The Fisher CIO Leadership Program
"To re-launch and re-position the CIO profession"
Institute for Business Innovation, Haas School of Business
University of California, Berkeley

AGENDA

SaaS, Cloud, and Beyond:
The Emergence of the Virtual Enterprise

November 4, 2010

(The Faculty Club, Seaborg Room, UC Berkeley)

9:00 am	Registration and Full Breakfast
9:30 am	Welcoming Remarks & Program Overview Jim Spitze & Prof. Terry Hendershott
9:45 am	Bill Vass**,** ex CIO, Sun Microsystems **"The Cloud: Winners & Losers"**
10:15 am	**BREAK**
10:30 am	Dr. Timothy Chou, ex President, Oracle-on-Demand **"Seven Lessons for Long Life as a CIO"**
11:00 am	Bernard Golden, CEO, Hyperstratus and Cloud Computing Advisor for CIO Magazine **"Creating a CIO Cloud Computing Action Plan"**
11:30 am	PANEL #1, Michael Grove, Moderator **"A 20/20 Prediction for the Year 2020"** Panelists: Vass, Chou, Golden
12:15 pm	**LUNCH**
1:30 pm	Ian Morrison, Author, Consultant, President Emeritus, The Institute for The Future **"The Cloud: Moving To An Integrated Global Economy"**

2:15 pm	Homa Bahrami, Member of Haas School of Business' "Management of Organizations Group" **"Organizational Innovation for the Virtual Enterprise"**
2:45 pm	**BREAK**
3:00 pm	Prof. David Patterson, The Pardee Professor of Computer Science,UC Berkeley **"Cloud Computing: Obstacles & Opportunities"**
3:30 pm	PANEL #2, Ian Morrison, Moderator **"Beyond the Cloud: Leadership Perspectives"** • Milo Sprague, Managing Principal & West Regional Lead for Technology Infrastructure, Capco • Timothy Campos, VP & CIO, Facebook • Spencer Mains, Worldwide Chief Technology Officer, Landor & Associates/BtoD Group
4:15 pm	Michael Grove, CEO of Collabworks **"SaaS, Cloud & Beyond: The Emergence of the Virtual Enterprise"**
5:00 pm	Closing remarks, Jim Spitze, Executive Director, Fisher CIO Leadership Program, Haas School of Business
5:10 pm	Reception to follow, co-sponsored by: • Technisource • Sequoia Strategy Group

Cloud Winners & Losers

The Evolution of IT Services and the Virtual Enterprise

Bill Vass
"Recovering CIO"
Nov 2010
william.vass@gmail.com

SaaS, Cloud, and Beyond
The Fisher CIO Leadership Program

Agenda

- Cloud and SaaS
    - Hosting & Connectivity
    - Virtualization
    - SOA/ESB/SSB
    - Cloud Evolution
    - Types of Clouds
- Consumerization of Computing Devices
- Consumerization of SaaS
- The Virtual Enterprise
- Cloud Winners & Losers
- Challenges to Consider
- What the Future Might Look Like

All Clouds Share Key Traits

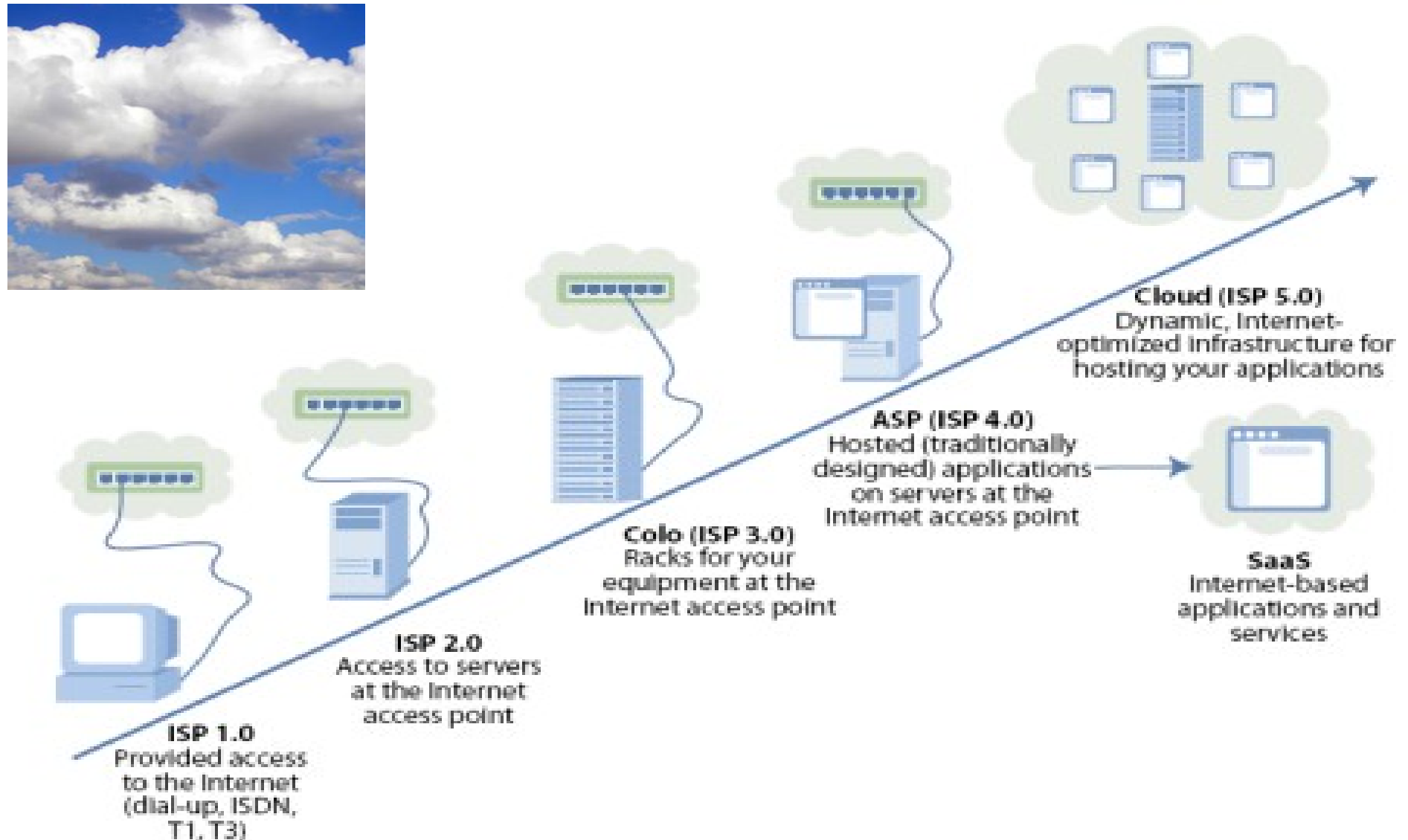One Service Fits All

Virtualized Physical Resources

Self Provisioning

Elasticity

Pay Per Use

Programmatic Control

Drive to SaaS & Cloud

Figure 3 Cloud Computing: The Latest Evolution Of Hosting

ISP 1.0
Provided access to the Internet (dial-up, ISDN, T1, T3)

ISP 2.0
Access to servers at the Internet access point

Colo (ISP 3.0)
Racks for your equipment at the Internet access point

ASP (ISP 4.0)
Hosted (traditionally designed) applications on servers at the Internet access point

Cloud (ISP 5.0)
Dynamic, Internet-optimized infrastructure for hosting your applications

SaaS
Internet-based applications and services

44229

Source: Forrester Research, Inc.

Efficiency

Economics

Pay as-you-go

Op-ex vs. Cap-ex

SLA

Virtualization

Developer Centric

Rapid, self provisioning

Faster deployment

Self service

API-driven

Flexibility

Standard services

Elastic

On demand

Multi-tenant

Changing IT Relationships

Developers

- Why won't IT support this?
- Why can't I use the versions I want?
- Why can't I get better availability?
- How can I pay for what I need?
- How quickly can I get more servers?

Deployers

- Why do we have so many versions of everything?
- Where can I cut costs?
- How can I do finer grain provisioning?
- Where do we enforce security, regulation and audit?

Driving IT Agility → Business Agility

Current State

- Commercial Software Packages
- Relational Data
- Management
- Server-scale

Trend

- Open Source Communities
- Unstructured, Rich Data
- Analytics
- Network Data Center-scale

Business Models

Public

You don't know who else is on the same server, network or disk as you

Private

You own the server, network and disk, and you decide who gets to run on it with you

Hybrid

You own some parts of the system and are sharing other parts, in a controlled way

Cloud Computing Layers

Software as a Service (SaaS)

Applications offered on-demand over the network (Salesforce.com, Workday, WebEx, Gmail, LinkedIn, ...)

Platform as a Service (AppCloud)

Developer platform with built-in services (Google App Engine, Microsoft Azure Platform, CumaLogic, Heroku)

Infrastructure as a Service (Cloud)

Basic storage and compute capabilities offered as a service (Amazon web services, Microsoft's Cloud Infrastructure Services, Cloud.com, Eucalyptus cloud)

Cloud Dynamics – Evolves Like the Network & Internet

- **<u>Just like the network,</u>** will get availability through redundancy and multiple providers

- **<u>Just like the network,</u>** will need common open standards and open source to provide redundancy to meet SLAs

- **<u>Just like the network,</u>** will have:

  - Private (LAN)

  - Mixed (WAN)

  - Public (Internet / DMZ)

- **<u>Just like the network,</u>** will need encryption and trust to enable it

- **<u>Just like the network,</u>** will need monitoring and security management
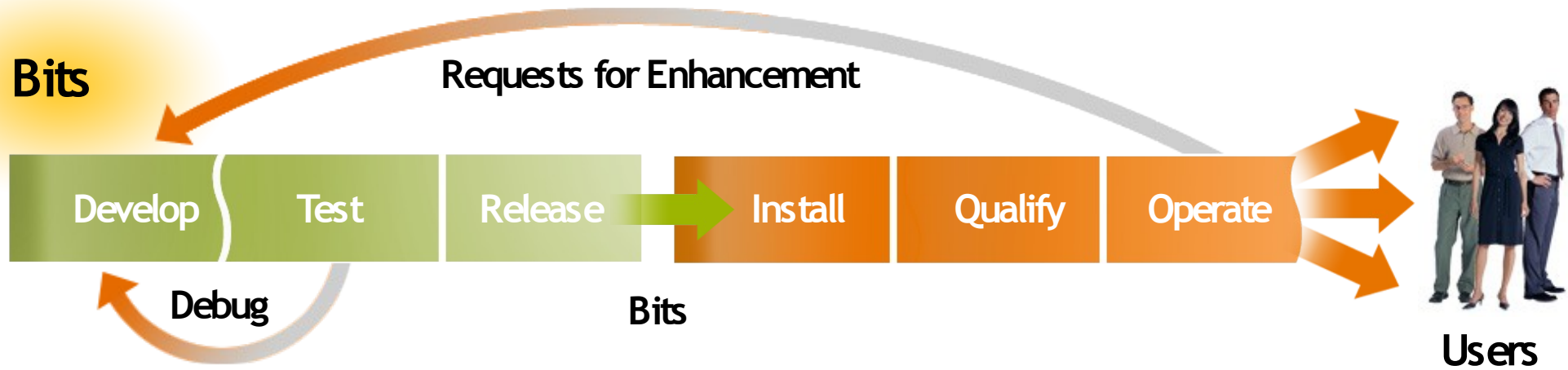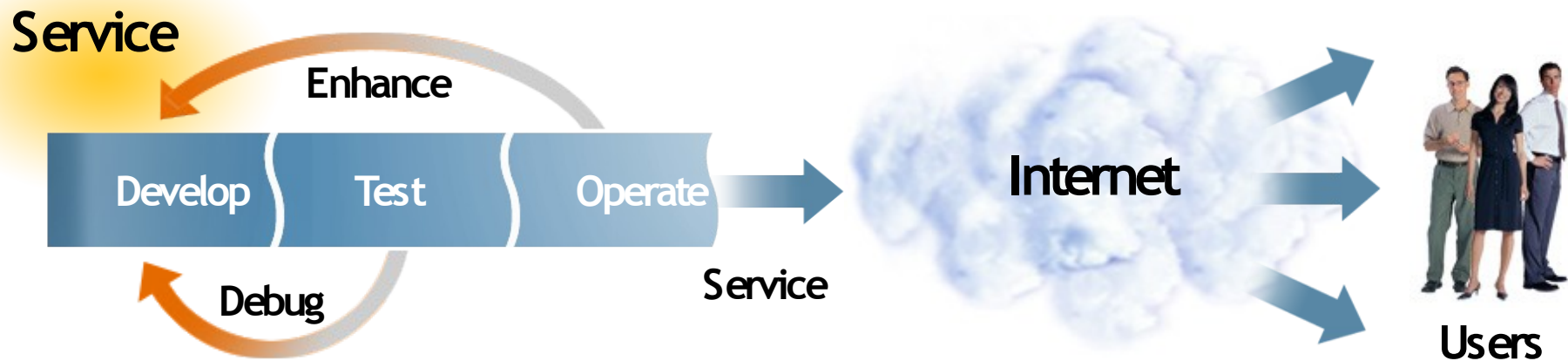
Consumerization of Devices

Huge Worldwide Volume
Spending Reduces Cost

Consumer Devices
Driving the Enterprise

Most People Will
Connect to the Net on
a Cell Phone

The Cheap Revolution

- Cheap Horizontally Scaled Hardware
- Prices Driven Down by Consumer Volumes
- Open Source OS, Database, Middleware
- Reduced HW & SW Costs Lead to Increased Space, Power, Cooling, and Labor Costs
- Next Round of Consolidation on CMT to Reduce Operating Costs

Grid

Virtualization

Cheap Revolution

Cloud

SaaS

High Speed Memory Switch for Scale, x64, CMT, Grid, N1, Solaris, Linux, LAMP, JES
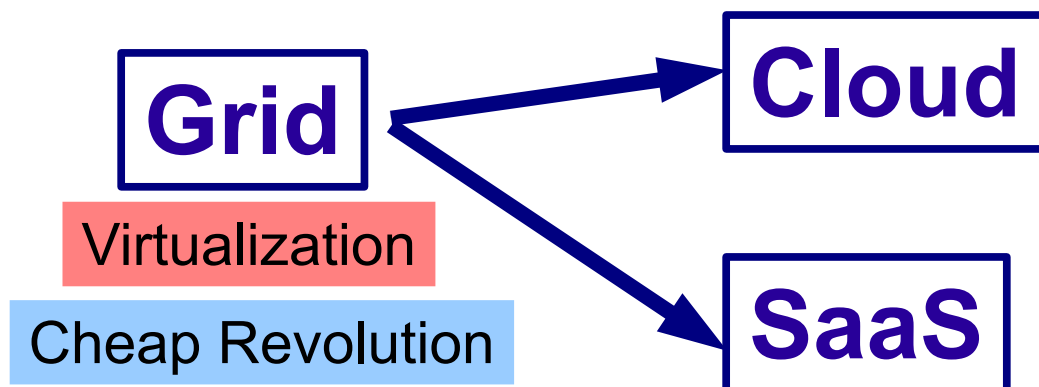
Consumerization of SaaS

