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**New York Bankers Association
Technology, Compliance & Risk
Management Forum:
May 18 2010**

**Cloud Computing
in a Bank Environment:
Is Risk a Barrier to
Acceptance?**

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**L. Randy Marsicano, CISA
Manager – IT Assurance Services**

Boston • Springfield • Albany



About Wolf & Company, P.C.



Established in 1911, Wolf provides audit, tax and risk management services to over 200 financial institutions

- Established in 1911
- Offers Audit, Tax, and Risk Management services
- Offices located in:
 - Boston, Massachusetts
 - Springfield, Massachusetts
 - Albany, New York
- Over 170 professionals
- Over 45 Risk Management services professionals specializing in financial institutions

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Our Financial Institution Expertise

- Provide services to over 200 financial institutions:
 - Approximately 33 FIs with assets > \$1B
 - Approximately 35 publicly traded FIs
 - Constant regulatory review of our deliverables
- Over 45 Risk Management Professionals:
 - IT Assurance Services Group Professionals
 - Internal Audit Services Group Professionals
 - Regulatory Compliance Services Group Professionals
 - WolfPACsm Solutions Group Professionals
- Provide RMS in 12 states

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L. Randy Marsicano, CISA

- IT Manager
- Certified Information Systems Auditor
- Over nineteen years of information security experience
- Experience in Commercial and Financial industries
- Frequent speaker on Risk Management

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OBJECTIVES

- What are the various types of cloud computing configurations?
- What are the security risks associated with cloud computing in a banking environment?
- What are some of the various authentication techniques that can be used to help protect sensitive client data?

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WHAT IS CLOUD COMPUTING?

Definition

A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

- NIST and the Cloud Security Alliance

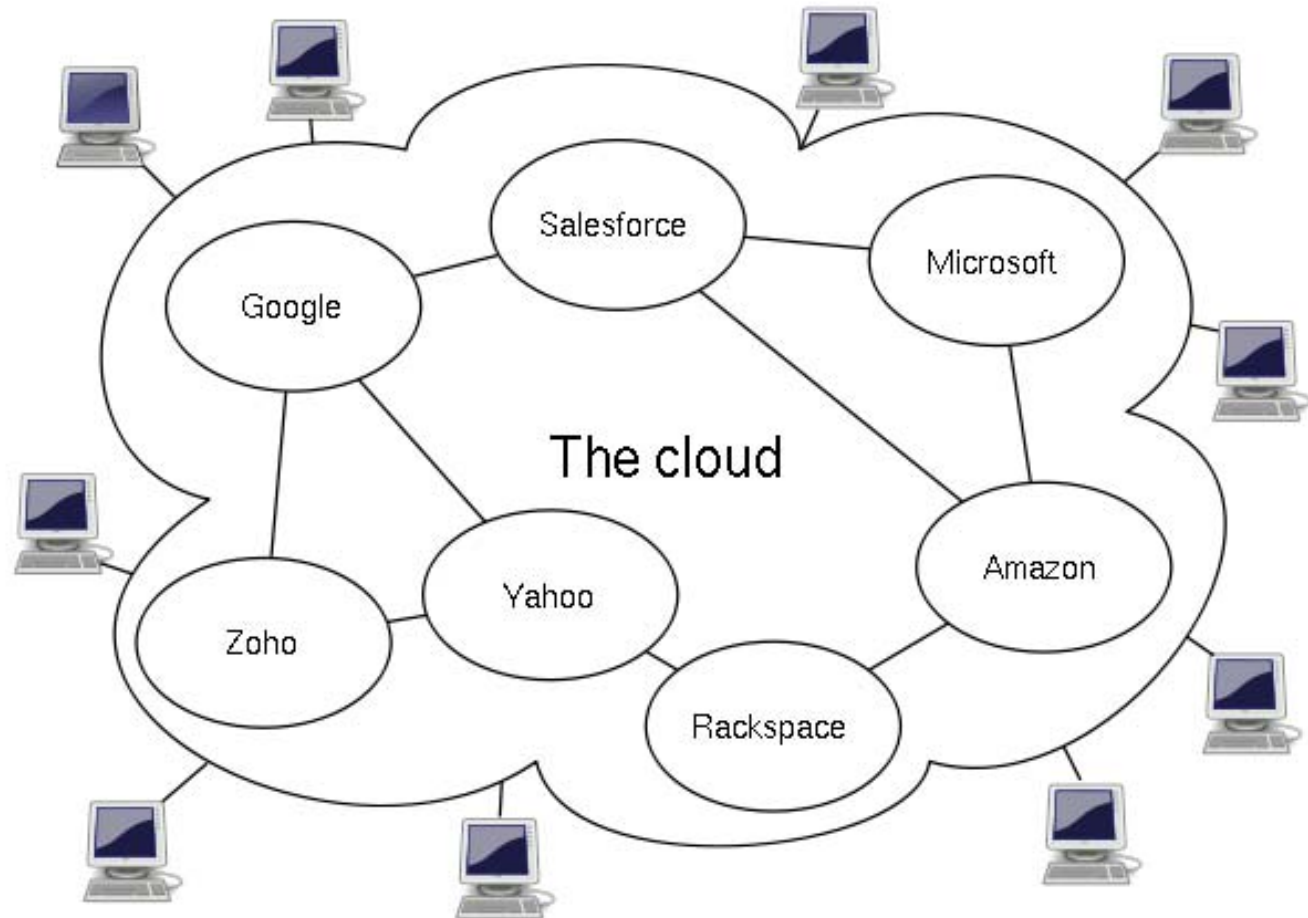
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WHAT IS CLOUD COMPUTING?



