The Cloud Era

Zayan Sadek
Territory Manager, Service Providers

Mazen Abi Najm
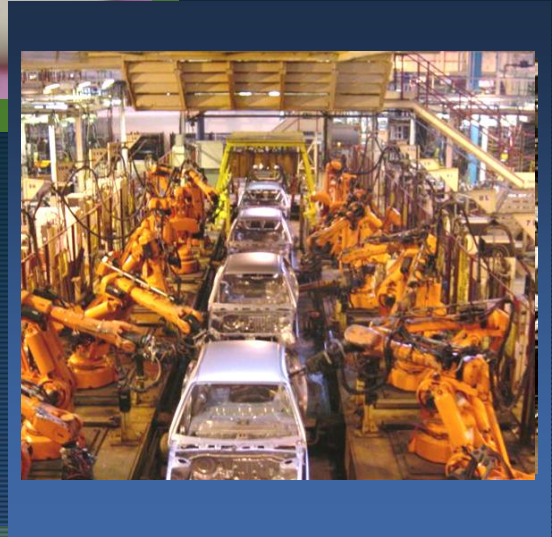System Engineer, DC & Cloud

December 05, 2011

Agenda

Cloud Opportunity

Cisco's Strategy and Differentiation

Cloud Architecture

Next Steps

Things Change

Modern Business

Business Focus

- **Products, offerings**
- **Customer service**
- **Employee productivity**

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Beneath the Waterline

- **Infrastructure sprawl, complexity**
- **Low asset utilization**
- **High operations overhead**
- **Difficult to manage, scale, optimize, reconfigure, maintain**

Impact

- **Low agility, efficiency, resilience**
- **Reduced competitiveness**

What the Business Sees

Supporting Infrastructure

Meeting Today's Business Challenges

Growth

Margin

Risk

"…we need a solution that enables us to respond to customers within hours instead of days"

"I need to achieve greater cost efficiency and increased IT agility…an elusive combination…"

"At the end of the day, I just want to simply, confidently say 'yes' to my business."

Data Center is today at a Critical Juncture
Convergence of Traditional IT and new Business Pressures

