In the past year, our company experienced almost twenty-nine hours of downtime at a total cost of nearly $26 million. This substantial loss is the result of the inadequacy of our current Tier I data center. By constructing a Tier III data center, which permits concurrent maintenance and has redundant power pathways, yearly downtime cost will be reduced to a mere 6.06% of its current value; in the second year following its construction, the new data center will pay for itself.

Several key features make a Tier III data center a worthwhile investment. By definition, a Tier III data center is concurrently maintainable, meaning that maintenance can be done on system components without resulting in downtime. Unlike a Tier I center, it has innately redundant power pathways that increase the center’s ability to resist costly disruptions in service. A Tier III data center would provide 99.98% uptime (about 1 hour and 45 minutes of downtime per year), which starkly contrasts a Tier I data center’s 99.67% uptime (more than a full day of downtime per year).

Each year, our company hemorrhages $25,670,304 in sunk cost as a result of crippling downtime. By making a one-time investment of $35 million, we can construct a far more reliable data center which will reduce annual downtime costs to $1,555,776 for years two and three. By the end of the third year, savings from years two and three ($48,229,056) will exceed the cost of constructing the new data center; this yields a three-year net benefit of $13,229,056.
Current Tier 1 Data Center
Yearly Uptime: 99.67%
Yearly Downtime: \((1 - 0.9967) \times 365 \times 24 = 28.908\) hours
Cost of Downtime: \(28.908 \times 60 \times 14,800 = 25,670,304\) per year

Proposed Tier III Data Center
Yearly Uptime: 99.98%
Yearly Downtime: \((1 - 0.9998) \times 365 \times 24 = 1.752\) hours
Cost of Downtime: \(1.752 \times 60 \times 14,800 = 1,555,776\) per year

Cost Comparison
Yearly Savings with Tier III Data Center: \(25,670,304 - 1,555,776 = 24,114,528\)
New Cost as a Percentage of Old Cost: \(1,555,776 / 25,670,304 = .0606 = 6.06\%\)

Recouping Construction Costs
Estimated Time and Cost of Construction: 1 year and $35,000,000
Total Costs, Year 1: $35,000,000 + 25,670,304 = $60,670,304
Total Cost, Year 2: $1,555,776
    Amount Saved, Year 2: $24,114,528
Total Cost, Year 3: $1,555,776
    Amount Saved, Year 3: $24,114,528

Three-Year Total Costs: $60,670,304 + (1,555,776 x 2) = $63,781,856
Three-Year Total Savings: $24,114,528 + 24,114,528 = $48,229,056
Three-Year Net Benefit: $13,229,056