- **End Users, Not CIOS, Are Selecting SaaS Applications Not CIOs**

- **Social Networking and SaaS eMail Setting End User Expectations**

- **Anytime, Anywhere on Anything**

- **SaaS Entering the Enterprise**

- **Advantages for Small and Medium Business**
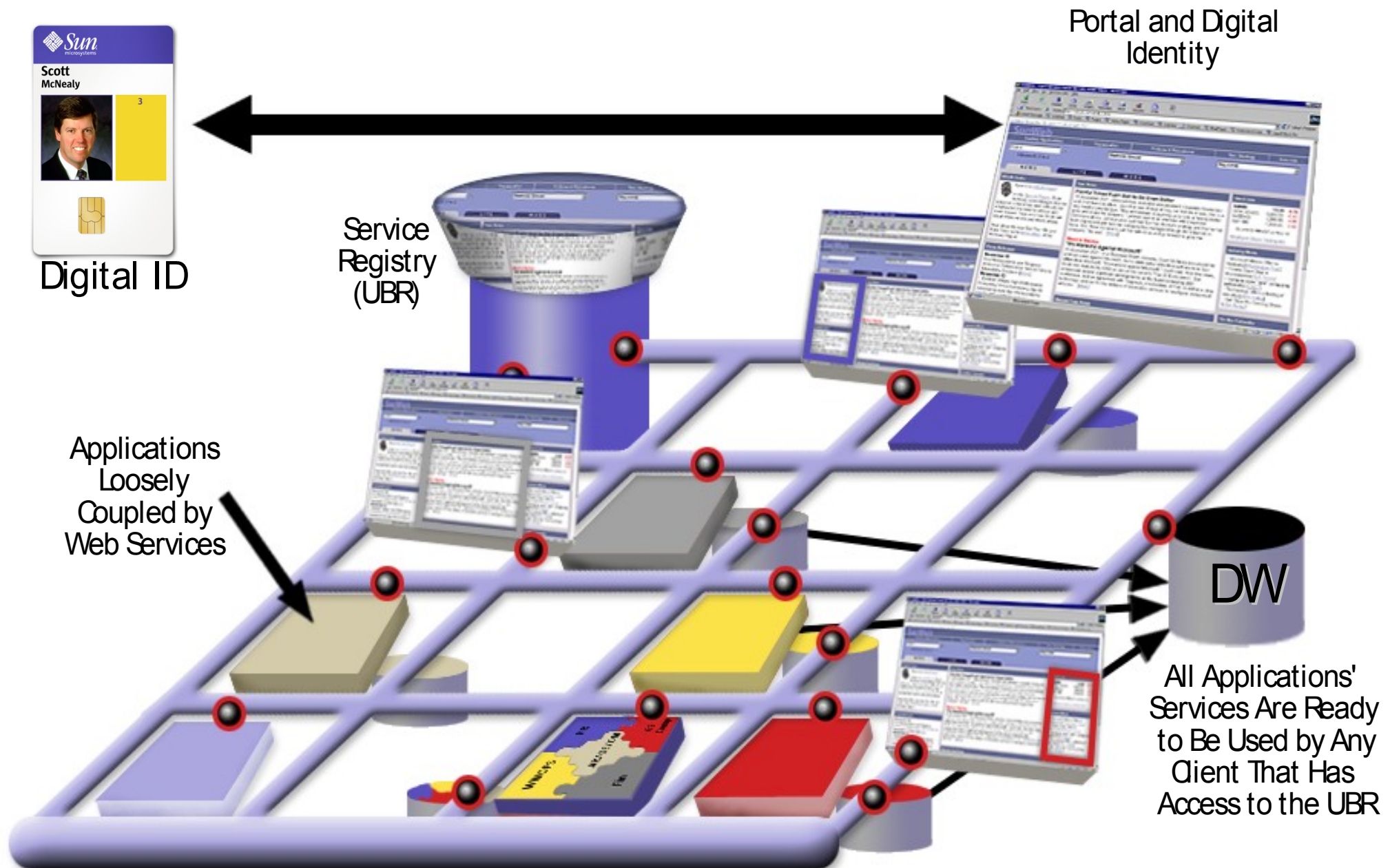
Virtual IT → Virtual Enterprise

Enterprise SOA – ESB → SaaS ESB

Reusable Business Services and Components

- Integrated software design
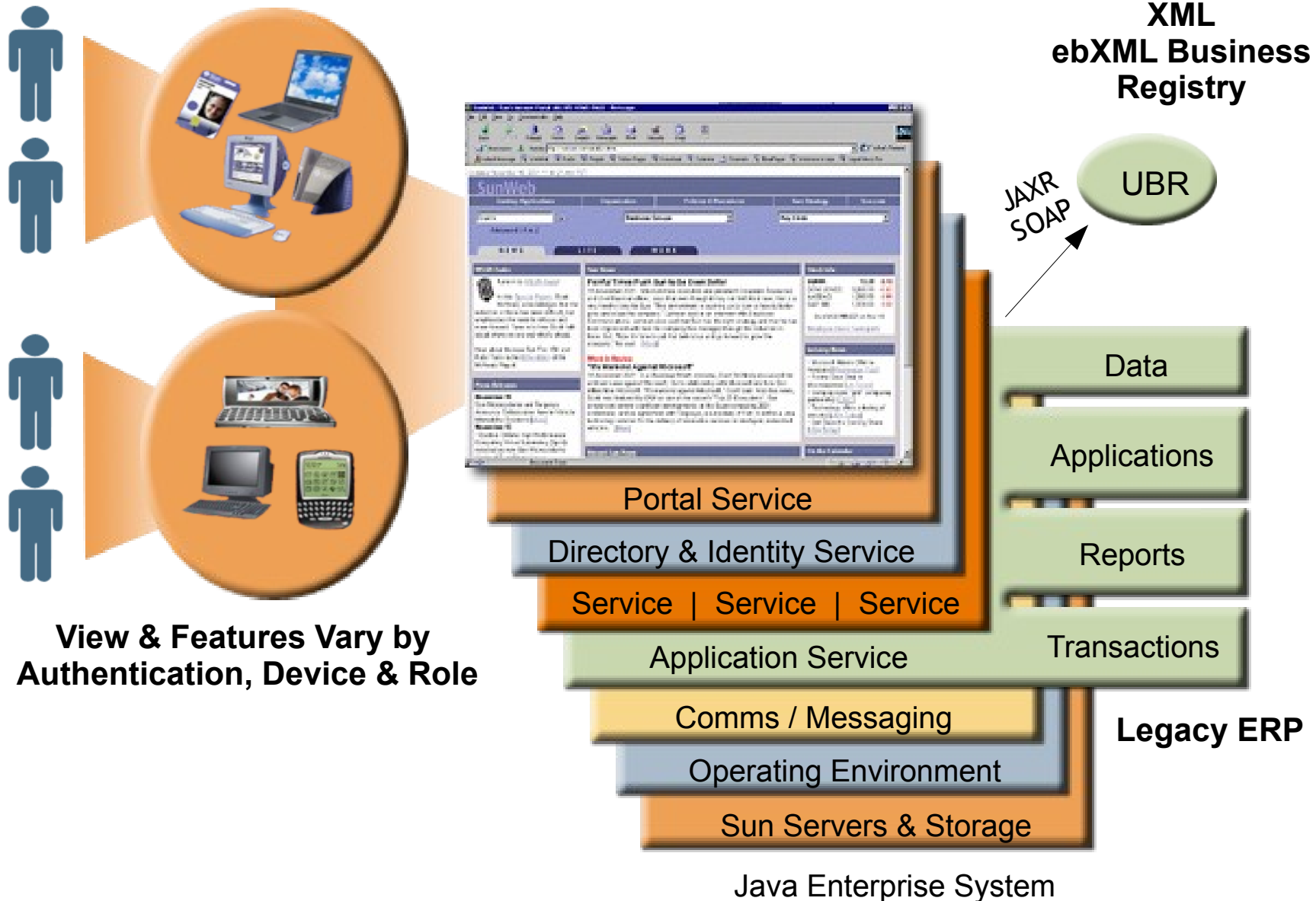- Aligns business with IT
- Composite applications
- Open Standards
- Open Source

Access Manager (Liberty)

Services Registry (Regrep UDDI)

Account Mgmt | Order Processing

Unified Role-Based View (Portal)

WSRP

Order Fulfillment

Inventory Mgmt

Reusable Business Components

BPEL

Credit Card | Customer Invoicing

Reusable Services (App Server)

WSRP BP

Payment Management Service | Credit Check | Shipping Calc | Order Status | Change Order | Discount Check | Customer Data Service | Product Availability

Internet

Partner Credit Data | Back-End System | Back-End System | Customer Data

Web Services Architecture

Digital ID

Portal and Digital Identity

Service Registry (UBR)

Applications Loosely Coupled by Web Services

DW

All Applications' Services Are Ready to Be Used by Any Client That Has Access to the UBR

Dynamic Portal Service Delivery

Full-Feature-Trusted with Token

View & Features Vary by Authentication, Device & Role

XML ebXML Business Registry

JAXR SOAP

UBR

| Portal Service |
| Directory & Identity Service |
| Service \| Service \| Service |
| Application Service |
| Comms / Messaging |
| Operating Environment |
| Sun Servers & Storage |

Java Enterprise System

Data

Applications

Reports

Transactions

Legacy ERP

CIO Finding Applications

CollabWorks™

User: Mr. CIO   Template: RobsFav   Total Users: 500   Billing: 52,340
Environment: Prod1   Active Users: 356   Uptime: 99.972

Applications 47
Roles   120

- Person

- Consultant
- Contractor
- Employee

- Individual Contr
- Manager
- Executive

- HR
- IT
- Workplace Res
- Corporate Gov
- Finance
- M&A
- Business Dev
- R&D
- PR
- Marketing

Search: Manufacturing   **Sort By**: Rating High to Low   **Format**: Short   **Total**: 58   **Print**

LinkedIn
CIO Rating: 5
User Rating: 4
Price: Free

CNBC Biz
CIO Rating: 5
User Rating: 4
Price: Free

Dictation
CIO Rating: 5
User Rating: 4
Price: Free

Business Cards
CIO Rating: 5
User Rating: 4
Price: 7.99

Air Trips
CIO Rating: 5
User Rating: 4
Price: 1.99

CollabPort
CIO Rating: 5
User Rating: 4
Price: 100.00

Trip Report
CIO Rating: 4
User Rating: 4
Price: 5.99

Global
CIO Rating: 4
User Rating: 4
Price: Free

Oracle Financial
CIO Rating: 4
User Rating: 4
Price: 25.99

Remote Brief
CIO Rating: 4
User Rating: 4
Price: 1.99

Scribe
CIO Rating: 3
User Rating: 3
Price: 15.99

AP News
CIO Rating: 3
User Rating: 3
Price: Free

Notes
CIO Rating: 4
User Rating: 2
Price: 0.99

MyFly
CIO Rating: 3
User Rating: 4
Price: 1.99

Magic GL
CIO Rating: 4
User Rating: 3
Price: 55.99

MS Office
CIO Rating: 3
User Rating: 3
Price: 27.99

Southwest
CIO Rating: 3
User Rating: 3
Price: Free

Cloud Radio
CIO Rating: 1
User Rating: 3
Price: 0.99

SalesForce CRM
CIO Rating: 3
User Rating: 4
Price: 49.99

WebX
CIO Rating: 3
User Rating: 3
Price: 1.99

Collab
CIO Rating: 3
User Rating: 3
Price: 0.99

ID Track
CIO Rating: 2
User Rating: 3
Price: 6.99

Cloud CRM
CIO Rating: 3
User Rating: 4
Price: 0.99

Transmit
CIO Rating: 3
User Rating: 2
Price: 3.99

Tasl List
CIO Rating: 3
User Rating: 2
Price: 1.99

Assign App to Enterprise Role

CollabWorks™

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- M&A
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TripDeck

Trip Report
CIO Rating: 4
Us

Global
CIO Rating: 4

Oracle Financial
CIO Rating: 4
User Rating: 4
Price: 25.99

Remote Brief
CIO Rating: 4
User Rating: 4
Price: 1.99

Drag & Drop To Add

Scribe
CIO Rating: 3
User Rating: 3
Price: 15.99

MyFly
CIO Rating: 3
User Rating: 4
Price: 1.99

Magic GL
CIO Rating: 4
User Rating: 3
Price: 55.99

MS Office
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Price: 27.99

SalesForce CRM
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WebX
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User Rating: 4
Price: 0.99

Transmit
CIO Rating: 3
User Rating: 2
Price: 3.99

Tasl List
CIO Rating: 3
User Rating: 2
Price: 1.99

CIO Managing Apps, Roles, & Users

CollabWorks™

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Environment: Prod1   Active Users: 356   Uptime: 99.972

Roles   120

- Person

- Consultant
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- Employee

- Individual Contr
- Manager
- Executive

- HR
- IT
- Workplace Res
- Corporate Gov
- Finance
- M&A
- Business Dev
- R&D
- PR
- Marketing

Employee

Created: 7/20/10
Roles: 1
Apps: 38
Cost: 60.98

Provides all general purpose applications for self services and back office functions. All apps have integration APIs and conform to CollaWorks SDK.

Employee:

WebEx Collaboration
Price: 1.99

Office Apps Documents
5.99

Idea Farm Collaboration
0.99

Matrix One PLC
7.99

DocuTrack Doc Management
0.99

Collab Collaboration
0.99

ExpenseTrack Finance
0.99

TravelTrack Travel
0.99

SecureOne Utility
0.99

VideoX Video Free

Centauri CONFIDENTIAL   23

CIO Managing Virtual Environments

CollabWorks™

User: Mr. CIO   Template: RobsFav   Total Users: 500   Billing: 52,340
Environment: Prod1   Active Users: 356   Uptime: 99.972

Environments	5
Applications	47
BPO	
Roles	150
Templates	56
Users	500
Reports	66

Employee

$11.0 M
$8.8 M
$6.6 M
$4.4 M
$2.2 M
$0.0 M

01/01/2007 01/02/2007 01/03/2007 01/04/2007 01/05/2007 01/06/2007 01/07/2007 01/08/2007 01/09/2007 01/10/2007 12/31/2006

New & Updated

Employee Performance Review

Employee Performance Evaluation and Status Reports more...

Employee Warning Notice

Warning of employees misdoings more...

Training budget

The Training Budget template records quarterly training costs, calculates total training costs for the year, and compares the training costs to...

New CFO appointed

Toaster Inc. is pleased to announce the appointment of Enrico Franconi as its new Chief Financial Officer. Mr. Franconi began his duties on April 8, 2006.

Prior to this, Mr. Franconi has held diverse CFO roles for Sanoma Industries, VNU and Shell International and notes, "I think it's incredibly interesting to work for a company that is not only in continuous development, but also constantly adapting as a service provider--and taking advantage of new opportunities arising in the field of e-distribution."

After studying business economics and information management at the University of Groningen in the Netherlands, Mr. de Franconi began his career in 1979 at Shell International where he served in various financial management positions for Shell Chemicals, the Nederlandse Aardolie Maatschappij (NAM) and Brunei Shell. Between 1990 and 1999, Mr. Franconi was the finance manager for Shell's Exploration and Production Ventures in Burma, Russia, Kazakhstan and Peru. In 1999, he moved to the Dutch industry conglomerate, VNU, where he was closely involved in the respective sales of VNU's magazines to Wegener NV and newspaper divisions to Sanoma, the Finnish electronics concern.

My Workflow Tasks

Task Id	Type	State	Caption	Received
1010541	**Leave Requests**	**Accepted**	**My Christmas Vacation**	**1/4/2007 11:02:02 PM**
1011378	Leave Requests	Information	Sick	12/20/2006 4:44:15 PM
1011379	Leave Requests	Information	leave	12/19/2006 4:49:19 AM
1011233	Leave Requests	Information	leave for a day	12/5/2006 11:42:28 PM
1011230	Leave Requests	Information	leave for 2 days	12/5/2006 6:33:40 AM
1010501	Leave Requests	Information	Sabir Awan	10/9/2006 3:04:02 PM
1010325	Leave Requests	Information	Curso de Informatica	9/23/2006 11:00:14 PM

Calendar

	January 2007					▷◁	2. Week Of January 7, 2007	▷

Sun	Mon	Tue	Wed	Thu	Fri	Sat		
31	1	2	3	4	5	6	Sun 7 Jan 2007	123 (*)
7	8	9	10	11	12	13	Mon 8 Jan 2007	123 (*)
14	15	16	17	18	19	20	Tue 9 Jan 2007	123 (*)
21	22	23	24	25	26	27	Wed 10 Jan 2007	123 (*)
28	29	30	31	1	2	3	Thu 11 Jan 2007	EXPIRED (*) 123 (*)
							Fri 12 Jan 2007	123 (*)

Employee Directory   Organization Units
WebMail   Calendar & Tasks
Contacts   eMail Templates

● Offline Info

Learn How to Use Adenine Offline!

