

Exhibit A - REVISED Extension #1 (to 4/30/2022)

IUC Data Center/Virtualization RFP Response Analysis

In order to compare the various vendor RFP responses in a meaningful way for both physical and virtual datacenter options the following set of “typical” configurations (based on granulated real-world data and observations) and physical/temporal assumptions have been used to calculate per-rack costs:

Calculation Basis Assumptions

- Typical Rack Footprint = 9 SQFT
- Hours Per Typical Month = 720
- In cases where respondents are not providing racks or PDUs for full rack configurations, a typical Rittal TS-8 42U rack (\$1535.00) and two Rittal 9970750 208V/30A PDUs (\$475.00 ea.) are included in the first year non-recurring costs
- In cases where respondents are not providing racks or PDUs for half rack configurations, a typical Rittal TS-8 24U rack (\$1430.00) and two APC AP7802 120V/30A PDUs (\$642.00 ea.) are included in the first year non-recurring costs
- In cases where respondents have not provided non-recurring installation costs for 208V/30A/3-Phase power, a scaling factor of 200% of 208V/20A is used to estimate costs – this factor was determined as a reasonable average of costs provided by the other respondents
- In cases where respondents have not provided monthly recurring costs for 208V/30A/3-Phase power, a scaling factor of 70% of 208V/30A kW/h is used to estimate costs – this factor was determined as a reasonable average of costs provided by the other respondents
- In cases where respondents have not provided a full set of installation or facility related non-recurring costs, a total value of \$500.00 (less any actually defined costs) is used to estimate costs – this value was determined as a reasonable average of costs provided by the other respondents
- In cases where respondents have not provided pricing for half rack (24U) options, a scaling factor of 60% of the full rack costs for non-power or facility related MRC/NRC is used to estimate costs – this value was determined as a reasonable average of costs provided by the other respondents
- In cases where respondents have not provided non-recurring costs for OARnet connectivity to the first rack or virtual infrastructure, \$150.00 is used to estimate costs – this value was determined as a reasonable average of costs provided by the other respondents
- In cases where respondents have not provided monthly recurring costs for OARnet connectivity to the first rack or virtual infrastructure, \$90.00 is used to estimate costs - this value was determined as a reasonable average of costs provided by the other respondents

Typical Fully Populated 42U Server Rack

- A combination of 2U and 4U Dell/Sun servers
- 208 V/30 A A/B power feeds
- Dual power supplies with one on each A/B feed
- Balanced for less than 30 A total load to allow full function in event of loss of either A or B feed
- Typical average load measured at 26 A (total across both feeds) - scaled to 5.4 kW/h for entire rack

Typical Fully Populated 24U Server Rack

- A combination of 2U Dell/Sun servers
- 120 V/30 A A/B power feeds
- Dual power supplies with one on each A/B feed
- Balanced for less than 30 A total load to allow full function in event of loss of either A or B feed
- Typical average load measured at 24 A (total across both feeds) - scaled to 3.1 kW/h for entire rack

Typical Fully Populated 42U Storage Rack

- Aggregation of typical draw of EMC/Compellent storage processors and disk trays
- 208 V/30 A A/B power feeds
- Dual power supplies with one on each A/B feed
- Balanced for less than 30 A total load to allow full function in event of loss of either A or B feed
- Typical average load measured at 22 A (total across both feeds) - scaled to 4.6 kW/h for entire rack

Typical 42U Server Rack with Blade Enclosure

- A combination of up to 30U of 2U and 4U Dell/Sun servers, plus one fully loaded Dell M1000e Blade Enclosure
- 208 V/30 A/3-Phase A/B feeds for M1000e plus 208 V/30 A A/B power feeds for remaining systems
- Dual power supplies with one on each A/B feed
- Balanced for less than 30 A total load to allow full function in event of loss of either A or B feed
- Non-blade systems typical average load measured at 16 A (total across both feeds) - scaled to 3.3 kW/h for entire rack
- Blade Enclosure typical average load measured at 14 A (total across both feeds and all phases) - scaled to 4.5 kW/h for entire rack
- Total power estimate scaled to 7.8 kW/h combined

Typical Small Virtual Server

- 2 CPU
- 2 GB RAM
- 40 GB Tier-1 Storage

Typical Medium Virtual Server

- 2 CPU
- 4 GB RAM
- 80 GB Tier-1 Storage

Typical Large Virtual Server

- 2 CPU
- 8 GB RAM
- 120 GB Tier-1 Storage

Executive Summary of Costs

The following data reflects the calculated costs for a single instance of each physical and virtual configuration identified above and includes the cost of a single copper OARnet feed to the rack (which may be shared with subsequent racks) or OARnet presence availability within the virtual services infrastructure.

CBTS

These prices for physical do not include the purchase price of a cabinet or power strips in the cabinet. We will allow customers to bring their own cabinets upon approval by the data center manager. The OARnet fee reflects the on-net Cincinnati data center. OARnet negotiated \$50 cross connect per month for all OARnet clients.

