

## 2017-19 Biennium Budget Decision Package

**Agency:** 163 - Consolidated Technology Services

**Decision Package Code/Title:** AB - Infrastructure for Cloud Services

**Budget Period:** 2017-19

**Budget Level:** ML2 – Inflation and Other Rate Change

**Agency Recommendation Summary Text:**

Consolidated Technology Services (WaTech) is requesting an allocation of \$5.8 million and 9 FTE in the 17-19 biennium for staff, equipment, software licenses, and network transport in order to maintain acceptable performance and security of the state's vital data communication networks as the amount of network traffic increases rapidly due to the use of "cloud" technology.

**Fiscal Summary:**

<b>Operating Expenditures</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Fund 458-6	3,765,000	2,016,000	2,016,000	2,016,000
<b>Total Cost</b>	<b>3,765,000</b>	<b>2,016,000</b>	<b>2,016,000</b>	<b>2,016,000</b>
<b>Staffing</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
FTEs	9.0	9.0	9.0	9.0
<b>Revenue</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Fund 458-6	3,765,000	2,016,000	2,016,000	2,016,000
<b>Object of Expenditure</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Obj. A	747,000	759,000	759,000	759,000
Obj. B	249,000	250,000	250,000	250,000
Obj. E	2,713,000	1,005,000	1,005,000	1,005,000
Obj. G	2,000	2,000	2,000	2,000
Obj. J	54,000	0	0	0

**Package Description**

WaTech proposes to spend \$5.8 million in the 2017-19 biennium to facilitate state agencies' use of information technology cloud services. The term "cloud services" refers to on-demand IT resources and applications delivered over a network or internet connection, typically offered with pay-as-you-go pricing.

Most leading technology vendors, such as Microsoft and Amazon, are focusing their business on delivering IT products and capabilities via cloud services and are diminishing the traditional model

of providing software installed on the customers' local servers. These technology and market changes are driving state agencies' use of IT services delivered by private sector cloud providers. The result of this is a rapid increase in the traffic through the state networks that is expected to explode exponentially during the next few years.

Our existing network infrastructure is optimized for delivering large amounts of data between state agencies and the state data center(s) not for sending that data to external networks. With cloud services, a large part of the network traffic must now be directed, secured, and managed outside of the state's network. Without this investment in additional capacity, security and, manageability, the state's data networks will not be able to handle the additional load. This will result in poor performance, access problems, and unacceptable security risks.

The \$5.8 million would fall into three categories: Identity Management, Network Capacity and, Network Security.

*Identity Management (\$2.9 million and 7 FTE)* is the process of establishing user identities; authenticating that the identity truly belongs to the user and; retiring or changing permissions of users in all of the hundreds of applications that touch the state's networks. The Identity Management infrastructure and service allows state employees Single-Sign-On (SSO) access to cloud services while maintaining compliance with state policies regarding, authentication, authorization, and auditing. This funding will support agencies' ability to easily control and manage increasing employee access to cloud services.

*Network Capacity (\$1.6 million and 1 FTE)* refers to the amount of data that can be transported within and outside WaTech's state-wide communications networks (network core). About 2.5 million gigabytes of data are transported through the network every month. This is hundreds of millions of transactions to hundreds of applications that are necessary for the everyday operations of state and local governments and to provide public access to governmental services and data. Increasing use of cloud services will push network traffic far beyond this current level. As network utilization increases, a corresponding increase in network core circuit speed and capacity (bandwidth) is required. State agencies' decisions to move servers and applications to cloud services exponentially increase the load in the network core. Increased utilization demands increased bandwidth but seamless, high performance cloud access also requires dedicated network equipment.

Cloud services must be integrated into the network core in a manner that ensures the performance, accessibility, and resilience of the state's information assets operating in the cloud. Dedicated equipment is required in the State Data Center (SDC) in Olympia, the Quincy Data Center (QDC), and in third-party colocation facilities that act as network hubs for connecting cloud vendors via dedicated high capacity circuits.