Synchronize (recommended)

Updated Yesterday at 9 AM
3 modified offline items

Work Offline Configure

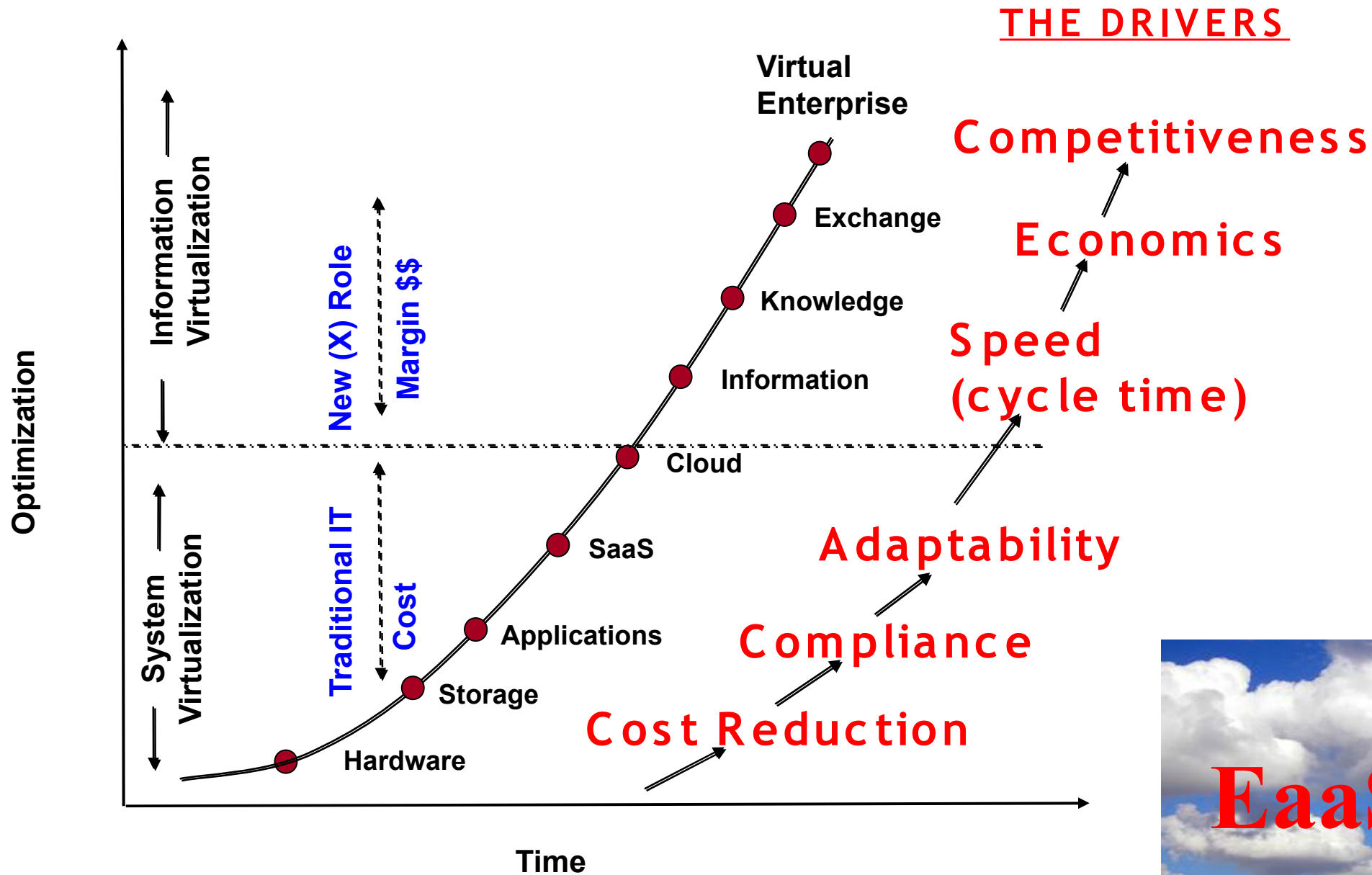### My Applications

Recruiting: Leave Request

Recruiting Manager: Job Candidate Tracker

Recruiting Manager: Recruiting Requisitions

Order Entry

Requirements Manager

Start New Workflow

Leave Request

The Virtual Enterprise

Cloud Winners & Losers

Winners

- HW & SW Cloud Vendors
- SaaS Providers
- End Users
- Consumer Device Providers
- Open Source SW
- Communication Providers
- Cloud Providers
- Business Consultants
- Startups
- Goal Based Management

Losers

- HW & SW Enterprise Vendors
- Current SW Licensing Models
- Large Enterprise IT Advantage
- In-house IT Departments
- Open Source SW
- Integrated Business View
- Enterprise Outsource Providers
- Old Style Management
- Corporate Real Estate
- Corporate Dress Code

Challenges to Consider

- Security
- Integration & Lock In
- Management
- Data Retention
- Monitoring / Metrics
- Quality of Service / SLA
- Mixed Environments (Private, Public, Hybrid)
- SOX, SAS 70
- Depreciated Assets and Write-offs
- Authentication & Collaboration

What the Future Might Look Like

- **Consumer Devices**

- **Enterprise Virtual Desktop Delivered to Devices**

- **Pico and Femto Cell IP IaaS Services**

- **Pervasive 802.11 IaaS Services**

- **Best of Bread SaaS vs. Integrated SaaS**

- **Small / Medium Business all Iaas & SaaS (EaaS)**

- **Larger Enterprises Hybrid IaaS Cloud and SaaS**

- **Virtual Enterprise People, Process & Technology**

- **More Agile, More Flexible, More Global**

Cloud Winners & Losers

The Evolution of IT Services and the Virtual Enterprise

Bill Vass
"Recovering CIO"
Nov 2010
william.vass@gmail.com

SaaS, Cloud, and Beyond
The Fisher CIO Leadership Program

Seven Lessons for Long Life as a CIO

Timothy Chou

Fisher CIO Leadership Program
Faculty Club, UC-Berkeley
Berkeley, CA
November 4, 2010

长寿十则

多菜少肉　多醋少盐

多果少糖　多咽少食

多眠少妖　多笑少怒

多行少言　多施少欲

多浴少衣　多步少车

惠生书

Ten Lessons for Long Life

More Vegetables ⟶ Less Meat

More Vinegar ⟶ Less Salt

More Fruit ⟶ Less Sugar

More Chewing ⟶ Less Swallowing

More Sleep ⟶ Less Worry

More Laughter ⟶ Less Anger

More Action ⟶ Less Words

More Giving ⟶ Less Wanting

More Bathing ⟶ Less Clothing

More Walking ⟶ Less Riding

We've all used Cloud Services

Consumer Application Cloud Services

Application Cloud Services: IPOs during 2000s $10B worth of Business Applications delivered

| 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
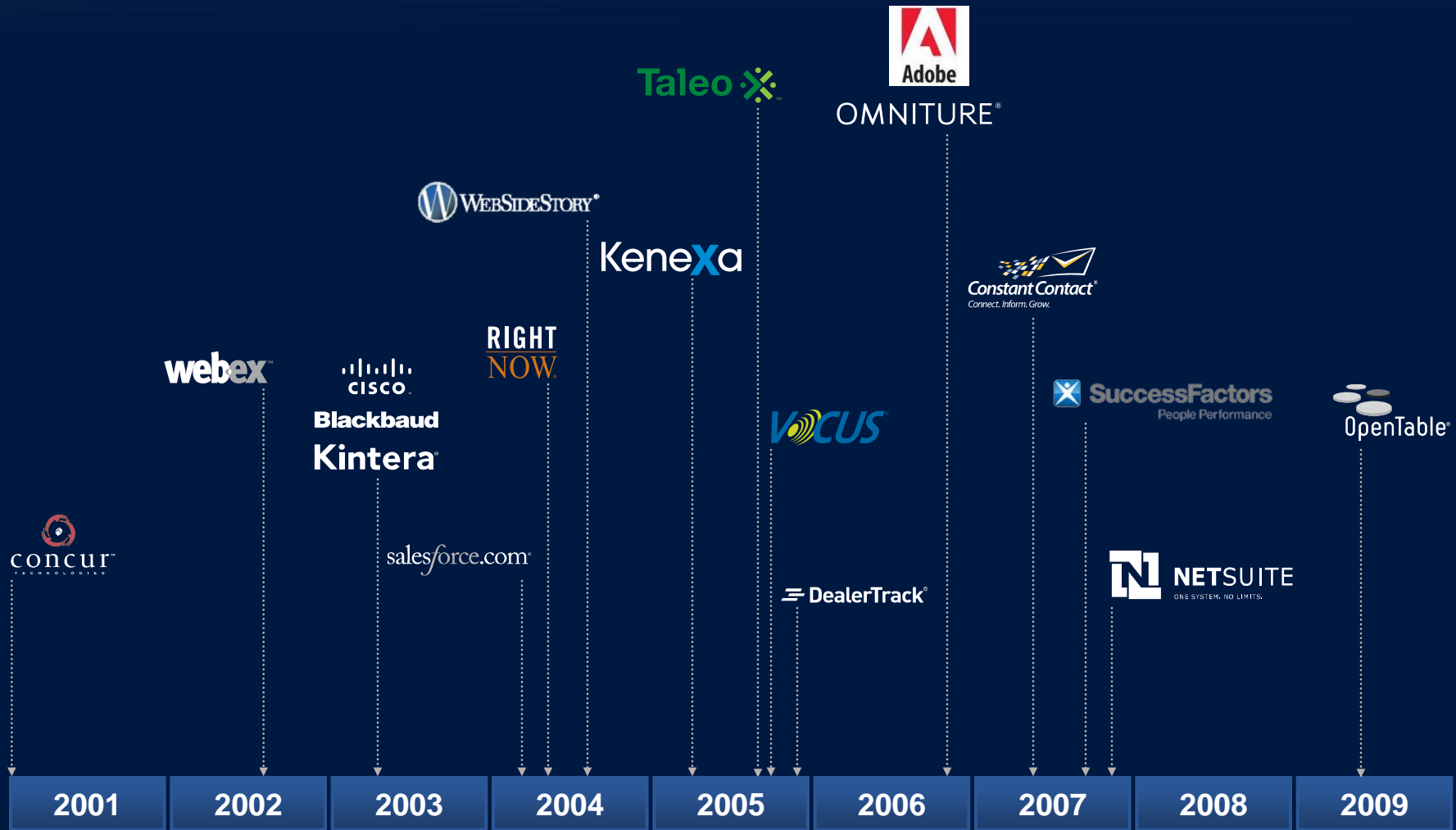
And now you know many
Business Application Cloud Services

Consumer Application Cloud Services

twitter

ebaY

Fidelity Investments

You Tube

skype

YAHOO!

Business Application Cloud Services

Adobe

OMNITURE

concur TECHNOLOGIES

RIGHT NOW

CISCO

webex

SERVICESOURCE

Blackbaud

salesforce.com

NETSUITE ONE SYSTEM. NO LIMITS.

SuccessFactors People Performance

JDA REAL DEMAND CHAIN RESULTS
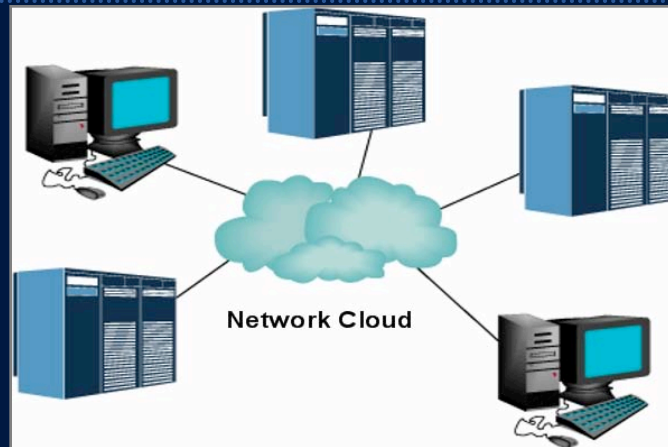
38 out of 40 of the Largest Companies in the World use one of these Application Cloud Services

All use the Original Cloud

Consumer Application Cloud Services

Business Application Cloud Services

Network Cloud

Network Cloud Services

Many also use Datacenter Cloud Services

Consumer Application Cloud Services

Business Application Cloud Services

Datacenter Cloud Services

Network Cloud Services

Compute & Storage Cloud Services
Amazon opened the door

Compute & Storage Cloud Services

November 2006

Datacenter Cloud Services

Network Cloud Services

Many, many new
Compute & Storage Cloud Services

Standardization, Specialization, Automation

US – N. Virginia	US – N. California	EU – Ireland	APAC – Singapore

Standard On-Demand Instances	Linux/UNIX Usage	Windows Usage
Small (Default)	$0.085 per hour	$0.12 per hour
Large	$0.34 per hour	$0.48 per hour
Extra Large	$0.68 per hour	$0.96 per hour
Micro On-Demand Instances	**Linux/UNIX Usage**	**Windows Usage**
Micro	$0.02 per hour	$0.03 per hour
High-Memory On-Demand Instances		
Extra Large	$0.50 per hour	$0.62 per hour
Double Extra Large	$1.00 per hour	$1.24 per hour
Quadruple Extra Large	$2.00 per hour	$2.48 per hour
High-CPU On-Demand Instances		
Medium	$0.17 per hour	
Extra Large	$0.68 per hour	

Can You Start a Server on GoGrid in the Time it Takes to Get a Latte?

Cloud Application Workloads

High Growth
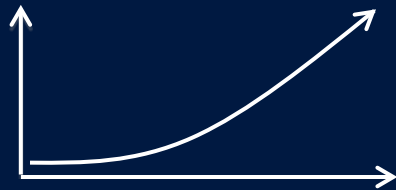
On-Off
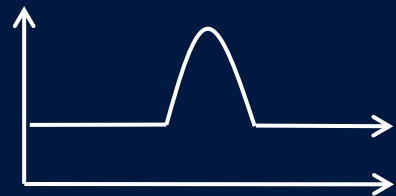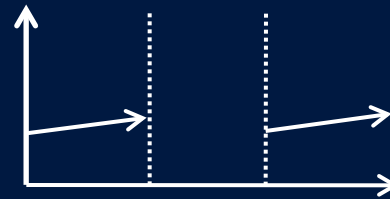
Aperiodic Bursting
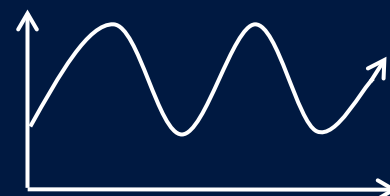
Periodic Bursting

High Growth:
Gilt Group on Joyent

Luxury brands. Hand-selected styles. Members-only prices.

Member Sign In
email address:

password:

☑ Remember me

Forgot your password?

Sign In

Become a Member

Get access to today's premier fashion and luxury brands at up to 70% off retail. Membership is free and we accept new members daily.

Tell me more

Request Membership

GILT GROUPE

Star

Movie

http://bit.ly/bJPq2j
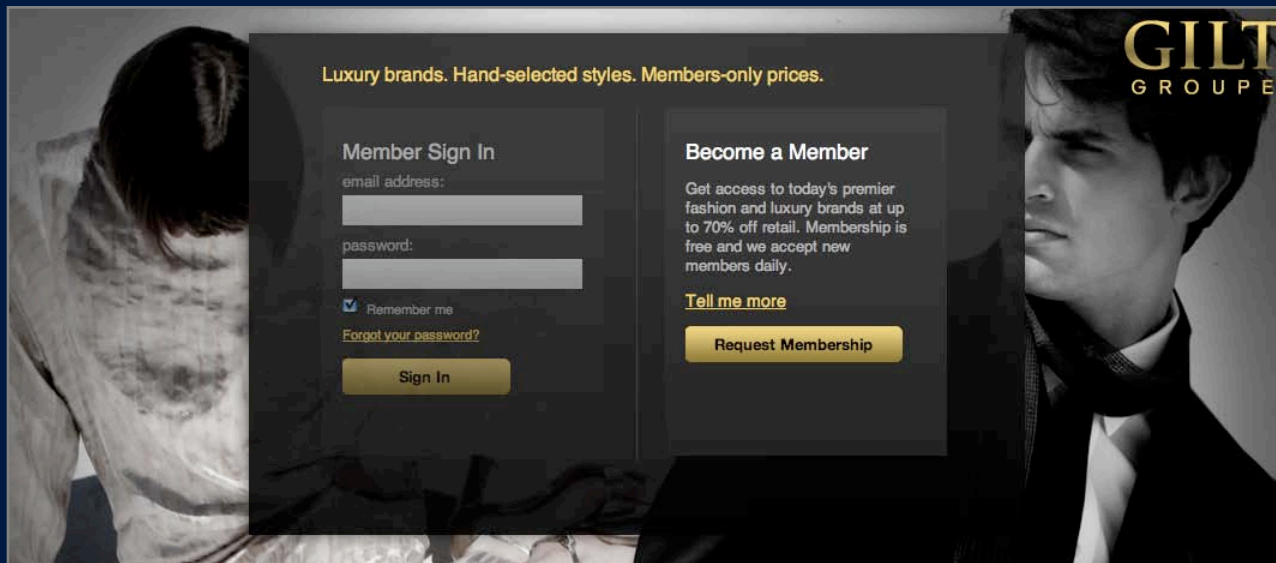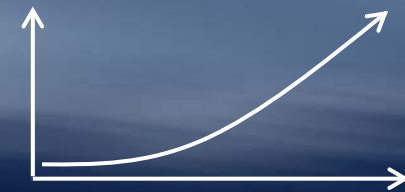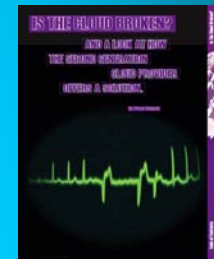
Book

