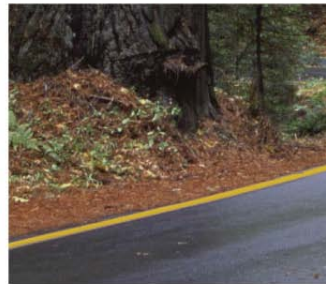


# Green Benefits of Computer Virtualization

Michael Howell

Senior Vice President of  
Technology



# Broadlane is a unique company, focusing on reducing healthcare providers costs. What makes us special?

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## ■ Price leadership

- High-quality National GPO portfolio driven by large, highly-committed anchor clients
- Aggressive and unique sourcing strategies
- Flexible custom contracting support for PPI (Producer Price Index)
- Continual market assessment and portfolio refreshment

## ■ Focus on all controllable expense areas AND all levers of cost

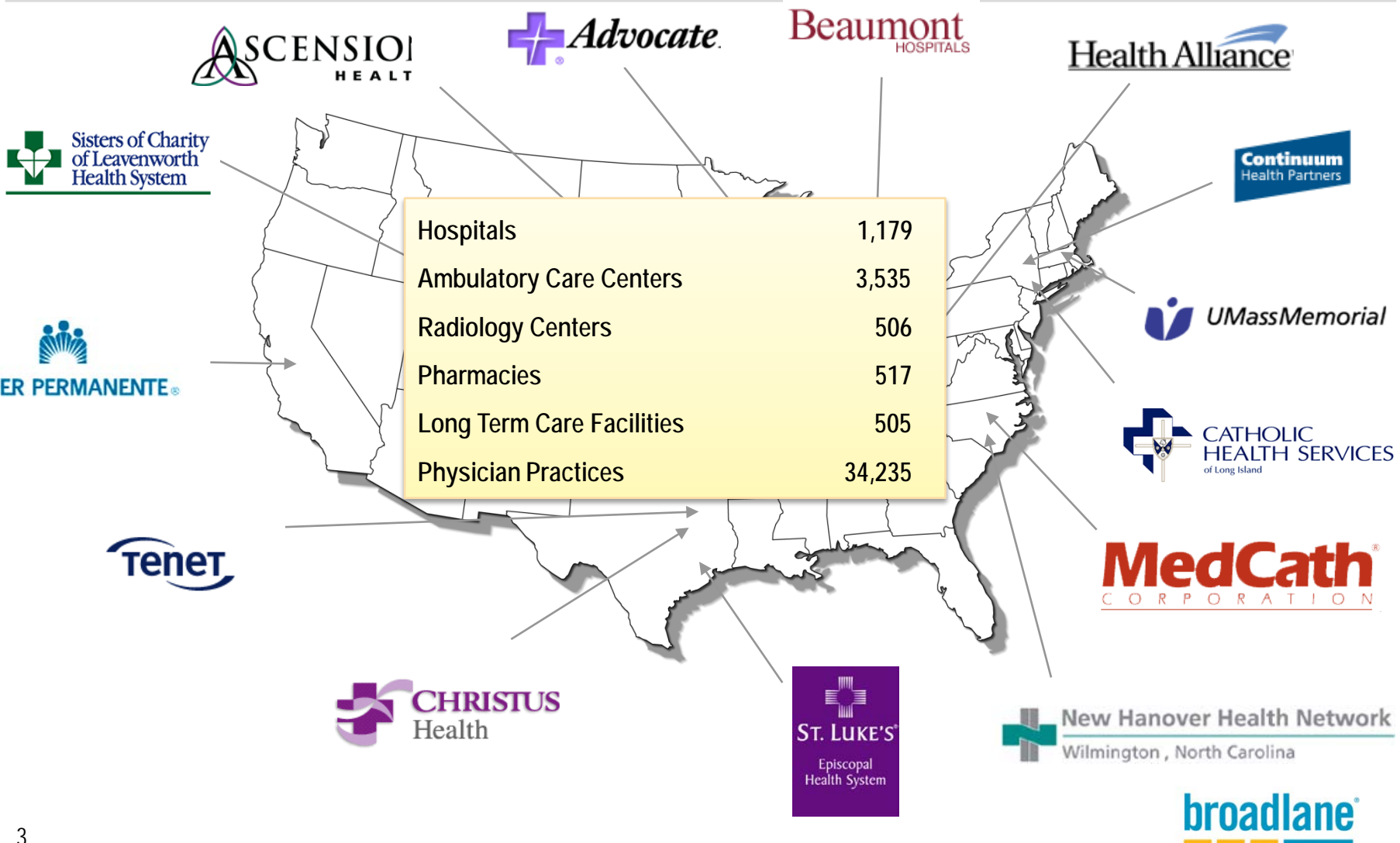
## ■ Comprehensive supply chain services, including outsourcing