This request is only for the network core. It does not address any upgrades to any circuits going to the more than 1,000 office locations that WaTech supports with transport and connectivity services funded by the existing Network allocation.

*Information Security (\$1.3 million and 1 FTE)* focuses on mitigating the risks of sending and storing State of Washington data at an external provider. As custodians of constituent data, it is critical that security controls are implemented to ensure not only the safe passage of the data to external providers, but that the data itself, when stored externally, is done so to all applicable state and federal standards. The data must be kept carefully guarded through proper encryption, auditing, monitoring and access controls. This request is necessary to continue protecting state data as cloud computing is adopted. This proposal augments our approach to data security by adding dedicated security infrastructure that increases capacity and accommodates the unique requirements of cloud

computing. This investment empowers the State of Washington to embrace the power of cloud computing while maintaining best security practices to avoid a costly data breach.

**Base Budget: If the proposal is an expansion or alteration of a current program or service, provide information on the resources now devoted to the program or service.**

This proposal evolves the capacity and capability of the state's existing network, security and, identity management services.

WaTech's annual spending on state networks is \$21.7 million and 40.7 FTE. Annual spending on information security infrastructure is \$5.0 million and 7.4 FTE. Annual spending on Identity Management \$444,000 and 3.0 FTE.

**Decision Package expenditure, FTE and revenue assumptions, calculations and details:**

This proposal includes costs for WaTech staff, network equipment, software licensing and, data transport. The costs were calculated based on currently available information regarding cloud technology and vendor costs. The solution design is based on currently available information regarding customer agency needs and WaTech's capacity to implement.

**Decision Package Justification and Impacts**

**What specific performance outcomes does the agency expect?**

WaTech expects that this investment will result in maintaining secure, resilient, dependable and consistent access to IT cloud services by adding a dedicated leg to the state's networks that connects WaTech's two data centers with a cloud aggregation vendor. This aggregator acts as a hub for IT cloud service vendors. WaTech will connect to two hubs, one located in Seattle and one in Ashburn, Virginia. These two hubs will enable WaTech to connect to our current strategic cloud providers, Microsoft (Azure/Office 365) and Amazon Web Services. These hubs will also support future connectivity to other cloud providers.

**Performance Measure detail:** The decision package supports the Results Washington goal # 5: Efficient, Effective & Accountable Government.

**Fully describe and quantify expected impacts on state residents and specific populations served.**

This proposal supports state agencies' movement toward putting public-facing applications in the cloud. For example, the Department of Health, the Health Care Authority, The Public Disclosure Commission and, The Department of Fish and Wildlife are currently moving applications to cloud providers through the Internet:

- The Department of Health is moving its Washington Health and Life Events System (WHALES) and Medical Marijuana Authorization System (MMJAS) to cloud services. Parts of the WHALES application are already in the Amazon Web Services cloud and MMJAS was moved in July, 2016.
- The Health Care Authority is moving its Healthier Washington Analytics, Interoperability, and Measurement environment to Amazon Web Services.
- The Public Disclosure Commission is moving its Customer Service and Case Management System to a cloud provider.
- The Department of Fish and Wildlife WILD system is a cloud-based system that supports sales of fishing and hunting licenses and permits.

These agencies believe that cloud services allow for an It environment that is more agile and easier to maintain and update than an on premises investment in their own servers. However, moving data over the Internet is risky and unpredictable. Evolving the state's network, security, and Identity Management capabilities will support and maintain state agencies' and the public's access to these applications in a dependable, secure, and resilient fashion.

