Trends in IT

Consequenties voor de infrastructuur.

EMC Hans Timmerman

EMC Federatie:

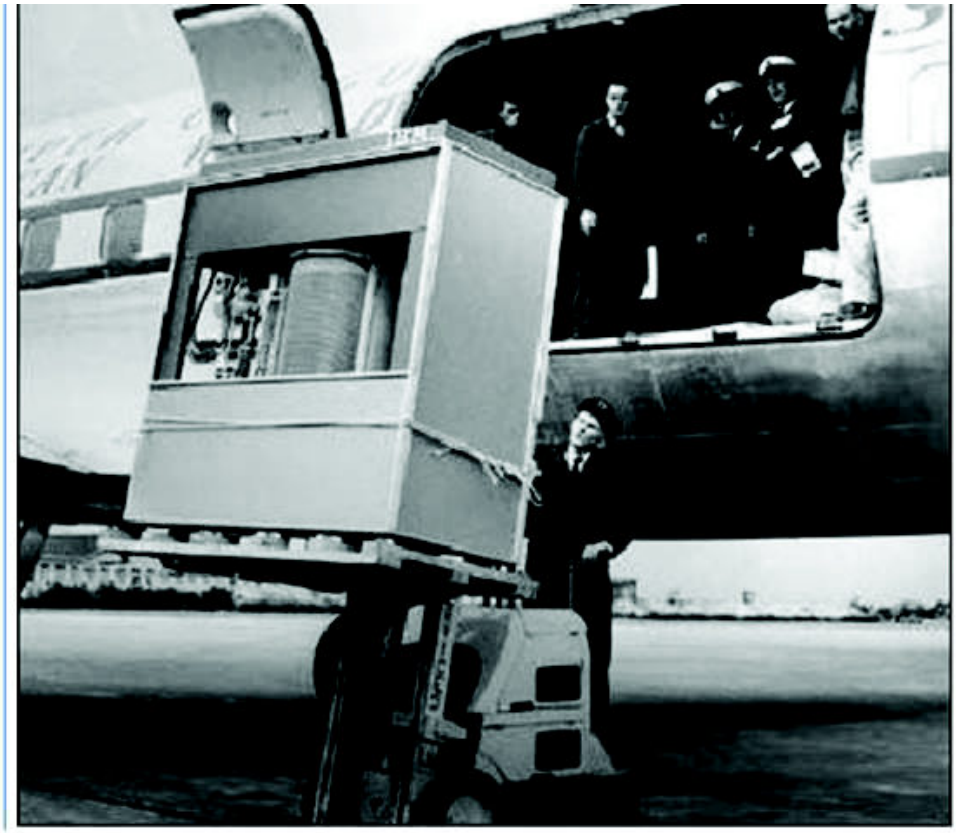
- EMC Informatie infrastructuur
- VMware
- RSA security
- Pivotal
- Information Intelligence

Techniek verdwijnt onder de motorkap

. . . en is steeds lastiger uit te leggen.

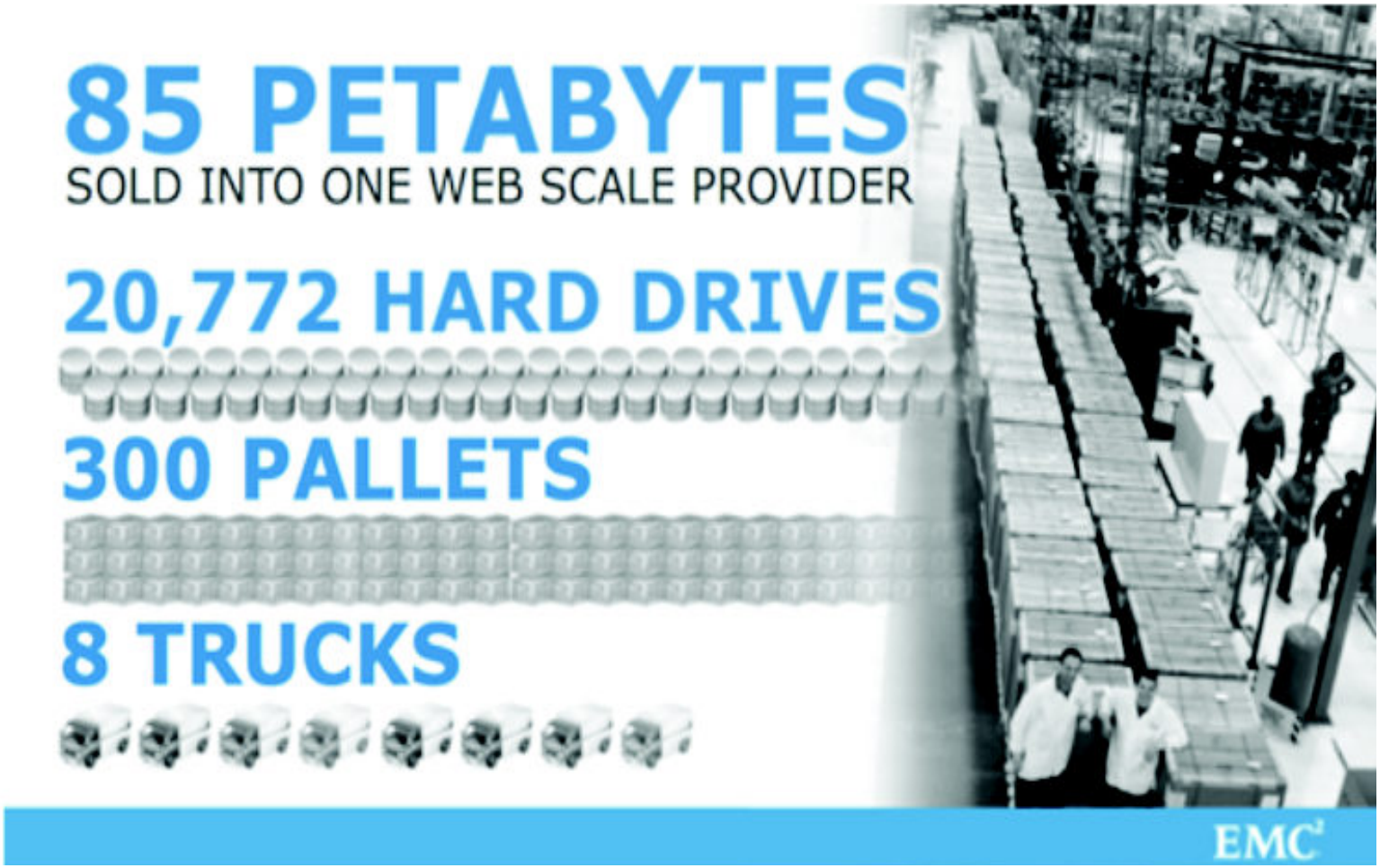
Virtualisatie is complexiteit in het kwadraat

Hardware wordt kleiner, capaciteit groeit ..



1956 - 5 Mb Hard Disk van de IBM 305 RAMAC
Woog meer dan 1.000 Kg en had ongeveer de grootte van een piano

Hardware wordt kleiner, capaciteit groeit ..



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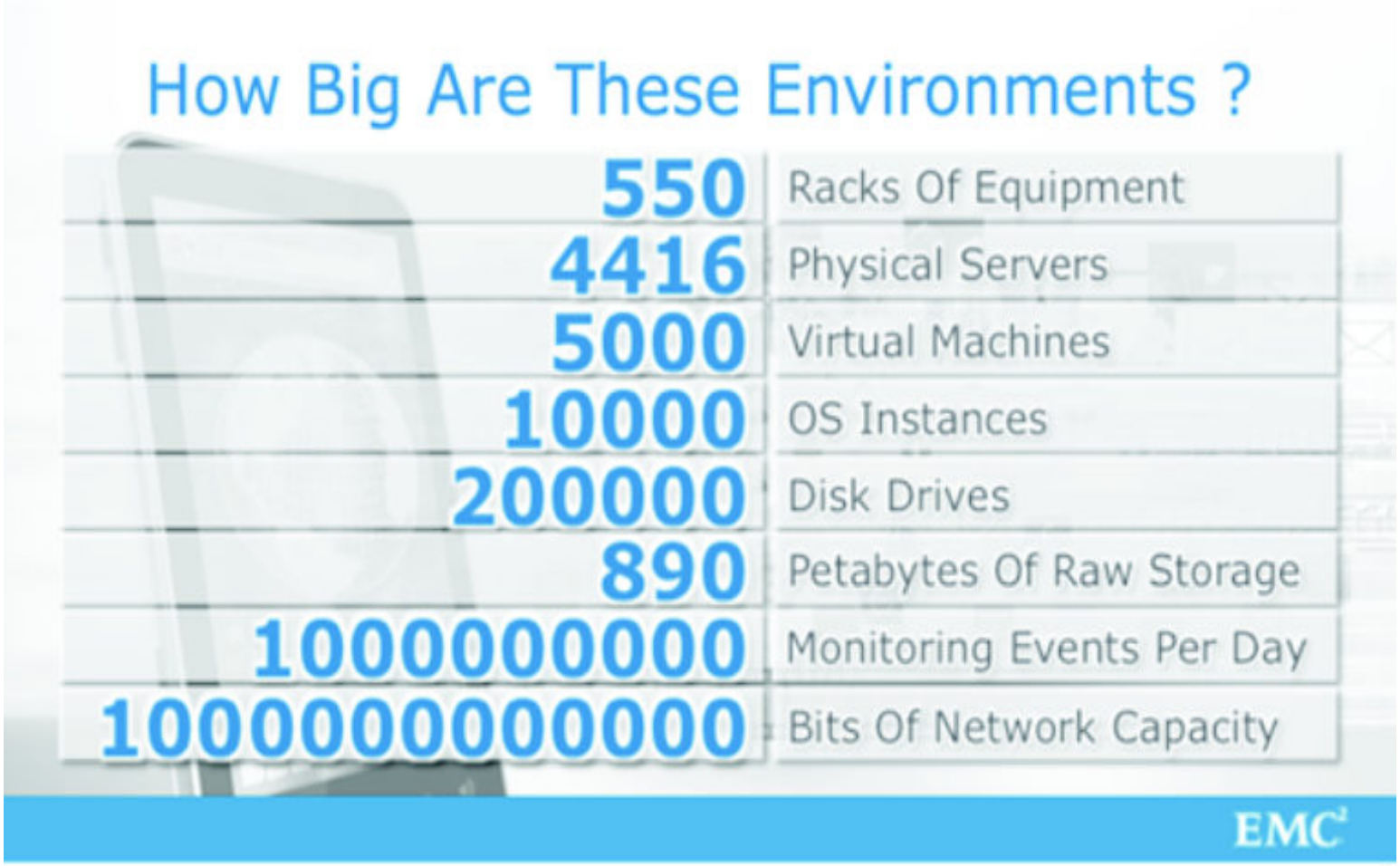
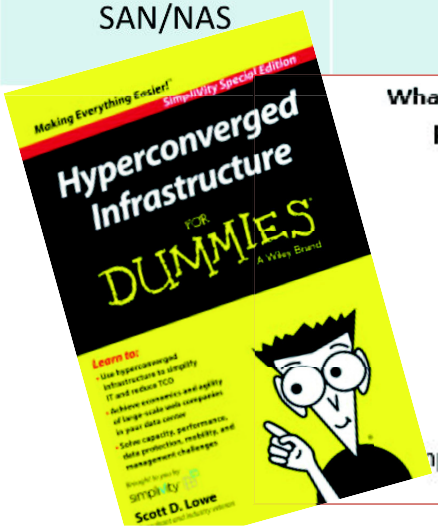
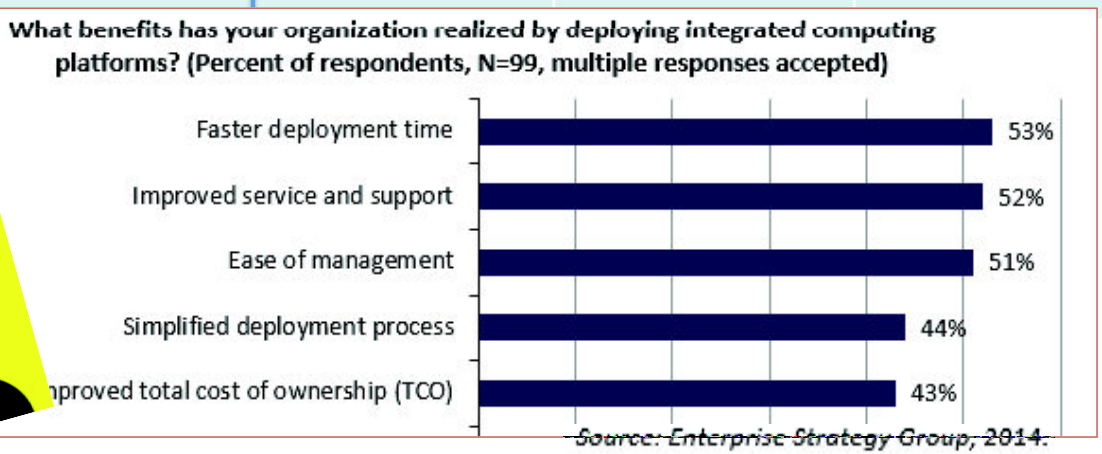


