



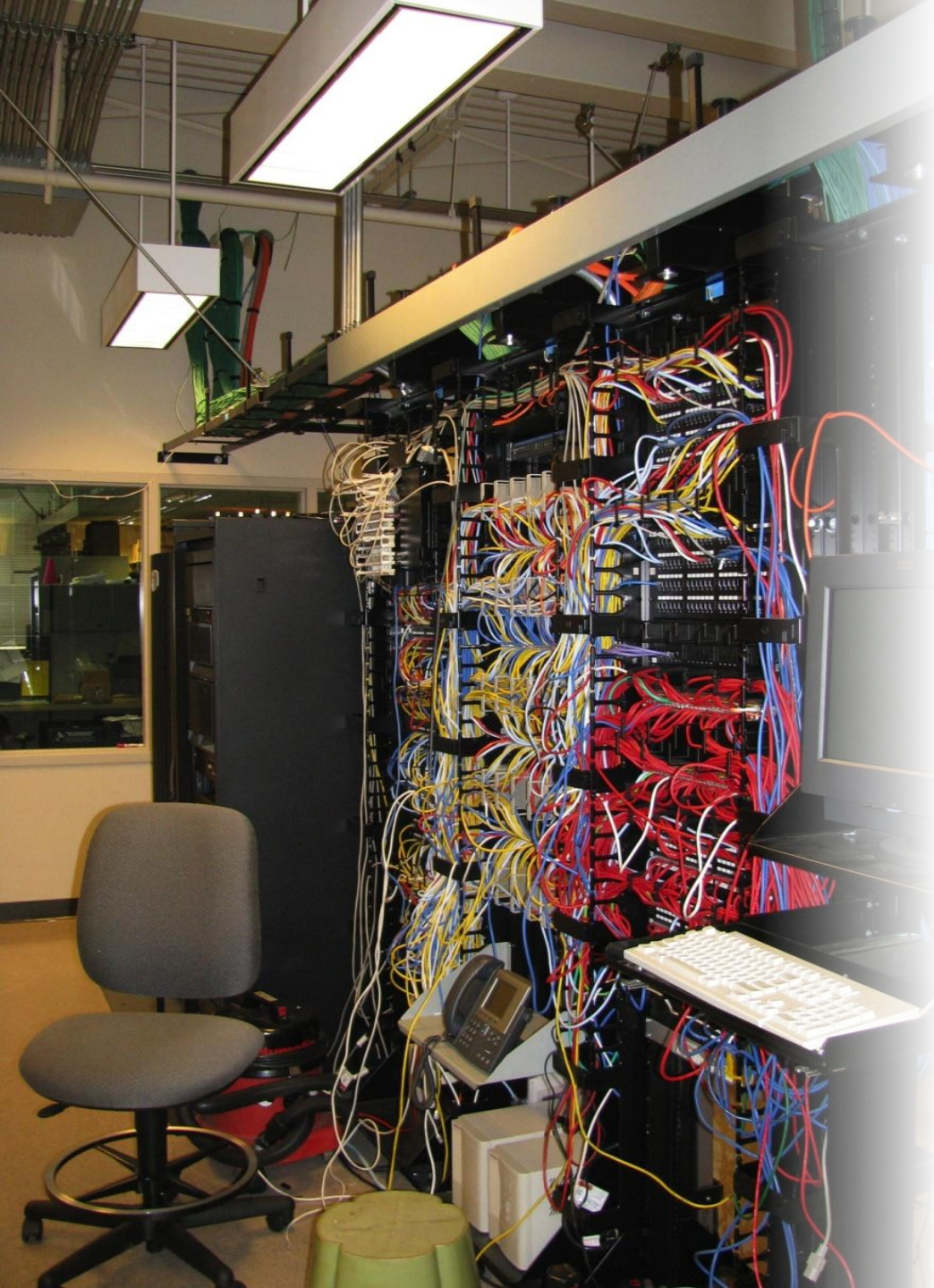
The Next Generation of IT

Mike Sharun
Country Manager EMC Canada

May 19, 2011

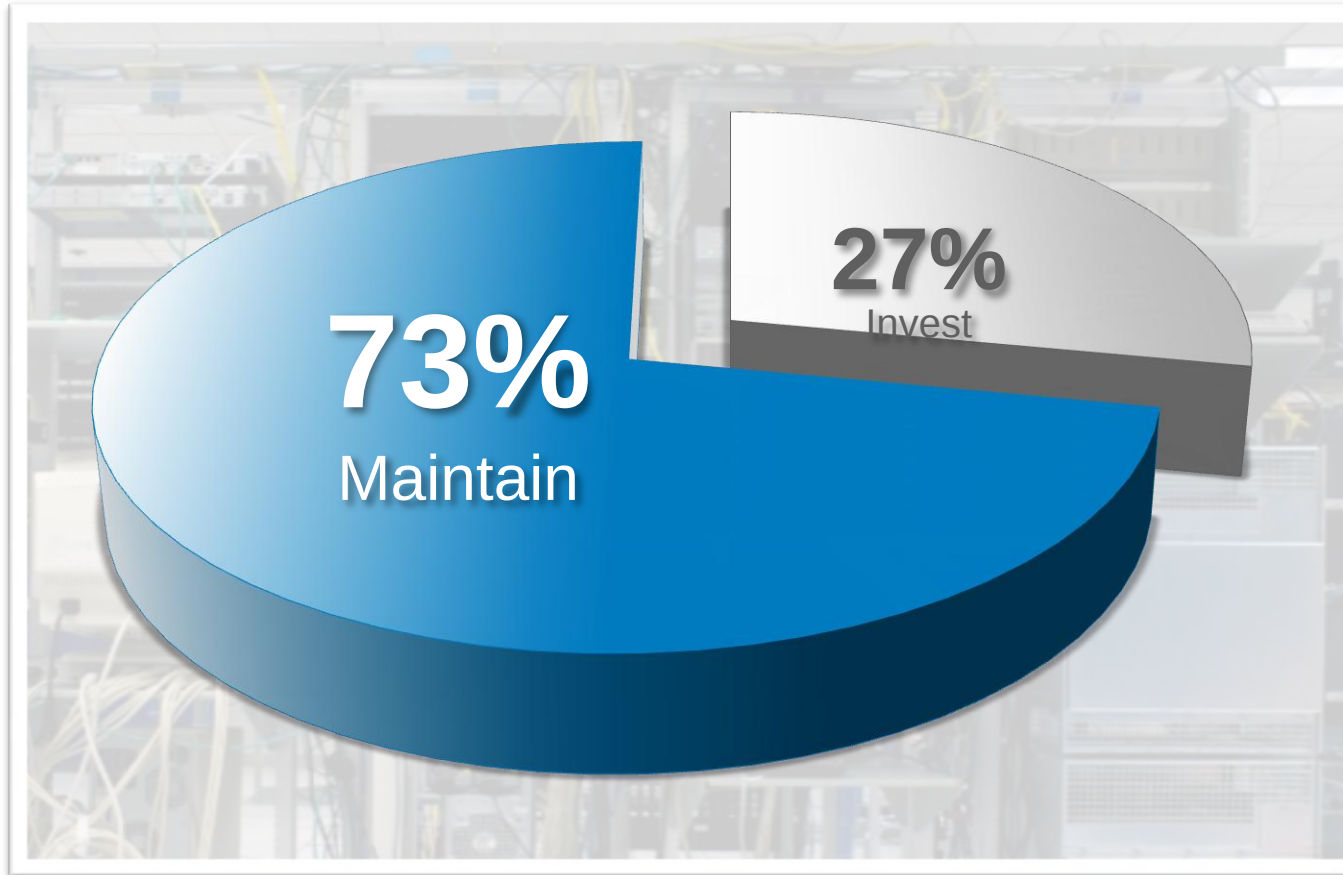
Agenda

- **What is wrong with IT?**
- VCE – A Game Changer,
- EMC's Journey to the Next Generation of IT



