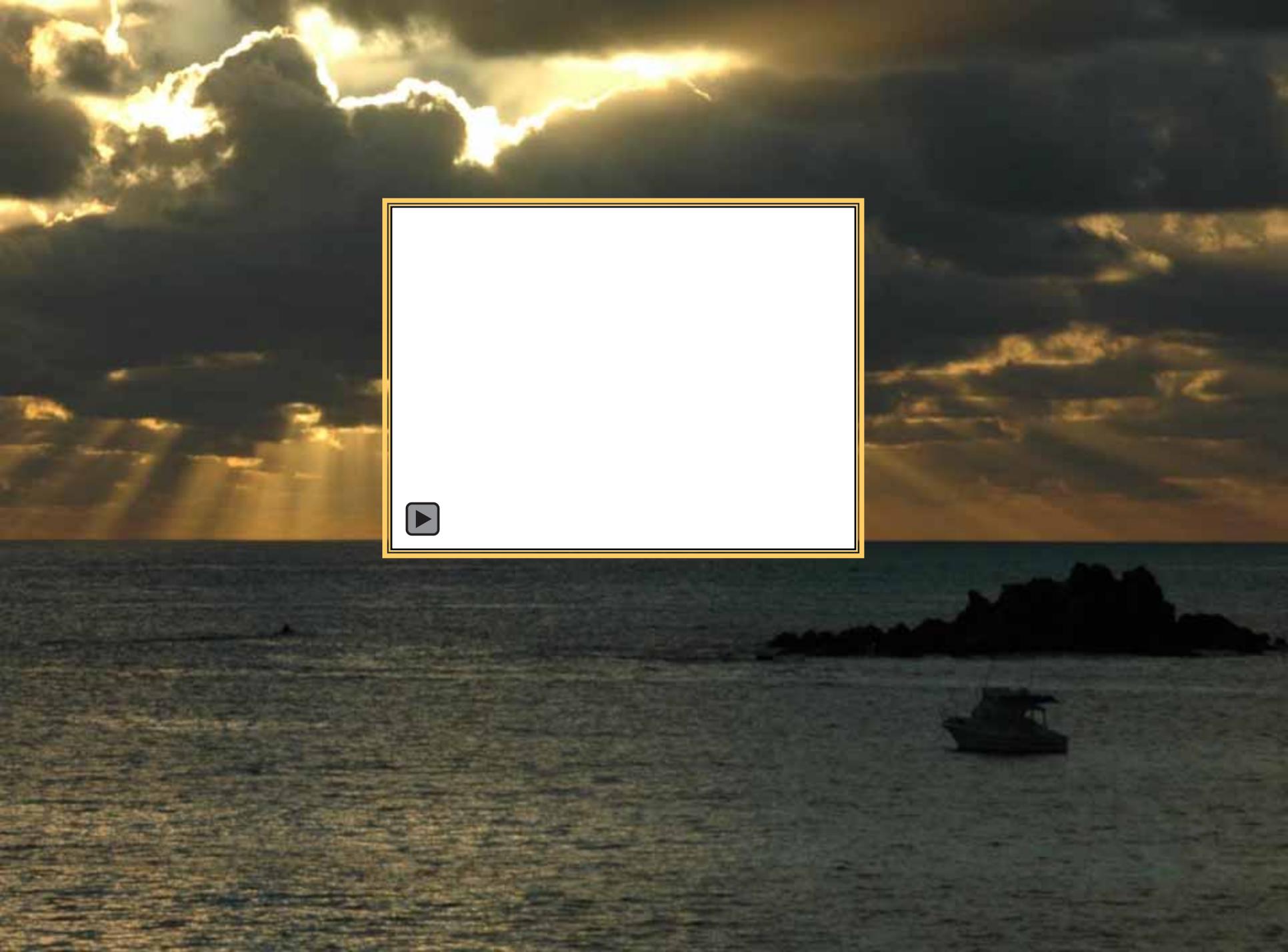
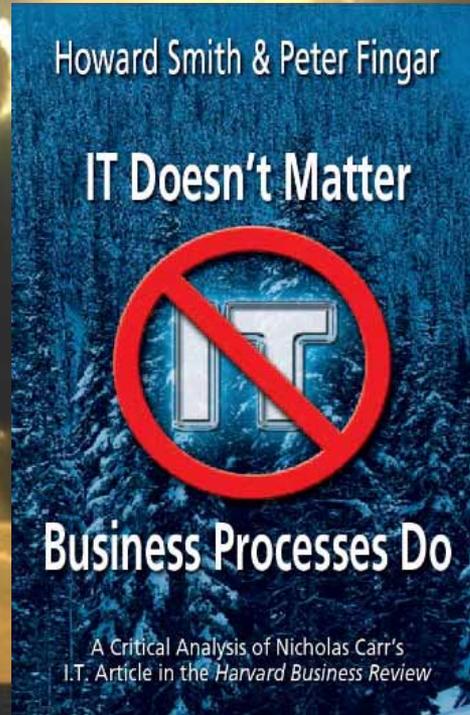


Peter Fingar

Cloud Computing Set to Unleash a Perfect Storm in Business





**The WOW isn't about ON-DEMAND IT,
It's about
ON-DEMAND BUSINESS INNOVATION**



The Cloud rEvolution

The Business Repercussions

The change from IT to BT

Web 2.0 and SOA

How work works in the 21st century

BPM Inside the Cloud

The new innovation imperative

Innovation's Child

The End of Management

and the rise of self-organizing, self-managed Bioteams

Get Your House in Order

Data Center Consolidation and Unified Communications

What is the Cloud?

Psst... There's no such thing!

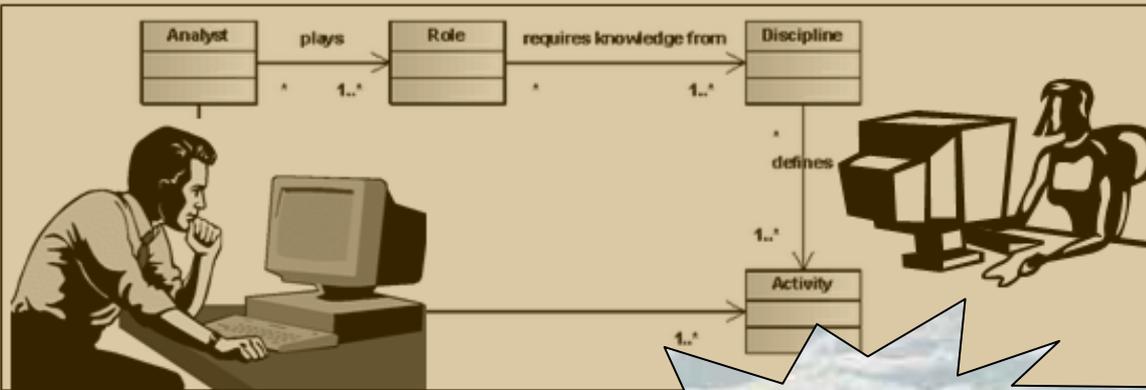
And, you are already a pioneer in cloud computing.





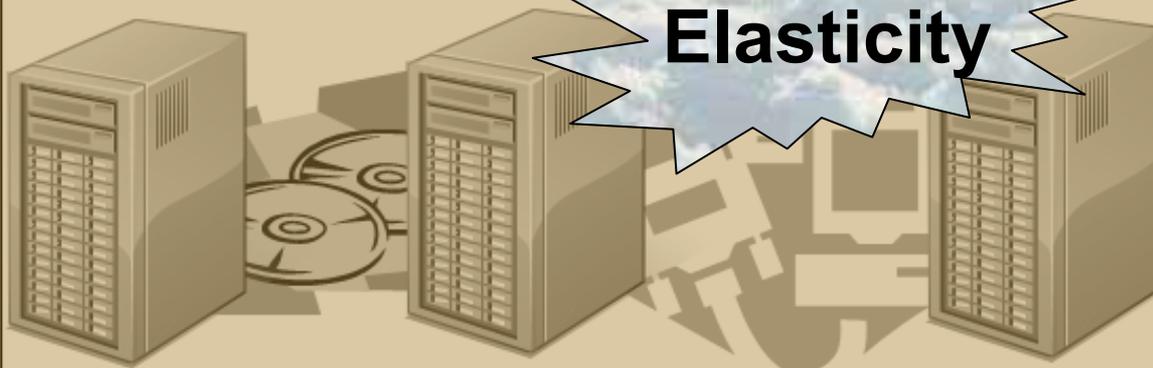
CLOUD SERVICES

Users and Producers
of Unique Services
e.g., Business
Organizations



CLOUD PLATFORM

Services for
Developers, e.g.,
Google App. Engine,
Amazon's AWS, etc.

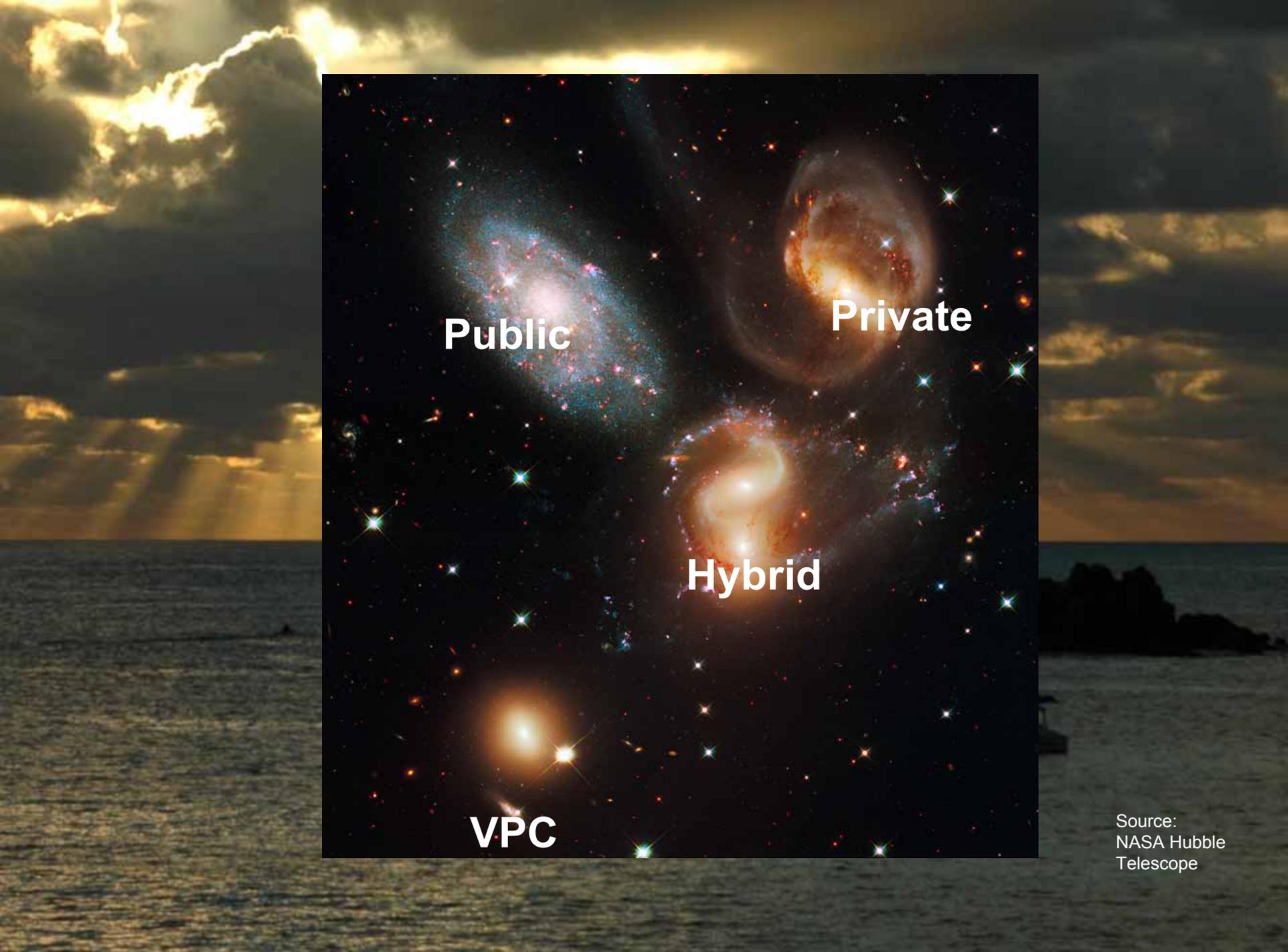


CLOUD COMPUTING

Infrastructure: Storage,
Networks, Servers
... as a Service

Definition-in-Progress

<http://csrc.nist.gov/groups/SNS/cloud-computing/index.html>



Public

Private

Hybrid

VPC

Source:
NASA Hubble
Telescope

What is the Cloud?