Infrastructure Convergence Continuum

FHI IT ROOM INFRA

Build Your Own / DIY	Reference Architecture	Converged	VSA	Hypervisor Converged
VMware/HyperV + Servers + SAN/NAS	DIY based on reference document	Traditional Virtualization, but pre-integrated at factory	Virtualizes the Storage to run as a VM on the Hypervisor	Converges Hypervisor, Storage and Networking in single solution





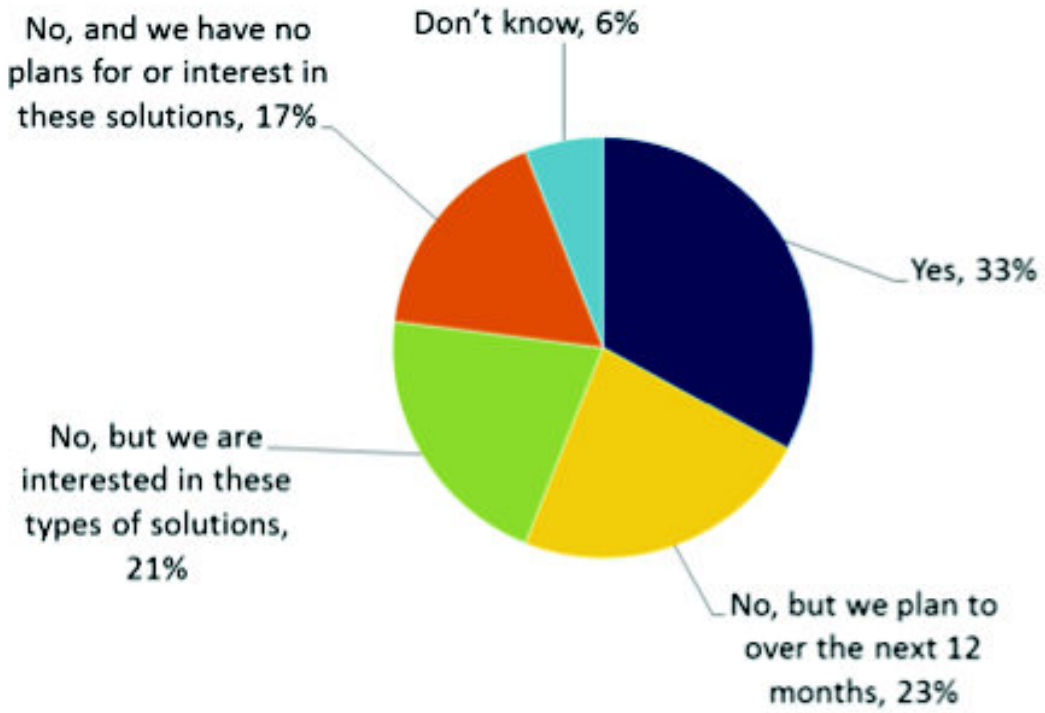
A fast growing market

Top 3 Vendors, Worldwide Integrated Infrastructure, Q2 2014 (Revenues are in Millions)

Vendor	2Q14 Revenue	2Q14 Market Share	2Q13 Revenue	2Q13 Market Share	2Q14/2Q13 Revenue Growth
1. VCE	$328.6	24.3%	$211.1	24.9%	55.7%
2. Cisco/NetApp	$303.4	22.5%	$219.5	25.9%	38.3%
3. EMC	$239.1	17.7%	$174.2	20.5%	37.3%
All Others	$478.8	35.5%	$243.5	28.7%	96.7%
Total Factory Value	**$1,350.0**	**100%**	**$848.2**	**100%**	**59.2%**

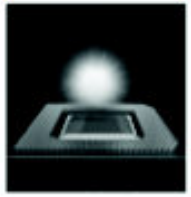
Source: IDC Worldwide Integrated Infrastructure & Platforms Tracker, September 25, 2014

Does your organization currently use any type of integrated computing platform? (Percent of respondents, N=303)



ESG Research Brief, *Integrated Computing Platform Trends*

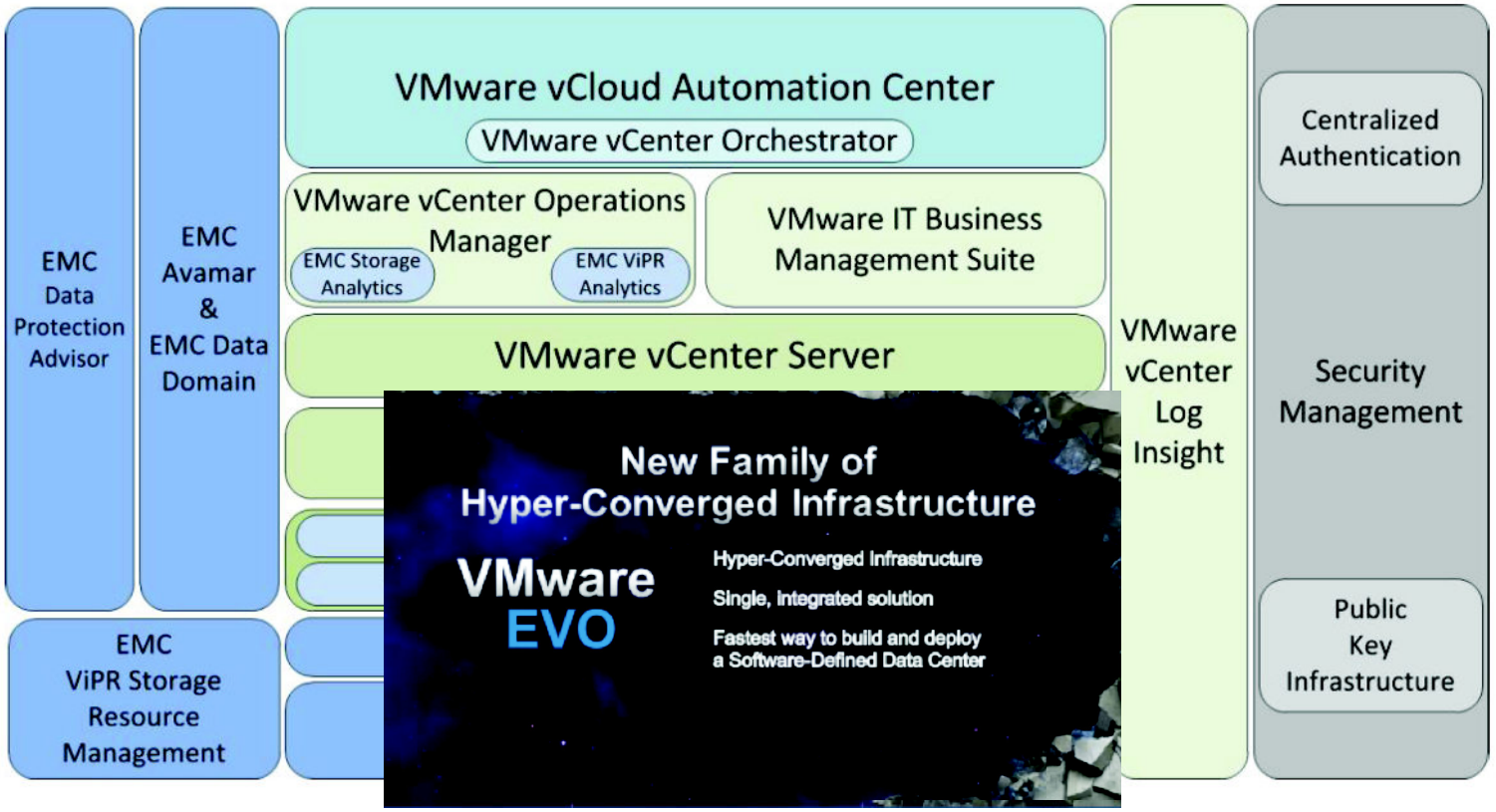
Converged Infrastructures are the new black

	Converged Architectures			Hyper-converged Architectures			
	Embedded	Integrated Best-of-Breed		Software-Defined BYO Commodity	Common Modular Building Block Appliances	Rack Scale	
		Integrated Stack	Integrated Infrastructure			Integrated Rack Scale	Common Rackscale Building Blocks
							
Strengths	• Best way to deploy additional storage services	• Fastest time-to value at the application level	• Well suited and broad support for P2 workload requirements • Proven, mature	• Flexibility of any hardware choice.	• Start very small • Simple support model • Unbeatable simplicity	• Well suited for general scale SP, SaaS P3 workloads • Flexible • Simple Support Model	• Supports specialized, high-end P3 workloads due to custom HW • Simple support model
Weakness	• Poor economics for general purpose workload use	• Application Silo	• High "Step In" Cost. • Premium economic scaling factors	• "Non-predictable outcome" • Non-integrated acquisition and support model	• Poor economic scaling past ~1000 VMs • Rigidity for datacenter use cases	• Poor support for legacy workload SLAs and infrastructure expectations.	• Poor support for legacy workload SLAs and infrastructure expectations.