Rigid
Complex
Expensive

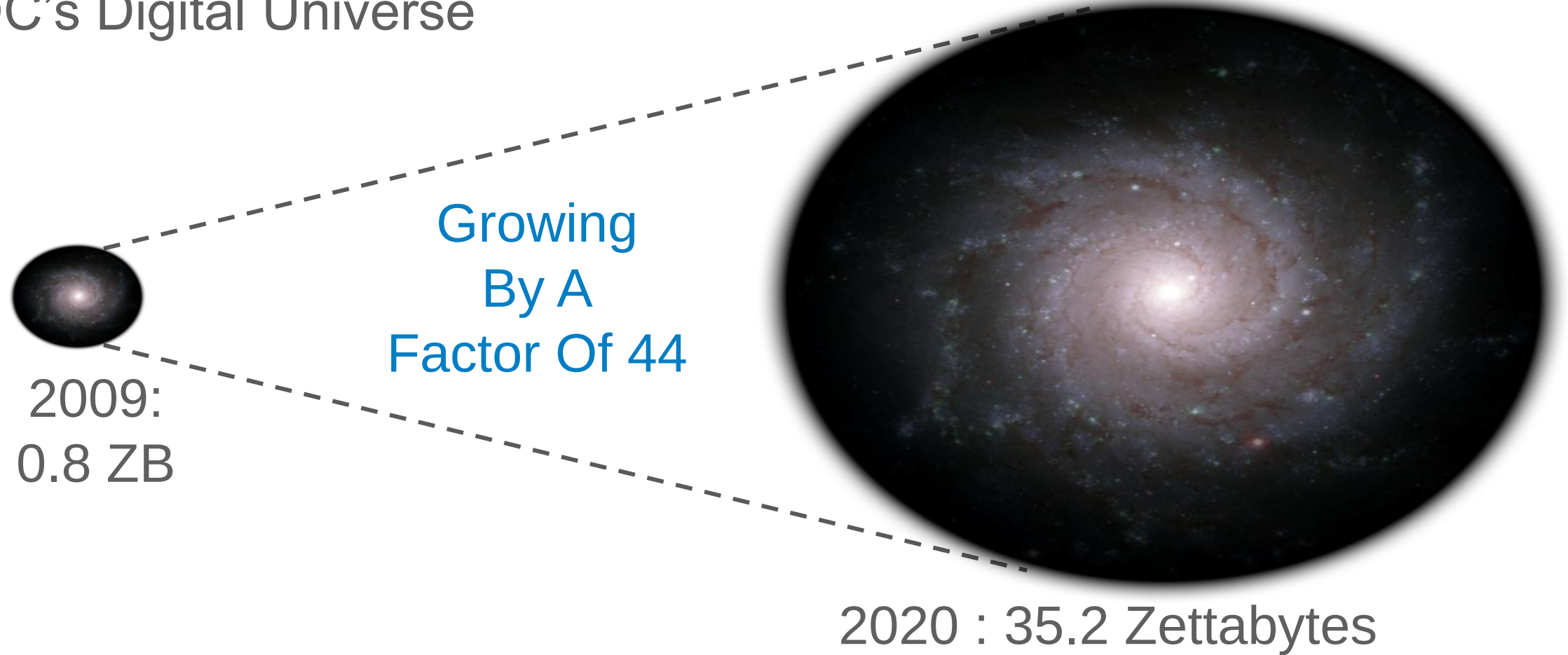
IT Infrastructure Is At Breaking Point



- Too Complex
- Too Inefficient
- Too Inflexible
- Too Costly

Data Volumes Are Exploding

IDC's Digital Universe



Major Culprits

Speed to Deliver

Budget - CapEx
and Operational
Expenses

Complex Designs
and
Implementations

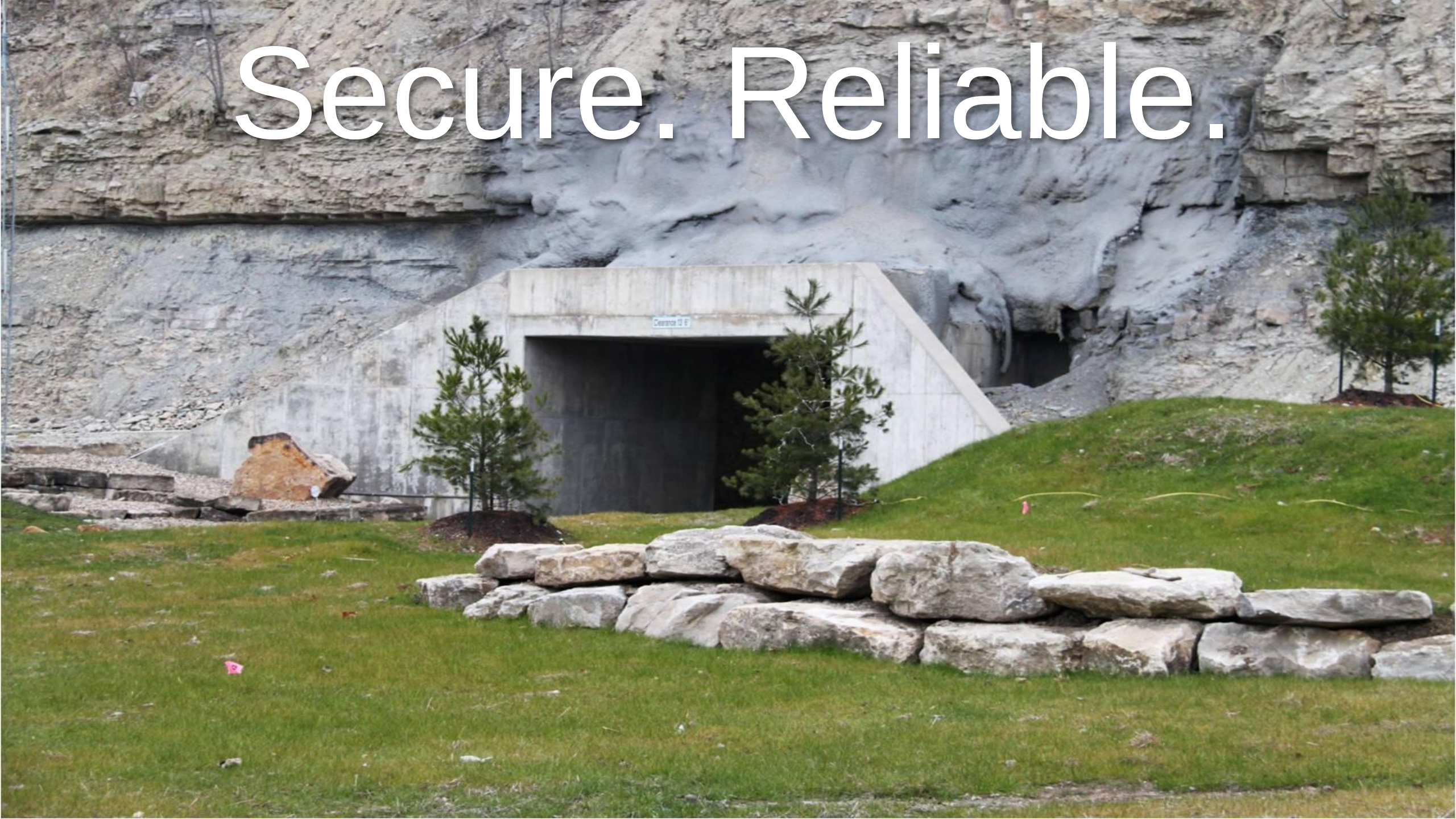
Need for Efficiency
and Support

Multiple Vendors
and Contracts

Baseline /
Benchmark
Metrics Unknown



Secure. Reliable.