In short, it's the "Real Internet,"
or what the Internet was
really meant to be in the first place
—An endless computer
made up of networks of networks of computers.

Even shorter:

**The Cloud is *the* Computer,
the One, the One Machine**

New?



Application Service Provider (ASP)

Timesharing Grid Computing Co-Location On-Demand

Virtualization Software as a Service

Assembly•Cobol•OOP•OOAD•Distr.Objects•SOA/WOA } **CLOUD**
TheComputer•Mainframe•Mini•PC•Client/Server•Internet•Web }

Knee

A dramatic sunset or sunrise over the ocean. The sky is filled with dark, heavy clouds, with bright light breaking through in several places, creating rays of light. The sun is low on the horizon, casting a golden glow. In the foreground, the dark silhouette of a boat is visible on the water. The overall mood is one of transition and hope.

The economic and innovation implications
are game changing.

In the past, information technology was about *productivity*;
now it's about:

- Collaboration
- A shared information base
- Collective intelligence



One shared world
One shared computer
One shared information base



So What?

Cloud Computing makes it possible to create new
“business operations platforms”
that will allow companies to
change their business models and
collaborate in powerful new ways with
their customers, suppliers and trading partners
—stuff that simply could not be done before.

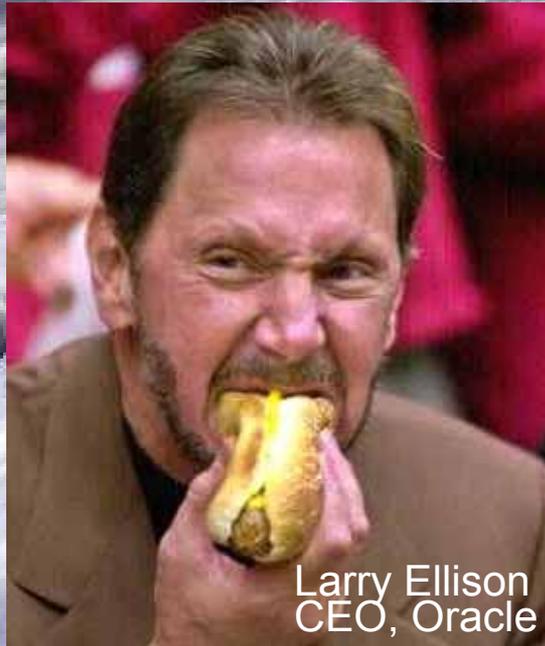


**Did you just
say put my
business in
the Cloud?**

Whoa!



CEO



Larry Ellison
CEO, Oracle

**“It’s complete gibberish.
It’s insane.
When is this idiocy going to stop?”**

Any sufficiently advanced technology is indistinguishable from magic.
—Sir Arthur C. Clarke, Author of *2001: A Space Odyssey*

F U D Factors



“Only the paranoid survive.”
—Andy Grove, INTEL



Hmm, did I tell you about the Jericho Forum?



“It’s a huge deal when GE goes outside its ‘firewall’ to innovate. You betcha, other CEOs will be asking their CIOs lots of questions about harnessing the Cloud, internally, with tightly controlled external clouds provisioned by third parties, and finally, with public clouds.”

-- Mickey North Rizza, Research Director, AMR Research



Yesterday, the Internet
—today, the **Intercloud**.



Although many think Cloud Computing is nowhere ready for mission-critical usage...

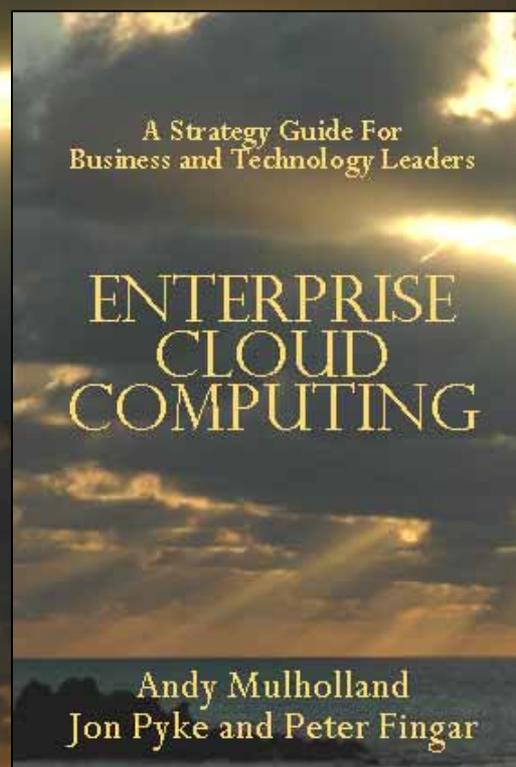
...John Garing, the CIO of the Defense Information Systems Agency at the Department of Defense thinks otherwise. (p. 49)



Gregory Simpson
CTO, GE

The bottom line ...

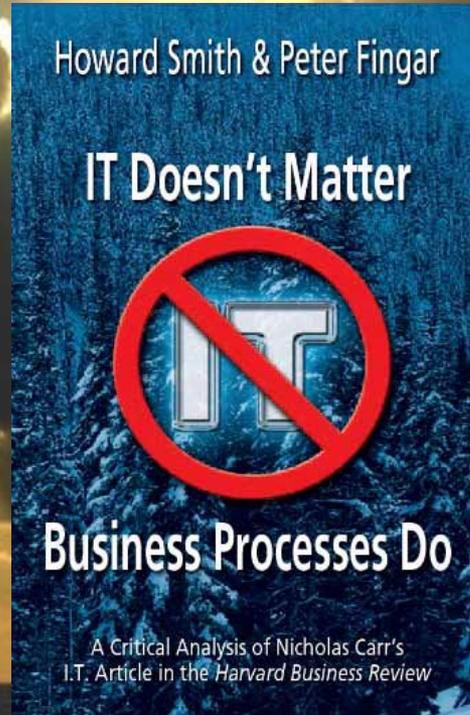
“The Cloud is nothing more than the platform upon which to build better businesses.”



“There will be many ways in which the Cloud will change businesses and the economy, most of them hard to predict.

But one theme is already emerging: businesses are becoming more like the technology itself—more adaptable, more interwoven and more specialized.

These developments may not be new, but Cloud Computing will speed them up.”



**The WOW isn't about ON-DEMAND IT,
It's about
ON-DEMAND BUSINESS INNOVATION**



With SOA + Web 2.0 in the Cloud
the world shifts from using
Information Technology (IT)
for transaction and information management
to a far more organic
Business Technology (BT)
for collaboration and *interaction* management.



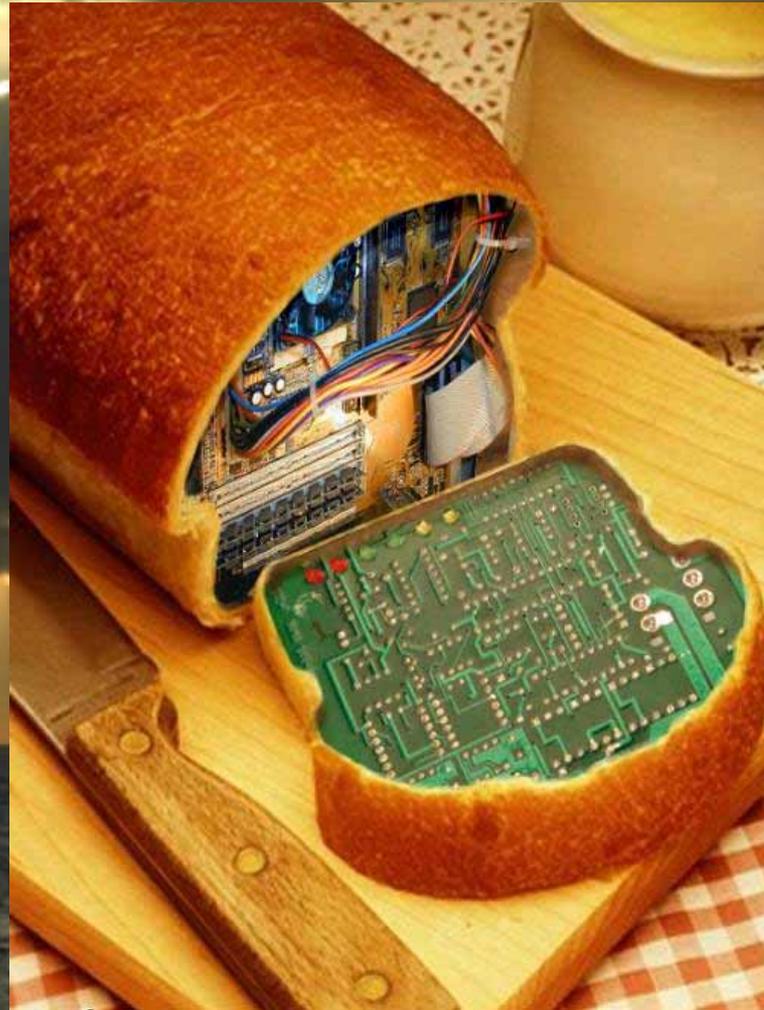
Cloud Computing is the next step in the evolution of the Internet as a source of “**services.**”

It’s those **services** that users are interested in, not the underlying technologies.