- Contracting
- Pharmacy
- Capital Equipment
- Clinical Services
- Procurement

## ■ Innovative technology

## ■ Provider-aligned business model, based on performance

# Broadlane has developed and operates custom supply chain solutions for large, complex IDN clients



# Three aspects of Broadlane's Environmental Stewardship program represent our commitment to protect health and preserve the environment



Environmentally  
Responsible  
Contracting



Environmentally  
Preferable  
Purchasing

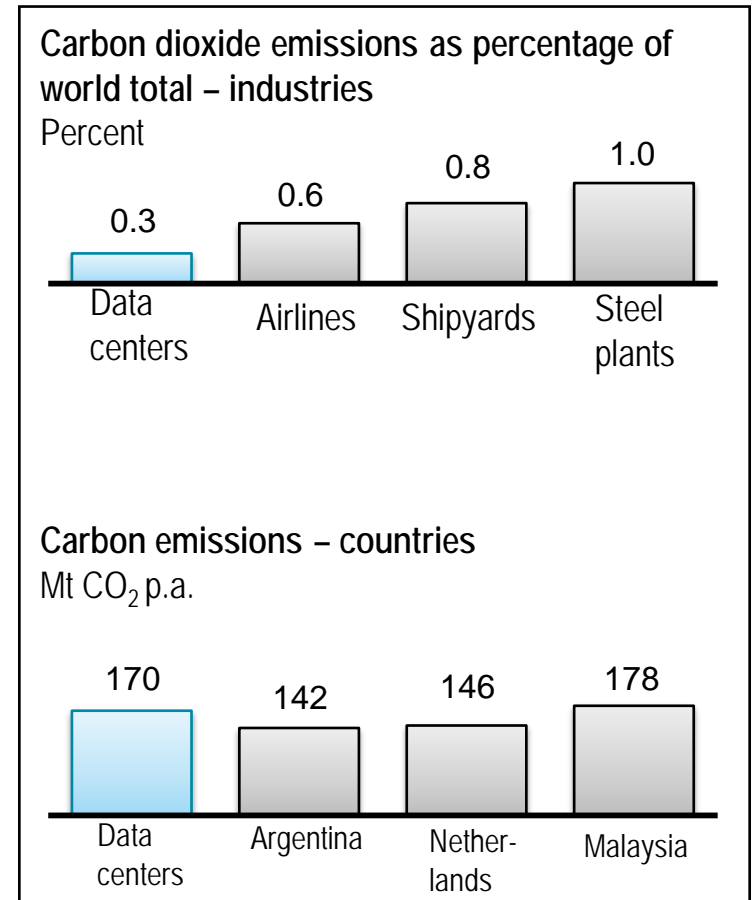


Environmental  
Sustainability

**Environmental Stewardship**

# Data centers are a big part of the greenhouse gas problem

- Data center electricity consumption is almost .5% of world production
- Average data center consumes energy equivalent to 25,000 households
- Worldwide energy consumption of DC doubled between 2000 and 2006
- Incremental US demand for data center energy between now and 2010 is equivalent of 10 new power plants
- 90% of companies running large data centers need to build more power and cooling in the next 30 months
- The world's data centers are projected to surpass the airline industry as a greenhouse gas polluter by 2020
- Data centers on average, run at 15% or less of capacity on average; Mainframes run on average at 80%



