



Del EMC IT Transformation for Higher Education

Office of the CTO, Converged Platforms Division





❖ Technology trends?

❖ How does it impact You?

❖ How we can help?

Technology Trends

What we are seeing across industries

**End User Service
Experience**



**Hands Free
Automation**



**Integrated Service
Delivery**



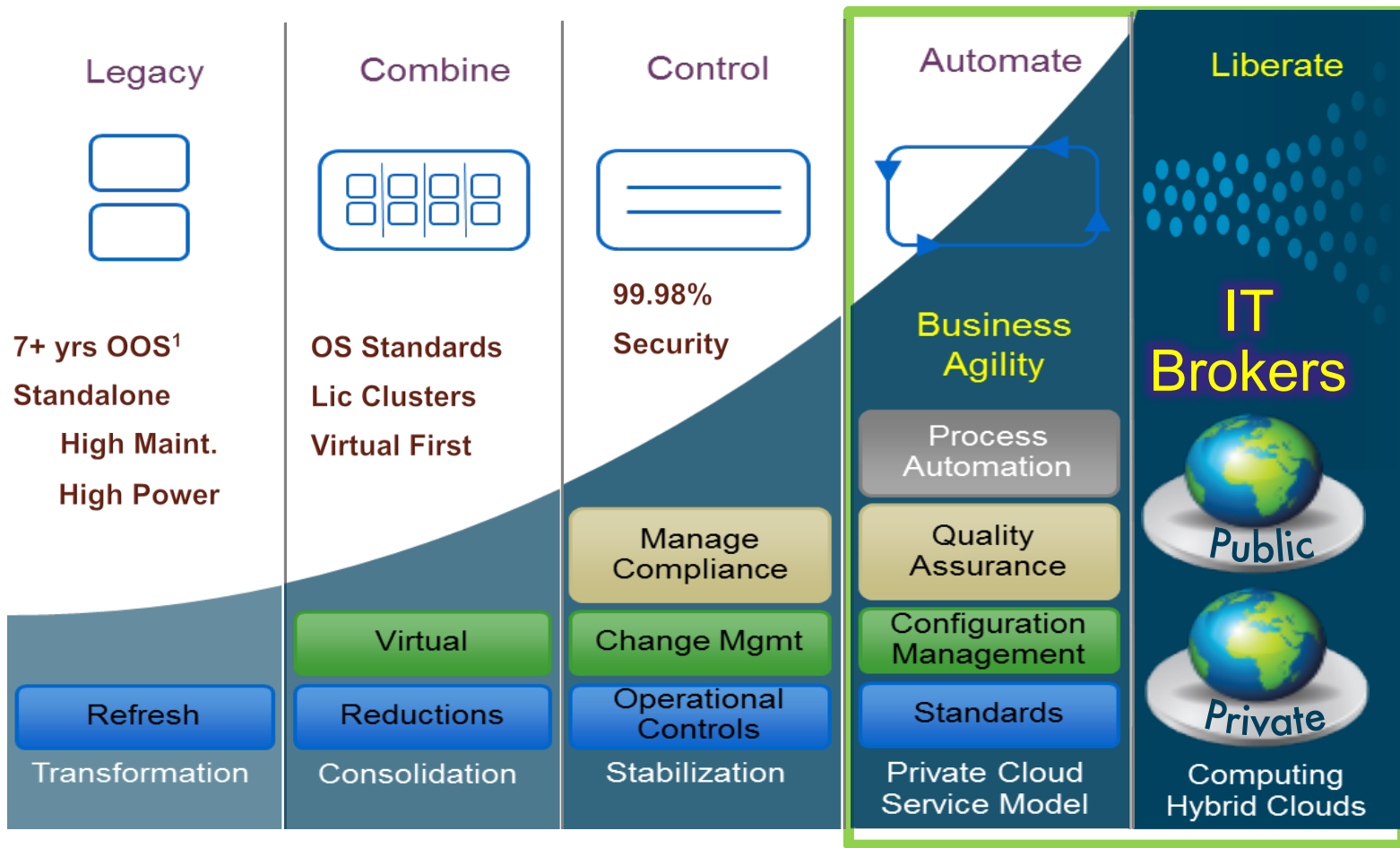
Enable The Business

Make IT Easy

One Team

Protect The Business

Sustain Operational Excellence



¹OOS = Out Of Support

Last 15 years

IT-centric

Systems of record

Traditional applications

Transactional data and reporting

Internet

Next 15 years

Business-centric

Systems of engagement and insight

Cloud-native apps

Streams of data and analytics

Internet of Everything

THE DATA CENTER MARKET

PLATFORM 2

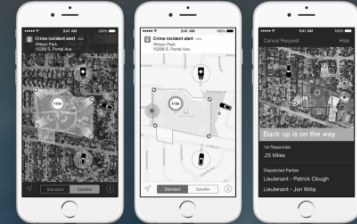
GARTNER MODE 1



CLIENT SERVER APPLICATIONS
BARE METAL & VIRTUALIZED X86

PLATFORM 3

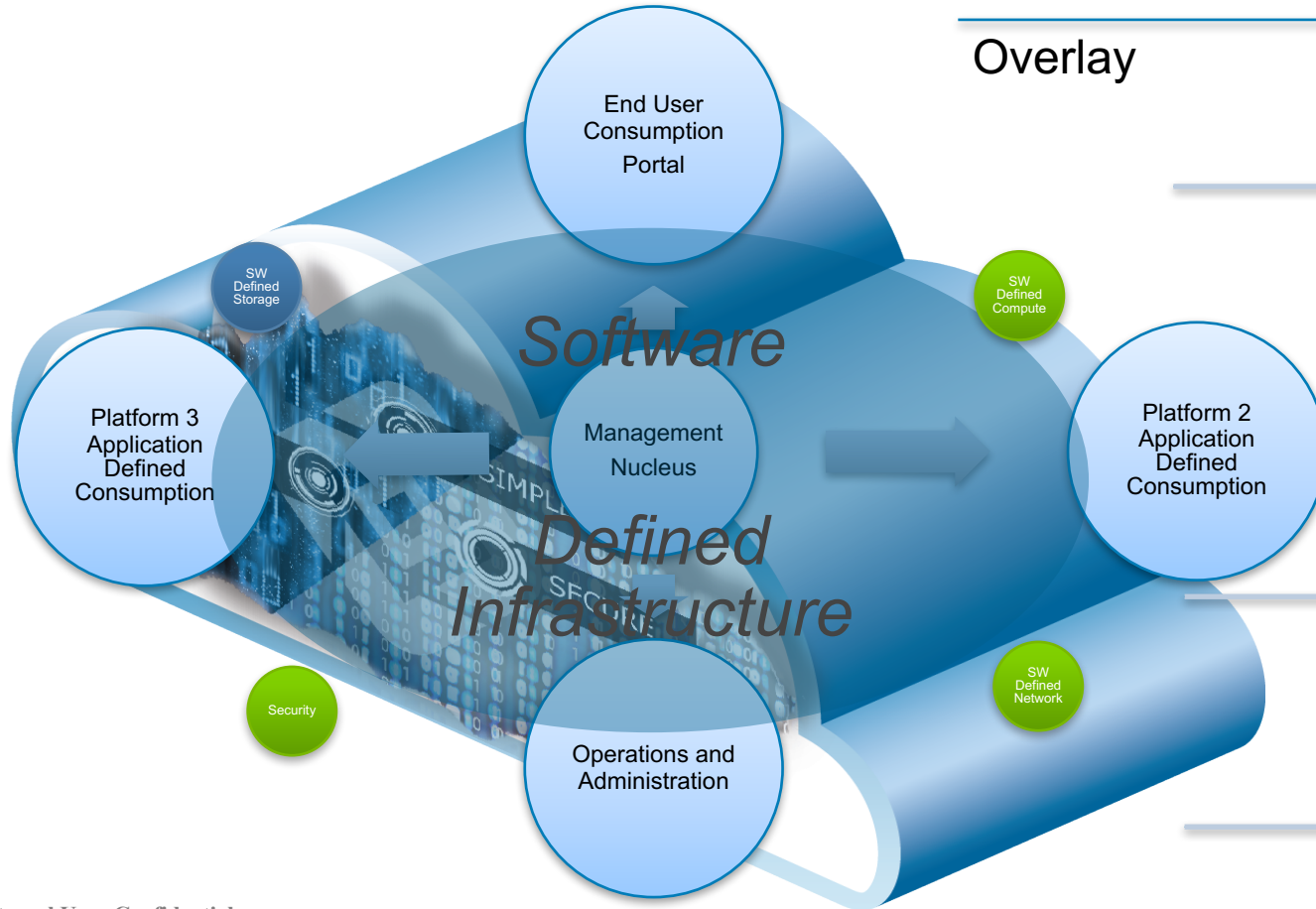
GARTNER MODE 2



MICROSERVICES APPLICATIONS
SOCIAL, MOBILE, CLOUD – BIG DATA ERA

Modern IT Platform Model

*Application
Defined
Capacity*

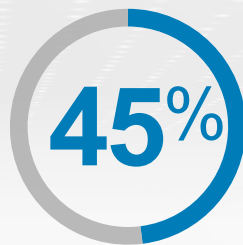


How does it impact You?

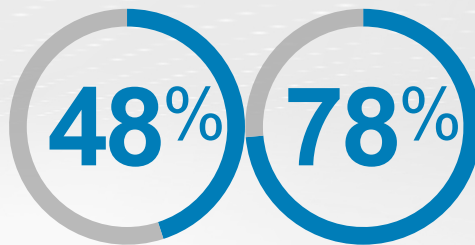
Digital Transformation Index

4000 Executives polled





Fear they will
