

# Cloud Computing

*“Business, Regulatory & Privacy Challenges”*

**Presenter:  
Harry McMann, President  
Systems Engineering, Inc.**

**Get  
Ahead  
of IT**

# Agenda

- Cloud Computing Defined
- Business Impact
- Legal / Regulatory Challenges
- Privacy / Security Challenges
- How do I get to the Cloud?

# About Systems Engineering

- Founded in 1988;
- ESOP – Employee Owned Company;
- With 90 employees, we are the largest IT services company north of Boston;
- We provide services to more than half of Maine's Community Banks.

# *What is Cloud Computing?*



# What is Cloud Computing?

- Consulting firm McKinsey... notes in a recent study, they found 22 separate definitions of Cloud Computing.

# National Institute of Standards & Technology (NIST)

## Working Definition of Cloud Computing:

- Five Characteristics
- Three Service Models
- Four Deployment Models

# NIST Cloud Model



**Five  
Characteristics**



**Three  
Service  
Models**



**Four  
Deployment  
Models**

# Cloud Services



Platform as a Service

Software as a Service



Applications  
(SaaS)



Developers Services  
(PaaS)

Physical Server; CPU, RAM  
Storage  
Data Center Networks

(IaaS)

Infrastructure as a Service



# Leading Cloud Providers

## PaaS

Amazon EC2  
Google App Engine  
Microsoft Azure  
Force.com  
IBM Smart Cloud

## SaaS

Salesforce.com  
Google Apps  
Microsoft Office 365  
Microsoft Dynamics  
Oracle Open Office  
Banking Applications