Empowered User

Realtime Information

Collaborative Applications

Economic Uncertainty

New Business Pressures

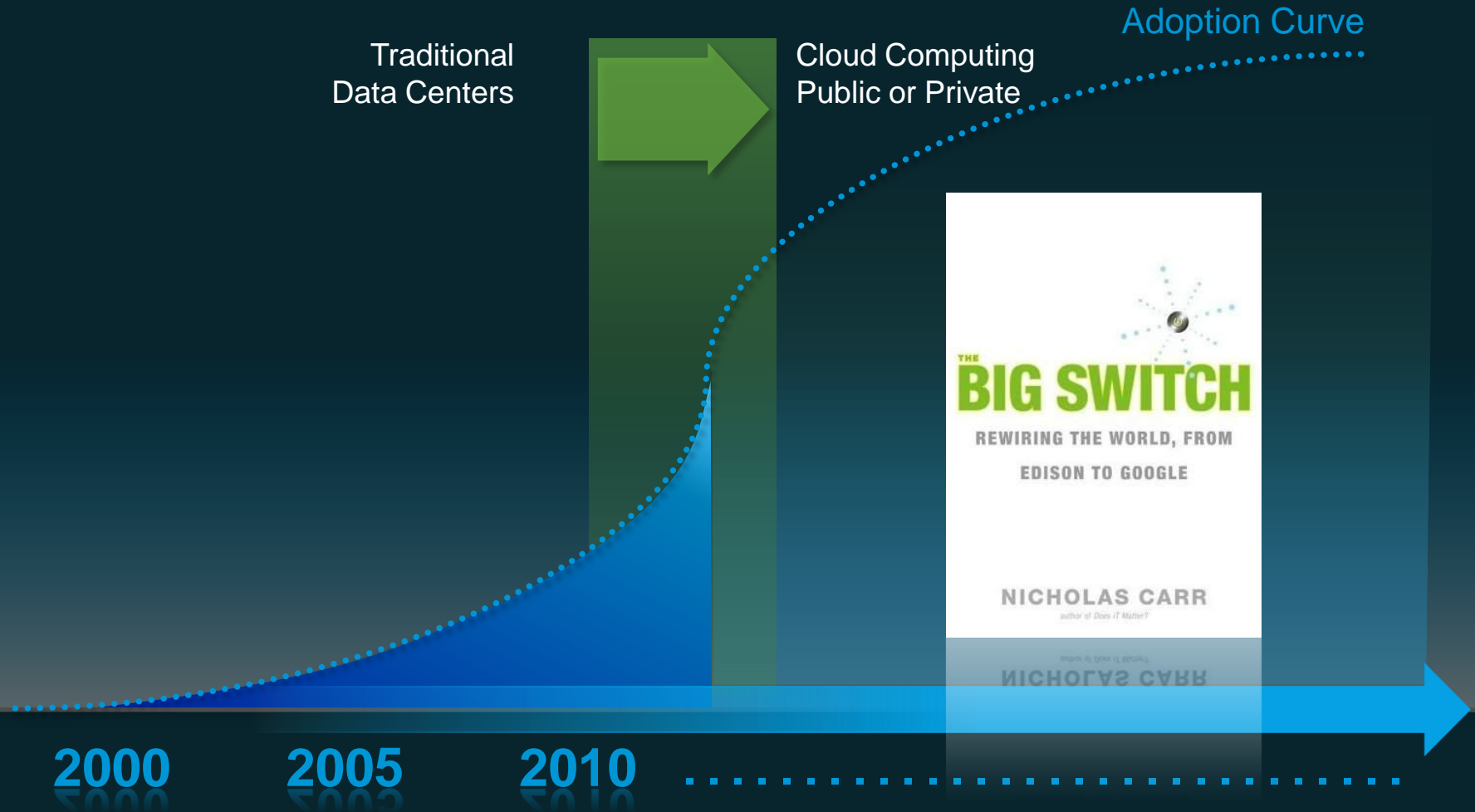**Operational Challenges**

Energy Consumption

Asset Utilization

Complex Provisioning

Integrity and Availability

The Beginning of a Major Shift

Adoption Curve

Traditional
Data Centers

Cloud Computing
Public or Private

THE BIG SWITCH

REWIRING THE WORLD, FROM
EDISON TO GOOGLE

NICHOLAS CARR

author of *Does IT Matter?*

2000   **2005**   **2010**

Data Center Architectural Evolution

IT Relevance and Control

Data Center 1.0	Data Center 2.0	Data Center 3.0
Mainframe	Client-Server and Distributed Computing	Service-Oriented and cloud

Centralized **Decentralized** **Virtualized**

Application Architecture Evolution
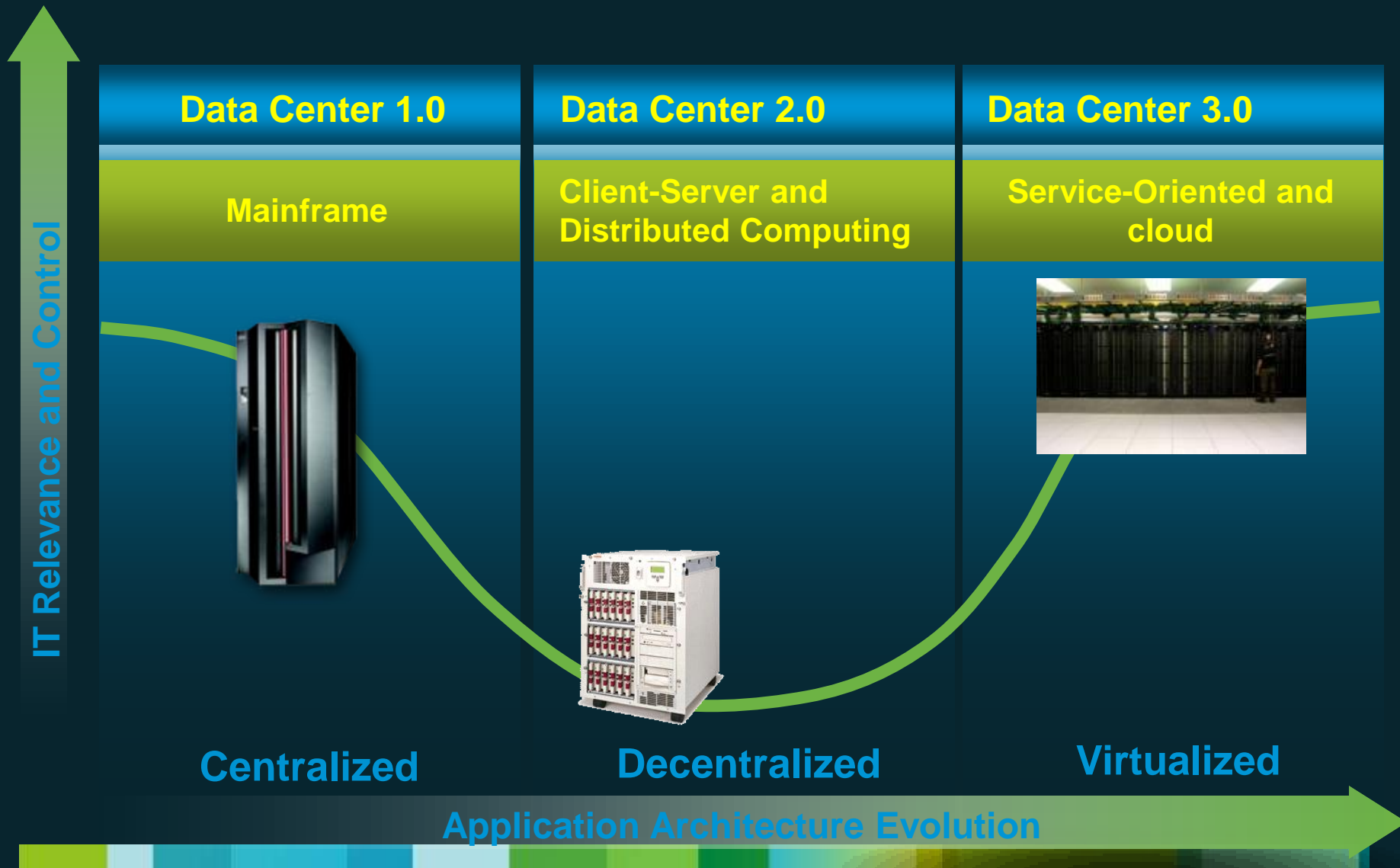
NIST Cloud Definition

Essential Characteristics

Measured Service

Rapid Elasticity

On-Demand Self Service

Broad Network Access

Resource Pooling

Service Models

Infrastructure as a Service (IaaS)

Platform as a Service (PaaS)

Software as a Service (SaaS)

Business Processes as a Service (PaaS)