**What are other important connections or impacts related to this proposal?**

Impact(s) To:		Identify / Explanation
Regional/County impacts?	No	Identify:
Other local gov't impacts?	No	Identify:
Tribal gov't impacts?	No	Identify:
Other state agency impacts?	Yes	Identify: Any state agency that has plans or is currently migrating information or applications to a Cloud provider service will be positively affected by this proposal. Without the infrastructure in this proposal, agencies will have to traverse the Internet which will result in increased security risk, performance latency and, significantly increased costs to protect their data.
Responds to specific task force, report, mandate or exec order?	No	Identify:
Does request contain a compensation change?	No	Identify:
Does request require a change to a collective bargaining agreement?	No	Identify:
Facility/workplace needs or impacts?	No	Identify:
Capital Budget Impacts?	No	Identify:
Is change required to existing statutes, rules or contracts?	No	Identify:
Is the request related to or a result of litigation?	No	Identify lawsuit (please consult with Attorney General's Office):

Is the request related to Puget Sound recovery?

No

If yes, see budget instructions Section 14.4 for additional instructions

**Identify other important connections**

**Please provide a detailed discussion of connections/impacts identified above.**

Cloud services offer access to servers, storage, databases and a broad set of applications. State agencies are increasingly turning to private sector cloud services as a cost-effective means to solve their business problems; modernize obsolete applications and infrastructure and; deliver vital government services to their constituents.

**What alternatives were explored by the agency and why was this option chosen?**

The only alternative to dedicating a portion of the state's network to cloud access is to allow this traffic to traverse the "unwashed" Internet. This option was chosen because it is the most cost effective enterprise approach to the more and more prevalent interest of state agencies to use cloud services.

**What are the consequences of not funding this request?**

Not funding this request will result in the state (WaTech and its customers) being backed into significantly larger costs to attempt to secure the state's data over the Internet. Internet performance (latency), security, and redundancy are beyond the control of WaTech or any state agency. The expense of trying to improve these aspects of the Internet for the state's use would be five or more times as expensive as this proposal.

**How has or can the agency address the issue or need in its current appropriation level?**

WaTech is not appropriated. Its supporting revenue comes from allocations or fee-for-service sales. This underscores the current problem faced by WaTech and some of its state agency customers. Those agencies that are currently trying to use the Internet to access cloud services need a lot of expertise, coordination and, migration assistance from WaTech. These agencies are consuming large amounts of WaTech staff time and providing no revenue for that purpose. On the other hand, WaTech cannot sell a service or capability that is not built yet.

WaTech's current effort to support agencies' moves to cloud service is adding to its unfortunate fiscal condition. The alternative to providing this service, however, is untenable. The costs to WaTech and in turn, its customers would be in the tens of millions of dollars over several years.

**Other supporting materials:**

Please find attached Excel file documentation that shows how funds will be spent and PowerPoint presentations that provide an easy to understand overview of what Cloud service is all about.

**Information technology:** Does this Decision Package include funding for any IT-related costs, including hardware, software, services (including cloud-based services), contracts or IT staff?

No 

Yes Continue to IT Addendum below and follow the directions on the bottom of the addendum to meet requirements for OCIO review.)

# 2017-19 IT Addendum

## Part 1: Itemized IT Costs

Please itemize any IT-related costs, including hardware, software, services (including cloud-based services), contracts (including professional services, quality assurance, and independent verification and validation), or IT staff. Be as specific as you can. (See chapter 12.1 of the operating budget instructions for guidance on what counts as “IT-related costs”)

Information Technology Items in this DP <i>(insert rows as required)</i>	FY 2018	FY 2019	FY 2020	FY 2021
Staff Costs	1,052,000	1,011,000	1,011,000	1,011,000
Goods/Other Services	2,713,000	1,005,000	1,005,000	1,005,000
<b>Total Cost</b>	<b>3,765,000</b>	<b>2,016,000</b>	<b>2,016,000</b>	<b>2,016,000</b>

## Part 2: Identifying IT Projects

If the investment proposed in the decision package is the development or acquisition of an IT project/system, or is an enhancement to or modification of an existing IT project/system, it will also be reviewed and ranked by the OCIO as required by RCW 43.88.092. The answers to the three questions below will help OFM and the OCIO determine whether this decision package is, or enhances/modifies, an IT project:

1. Does this decision package fund the development or acquisition of a new or enhanced software or hardware system or service?  Yes  No
2. Does this decision package fund the acquisition or enhancements of any agency data centers? (See [OCIO Policy 184](#) for definition.)  Yes  No
3. Does this decision package fund the continuation of a project that is, or will be, under OCIO oversight? (See [OCIO Policy 121](#).)  Yes  No

If you answered “yes” to any of these questions, you must complete a concept review with the OCIO before submitting your budget request. Refer to chapter 12.2 of the operating budget instructions for more information.