Hardware becomes a commodity: standardized, common, cheap, simple

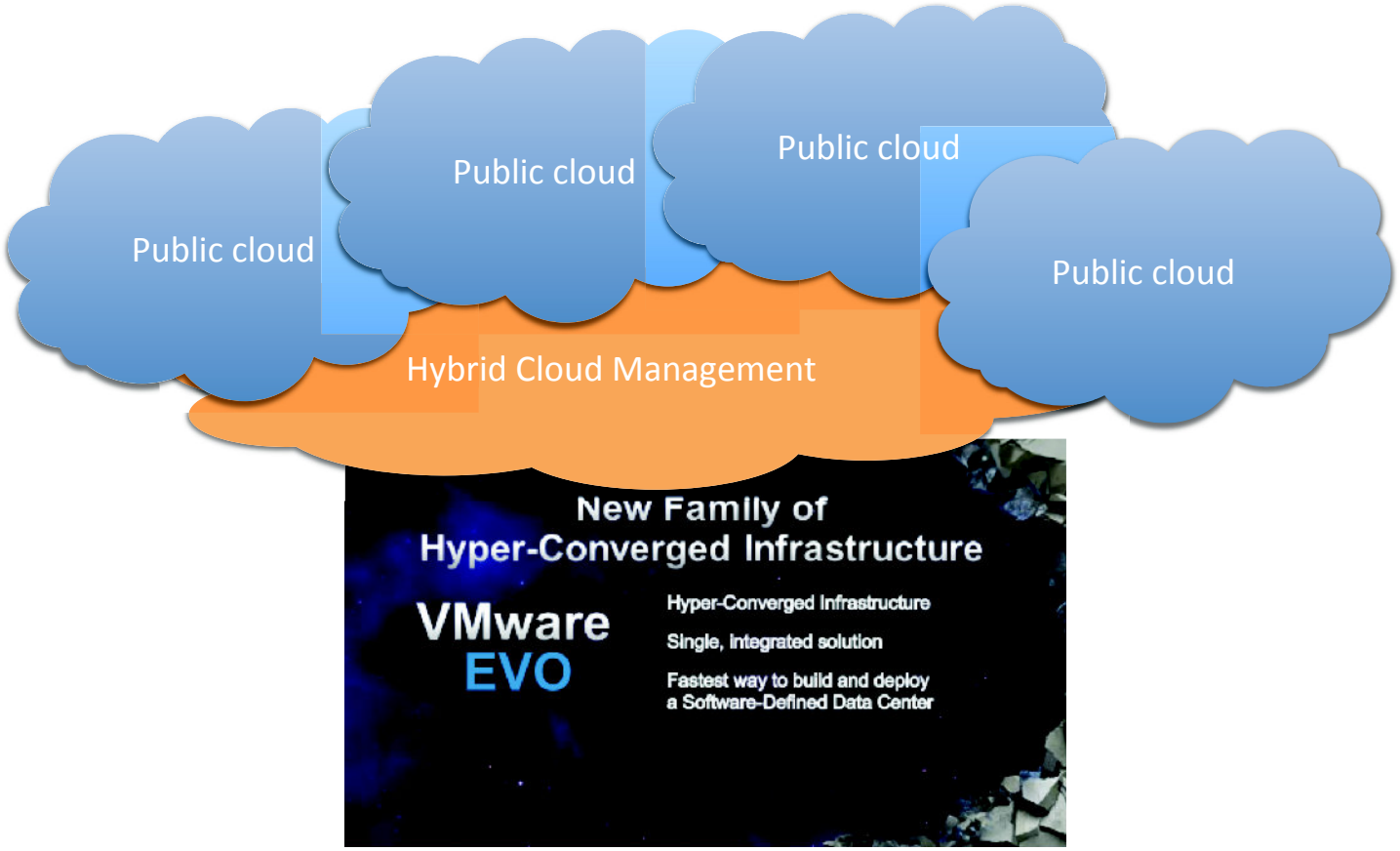
The intelligence is in the software

Next step is to modulair micro private datacenters based upon private cloud architectures



EMC's Federation view: a private cloud as one integrated software stack

Next step is to modulair micro private datacenters based upon private cloud architectures



EMC's Federation view: a private cloud as one integrated software stack

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Based upon new families of hyper converged building blocks

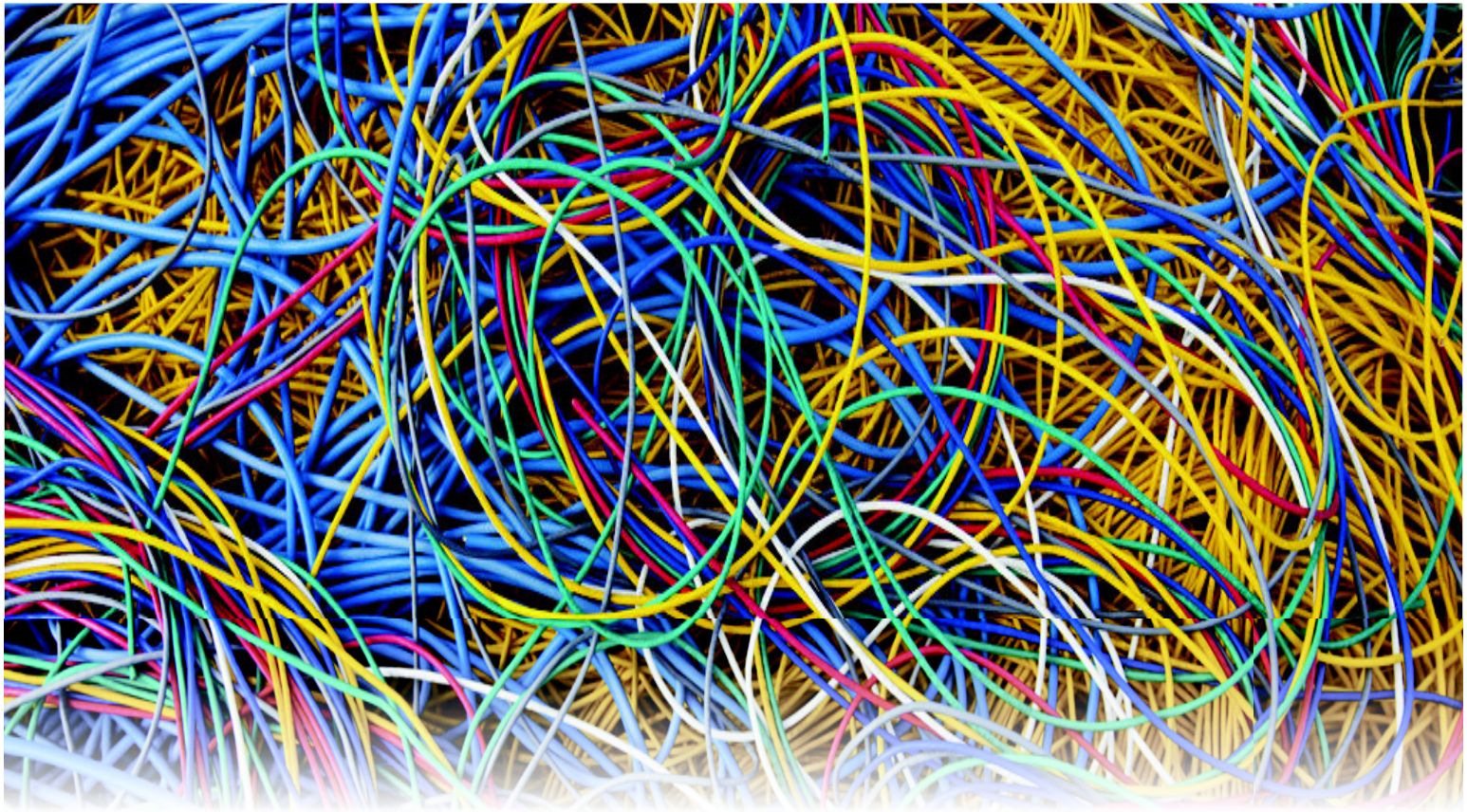
while . . . .