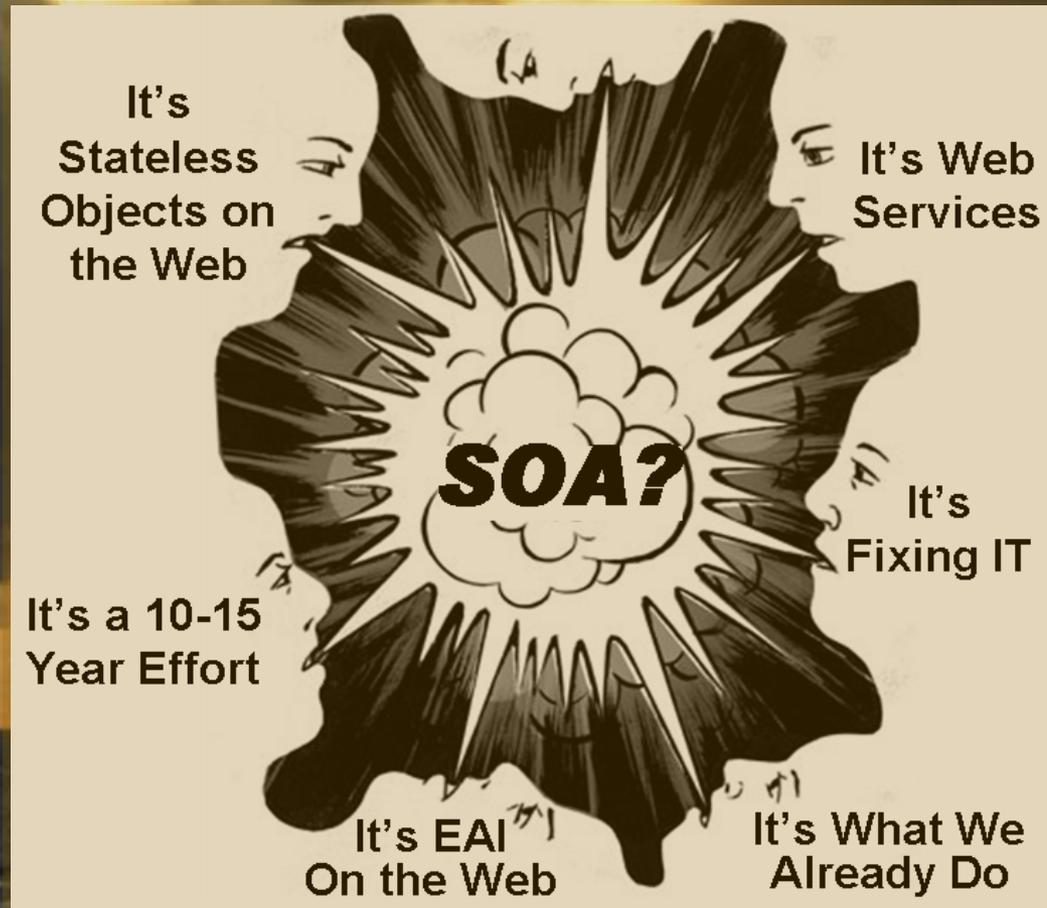


A “service” represents a
“unit of business,” not a “unit of technology.”

Services can be bundled, unbundled and rebundled
at the speed of business.



Service-Oriented Architecture (SOA):
The Greatest Thing Since Sliced Bread?



It's
Stateless
Objects on
the Web

It's Web
Services

It's
Fixing IT

It's a 10-15
Year Effort

It's EAI
On the Web

It's What We
Already Do

SOA is about connecting dots, and there are many new dots to connect with Everything as a Service (EaaS).

Web Services / Mashups Without SOA?



Power in the Cloud

BUILDING INFORMATION SYSTEMS
AT THE EDGE OF CHAOS

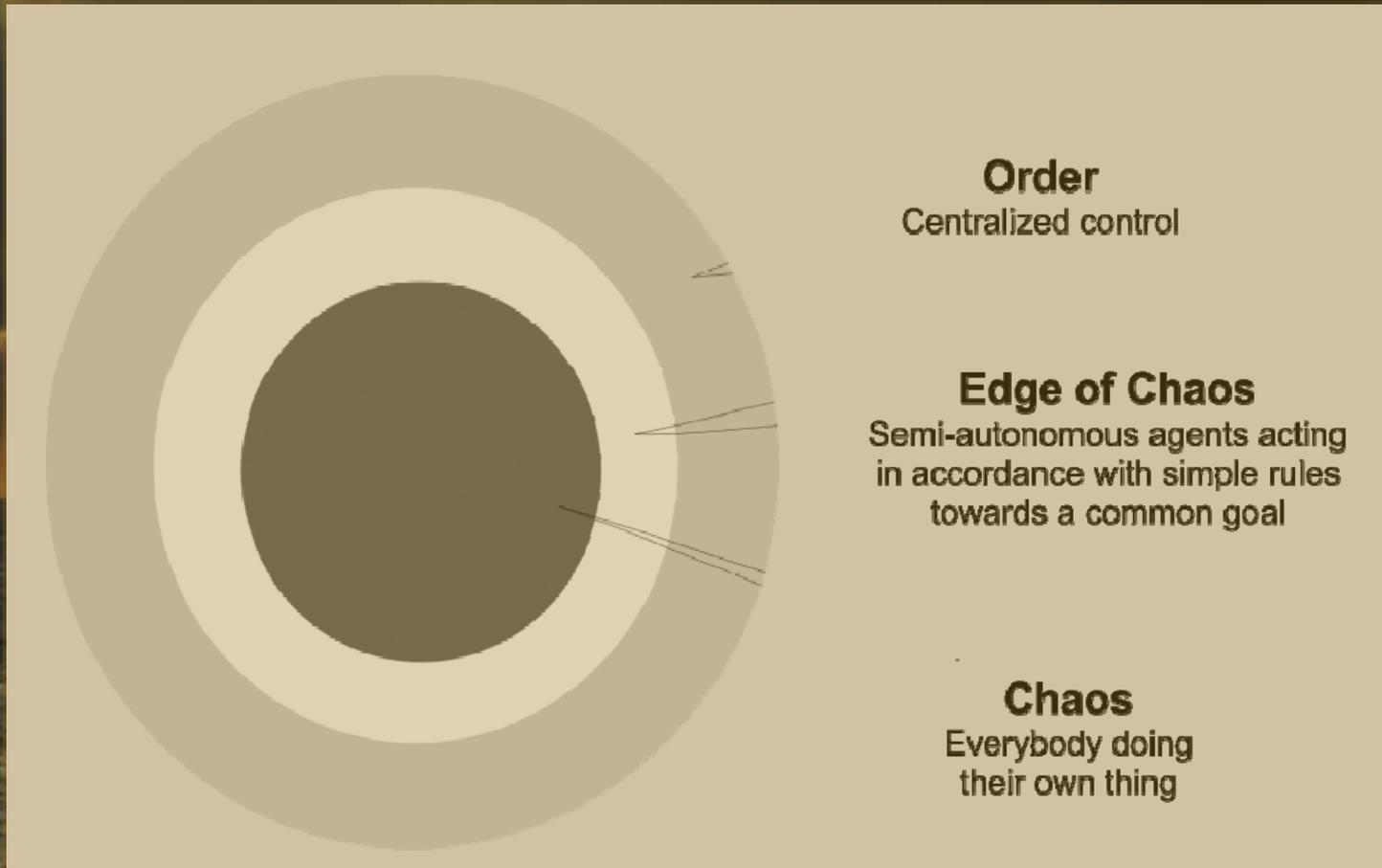


JONATHAN SAPIR

Situational Apps



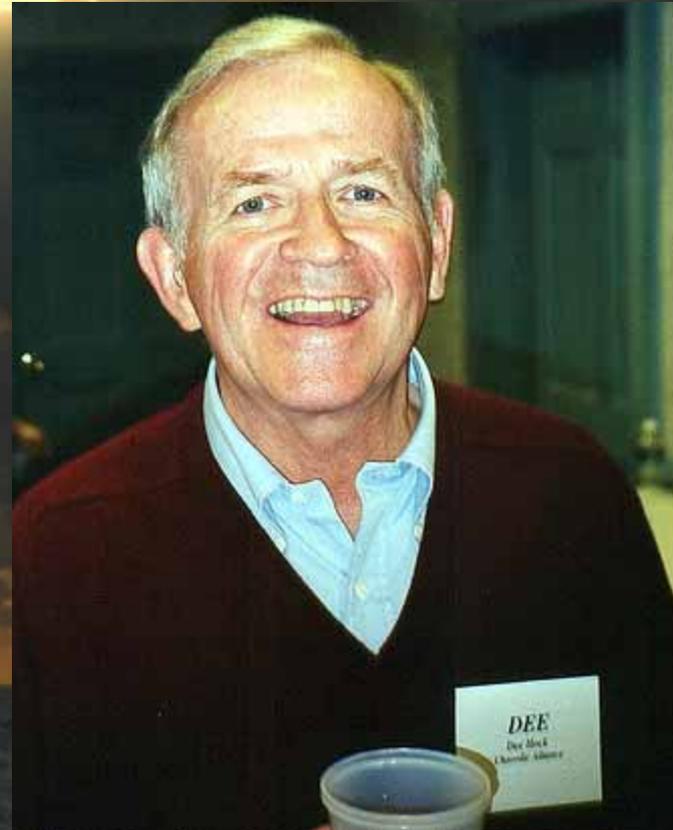
A taxi system operates at “the edge of chaos”



Birth of the Chaordic Age



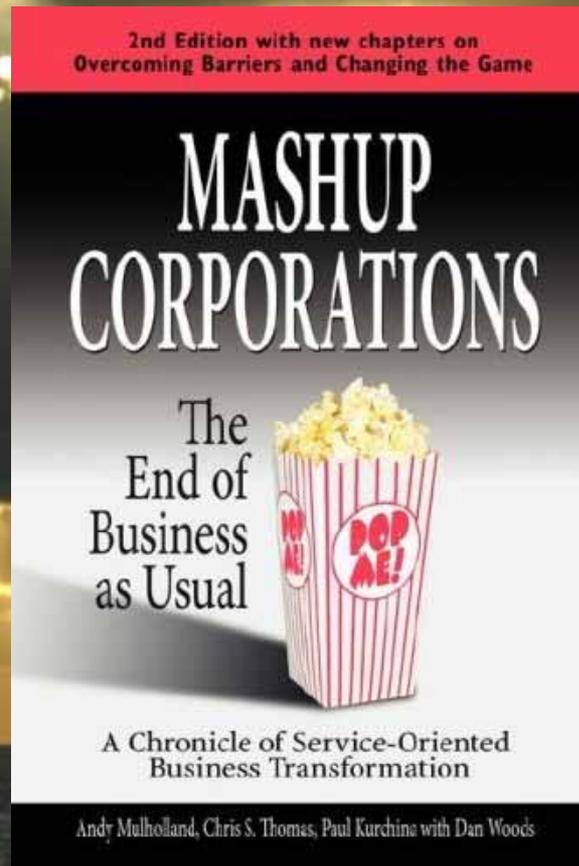
DEE HOCK
Founder and CEO Emeritus,
VISA International



“Command-and-control institutions are falling apart.
The **chaos** of competition and the **order** of cooperation
can and do coexist, succeed, even thrive.”



***A taxi system is a
complex adaptive system
... just like your business!***



Mashups aren't just for software,
they are for business, too.
Software mashups enable business mashups.



Web 2.0 is not based on a technology shift,
but rather a usage paradigm shift
thanks to the simplicity of use.

**Why is Consumer IT so Simple, and
Enterprise IT so Complex?**



p.s.—Did I mention Web 3.0?

Web 1.0 was “read-only,”

Web 2.0 is “read-write,”

Web 3.0 will be
“intelligent read-write-execute”
—in the Cloud.



SOCIAL MEDIA



Social Media are centered on the interactions of people,
not the interactions of computers.



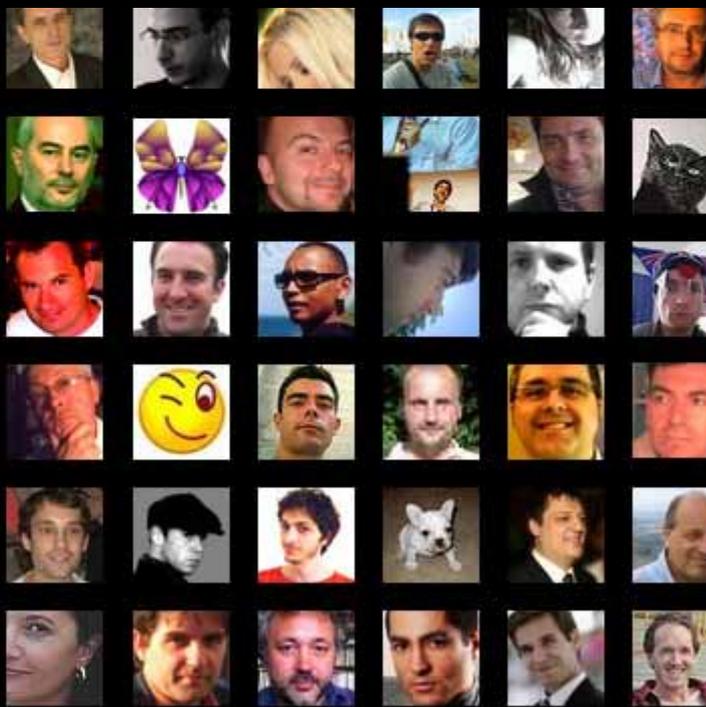
*How people really work
and how they can be helped to work better*

HUMAN INTERACTIONS



THE HEART AND SOUL
OF BUSINESS PROCESS MANAGEMENT

Keith Harrison-Broninski





By 2012, the numbers of the *Mobile Social Web* devices are forecast to grow to 975 million.