**Step AB - Infrastructure for Cloud Services**

Summary	Annual Recurring Costs	One-time-only Costs	Total for FY 18	Total for FY 19	Total for 17-19 Biennium
Identity Management Infrastructure Total	\$ 404,475	\$ 432,164	\$ 836,640	\$ 404,475	\$ 1,241,115
Network Infrastructure Total	\$ 396,461	\$ 547,850	\$ 944,311	\$ 396,461	\$ 1,340,773
Security Infrastructure Total	\$ 149,265	\$ 728,000	\$ 877,265	\$ 149,265	\$ 1,026,530
<b>Cloud Decision Package Total</b>	<b>\$ 950,202</b>	<b>\$ 1,708,014</b>	<b>\$ 2,658,216</b>	<b>\$ 950,202</b>	<b>\$ 3,608,418</b>

<b>FTE Count</b>	<b>9.0</b>
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**FTE Costs**

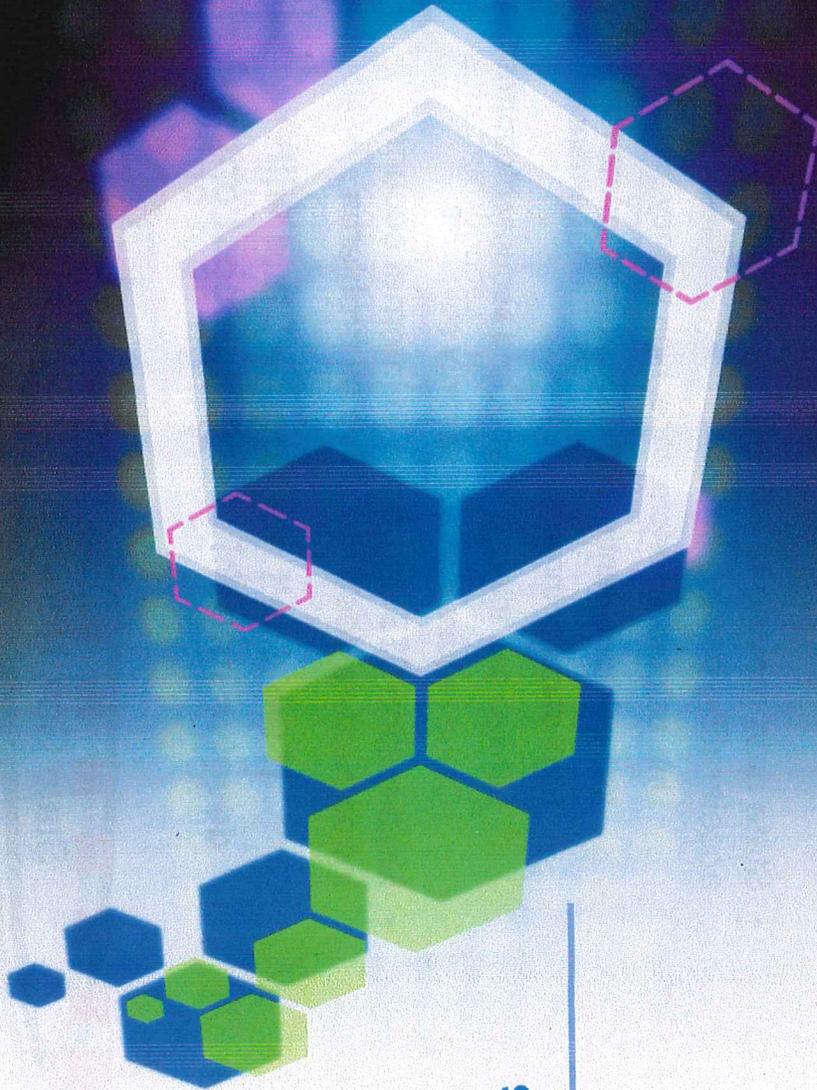
	FY 2018	FY 2019	Biennium 2017-19
FTE	9.0	9.0	9.0
Object A	\$ 747,000	\$ 758,000	\$ 1,505,000
Object B	\$ 248,000	\$ 250,000	\$ 498,000
Object E	\$ 56,000	\$ 56,000	\$ 112,000
Object G	\$ 2,000	\$ 2,000	\$ 4,000
Object J	\$ 54,000	\$ -	\$ 54,000
<b>Total</b>	<b>\$ 1,107,000</b>	<b>\$ 1,066,000</b>	<b>\$ 2,173,000</b>