Source: <http://www.wikipedia.com>

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WHAT IS CLOUD COMPUTING?

Why consider it?

- **Reduce costs**
 - Equipment
 - Staff
 - Infrastructure
- **Scalability**
 - Ability to grow easily
- **Disaster recovery**
 - Redundancy
 - Fault tolerance
- **Immediacy**

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What are the various types of cloud computing configurations?

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CLOUD COMPUTING TYPES

Service Model	Definition
Infrastructure as a Service (IaaS)	Capability to provision processing, storage, networks and other fundamental computing resources, which can include operating systems and applications.
Platform as a Service (PaaS)	Capability to deploy onto the cloud infrastructure customer-created or acquired applications which are then supported by the provider.
Software as a Service (SaaS)	Capability to use the provider's applications running on cloud infrastructure. The applications are accessible from various client devices through an interface such as a web browser.

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CLOUD COMPUTING TYPES

Deployment Model	Description
Private cloud	<ul style="list-style-type: none">• Operated solely for an organization• May exist on-premise or off-premise
Community cloud	<ul style="list-style-type: none">• Shared by several organizations that may have a shared mission or interest• May be managed by the organizations or a third party
Public cloud	<ul style="list-style-type: none">• Made available to the general public or a large industry group• Owned by an organization selling cloud services
Hybrid cloud	Composition of two or more clouds (private, community or public) that remain unique entities but are bound together.

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What are the security risks associated with cloud computing in a banking environment?

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CLLOUD COMPUTING RISKS

- Increased dependency on third party provider
- Loss of control over physical and/or logical environment affecting your data (integrity)
- Loss of availability should the cloud provider have a service interruption (availability)
- Privacy and legal liability in the event of a security breach (confidentiality)
- Difficulty defining exact locations of data
- Comingling of data
- Difficult to protect IP or trade secrets

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CLOUD COMPUTING RISKS

Increased dependency on third party provider

- Impact on you if the cloud provider has a service interruption
- Dependency on third party controls
- Dependency for compliance

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CLOUD COMPUTING RISKS

Loss of control integrity, availability, and confidentiality of your sensitive information

- GLBA considerations
- Legal and compliance issues
- Reputation issues

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CLOUD COMPUTING RISKS

May be difficult to define exact locations of data.

- Cross border (country risk)
- Subpoena for information
- Decommissioning

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CLOUD COMPUTING RISKS

Comingling of data.

- Data with your competitors data
- Security breach by another client exposing your data

May be difficult to protect IP or trade secrets.

- Who owns the data in the cloud?
- Who has right to co-developed processes?

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What are some of the various authentication techniques that can be used to help protect sensitive client data?

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CONTROLLING RISKS

- Apply multifactor authentication techniques
- Implement data into existing classification scheme
- Apply appropriate governance
- Include the provider in your vendor management program
- Require service level agreements

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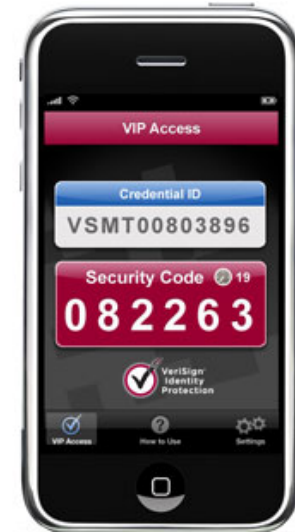
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CONTROLLING RISKS

Apply multifactor authentication techniques

- Tokens
- Biometrics
- Magnetic Cards
- Phones
- SMS One Time Password
- Smart cards
- Universal Serial Bus
- Digital Certificates



PROVINTAGE

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CONTROLLING RISKS

Implement data into existing Classification Scheme with associated protection profile

- Regulatory Restricted
- Internal Confidential
- Internal Use
- Public

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CONTROLLING RISKS

Apply appropriate governance

- Consider strategic direction of business and IT
- Include Information Security Officer (ISO)
- Assess impact on business functions
- Integrate into acceptable use policies

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CONTROLLING RISKS

Include the Provider in your Vendor Management Program

- Consider potential risks arising from third party relationships
 - Strategic
 - Reputation
 - Operational
 - Transaction
 - Credit
 - Compliance

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CONTROLLING RISKS

Include the Provider in your Vendor Management Program

- Risk Assessment
- Due Diligence in Selecting a Third Party
- Contract Structuring and Review
- Oversight

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CONTROLLING RISKS

Require Service Level Agreements

- Set clear expectations regarding information
 - Handling
 - Usage
 - Storage
 - Availability
- Require business continuity and disaster recovery planning and testing

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CLOUD COMPUTING

Is Risk a Barrier to Acceptance?

- Consider Benefits
- Assess Risks
- Apply Controls

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ADDITIONAL INFORMATION

- **Cloud Security Alliance:**
<http://www.cloudsecurityalliance.org/>
- **NIST Cloud Computing Resource Center:**
<http://csrc.nist.gov/groups/SNS/cloud-computing/>
- **ISACA:**
<https://www.isaca.org/>
- **FDIC FIL 44-2008: Guidance for Managing Third Party Risk**
<http://www.fdic.gov/news/news/financial/2008/fi108044.html>

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THANK YOU

QUESTIONS?

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