Extra Large Virtual Server

- 4 CPU
- 16 GB RAM
- 300 GB Tier-1 Storage
- Monitoring, Management and Patching included

Jumbo Virtual Server

- 4 CPU
- 32 GB RAM
- 500 GB Tier-1 Storage
- Monitoring, Management and Patching included

	OPTION	FIRST YEAR TOTAL	SUBSEQUENT YEAR COST	THREE YEAR TOTAL	FIVE YEAR TOTAL
PHYSICAL	Typical Server Rack	\$17,005.88	\$15,176.47	\$47,358.82	\$77,711.76
	Typical Storage Rack	\$17,005.88	\$15,176.47	\$47,358.82	\$77,711.76
	Typical Blade Rack	\$34,711.43	\$31,697.14	\$98,105.71	\$161,500.00
	Typical Half Rack	\$12,714.29	\$11,057.14	\$34,828.57	\$56,942.86
VIRTUAL	Small Virtual Machine	\$1,473.60	\$1,473.60	\$4,420.80	\$7,368.00
	Medium Virtual Machine	\$1,843.20	\$1,843.30	\$5,529.60	\$9,216.00
	Large Virtual Machine	\$2,524.80	\$2,524.80	\$7,574.40	\$12,624.00
	Extra Large Virtual Machine	\$5,191.20	\$5,191.20	\$15,573.60	\$25,956.00
	Jumbo Virtual Machine	\$8,640.00	\$8,640.00	\$25,920.00	\$43,200.00
Single OARnet feed (required by all above)		\$850.00	\$600.00	\$2,050.00	\$3,250.00

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	OPTION	MRC – Storage Cost
STaaS	Storage as a Service*	.13/GB

* Storage can be added to any Virtual Machine for listed price per GB.

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	OPTION	MRC - License Cost	MRC - Storage Cost
BaaS	Virtual Server Backup*	\$10 / Virtual Machine	.06/GB

* Backup MRC pricing includes licensing and price per GB for backed up data.

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	OPTION	MRC - Storage Cost	Install/Setup per Virtual Machine	Replica Virtual Machine MRC	Recovered Virtual Machine*
DRaaS	Virtual Server Backup**	.06/GB	\$175	\$110	Published VM Rates

* Recovered Virtual Machine pricing is only applicable during a failover test or actual declaration of Disaster as Virtual Machines are recovered and is charged on a daily rate.

** MRC includes Licensing, Virtual Machine Replica and price per GB of replicated data.

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	OPTION	FIRST YEAR TOTAL	SUBSEQUENT YEAR COST	THREE YEAR TOTAL	FIVE YEAR TOTAL
PHYSICAL	Typical Server Rack	\$19,070.00	\$16,320.00	\$51,710.00	\$84,350.00
	Typical Storage Rack	\$19,070.00	\$16,284.00	\$51,638.00	\$84,206.00
	Typical Blade Rack	\$33,362.00	\$27,612.00	\$88,586.00	143,810.00
	Typical Half Rack *	\$12,974.00	\$10,974.00	\$34,922.00	\$56,870.00
VIRTUAL	Small Virtual Machine	N/A	N/A	N/A	N/A
	Medium Virtual Machine	N/A	N/A	N/A	N/A
	Large Virtual Machine	N/A	N/A	N/A	N/A
Single OARNet feed (required by all above)		\$3,250.00	\$3,000.00	\$9,250.00	\$15,250.00

Expedient

	OPTION	FIRST YEAR TOTAL	SUBSEQUENT YEAR COST	THREE YEAR TOTAL	FIVE YEAR TOTAL
PHYSICAL	Typical Server Rack	\$9,400.00	\$8,400.00	\$26,200.00	\$43,000.00
	Typical Storage Rack	\$9,400.00	\$8,400.00	\$26,200.00	\$43,000.00
	Typical Blade Rack	\$24,200.00	\$23,000.00	\$70,200.00	\$116,200.00
	Typical Half Rack	\$5,500.00	\$4,900.00	\$15,300.00	\$25,100.00
VIRTUAL	Small Virtual Machine*	\$1,014.00	\$936.00	\$2,886.00	\$4,758.00
	Medium Virtual Machine*	\$1,092.00	\$1,008.00	\$3,108.00	\$5,124.00
	Large Virtual Machine	\$1,260.00	\$1,080.00	\$3,420.00	\$5,580.00
STaaS	Storage as a Service	\$0.08/GB/month			
BaaS	Managed Backup as a Service	\$0.10/GB/month			
DRaaS	See Expedient for proposal				
Single OARNet feed		\$650.00	\$600.00	\$1,850.00	\$3,050.00

All services above are available at Expedient locations in Upper Arlington, Dublin or Garfield Heights

Physical

42U or 48U APC Cabinets and APC PDUs, fully redundant A/B power, whips, breakers included
 All cabinet, PDU, and installation costs included above
 All colocation services are offered with a 100%uptime SLA

Virtual

All VMs are offered with a 100% uptime SLA and 0% oversubscription

VMs are all SSD flash storage

All install fees included above

*= 1:4 CPU/RAM ratio