Developments in Cloud Services
with IBM, Equinix, Level 3
& ADVA Optical Networking

Honolulu Hilton

Roundtable 3: “Developments in Cloud Services”
Jan 16, 2011 9-10:30 AM Location: South Pacific 2
Our speakers today

**Joe Ziskin**  
Vice President, Corporate Strategy **IBM**  
jziskin@us.ibm.com

**Jim Poole**  
General Manager, Global Networks, Mobility & Content **Equinix**  
jpoole@equinix.com

**Gabriel Montanti**  
Strategic Alliance Director, Strategic Alliance, **Level3 Communications**  
Gabriel.Montanti@Level3.com

**Todd Bundy/Moderator**  
Director Global Alliances, **ADVA Optical Networking**  
tbundy@advaoptical.com
Special Thanks

**Michael Haley**
Distinguished Engineer, IBM CHQ – EI Cloud Infrastructure
haleym@us.ibm.com

**Casimer DeCusatis**
Distinguished Engineer, IBM STG – eSystems Dev Lab
decusat@us.ibm.com
Motivation for Clouds- Insights, Client Examples

ADVA, Level3, and IBM Virtual Storage Cloud (Media Clients)

Network Growth Drivers

Summary
Consumption & Delivery

“Cloud” is a new consumption and delivery model inspired by consumer Internet services.

Cloud enables:

- Self-service
- Sourcing options
- Economies-of-scale

“Cloud” represents:

- The Industrialization of Delivery for IT supported Services

Multiple Types of Clouds will co-exist:

- Private, Public and Hybrid
- Workload and / or Programming Model Specific
With cloud it’s like having a metered cab at your disposal whenever you want it
Versus Owning your own car

in addition to Maintenance, Insurance, Taxes and a Garage to store the car.....
Why pay for more computing capacity than you need?

When you can pay for only what you use
1.5x
Explosion of information driving 54% growth in storage shipments every year.

70¢ per $1
70% on average is spent on maintaining current IT infrastructures versus adding new capabilities.

85% idle
In distributed computing environments, up to 85% of computing capacity sits idle.
Impact

An Evolution of Information Technology

- Changing the economics of IT
- Automating service delivery
- Deploying new capabilities

An Enabler of Business Transformation

- Supporting new levels of collaboration
- Speeding creation and deployment of new services
- Enabling new business models
Economics

Infrastructure leverage

Virtualization of hardware
Drives lower capital requirements

Utilization of infrastructure
Provides benefits of scale—if virtualized environments are highly utilized

Labor leverage

Self-service
Allows clients to “serve themselves”—requiring less support and offering easier access to services

Automation of management
Takes repeatable tasks and automates services, reducing IT operation costs

Standardization of workloads
Lowers complexity, which means that more automation is possible, which reduces IT labor costs
Example

Industry data for **non-virtualized**
- Small image, virtualized Cloud: $187
- Medium image, virtualized Cloud: $612
- Large image, virtualized Cloud: $1224

Per Server Year

Per Virtual Image Year
Example

Test Cloud ROI Analysis - *International Financial Institution*

**Saving by Category**
1st Year After Cloud Transformation

- Testing Process Overhead: 17%
- Hardware Cost: 12%
- Software Cost: 3%
- Provisioning Cost: 38%
- Sys. Admin. Cost: 30%

**Cost Structure**
With and Without Cloud Transformation

**Payback Period (Months)**
- Current: 2.85
- Year 1: $914,930
- Year 2: $7,949,230
- Year 3: Estimated ROI over 3 years: 869%

**Net Present Value (NPV)**
- Current: $7,949,230

**Estimate average annual ROI**
- Current: 290%

© 2011 IBM Corporation
Opportunities and challenges

› Use cloud computing to transform the way they do business

› Maintain a level of security and privacy equal to or greater than traditional IT

› Deliver, consume and integrate new services consistently and efficiently
Delivery models

- Enterprise Data Center
  - Managed Private Cloud
- Enterprise
  - Hosted Private Cloud
- Enterprise
  - Enterprise A
  - Enterprise B
  - Enterprise C
- Public (Enterprise Dedicated) Cloud Services
- Public Cloud Services
- User A
- User B
- User C
- User D
- User E

CSP owned and operated
A new ecosystem

- Cloud Technology Providers
- Cloud Services Resellers
- Cloud Application Providers
- Cloud Aggregators
- Cloud Infrastructure Providers
- Cloud Builders
Communications Service Providers are well-positioned to drive significant new revenue streams as Cloud Service Providers while strengthening their key enterprise customer relationships.