Deployment Models

Public

Private

Hybrid

Community
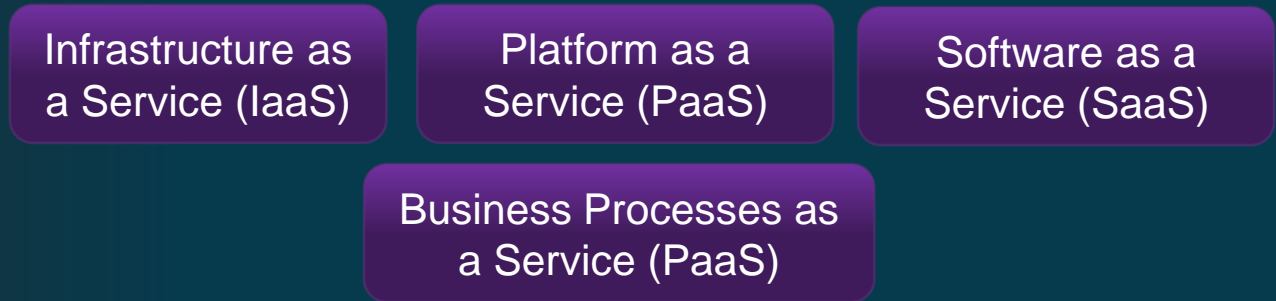
The Cloud Market Opportunity

Total public cloud markets (US$ billions)

2011-2012 IaaS grows $2B

2011-2012 SaaS grows $12B

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
BPaaS ($)	0.15		0.35	0.53	0.80	1.26	1.95	2.93	4.28	6.00	7.66	9.08	10.02
SaaS ($)	5.56	8.09	13.40	21.21	33.09	47.22	63.19	78.43	92.75	105.49	116.39	125.52	132.57
PaaS ($)	0.05	0.12	0.31	0.82	2.08	4.38	7.39	9.80	11.26	11.94	12.15	12.10	11.91
IaaS ($)	0.06	0.24	1.02	2.94	4.99	5.75	5.89	5.82	5.65	5.45	5.23	5.01	4.78

Source: Forester, April 21, 2011   Cisco Confidential   10

Harnessing the Cloud Opportunity

Demand Side

Supply Side

Private Cloud   *Hybrid Cloud*   *Public Cloud*

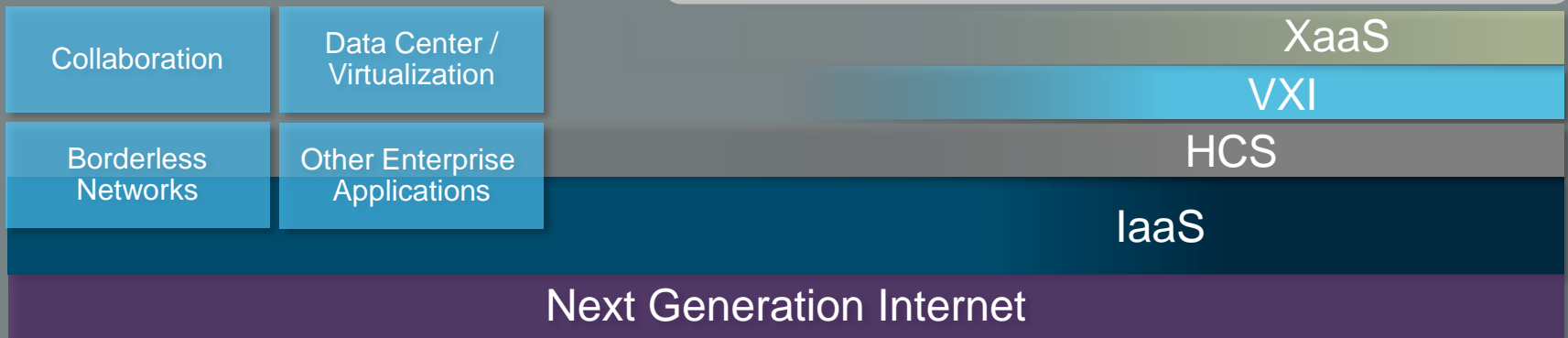| Collaboration | Data Center / Virtualization | | XaaS |
Borderless Networks	Other Enterprise Applications		VXI
			HCS
			IaaS
	Next Generation Internet		
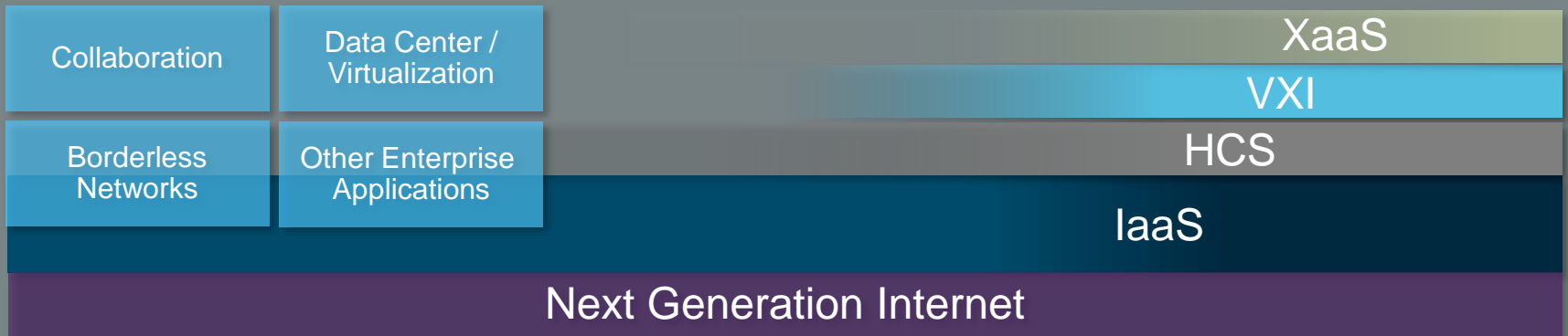
Harnessing the Cloud Opportunity

Demand Side

CAPEX and OPEX constraints

Convergence of data center and network architectures

Advances in virtualization, compute, network intelligence

Private Cloud

Collaboration	Data Center / Virtualization
Borderless Networks	Other Enterprise Applications