<http://www.internetworldstats.com/stats.htm>



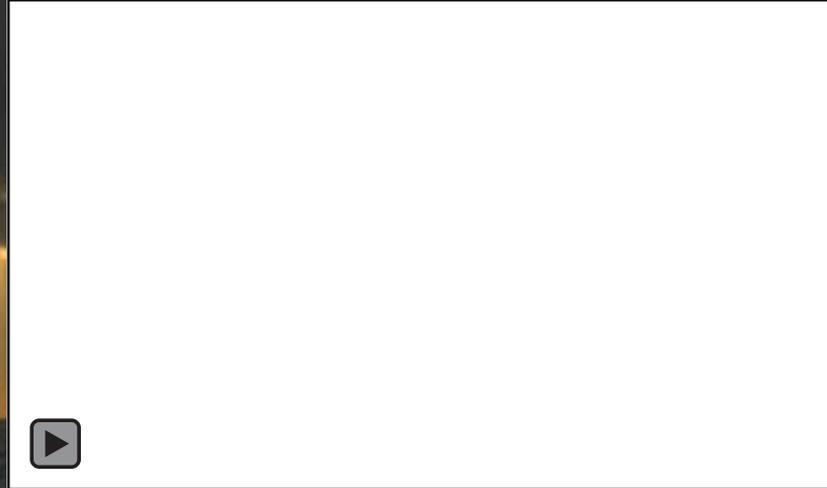
Going Mobile

“The shift from the data and computer-centric world of IT to the people and communication-centric world of BT is also driving a shift in personal devices, e.g., smart phones, net books, tablets.

Mobility isn't just about making an application available on a remote device by wireless; it's a change in life style.”

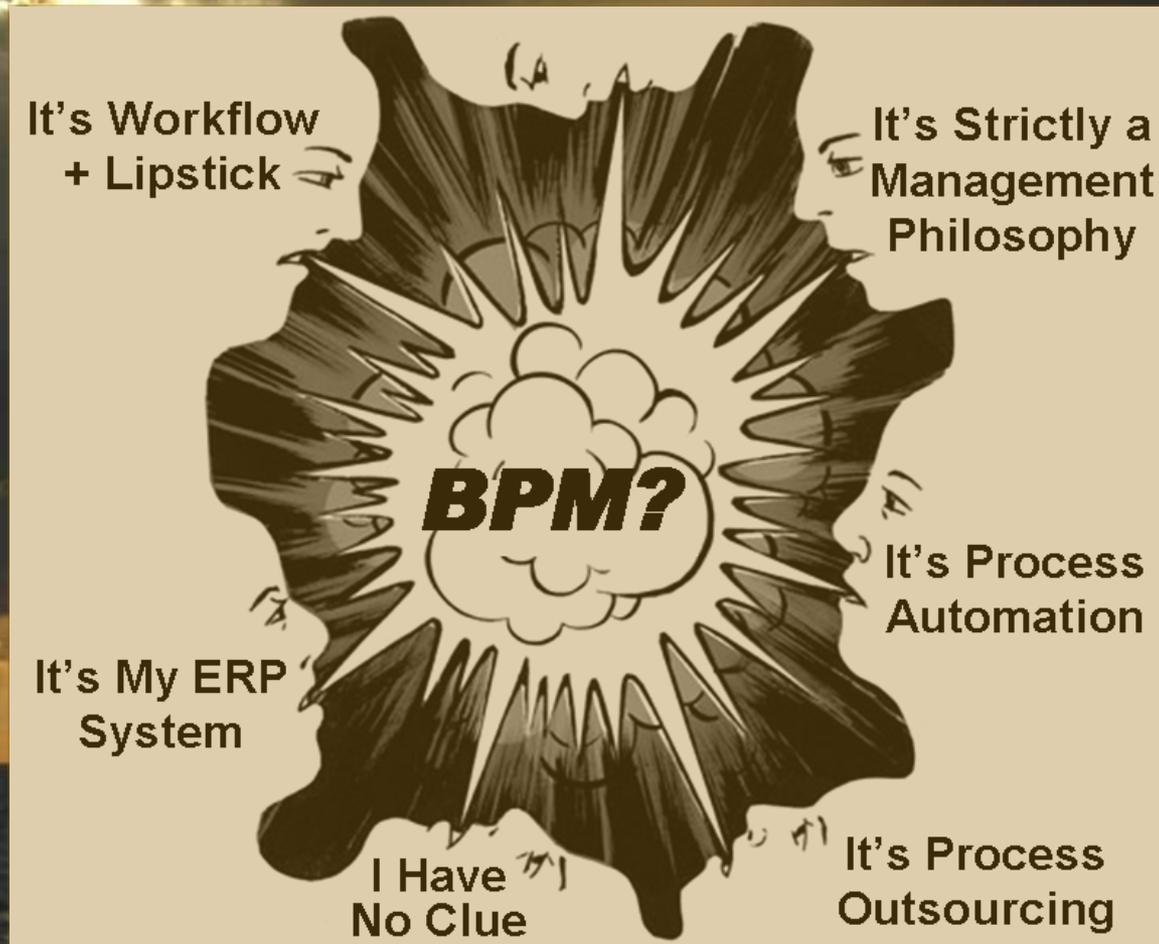
--ECC





Kevin Kelly

Predicting the next 5,000 days of the Web



It's Workflow
+ Lipstick

It's Strictly a
Management
Philosophy

BPM?

It's Process
Automation

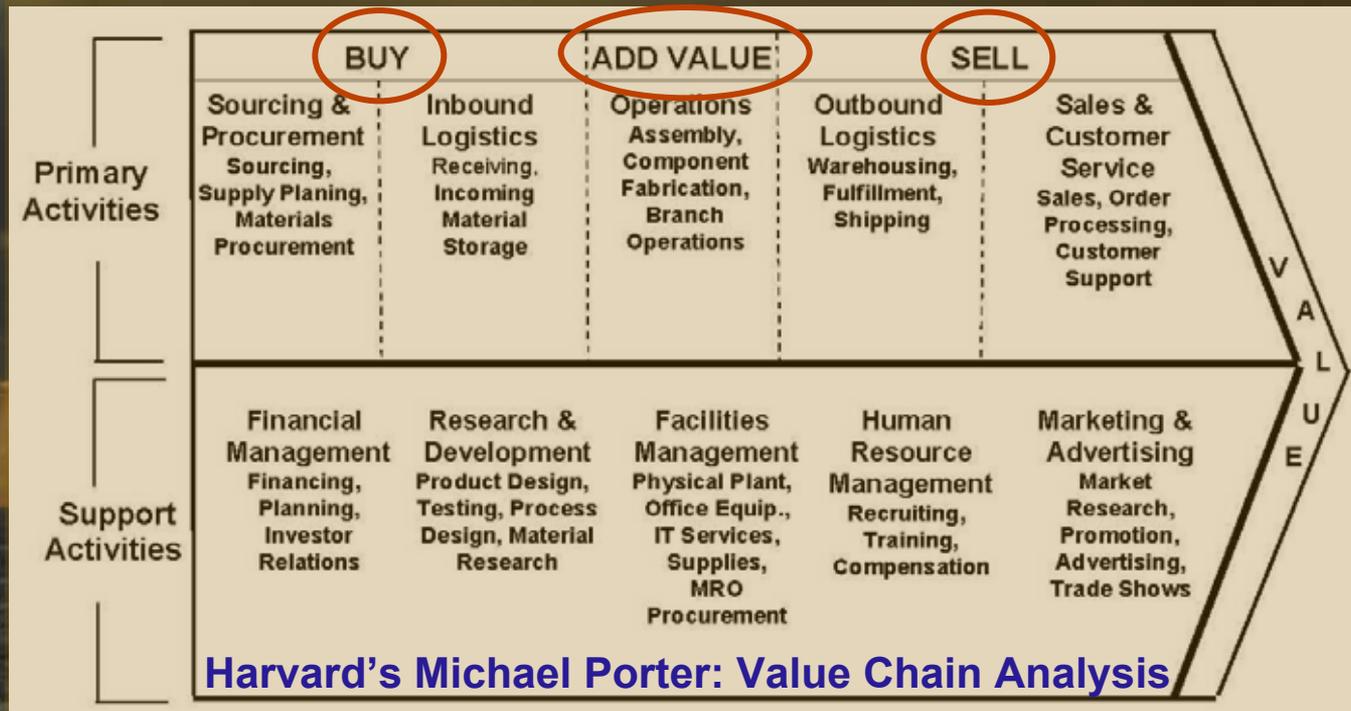
It's My ERP
System

I Have
No Clue

It's Process
Outsourcing

How Work Works in the Cloud

BPM is the Cornerstone of
Enterprise Cloud Computing.



The days of the monolithic, vertically-integrated company, owning everything from raw materials to production to selling, ... are over!

SUPPLY
CHAIN
MGT.



TRADING
PARTNERS'
SYSTEMS

ERP
SYSTEMS



HUMAN
WORK

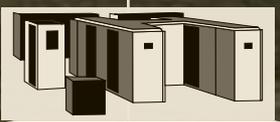


END-TO-END BUSINESS PROCESSES
BUSINESS PROCESS MANAGEMENT



INVENTORY
MGT.
SYSTEM

HUMAN
WORK

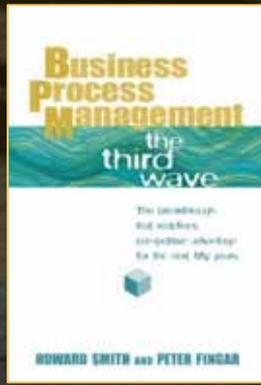


FULFILLMENT
SYSTEM

ORDER
MGT.
SYSYEM



CUSTOMERS



In short, business processes are *how work gets done*.