<b>Total Costs</b>	<b>\$ 3,765,216</b>	<b>\$ 2,016,202</b>	<b>\$ 5,781,418</b>
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the consolidated technology services agency - RCW 43.105.0065

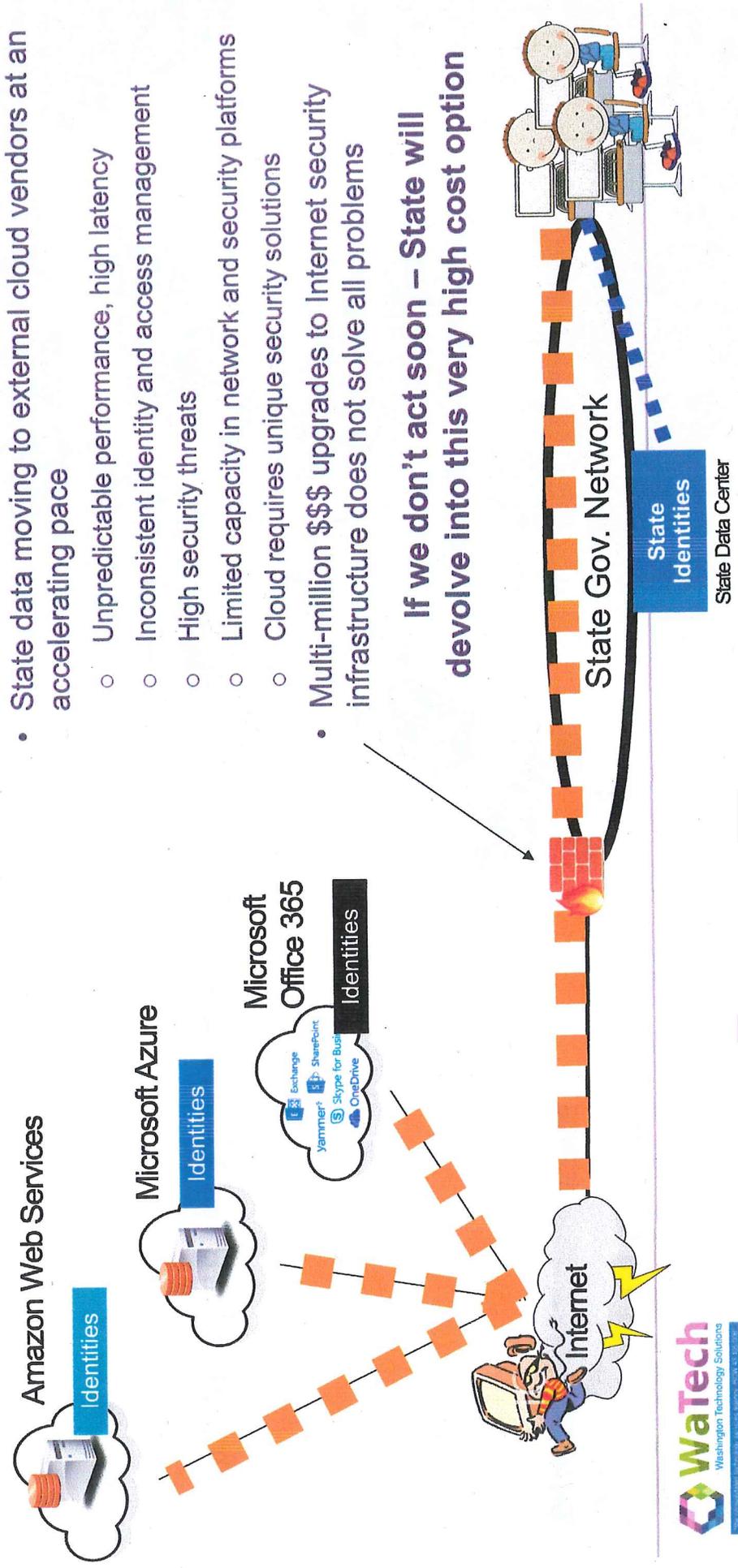