XaaS

VXI

HCS

IaaS

Next Generation Internet

Harnessing the Cloud Opportunity

Demand for SLA based, secure cloud services

Leverage network investment

New competitive offerings

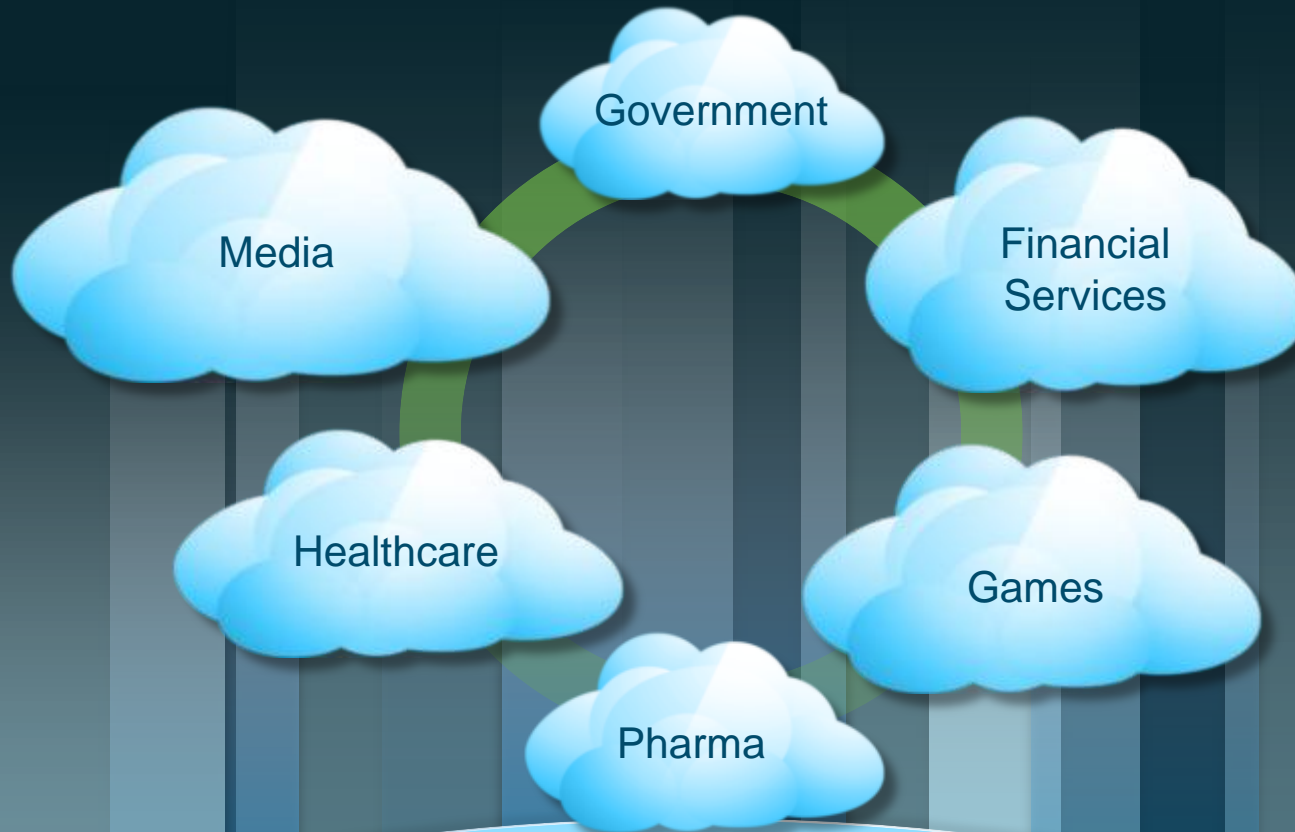## Supply Side

Public Cloud

| Collaboration | Data Center / Virtualization |
| Borderless Networks | Other Enterprise Applications |

XaaS

VXI

HCS

IaaS

Next Generation Internet
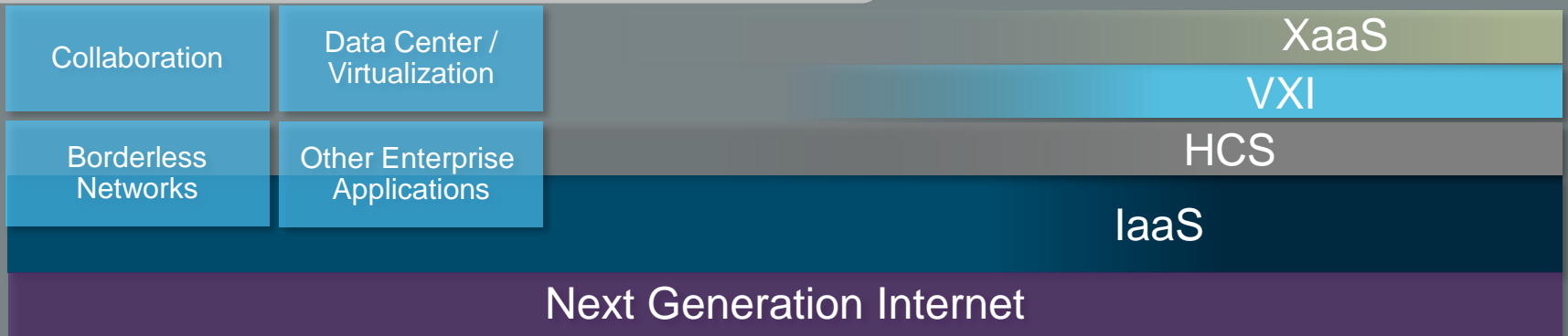
Vertical Cloud Opportunity

Government

Media

Financial Services

Healthcare

Games

Pharma

Network as the Platform
Seamlessly and Securely Connected

2011 Cloud Headlines for Service Providers

Verizon sees clouds rising to $150 billion by 2020

Research Report: Majority of Enterprises to Move to Hybrid Cloud by 2015

UBS estimates Amazon Web Services business is $3.4B to $3.8B

Telecom Italia and SAP Collaborate on Cloud Computing

T-Systems Consortium Wins Healthcare Cloud Project

Acquisitions are Shaping the Cloud Market

January 27, 2011
"Verizon Acquires Cloud Service Company Terremark for $1.4B."