be obsolete in
3-5 years



Have no idea
what their
industry will
look like in 3 years

Businesses
consider digital
takeups a
threat

Digital rescue plan needed

Create distinctive capabilities



Coca-Cola



facebook.



VALVE



Challenges

Business challenge: Provide students with highly available and extremely fast access to online resources, supporting registration, class materials, and financial-aid processing

IT challenge: Infrastructure with limited virtualization and comprised of disparate storage, servers, and networks unable to keep up with high-performance demands

Solution

- block Systems running Ellucian Banner ERP, Blackboard learning management system, enterprise student portal, and hybrid-cloud access to Amazon Web Services and SaaS applications

Benefit

- Improved performance of student registration system by 300 percent
- Reduced time to log in to student portal from 3.2 to 1.7 seconds
- Gained performance and availability of online resources to drive increased success for students



"The immediacy of access to services and information is a prime example of how Dell EMC technology is helping students be more successful at school and ultimately reach their career goals."

– Andrea Nunley, Sr Director, Enterprise Applications



Challenges

- 3 different colleges with 3 different needs
 - Dental - active/active cluster
 - Nursing – VDI
 - Public Policy – Easier to support

Strategies

- Active/active stretch cluster
- Highlight VDI support
- Leverage single support #
- Project-based scaling for school grants



Challenges

- Running 2 different infrastructures
- Consolidation and standardization are key
- Need core density and scaling for upcoming research project

Strategies

- **Ease of deployment**
- **Ease of management:** reduce management costs
- **Ease of support**



Challenges

- 8 year old storage mixed with HP/Dell servers
- Staff accustomed to standard SAN, unfamiliar with HCI
- Needed holistic solution for apps, test/dev, and data protection

Strategies

- Complete Dell EMC Solution for virtualization, data protection, file sharing
- 50% of power, cooling and floor space savings over previous infrastructure
- Change of IT perception via simpler, yet more powerful infrastructure

The background of the slide is a dark blue gradient with numerous out-of-focus light spots in warm tones like yellow, orange, and red, creating a bokeh effect.

How we can help?

IT Transformation (M.A.T.)

ENTERPRISE HYBRID CLOUD

Modernize

Infrastructure
(Converged/Hyper Converged)



