

Tier I vs Tier III Datacenter

Our current Tier I datacenter incurs 10 outages annually costing \$25,670,304. Investing in a Tier III datacenter will provide 3 year total benefits of \$48,229,056 when compared to running our current Tier I. This is achieved through the Tier III datacenter's redundant components increasing uptime by .31%. More uptime allows the firm to save significant amounts of money annually and net over a 3 year period.

Our Tier I datacenter suffers from several costly problems that are addressed with the upgraded Tier III facility. According to Vincent E. Renaud, John H. Seader, and W. Pitt Turner, IV authors from the Uptime Institute elaborate that Tier I facilities have “non-redundant capacity components and a single, non-redundant distribution path serving the critical environment” (Renaud, 2012). Furthermore, they state “planned work will require most or all of the site infrastructure to be shut down affecting critical environment, systems, and end users” (Renaud, 2012). This lack of redundancy accounts for .33% loss of uptime whereas a Tier III has .02% loss. Rishika Gupta of Rack Bank claims “all the most important equipment, such as servers, telecommunication and networking devices are dual powered to conquer uncertain causes” (Gupta, 2016). Having dual powered equipment allows for simultaneous switching in the event of component failure or updating the system.

In the past year we have experienced 10 outages costing \$14,800 per minute, for roughly 1735 minutes, totaling \$25,670,304. The Tier III datacenters construction costs are 35 million; with a payback period of 16 months. The new datacenter provides annual savings of \$24,114,528, with 3 year total benefits of \$48,229,056. Net savings for the firm are \$13,229,056 over 3 years with a ROI of 37.80%.

Table 1.1 - 3 Year Forecast

	Minutes/Year	Availability	Downtime Minutes/Year	Downtime Cost
Tier I	525,600	99.67%	1735	\$25,670,304
Tier III	525,600	99.98%	106	\$1,555,776
Benefits				\$24,114,528

	Year 1	Year 2	Year 3	Totals
Cost	\$35,000,000	\$0	\$0	\$35,000,000
Benefit	\$0	\$24,114,528	\$24,114,528	\$48,229,056
3 Year Net Benefit				\$13,229,056
3 Year Return on Investment				37.80%
Payback Period				≈ 16 Months

References

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- Renaud, V. E., Seader, J. H., & Turner, W. P., IV. (2012). Data Center Site Infrastructure Tier Standard: Topology. *Uptime Institute, LLC*.