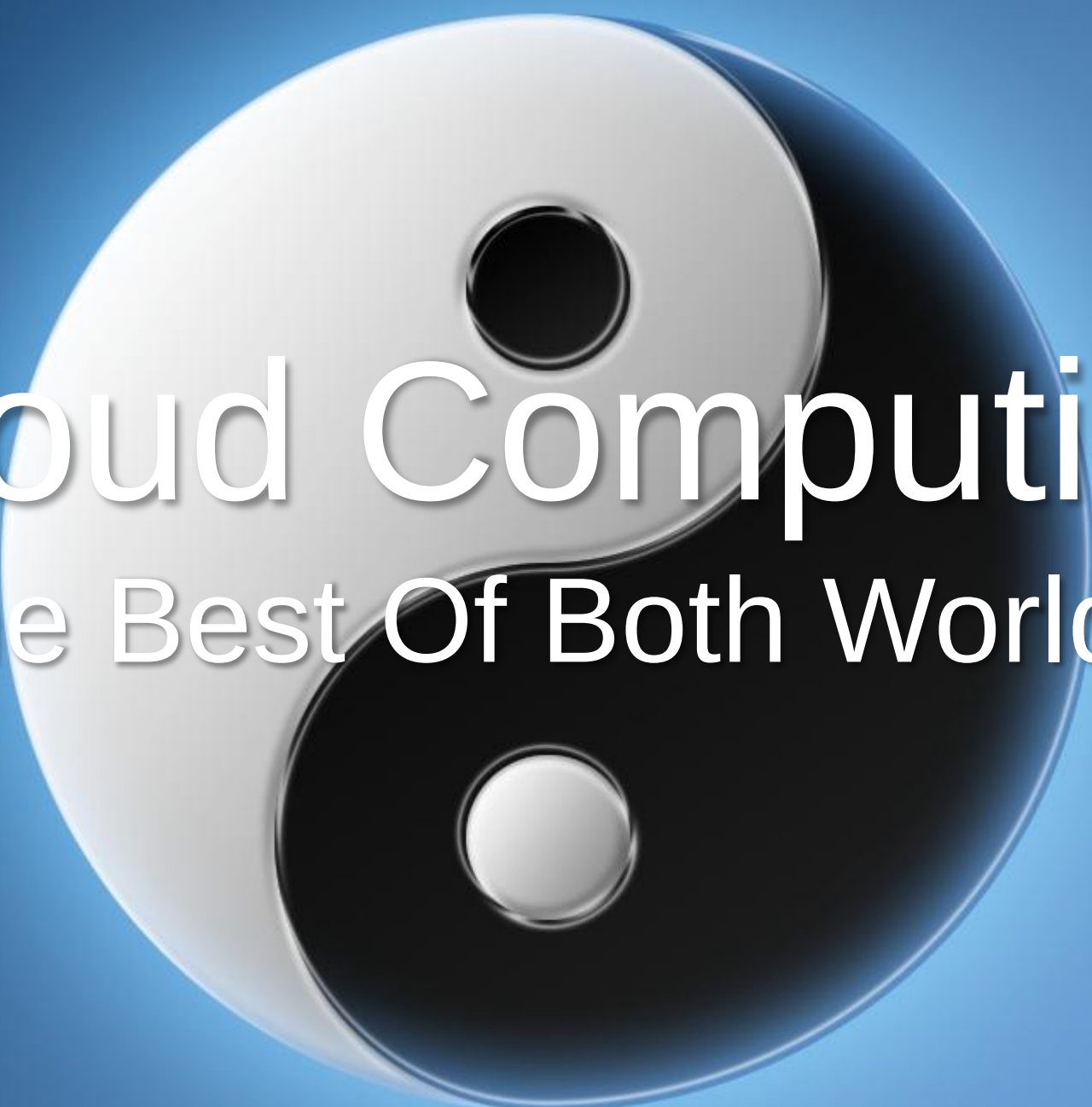




Easy. Dynamic. Cheap.

Access From Any Device



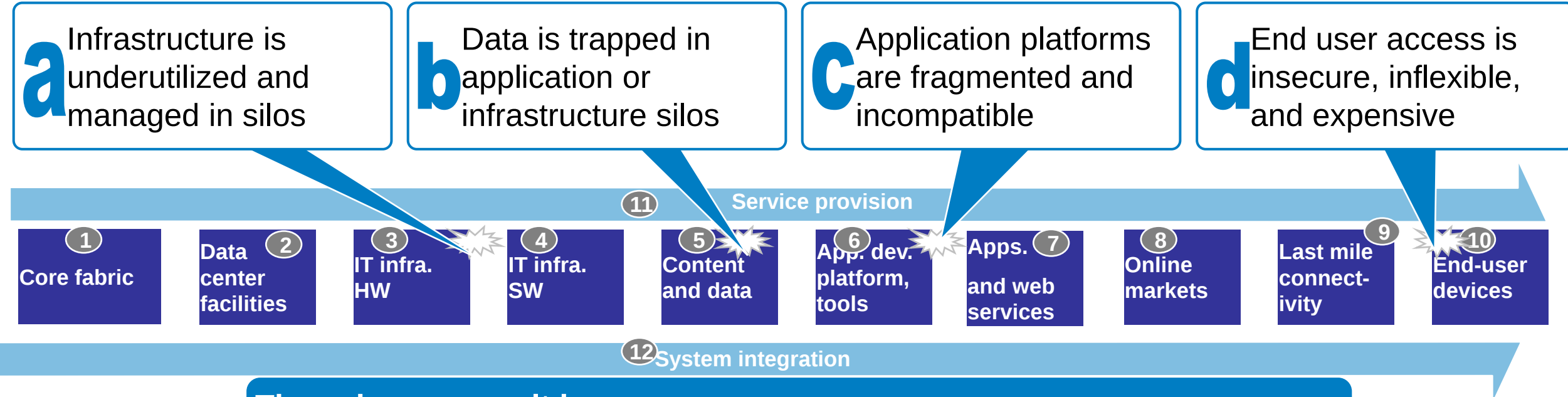


Cloud Computing

The Best Of Both Worlds.

Cloud promises to solve the principal IT issues endemic in most organizations today

Elements of the IT value chain



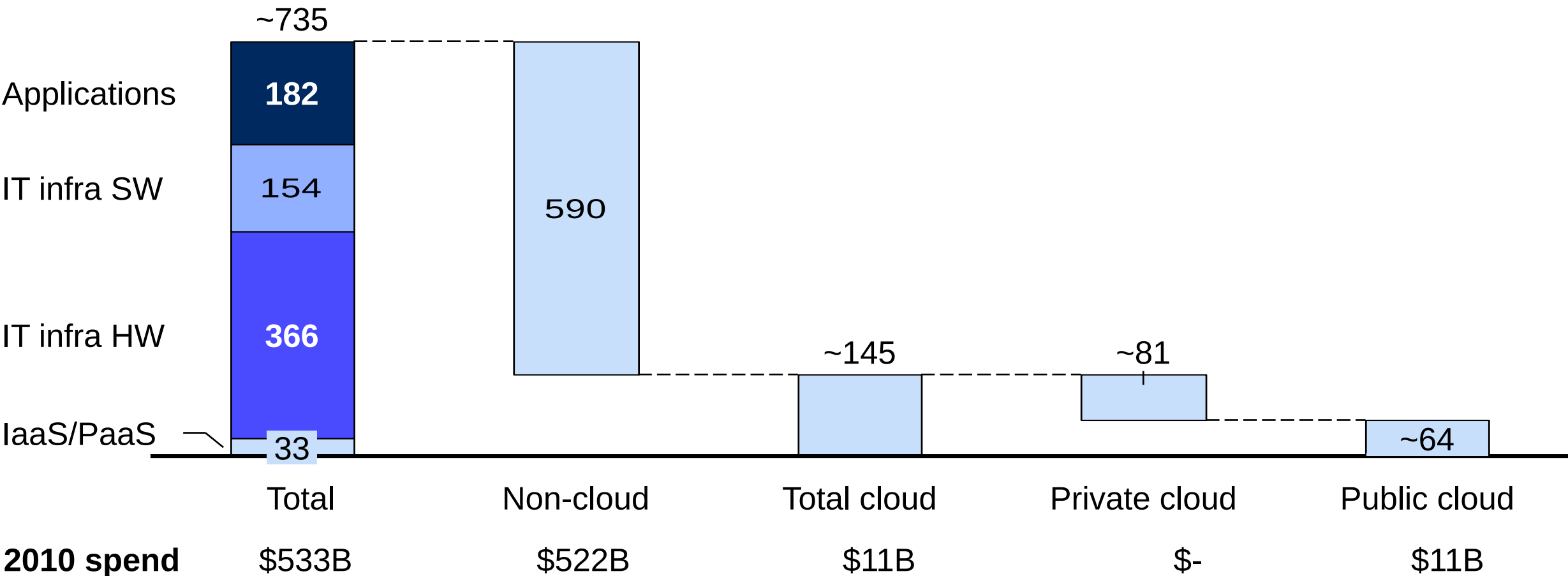
These issues result in

- **Poor business agility** due to lock-in and difficulties in innovation
- **Operational inefficiencies** due to silos and need for integration services (\$1T industry)
- **Unaffordable economics** due to high asset and labor expense

Total 2015 cloud spend forecasted to be ~20% of infrastructure and application spend