Modern Architectures

- Flash
- Scale-Out
- Software Defined
- Cloud Enabled

Automate

Service Delivery



Self-Service Experience
API driven M&O at every level

Transform

IT Operations



People &
Process

Hyper Converged systems accelerate modernization

FLASH

CLOUD
ENABLED

SCALE OUT

SOFTWARE
DEFINED

PROTECTION
& TRUST

Make new technology adoption and IT transformation



Faster



Simpler



More
Agile



More
Efficient



Less
Risky



Less
Costly

DELL EMC CONVERGED PLATFORMS STRATEGY



BLOCKS



RACKS



APPLIANCES

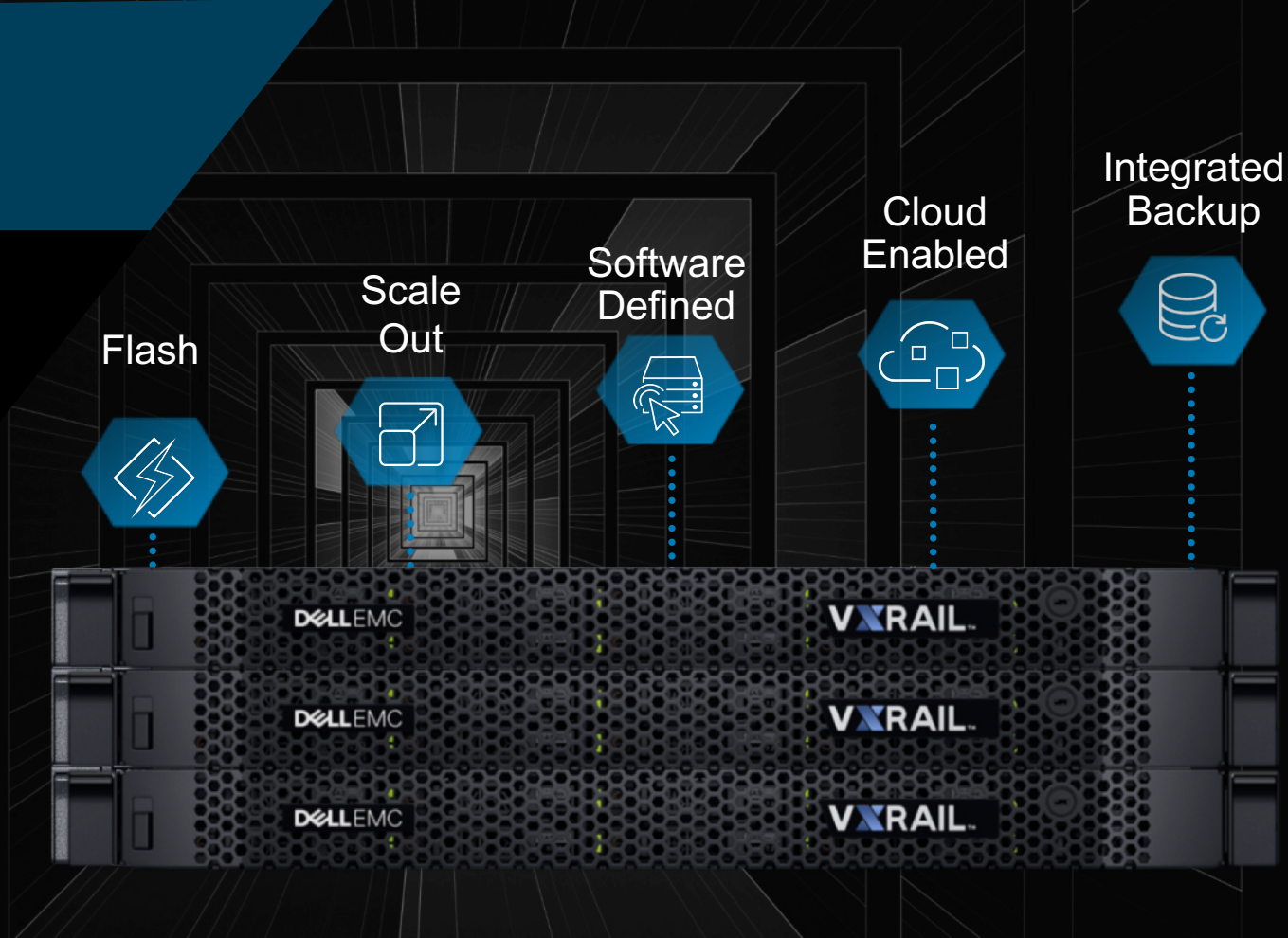
INTRODUCING VXRAIL

**Industry's broadest HCI Appliance portfolio
exclusively from Dell EMC and VMware**



DELL EMC

VXRAIL™



Fastest Growing Hyper-Converged Platform

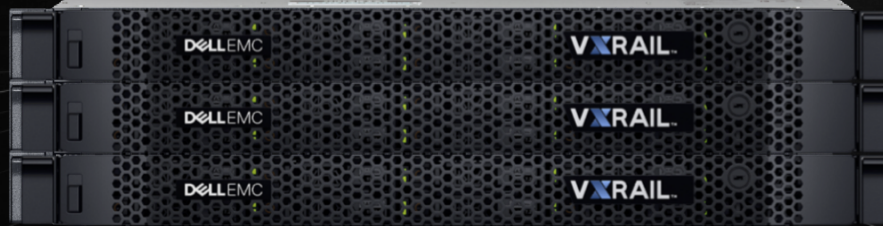
Clear benefits

Start Small Grow Big

Simple to Manage

Single Vendor Support

VXRAIL™



Resulting economics

30%
LOWER COST

DELL EMC + vmware®

Meet VxRail 4.0

WHAT'S NEW

- Dell PowerEdge Servers
- Intel Broadwell Processors
- Addresses more use cases – storage heavy, graphics intensive, and ROBO
- 3-node entry point