BPM vs. BPA



Programs,
campaigns, initiatives

Situational Processes

Value to your customer

The Fourth Tier

Process-oriented systems (the fourth tier)

Dynamic customer-oriented processes

Collaboration

Custom processes



Collaboration

Real-time information integration and transaction support

SOA / Web Services

ERP

Supply chain management (SCM)

Financial management

Production management

Shipping and logistics

Sales force automation

MRO procurement

Inventory management

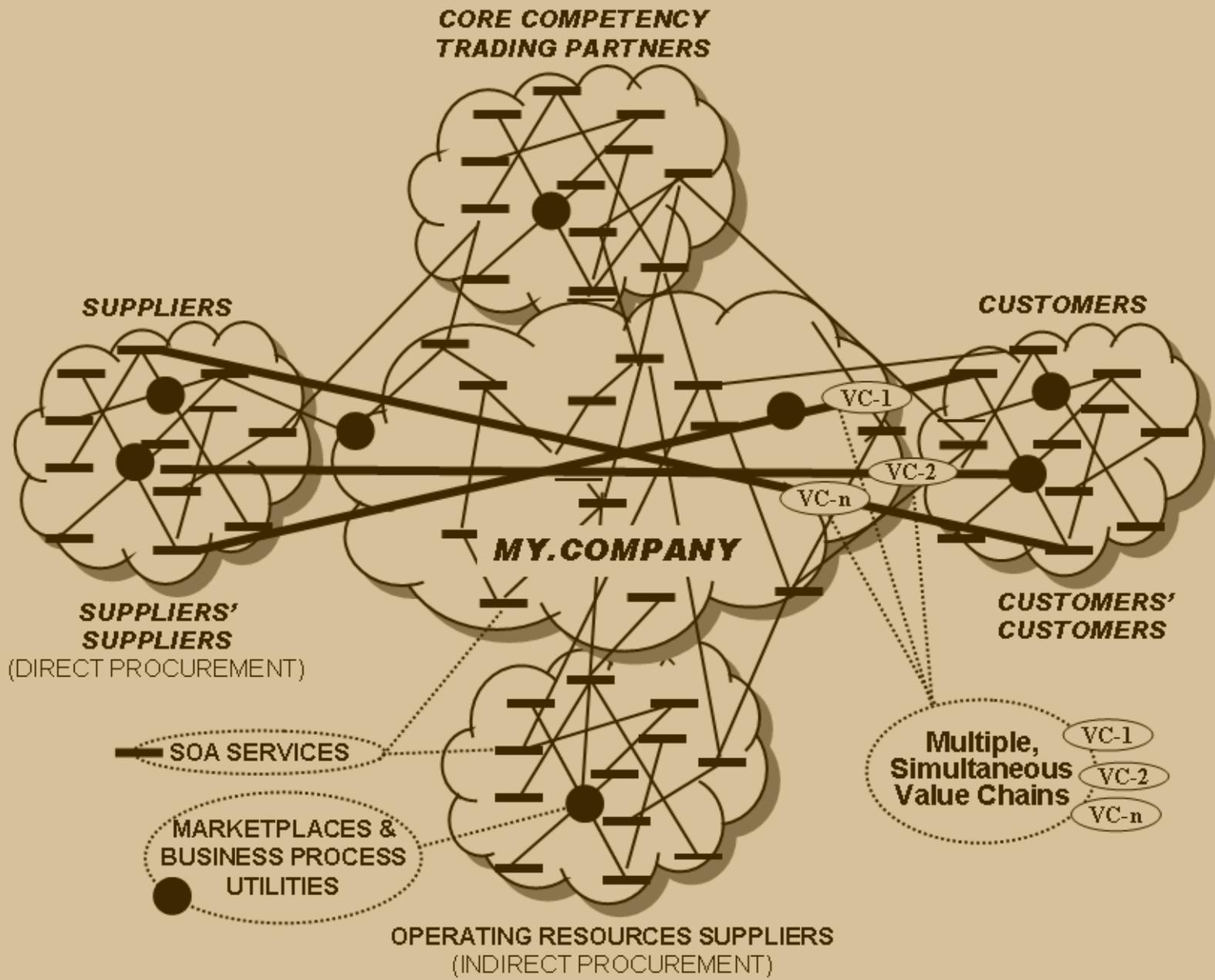
Asset management

Human resource management

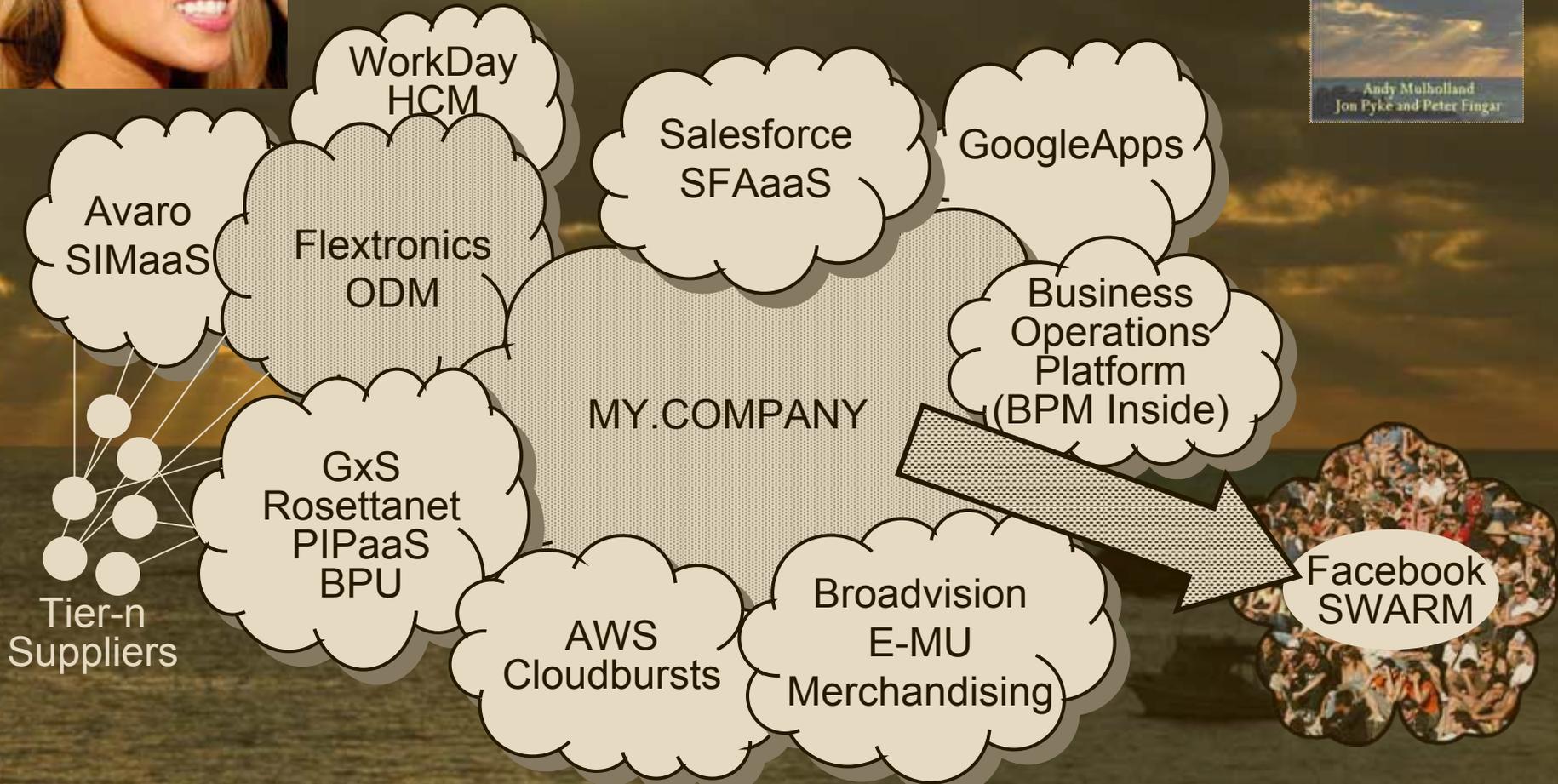
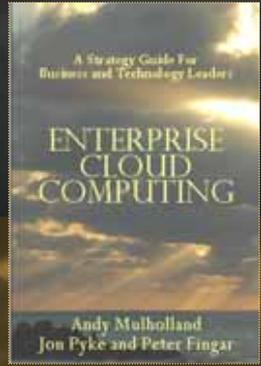
Legacy enterprise systems

Order management

External trading partners' systems



Where did Michael Porter's big fat arrow go?



Taking business process management (BPM) into the Cloud will allow a company to create a Business Operations Platform, a Business Operating System that gives the company a step-change in agility and competitive advantage.

<http://tinyurl.com/yhob73y>



Business Operations Platform
End-to-End Business Process Management

The Only Thing Linear is the Goal!
“Process on Demand” – Choreography
Situational Business Processes

Innovation in the Cloud

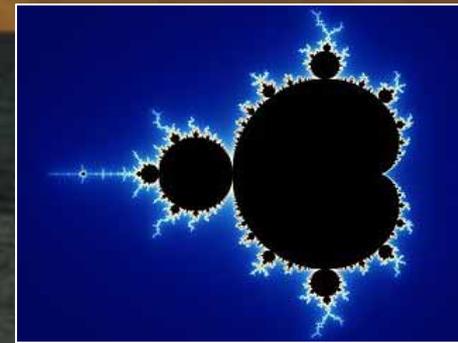
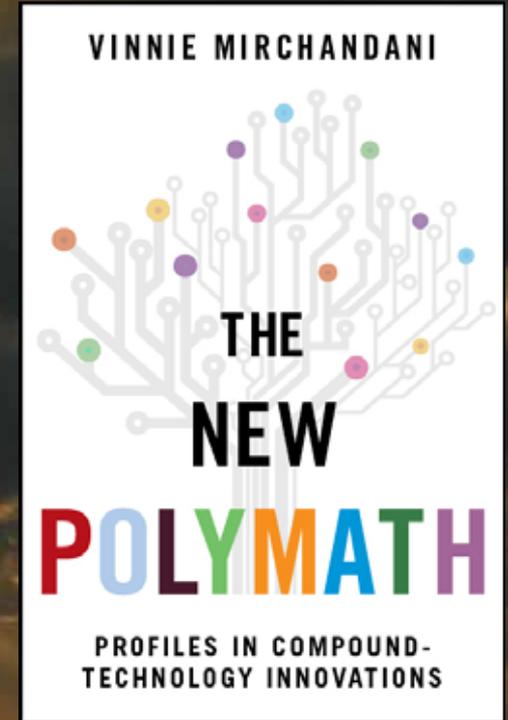
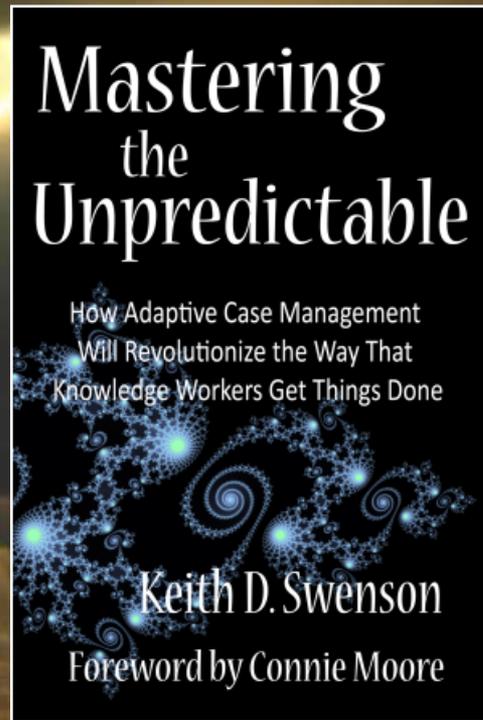
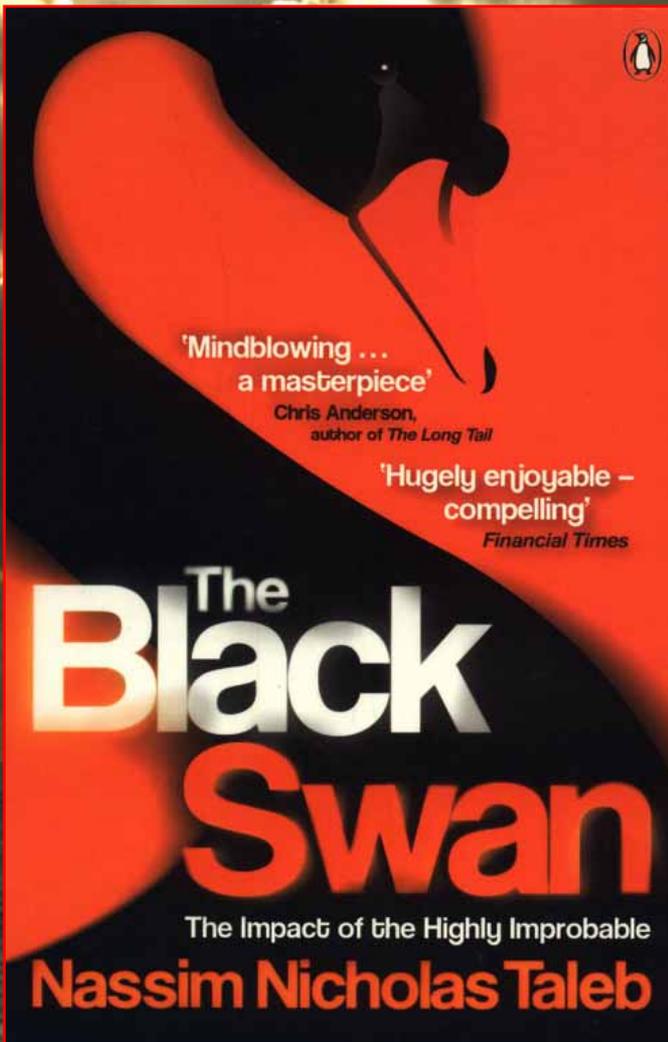




Open Innovation

No longer can companies win the innovation arms race from the inside-out (internal R&D).