## Broadlane was increasing its data center footprint due to growth

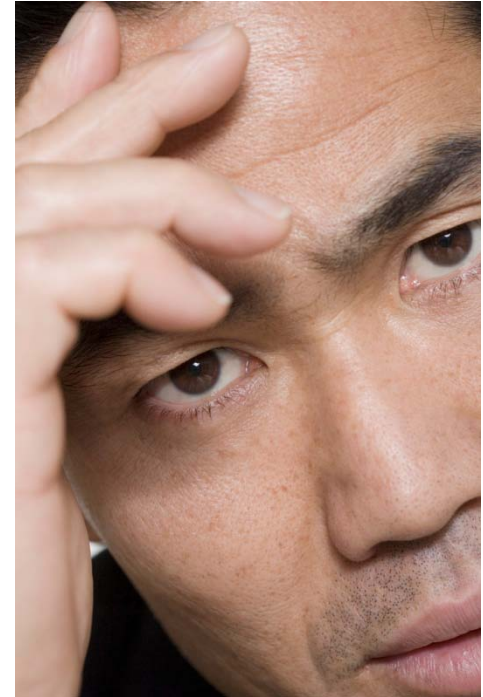
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- Our company doubled the number of employees in 2004
- Our server count increased 300% in a two year period
- We went from 4 enterprise systems to more than 25
- Our IT operations budget doubled in 2005
- Our data center partner's revenue was based upon physical assets
- Our in-house data centers were under powered and had insufficient cooling
- Our production servers were utilized less than 10%

## Something had to be done

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- Negotiated with previous vendor, but we had a long term contract in place and they only had one model
- Tried to scale back services, but the business would not slow down
- Tried multiple instances of software on servers, but reliability and management became an issue
- We began using virtualization in our test environments and were realizing major benefits for cooling and power
- Decided to move our entire production environment to a virtual platform at Terremark

