The Cloud Era

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Agenda

Cloud Opportunity

Cisco’s Strategy and Differentiation

Cloud Architecture

Next Steps
Things Change
Modern Business

Business Focus
- Products, offerings
- Customer service
- Employee productivity

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
Meeting Today’s Business Challenges

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

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

“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

Operational Challenges

- Empowered User
- Realtime Information
- Collaborative Applications
- Economic Uncertainty

New Business Pressures

- 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

2000 2005 2010
Data Center Architectural Evolution

Data Center 1.0
Mainframe
Centralized

Data Center 2.0
Client-Server and Distributed Computing
Decentralized

Data Center 3.0
Service-Oriented and cloud
Virtualized

Application Architecture Evolution
## NIST Cloud Definition

<table>
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<tr>
<th>Essential Characteristics</th>
<th>Measured Service</th>
<th>Rapid Elasticity</th>
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<td>On-Demand Self Service</td>
<td>Broad Network Access</td>
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### 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

2011-2012 IaaS grows $2B

2011-2012 SaaS grows $12B

Source: Forester, April 21, 2011
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

Next Generation Internet  HCS  IaaS
Harnessing the Cloud Opportunity

Demand Side

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

CAPEX and OPEX constraints
Convergence of data center and network architectures
Advances in virtualization, compute, network intelligence

Next Generation Internet

- IaaS
- XaaS
- VXI
- HCS

Other Enterprise Applications

Private Cloud

Hybrid Cloud
Public Cloud
Harnessing the Cloud Opportunity

Demand Side

Demand for SLA based, secure cloud services
Leverage network investment
New competitive offerings

Supply Side

Public Cloud

Next Generation Internet

IaaS

XaaS

VXI

HCS

laaS

Collaboration
Data Center / Virtualization
Borderless Networks
Other Enterprise Applications
Vertical Cloud Opportunity

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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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)

Legacy Computer Platform
100% Physical

Average TCO

-37%

Speed of delivery
6-8 Weeks

IT Maint / Innovation
70%/30%

Unified Computing Platform
25% Physical : 75% Virtual

100% Automated

Average TCO

-27%

Speed of Delivery
15 Minutes

IT Maint / Innovation
40%/60%

Legacy Computer Platform
46% Physical : 54% Virtual

Average TCO

Speed of Delivery
2-3 Weeks

IT Maint / Innovation
60%/40%

Virtualization

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

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 Architectures
  - Cisco Capital
  - Technology Partners
  - Software ISVs
  - Technology Partners
  - Systems and Services Mgt

Cloud Service Provider

- Vertical VARs
- Technology VARs

End User
Service Creation Methodology is Essential

Envision
innovative new cloud services

Unmatched technology and partner ecosystem

Demand creation and fulfillment

Product Management

Engineering and Operations

Sales and Marketing
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Next Steps
Requirements for Cloud Services

Security and Policies
- Identity
- Roles
- Access
- Authentication
- Entitlement

Availability and Performance
- Server Performance
- Response time
- WAN performance

Flexible Deployment & Consumption
- On-demand deployment
- Multi-tenant controls

Return on Investment
- Pay as you go
- Visible ROI
- Service selection

Interoperability and Mobility
- Work load mobility
- Server to Server
- DC to DC
Where is the customer on this Journey?

- Consolidation
- Virtualization
- Automation
- Private Cloud
- Public Cloud
- Hybrid Cloud
Cisco Intelligent Automation for Cloud

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

Compute Resources
Virtual Infrastructure
Network Resources
Storage Resources

CMDB
IT Service Management Tools
Billing/Chargeback
Monitoring & Governance
Cloud Requires Factory + Storefront

1. Servers
2. Virtualization
3. OSs / Middleware / DB
4. Applications
5. Mgmt. / Auto. / Orch.
6. User Portal
7. DC Integration & Migration
8. Data Center Facilities, Power, Cooling, Space
9. Network

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