Software is eating the World

SOFTWARE DEFINES **ENTERTAINMENT**

SOFTWARE REDEFINES **INSURANCE**

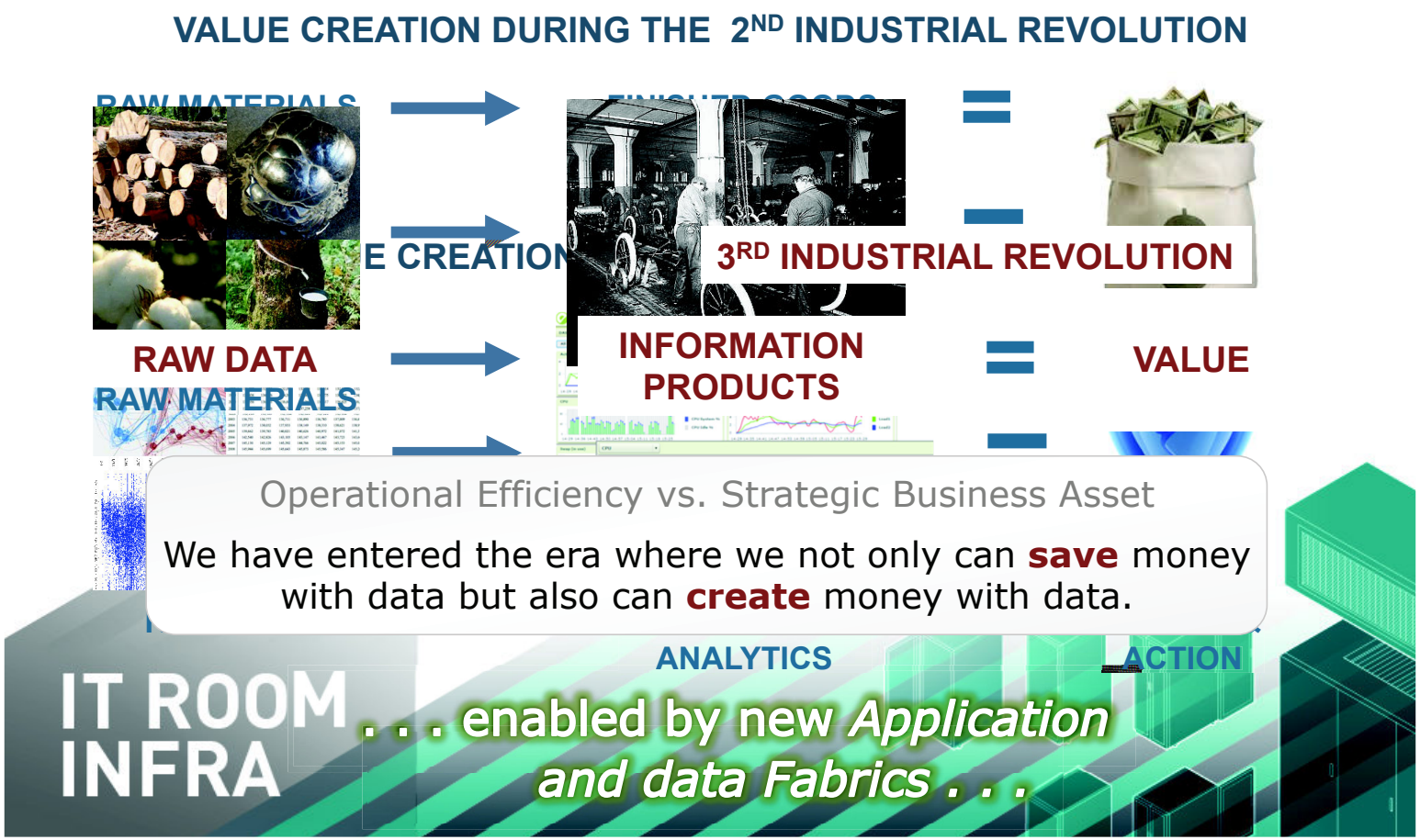
SOFTWARE DEFINES **NIKE**



SOFTWARE REDEFINES **IT**

Many Industries Face Structural Change

Value Creation in the Information Economy



The Data Driven Society

“Water water everywhere, but nary a drop to drink.”

- The Rime of the Ancient Mariner

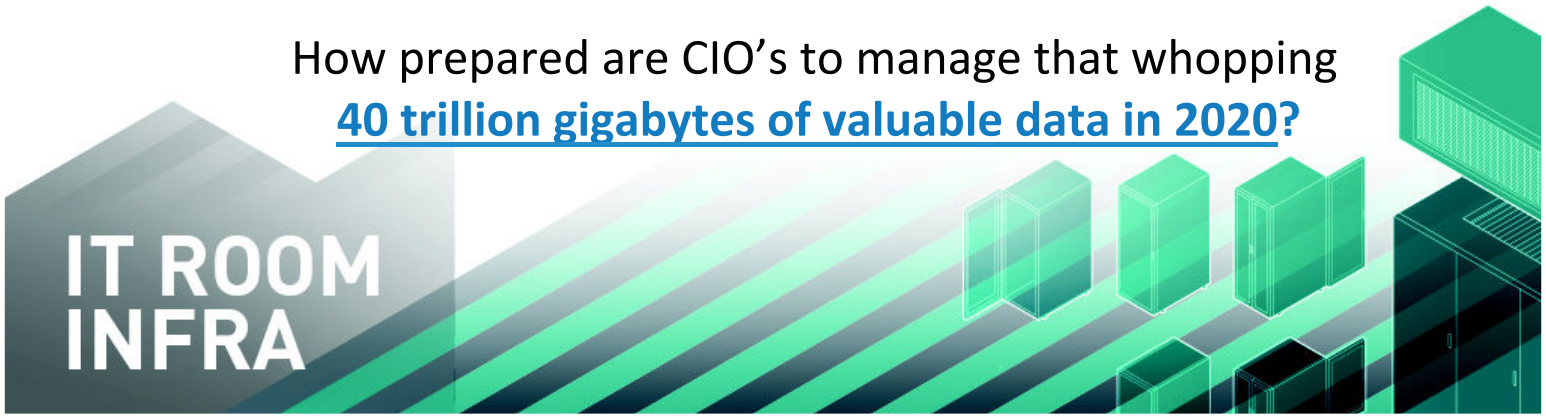
In the world of data:

“Data, data everywhere, but nary a bit to use.”

The digital universe (40 ZB by 2020) holds potential analytic value:
Only 0.4% of the digital universe is actually being analyzed.

Data is the new oil and creates a market of $17 billion in 2015
Return on Data (ROD) will be the new ROI.

How prepared are CIO’s to manage that whopping
40 trillion gigabytes of valuable data in 2020?



Infrastructure & Applications Designed For A Different Era

IT Systems Focused On Data Warehousing

IT Skills Focused On Reporting Of Historical Internal Data

Security Is Perimeter Based & Focused On Intrusion Prevention

IT Infrastructure Is Siloed & Labor Intensive To Manage

New IT Agenda

Provide Access To All Applications & Data Through **Mobile Devices.**

Use **Agile Development** To Build New Customer-Centric Applications.

Build A **Data Lake** To Deliver Greater Insight In Real Time.

Move To A **Software-Defined Data Center** Infrastructure.

Use **Adaptive, Data-Driven Security** To Rapidly Respond To Emerging Threats.