- One click software upgrades

250X MORE CONFIGURATIONS

25% LESS EXPENSIVE ENTRY POINT

2X MORE FLASH STORAGE

40% MORE CPU PERFORMANCE



Introducing the new, flexible VxRail 4.0 family

Purpose built nodes for multiple use cases

G Series Nodes



General purpose

All-flash and hybrid
Up to 19.2 TB/node

E Series Nodes



Entry level

All-flash and hybrid
Up to 30.7 TB/node

V Series Nodes



VDI optimized

All-flash and hybrid
Up to 46 TB/node

P Series Nodes



Performance optimized

All-flash and hybrid
Up to 46 TB/node

S Series Nodes



Storage dense

Hybrid
Up to 48 TB/node

All-flash drives better economics

Unmatched capabilities and value as low as \$1 per GB*



- Modern data center in just 6 rack units
 - 132 cores
 - 138 TB of flash



- All-flash at hybrid prices
 - Lowest \$/GB and TCO



- Rich data efficiency services
 - Deduplication
 - Compression
 - Erasure Coding

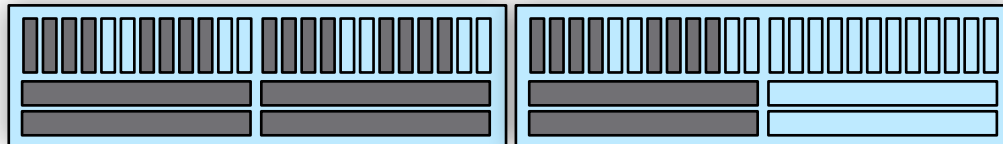
- Predictable, all-flash performance

* Effective capacity at street price

Single node scaling and upgrades

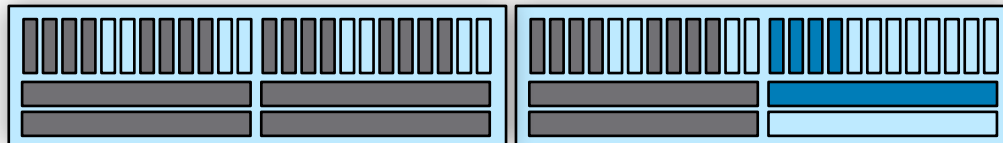
Minimizes risk and enables pay as you grow