February 27, 2011
"Time Warner Cable Acquires NaviSite for $230M."

April 27, 2011
"CenturyLink acquires Savvis in $2.5B deal."

June 7, 2011
"Telefónica signs agreement to purchase Acens"

July 15, 2010
"Japan's NTT to buy Dimension Data for $3.2B"

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Cloud Opportunity

Cisco's Strategy and Differentiation

SP Cloud Architecture

Next Steps

Cisco's Cloud Vision

Enabling Cloud Services
Based on our Network Platform Advantage

Cisco's Cloud Strategy

Enabling Cloud Services
Based on our Network Platform Advantage

Tailored Solutions for Building Clouds

Enable customers to build and operate public or private clouds

Rich Ecosystem with Integrated Solutions

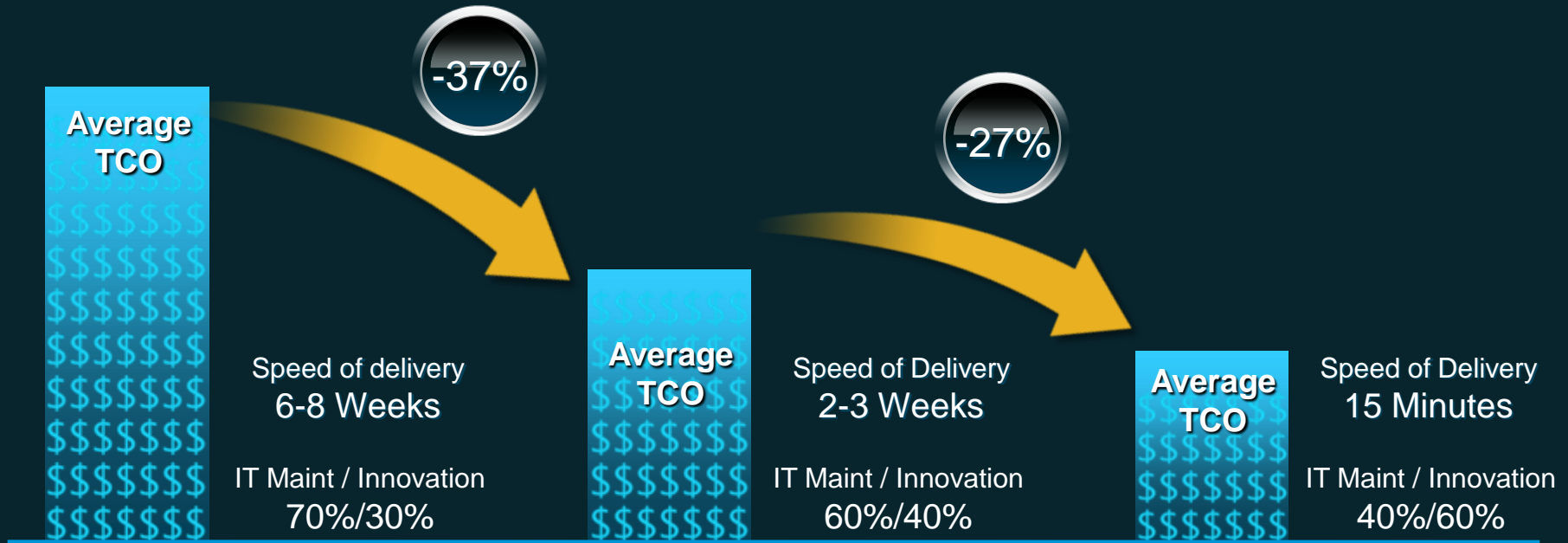Enable customers to deploy tested, best of breed solutions

Accelerate the Use of Cloud Services

Enable customers to deploy cloud services to collaborate and secure their business

Cloud Case Study
Cisco IT Elastic Infrastructure Services (CITEIS)