Overall IT spend on applications and infrastructure hw/sw

\$ Billions, 2015



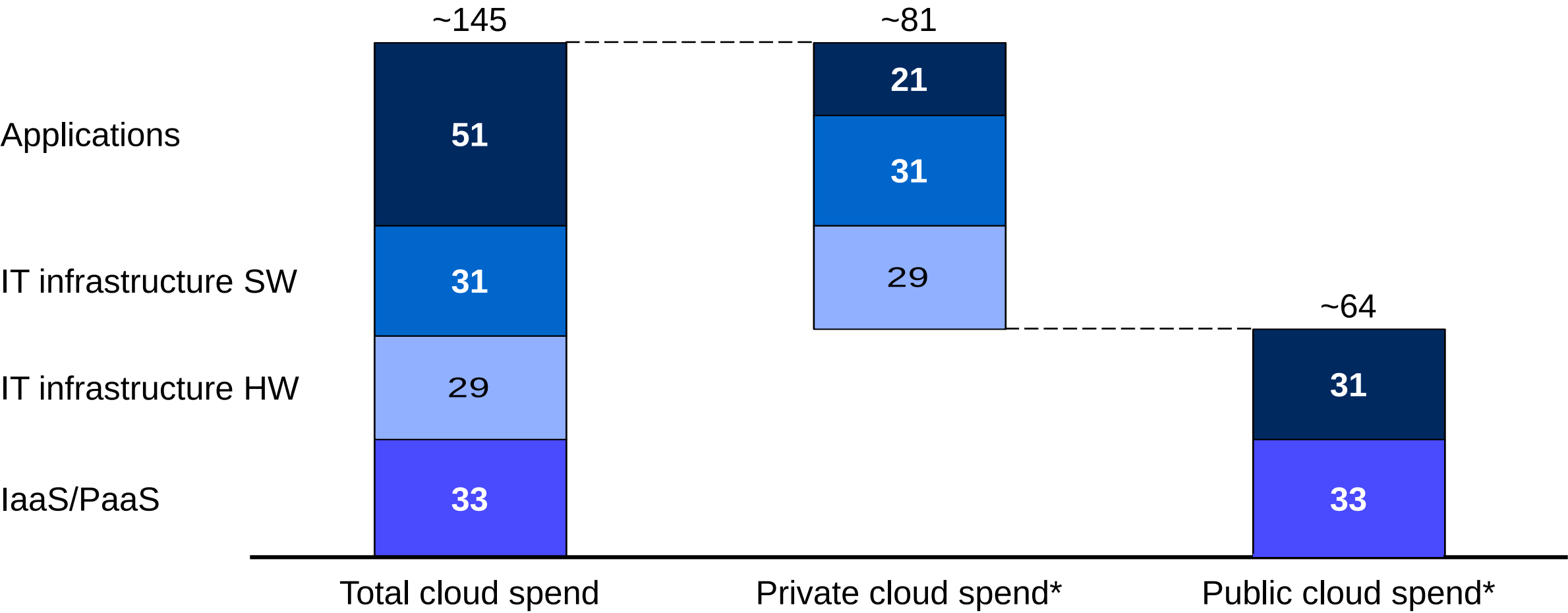
SOURCE: McKinsey TMT Value Migration database (compilation of Gartner and IDC); BoA Merrill Lynch 2010



Private cloud forecast to be worth ~\$80 Billion by 2015

Cloud IT spend on applications and infrastructure hw/sw

\$ Billions, 2015



* Assumes PaaS and IaaS are public cloud spend and application spend is split 60:40 between public (SaaS) and private Cloud

SOURCE: McKinsey analysis; BoA Merrill Lynch 2010

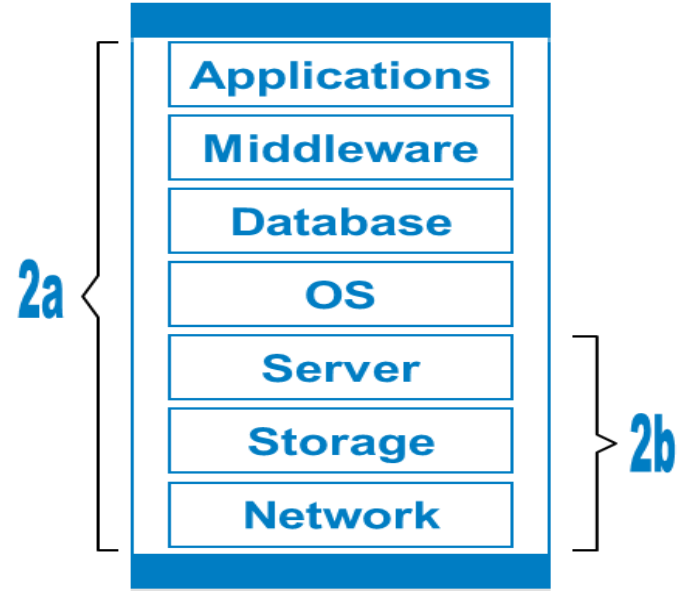
IT leaders are coalescing around 3 different Cloud approaches

3 approaches to cloud...

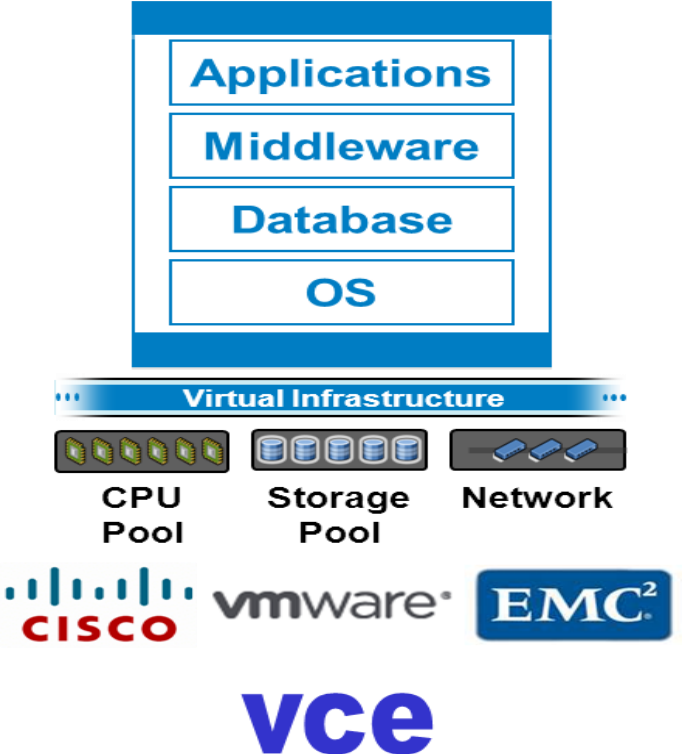
1 Aggregators



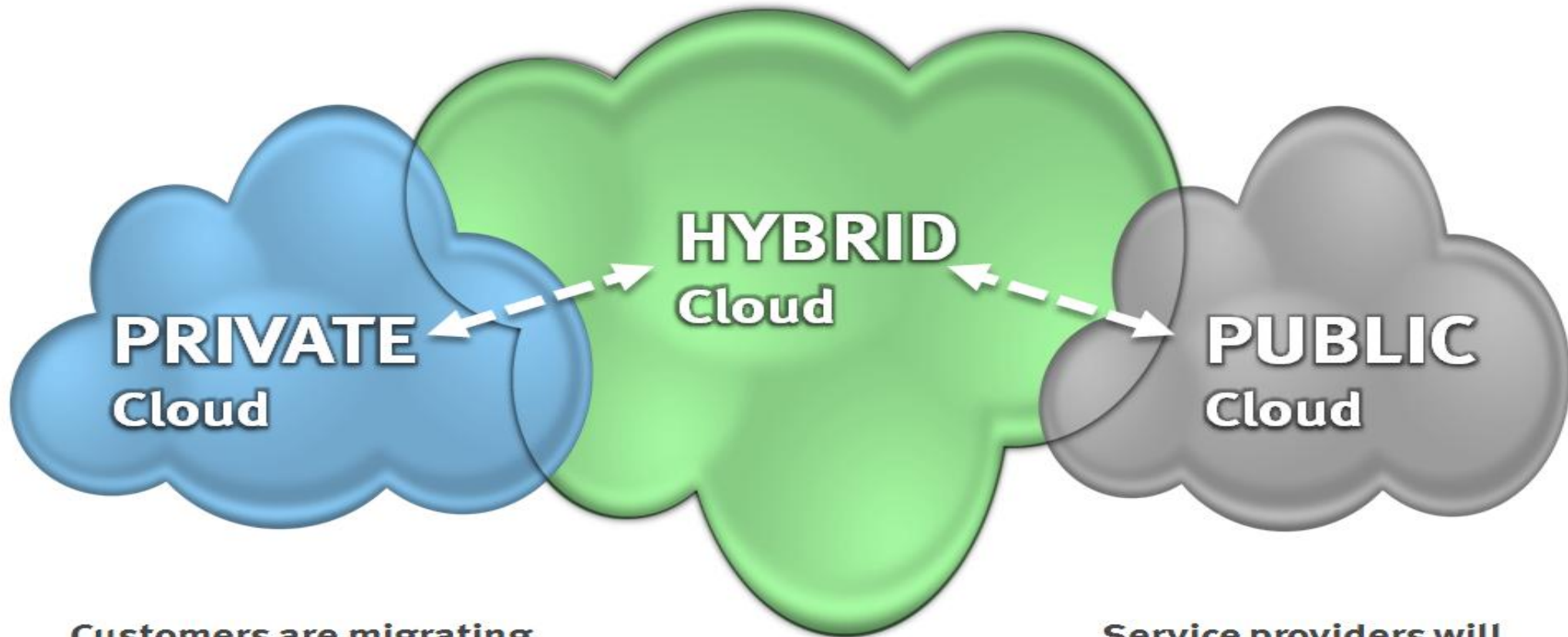
2 Verticalizers



3 Virtualizers



The Story: Capturing the Promise of Agility



Customers are migrating their IT data centers to private clouds

Customers will federate application loads between their own private clouds and public clouds

Service providers will build a large number of very big enterprise-class public clouds

Agenda

What is wrong with IT?