BILLIONS OF USERS
BILLIONS OF DEVICES

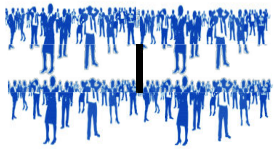
3RD PLATFORM

Mobile Cloud Big Data Social

Mobile Devices

MILLIONS
OF APPS

HUNDREDS OF MILLIONS
OF USERS

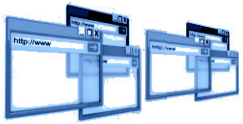


2ND PLATFORM

LAN/Internet Client/Server

PC

TENS OF THOUSANDS
OF APPS



MILLIONS
OF USERS

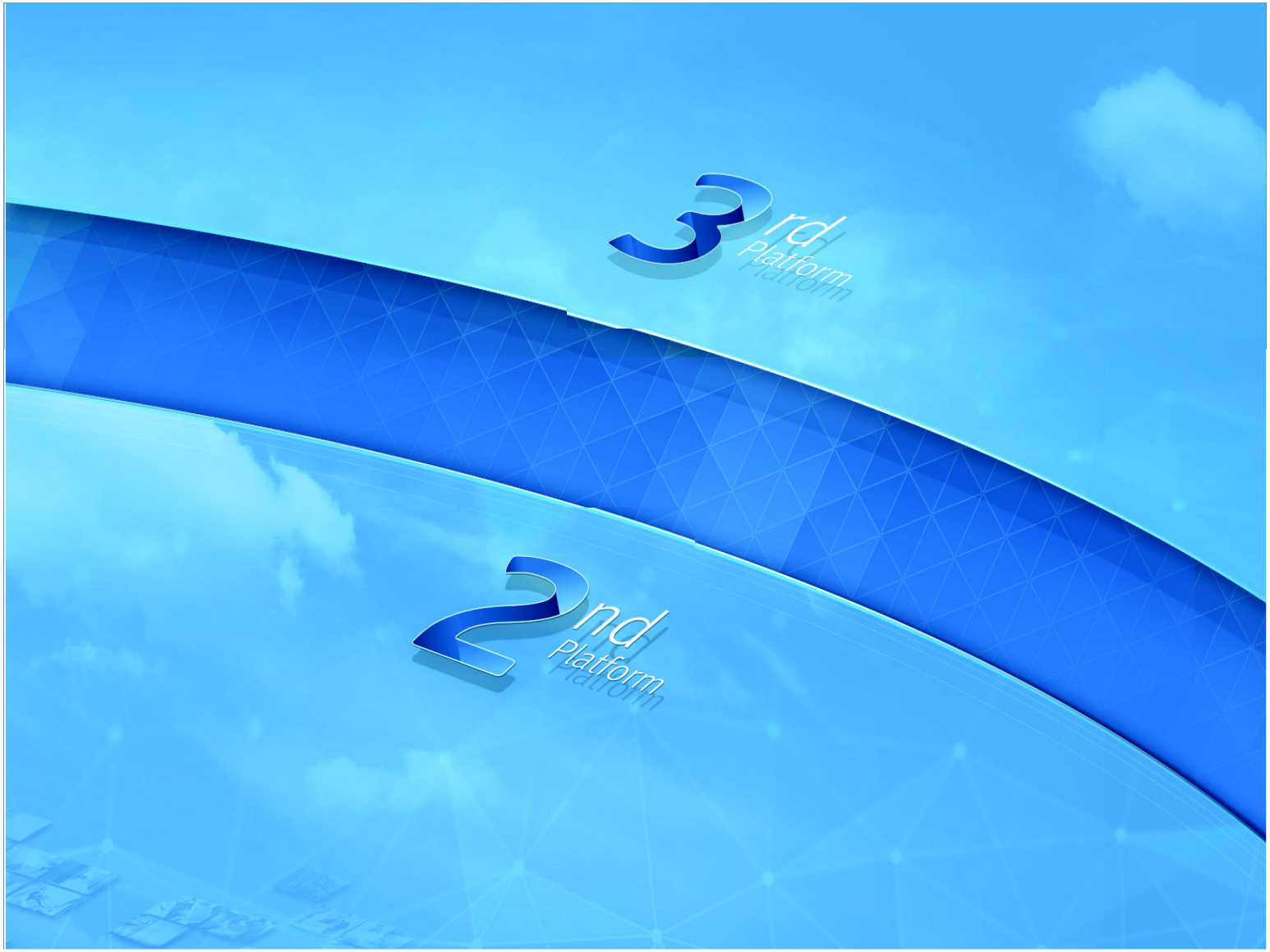
1ST PLATFORM

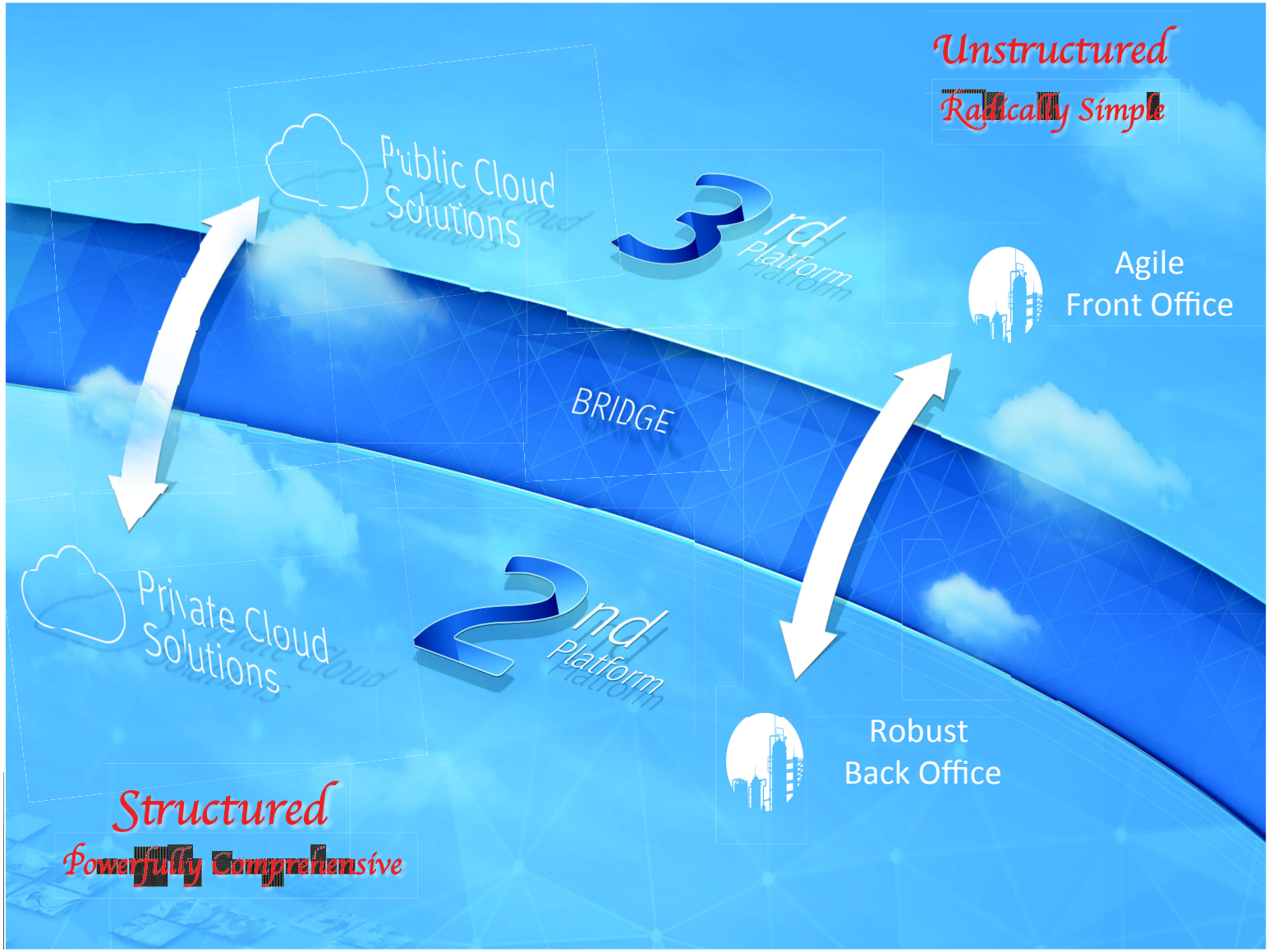