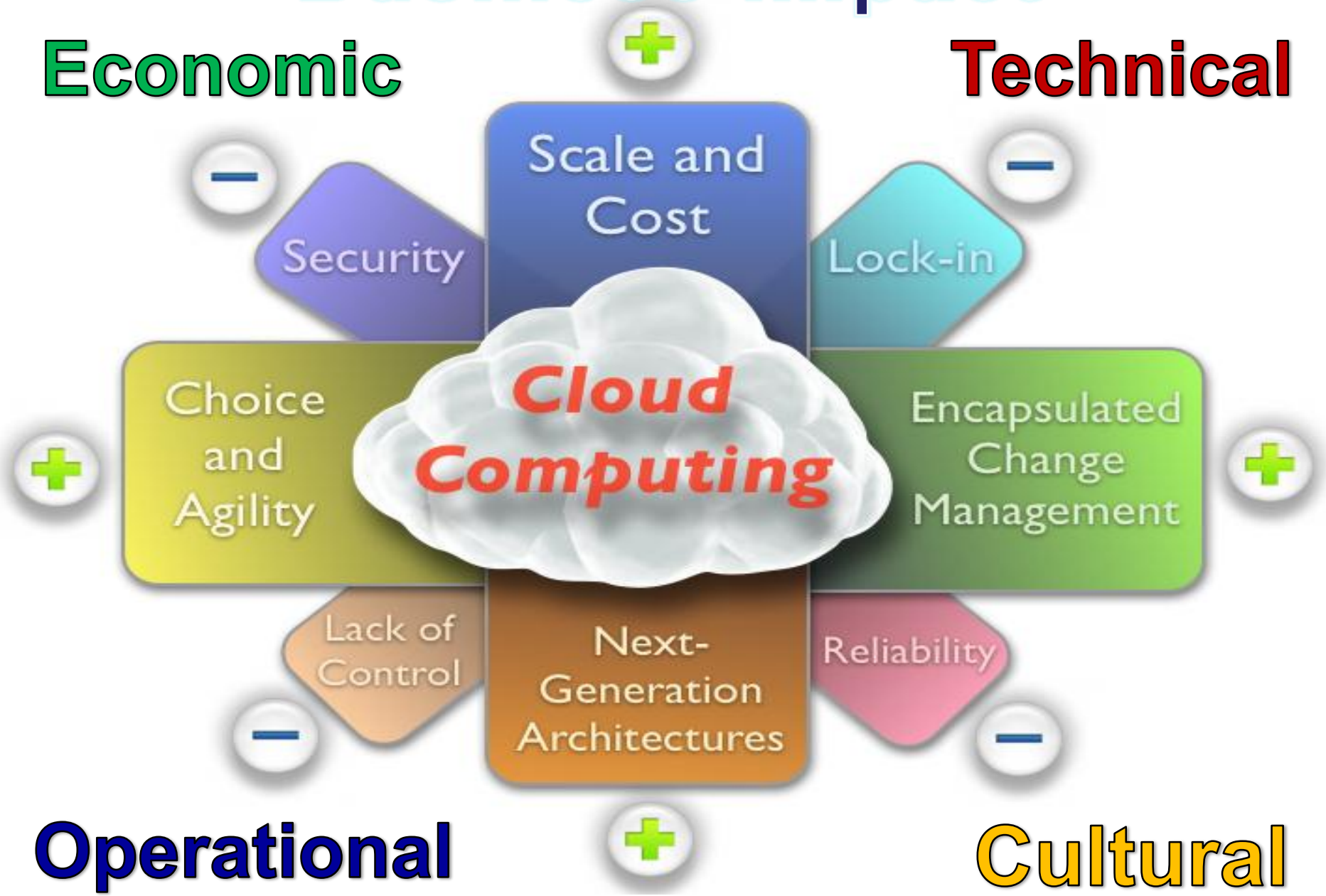
## IaaS

Amazon AWS  
IBM Smart Cloud  
Joyent  
Rackspace

# Business Impact

**Economic**

**Technical**



**Operational**

**Cultural**

# Economic Impact

## Cost of Cloud Computing

- In his book *“The Big Switch – Rewiring the World from Edison to Google”*.....  
Industry pundit, Nicolas Carr draws an analogy with the power grid of 100 years ago to Cloud Computing today.

# Economic Impact

## Cost of Cloud Computing

- Economies of scale
- Only pay for what you use
- No hardware / software upgrades
- Less costly to deploy, support, and manage
- CapEx vs OpEx

# Economic Impact

## Is Cloud Computing Less Costly?

- McKinsy: Cloud computing is more expensive: In fact, Amazon is 144 percent more expensive.
- Forrester: Could cloud computing get any more confusing?
- CIO: The cost of cloud computing solutions can vary tremendously.
- Technologist: Doing this research has been like comparing apples to lizards.

# Economic Impact

## Is Cloud Computing Less Costly?

- Yes and No....
  - Depends a lot on what you need.
  - Pricing models & solutions are confusing.
  - Competition has not shown up in many places yet.
  - Due diligence is mandatory!

# Technical Impact

- According to Gartner, early adopters of cloud computing report that the technology is one of the least important challenges in cloud solutions.
- Much tougher issues are the cultural, process, business model and political issues!

# Technical Impact

- Reliability / Availability
- Performance
- Latency
- Monitoring
- Legacy Systems
- Vendor Lock-in

# Operational Impact

- According to Gartner, agility (not cost) is driving Cloud Computing.
- The ability to get a server in minutes is a huge change from the traditional way of ordering a server and waiting for days or weeks to be up and running.

# Operational Impact

- Agility / Scalability
- Choice
- Lack of Control
- Billing Models
- Business Continuity

# Cultural

- Role of IT
- Role of Compliance
- End Users
- Political

## Legal / Regulatory

- Donald Saxinger, subject expert for the FDIC in the area of regulatory IT examinations, says...
- *“Institution should be ready to answer questions from their regulators on their use of emerging technologies like mobile, social networking and cloud computing in 2011”.*
- *“Don't necessarily expect to see additional regulatory guidance. We wrote our guidance broad enough to cover most of these New Technologies”.*

# InformationWeek

THE BUSINESS VALUE OF TECHNOLOGY

## **Justice Department Wants ISPs To Store More Data.**

By Thomas Claburn InformationWeek  
January 26, 2011

The Department of Justice on Tuesday expressed concern that Internet service providers are not keeping enough data about what their customers are doing.

# InformationWeek

THE BUSINESS VALUE OF TECHNOLOGY

## **Justice Department Opposes Changes To Electronic Privacy Law.**

By **Mathew J. Schwartz** InformationWeek

April 07, 2011

Congress is discussing updating the 1986 Electronic Communications Privacy Act to deal with new technologies like smartphones, cloud computing, and social networking sites.

# Legal / Regulatory

- Data Governance
- Compliance
- Discovery
- Where is data stored & how
- Audit capabilities
- Forensics in the cloud
- Due diligence

## Security / Privacy

- Deloitte & Touche in an August 2010 'Economic Times Article' .... *“Security is the primary area of concern in Cloud Computing”*.
- Michael Barrett, PayPal's chief information security officer... *“No one is safe from threats”*.

**Gartner.**

## Neil MacDonald

**A member of the Gartner Blog Network**



VP & Gartner Fellow  
15 years at Gartner  
25 years IT industry

### 100% Prevention is a Fallacy. Lockdown is a Flawed Strategy

January 25, 2011

We simply cannot stop all of the bad guys. Period.

I've commented before that complete protection is a combination of prevention and detection and that we've been far too focused on the prevention side of the equation trying to prevent all malware and infections.

According to a 2010 ICBA survey of community banks with \$100 million to \$500 million in assets:

- 50% outsource core processing to independent platform providers;
- 55% outsource management of online banking to core processors;
- 70% outsource intrusion prevention services to third parties.