VCE – A Game Changer,

EMC's Journey to the Next Generation of IT

VCE Mission Statement

Accelerate adoption of converged infrastructure and cloud-based computing models that dramatically reduce the cost of IT while improving time to market for our customers.

VCE – the Best of the Best



- Undisputed leader in networking
- Leading innovator in blade technology



- Undisputed leader in storage
- Leading innovator in information management & security



**Converged
Infrastructure
& Cloud Deployment**



- Undisputed leader in platforms
- Leading innovator in core architecture



- Undisputed leader in virtualization
- Leading innovator in cloud application enablement



What does VCE Do?

A Vblock helps customers transform their IT infrastructure from traditional silos to a virtualized, shared environment with best of breed technology.

- **Deploy data resources quickly, easily, predictably, and cost-effectively**
- **Optimize performance**
- **Reduce / eliminate delay, cost, and risk of manual system provisioning and maintenance**
- **End-to-end accountability**
- **Simplified management**

GAME CHANGING!

Leverage the integrated power of four **industry leading technology** companies through one relationship:

- **Maximize** customer ability to leverage future **industry innovation**
- **Accelerate and scale business** growth and/or new initiatives
- Management in a **single pane of glass**
- **Faster** application development and deployment
- **Improve service quality** and workload density
- Eliminate most **planning** and **configuration burdens**
- **Predictable costs and risks** with standardized, pre-built and validated infrastructure
- **Improve time-to-value** with repeatable, proven methodologies and best practices
- Ongoing **optimized ROI** and **performance**

**Accelerate Your
Virtualization and
Private Cloud
Initiatives**



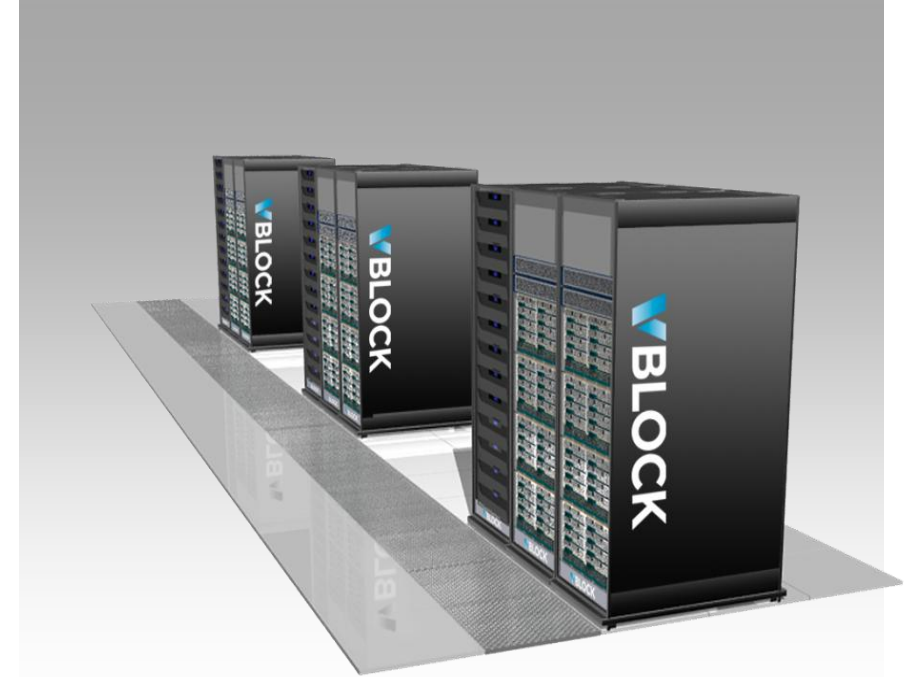
A New Way to Deliver IT

Vblock™ Infrastructure Platforms

- Management: Unified Infrastructure Manager (UIM) framework
- Virtualization: VMware
- Compute: Cisco UCS
- Network: Cisco Nexus and MDS switching
- Storage: EMC Symmetrix VMAX or VNX

Vblock™ Platform Solutions and Services

- Accelerate time to value of business applications
- Seamless Support



**Pre-Engineered,
Pre-Integrated and Validated**

Converged Infrastructure:

A New Kind of Platform

Agility

- Rapid deployment
- Just in time scaling

Efficiency

- x86 based high performance computing
- Improved utilization of shared resources
- Deployment of virtualized infrastructure
- Interoperability Testing
- Patching, Hardware & Software Upgrades

Simplicity

- Pre-integrated and validated solutions
- Single platform and point of accountability
- Full lifecycle management
- Solution deployment and data characterization
- Interlocked roadmaps

With a converged infrastructure platform.... IT doesn't have to manage more and more devices and instead can provide more value-oriented functions such as business analytics, data mining, and better customer support." -- Vernon Turner, IDC

This is not a Vblock



Complexity versus simplicity

V+C+E



Vblock



Simplifying the Data Center Experience

Traditional Data Center Experience 90-120 Days From Order to Production



Receive Components



Staging



Program & Provision



Rack & Cable

January							February							March							April							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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29	30	31					26	27	28	29				25	26	27	28	29	30	31	29	30						

VCE Data Center Experience ~30 Days From Order to Production



January						
S	M	T	W	T	F	S
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Solutions Differentiation



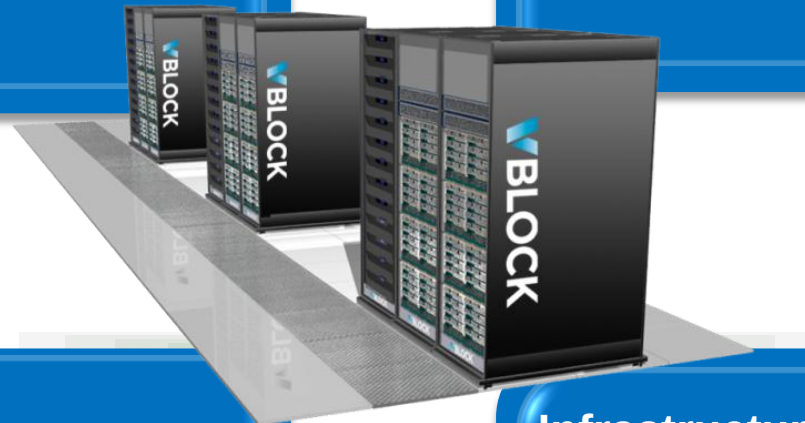
Vblock Solutions

Horizontal Application Solutions

- Virtual Desktop
- ERP (e.g. SAP)
- Collaboration (e.g. UC)
- Messaging (e.g. Exchange)
- Analytics (e.g. Greenplum)

Application Development Solutions

- Cloud Application Lifecycle Management (e.g. SpringSource)
- Cloud Application Platforms



