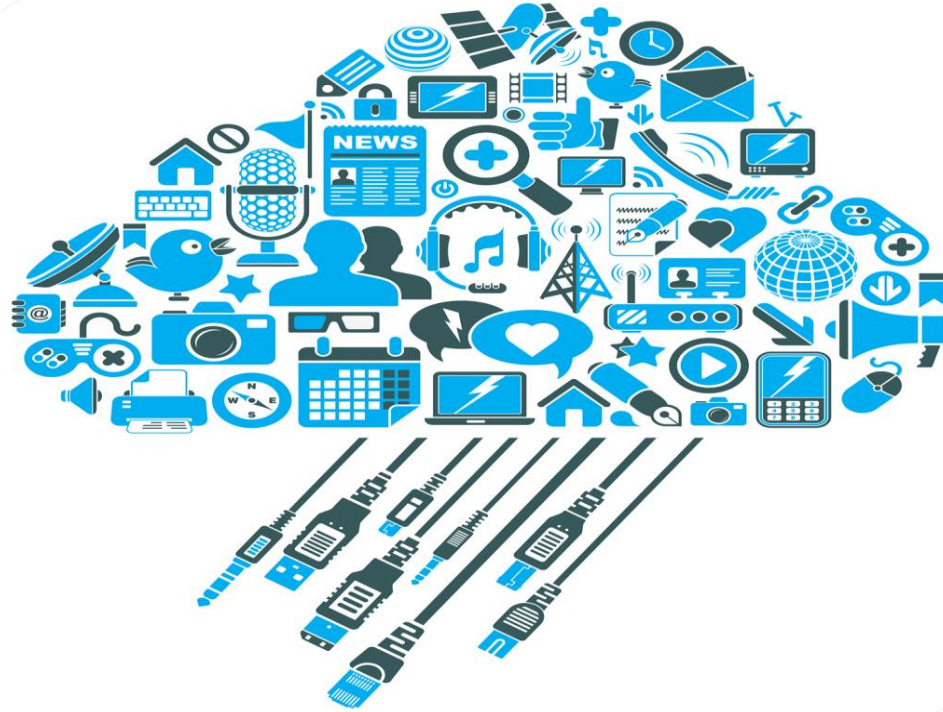# Moving the Enterprise to the Cloud

October 5, 2017

What is the Cloud?

"In the simplest terms, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. The cloud is just a metaphor for the Internet."

- PC Magazine, April 17, 2015
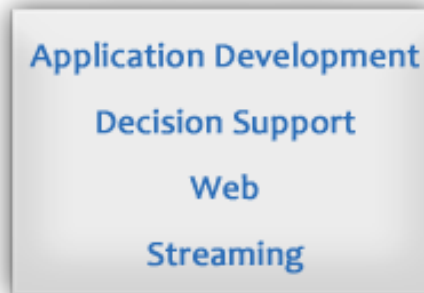
Types of Cloud Providers

SaaS	PaaS	IaaS
Software as a Service	**Platform as a Service**	**Infrastructure as a Service**
Email	Application Development	Caching
CRM	Decision Support	Legacy · File
Collaborative	Web	Networking · Technical
ERP	Streaming	Security · System Mgmt
CONSUME	**BUILD ON IT**	**MIGRATE TO IT**
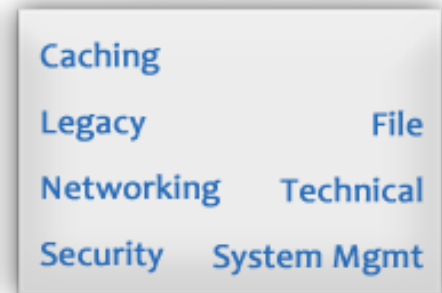
Trends in Adoption

93% Organizations currently using **cloud services.**

74% Organizations storing some or all of their sensitive data in the public cloud.

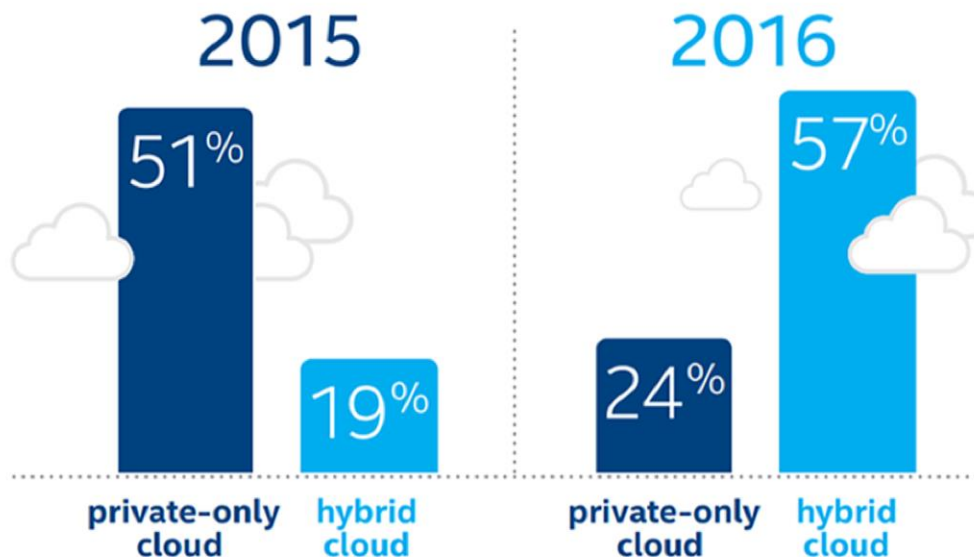**15 Months** until cloud spending accounts for **80% of IT budgets.**