# Security / Privacy

- Endpoints
- Smart phones
- Wireless
- Web Applications
- Social Networking
- Social Engineering

## *Let's Try a Little Analogy....*

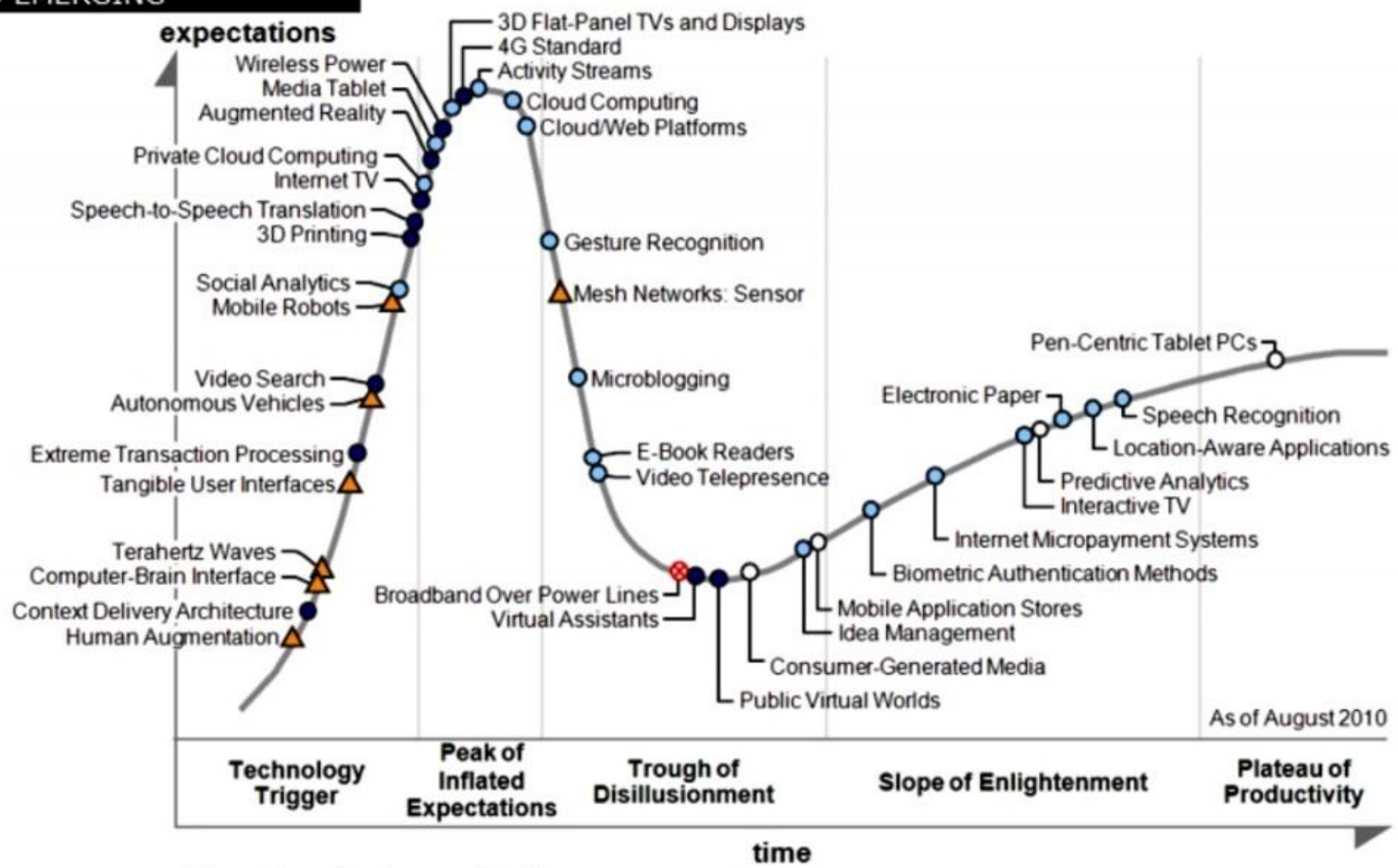
- Where is your money currently located?
- Who has access to your financial details?
- Are you concerned not knowing the answer to these questions?
- Is storing data in the cloud not similar to having your banking details available over the Internet?



**Willie Sutton**

*“Because that’s where the money is”....*

# 2010 EMERGING



As of August 2010

## Years to mainstream adoption:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

*We're Going to the Cloud...  
So What Precautions Do We Take?*

- The same precautions and due diligence we perform for other outsourced IT services.
- Don't select an application just because it is cloud based. Select on the merits of the application.
- Move slowly – One application to start.

*We're Going to the Cloud...  
So What Precautions Do We Take?*

- SLAs and the metrics used to measure them.
- Exit ability & cost if SLA's are not met.
- SSAE 16 (an enhancement to the SAS70).
- How will data be backed up (and where)?
- How quickly can a deleted file or server can be recovered?
- Will costs be incurred for data and server recoveries?

## *We're Going to the Cloud... So What Precautions Do We Take?*

- Data encryption at rest and in transit
- Access & authentication methodologies
- Incident Response
- Financials
- Business Continuity Plan
- Audit capabilities

The background of the slide is an aerial photograph of a vast expanse of white, fluffy clouds against a clear blue sky. The clouds are dense and cover most of the frame, with some darker patches of blue sky visible between them.

**Questions?**