Mainframe, Mini Computer

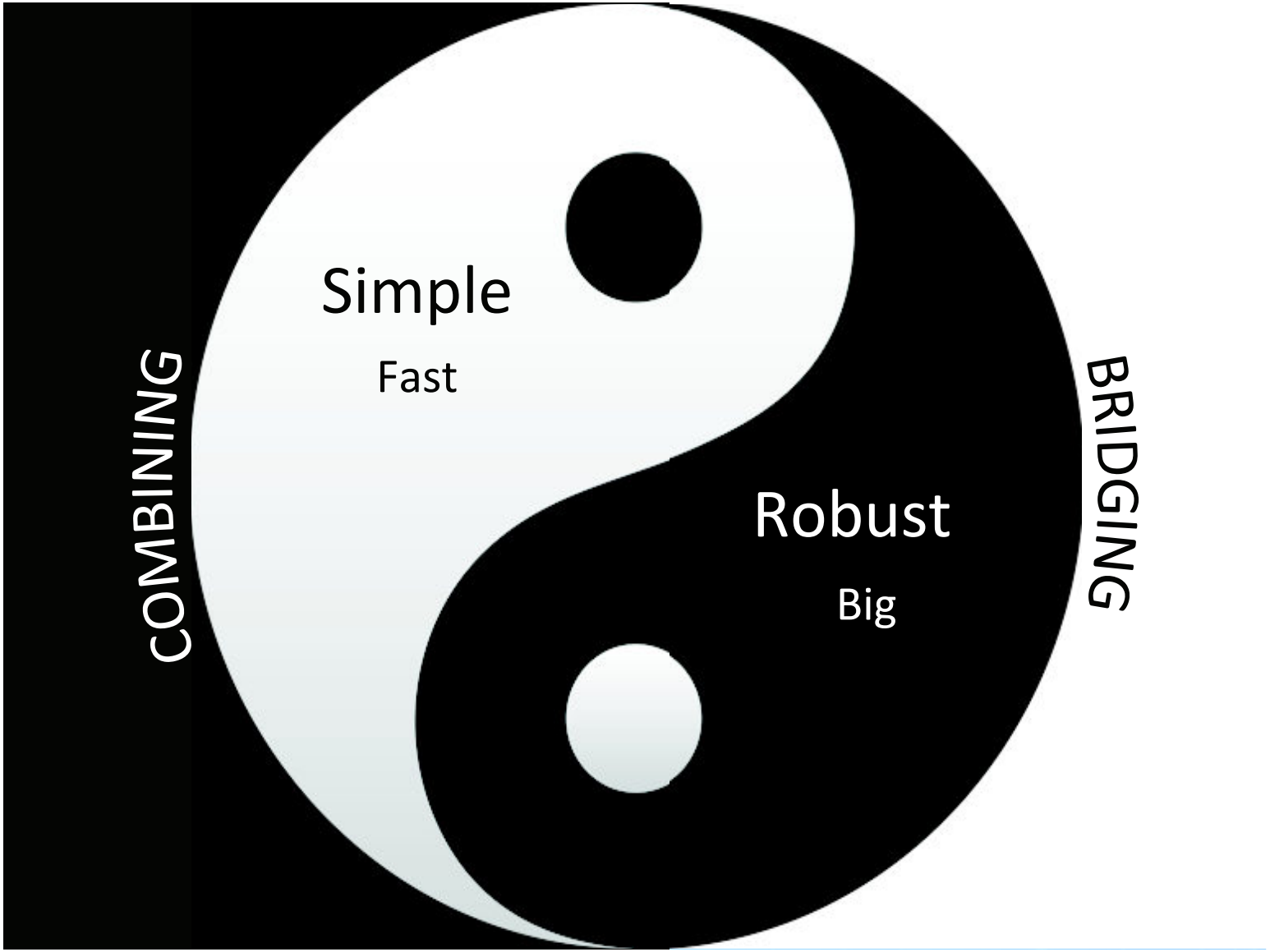
Terminals

THOUSANDS
OF APPS

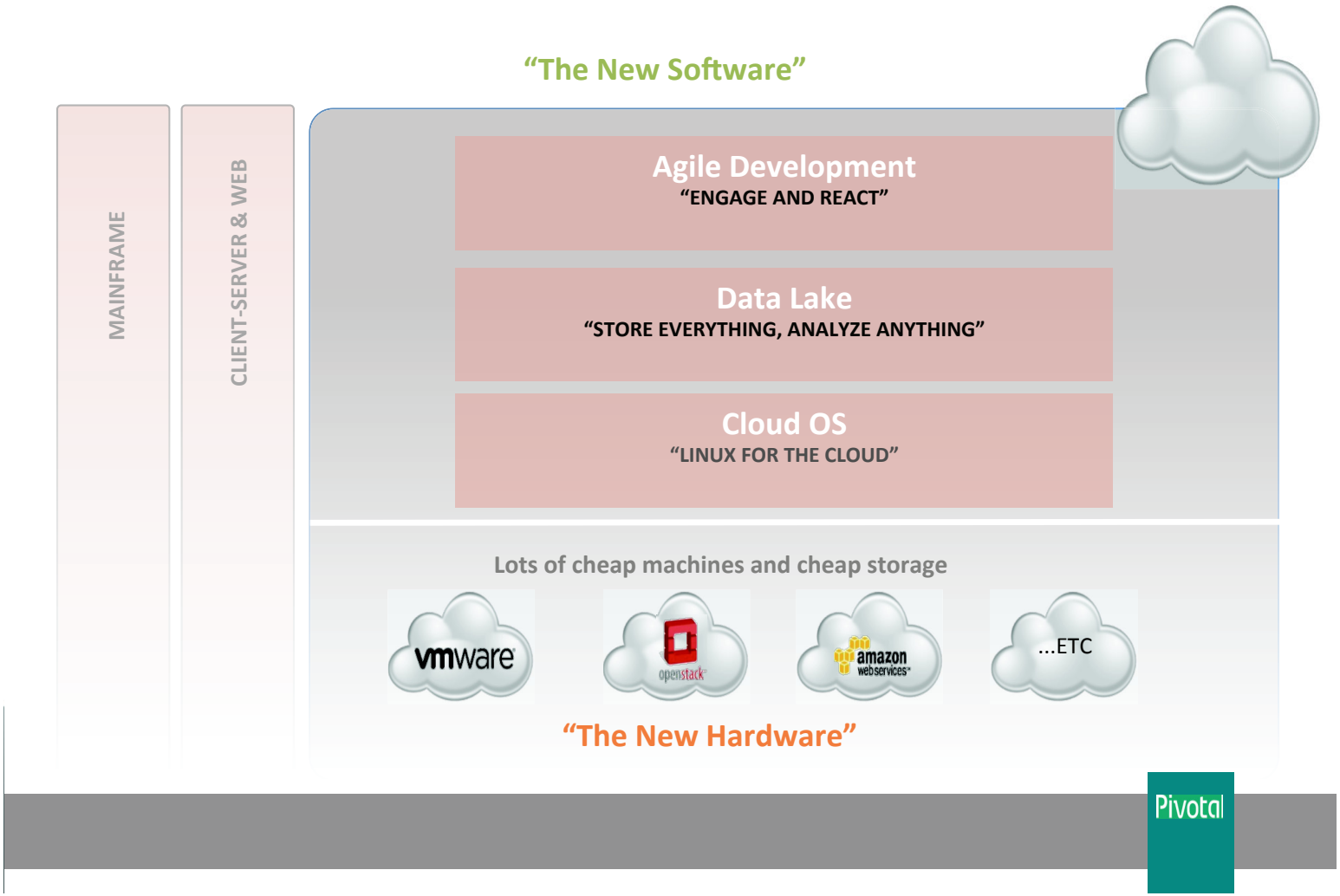
Source: IDC


3rd Platform
2nd Platform

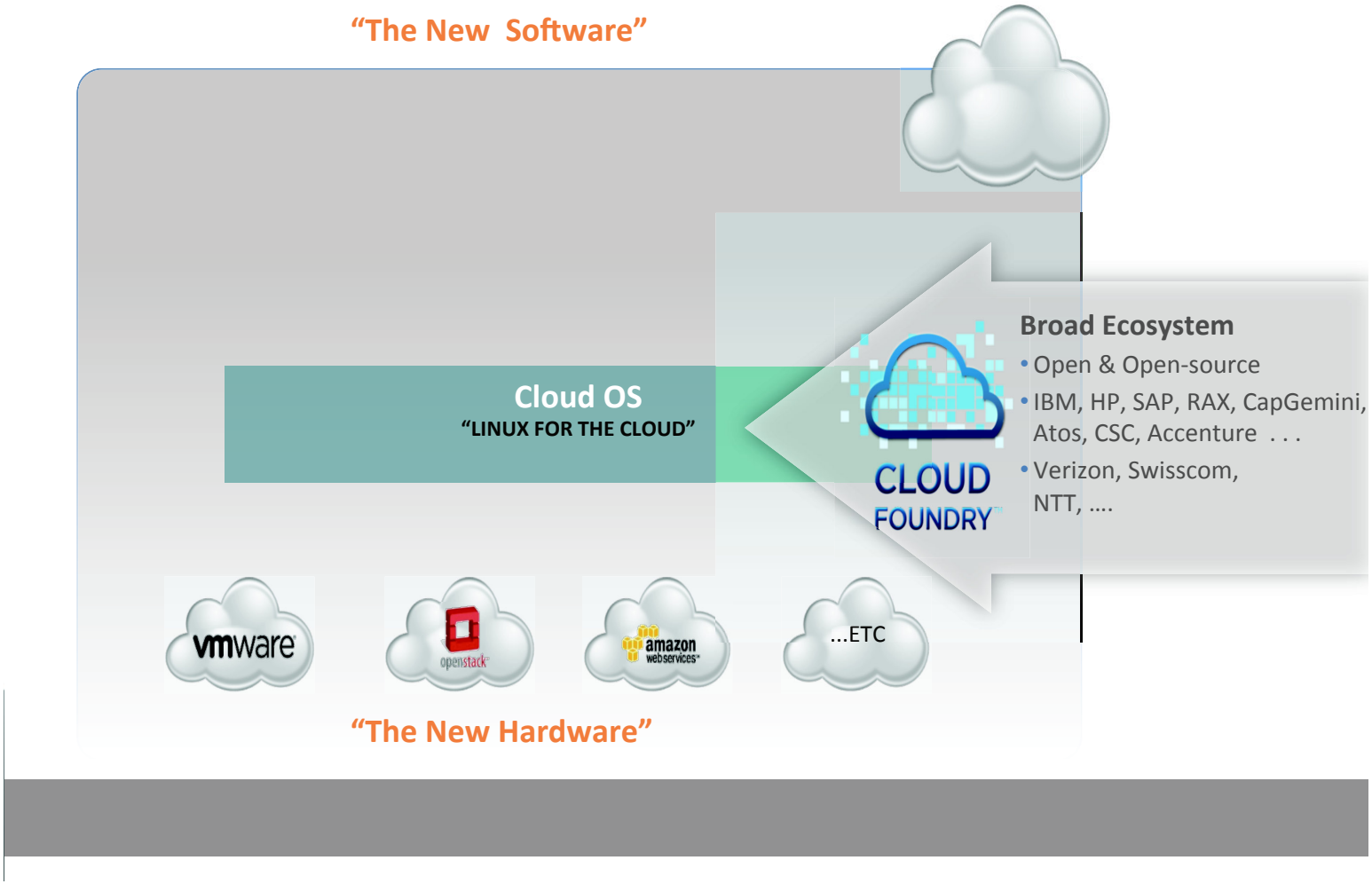

Unstructured
Radically Simple
Public Cloud Solutions
3rd Platform
Agile Front Office
BRIDGE
Private Cloud Solutions
2nd Platform
Robust Back Office
Structured
Powerfully Comprehensive