Aperiodic Bursting:
Soasta

January   Feb   Mar   April   May
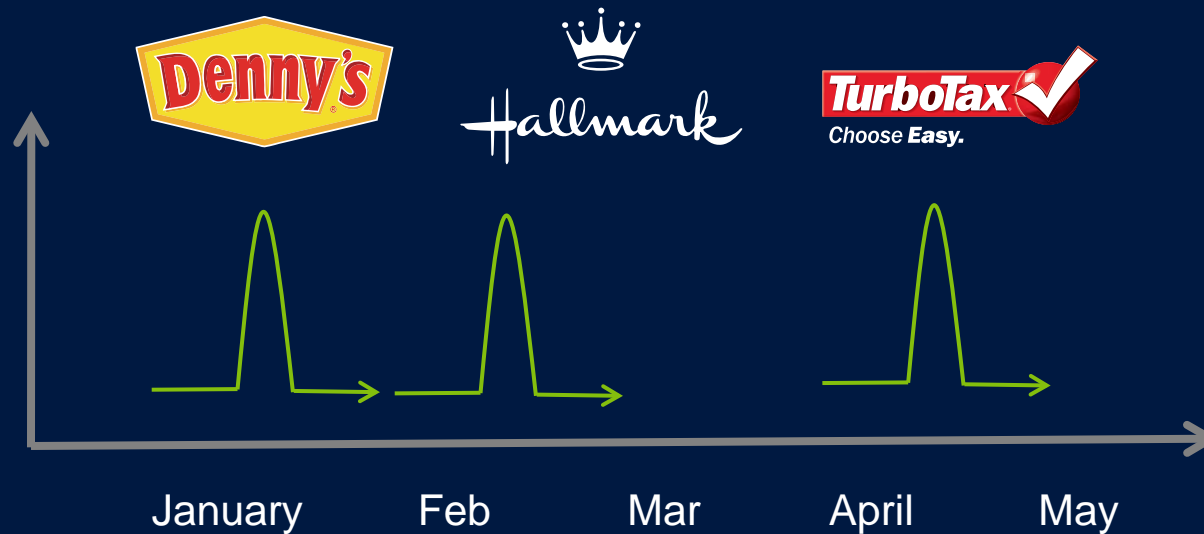
Star

Movie

Book

Platform Cloud Services for SW Development

Platform Cloud Services

Compute & Storage Cloud Services

Datacenter Cloud Services

Network Cloud Services

Platform Cloud Services for Operations

1351 Cloud Services in the Ecosystem

Cloud Computing Stories

Homework…

Save Money
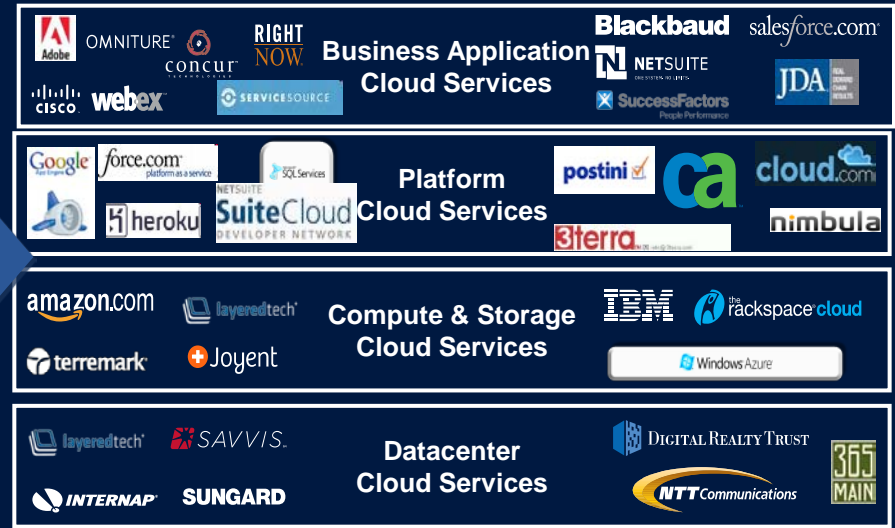
Use Specialists
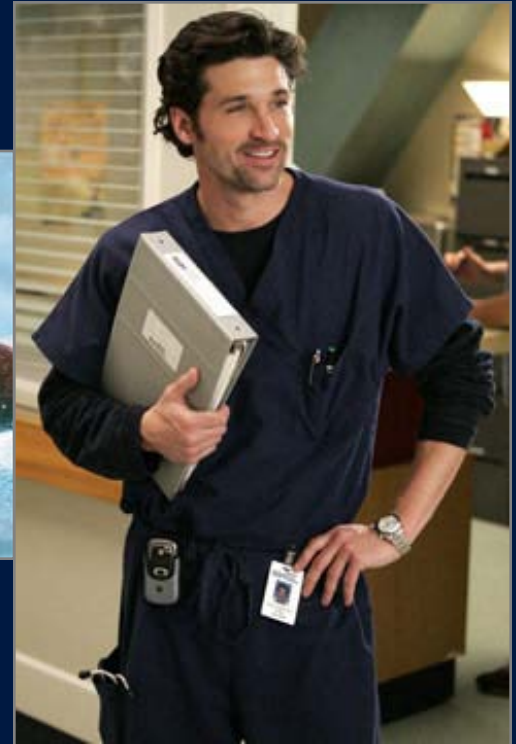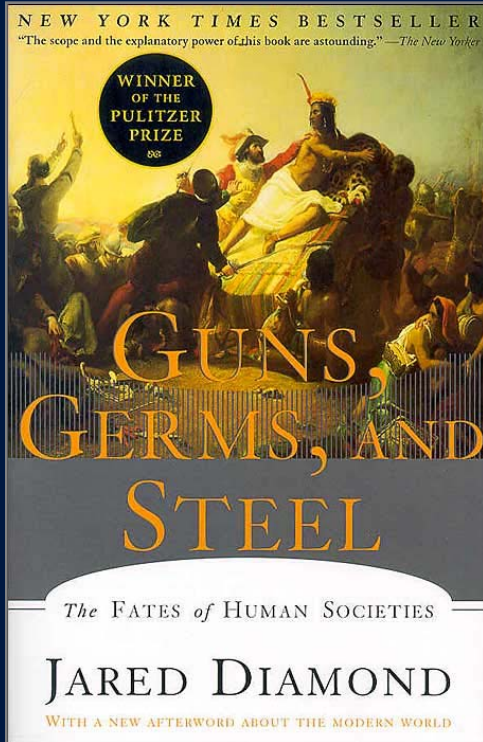
Become a Specialists

Become a Specialists

Service is not flipping burgers and answering the phone nicely
Service Is Information, Personal to You
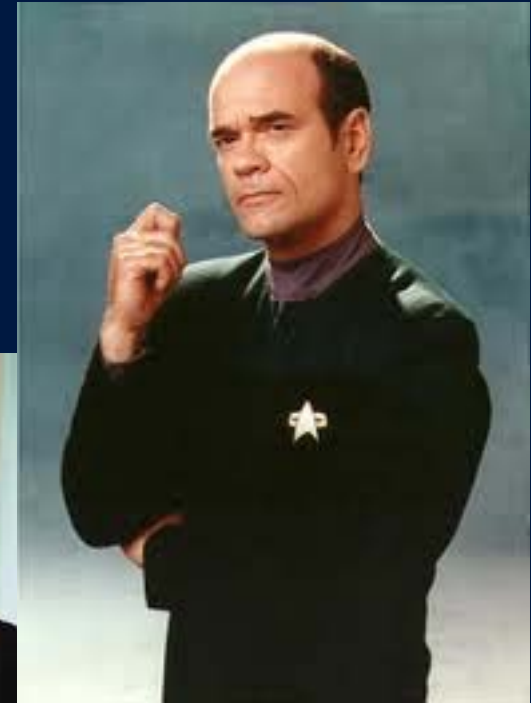
Service Is Information, Personal to You
Search-based Applications

Search

Applied to Maintenance & Support (Stealth Company)

HQ   **Channel**   **Customer**

| Instance | Employee | Product |

Service Request | Patch Install | Product Install

Service Contract | License Contract

Modules | Login

Renewal lines | Contract lines | Install Base
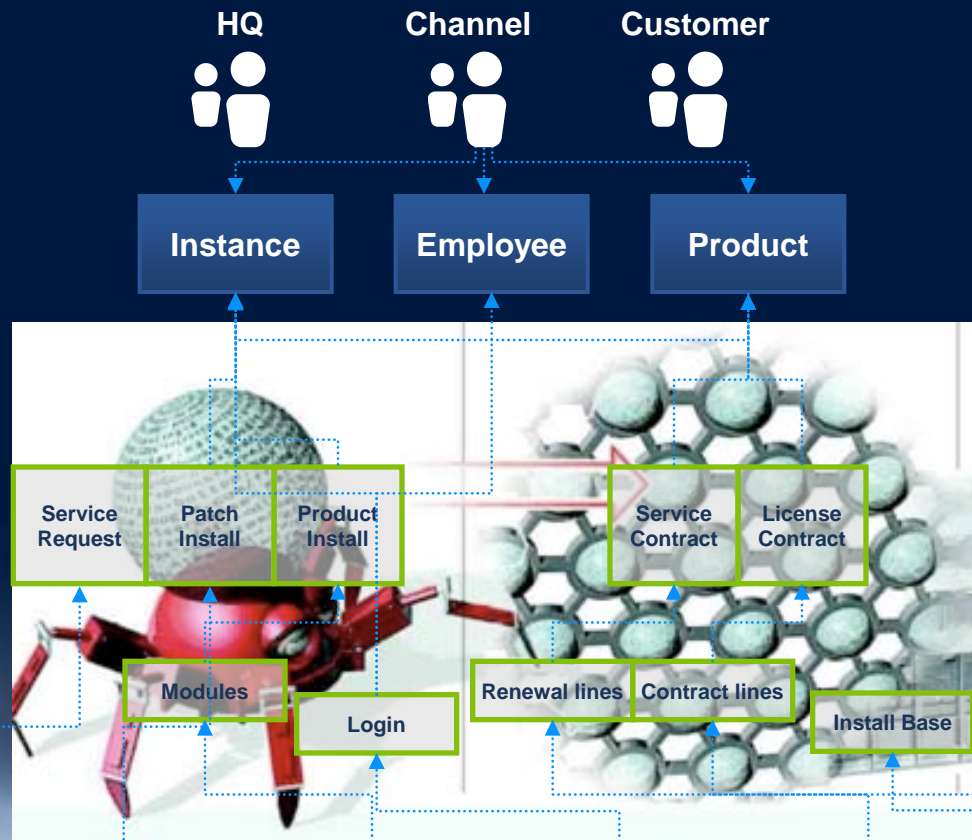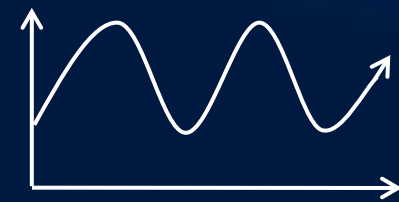
| Service Request | Patch Analysis | Instance Configuration | Instant Usage | License Contract | Service Renewal Contract | Install Base |

What's Next?
$3000 buys you.

1 Computer	**3.5 years**
10,000 Computers	**30 minutes**
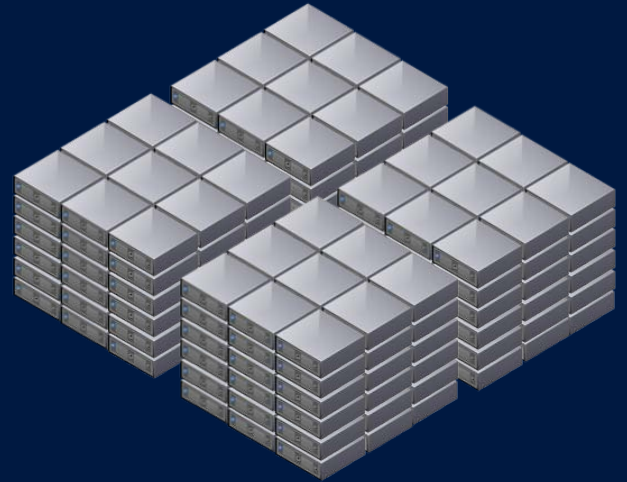
Be Like Ripley
People+Information+Software

长寿十则

多菜少肉　多嚼少盐
多果少糖　多咽少食
多眠少妖　多笑少怒
多行少言　多施少欲
多浴少衣　多步少车

忠生书

Creating a CIO
Cloud Computing Action Plan

Bernard Golden
Chief Executive Officer
HyperStratus

1

Introduction

CEO, HyperStratus

HyperStratus Cloud Computing Services:
- Strategy
- Architecture and Design
- Implementation
- Training

Cloud Computing Advisor, CIO Magazine

Author:
Virtualization for Dummies
    (Dummies Press, 2007)
Creating the Infrastructure for
    Cloud Computing
    (Intel Press, 11/2010)

Proud Haas graduate!

3
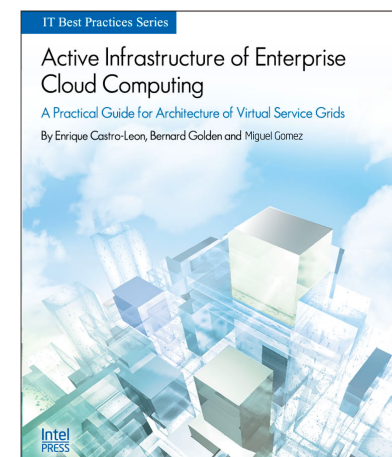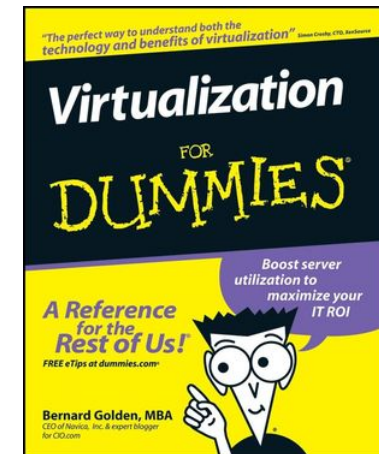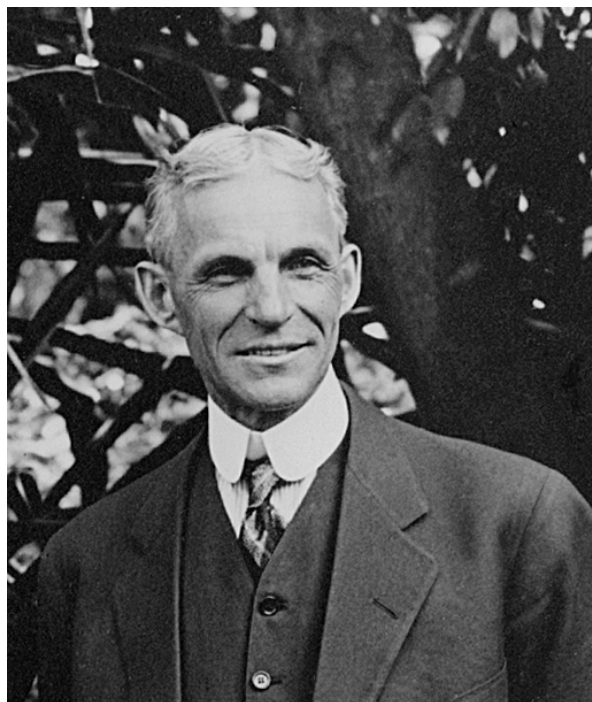
Two Facts

Change in Cost of Manufacturing Model T 1913–1920	**–75%**
Market Share Model T 1920	**75%**

Number of US Auto Makers

1920	200+
1940	17
2010	3

Scale

Specialist

The Auto Manufacturer Choice Today

The River Rouge Plant of the Information Age

Bechtel Benchmark Study

Resource	Bechtel	Cloud Provider
Bandwidth	$500/megabit	$10–$15/megabit (YouTube)
Sys Admin Ratio	100 servers per admin	17,000 servers per admin (Google)
Storage	$3.75/GB/Mo	$.10/GB/Mo (Amazon)

SaaS or IaaS?