## Infrastructure for Cloud Services

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Aug 16, 2016

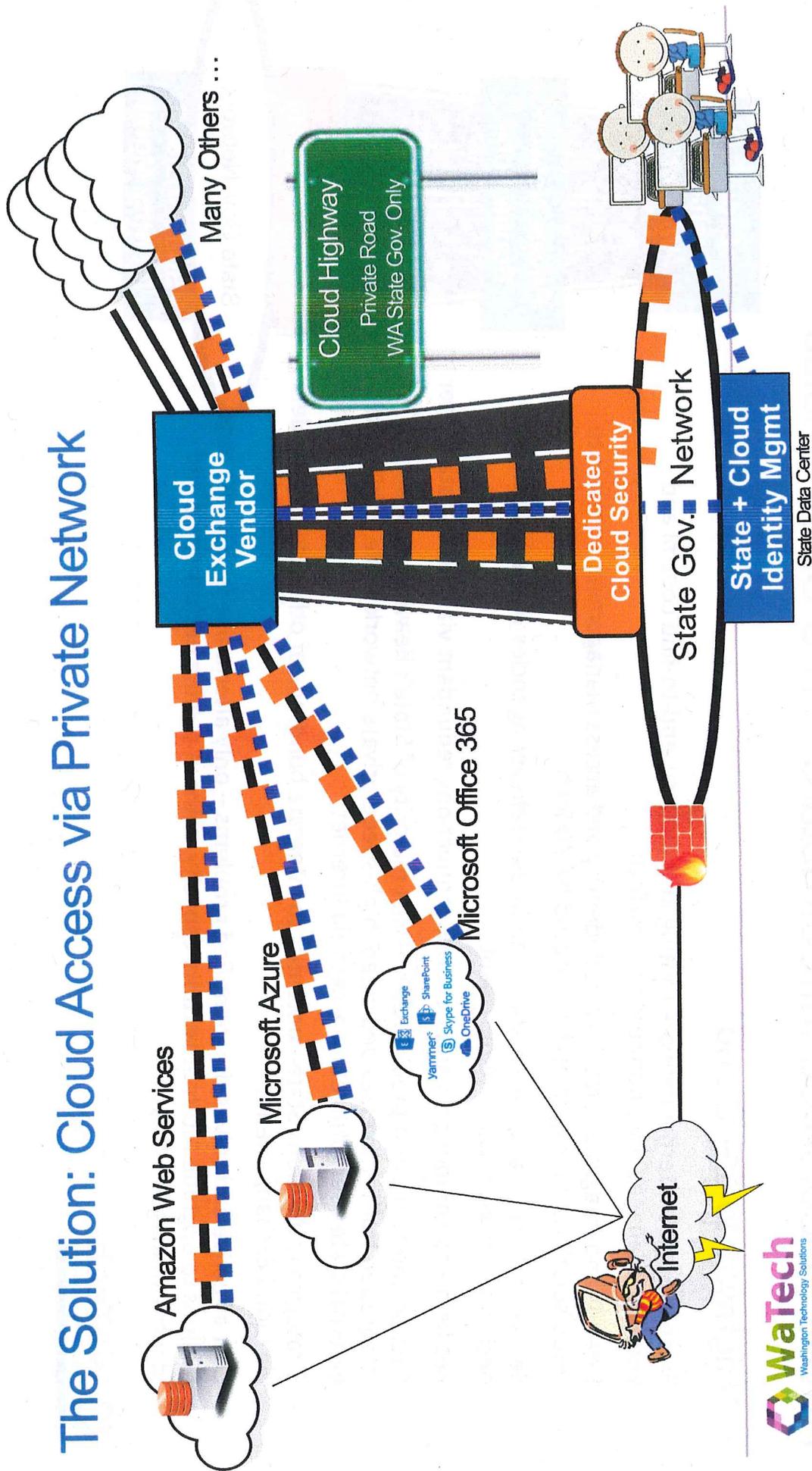
# The Problem: Cloud Access via Public Internet



