Yinping Hu
Data Center & Networking

Dear Sir or Madam,

Our existing Tier I data center is costing us $25.7 million per year in unexpected downtime losses. A Tier III data center will be the solution because it has redundant capacities that serve as backup in the event of component failures and enable planned maintenance without disrupting normal operations. This investment will reduce our annual downtime cost to $1.56 million and generate a net benefit of $13 million over the course of three years.

A Tier III data center has multiple distribution paths for power and cooling, of which only one is active typically. The independent backup component provides up to 72 hours of fuel so that operations are continued during unexpected power outages. In the event of component failures, the redundant capacity secures system availability while repairs are assessed or performed. All hardware equipment installed are dual powered and compatible to the architecture, which allows planned maintenance on critical components without affecting operations. A Tier III data center also has engine generators that allow continuous operation and ensures a 99.98% uptime whereas a Tier I has constraints in the number of consecutive operation hours and has 99.67% uptime.

The 0.31% upgrade in data center availability translates to a reduction of more than one day of downtime, which is equivalent to an annual saving of $24 million assuming that downtime cost $14,800 per minute. This project will require $35,000,000 of investment initially but this cost will break even with the savings per year after only 1.5 years. Over the period of three years, the gross benefit will total to more than $48 million, or a net benefit of more than $13 million! This is equivalent to a 37.8% return on investment! For business and technological reasons, I urge you to upgrade our current IT infrastructure.

Sincerely,
Yinping Hu
CTA

(1). “Data Center Site Infrastructure Tier Standard: Topology.” *Uptime Institute, LLC* (2010). Web.
(2). Pitt Turner, W., IV, John H. Seader, Vince Renaud, and Kenneth G. Brill. “Tier Classification Define Site Infrastructure Performance.” *Uptime Institute LLC*, n.d. Web. 7 Sept. 2014.
(3). Colocation America. "Tier Standards Overview." *Colocation America*. N.p., n.d. Web. 07 Sept. 2014.

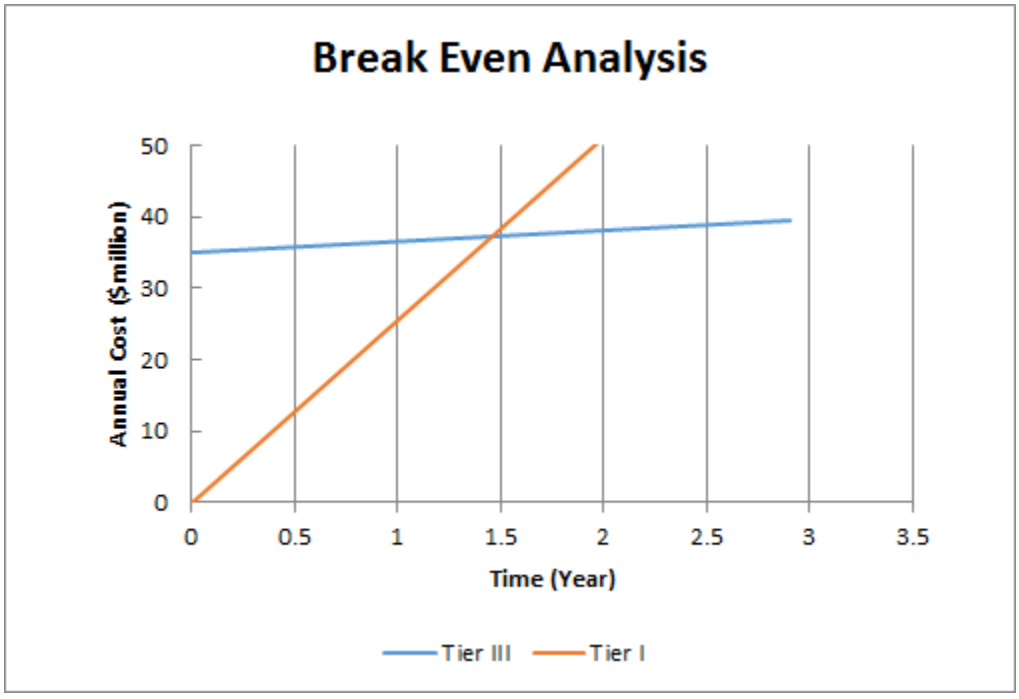
Appendix: Calculations

Annual Downtime Cost			
	Availability	Downtime (min)	Loss/Yr ($)
Tier I	99.67%	1734.48	$25,670,304.00
Tier III	99.98%	105.12	$1,555,776.00
Difference	0.31%	-1629.36	-$24,114,528.00
Min in a Yr	525600		
Downtime cost ($/Min)	$14,800.00		

3-Yr Cost/Benefit				
	Year 1	Year 2	Year 3	Total
Tier I	$25,670,304.00	$25,670,304.00	$25,670,304.00	$77,010,912.00
Tier III	$35,000,000.00	$1,555,776.00	$1,555,776.00	$38,111,552.00
Gross Benefit		$24,114,528.00	$24,114,528.00	$48,229,056.00
Net Benefit				$13,229,056.00

$$ROI = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

ROI = (48,229,056.00 - 35,000,000.00)/35,000,000.00 = **37.8%**



(1). “Data Center Site Infrastructure Tier Standard: Topology.” *Uptime Institute, LLC* (2010). Web.
(2). Pitt Turner, W., IV, John H. Seader, Vince Renaud, and Kenneth G. Brill. “Tier Classification Define Site Infrastructure Performance.” *Uptime Institute LLC*, n.d. Web. 7 Sept. 2014.
(3). Colocation America. "Tier Standards Overview." *Colocation America*. N.p., n.d. Web. 07 Sept. 2014.