Kim Eastlake
Flash Research Paper 1
Data Centers and Networking

By upgrading our datacenter from "Tier I" to "Tier III" we can save $13,229,056. Last year alone, we experienced 10 outages to our ERP system caused by inadequacies in our datacenter. Outages, or downtime, results in business interruption which costs our organization $14,800 a minute. The capabilities of a Tier III datacenter can increase availability and reduce unplanned system downtime. This upgrade can save our organization in downtime costs and increase our data center control.

A Tier III datacenter has redundancy components and multiple distribution paths to keep our ERP system running without affecting the critical environment in the event of maintenance or repair. Decreased datacenter interruptions can save our organization 1629.36 minutes of downtime per year and increase our availability from 99.67% to 99.98%. In addition, the multiple pathways allow for 72 hours of power supply in the event of an outage and contain advanced cooling systems. The capabilities of a Tier III datacenter can improve the functionality of our ERP system and the integrity of our data.

Presently, our organization loses $25,670,304 per year due to datacenter downtime costs. If we implement the Tier III datacenter, which takes one year to build, our annual downtime costs would decrease by $24,114,528. After a total investment of $35,000,000 incurred in year one, we will realize a total benefit of $48,229,056 and a three year net benefit of $13,229,056. This is a worthy investment for the growth of our company to increase profitability and data center productivity.

Works Cited

"Costs and Scope of Unplanned Outages." *Stemming from Poor Change and Configuration Management*.

Evolven, 2014. Web. 17 Feb. 2015. <http://www.evolven.com/blog/costs-and-scope-of-

unplanned-outages.html>.

"Explain: Tier 1 / Tier 2 / Tier 3 / Tier 4 Data Center." *Linux Unix Tutorial for Beginners and Advanced

Users NixCraft RSS*. Nixcraft, 29 Jan. 2011. Web. 26 Jan. 2015.

<http://www.cyberciti.biz/faq/data-center-standard-overview/>.

"Mitigate Risk for Data Center Network Migration." *Cisco Data Center*. Cisco, 2014. Web. 26 Jan. 2015.

<http://www.cisco.com/web/solutions/data_center/udc/dc-offers/files/migration-solution-

brief.pdf>.

Seader, John H., Vincent E. Renaud, and W. Pitt Turner. "Data Center Site Infrastructure Tier Standard:

Topology." *Uptime Institutue, LLC* (2012): n. pag. *Uptime Institutue, LLC*. Web. 26 Jan. 2015.

<http://community.mis.temple.edu/mis2501sec001s15/files/2015/01/Data-Center-Site-

Infrastructure-Tier-Standar-Topology.pdf>.

| | Minutes/Year | Availability | Downtime (min/year) | | Downtime cost |
|---|---|---|---|---|---|
| Tier I | 525,600 | 99.67% | | 1734.48 | $25,670,304 |
| Tier II | 525,600 | 99.98% | | 105.12 | $1,555,776 |
| | | | Savings | | $24,114,528 |
| | Year 1 | Year 2 | Year 3 | | Total |
| 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 |

| Yearly Cost Metrics | Best-in-Class | Industry Average | Laggards |
|---|---|---|---|
| Business interruption events | .9 | 3 | 3.5 |
| Time per business interruption event (hours) | 1.3 | 4.7 | 8.4 |
| Total disruption (hours) | 1.2 | 14.1 | 29.4 |
| Average cost per hour of disruption | $60,000 | $110,000 | $98,000 |
| Total cost of business interruption events | $72,000 | $1,550,000 | $2,880,000 |

Source: Aberdeen Group, Month 2010

## Average cost of unplanned data center outages for nine categories
Computed from 41 benchmarked data centers

| Category | Cost |
|---|---|
| Business disruption | $179,827 |
| Lost revenue | $118,080 |
| End-user productivity | $96,226 |
| IT productivity | $42,530 |
| Detection | $22,347 |
| Recovery | $20,884 |
| Ex-post activities | $9,537 |
| Equipment costs | $9,063 |
| Third parties | $7,008 |

| | Minimum | Median | Mean | Maximum |
|---|---|---|---|---|
| | $573 | $5,188 | $5,617 | $11,086 |

Pie chart:
- 15%
- 39%
- 30%
- 9%
- 2%
- 1%
- 4%

Legend:
- Less than 99%
- 99% (87.66 hours of annual unplanned downtime)
- 99.9% (8.76 hours of annual unplanned downtime
- 99.99% (52 minutes of annual unplanned downtime)
- 99.999% (5.25 minutes of annual unplanned downtime)
- >99.999%