COMBINING
Simple
Fast
Robust
Big
BRIDGING

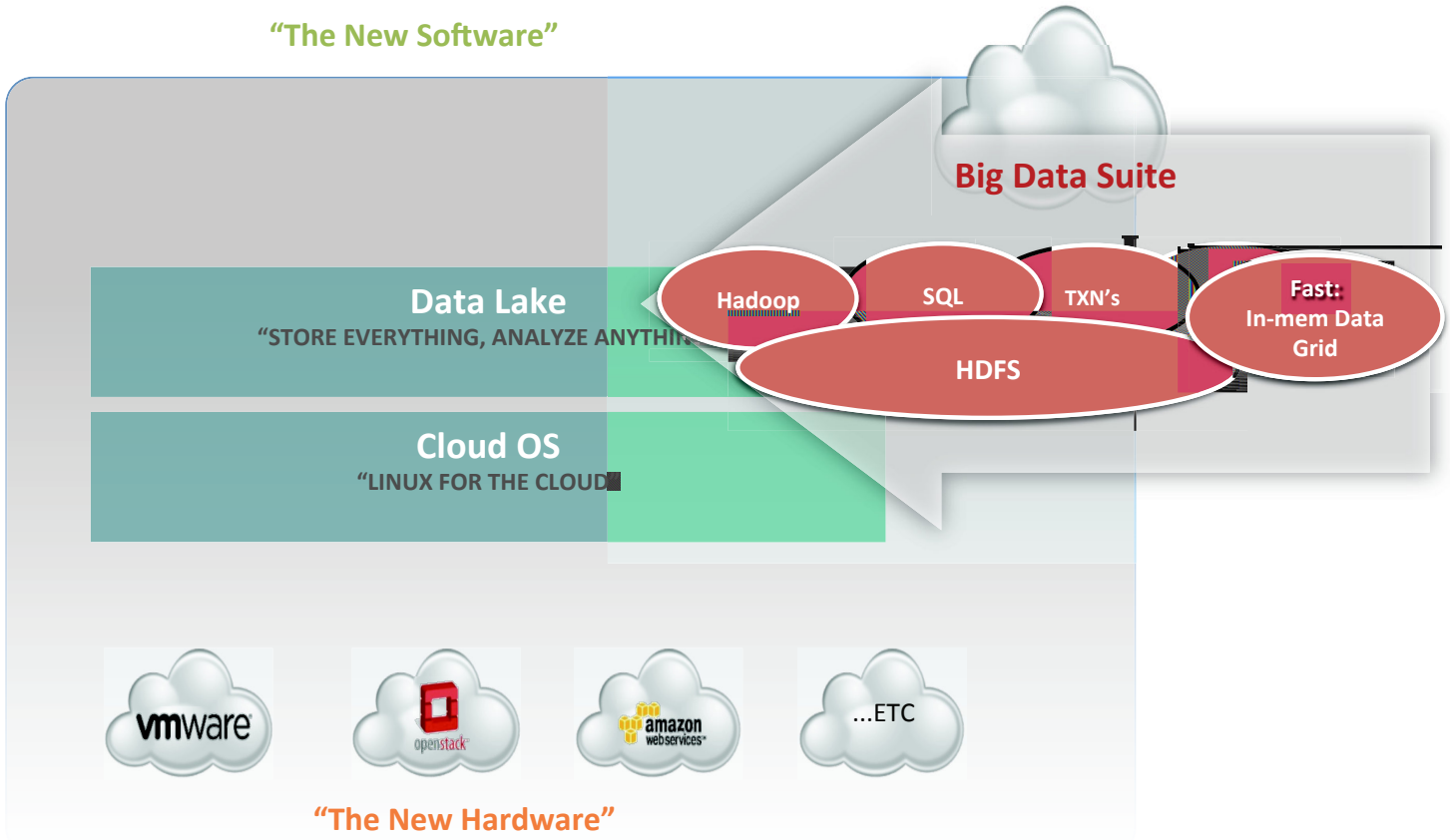
Delivering a 3rd Generation Platform



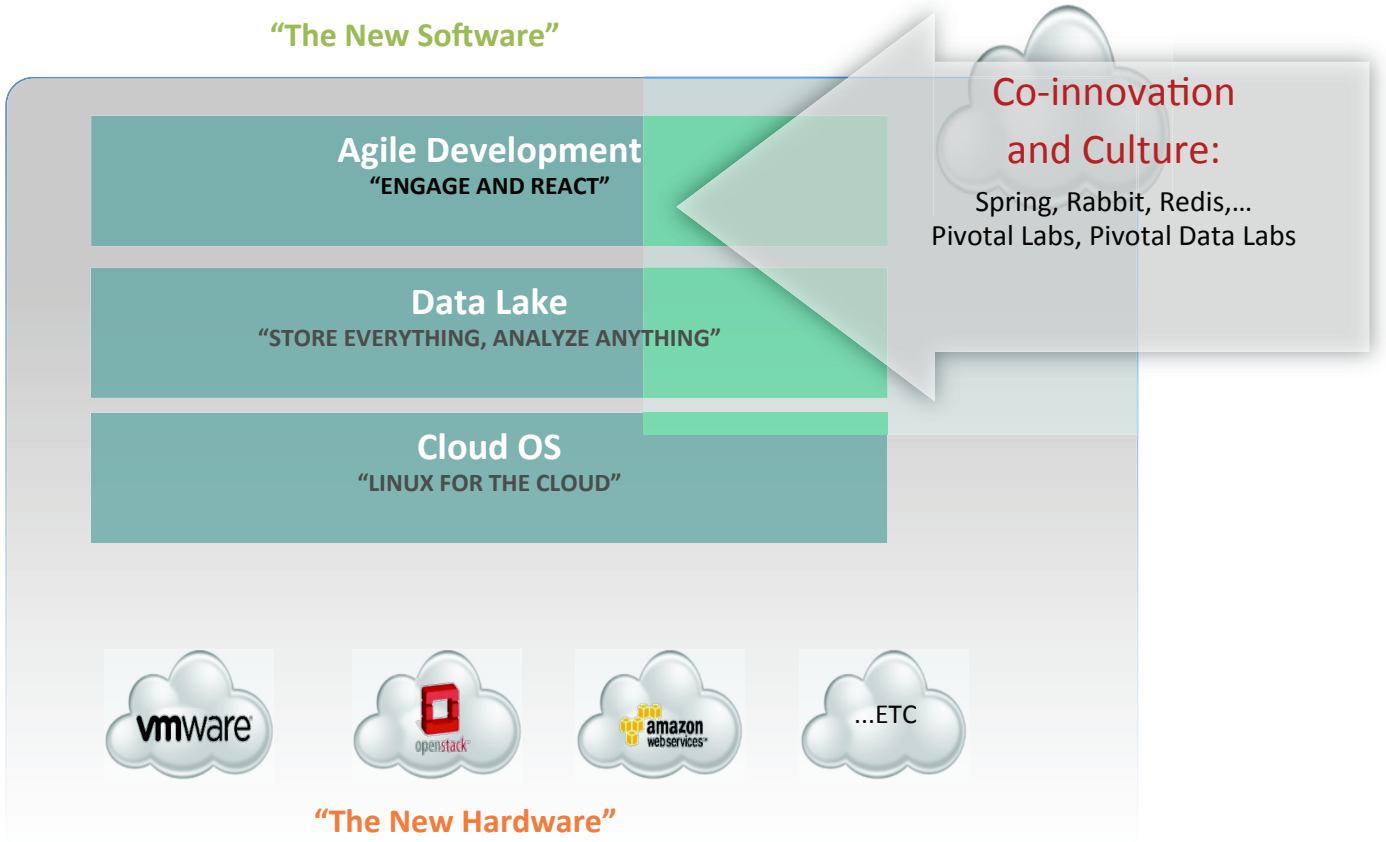
Linux for the Cloud



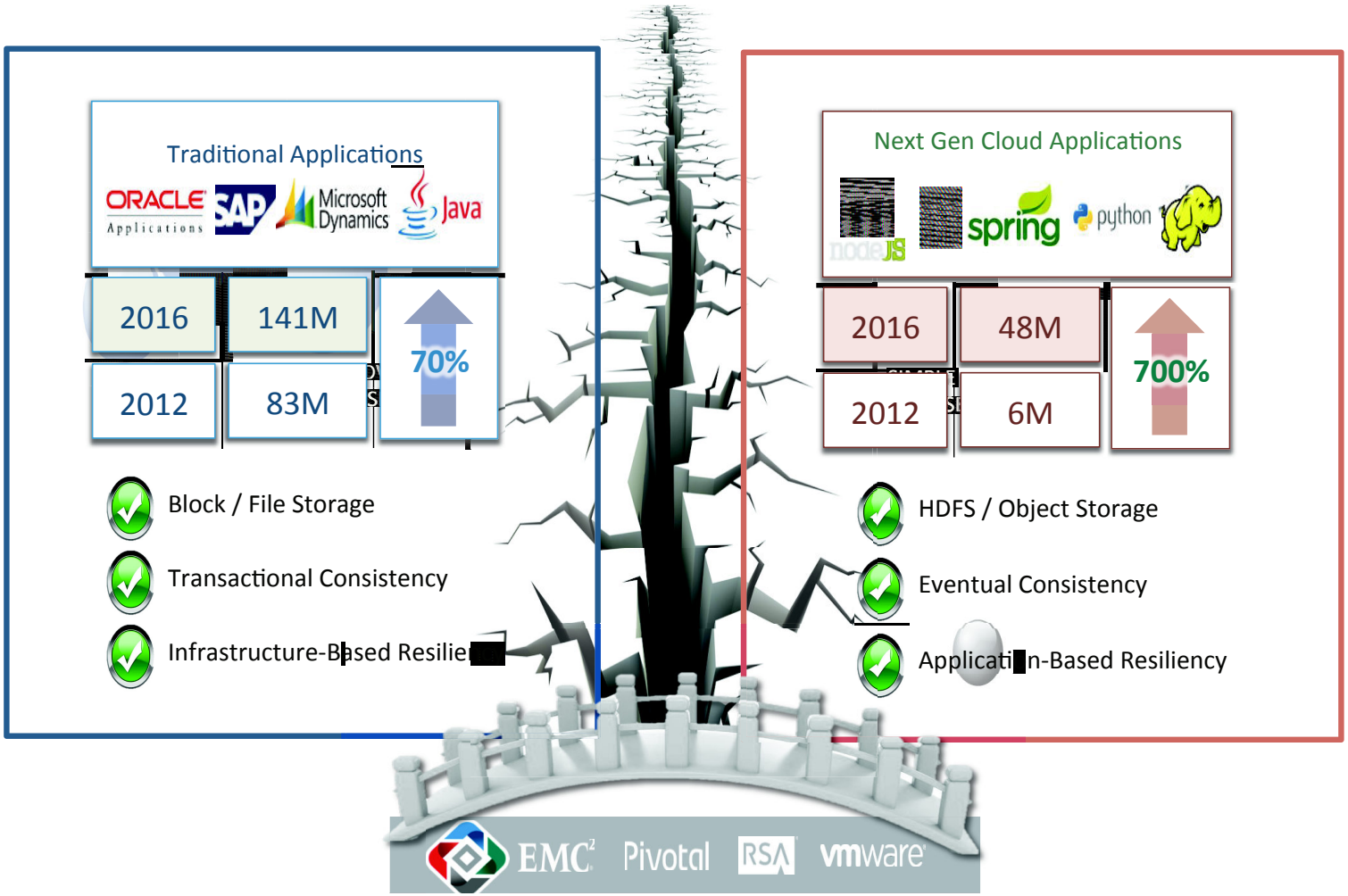
The Data Lake



Agile: Pivotal's App Software



Two Bridging The Gap Architectures



A Liquid World
Known
Competition
Unpredictable
Methodical Planning
Innovation
Rapid Iteration
Slow
App Deployment
Instant
Millions
Customers
Billions
“Built to Last”
Organization
“Built to Change”

From Rigid Structures to Liquid Business

THEN		NOW
Known	**Competition**	Unpredictable
Owned	**Assets**	Shared
Methodical Planning	**Innovation**	Rapid Iteration
Slow	**App Deployment**	Instant
Millions	**Customers**	Billions
“Built to Last”	**Organization**	“Built to Change”

Today's Reality: Stuck in Silos

Traditional Apps	Vs.	Cloud-Native Apps
IT	Vs.	Developers
On-Premise	Vs.	Off-Premise
Safe, Secure, and Compliant	Vs.	Instant, Elastic, and Self-Service

The new Reality:

The Power of "AND"

Traditional Apps	&	Cloud-Native Apps
IT	&	Developers
On-Premise	&	Off-Premise
Safe, Secure, and Compliant	&	Instant, Elastic, and Self-Service