10

The Decision Process
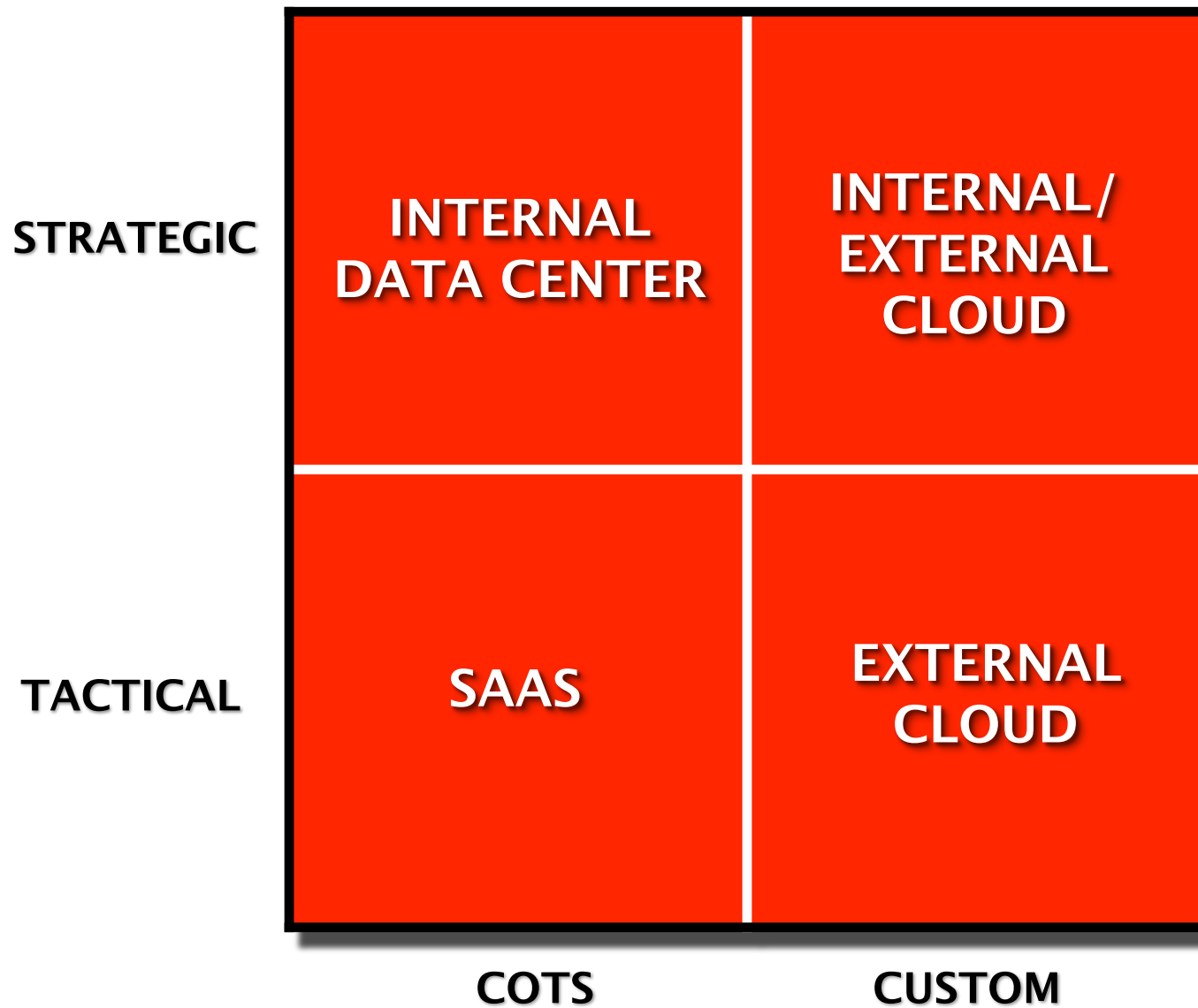
Application Migration Strategy

- Perform application portfolio analysis
- Rank applications along criteria (1=low, 3=high)
  - ‣ Load stability
  - ‣ Need for internal integration
  - ‣ Security/privacy requirements
  - ‣ Data transfer requirements
  - ‣ Mission critical
  - ‣ Software license issues
- Create staged migration project plan
- Rinse and repeat

Portfolio Analysis Example

	App 1	App 2	App 3	App N
Load Stability	2	3	1	1
Internal Integration Need	1	3	1	2
Security/privacy Issues	2	2	2	3
Data Transfer Requirements	1	2	2	1
Mission Critical	1	3	2	1
Software License Issues	1	3	1	3
Total	8	16	9	11

Learn from history

Define your "scale" vs. "specialist" strategy

Apply a portfolio analysis

Download portfolio analysis checklist at:
www.hyperstratus.com/portfolio-analysis

The Cloud:
Moving to an Integrated Global Economy

Ian Morrison PhD

www.ianmorrison.com

Outline

- **The Old Global Economy**
- **The Next Economy**
- **The Role of the Cloud in an Integrated Global Economy**
- **An Industry in Need of a Cloud: Health Care**
- **Conclusions**

How the Global Economy Worked until Recently in 10 Easy Steps (Part 1)

1. Hard working people in communist countries (e.g. China, Vietnam) made good, cheap products and exported them to America at a profit

2. They saved as much money as they could (like 30% of their income)

3. They loaned their money to US banks and government

How the Global Economy Worked until Recently in 10 Easy Steps (Part 2)

4. Our Banks leveraged the money 30 to 1 and loaned it to Americans to buy big houses we couldn't really afford

5. Many Americans (and a lot of immigrants) were fully employed building these houses, cleaning them, selling mortgages and title insurance

6. Some Americans worked as nurses, doctors, teachers, waiters or cooks because they weren't any good at real estate or construction

7. The rest of Americans were prison guards or gave Powerpoint presentations to each other

How the Global Economy Worked until Recently in 10 Easy Steps (Part 3)

8. We all had jobs, we all could borrow money to buy stocks and more houses, and there was great demand so the value of the houses and the stocks kept going up and because we all felt rich……

9. We got to borrow even more money so that…..

10. We filled our houses with good, cheap products made by hard working people in communist countries.

The Next Economy: The Global View
China and India Grow Up

"In the first half of this year, G.M.'s sales in China rose 48.5 percent from a year earlier, and for the first time ever, the automaker sold more vehicles in China than in the United States…. G.M. sold nearly half a million Buicks in China last year, almost five times the brand's sales in the United States".

New York Times, July, 22, 2010

The Next Economy: The Global View
Europe Smartens Up

- Irish deficit as a share of GDP hit 14.3% of GDP

- GDP fell 7% in 2009

- Debt to GDP

  - Ireland   447%
  - UK   409%
  - US   93%
  - Canada   62%
  - India   20%
  - China   7%

The Next Economy: The Global View
Africa Wakes Up

What if China chose to subsidize African growth and consumption instead of American, in exchange for access to Africa's natural resources, what would the global economy of 2050 look like?

The Next Economy: The Global View
Latin America Turns Up

Financial Index chart

- Latin America is attractive to Asian Investment, too

- President Luiz Inácio Lula da Silva of Brazil shook hands with Chinese President Hu Jintao during his visit to Brazil earlier this month. Russia and Iran are also competing for political and business interests in Latin America.

- April, 2010, Christian Science Monitor

The Next Economy: The Global View
Islam Wants Up
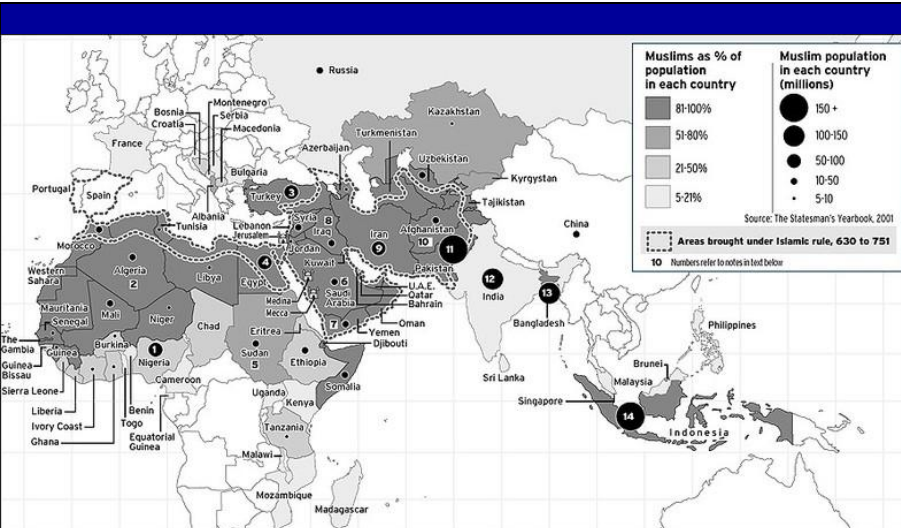
Will Islam fully participate and does Turkey provide some clues?

The Next Economy: The Global View
America Fesses Up

U.S. Government Receipts, Expenditures and Deficits
Fiscal 2001 - 2009

Structural Primary Budget Deficits in 2010, % of GDP
Source: International Monetary Fund
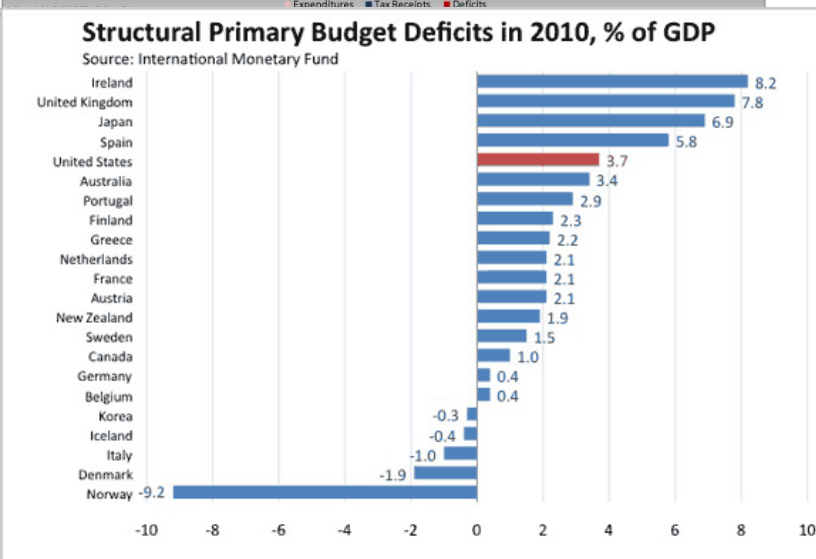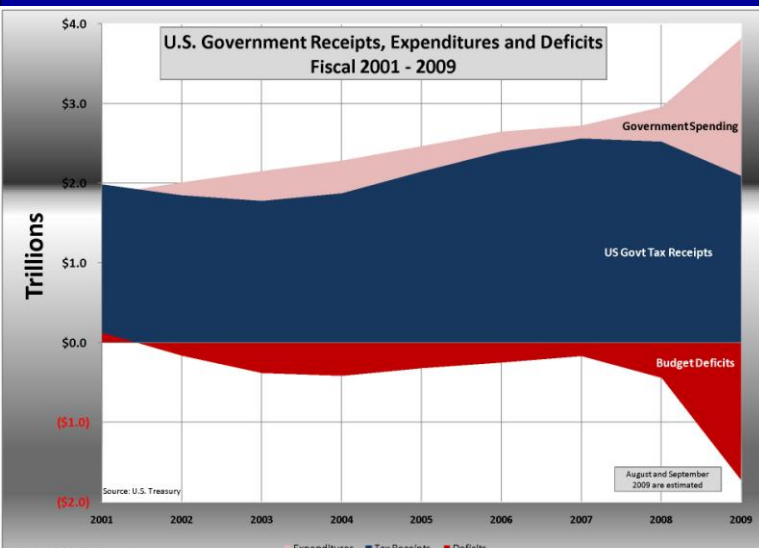
- Make Tax Cuts permanent?

- Mortgage Interest Deductibility?

- Proposition 13?

- Public Sector pensions and Health Benefits?

- Medicare and Medicaid Costs and the federal deficits?

The Next Economy: The U.S View
The Ultra Productive, High Performing, Globally Competitive, Economic Base.

– Combine ideas, knowledge, innovation, branding, marketing and technology and turn them into profits on a global basis

– Companies primarily create profit and wealth not jobs and incomes

The Next Economy: The U.S View
The New Free-Basing Experience Economy Sector

500 Million Users:
Need we say more?

12 million unique visitors a month
Top 200 websites in the world

360 million active monthly users
1,100 plus employees
400+ Open positions
Market Value of $4.5 billion
Backed by Top VCs

What Does Zynga Do?

They make games for Facebook and give them away free.

"In FarmVille, its most popular game, players tend to virtual farms, planting and harvesting crops, and turning little plots of land into ever more sophisticated or idyllic cyberfarms. Good farmers — those who don't let crops wither — earn virtual currency they can use for things like more seed or farm animals and equipment. But players can also buy those goods with credit cards, PayPal accounts or Facebook's new payment system, called Credits. A pink tractor, a FarmVille favorite, costs about $3.50, and fuel to power it is 60 cents. A Breton horse can be had for $4.40, and four chickens for $5.60. The sums are small, but add up quickly when multiplied by millions of users: Zynga says it has been profitable since shortly after its founding".

The New York Times, July 24, 2010

The Next Economy: The U.S View
Market-Based Meritocratic Maslowian Economy

You earn more based on value created and in turn based on education

Some will be paid more in the form of health benefits than wages

There will still be rich bankers, but they might be taxed more

The Next Economy: The U.S View
Gigantic Keynesian Sector

Growth of Health Care Employment
(Percent change over a year ago)
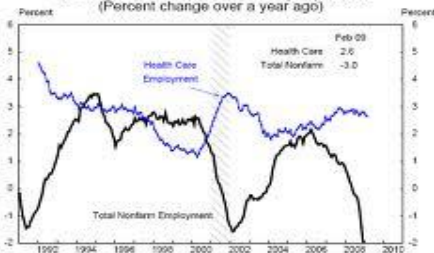
Health care, Education and Criminal Justice
System is a gigantic Keynesian sector:
A social service paid through taxes and
immune to global competition

Prison Jobs in Southern Illinois* Nearly Triple While
Coal Mining Jobs Drop More than 70% over 18-year Period

	1980	1985	1990	1995	1998
	1,500	2,000	2,100	2,950	3,850
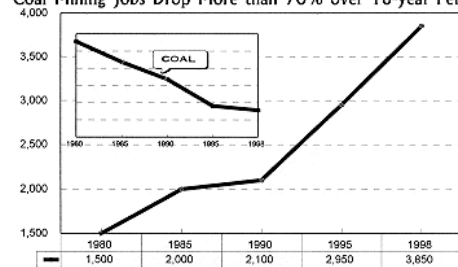
Sources: Public Information Office of the Illinois Department of Corrections - 1996
Annual Report and the Illinois Department of Nauural Resources/Mines & Minerals
* South of I-64

The Next Economy: The U.S View
Freelancers

Temporary Help Workers and Manufacturing Overtime Hours Jan. 2000 to Feb. 2010

Does health reform mean end of Job-Lock?

Does Temporary Help category go from 2% to 4% of the labor force?

Might employers exit and leave employees in the exchanges in 2018 and beyond?

How to Set Your Freelance Rates

The Next Economy: The U.S View
The Luxury Sector

Still going to be rich people living in the US

Even if Tax Cuts Expire

Some of them from other countries

Going to want the best healthcare system that money can buy

Just not enough of them to go around
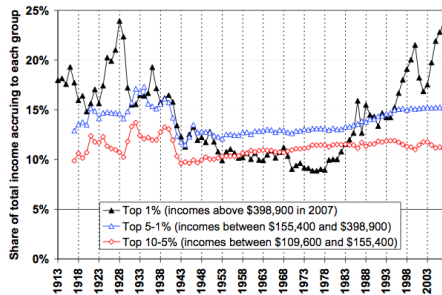
FIGURE 2
Decomposing the Top Decile US Income Share into 3 Groups, 1913-2007

The Next Economy: The U.S View
The Luxury Sector

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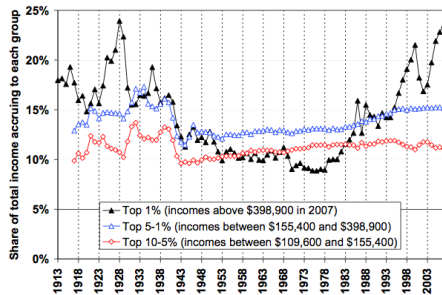
FIGURE 2
Decomposing the Top Decile US Income Share into 3 Groups, 1913-2007

The Role of the Cloud in an Integrated Global Economy

- Creates opportunities for new entrants (businesses and entire nations) to **Leapfrog** over legacy players
- Shifts organizational economics **from fixed to variable** costs
- Creates unparalleled opportunities for **Virtualization** of organizations
- Challenges technology **incumbents**
- Creates **huge issues** of privacy, security, IP ownership, and even national security
- Who **governs** the cloud?

