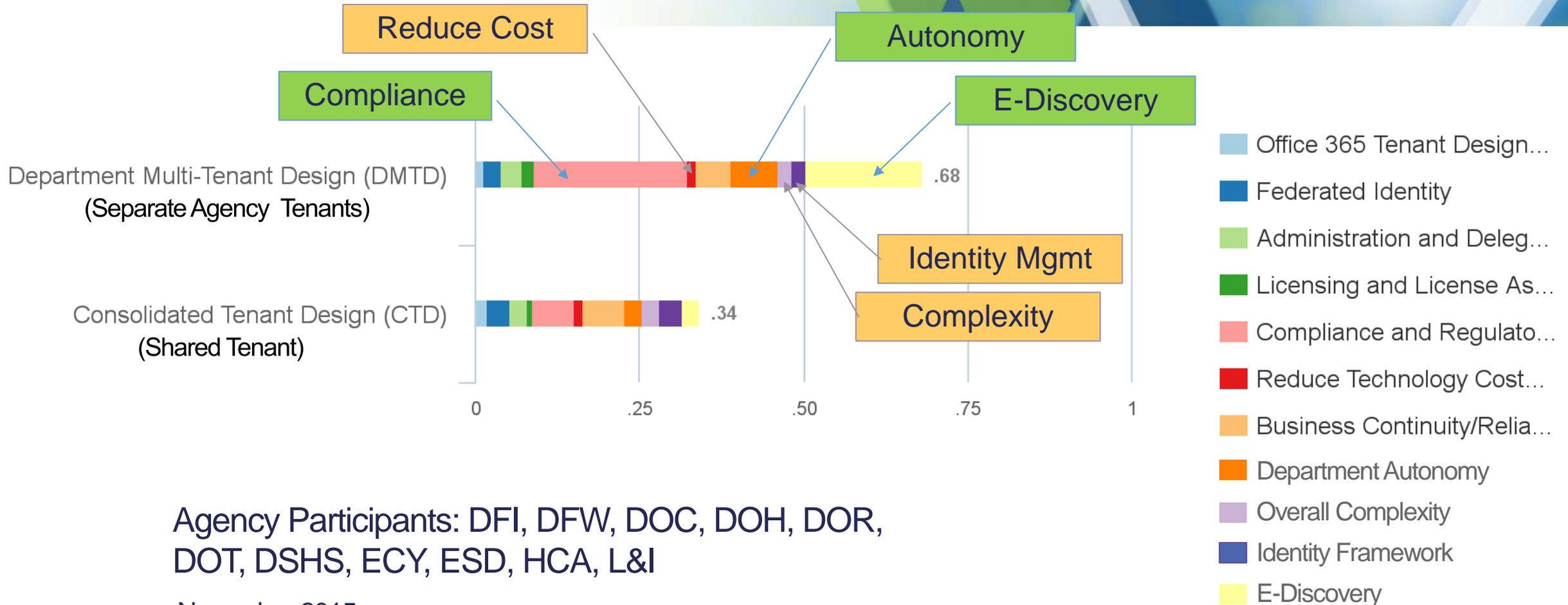
MCS Tenant Design Options Study

- Spring 2015: CTS partnered with DOH, DFW, DOC, HCA in an engagement with Microsoft Consulting Services (MCS) to assess Tenant Design options
  - Workshops conducted with 12 agencies to educate on Office 365 options and identify business and technical requirements
  - MCS compared Single Shared Tenant and Separate Agency Tenant options

- Outcome:
  - The majority of the state's business needs could be met by either design
  - Single Shared Tenant is least complex and most cost-effective
  - Separate tenants are best for compliance and autonomy, but complex and costly

O365 Business Case Assessment | MCS Tenant Assessment | Decision Lens Workshop | Data from Other States | Financial Analysis

26

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

Decision Lens Workshop – Review MCS Results

- Nov 2015: Customer workshop with representatives from 11 Agencies

  - Used Decision Lens, a tool for logically comparing criterion against each other
  - Criteria derived from MCS report
  - Compared Single Shared Tenant and Separate Agency Tenants
  - Agencies prioritized criteria for decision making

- Outcome:

  - Higher Value: Regulatory Compliance, E-Discovery and Agency Autonomy
  - Lower Value: Reduced Cost, Architecture Complexity and Identity Management

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

O365 Business Case Assessment > MCS Tenant Assessment > Decision Lens Workshop > Data from Other States > Financial Analysis

Decision Lens Results

Reduce Cost

Compliance

Autonomy

E-Discovery

Department Multi-Tenant Design (DMTD)
(Separate Agency Tenants)

Identity Mgmt

Complexity

Consolidated Tenant Design (CTD)
(Shared Tenant)

.68

.34

0   .25   .50   .75   1

Legend:
- Office 365 Tenant Design...
- Federated Identity
- Administration and Deleg...
- Licensing and License As...
- Compliance and Regulato...
- Reduce Technology Cost...
- Business Continuity/Relia...
- Department Autonomy
- Overall Complexity
- Identity Framework
- E-Discovery

Agency Participants: DFI, DFW, DOC, DOH, DOR, DOT, DSHS, ECY, ESD, HCA, L&I

November 2015

O365 Business Case Assessment | MCS Tenant Assessment | Decision Lens Workshop | Data from Other States | Financial Analysis

Tenant Data From Other States

- ## Microsoft State Gov. Customers
  - 17 primarily single shared tenant, some with exceptions

- ## Gartner Confirmed ~20 States
  - Almost all single shared tenant
  - No reported compliance concerns

- ## Anecdotal Lesson Learned
  - Some states may be moving to multiple shared tenants, grouping agencies with similar compliance requirements