A Story of Two Clouds

Pattern:
Scale-out, not UP

Scale Up: (Virtual*)
Servers are like pets

You name them and when they get sick, you nurse them back to health

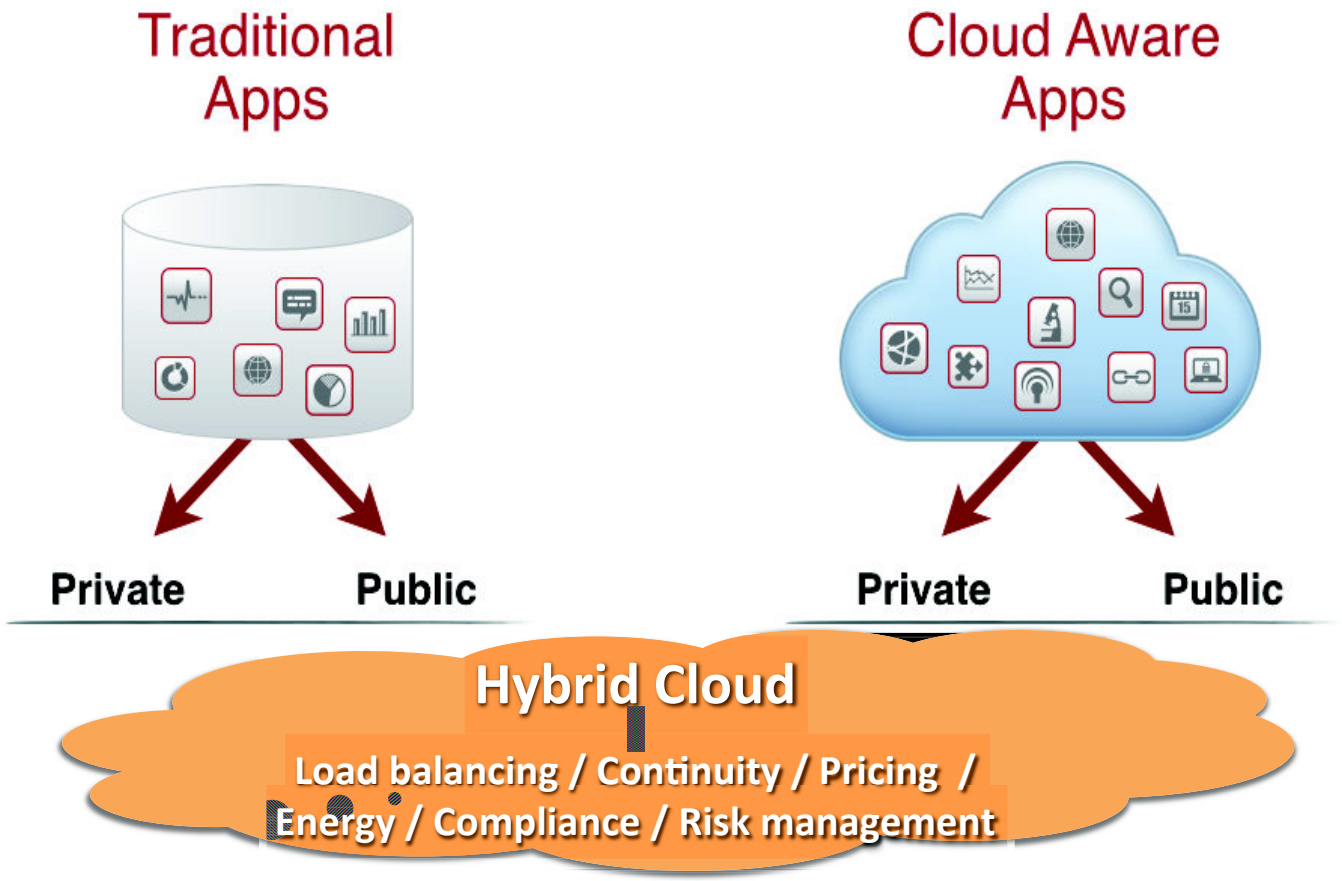
garfield.company.com

Scale Out: (Virtual*)
Servers are like cattle

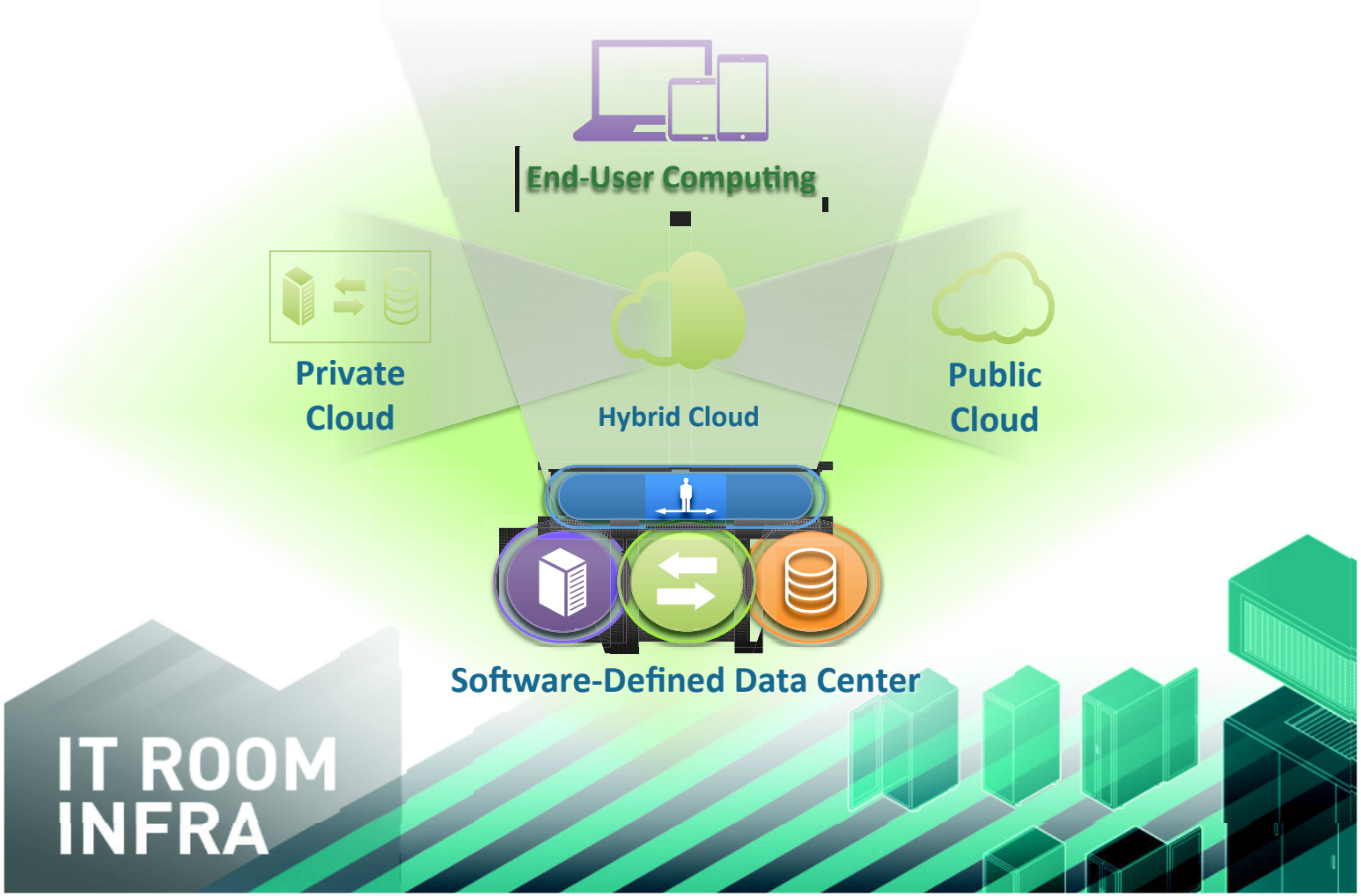
You number them and when they get sick, you shoot them

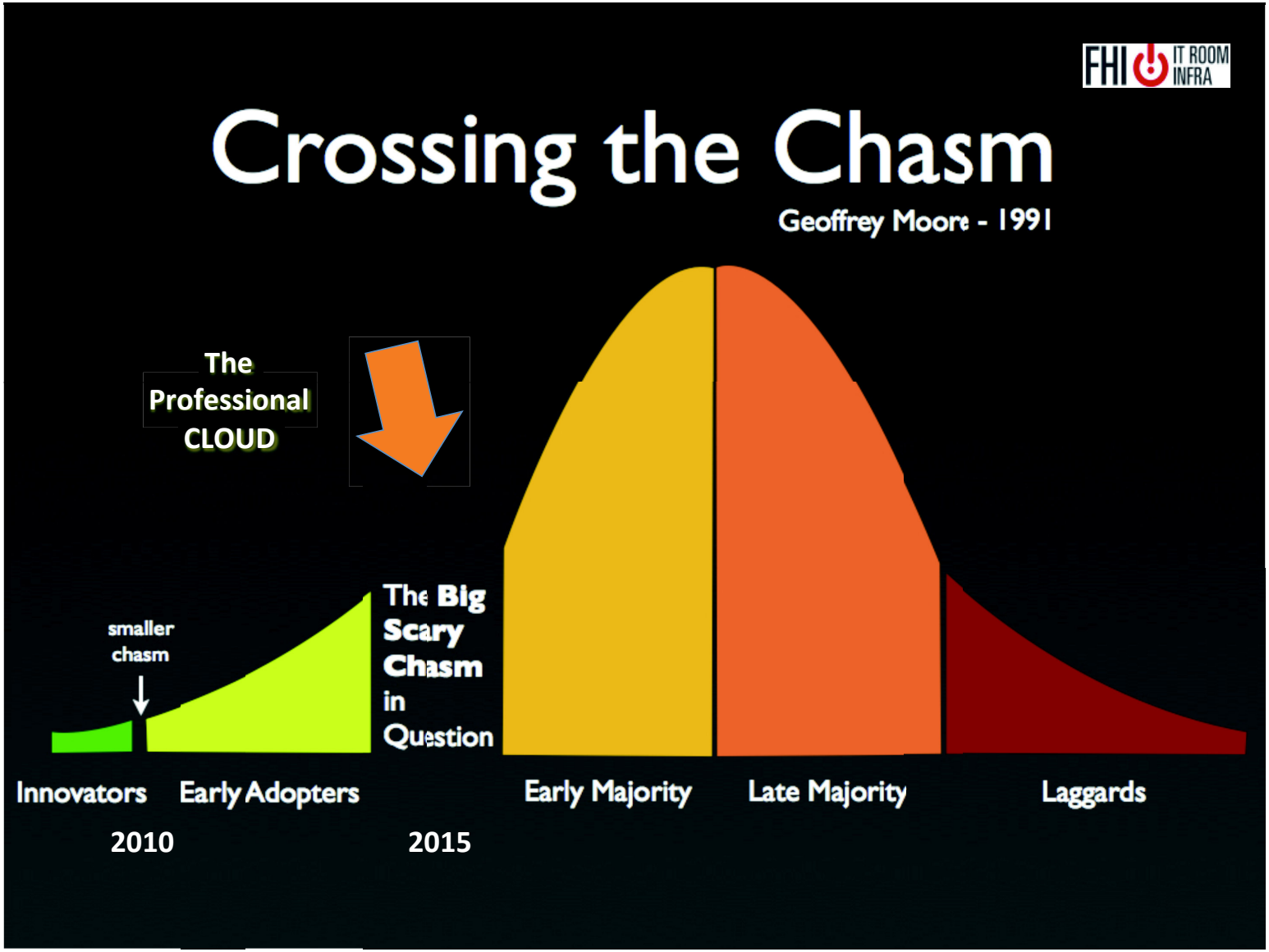
web001.company.com

Portfolio of IT Infrastructure



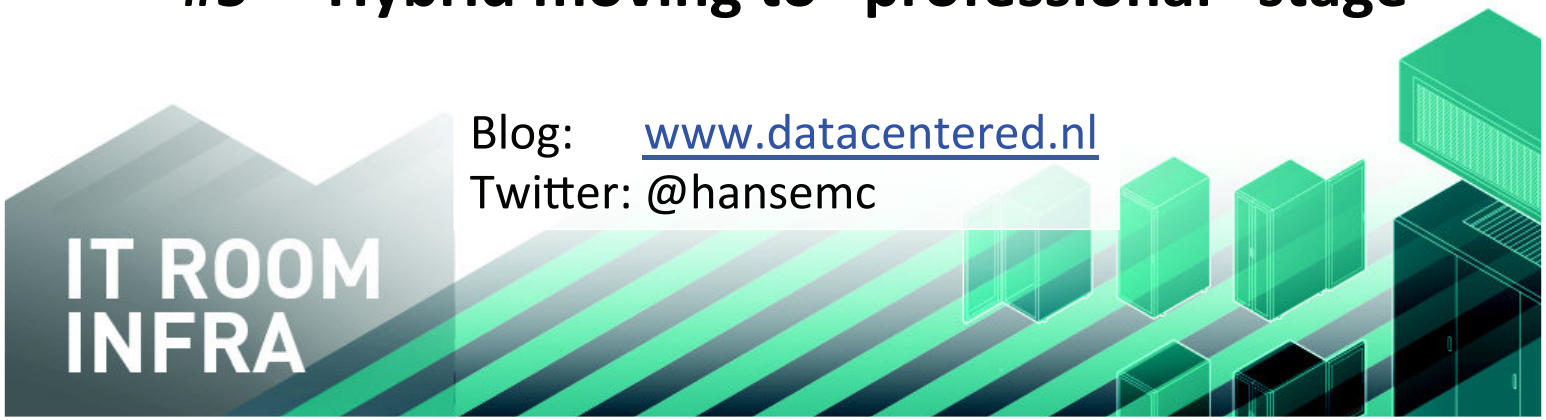
The Path to the Software-Defined Enterprise




FHI IT ROOM INFRA
Crossing the Chasm
Geoffrey Moore - 1991
The Professional CLOUD
smaller chasm
The Big Scary Chasm in Question
Innovators
Early Adopters
Early Majority
Late Majority
Laggards
2010
2015

Conclusion:

- #1 Hyperconverged Infrastructures
- #2 The Power of AND (rather than OR)
- #3 Software defines (also) the Data Center
- #4 Combination of Private and Public Clouds
- #5 Hybrid moving to “professional” stage



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Twitter: @hansemc