Primary Care Doctors Use of Electronic Patient Medical Records in Their Practice, 2006 and 2009*

Percent
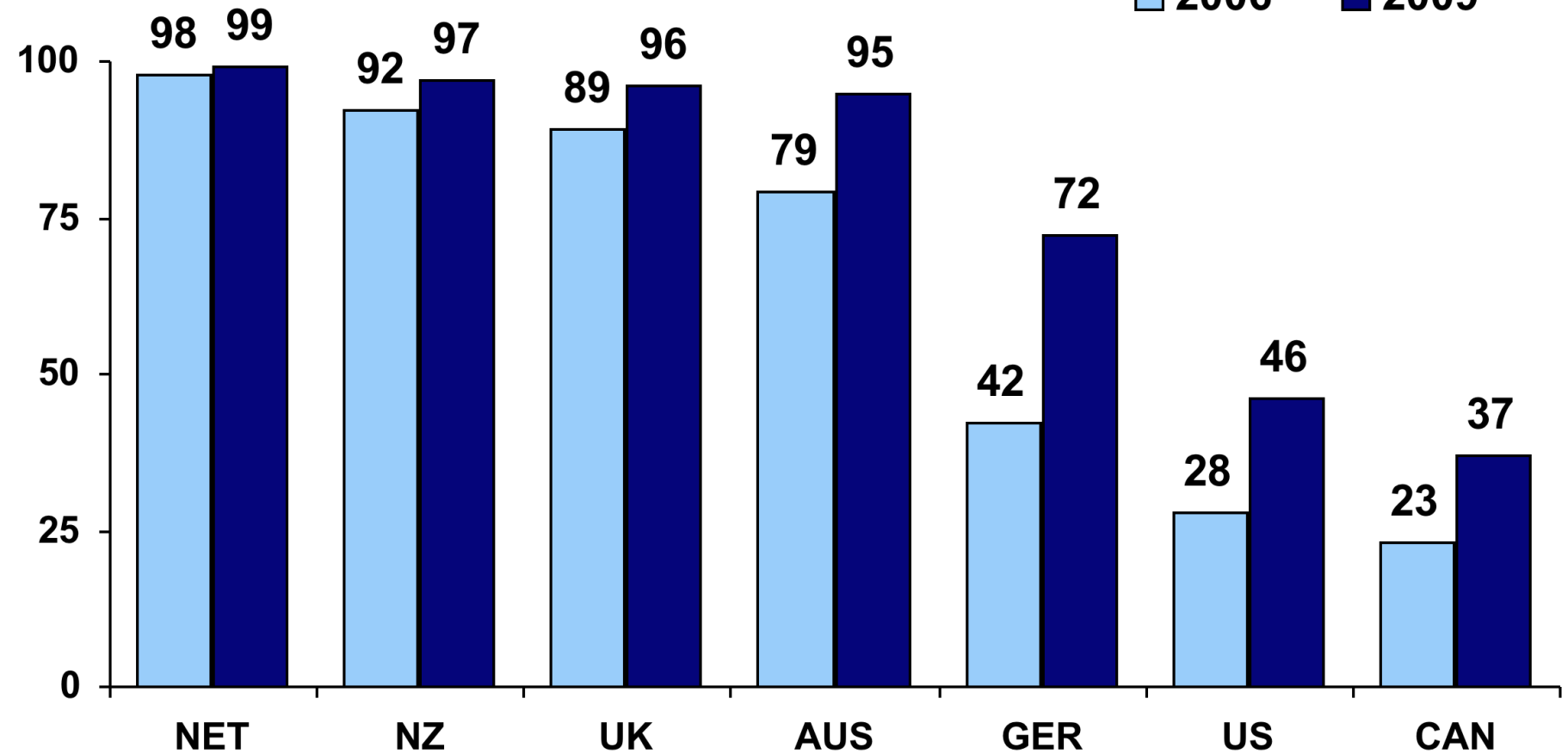
* 2006: "Do you currently use electronic patient medical records in your practice?"
* 2009: "Do you use electronic patient medical records in your practice (not including billing systems)?"

Slide 21   Source: 2006 and 2009 Commonwealth Fund International Health Policy Survey of Primary Care Physicians.

Primary Care Practices with Advanced Electronic Health Information Capacity

Percent reporting at least 9 of 14 clinical IT functions*

	NZ	AUS	UK	ITA	NET	SWE	GER	US	NOR	FR	CAN
Percent	92	91	89	66	54	49	36	26	19	15	14
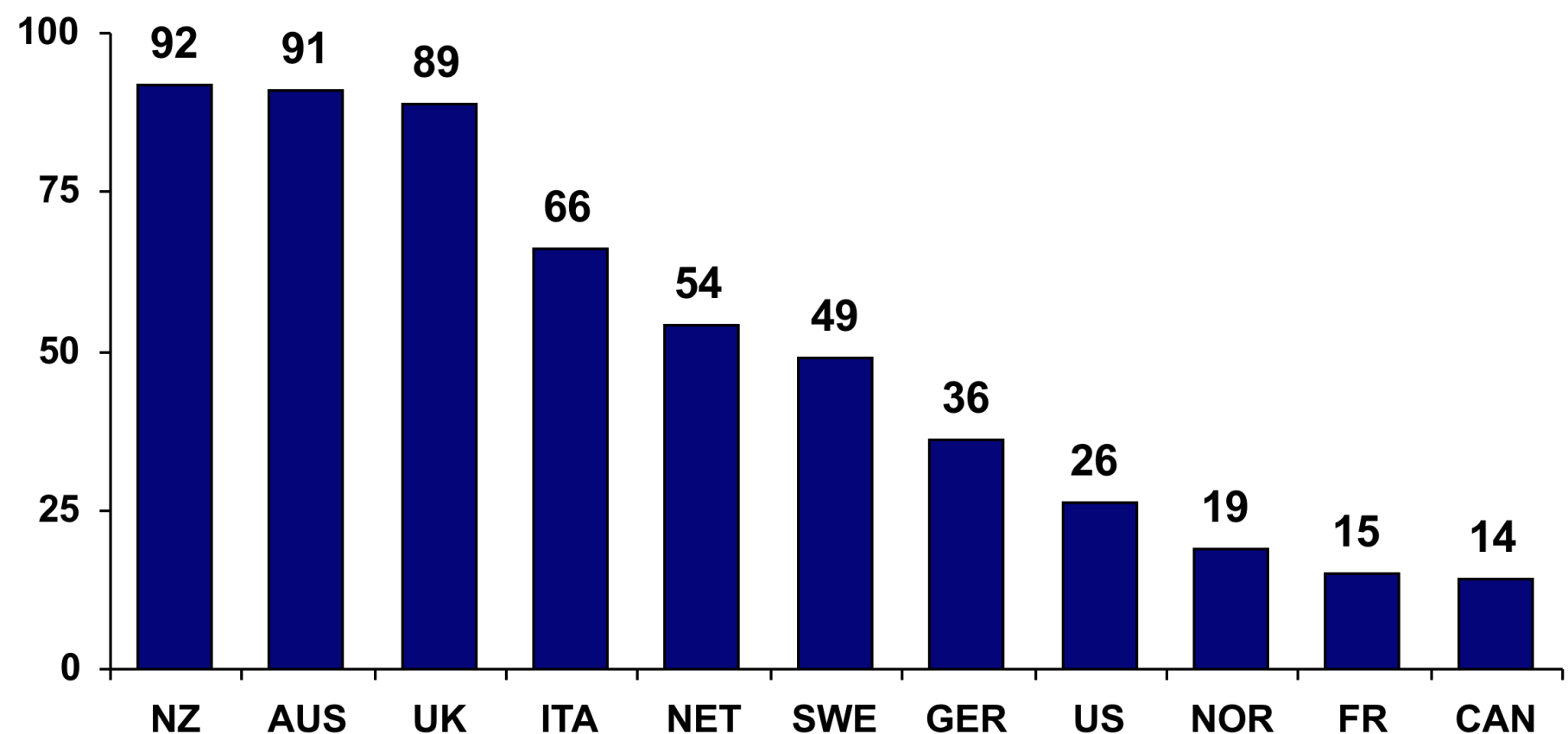
* Count of 14 functions includes: electronic medical record; electronic prescribing and ordering of tests; electronic access test results, Rx alerts, clinical notes; computerized system for tracking lab tests, guidelines, alerts to provide patients with test results, preventive/follow-up care reminders; and computerized list of patients by diagnosis, medications, due for tests or preventive care.

Three Types of Accountable Care Organizations

No Electronic Health Records
Use Claims Data

Site-Specific Electronic Health Records and Registries

Comprehensive Electronic Health Records Across All Sites
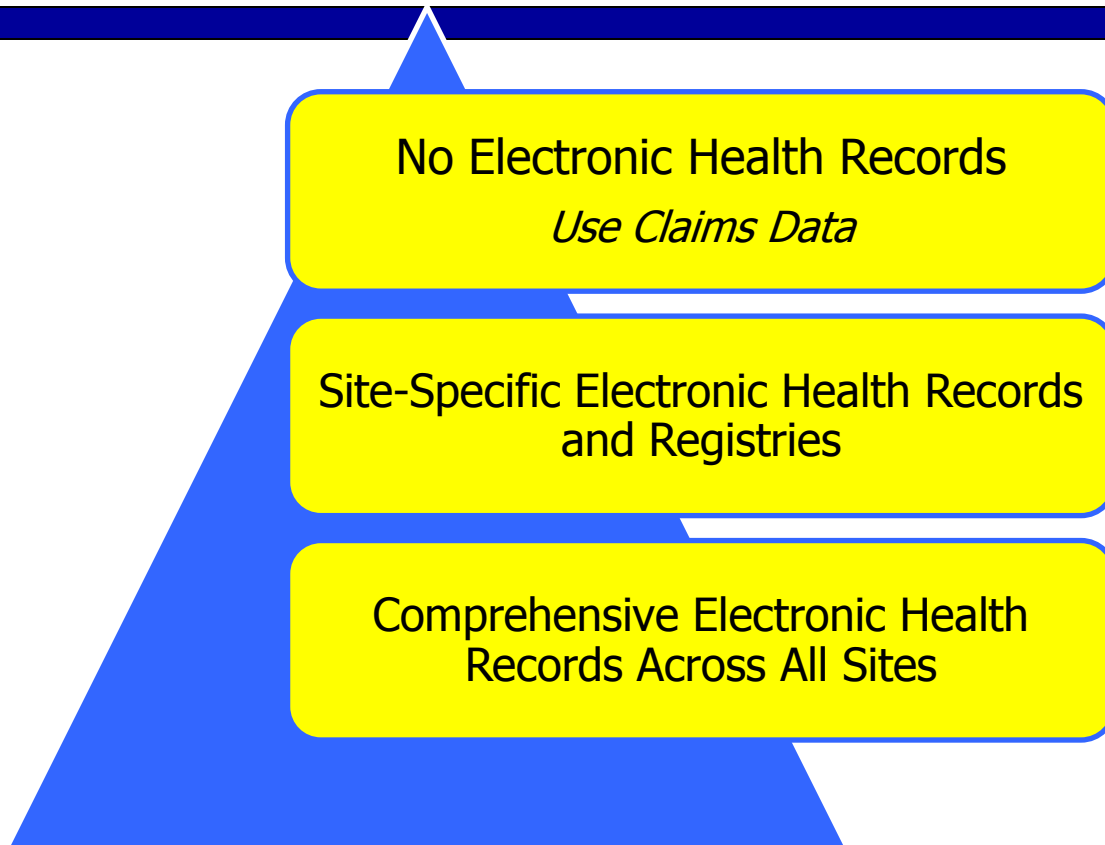
SOURCE: Fisher, E. S., Shortell, S.M. (October, 2010) Accountable Care Organizations. *JAMA*

Conclusion

- Cloud and SaaS enable and amplify massive transformation in an integrated global economy

- New organizational forms and new patterns of production, consumption and trade will emerge

- Organizations and leaders need to prepare for change

- New Paradigms will eventually need new governance

ORGANIZATIONAL INNOVATION & THE VIRTUAL ENTERPRISE

The Fisher CIO Leadership Program
November 2010
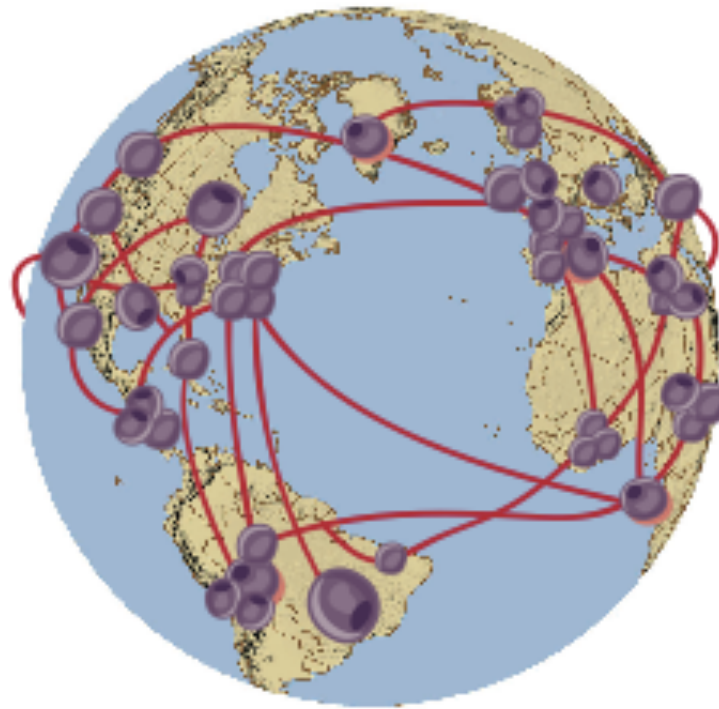
Dr. Homa Bahrami

bahrami@haas.berkeley.edu or homa@pdgy.com

MY BACKGROUND

- **Educator, Advisor, Board Member, Author**

- **Senior Lecturer** at Haas Org. Behavior Group

- **Faculty Director** at Haas Center for Exec Education

- **Research focus**: Org innovation in knowledge industries

- **Recent book: Super-Flexibility for Knowledge Enterprises, 2010**

WHAT IS "ORGANIZATION"?