Start with what you need
Minimize risk by closely
matching your requirements



3-64
nodes

Scale out
Add as few as one node to
increase performance and capacity



Nodes within a chassis must be homogenous

Predictable
linear pricing
by node

Scale up
Incrementally add storage
as data grows



Populate homogenous drives across all available nodes

Best for
unexpected
storage
growth

Continuously modernize

Evergreen clusters simplify tech refresh—no forklift migrations



Add new appliance to cluster

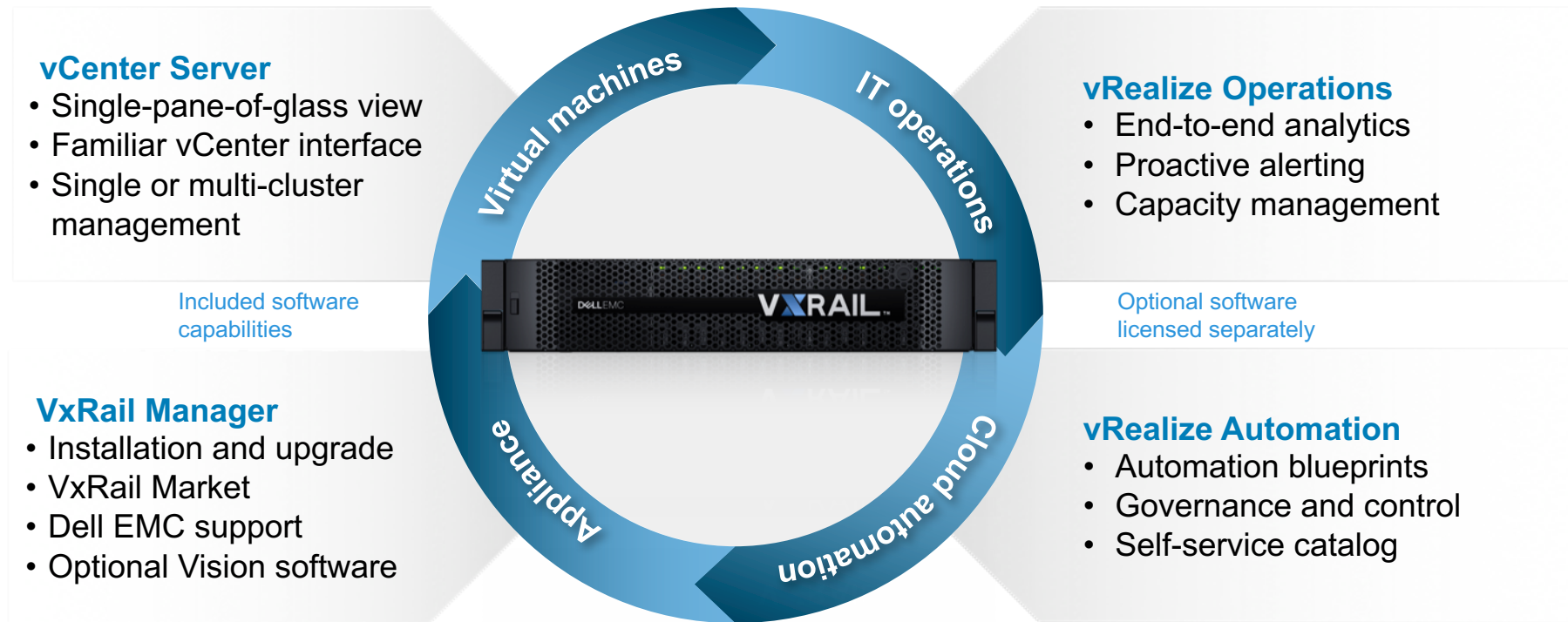
vMotion workload to new appliance

Remove old node

Non-disruptively

VxRail lifecycle management

Leverage your investment in VMware management and orchestration



VxRail comprehensive data protection

Included and extended data protection capabilities

Included data protection

Active/Active Stretched Clusters

- Continuous Availability for DR

RecoverPoint for VM

- Any point-in-time recovery
- 5 licenses/node included

vSphere Replication

- Specific point-in-time recovery (5min)

vSphere Data Protection

- 8 TB of deduplicated backup and recovery
- Single-step image recovery

Enhanced data protection options



DPS for VMware

- Granular backup and recovery
- Monitoring and real-time analytics
- Metadata or full-content index search

Data Domain Virtual Edition

- Simple, flexible, cloud-enabled software defined protection storage
- Flexible capacity up to 96 TB
- Includes DD Boost, DD Replicator, DD Encryption



How is VxRail being used?