1. Comprehensive network capabilities (broadband, mobile...)
2. Large enterprise customer base, especially SMBs who want to single source apps/services from local suppliers
3. Well positioned to integrate IT, SaaS and other cloud services into overall converged IT / Telecom / Unified Communications service portfolio
4. Track record of large scale service delivery and B/OSS for tens of millions of customers
5. Owning the complete end-to-end delivery chain is a big advantage
Cloud Considerations for CSPs

**Business Strategy**
*Can you help me align my cloud strategy and reduce my business risk?*

**Cloud Service Acceleration**
*Can you help me bring new cloud services to market quickly and cost-effectively?*

**Sales and Marketing Effectiveness**
*How can you help me drive sales and provide a high quality customer experience?*

**Carrier Grade Performance**
*Does your cloud service management solution provide the performance, reliability, and scalability I need?*

**Low Total Cost of Ownership**
*Do I gain any competitive advantages just from using your technology?*
Clients are telling us

- Cost takeout is cited as the top value consideration
  - Cost savings is the key driver of public cloud adoption with clients seeking a 20 - 30% improvement in order to adopt

- Security and control are top concerns
  - 69% say security is the top inhibitor to their use of public clouds

- Workloads and patterns are emerging
  - Almost all workloads require connection to other IT services
  - Collaboration and analytics meta-patterns are occurring

- Industries with the greatest cost pressures lead adoption
  - Over 50% of clients in Retail, Manufacturing, Utilities, Government have cloud projects budgeted or in process

Source: IBM Market Intelligence
Deployed Development & Test Cloud Expediting Application Delivery

Before constructing Cloud Computing:
- Planning service
- Request resources
- Allocation
- Install HW
- Install SW/NW
- Legacy Interface
- Starting develop

After constructing Cloud Computing:
- Planning service
- Request resources
- Provision
- Starting develop

Case of purchase

“Securing competitiveness of SKT internet service & creating new opportunity of Platform business”

- Active development of new services
- Higher resource utilization rate for legacy services

- New service idea
- Service with big traffic variation according to the event and marketing policy

- Rapid IT resource provisioning
- Efficient management of IT resources

- Infra HW/SW
- Dev. Tool
- Open API

Cloud Computing Platform

SK Telecom
Software companies share a secured virtualized facility, isolated from each other, to accelerate software outsourcing tasks.

IBM BladeCenter; System x, System p, and B

- Service oriented data center (SOA)
- Automated software installation

Company A Developer

Company B Tester

Company C Administrator

Specifies computing needs for “on demand” fulfillment
Academic Initiative Clouds

One of the largest production clouds in existence
(1100+ servers across three locations)

Academic Cloud @ Google Data Center
Managed by IBM

Academic Cloud @ Univ. of Washington
Managed by IBM

IBM Cloud Center – Dublin, Ireland
Hosting Academic Portal
powered by IBM Idea Factory
Cloud Service Models and Communications Service Providers
Evolution

**PHASE 1 PAST**

Server Consolidation

Guiding Principle: Improve utilization of physical resources

**Driver:**
- Savings in CAPEX
- Power and space
- Improvements in server utilization

Network had no role

**PHASE 2 FUTURE**

Business Agility

Guiding Principle: Improve utilization of a pool of resources

**Driver:**
- Adapt quickly to new demands
- Heightened compliance & security
- Better disaster management
- Cloud Based Computing Models

Network has a huge role
Network Architecture Cloud Client Connections

- 10 G waves connect Production studio to Storage Pod for Massive file upload and Secondary storage
- Layer 3 IPVPN provides secure and reliable connections to cloud infrastructure to facilitate workflow
- Global content delivery enables distribution of finished products to the Internet
Virtual Storage Cloud – A Joint IBM, Level 3, ADVA Smart Business Pilot

The Company

Three of the world’s major video broadcasting companies in the greater New York City metro area

The Challenge

- Video serving requirements were placing increasingly heavy demands on each company’s data storage infrastructure.
- Increased capacity needed at each customer to store and retrieve extremely large files at high speed.
- Cost-effective, scalable solution that could handle high projected storage growth.

