

Our company's Tier I data center is costing us \$25.6mm in downtime per year. A Tier III center reduces downtime by using multiple distribution paths and redundant capacity components, leading to steep cost savings. Upgrading to a Tier III center will return a net benefit of \$13.2mm to our company in only three years.

Fewer unscheduled outages and the opportunity for concurrent maintenance elevate a Tier III Center's uptime above that of a Tier I Center. Redundant critical power and cooling components used beside multiple distribution paths limit system downtime. Components such as UPS modules, fuel tanks, heat rejection equipment and chillers decrease the Tier III center's chances of system failure. These devices limit technological disruptions, increasing the data center's margin of safety. Also, a Tier III center uses multiple independent distribution paths to serve the needs of its critical path. Redundant power and cooling delivery systems operate alongside the redundant critical pathway. Planned maintenance may be performed on any system component without requiring data center shutdown. The increased availability provided by a Tier III's redundant capabilities and multiple pathways bring a Tier III center's average availability per year (99.98%) above than that of our current Tier I Center (99.67%).

Our company is losing over \$25.7mm per year using a Tier I system, due to the system's 1734 minutes of downtime per year at a cost of \$14,800 cost per minute. Switching to a Tier III Center, our company will only lose \$1.6mm a year in downtime, as downtime minutes per year will drop to 105. Using a Tier III center, our company will net a benefit of \$24.1mm each year, the difference between the yearly cost of a Tier I center (\$25.7mm) and a Tier III center (\$1.6mm). After an upfront investment of \$35mm, our Tier III center will result in a net benefit of \$13.2mm at the end of three years.

**Appendix A**

<b>Estimated Downtime Cost</b>	Tier I	Tier III		
Downtime per year	99.67%	99.98%		Tier III Upfront
Minutes in a year	525600	525600		\$35,000,000
<b>Downtime minutes a year</b>	1734.48	105.12		
Downtime Cost per min.	\$14,800.00	\$14,800.00		
<b>Yearly Total Downtime Cost</b>	<b>\$25,670,304.00</b>	<b>\$1,555,776.00</b>		
<b>Total Cost</b>	Year 1	Year 2	Year 3	<b>Total</b>
Tier I	\$25,670,304.00	\$25,670,304.00	\$25,670,304.00	\$77,010,912.00
Tier III	\$60,670,304.00	\$1,555,776.00	\$1,555,776.00	\$63,781,856.00
				<b>Savings</b>
				\$13,229,056.00

## **Bibliography**

1. *Explain: Tier 1 / Tier 2 / Tier 3 / Tier 4 Data Center*. NixCraft, 7 June 2008. Web. 08 Sept. 2015
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3. *Uptime Institute EJournal*. Uptime Institute, 30 Sept. 2014. Web. 07 Sept. 2015.