Forrester: Total economic impact*

The value of Converged Infrastructure for data center

Application
developer
productivity

↑ 25%

Infra-structure
Cost

↓ 20%

It operations
efficiency

↑ 30%

Business
productivity

↑ 5-10%

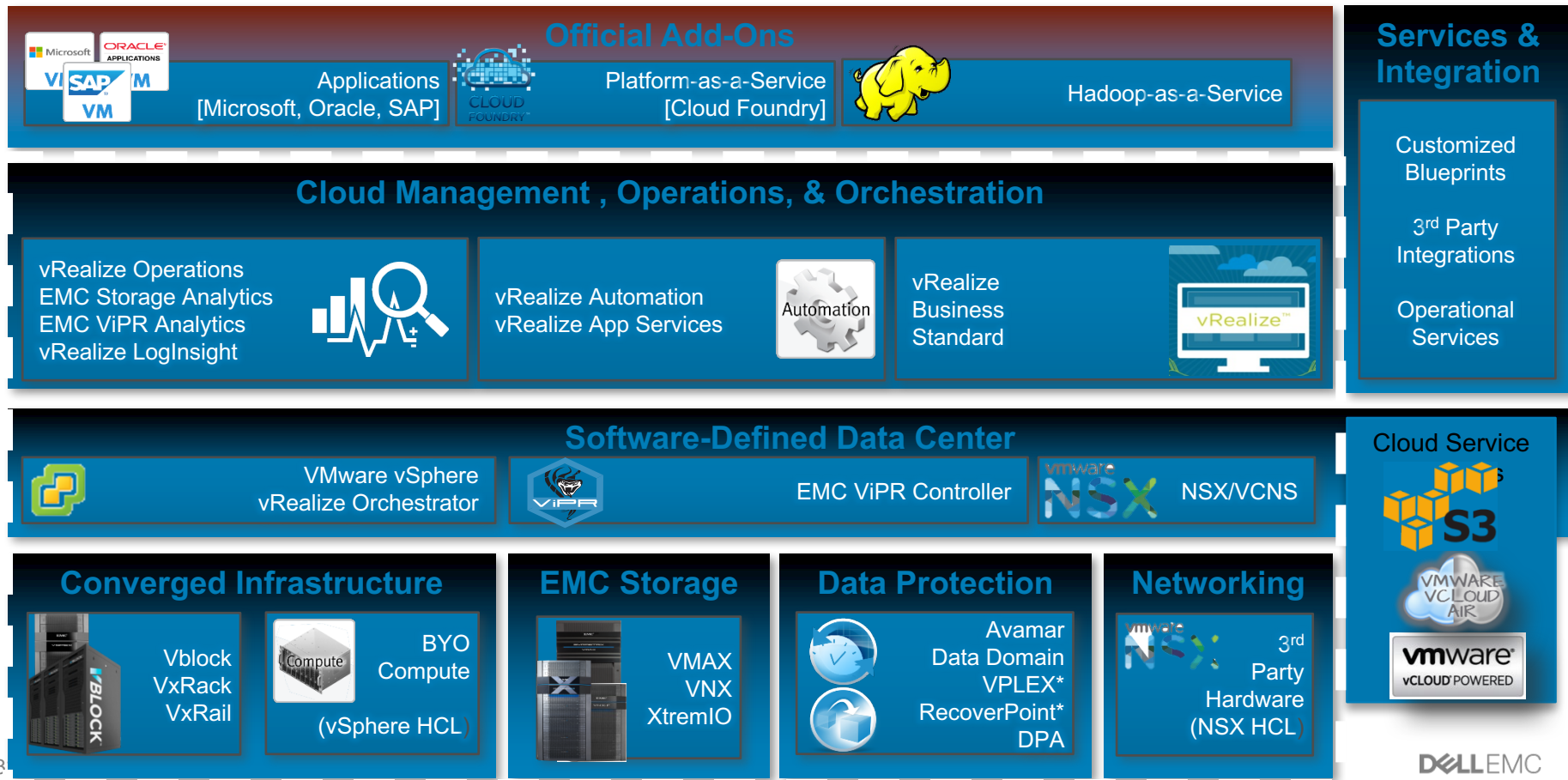
Security and
compliance
cost

↓ 15-20%

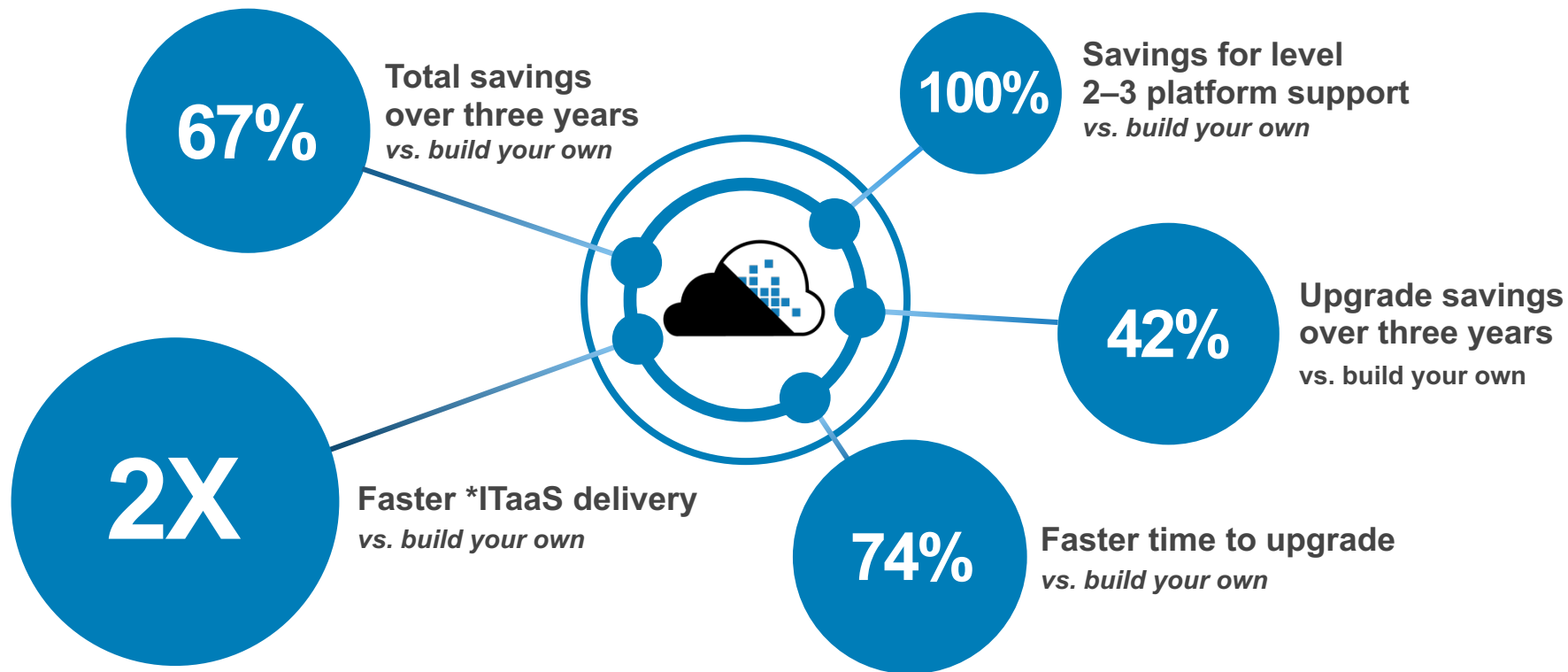
Financial summary—three year risk-adjusted results

*Source: Forrester—[A Practical Guide for Evaluating Converged Infrastructure 2016](#)

ENTERPRISE HYBRID CLOUD



Benefits of Enterprise Hybrid Cloud



Source: *Based on EHC customer deployments

Source: [Principled Technologies Mar 2016 study: IT service transformation with Hybrid Cloud: Buy or Build?](#)

Native Hybrid Cloud

Developer & IT OPS
“IT just works”
User experience



Inovate. Empower. Accelerate.

2x
boost to
developer
productivity*

10x
improvement
operational
efficiency*

3x
faster
Time to
Market

Push and scale apps
with a single command

Instant access to
application services

Application availability
and integrated security

Simplified monitoring
and reporting

*Metrics based on average results from customers utilizing Pivotal Cloud Foundry across Dell Strategically Aligned Businesses.

Our approach delivers better results

The Dell EMC difference



End-to-end solutions

Comprehensive portfolio, better together



Customer Choice

Comprehensive portfolio of choices to best suit your technical and business needs.



Open, standards-based approach

No deliberate lock-in & easy access to latest innovations



Flexible scaling

No forced constraints or rip-and-replace



Unmatched service & support

Single source for global service & support



Superior TCO

Better up-front and ongoing costs, plus flexible financing

DELLEMC