49% of respondents had **slowed their cloud adoption** due to a lack of cybersecurity skills

Companies are moving from private-only to hybrid cloud.

2015
51% private-only cloud
19% hybrid cloud

2016
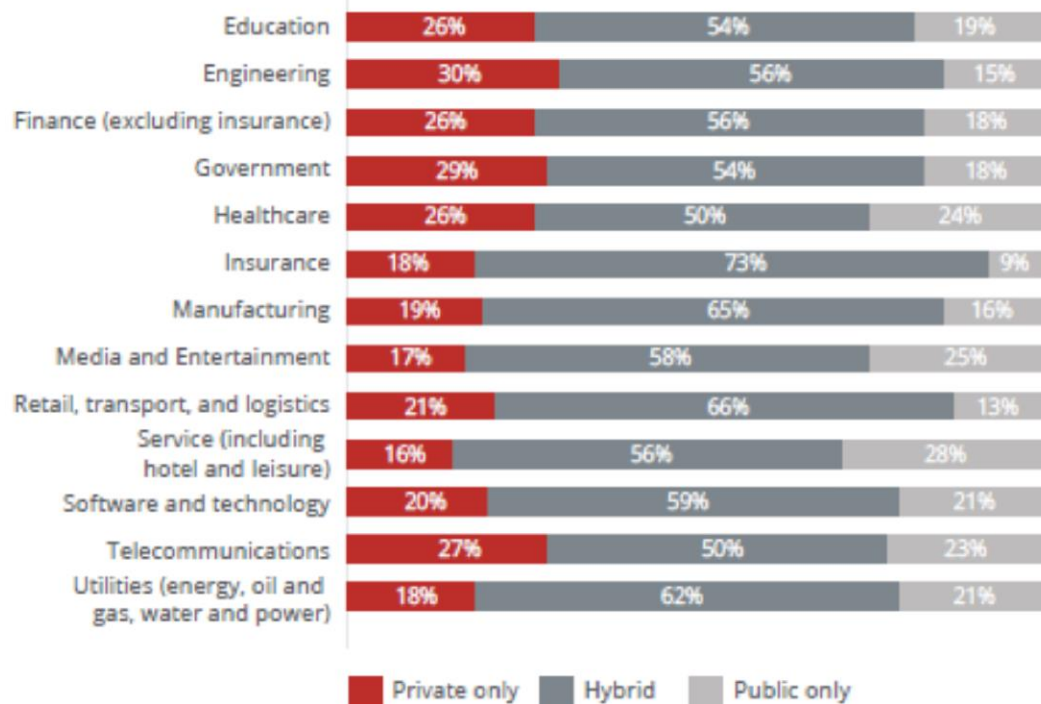**24%** private-only cloud
57% hybrid cloud

Trends in Healthcare Adoption

67% of healthcare organizations plan to increase their investments in SaaS services in the coming year.

96% of healthcare organizations have adopted cloud services.

	Private only	Hybrid	Public only
Education	26%	54%	19%
Engineering	30%	56%	15%
Finance (excluding insurance)	26%	56%	18%
Government	29%	54%	18%
Healthcare	26%	50%	24%
Insurance	18%	73%	9%
Manufacturing	19%	65%	16%
Media and Entertainment	17%	58%	25%
Retail, transport, and logistics	21%	66%	13%
Service (including hotel and leisure)	16%	56%	28%
Software and technology	20%	59%	21%
Telecommunications	27%	50%	23%
Utilities (energy, oil and gas, water and power)	18%	62%	21%

Business Benefits

> "The global adoption for cloud services in healthcare will grow from $3.73 billion in 2015 to nearly $9.5 billion by 2020."
>
> *- Healthcare IT News*