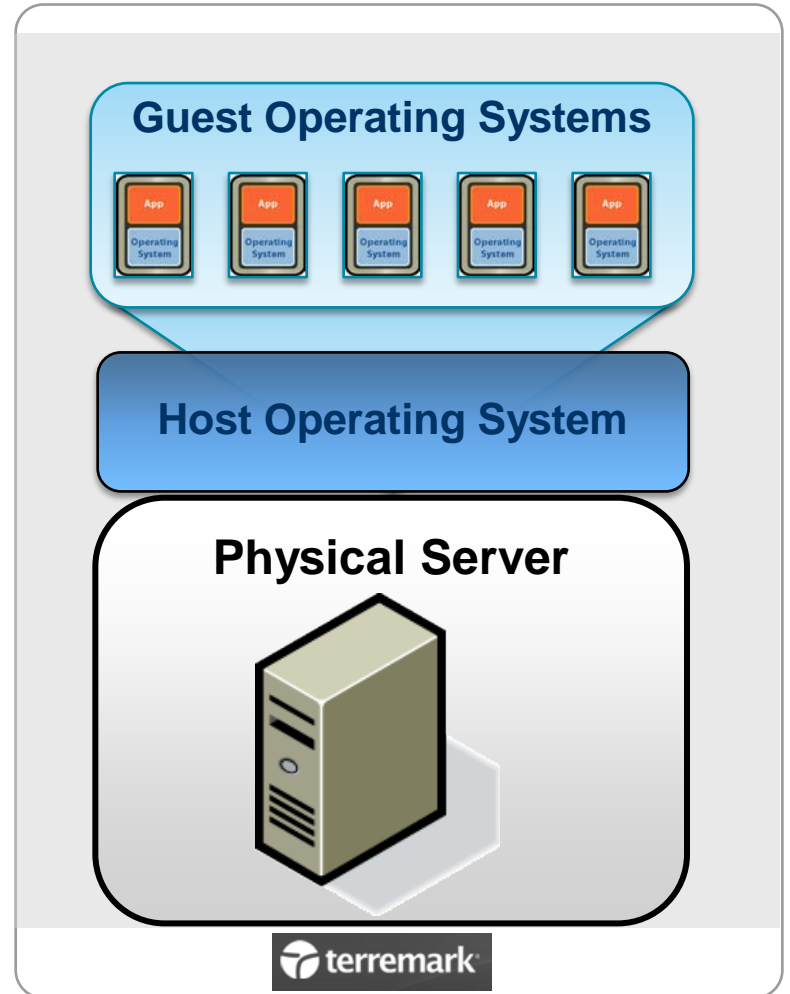


# What is virtualization?

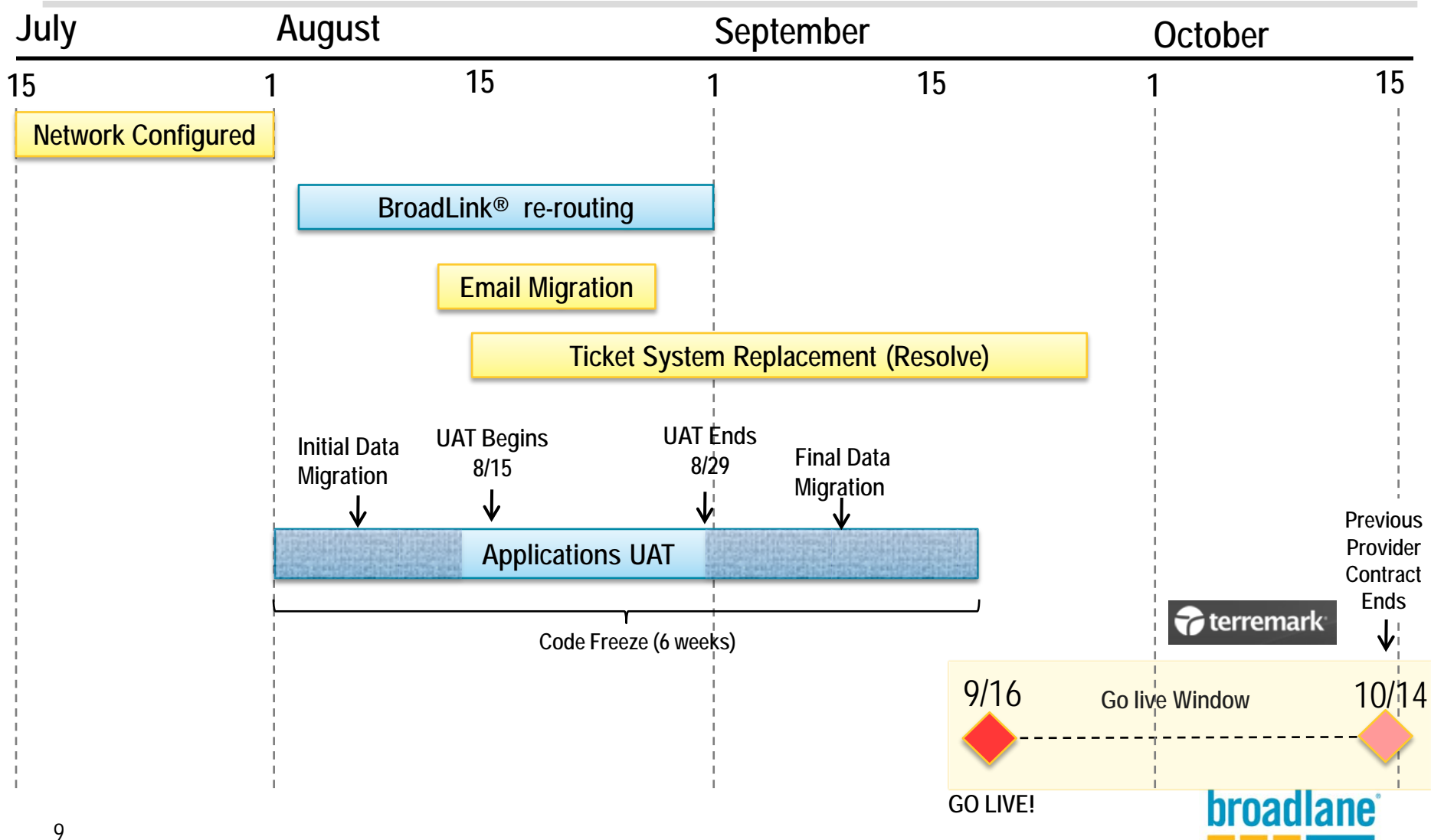
*Is a method by which a host operating system can run multiple guest operating systems with little to no customizations of the guest operating systems*