-37%

-27%

Average TCO

Speed of delivery
6-8 Weeks

IT Maint / Innovation
70%/30%

Average TCO

Speed of Delivery
2-3 Weeks

IT Maint / Innovation
60%/40%

Average TCO

Speed of Delivery
15 Minutes

IT Maint / Innovation
40%/60%

Legacy Computer Platform
100% Physical

Legacy Computer Platform
46% Physical : 54% Virtual

Unified Computing Platform
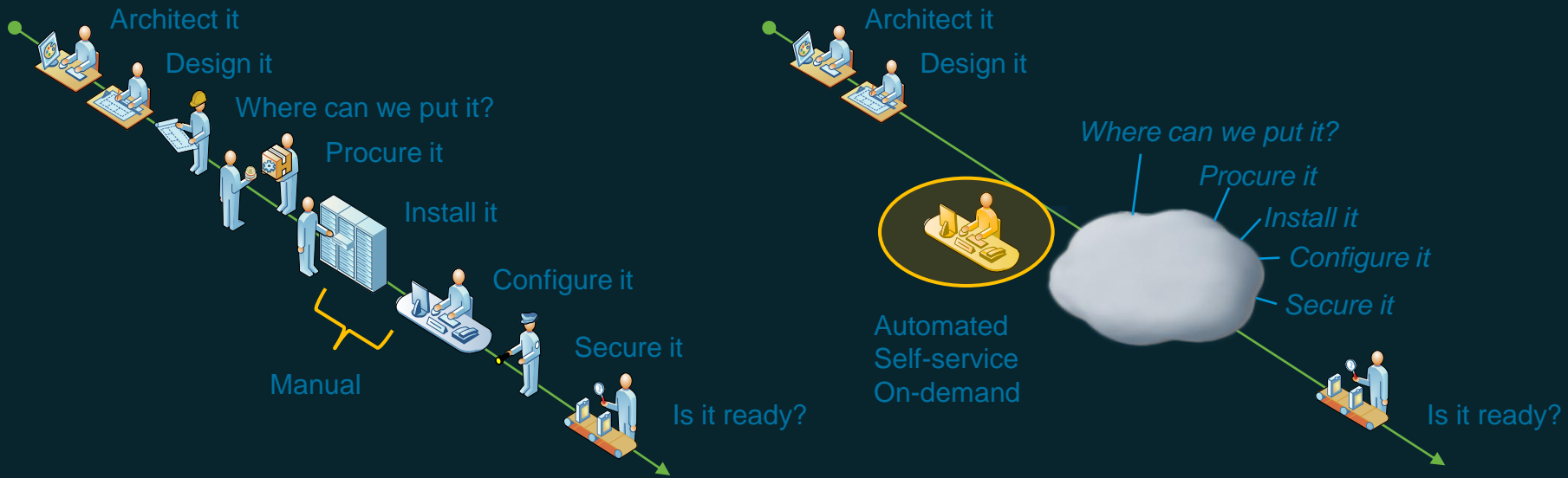25% Physical : 75% Virtual
100% Automated

Virtualization

Unified Infrastructure
and Automation

Introducing CITEIS – Concept
A Framework for Providing Infrastructure as a Service

Architect it
Design it
Where can we put it?
Procure it
Install it
Configure it
Secure it
Manual
Is it ready?

Architect it
Design it
Where can we put it?
Procure it
Install it
Configure it
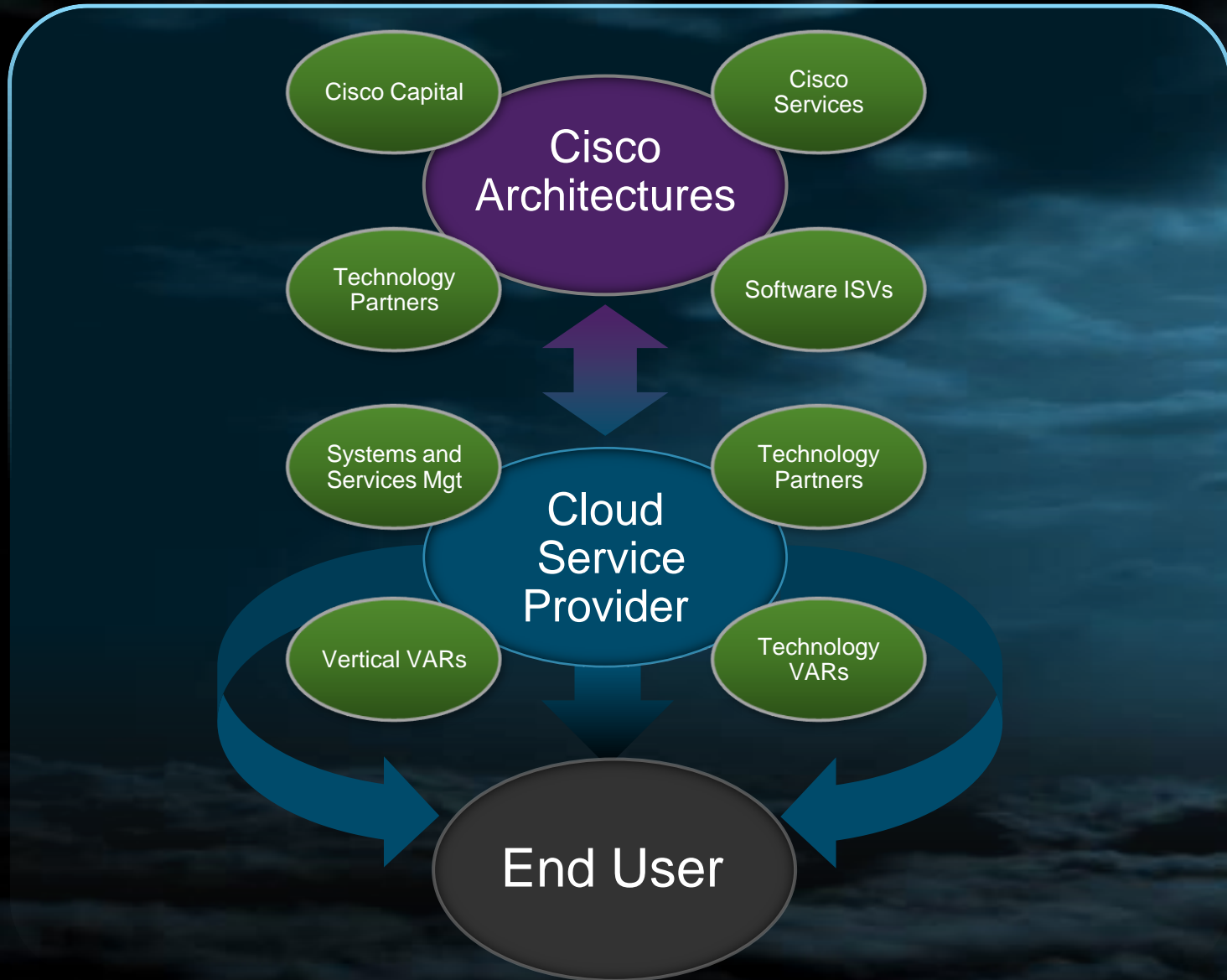*Secure it*
Automated
Self-service
On-demand
Is it ready?