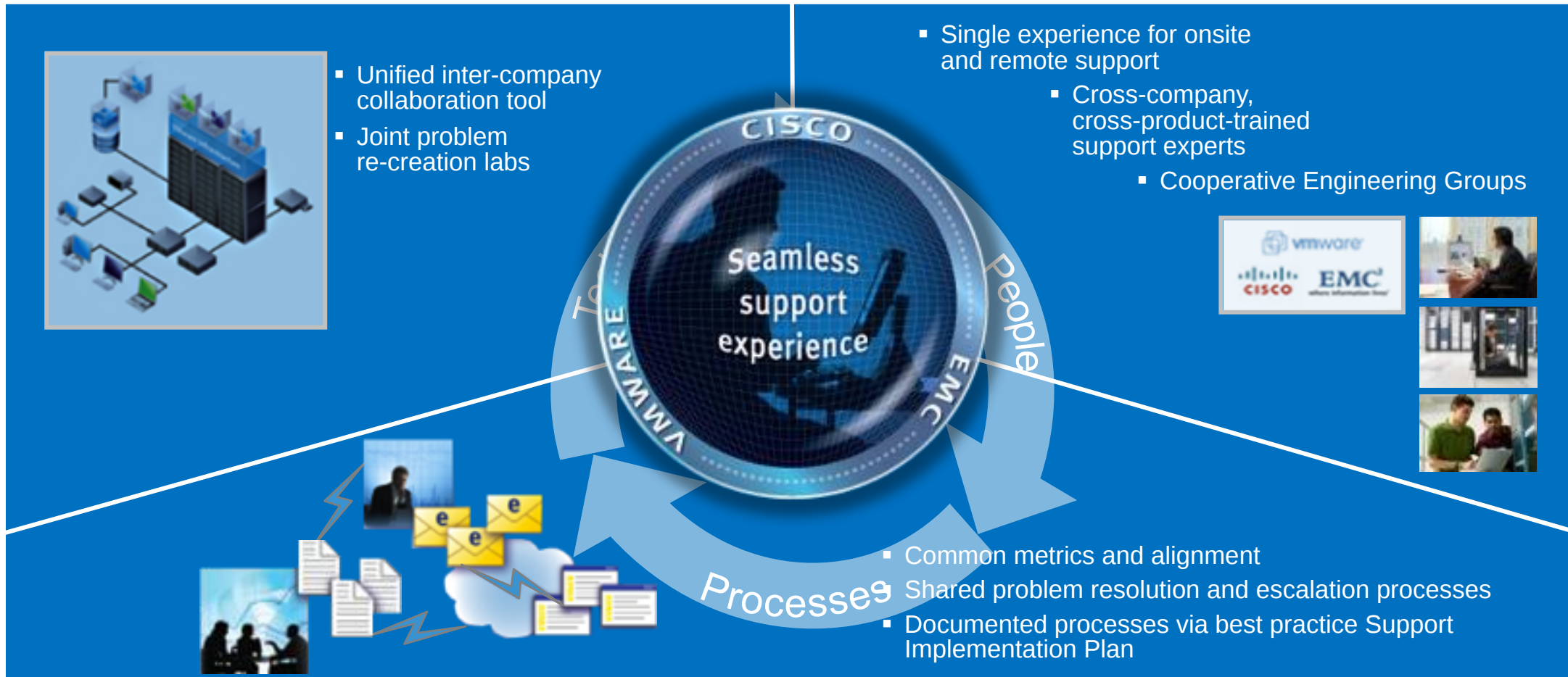
Vertical Application Solutions

- Service Providers
- Financial Services
- Energy
- Public Sector and Federal
- Healthcare

Infrastructure as Service Solutions

- Service Management
- Chargeback
- Security
- Capacity Planning

SEAMLESS SUPPORT EXPERIENCE



VCE Value Proposition



Complete System Integration

Integrated product roadmaps inclusive of all major components, upgrades, interoperability and patch management

Best of Breed Products

Market leading performance elements in every category

Seamless Support

Single point of configuration validation, ordering, delivery, support and warranty

Partner Enablement

Unprecedented global product/solutions resources, training, configuration and delivery support

Market Catalyst

Market evolution and partner support through VCE thought leadership, competency centers, best practice replication, mentored installs, and technical assistance

Optimized Solutions

Solutions for the Vblock converged infrastructure including application ports and targeted use cases

Customer Benefits

- Lower sustainable TCO
- Dramatically lower support costs
- Improved service quality
- Predictable cost and performance models
- Faster application development & deployment



Benefits for both sides...

Users: **Access IT as a Service**

Simplicity

Easy, self-service access

Pay-for-Use

Eliminate upfront investments

Agility

Faster time-to-market without long approval cycles

User-centric

A feeling of being in control of their business

IT: **Deliver IT as a Service**

Efficient

Greater automation thru software with lower admin:server ratios

Elastic

Flexibility to acquire or release capacity on demand

Responsive

Greater visibility into costs and control over service levels

Control

Maintain control of IT environment

Agenda

- What is wrong with IT?
- VCE – A Game Changer
- **EMC's Journey to the Next Generation of IT**

EMC IT at a Glance

User Profiles 50,000 “internal” users
400,000+ customers and partners

IT Environment 2 enterprise data centers
3 regional data centers
8 PB storage
5,500 OS images

Business Applications ≈ 500 applications and tools

Global Support 80+ countries and 20 languages



What Really Matters?