- **Reporting relationships & org chart**

- How a **person's task** is linked to the bigger picture

- The **personal tone** & role modeling of leaders

- How silos **collaborate & interact**

- **How work is done & strategy is executed**

NEW REALITIES & ORGANIZATIONAL INNOVATION

- **Global** interdependence
- The emergence of **knowledge** industries
- Economic crisis: **Efficiency** & productivity
- **Virtualization**: IT-enabled interactions
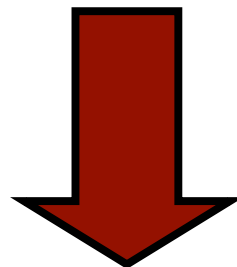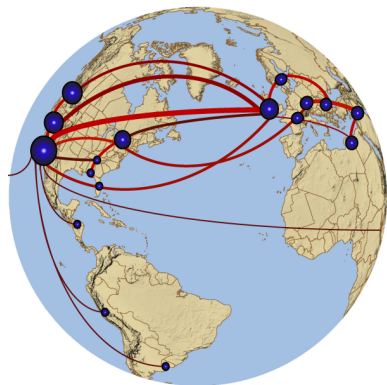
**The Emergence of New Org Models
Need to Re-design & Re-invent**

Organizational Design:
Balancing Segmentation & Integration

Segmentation

Integration
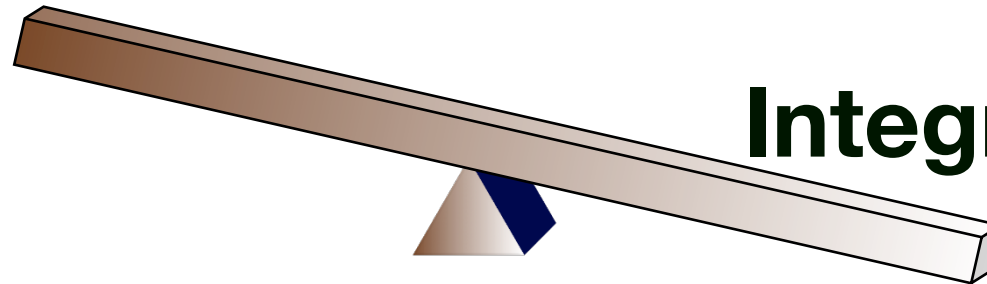
Breaking up tasks

Pulling together activities

Reporting structure

Processes & linkages

Vertical Dimension

Horizontal Dimension

Organizational Models

Mechanistic Models
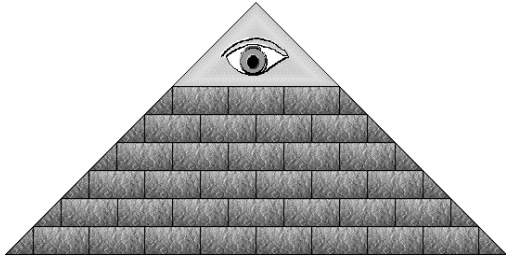
➢ Stable & predictable situations

➢ Specialized tasks in silos

➢ Coordination via hierarchy

➢ Single brain/ HQ

➢ Centralized decision-making

➢ Parent-child leadership

Dynamic Models
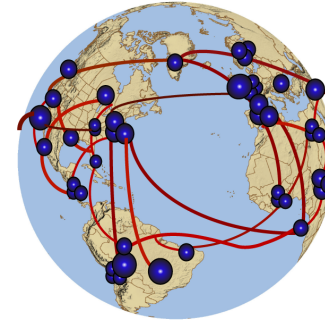
➢ Unpredictable/dynamic environments

➢ Cross-functional teamwork

➢ Coordination via interactions

➢ Distributed competence centers

➢ Federal/State balances

➢ Peer-peer leadership

Dynamic Models:
The Nodal Architecture
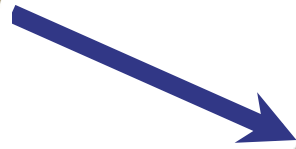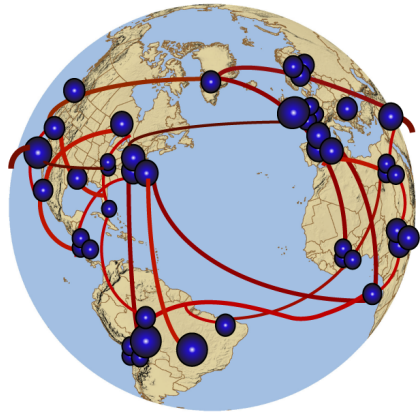
Cohesive Dimension
The Personality
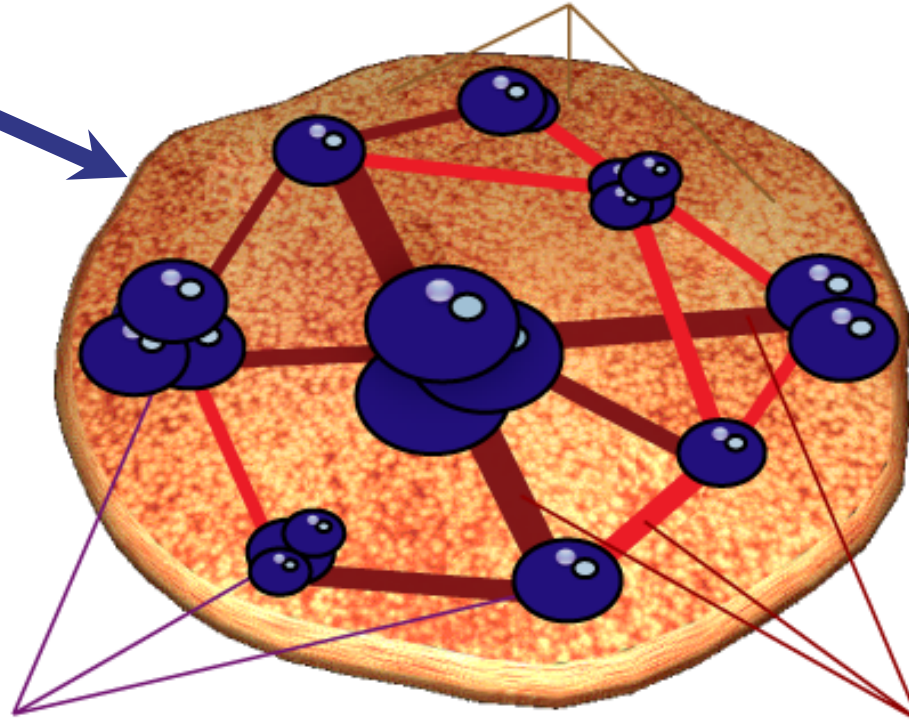
Clustering Dimension
The Anatomy

Connective Dimension
The Circulation

The Clustering Dimension:
Organizational Anatomy
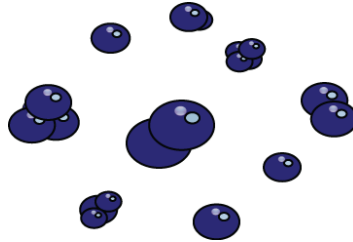
- Organizational/ team **foundation**

- Reflected in **organization charts, reporting relationships, roles, responsibilities, authority, accountability, deliverables, performance metrics**

- Basis for **segmentation & grouping** (functions, products, customers, locations)

The Cohesive Dimension:
Organizational Personality
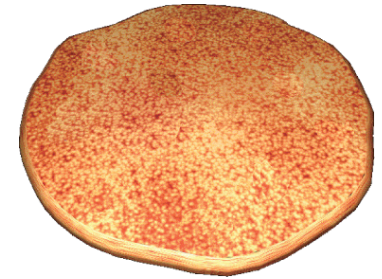
- Provides **cohesion & identity**; keeps employees "emotionally" connected

- Links segmentation & integration

- Reflected in the **"guiding principles"**, **leaders' behavior**, **employee profiles**, **HR policies**, **brand image** & **visible symbols**

- Analogous to the enterprise's **"culture"**

The Connective Dimension:
Organizational Circulation
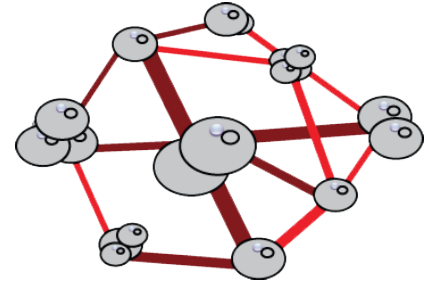
- **Aligning** activities; creating **shared reality**

- Addresses the "integration" component

- Reflected in **business processes, communication patterns**, **IT infrastructure & e-tools**, and operational **hubs** (the horizontal component)

- Analogous to the enterprise's "**circulation**"

COMPLEX INTERACTIONS

Connected TV

IPTV · Media Center · Integrated TV

Solutions · Engineering · **Marketing** · Sales · Biz Dev

SVC · TX · UK · Rome · BJN · New Deli · Server · Client · Apps · PRV

Architecture · Integration · EM · EM · EM · EM · PM · Eng PM · PM · Planning PM

EM · Support · Integration · Integration · Integration · Integration · Eng · Ptnr PM · Eng · Release PM

Support · Support · Support · Support · Testing · Eng · Testing · Validation Testing

Testing · **Sustaining Testing**

C-1 · C-2

P-1 · P-2

Customers

Partners

Multiple stakeholders, diverse experts

BALANCING THE VERTICAL AND THE HORIZONTAL

Silo 1   Silo 2   Silo 3

Synergy
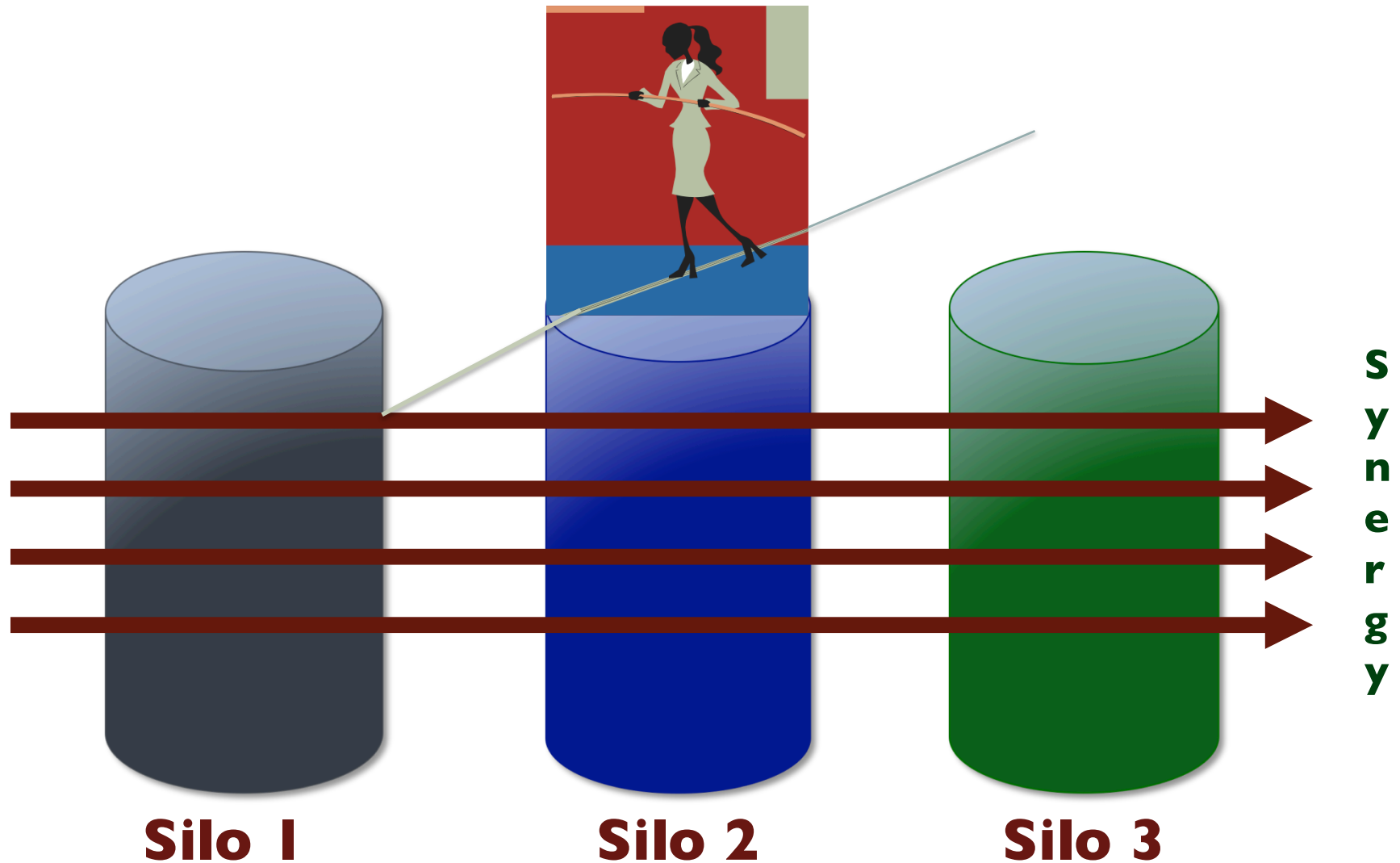
INTERACTION TOOLS

Codified Knowledge

Organizational

Team/ Individual

Core Processes:
Product Development
Customer Relationships
Order Delivery
Talent Management
Financial Measurement
Business Development
Information Infrastructure

Performance Measurement
MBO
Project Management
Alignment tools, blogs, wikis

Communication Forums
Development Programs
Planning Sessions
Boards & Councils

Peer coaches & mentors
Personal Networks
Review Meetings

Un-Codified Knowledge

Traditional versus Emerging
Models of Organizational Design
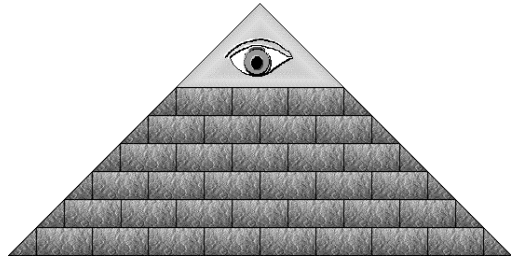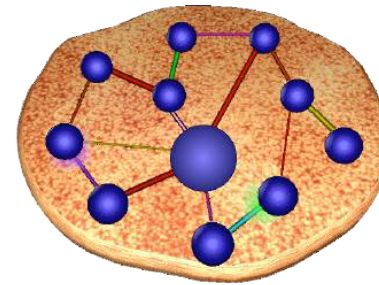
Uni-polar	Multi-polar
Vertical	Multi-Dimensional
Binary (HQ-SBU)	Trade-offs (Federal/State)
Rules & Procedures	Interactions & processes
Compliance	Commitment
Static	Dynamic

Summary & Conclusion
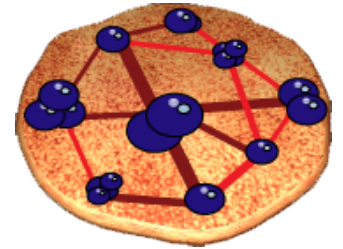
- **Technology's impact**: codification, diffusion, aggregation & transparency of information has created opportunities to develop **dynamic, distributed** and **virtual** organizational models**.**

- As the pace of "**virtualization**" increases, the emphasis has shifted to **"circulation" and the connective dimension**.

- The challenge is to create **super-flexible** architectures: Robust and resilient, yet agile and versatile, to thrive on **distributed collaboration and dynamic uncertainty**.

Follow-up reading

Super-Flexibility for Knowledge Enterprises
Homa Bahrami & Stuart Evans

www.springer.com
www.amazon.com

http://www2.haas.berkeley.edu/News/Research%20News/2010-06-03%20Bahrami.aspx
http://www2.haas.berkeley.edu/Videos/Research%20Videos.aspx
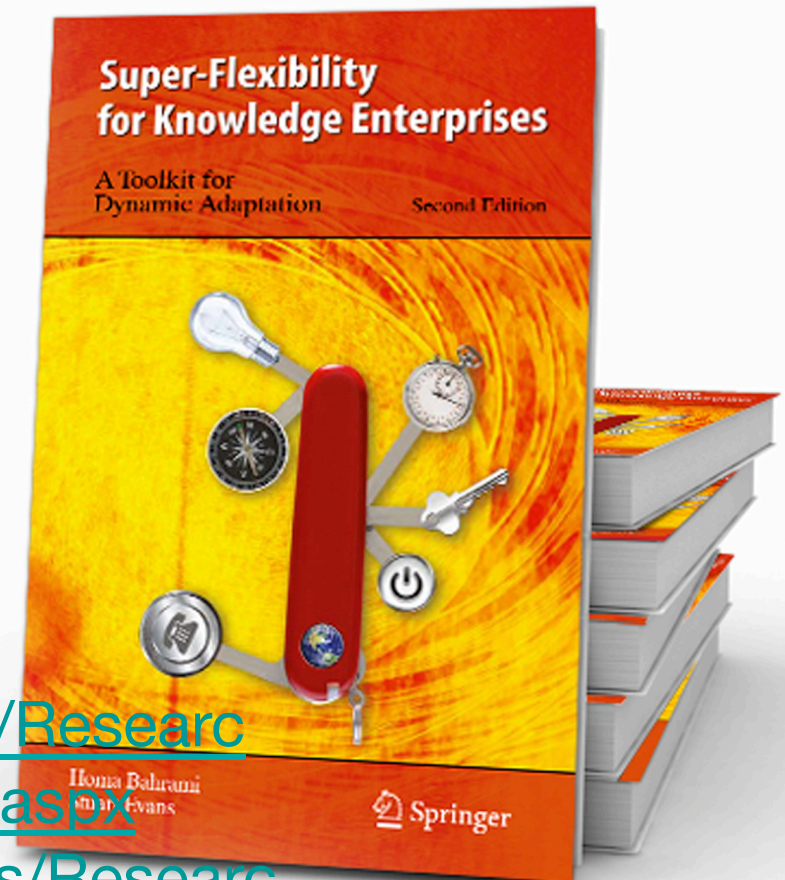
Image: John Curley http://www.flickr.com/photos/jay_que/1834540/

Outline

- What is Cloud Computing?
- What is new? Why has it happened now?
- Why good for users?
- Do cloud providers make money?
- Quick: Software as a Service / Cloud Computing in Education at UC Berkeley
- Quick: UC Berkeley RAD Lab Research Program in Cloud Computing
- Q&A

"...we've redefined Cloud Computing to include everything that we already do... I don't understand what we would do differently ... other than change the wording of some of our ads."