State	Shared Tenant	Separate Tenants	Comments
1) Georgia	X		No exceptions
2) North Carolina	X		No exceptions
3) Florida		X	No central IT
4) Alabama	X		w/ exceptions
5) Louisiana	X		w/ exceptions
6) New York	X		
7) Pennsylvania	X		No exceptions
8) Minnesota	X		
9) California		X	Complicated by BPOS-D transition
10) Kansas	X		One agency is anchor org
11) Texas	X	X	Mix
12) Hawaii	X		w/ exceptions
13) Rhode Island	X		Few exceptions
14) Maine	X		
15) Ohio	X		
16) Kentucky	X		Still on-premises
17) Virginia	X		Some exceptions, but still on-prem
18) Maryland	X		Just an RFP at this time
19) Nebraska	X		Still on-premises
20) Santa Clara County, CA	X		No exceptions – maybe Sheriff's office

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

Office 365 Financial Analysis

- **Straw Model to Compare Current Costs with Office 365 Costs**

  - 57,000 users in Enterprise Active Directory (EAD) and 68,000 mailboxes

  - Network & security equipment and maintenance costs were annualized over 5 years then divided across all 57,000 users

  - Tenant and IAM infrastructure and administration costs assumes 1 Shared Tenant and 12 Separate Tenants, with 50% total users in the shared tenant

  - Migration costs are rough estimates and highly dependent on size and complexity of agency, amount of data, and number of separate tenants

NOTE: Costs are derived from actual contracts, rates and vendor quotes. However, many assumptions were made for the straw model and may not reflect actual usage at any particular agency. These numbers are for comparison only and should not be interpreted as accurately representing current or future WaTech rates.

O365 Business Case Assessment / MCS Tenant Assessment / Decision Lens Workshop / Data from Other States / Financial Analysis

30

Which is Cheaper?

Current – Office Pro desktop software and WaTech Shared Services E-mail only

Current – Office Pro and all WaTech Shared Services

$22 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ $32

$31 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ $53 /mo

Office 365 – Shared Tenant, no customer network capacity upgrades

Office 365 – Separate Tenant, customer network capacity upgrades

O365 Business Case Assessment | MCS Tenant Assessment | Decision Lens Workshop | Data from Other States | Financial Analysis

31

WaTech
Washington Technology Solutions
"the consolidated technology services agency -RCW 43.105.006"

Per User Cost Comparison

Product or Service	Current Service Monthly Per User	Office 365 Monthly Per User
Software / Service User Licenses:	$22 - $32	$27
• Office Professional desktop • Email Archive • Windows + Enterprise CALs • Mobile Device Management • Email, Anti-virus/Anti-spam • SharePoint • Message Hygiene, Secure Email • Skype for Business		(Also includes cloud-only products)
Additional Identity Management, Tenant Administration and Support	(Not required)	**+** $2
Additional Network and Security Infrastructure	(Not required)	**+** $2 - $17
Shared Tenant-Total Monthly/User		**$31 - $46**
Additional Active Directory Federation, Tenant Administration and Support. (~2000 users /tenant)		**+** $7
Separate Tenant-Total Monthly/User		**$38 - $53**
Migration Costs: One-time cost for migration tools and contracted support staff		**$50,000 - $750,000** per agency tenant

Note: For comparison only. Estimates shown here do not represent actual current or future WaTech service rates.

O365 Business Case Assessment → MCS Tenant Assessment → Decision Lens Workshop → Data from Other States → Financial Analysis

Where Do We
Go From Here?

Enterprise Tenant Strategy

- ## Shared tenant with few exceptions

  - Global tenant/IAM configurations continue to be centrally managed with domain-level management delegated to agencies (similar to current EAD model)

  - Minimize number of separate tenants - Exception criteria to be determined

  - Agencies with separate tenants assume all additional costs

  - More research required to determine if 2-3 shared tenants, grouping agencies by security level, is preferable to individual separate tenants
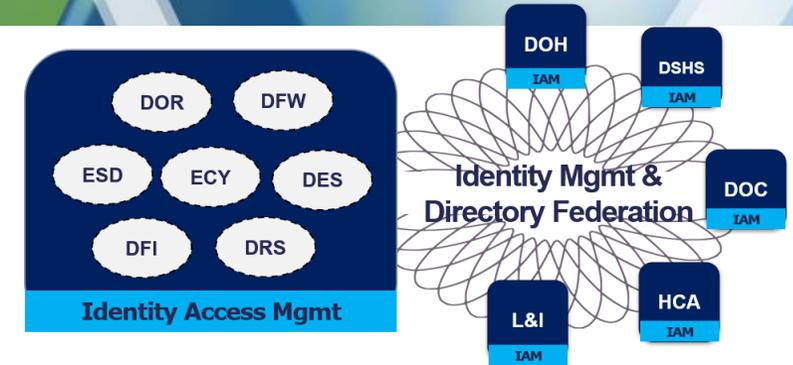
Go Forward Strategy

- **Establish an Enterprise Program – Plan and Migrate Together**
  - Establish project team(s), governance structure and budget
  - Agencies coordinate and cooperate to identify and resolve issues
  - Implement a Hybrid environment to a pre-prod "test tenant"
  - Validate tenant and IAM architectures and management processes
  - Define milestones and schedules - full migration will likely require 24-48 months

- **Establish a Private Network Connection to the Microsoft Government Cloud**
  - Procurement and installation requires 6 – 9 months

- **Propose a Funding Strategy**

What Is Being Done Now?

- **Office 365 Production Shared Tenant Available**

  - Available to any agency to activate Office 365 desktop software licenses

  - May also use to get familiar with other Office 365 products

- **WaTech Pre-Production Tenant Available**

  - Testing and validating hybrid configuration

  - Developing E-mail migration procedures

Office 365 Strategy Brief

Thank You