Revenue

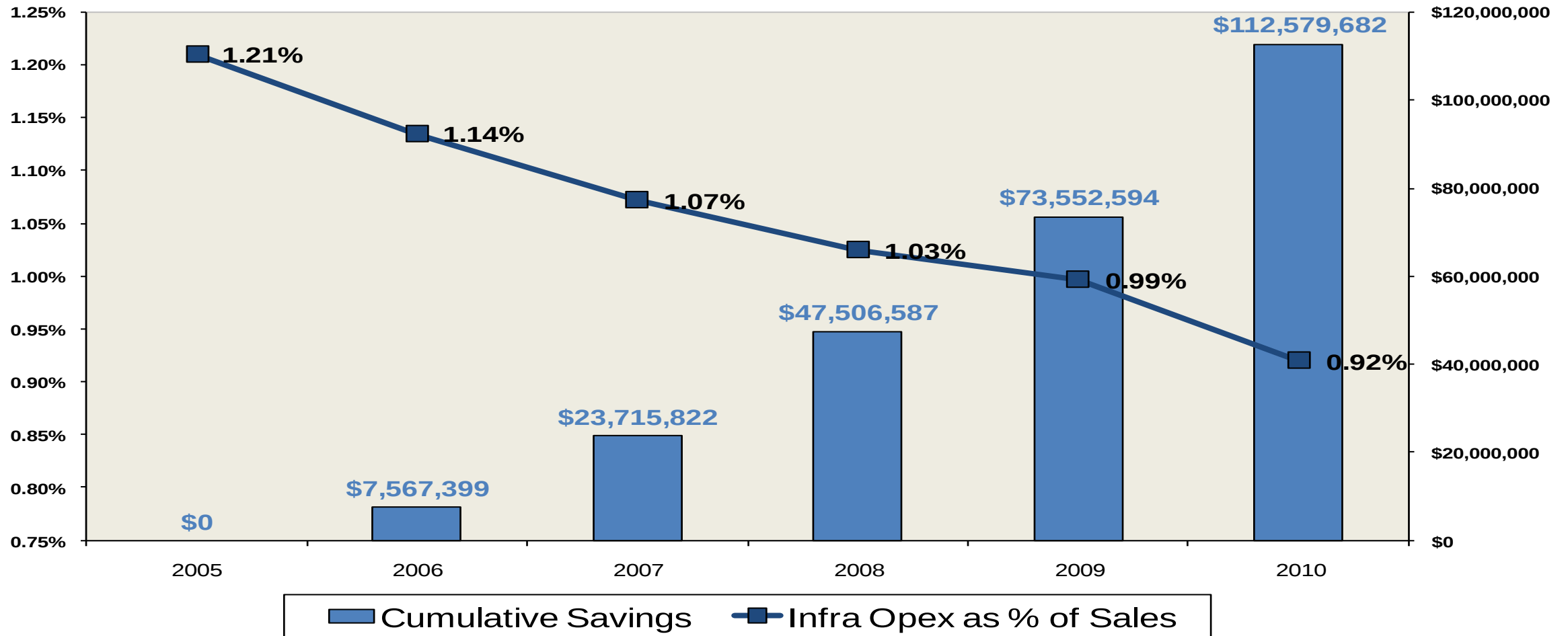
Revenue

Efficiency

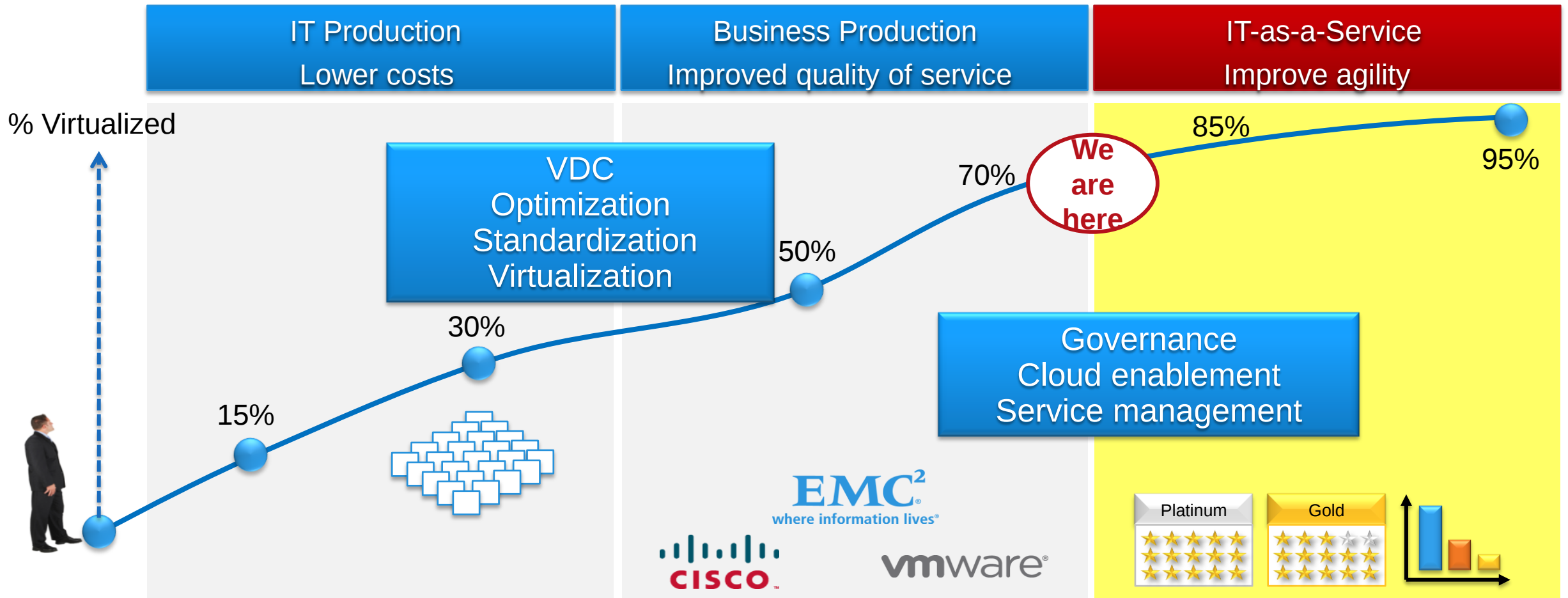
Efficiency

If IT can't deliver services that enable revenue growth and improved business efficiency, what good are we?