Instead they should turn the table to **outside-in innovation.**



"History does not crawl, it jumps."

Our assumptions grow out of the bell-curve predictability while our world is really shaped by wild powerlaw swings.

Get Fractal,

**Think Exotrophy — the compliment of entropy.
The self-organized ability of the world to build,
re-build itself.**



The Strength of Weak Ties and The MITH Myth

“The mind extends out into the world.
We use intelligence to structure our environment
so we can succeed with less intelligence.”

-- A. Clark

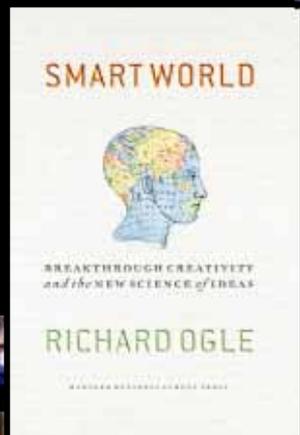
Read: Social Networks, Innovation and the MITH Myth
<http://tinyurl.com/33tk93n>

One final caveat, *crowdsourcing* doesn't in any way replace the individual in the process of innovation. The idea that a mob is smarter than an individual or a focused team does not compute. Crowdsourcing is perhaps better named as *crowdsearching* for it's not the crowd that proposes innovative ideas; it's individuals found in the crowd, especially those discovered through weak ties.

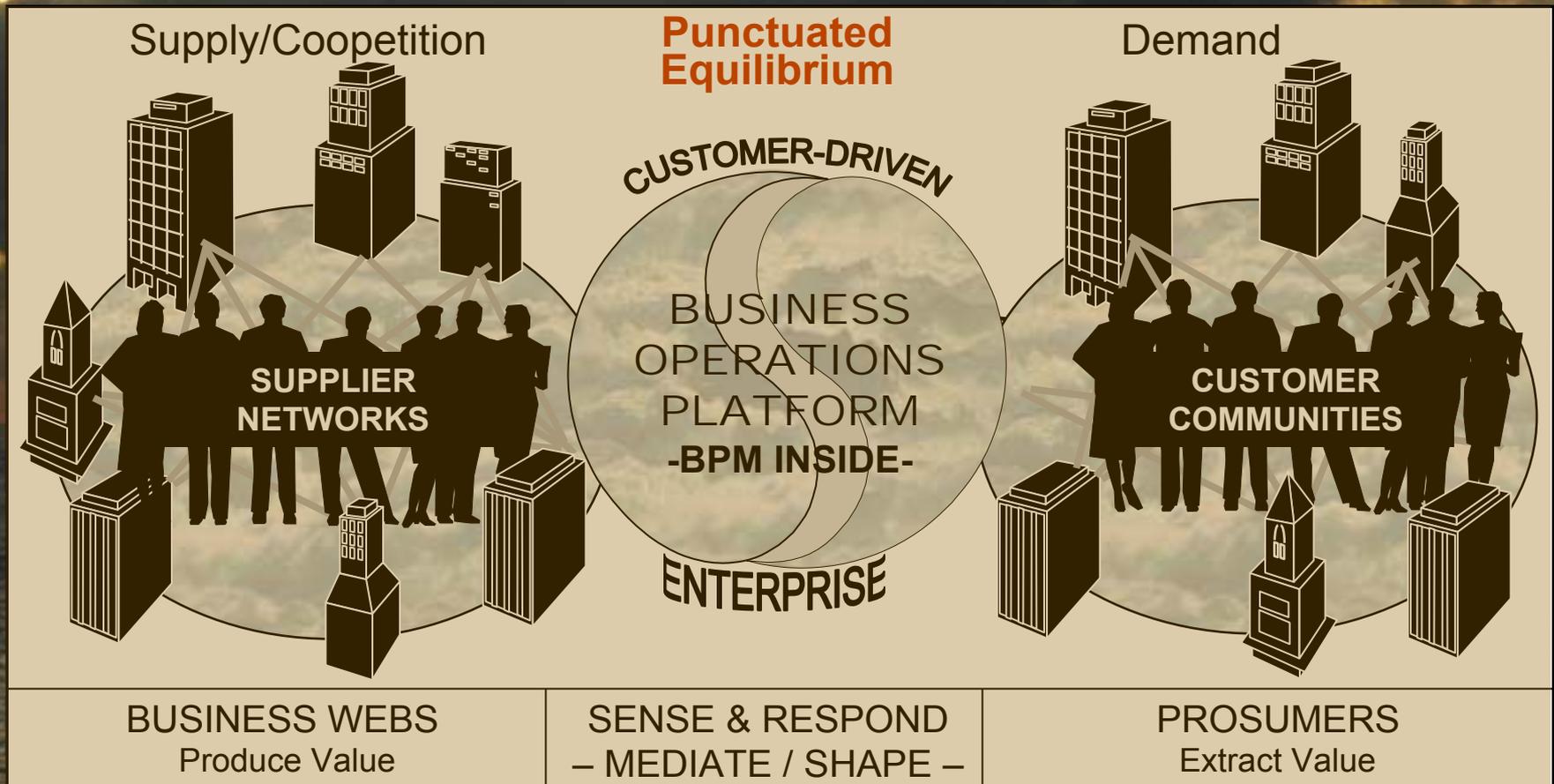
Time to revisit Metcalfe's Law ?

Time to visit Ogle's Laws for Social Networks.

<http://tinyurl.com/yjib4zm>



Customer-Driven Innovation



Your company will cease to be a seller and instead become a buyer for your customers.

Customer-Driven Innovation



Great entrepreneurs launch their businesses based on *customer insights*.

In many cases *they* are frustrated customers.



Creative Destruction

Joseph
Schumpeter

Entrepreneurs innovate
... not just by figuring out how to use *inventions*,
but also by introducing new means of production,
and new forms of organization.

You simply can't do these things without process innovation that
enables process collaboration across the globe, in the Cloud.



Now the rate of change is *exponential*, and
“process innovation” is its engine.

"A remarkable book..." Warren Bennis

THE END OF MANAGEMENT

AND THE RISE OF ORGANIZATIONAL DEMOCRACY

KENNETH CLOKE & JOAN GOLDSMITH

And the rise of

High performance teams based on
nature's most successful designs

BIOTEAMS



Ken Thompson

If you are looking for the book that describes the
radical new model for teams in today's world—this is it!
—Toby Coppel, Managing Director of Yahoo! Europe

Management Innovation

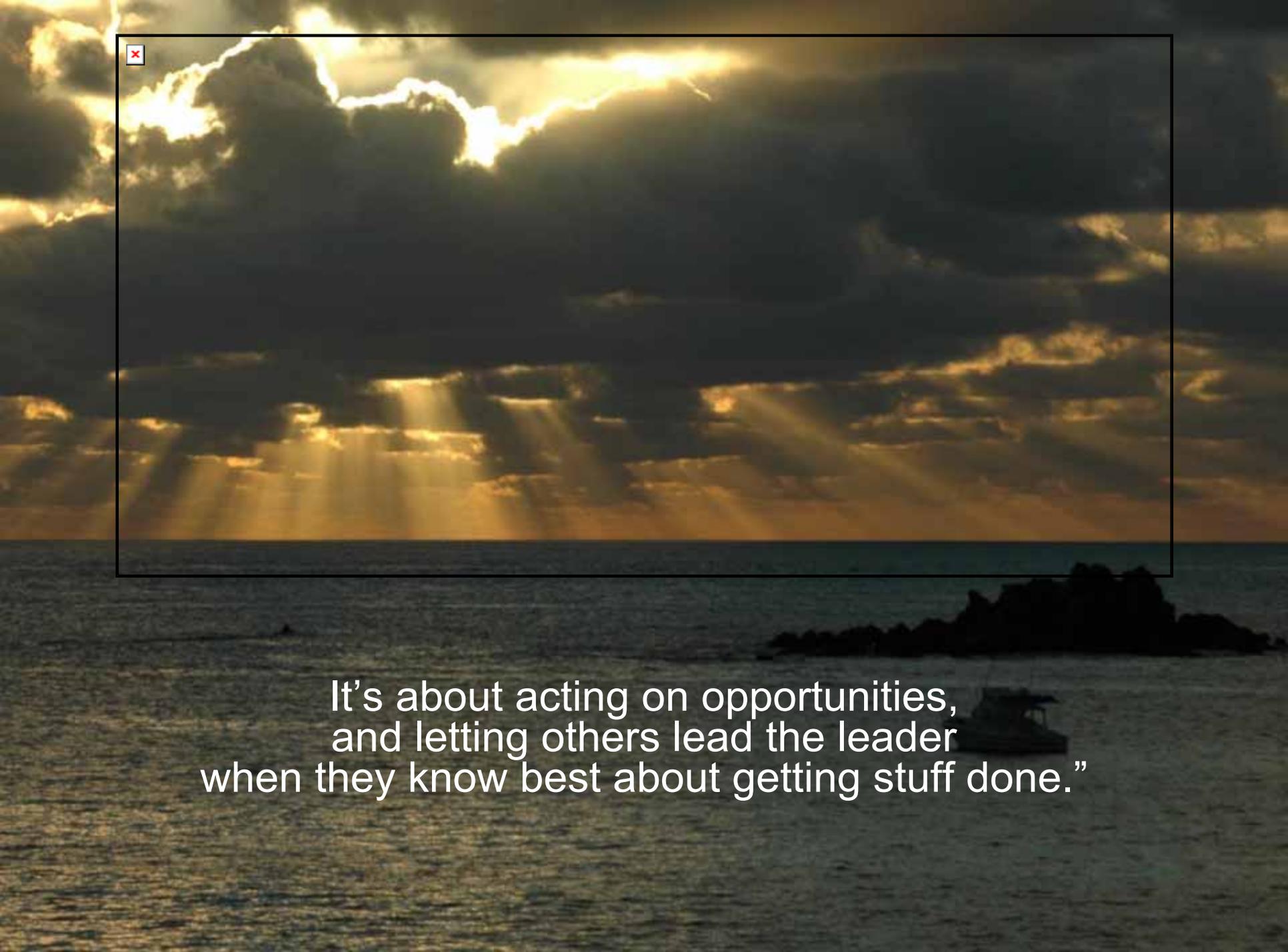
From Command-and-Control
To Connect-and-Collaborate

Transparency
becomes the invisible hand of
management control





“In a process-managed enterprise,
command-and-control leadership gives way to
connect-and-collaborate,
where every member of a business team is a ‘leader.’”