Larry Ellison, CEO, Oracle (Wall Street Journal, Sept. 26, 2008)

Above the Clouds:
A Berkeley View of Cloud Computing
abovetheclouds.cs.berkeley.edu

- 2/09 White paper by RAD Lab PI's and students
  - Shorter version: "A View of Cloud Computing," *Communications of the ACM*, April 2010
  - Clarify terminology around Cloud Computing
  - Quantify comparison with conventional computing
  - Identify Cloud Computing challenges & opportunities
  - 60,000+ downloads of paper!
- Why can we offer new perspective?
  - Strong engagement with industry
  - Using cloud computing in research, teaching since 2008
- Goal: stimulate discussion on *what's really new*

Utility Computing Arrives

- Amazon Elastic Compute Cloud (EC2)
- "Compute unit" rental: $0.08-0.64/hr.
  - 1 CU ≈ 1.0-1.2 GHz 2007 AMD Opteron/Xeon core

"Instances"	Platform	Cores	Memory	Disk
Small - $0.08 / hr	32-bit	1	1.7 GB	160 GB
Large - $0.32 / hr	64-bit	4	7.5 GB	850 GB – 2 spindles
XLarge - $0.64 / hr	64-bit	8	15.0 GB	1690 GB – 3 spindles

- No up-front cost, no contract, no minimum
- Billing rounded to nearest hour; pay-as-you-go storage also available
- A new paradigm (!) for deploying services?

What is it? What's new?

- Old idea: Software as a Service (SaaS)
  - Basic idea predates MULTICS (timesharing in 1960s)
  - Software hosted in the infrastructure vs. installed on local servers or desktops; dumb (but brawny) terminals
- **New:** pay-as-you-go *utility computing*
  - Illusion of infinite resources on demand
  - Fine-grained billing: release == don't pay
  - Earlier examples: Sun, Intel Computing Services—longer commitment, more $$$/hour, no storage
  - *Public (utility)* vs. *private* clouds

Why Now (not then)?

- "The Web Space Race": Build-out of extremely large datacenters (10,000's of *commodity* PCs)
  - Build-out driven by growth in demand (more users)
  - => Infrastructure software: e.g., Google File System
  - => Operational expertise: failover, DDoS, firewalls...
  - Discovered economy of scale: 5-7x cheaper than provisioning a medium-sized (1000 servers) facility

- More pervasive broadband Internet

- Commoditization of HW & SW
  - Fast Virtualization
  - Standardized software stacks

Datacenter is the new Server

Utility computing: enabling innovation in new services without first building & capitalizing a large company.

The Million Server Datacenter

- 24000 sq. m housing 400 containers
  - Each container contains 2500 servers
  - Integrated computing, networking, power, cooling systems
- 300 MW supplied from two power substations situated on opposite sides of the datacenter
- Dual water-based cooling systems circulate cold water to containers, eliminating need for air conditioned rooms

- Instruction Set VM (Amazon EC2)

- Managed runtime VM (Microsoft Azure)

- Framework VM (Google AppEngine)

- *Tradeoff: flexibility/portability vs. "built in" functionality*

Lower-level,
Less managed

Higher-level,
More managed

EC2	Azure	AppEngine

- Cloud Computing User: Static provisioning for peak - wasteful, but necessary for SLA

"Statically provisioned"
data center

"Virtual" data center
in the cloud

Unused resources

- Underutilization results if "peak" predictions are too optimistic

Static data center

Lost revenue

Lost users

- Not (just) Capital Expense vs. Operation Expense!
- "Cost associativity": 1,000 CPUs for 1 hour same price as 1 CPUs for 1,000 hours (@$0.08/hour)
  - Grad students demonstrate new idea on 1,000 servers
- *Major enabler* for SaaS startups
  - *Animoto* traffic 2X every 12 hours for 3 days when released as Facebook plug-in (50 to >3500 servers)
  - *FarmVille*: 1M users @ 4 days; 10M @ 60 days; 75M @ 270 days (28M daily users)
- Cloud gets IT gatekeepers out of the way
  - not unlike the PC revolution

Hybrid / Surge Computing

- Keep a local "private cloud" running same protocols as public cloud

- When need more, "surge" onto public cloud, and scale back when need fulfilled

- Saves capital expenditures by not buying and deploying power distribution, cooling, machines that are mostly idle

Do Cloud *Providers* Make $?

- James Hamilton Blog (now at Amazon)
  - http://perspectives.mvdirona.com/2010/09/18/OverallDataCenterCosts.aspx
- CAPEX for IT Equipment (46k servers), Warehouse, Power Distribution, Cooling
  - $80M for IT equip + $88M for building, infrastructure
- OPEX via Amortization (3 years for IT equip., 10 years for warehouse) + Electricity Costs
  - $3.6M/month => $0.11/hour/server
- Closest AWS server is High CPU XL @ $0.68/hr
- If sell 50% hours, gross margin of ~ 66%
  - Good margin for a service business

Energy & Cloud Computing?

- Cloud Computing saves Energy?

- Don't buy machines for local use that are often idle

- Better to ship bits as photons over fiber vs. ship electrons over transmission lines to convert via local power supplies to spin disks and power processors and memories
  - Clouds use nearby (hydroelectric) power
  - Leverage economies of scale of cooling, power distribution

- "Top 10" Challenges to adoption, growth, & business/policy models for Cloud Computing

- Both technical and nontechnical

- Most translate to 1 or more *opportunities*

- Complete list in paper

- Paper also provides worked examples to quantify tradeoffs ("Should I move my service to the cloud?")

5 Growth Challenges

Challenge	Opportunity
Programming for large distributed systems	MapReduce for batch processing, Major research opportunity
Scalable structured storage	Major research opportunity
Scaling quickly	Invent Auto-Scaler that relies on Statistical Machine Learning
Performance unpredictability (I/O)	Improved Virtual Machine support,scheduling, flash memory
Data transfer bottlenecks	FedEx-ing disks, Data Backup/Archival

3 Adoption Challenges

Challenge	Opportunity
Availability / business continuity	Multiple providers & Multiple Data Centers
Data lock-in	Standardization
Data Confidentiality and Auditability	Encryption, VLANs, Firewalls; Geographical Data Storage

2 Policy and Business Challenges

Challenge	Opportunity
Reputation Fate Sharing	Offer reputation-guarding services like those for email
Software Licensing	Pay-as-you-go licenses; Bulk licenses

Outline

- What is Cloud Computing?
- What is new? Why has it happened now?
- Why good for users?
- Do cloud providers make money?
- Quick: Software as a Service / Cloud Computing in Education at UC Berkeley
- Quick: UC Berkeley RAD Lab Research Program in Cloud Computing
- Q&A

- Web 2.0 SaaS is a great motivator for teaching software skills
  - students get to build artifacts they themselves use
  - some projects continue after course is over
  - opportunity to (re-)introduce "big ideas" in software development/architecture
- Cloud computing is great fit for courses
  - elasticity around project deadlines
  - easier administration of courseware
  - students can take work product with them after course

RAD Lab 5-year Mission

*Enable **1 person** to develop, deploy, operate next -generation Internet application*

- Key enabling technology: Statistical machine learning
  - debugging, power management, performance prediction, ...
- Highly interdisciplinary faculty & students
  - PI's: Fox/Katz/Patterson (systems/networks), Jordan (machine learning), Stoica (networks & P2P), Joseph (systems/security), Franklin (databases)
  - 2 postdocs, ~30 PhD students, ~10 undergrads

- **Recurring theme**: cutting-edge Statistical Machine Learning (SML) works where simpler methods have failed
  - Predict performance of complex software system when demand is scaled up
  - Automatically add/drop servers to fit demand, without violating Service Level Objective (SLO)
  - Distill millions of lines of log messages into an operator-friendly "decision tree" that pinpoints "unusual" incidents/conditions

Conclusion

- Cloud Computing will transform IT industry
  - Pay-as-you-go utility computing leveraging economies of scale of Cloud provider
  - Anyone can create/scale next eBay, Twitter…
- Transform academic research, education too
- Cloud Computing offers $ for systems to scale down as well as up: save energy too
- RAD Lab addressing New Cloud Computing challenges

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"Enterprise to Enterprise Collaboration" – E2EC

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The Virtual Enterprise Changing the Way People Work
Haas Study

Sponsored by CollabWorks, IT Fisher Center, and Haas Tech Club

Transformation - the Virtual Enterprise

Business Architecture

Traditional

❖ **Command & Control**

❖ **Standards**

❖ **Consolidation**

❖ **Inertial Processes**

❖ **IT Centric**

❖ **Custom**

❖ **Info Silos**

Degree of Transformation 2yrs, 5yrs?

Virtual

❖ **Dynamic**

❖ **Transparency**

❖ **Optimization**

❖ **Agile Processes**

❖ **IT Orchestration**

❖ **Plug and Play**

❖ **Info Anywhere**

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Unlocking Innovation

IT as a Function

Typical IT Budget Process (ea. 6-12mos.)

Apps Funded

Apps Unfunded

Unfunded Apps are typically small or large and can lead to shadow IT

IT as a Service

New Apps because ease of process

BU Apps Funded

IT Apps Funded

Apps Unfunded

Non Developers produce their own Apps – Managed by IT

Summary of the Study

❖ **Goal:** Validate that Virtual Enterprise transformations can produce 5-10% greater margin dollars per employee.

❖ **The Opportunity: Drivers such as:**
  - ❖ Cloud based IT services
  - ❖ Consumer based technology adoption in enterprises
  - ❖ Socialized problem solving
    - ✓ Are fundamentally changing the way people work
    - ✓ Organizations are evolving from traditional to dynamic styles

❖ **Participants include:** CollabWorks executive team, Haas Tech Club, Faculty advisers, 20-30 mid-sized companies, and 5-10 vendors related to how people work.

❖ **Participating companies will benefit from:**
  - ❖ Knowing their position relative to peers
  - ❖ Before and after experiences of vendor customers
  - ❖ Financial modeling and a case study outcome

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Virtual Enterprise Discussion

❖ **What are the top 3 drivers behind transformation towards the Virtual Enterprise**

❖ **How does the Virtual Enterprise change the way people work?**

❖ **Is 5-10% improvement in margin dollars per employee, achievable? Why? Or Why not?**

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Virtual Enterprise Modeling Framework

20-30 Midsized Companies (normalized)

Haas Tech Club Research and Model

Financial Model

Drivers:
- Cloud based IT
- Consumer Tech
- Social Prob Solve
- Y-gen Employees
- Opex/Capex
- Etc.

State 1	State 2 (18-24mo)
Revenue	Revenue
COS	COS
Gross M	Gross M
Ops Cost	Ops Cost
R&D	R&D
Mkg/Sales	Mkg/Sales
G&A	G&A
Net Margin	**Net Margin**

Goal: 5-10% Net Margin /Employee

Equivalent Employees

- ✓ Knowledge Workers
- ✓ Production Workers
- ✓ Support
- ✓ Other

Transformation Solutions

Vendor 1
↘ Customer
Vendor 2
↘ Customer
Vendor 3
↘ Customer

Premises

Relationships

Metrics

Scenario Modeling

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Milestones and Outcomes

❖ **Q4/Q1 – Complete company and supplier interviews. Use supplier before and after use cases to help establish model premises.**

  ❖ Outcomes: Interview Summary – what matters?, before/after use cases, premises for modeling

❖ **Q1 – Second round interviews - transformations, vendor inputs and and develop a case study suitable for financial modeling and simulation.**

  ❖ Outcomes: Summary of interviews, simulation premises, model case study

❖ **Q1 – MBA school contest re a Virtual Enterprise case study.**

  ❖ Outcome: winning case study simulation results

❖ **Q1/Q2 –Group company discussions – findings, model scenarios**

  ❖ Overall outcome: Much deeper understanding of the Virtual Enterprise model

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Participating Enterprise Candidates

⬤ Committed

Semiconductor (manufacturing)

⬤ 1. KLA Tencor
2. Altera
3. Applied Micro
4. Coherents
5. nVindia
6. Silicon Image
7. Ultratech
8. Xilinx
9. Cyprus Semi
10. Polycom
11. LSI Logic

Software

⬤ 1. Autodesk
⬤ 2. Broadvision
⬤ 3. Facebook
4. Bluecoat
5. Electronic Arts
6. Adobe
7. Informatica
8. Serena
9. BMC
10. Intuit
11. Verisign
12. Synopsys
13. VMware

Financial Services

1. FHL Bank
2. Allstate Financial
3. Silicon Valley Bank
4. Charles Schwab
5. Federal Reserve BK, SF
6. Franklin Templeton
7. Genworth Financials
8. Lincoln Financial Gp
9. Prosidio Trust
10. Providian Financial
11. Seasons Financial
12. Silver Lake Partners

8

Participating Vendor Candidates

- Exalead

- Appian

- Taleo

- Vmware

- Teletrips

- CollabNet

- Microsoft

- Apple

- Jaspersoft

- Salesforce

- Netsuite

- Workday

- Yammer

- Cloud9 Analytics

- Longjump

- BroadVision

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Haas Tech Club Student Tasks

❖ **Phase 1 – Understand current/future plans to implement Virtual Enterprise transformations**

- ❖ Participate in interviews with Enterprise companies
  - ▪ Identify mid-sized companies in semiconductor (manufacturing), software, and financial services
  - ▪ Participate with CollabWorks on interviews and do interview writeups. (3-4 hours per interview)
- ❖ Participate in interviews with participating vendors and customers of each vendor
  - ▪ Itentify candidates
  - ▪ Participate with CollabWorks on interviews and do interview writeups. (3-4 hours per interview).

❖ **Phase 1 – Understand current/future plans to implement Virtual Enterprise transformations**

  ❖ Perform Research to strengthen our understanding.

    ■ Review from available sources business and data model architectures that leverage SaaS, Cloud, EaaS, beyond (8-12hrs)

      • Best practices, checklists, frameworks, experts
      • Objective: Provide support information for biz/data architectures

    ■ Review the relationship between innovation of internal processes and solutions, and cycle time and margin $$ contribution (8-12hrs)

      • Review of models that justify spending on innovation
      • Focus on simplification of processes, productivity, and talent utilization

    ■ Review correlations between management process improvements and margin $$ contribution. (6-8 hrs)

      • Example: If the top 20 processes were reduced by 20 percent, what modeling information can aid in the prediction of margin $$ contribution.

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Haas Tech Club Student Tasks (3)

❖ **Phase 1 – Understand current/future plans to implement Virtual Enterprise transformations**

- ❖ Financial Modeling (8-12hrs)
  - ▪ Evaluate tools/methods for simulating decisions re the virtual enterprise
  - ▪ Means for normalizing financials of several companies
- ❖ Development of Case Study Framework (6-8hrs)
  - ▪ Review HBR case development examples
  - ▪ Create a medium sized case framework
- ❖ Vendor Transformation Analysis (12-16hrs)
  - ▪ Review Analyst sources such as Gartner, Nuclear Research, etc. with focus on Economic payoff re the way people work
  - ▪ Analyze the SaaS companies from ThinkStrategies, Collabworks, etc. map based on a financial model and margin contribution

❖ **Phase 2 – Summary of interviews, development of Framework**

- ❖ Summary of Findings (8-12 hrs)
- ❖ Development of a Virtual Enterprise Framework (6-8 hrs)
- ❖ Participate in follow up interviews with Enterprise companies
  - ▪ Review findings and premises for financial modeling
  - ▪ Participate with CollabWorks on interviews and do interview writeups. (3-4 hours per interview)

Haas Tech Club Student Tasks (5)

❖ **Phase 3 – Financial Modeling and Review**

- ❖ Normalize Financials (6-8 hrs)
- ❖ Summary of Vendor Before/after Analysis (8-12 hrs)
  - ▪ Based on point solutions, develop a model and assumptions
- ❖ Develop Financial Simulations (8-12hrs)
  - ▪ Identify several scenarios, look for more important factors
  - ▪ Summarize Results
- ❖ Enterprise Group Session (6-8 hrs)
  - ▪ Summary of Analysis, Review, Summary of Session Comments
- ❖ Case Write up (8-12hrs)
- ❖ Write whitepaper (12-16hrs)

Actions and Issues

❖ Actions:

- ❖ Identify 30 Company Participants
- ❖ Identify 8-10 Vendors
- ❖ Match Team Skills and Needs
- ❖ Organize Task Team
- ❖ Reach out to whole Tech Club for contribution
- ❖ Re research, scope the effort, use social/crowd techniques
- ❖ Set up Collaborative Work Space
- ❖ Review bi-monthly with core team

❖ Issues:

- ❖ Line up available resources and scope
- ❖ Sort out timing and content of contest

Virtual Enterprise Panel

1. **What will the Virtual Enterprise look like in 2020 for small, medium, and large companies**

2. **How will people work?**

3. **How will people be organized to work?**

4. **In the tech world, who will be winners, who will be losers?**

5. **What is Apple in 2020? What is Microsoft in 2020? What is Google in 2020? What is Facebook in 2020?**

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