Before CITEIS

- Machine-oriented
- Manual provisioning
- Hard to control utilization

- High provisioning & ops cost
- Extended provisioning time
- Configuration risk

After CITEIS

- Service-oriented
- Self-service; automated provisioning
- Elasticity (capacity-on-demand)

- Optimized provisioning & ops cost
- Rapid provisioning
- Increased Resiliency and Availability

Open Cloud Ecosystem

Cisco Capital

Cisco Services

Cisco Architectures

Technology Partners

Software ISVs

Systems and Services Mgt

Technology Partners

Cloud Service Provider

Vertical VARs

Technology VARs

End User

Service Creation Methodology is Essential

Envision

Build & Operate

Market & Sell

Envision innovative new cloud services

Unmatched technology and partner ecosystem

Demand creation and fulfillment

Product Management

Engineering and Operations

Sales and Marketing

Agenda

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Requirements for Cloud Services

Security and Policies	Availability and Performance	Flexible Deployment & Consumption	Return on Investment	Interoperability and Mobility
•Identity •Roles •Access •Authentication •Entitlement	•Server Performance •Response time •WAN performance	•On-demand deployment •Multi-tenant controls	•Pay as you go •Visible ROI •Service selection	•Work load mobility •Server to Server •DC to DC

Where is the customer on this Journey?

Hybrid Cloud

Public Cloud

Private Cloud

Automation

Virtualization

Consolidation

Cisco Intelligent Automation for Cloud

Cisco Intelligent Automation for Cloud

Cloud Automation Pack

Service Catalog and Self-Service Portal
newScale FrontOffice Suite

Global Orchestration & Reporting
Cisco Tidal Enterprise Orchestrator

Adapter Framework

Hardware Managers
eg. UCS Manager, Tivoli

Virtualization Managers
eg. VMware vCenter

OS / Software Provisioning
Cisco Tidal Server Provisioner

- CMDB
- IT Service Management Tools
- Billing/Chargeback
- Monitoring & Governance

- Compute Resources
- Virtual Infrastructure
- Network Resources
- Storage Resources

Cloud Requires Factory + Storefront

DC Integration & Migration

4 Applications

3 OSs / Middleware / DB

2 Virtualization

1 Servers | Storage | Network

Data Center Facilities, Power, Cooling, Space

5 **6** **8** **9**

Mgmt. / Auto. / Orch.

User Portal

Catalog

7 **10**
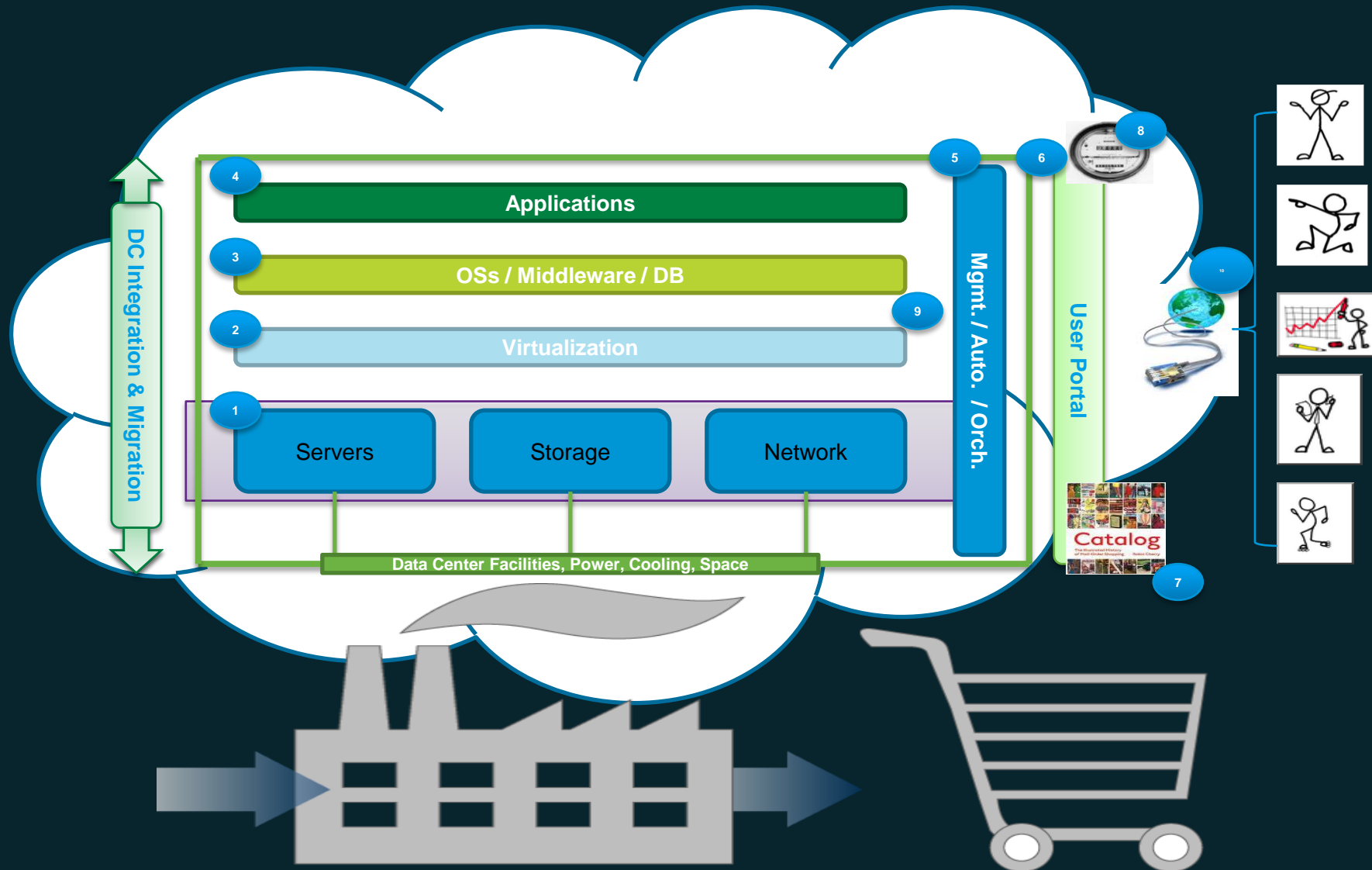
Cloud Capability Matrix

		Facilities / Infrastructure	Virtualization	OS / Middleware / DB	Applications	Management / Automation / Orchestration / DC Interface	User Interface	Service Management / Service Catalog	Finance / Chargeback	Process / Governance / Operations	Security / Compliance
5	Public Cloud										
4	Private Cloud										
3	Automated										
2	Virtualized										
1	Consolidated										
0	Legacy										