## Benefits

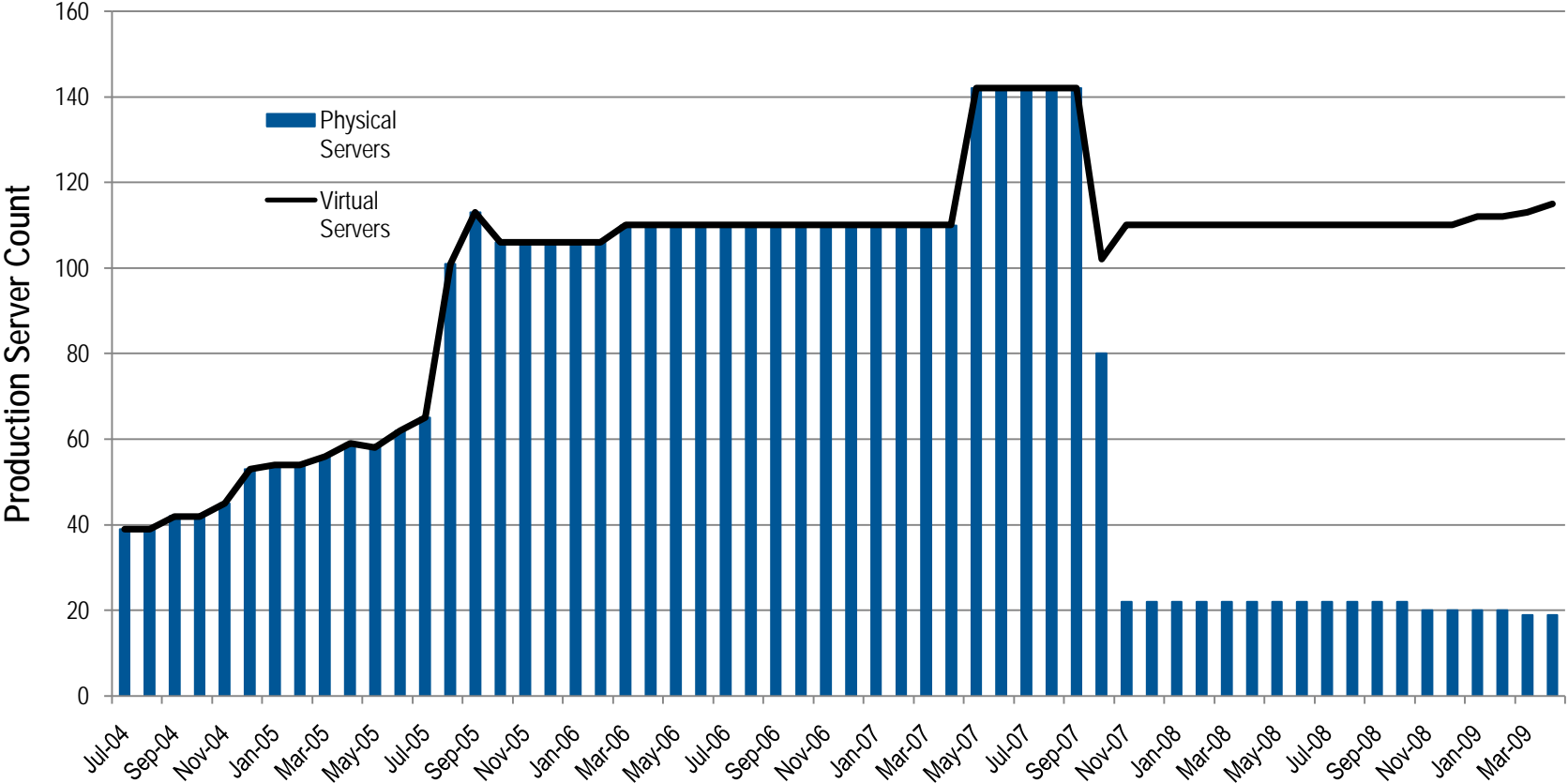
- Lower capital costs
- Lower operational costs
- Big resource savings (cooling, power)
- Easier management
- Facilitates easier Disaster Recovery
- Higher reliability
- Easier server migration