- State data moving to external cloud vendors at an accelerating pace
  - Unpredictable performance, high latency
  - Inconsistent identity and access management
  - High security threats
  - Limited capacity in network and security platforms
  - Cloud requires unique security solutions
- Multi-million \$\$\$ upgrades to Internet security infrastructure does not solve all problems

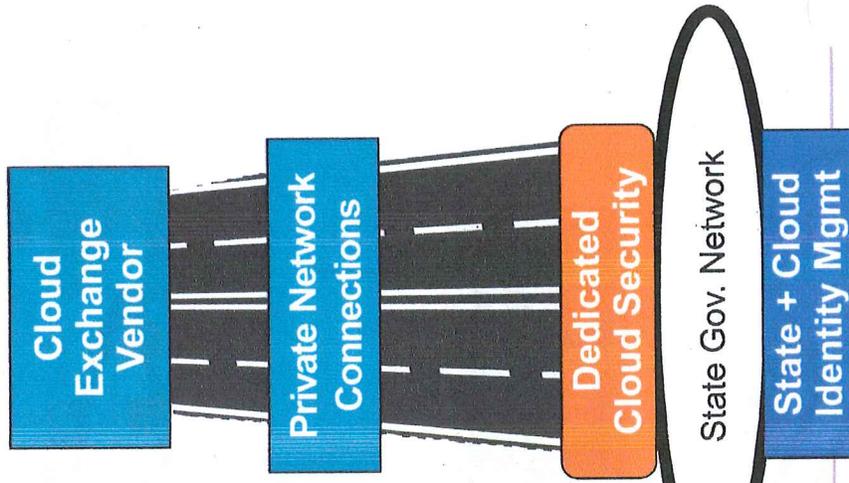
**If we don't act soon - State will devolve into this very high cost option**

