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SOA Server Data and Cloud Migration
Response to Request for Information
House State Affairs Committee
March 5, 2020

1. Please provide, for each department, on an annual basis:

Server costs to agencies (Office of Information Technology (OIT) Servers only, OIT has no visibility into the expenditures for other servers outside of OIT)

OIT servers are paid for through a rate charged to all departments that participate and includes: physical hardware acquired and depreciated over a lifecycle, server operating software paid annually via license renewal, diagnostic and monitoring tools, physical space and temperature controlled racks to house hardware, backup storage, backup power generation, and the costs of employees for supporting all of this infrastructure. OIT servers come with a default 300GB of storage that is included in the rate. Additional storage beyond what is included is discussed in the storage section of this document. Agencies without listed server costs do not host their servers in OITs environment and we do not have direct access to their expenditures. Known server counts are provided on the table on the next page and include those inside and outside of OIT.

Table 1: OIT Provided Hosting

OIT PROVIDED HOSTING - WINDOWS SERVER COST TO AGENCIES				
Agency	**Virtual ***	**Virtual+ ***	**Physical**	**Physical+**
RATES =>	**$2,839.86/YR**	**$4,259.79/YR**	**$5,679.72/YR**	**$8,519.58/YR**
CED	$88,036	-	$22,719	-
DEC	$99,395	$17,039	$136,313	$17,039
LAW	$312,385	-	-	-
DEED/ACPE	$113,594	-	$22,719	-
DNR	$113,594	$8,520	$107,915	-
DOA	$241,388	$187,431	$346,463	$59,637
DOC	$28,399	$29,819	$312,385	-
DOR	$232,869	$59,637	$11,359	-
DPS	$283,986	-	$130,634	-
DFG	$661,687	-	$22,719	-
	-	-	-	-
DOT	-	-	-	-

GOV	-	-	-	-
HSS **	-	-	-	-
DOL	-	-	-	-
MVA	-	-	-	-
Totals	**$2,175,333**	**$302,445**	**$1,113,225**	**$76,676**
Grand Total	**$3,667,679**			

Notes on Table 1: OIT also charged departments a $60 per Gigabyte/Year (GB/YR) charge for excess server memory that totals **$265,782** in FY20

** HSS pays a legacy support rate to OIT for their AERIES servers of **$527,017,** that aren't fully managed by OIT.

*Virtual and Virtual+ servers are run on hardware that can support a high density of servers through a product called VMWare. They are less costly to standup and maintain versus their physical server counterpart.

+ Servers are simply a category of server that receive a faster response to downtime based on agency needs.

Table 2: Server Counts

SERVER COUNTS USED FOR RATE BUILDING INSIDE & OUTSIDE of OIT as of 7/1/2019				
Agency	**Virtual ***	**Virtual+ ***	**Physical**	**Physical+**
CED	31		4	
DEC	35	4	24	2
LAW	110			
DEED/ACPE	40		4	
DNR	40	2	19	
DOA	84	44	61	7
DOC	10	7	55	
DOR	82	14	2	
DPS	100		23	
DFG	233		4	
TOTAL IN OIT	**765**	**71**	**196**	**9**
DOT	107		32	
GOV	4			
HSS Aries	21			
HSS	458		74	
DOL	174		4	
MVA	18	21	1	4
TOTAL OUT of OIT	**782**	**21**	**111**	**4**
Grand Total of SOA Server Counts	**1,547**	**92**	**307**	**13**

Of approximately 1,960 servers used for rate building, almost half (918) exist in the departments themselves and are not managed by OIT. All-in costs for those servers would require assistance from the Department's Technology Officers.

An independent assessment by third parties places the total number of servers statewide between 2,800 and 3,100.

Excess data storage and rack space (OIT provided storage only, OIT has no visibility on expenditures for other storage)

Storage in excess of the provided 300GB in the Server rates are calculated and charged on a per terabyte (TB) basis. That demand is determined by the departments in the 4th quarter and formalized in rates annually. The next table breaks down those commitments on storage in standard speed Production storage and high-performance SSD Storage. A special class of storage called ISOLON was created for the Department of Natural Resources. Departments who manage their own servers but need secure, temperature and power-controlled locations for their servers are simply assessed a Rack charge.

Table 3: OIT Provided Storage and Rack Space

OIT PROVIDED STORAGE AND RACK SPACE – CHARGES TO AGENCIES				
Agency	**Production Storage**	**SSD Storage**	**ISOLON Storage**	**Rack Space**
RATES =>	**$500 per TB/YR**	**$2,400 per TB/YR**	**$120 per TB/YR**	**$14,400/YR**
CED	$10,700.00	-	-	-
DEC	$14,250.00	$1,704.00	-	-
LAW	$147,750.00	-	-	-
DEED/ACPE	$500.00	-	-	-
DNR	$350.00	-	$89,520.00	-
DOA	$57,593.72	$36,660.00	-	-
DOC	-	-	-	-
DOR	$12,450.00	$50,400.00	-	-
DPS	$19,450.00	$8,160.00	-	-
DFG	$21,850.00	-	-	-
DOT				$57,600.00
GOV				$14,400.00
HSS				-
DOL				$57,600.00
MVA				-
LAA				$14,400.00
Totals	**$284,893.72**	**$96,924.00**	**$89,520.00**	**$144,000.00**
Grand Total	**$615,337.72**			

***TOTAL OIT SERVER, STORAGE, and RACK charges to all agencies this year - $5,075,815.91**

OIT VMWare costs in FY20

OIT expended **$42,385.50** on VMWare licensing in FY20. We do not have the costs spent by other agencies on this product at this time. OIT VMWare licensing costs is part of the Server rate detailed in section one.