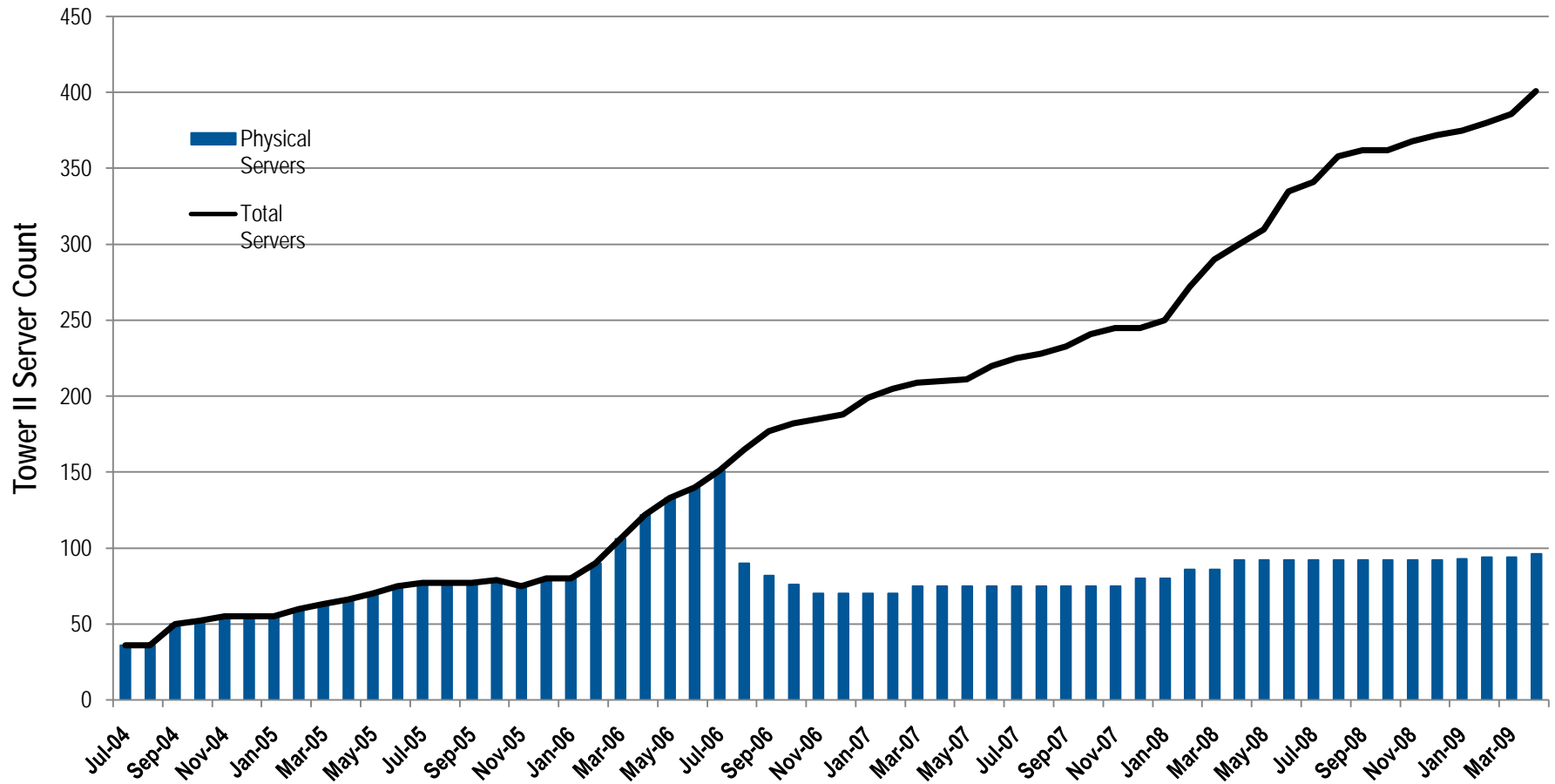
# Our planning began in May, while the actual migration took only three months