EMC IT Infrastructure OpEx Budget/Savings



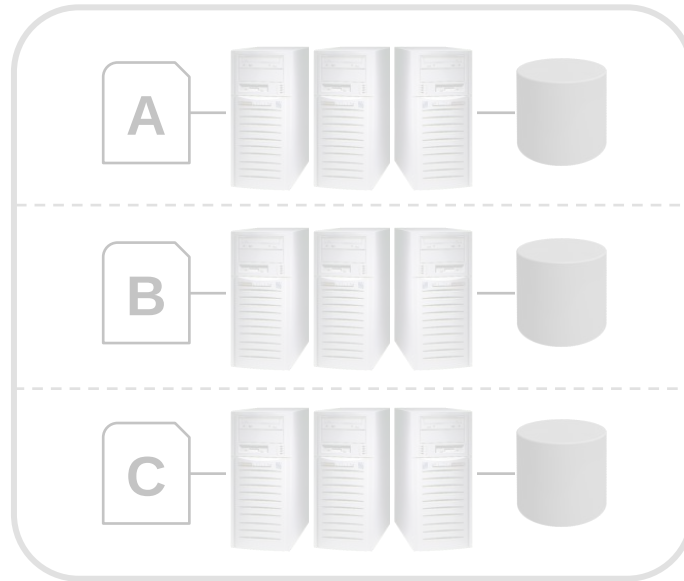
Our Journey to the Private Cloud



IT Production Phase

Dedicated

Custom Built



Benefits Realized

\$12M Power And Space Savings

\$74M Data Center Equipment Savings

170% Gain Storage Admin Productivity

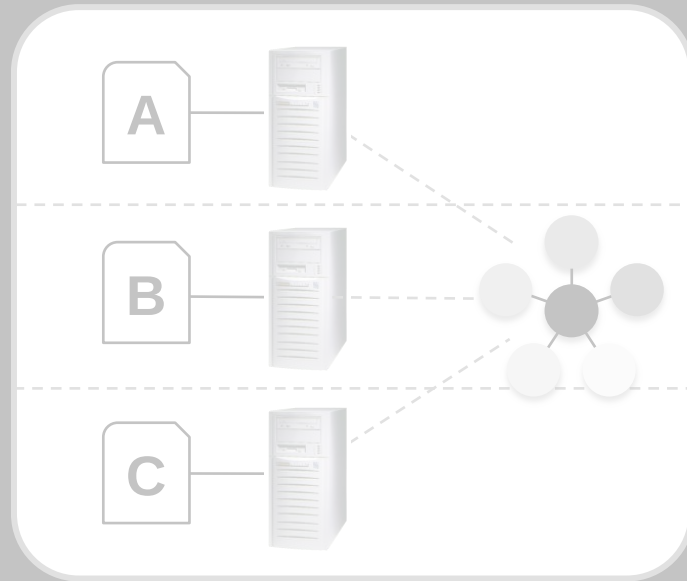
34% Increase In Energy Efficiency

60M Pounds Of CO₂ Reduced

Business Production Phase

Consolidated

Lower CapEx



Virtualized
Servers

Tiered
SAN

Partial Integrated
Management

Benefits Realized*

\$11M Opex Savings

\$6M Data Center Equipment Savings

65% of OS Images Virtualized

71% of Mission-Critical Apps incl. Virtual Components

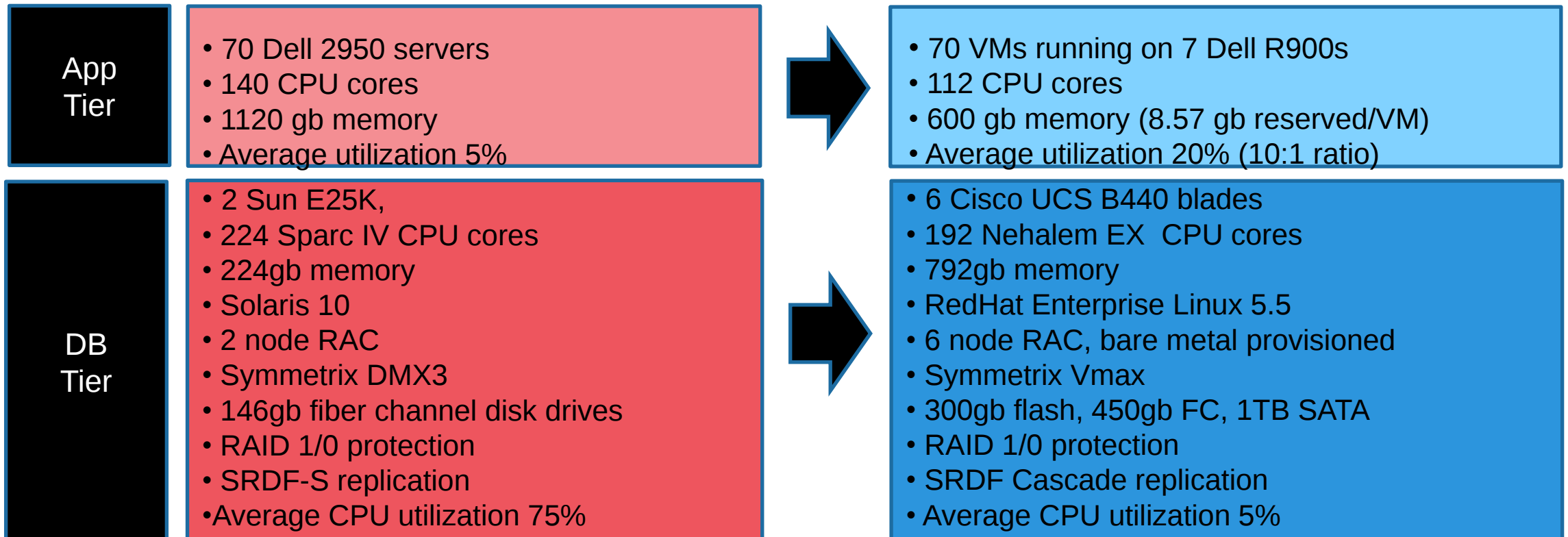
30M Pounds of CO₂ Reduced

Source: Estimated benefits, ESG IT Audit, May 2010

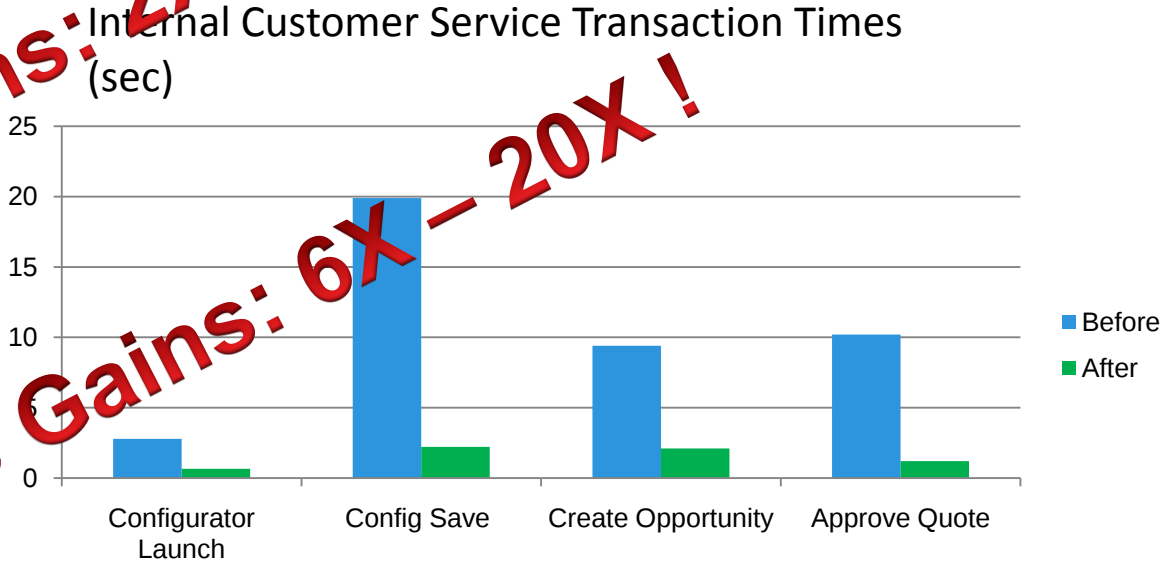
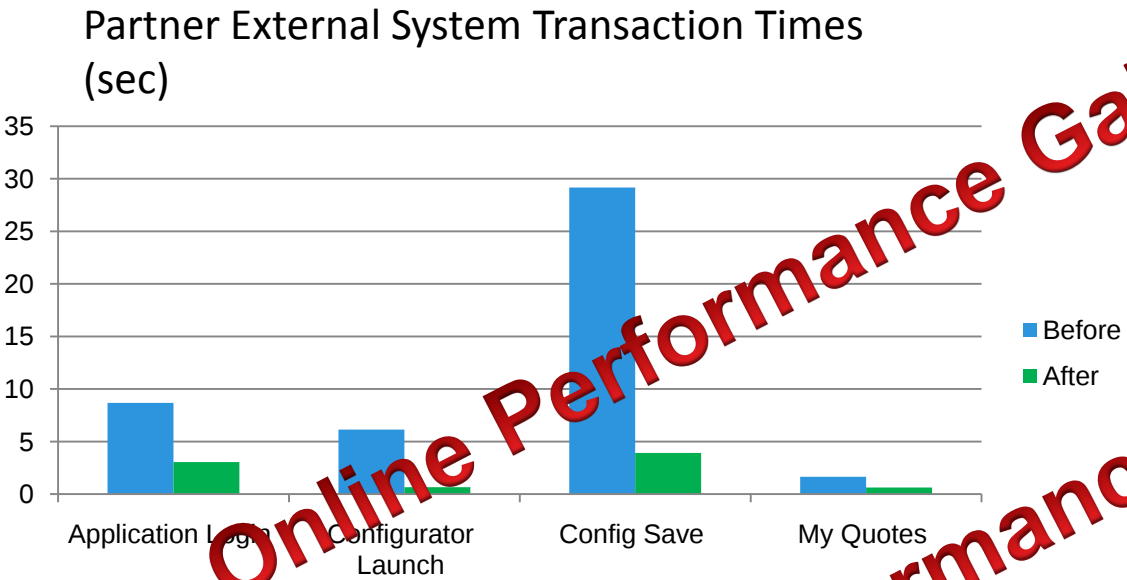
Large Mission Critical Applications on Vblock



- 8TB production database – 8.8 billion rows
- 61,000 IOPS
- 520 million transactions per day
- 91,000 concurrent jobs
- Runs all EMC's customer facing operations



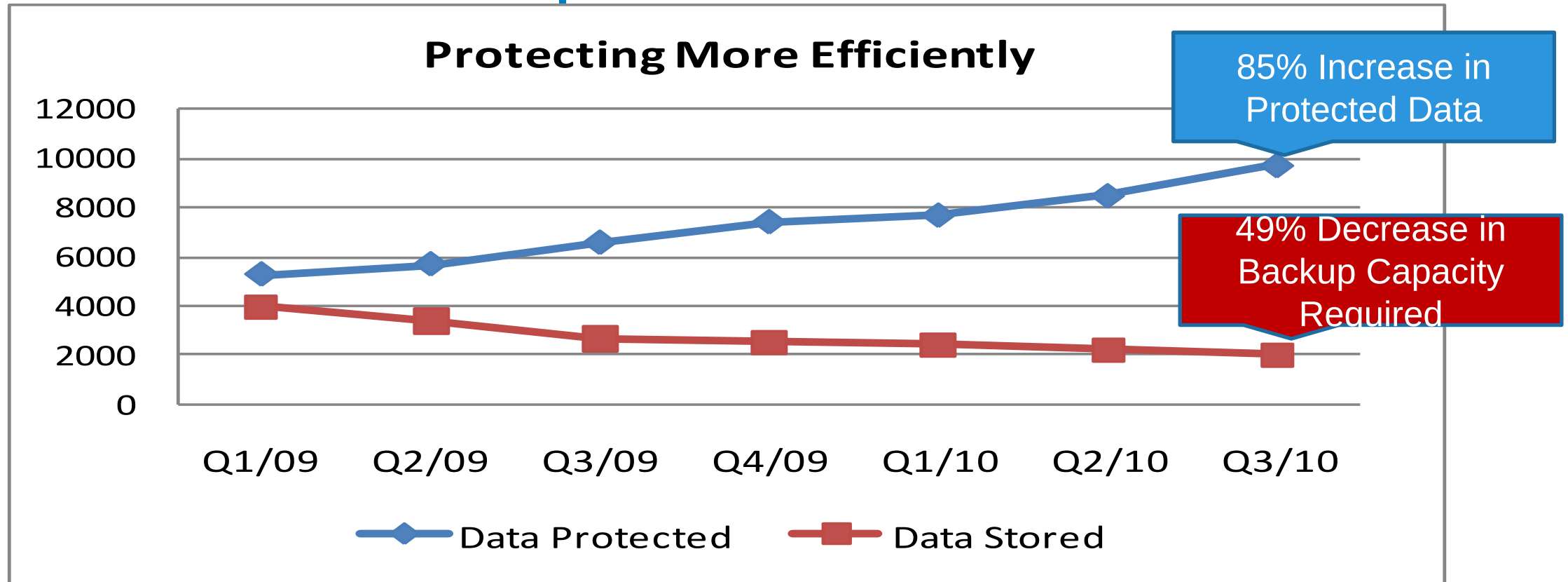
Oracle on Vblock – Performance Benefits



Online Performance Gains: 2X – 10X!

Batch Performance Gains: 6X – 20X!

Benefits of De-Duplication



- Decreased Backup costs by **70%**
- Increased Restore Speed and Reliability

And we are not done yet!

How IT is now Different

IT

is

Built Differently

- Pooled Architecture
- Defined service Catalog
- Partition or move workloads

Run Differently

- Low or “0” touch models for Management and Problem Resolution

Consumed Differently

- On-Demand
- Immediate

Governed Differently

- Quality of Service
- New Rules
- New Roles

What are the Implications on IT Roles?

Before

Designing custom dedicated infrastructure

**Architecture
and Design**

After

Designing a consolidated multi-tenant cloud infrastructure

Building
Provisioning
Configuring
Monitoring and break-fix

**Build and
Operate**

Automation
Capacity planning
Performance management
IT process engineering

Responding to service requests and tickets

**Product and
Service
Management**

Developing, marketing, selling, delivering, and supporting service offerings

An Organizational Evolution is Underway

Imperative:

Business and financial management

IT Service Management

New focus area:

Cloud service operations management

Infrastructure
as a Service

Platform as
a Service

Desktop as
a Service

Enterprise
Applications
as a Service

New roles emerging:

Cloud Architect, Cloud Admin
Cloud Capacity Planner
IT Automation Engineer

Virtual Infrastructure Architecture

Virtual Infrastructure Management

Traditional roles are still essential

Systems

Storage

Backup
and
Recovery

Data
Center
Networks

Security

Key Learnings

Cloud is a **State** not a **SKU**

Executive support is vital

Move IT strategy from **Defense** to **Offense**

There are **NO** U-turns

It takes longer to
change people's mindsets
than the **Technology**

IT Organizations will **Evolve**

Can't stop at **30%**
virtualization

www.EMC.com/emcit

EMC IT Journey to the Private Cloud: A Practitioner's Guide

<http://www.emc.com/collateral/software/white-papers/h7298-it-journey-private-cloud-wp.pdf>