OIT Microsoft software licensing costs in FY20

OIT Microsoft Software Licensing Costs - FY20		
Product	**Cost**	**Remarks**
O365 Enterprise Software	$2,882,347	The majority of Microsoft licensing spend is O365 Enterprise seats captured in the OIT CORE rate and distributed to most executive branch employees. This includes a wide variety of collaborative tools which continue to be introduced to increase productivity.
Microsoft SQL Database	$718,565	Microsoft SQL database related licensing charges.
Windows Desktop	$614,203	Windows desktop charges for most executive branch employees captured in the CORE rate.
Windows Servers	$266,675	Windows Server software as part of the Server Rate.
Microsoft Exchange Online	$109,228	
Other Products	$504,478	Software Assurance, Support add-ons, and pass-through licensing to agencies for products like Visio that are not widely deployed.
Total	**$5,095,496**	

2. Projected cost of transitioning server capacity to Azure cloud and storing and accessing data on Azure cloud.

Cloud migration components

i. Pro services for planning, initial migration, building skill sets in SOA workforce (**no cost** - $1.4M in T&M credits with Microsoft Consulting Service)
ii. Circuit costs (sample pricing below for redundant circuits to include licensing). Actual rates will be determined by migration strategy and sequencing decisions that are yet to be determined.
    1. 500 Mbps Metered $20,690/mo + $25/TB outbound from the cloud environment.
    2. 500 Mbps Unlimited $22,750/mo
iii. Employee Training (32 classes provided by Microsoft at **no cost**)
iv. Labor for migration/retooling servers to be performed by existing State of Alaska (SOA) employees with appropriate skill sets (94% of servers are cloud ready per assessment)

Cloud operating components

i. Azure assessment study projected workloads, $6M-$9M/yr
ii. Circuit costs. See sample Express route pricing in 5.a.ii.
iii. Ongoing labor performed by existing SOA employees. (labor not included in Azure assessment for either existing or projected workloads)

3. Please share the contract DOA has agreed to with Microsoft for transition to the Azure cloud. (See Attached)

i. Digital Alliance MOU (non-binding, no cost agreement)
ii. Microsoft Enterprise Agreement (not fully executed as of 3.3.2020)

iii. Microsoft Consulting Services Agreement (no cost for services)

4. Has DOA calculated the cost of transitioning out of the Azure cloud, either to another cloud-based provider, or back to on-prem storage, in the event Microsoft raises its prices to an unacceptable level, provides inadequate services, or otherwise fails to meet the state's need.

Cloud exit/transition cost components (actual costs depend on nature and volume of environment moved)

- Any unused Azure commit costs (study estimates $6M-$9M/yr run rate)
- If move to AWS (or other cloud provider)
  - Professional services to setup AWS environment
  - Dedicated circuits to AWS
  - $25/TB download from Azure
- If move back on premise
  - Capitol hardware procurement if moving back on premise
  - No data export costs if on unlimited circuits
  - $25/TB if on metered circuit
- Cloud exit/transition cost controls
  - Server & storage tools (VMWare & NetApp) that are cloud agnostic to aid with seamless multi-cloud/hybrid-cloud capabilities. These tools are current elements in our architecture and will provide a cost-effective exit strategy by allowing us to replicate our data in a different cloud environment.
  - Azure assessment includes data circuit estimates. Will use most cost-effective circuits (metered or unmetered)

5. Please share any relevant records of cloud service offers/discussion of services with Google, Amazon, or any other companies that DOA considered as it prepared to transition to cloud-based services.

The NASPO (National Association of State Procurement Officials) Value Point cloud solution was a nationally competed contract and runs from September 2016 to September 2026. The RFP for the Master Agreement was advertised by NASPO, and the State of Alaska's procurement portal (Online Public Notices). The RFP generated nationwide interest and proposals from 58 offerors. The RFP also includes a 2-year refresh and recompete clause to allow additional vendors to qualify and become part of the nationwide cloud solution provider network. Through the re-compete process, there are currently 62 vendors (authorized resellers) on contract to provide cloud solution services for States and public agencies.

Microsoft Azure is the most suitable cloud environment based upon the current composition of the State of Alaska IT environment based on the servers in use, existing Microsoft O365 cloud infrastructure, workforce cloud maturity needs and existing licensing.