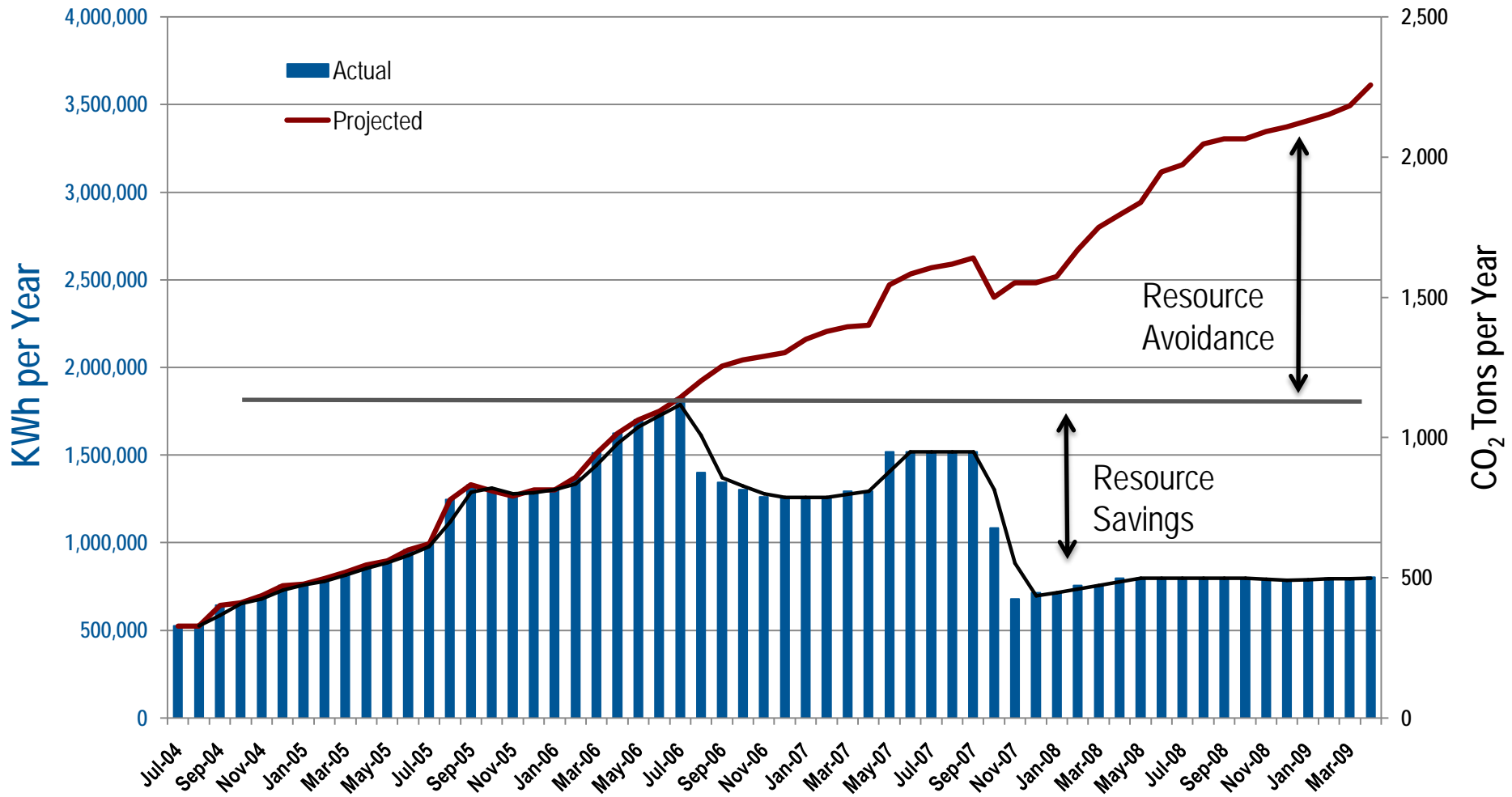
# We have realized a six to one consolidation ratio in our production environment