The Solution

- Implemented IBM Smart Business Storage Cloud at 590 Madison Avenue, New York City, with virtualized network infrastructure.
- The solution allows multiple clients to store and rapidly access large video files in a single location. Storage capacity may be elastically scaled precisely as the business requirements dictate.
- High reliability network, enabled for future InfiniBand or FCoCEE applications, extends directly into the cloud data center.

The Benefits

- Increased productivity with centralized file storage.
- Enhanced, cost-effective scalability meets growing business requirements.
- Reduced administrative workload and costs.
- Enabled new cloud services including live VM migration & Network Boot.
Joint IBM, Level 3, ADVA Smart Business Pilot: Customer Architecture

**ADVA Metro DWDM**
- Dual Chassis design at customer premise and Metro POD (redundant paths not shown for clarity)
- Physically diverse OSP for Dedicated Customers
- 10G EN, 4G FC (InfiniBand ready)

**Level 3 Transport Network**
- Virtualized shared network connection to each client
- Infrastructure extends directly into IBM Storage Cloud
- Active/Active, Low Latency

**IBM Storage Cloud**
- SoFS/SoNAS on XIV gen 2 file/block storage
- iDataplex servers
- Inline deduplication (IBM ProtecTIER)

---

Client A
Client B
Client C
Network Growth Drivers
Network Growth Drivers as seen by Equinix

Market Challenge
Growth brings challenge and opportunities; implications on application performance

In 2014
- Mobile data = 675 million DVDs/month
- Video = >90% of consumer traffic
- IP traffic = 12 billion DVDs/month
- Cloud = 3x revenue growth

IP traffic growth - 4x
Massive Shift to Virtualization and the Cloud 3x
Data Center Power requirements
Globalization of business
Carrier-Neutral Co-location sites  Enabling Growth

**Scalable Infrastructure**
- High power densities
- Redundant infrastructure
- Ample capacity for growth

**Interconnection Options**
- Network neutral provider
- High carrier density
- Specialized information exchanges

**Marketplace**
- Large, diverse customer base
- Leading consumers of network service
- Build, buy or partner on services

**Market Challenge**
Scaling data center operations while preserving capital; eliminating barriers to expansion

**Carrier Opportunity**
- Open marketplace to sell *all* services
- Diverse customer base including network, content, financial, cloud & enterprise verticals
- Support hybrid cloud/"colo" customer installations
- Partner with other best-in-breed providers for total solutions
Market Challenge
New revenue streams
Faster time to market
Efficient use of capital

Carrier Opportunity
Sell to the leading buyers of network & cloud services
Network & Financial for low-latency solutions
Network & Cloud for private enterprise solutions
Network & Content for work-flow and consumer distribution
**Application Performance Matters**

**Market Challenge**

Measuring and tiering application performance to meet customer expectations

**Impact**

Right performance for each app

Higher user satisfaction

Increased productivity
Networks Power Cloud **Performance**

**Market Challenge**
- Distributed people & assets
- Hybrid IT environments
- Application performance
- 24x7x365 marketplace

**Solutions**
- Right asset, right place
- Interconnected solutions
- Optimize reliability and redundancy
- Improve end-user experience
Summary: Businesses that implement cloud computing are seeing significant results.

- **Reduce IT labor cost by 50%** in configuration, operations, management and monitoring.
- **Improve capital utilization by 75%**, significantly reducing license costs.
- **Reduce provisioning cycle times from weeks to minutes.**
- **Improve quality**, eliminating 30% of software defects.
- **Reduce end user IT support costs by up to 40%.**
Thank you

www.advaoptical.com

www.equinix.com

www.ibm.com

www.level3.com

We invite you to explore our Cloud resources, tools and progress!