# The Solution: Cloud Access via Private Network



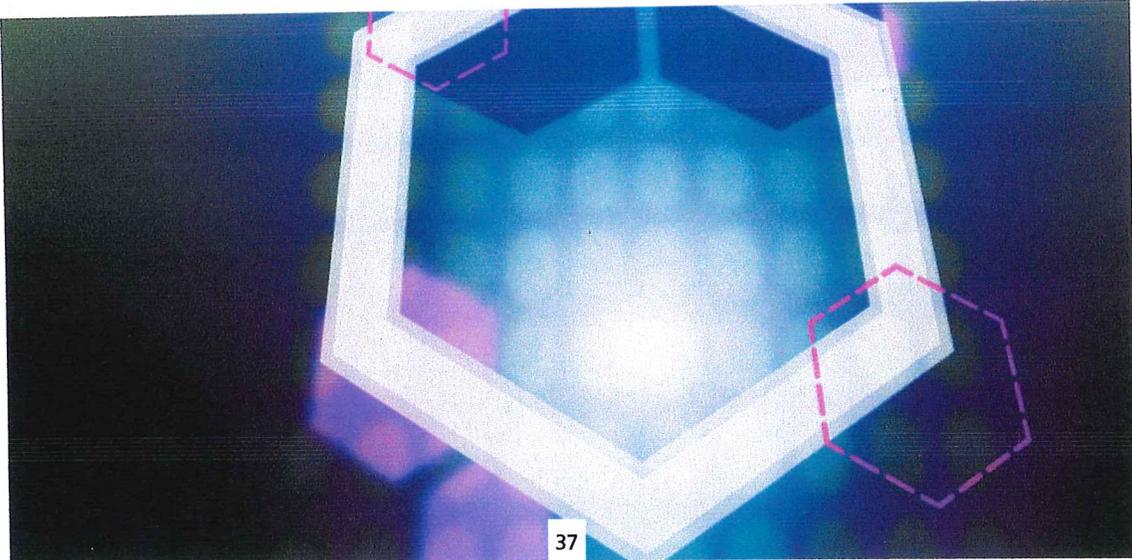
# Private, Dedicated Infrastructure – The Clear Choice

- “Highway to the Cloud”
  - Extends State’s internal network routing and security, end-to-end control and visibility; managed and monitored by WaTech
  - Extends and integrates State’s critical identity and access management controls to cloud solutions; managed and monitored by WaTech
  - Secure and compliant, meets state standards – relieves agencies of the burden to design a compliant cloud deployment
  - Resilient - all components and network connections redundant via Quincy data center
  - Best performance and predictability – vast majority of State’s heaviest data and integration traffic traverses dedicated, high-speed private network while public and external state users still retain access via Internet
  - Strategically positions State - potential to integrate hundreds of other cloud providers via Cloud Exchange vendor
  - Cost effective and solves the identified problems – only alternative is to invest tens of millions to upgrade Internet security capacity, without solving performance and identity management issues



# Infrastructure for Cloud Services

# Thank You





## Winkley, Dan (WaTech)

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**From:** Fitzgerald, Judy (WaTech)  
**Sent:** Tuesday, August 30, 2016 6:22 PM  
**To:** Winkley, Dan (WaTech)  
**Subject:** FW: WaTech DP Consult for SR1608\_04337 - WaTech - ML AB Infrastructure for Cloud Services

Here's another one.

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**From:** Lee, Larry (WaTech)  
**Sent:** Tuesday, August 30, 2016 9:49 AM  
**To:** Fitzgerald, Judy (WaTech)  
**Subject:** WaTech DP Consult for SR1608\_04337 - WaTech - ML AB Infrastructure for Cloud Services

Good morning Judy,

This email is to summarize your Decision Package (DP) Consultation with WaTech. Your Service Request ticket number is **SR1608\_04337 - WaTech - ML AB Infrastructure for Cloud Services**. Based on information included in your DP and gathered during the consultation, your identified requirements include the addition of software and licensing, equipment, network transport and new FTEs to support the package. WaTech does not currently provide a service that aligns with software, licenses, equipment purchases and FTEs. Wherever possible, you have indicated you will be using existing WaTech services in delivering this new service, for example you will be using the WaTech Private Cloud, Zerto Replication Tool, the Symantec Vault, procuring circuits through TSD and scaling up existing Fortinet Firewall services. New staff will also be using the same WaTech administrative/office products and services being used by existing staff.

If your requirements change, please send a new request to the WaTech Service Desk at [servicedesk@watech.wa.gov](mailto:servicedesk@watech.wa.gov) and include the subject line **Consultation Request for 2017-19 Biennial Budget Submittal for WaTech - ML AB Infrastructure for Cloud Services**.

Let me know if I can be of assistance.

Larry

Larry E. Lee  
Customer Account Manager  
Customer Relations Team  
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