Factory + Storefront
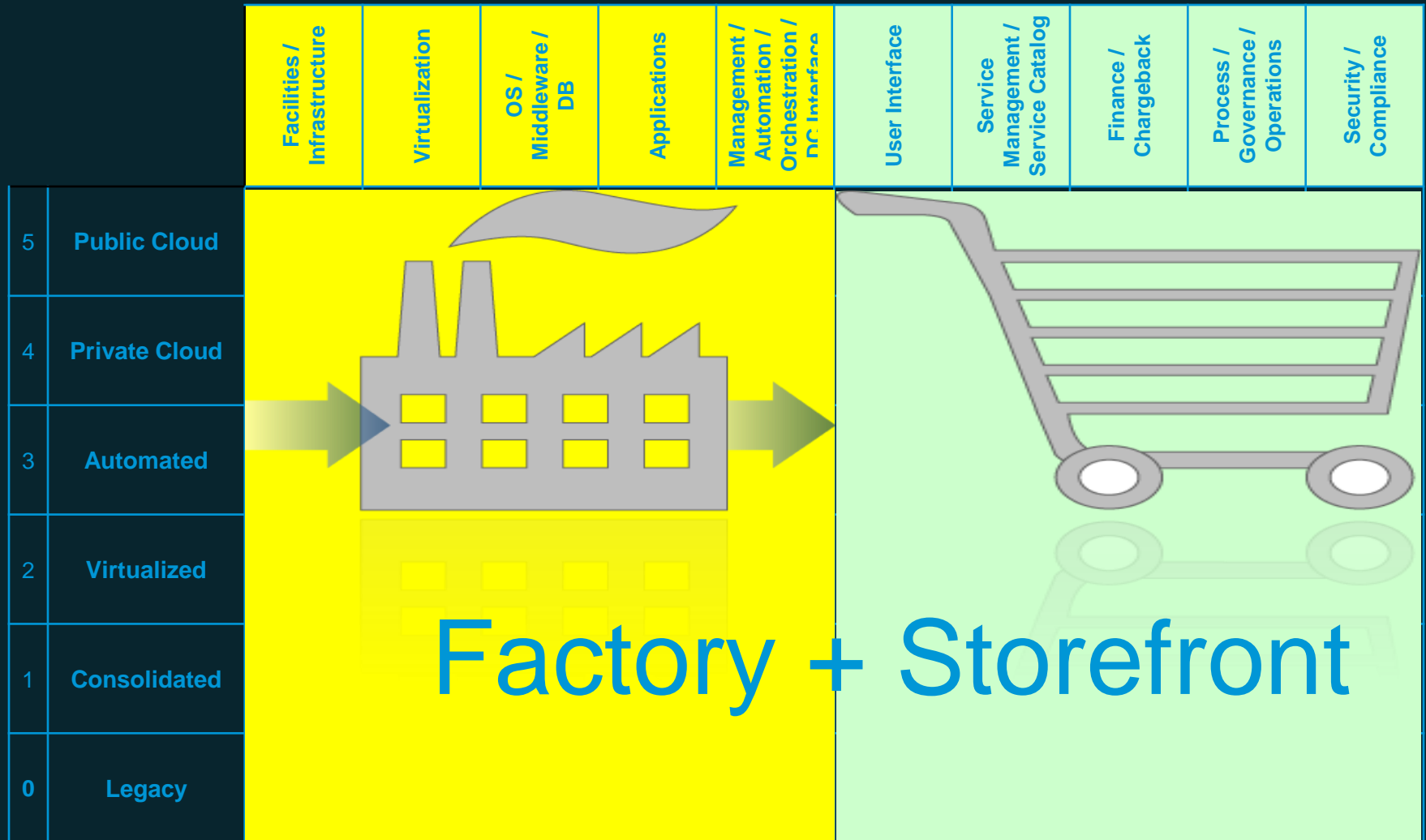
Cisco Intelligent Automation for Cloud

- Enable the IT Storefront:

  - ✓ Service Portal

  - ✓ Service Catalog

  - ✓ Policy-based controls

  - ✓ Lifecycle management

  - ✓ Pay-per-use tracking

- Enable the IT Factory:

  - ✓ Day 1 orchestration and automation

  - ✓ Day 2 management and scheduling

- Across hybrid physical, virtual, and cloud environments, from desktop to data center

- Proven in deployments by the world's largest companies

SearchServerVirtualization.com
BEST OF
vmworld 2010
GOLD AWARD
PRIVATE
CLOUD COMPUTING
TECHNOLOGIES

CIA: Sample Customers

Financial Services

Energy & Chemical

Healthcare

Technology & Telco

Diversified

Government

Insurance

Retail & Hospitality

CIAC platform has attracted blue-chip customers across a variety of vertical markets

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Enabling the Journey to Cloud
Summary – Next Steps

1 Cloud momentum is accelerating

2 Cisco's strategy is to enable cloud providers

3 Cloud monetizes your network investment

4 The network, unified computing, virtualization, and automation make the cloud possible

5 Cisco's Envision, Build & Operate, Market & Sell enable faster time to value

Thank you.