

Server Hosting (EA Infrastructure) Availability Descriptions

(as provided in your EA Assessment)

These offerings have been documented in your Architectural Assessment and have been discussed during the business requirements gathering sessions.

Option A (No DR, our standard offering that includes physical & virtual components in design)

RPO = 24 Hours

RTO = 24 Hours – 3 Weeks during normal business hours. *see note

Infrastructure Uptime = 90.0% - 95.0% w/o redundant equipment

Disaster Recovery = N/A, one data center location

Option B (No DR, our standard offering that is 100% Virtual in design)

RPO = 24 Hours

RTO = 24-48 Hours during normal business hours. *see note

Infrastructure Uptime = 99.95%

Disaster Recovery = N/A, one location

Option C (Cold DR, 100% Virtual)

RPO = 24 Hours

RTO = 24-48 Hours

Infrastructure Uptime = 99.95%

Disaster Recovery = Secondary location (Cold)

Option D (Hot DR, 100% Virtual)

RPO = 1 Hours

RTO = 4 Hours

Infrastructure Uptime = 99.99%

Disaster Recovery = Secondary location (Hot)

***Note:** Major incident at Data Center might take up to 1-3 weeks to stand up another system.

Recovery Point Objective (RPO)

RPO determines the maximum acceptable amount of data loss to a system/application measured in time, typically hours. For example, if the RPO is set to 1 hour, then the business expectation is that the system will never lose more than 1 hour of data. If the RPO is 24 hours, then the business expectation is the system will never lose more than 24 hours of data. The lower the RPO, the higher the cost as the technology required to meet lower RPO's is more complex and costly. The majority of systems in the State of Vermont have RPO's of 24 hours. In the event of an unrecoverable system failure, data may be lost from the point of failure up to the RPO number.

Recovery Time Objective (RTO)

RTO determines the maximum acceptable amount of time required to restore a system/application to its operational state after an unforeseen event measured in time, typically hours/weeks. RTO is the maximum desired length of time allowed between an unexpected failure or disaster and the resumption of normal operations and service levels. For example, if the RTO is set to 1 hour, then the business expectation is that the system will be restored within 1 hour. If the RTO is 24 hours, then the business expectation is that the system will be restored within 24 hours. The lower the RTO, the higher the cost as the technology required to meet lower RTO's is more complex and costly. The majority of systems in the State of Vermont have RTO's of 24 hours to 3 weeks.

Disaster Recovery (DR) Site

In situations where the business has determined that uptime is critical and RPO & RTO's must be kept to a minimum, a secondary or DR site might be necessary. If problems arise at the primary data center, (i.e. power outage, fire, flood, network downtime, etc.) this redundant site must have standby hardware, software, data and connectivity that will allow the system to fail over to the DR site. In these cases, typically redundant hardware, software licenses and technical staff are required which increase the cost. DR capabilities can be either "Hot" or "Cold". Hot DR capabilities refer to an "active" copy of a production system existing at the DR facility while a Cold DR capability means there is guaranteed capacity in the DR site for the production system to be installed. Cold DR solutions typically reduce the need to additional application software licenses.

High Availability Requirements (System Uptime)

High availability takes into account how much unscheduled downtime the system can truly afford, due to unforeseen or emergency datacenter disruptions. Careful consideration must be taken when choosing the desired availability requirements versus the actual needs of the system. The cost difference between a system requiring 90% versus 99.9% availability may increase overall system cost by over 200% due to resources needed in order to realistically meet that demand. Planned downtime and maintenance should not be counted toward the high availability requirements but may be a factor in requiring an HA system.

Availability %	Downtime per year	Downtime per month	Downtime per week
90%	36.5 days	72 hours	16.8 hours
95%	18.25 days	36 hours	8.4 hours
99.0%	3.65 days	7.20 hours	1.68 hours
99.5%	1.83 days	3.60 hours	50.4 minutes
99.9%	8.76 hours	43.2 minutes	10.1 minutes
99.95%	4.38 hours	21.56 minutes	5.04 minutes
99.99%	52.56 minutes	4.32 minutes	1.01 minutes