- Cost savings
- Speed of adoption
- Agility
- Increased functionality
- Enacting large-scale change
- Improved business performance
- Improved service levels
- Process efficiencies
- Scalability
- Speed to market
- Increased employee productivity
- Higher employee satisfaction and flexibility
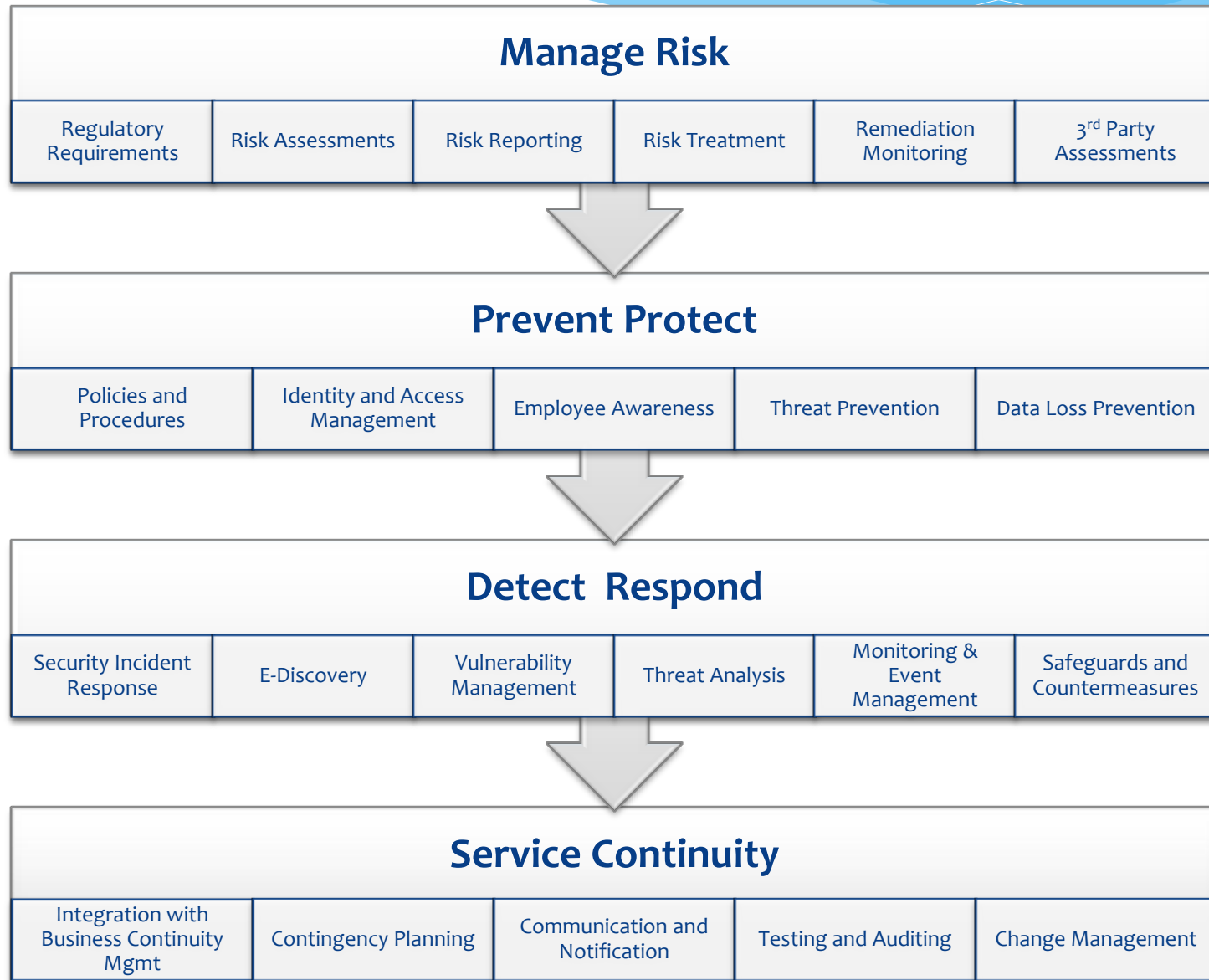- Big data and business analytics

Common Myths

- Inherently insecure
- More susceptible to breaches
- Too hard to secure
- Business has to adopt or reject the cloud
- As long as we don't go there, we're secure
- You can stop your users from using the cloud
- Physical control equals stronger security
- Security is now the vendor's responsibility
- BYOD and the cloud are 2 separate issues
- Single tenant vs multitenant security
- You own all of your data in the cloud
- Once in the cloud, you lose all control

Role of InfoSec Professionals

- Support enterprise strategy
- Enable the business
- Provide value
- Assist leaders in understanding risk
- Enable the organization to manage risks
- Generate awareness
- Protect the enterprise
- Assess and implement technical controls

InfoSec Lifecycle

Manage Risk

Regulatory Requirements	Risk Assessments	Risk Reporting	Risk Treatment	Remediation Monitoring	3rd Party Assessments