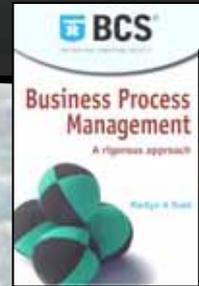
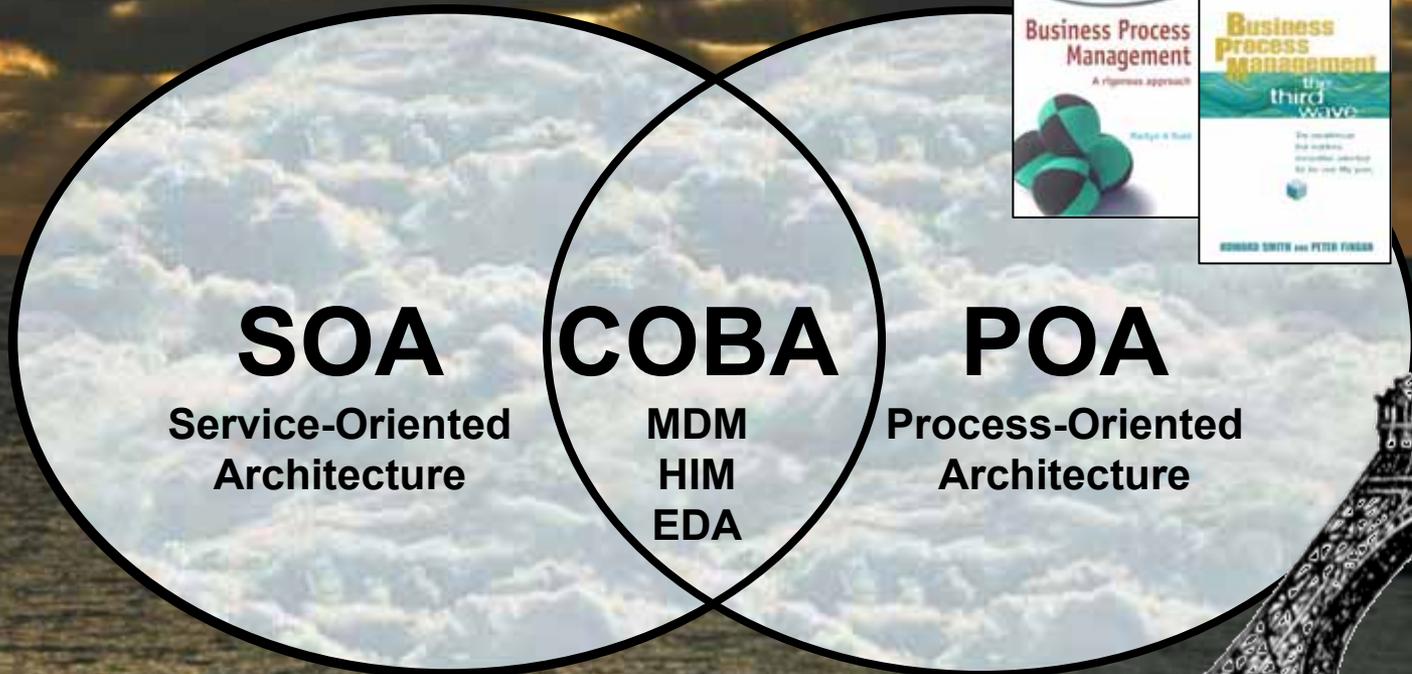


It's about acting on opportunities,
and letting others lead the leader
when they know best about getting stuff done."



In the Cloud,
self-organizing, self-managed teams
will swarm as complex adaptive systems
to seize new opportunities
in the brave new world of total global competition.

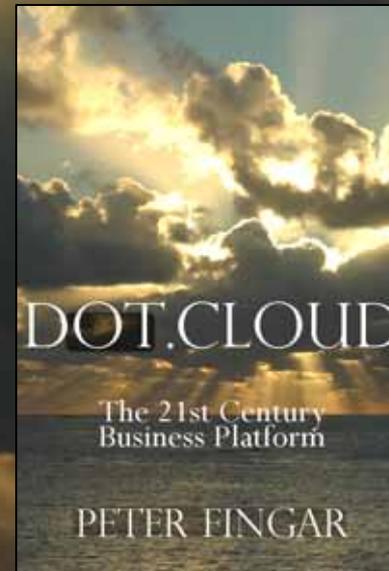
17 Action Items and
One First Principle:
ARCHITECTURE!



**Cloud-Oriented
Business Architecture**

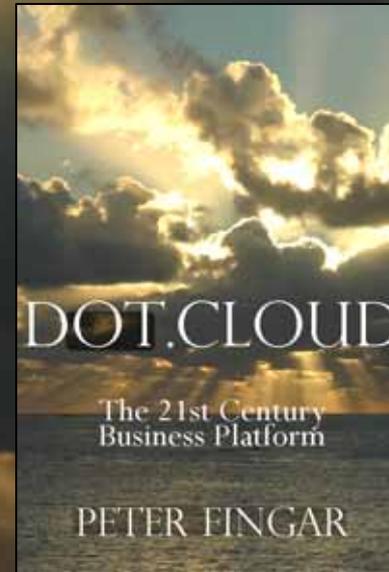


17 Action Items



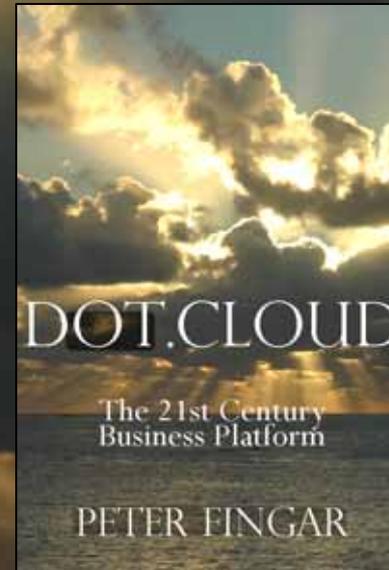
1. Innovate, from the **outside-in**.
2. Don't just reinvent your company, **reinvent your industry** or invent a new industry (iTunes).
3. When pursuing **emerging business opportunities**, start small, and set intervals for go, no-go check points.
4. When breaking new ground, **pay as you go, learn as you go**.
5. Use **Return on Opportunity (ROO)** calculations focused on benefits instead of traditional ROI calculations only.

17 Action Items



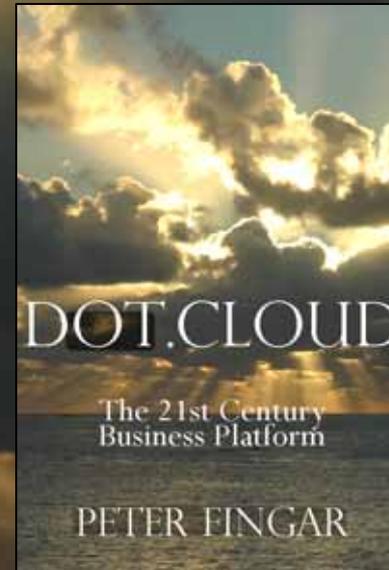
6. Tap the Cloud for **IT infrastructure investments** that otherwise couldn't be made to pursue emerging business opportunities.
7. Tap the **wisdom of crowds** for open innovation.
8. Replace functional management with **process management**.
9. Adopt business process management systems, but even more important, **become a process-managed enterprise**.
10. Adopt **service-oriented architectures**.

17 Action Items



11. Become a **service-oriented enterprise**.
12. Adopt **Web 2.0** tools and methods.
13. Utilize a **business operations platform** in the Cloud to support your entire multi-company value chains.
- 14. Fire your managers and employees; then rehire them as associates, as champions, as sponsors, as peers.**
15. Replace your command-and-control bureaucracies with self-organizing, self-managed **Bioteams**.

17 Action Items



16. Connect-and-collaborate using **human interaction management** methods and systems.
17. Become a **learning organization** to assure that your new way of doing business is assimilated throughout your workforce.

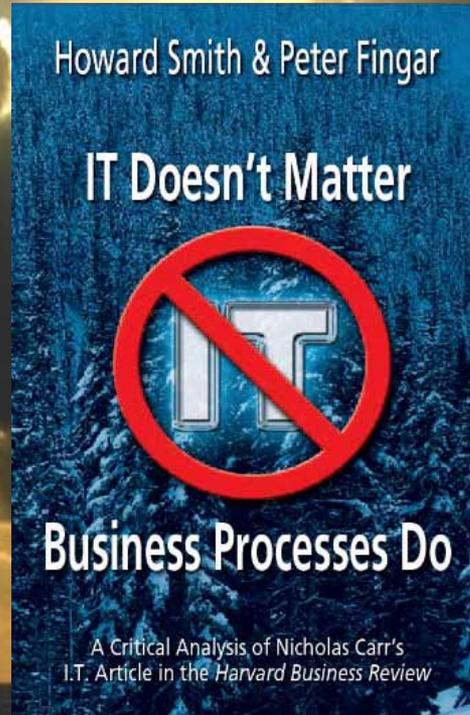
A dramatic sunset or sunrise over the ocean. The sky is filled with dark, heavy clouds, with bright light breaking through in several places, creating a golden glow. The sun is low on the horizon, and its rays are visible. In the foreground, the dark silhouette of a boat is visible on the water. The overall mood is one of hope and transformation.

17 Action Items = Management Innovation

Although the Cloud enables radical change,
the *culture* of the firm will determine the outcome.

Permission, risk tolerance, cultivating lots of small bets
—these are some of the earmarks of a Cloud-oriented business culture.

Above all else, it's the customer that counts!



**The WOW isn't about ON-DEMAND IT,
It's about
ON-DEMAND BUSINESS INNOVATION**



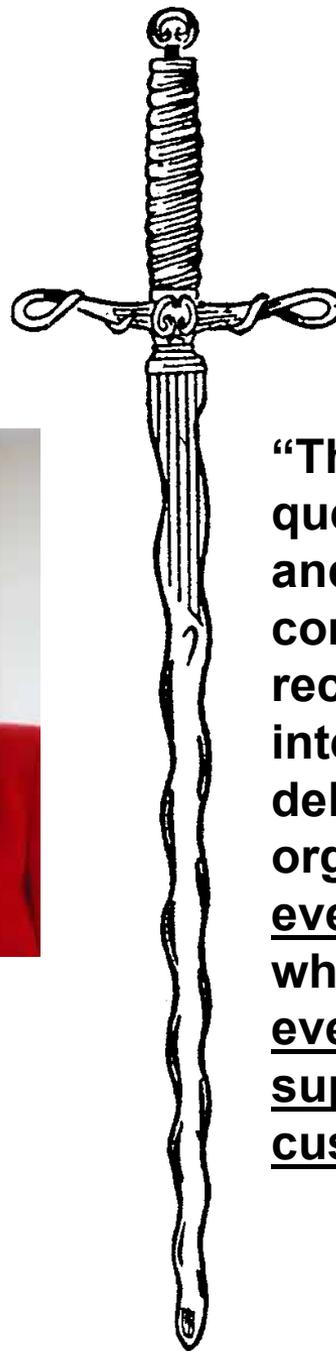
HOUSE *IN* ORDER

Organize | Re-use | Refresh





Maryfran Johnson
Editor in Chief
CIO Magazine



“There are still big unanswered questions hovering around security and integration issues with cloud computing. But the global economic recession is clearly accelerating CIO interest levels in alternative ways to deliver software and services to organizations that are demanding ever-lower IT expenses while clamoring for ever-higher levels of computing support for collaboration and customer service.”

Whither the CIO? *

What happens to the CIO when companies are turned Upside-Down and Outside-In?