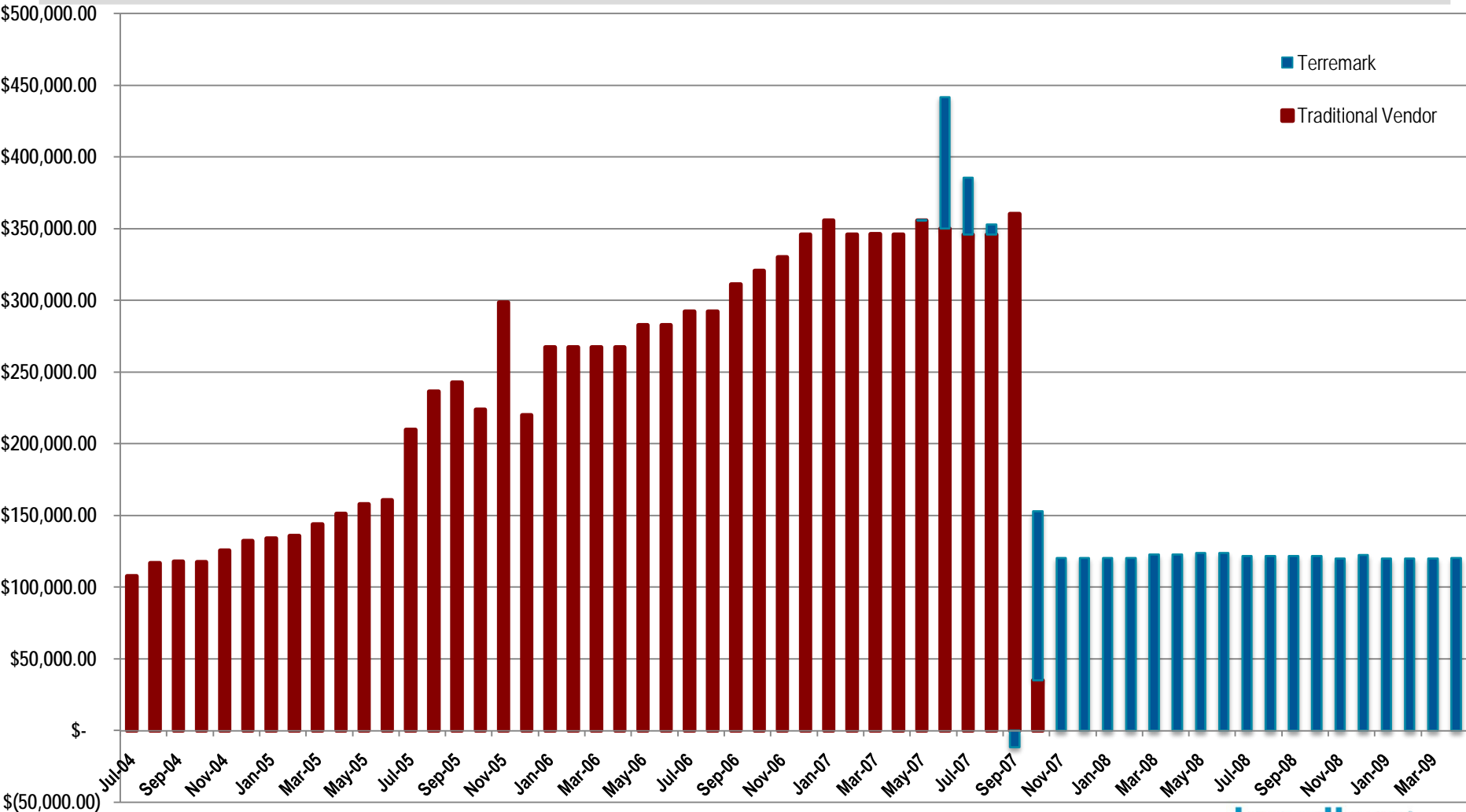
# We have realized a four to one consolidation in our corporate facilities avoiding 300 new server installs



# Together Broadlane is saving or avoiding over 2.5 MWh of power and 1,500k tons of CO<sub>2</sub> per year by adopting virtualization



# Virtualization allows you to save money as well. Broadlane has saved \$2.6 Million per year just in production hosting



## Any lessons from our virtualization strategy?

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- Profile each server carefully, the devil *is* in the details
- Check your vendor lists and make sure they support virtualization, you may need to upgrade to supported versions
- Check your software licensing
- Virtualizing servers is a good start, but more can be done with desktop virtualization and cloud computing
- Memory is the key constraint for host servers, so scale it as much as possible to achieve greater consolidation ratios
- Power management within the corporation can save additional resources