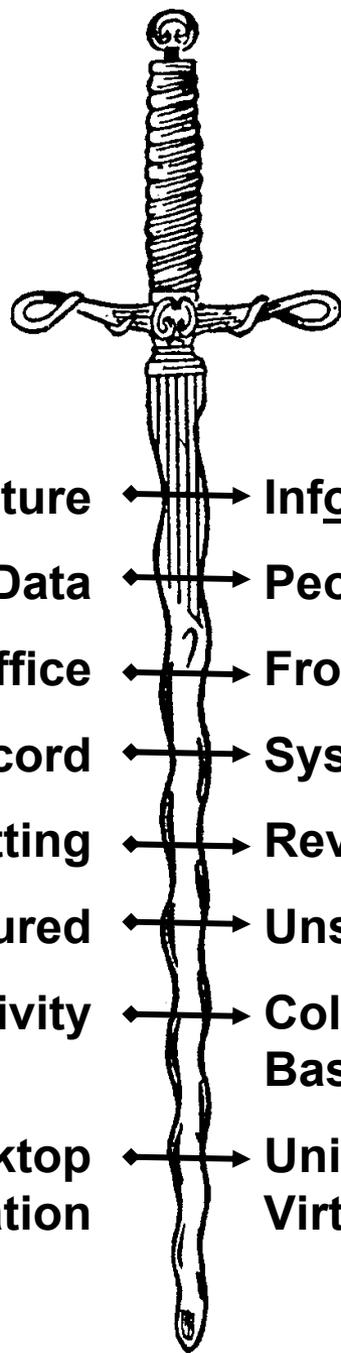
Setting the Stage for a CIO rEvolution.

From compliance to cloud computing, from budget cuts to Social Networks and business innovation: **it is clear that the CIO is living in turbulent times.** What will be on the CIO's agenda ahead? Will there actually be a CIO in the future?

- CPO - Chief Process Officer?
- CCO - Chief Cloud Officer?
- CDO - Chief Digitization Officer?
- CDC - Chief Dot Connector?
- **CEO - Chief Executive Officer?**



* <http://bptrends.com/publicationfiles/06-10-COL-Extreme%20Competition-Whither%20the%20CIO-Fingar2.pdf>



IT

BT

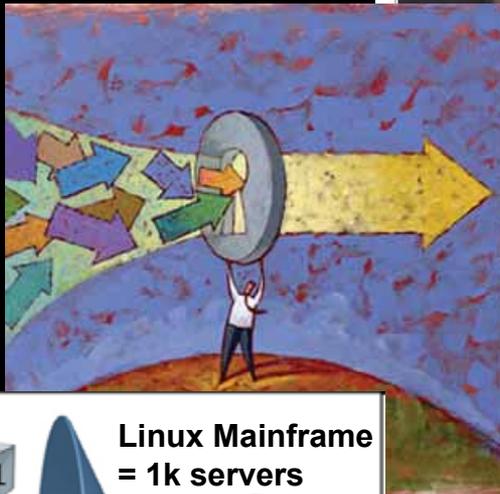
Infrastructure	↔	Infostructure
Computers and Data	↔	People and Collaboration
Back Office	↔	Front Office
Systems of Record	↔	Systems of Venture
Cost Cutting	↔	Revenue Generating
Structured	↔	Unstructured / SemiStructured
Productivity	↔	Collaboration, Shared Information Base, Collective Intelligence
Data Center / Desktop Virtualization	↔	Unified Messaging Virtualization

Feds Commence Huge Data Center Consolidation

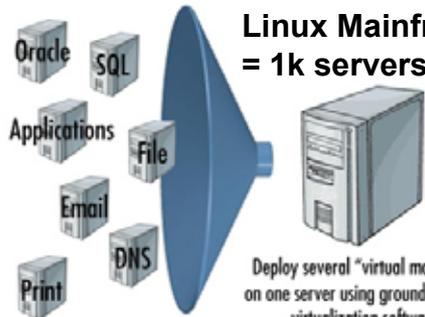
March 1st, 2010 : Rich Miller



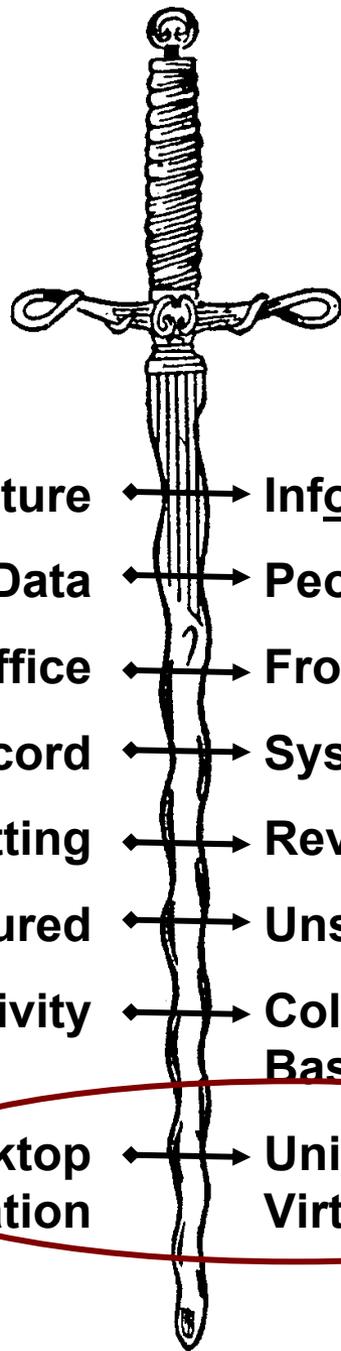
Federal CIO Vivek Kundra tour the NASA Nebula cloud computing container last year. Kundra has announced plans for a major consolidation of 1,100 U.S. government data centers.



**Linux Mainframe
= 1k servers**



The federal government has begun what looms as the largest data center consolidation in history, hoping to dramatically reduce IT operations that are currently distributed among more than 1,100 data centers.



IT

BT

Infrastructure	↔	Infostructure
Computers and Data	↔	People and Collaboration
Back Office	↔	Front Office
Systems of Record	↔	Systems of Venture
Cost Cutting	↔	Revenue Generating
Structured	↔	Unstructured / SemiStructured
Productivity	↔	Collaboration, Shared Information Base, Collective Intelligence
Data Center / Desktop Virtualization	↔	Unified Messaging Virtualization

The Last 2 Feet

Going Mobile



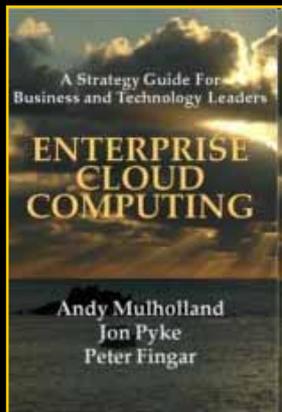
Untethered —At Last!

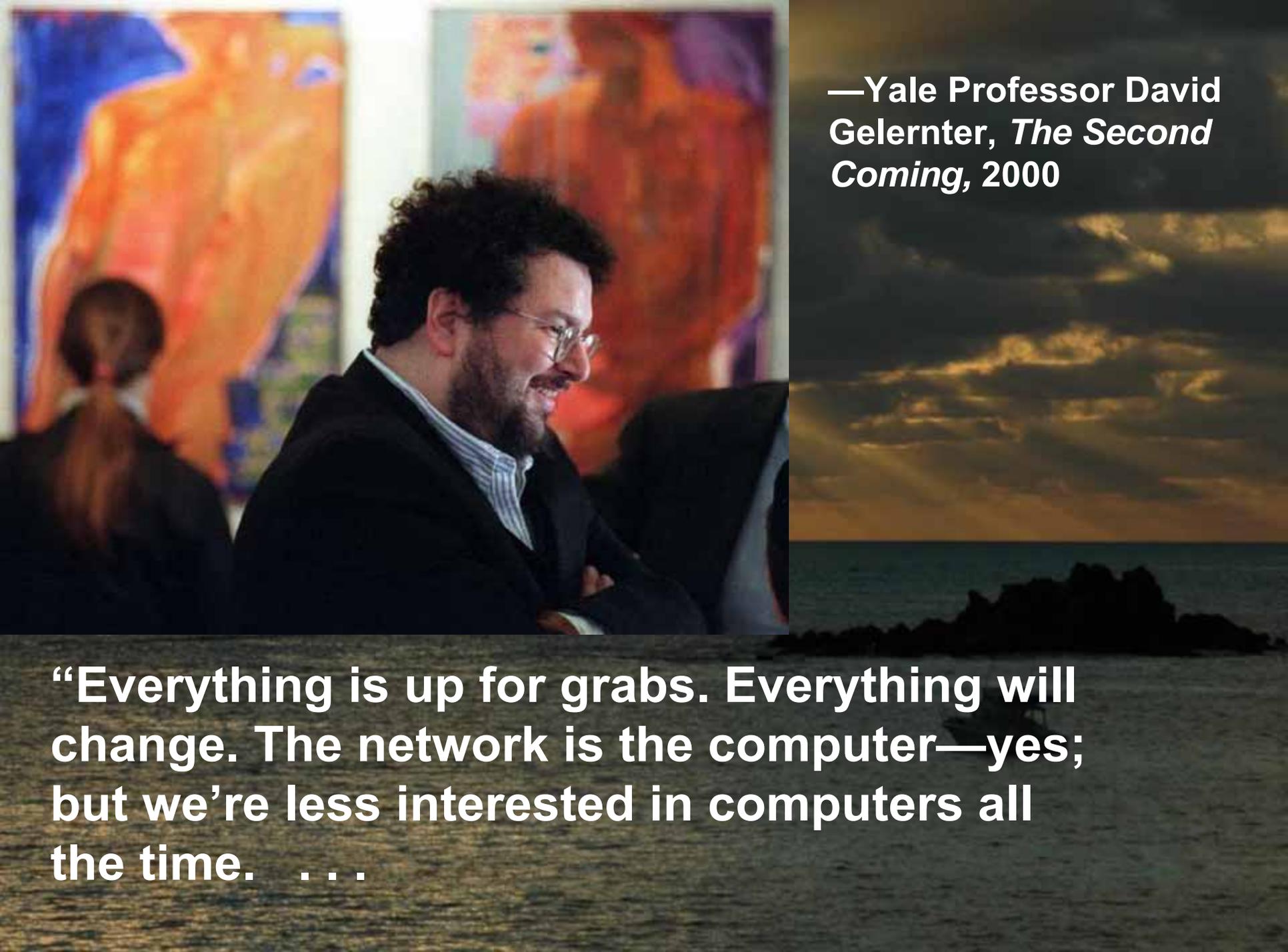


IBM 3270

Unified Communications

“Even though it’s technically inaccurate, comparisons have been made to this being a kind of virtualization for communication devices. However, in the context of optimizing resources, there are similarities.” --ECC



A composite image. The left side shows a photograph of David Gelernter, a man with dark curly hair, glasses, and a beard, wearing a dark suit jacket over a light-colored striped shirt. He is smiling and looking to his right. The background behind him is a blurred painting of a human figure in warm, orange and red tones. The right side of the image shows a sunset over the ocean, with a dark silhouette of a rocky coastline in the foreground. The sky is filled with clouds illuminated by the setting sun, creating a golden glow.

—Yale Professor David Gelernter, *The Second Coming*, 2000

“Everything is up for grabs. Everything will change. The network is the computer—yes; but we’re less interested in computers all the time. . . .



**The real topic in astronomy is the cosmos, not telescopes.
The real topic in computing is the Cybersphere, not the
computers we use as telescopes and tuners.”**

He who uses this machine should be able to forget that it is a machine.
—Antoine de Saint-Exupery, *Wind, Sand and Stars*, 1939.



PocketCloud

User Driven:
PC Revolution



Business Unit Driven:
SaaS + Credit Card

Lead, follow, or get out of the way.

Yesterday the Internet
Today the Intercloud



Adjiedj Bakas, Trendwatcher and author,
Beyond The Crisis: The Future of Capitalism

“The Chinese word for ‘crisis’
consists of two characters:
‘danger’ and ‘opportunity’.
Out of the ashes of the current economy
a renewed one will arise.”



“The best way predict the future is to create it.”

—Peter Drucker



What can be done in the Cloud, will be done.

Will you be the doer, or the one done in?



Peter Fingar
www.peterfingar.com
pfingar@acm.org

Thank you!