Prevent Protect

Policies and Procedures	Identity and Access Management	Employee Awareness	Threat Prevention	Data Loss Prevention

Detect Respond

Security Incident Response	E-Discovery	Vulnerability Management	Threat Analysis	Monitoring & Event Management	Safeguards and Countermeasures

Service Continuity

Integration with Business Continuity Mgmt	Contingency Planning	Communication and Notification	Testing and Auditing	Change Management

Challenges

- Proliferation of cloud services

- Protecting sensitive data

- Potential lack of visibility

- Detecting risky and anomalous behavior

- Leveraging legacy tools to manage threats

- Moving traditional controls up to the cloud

- Complying with laws across borders

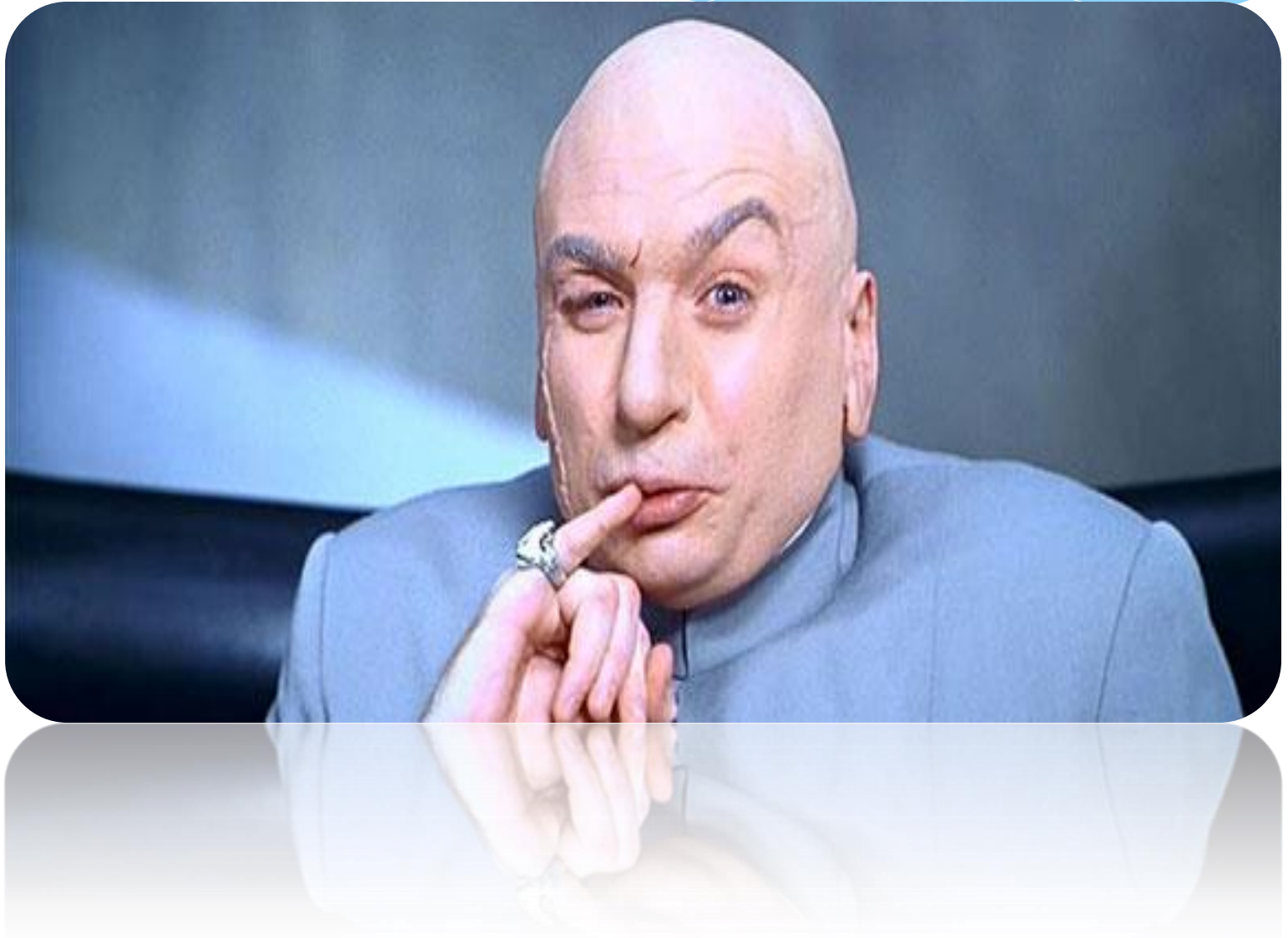- eDiscovery and surveillance

Critical Controls

- Encryption

- Data Loss Protection

- Authentication/Identity Management

- Logging and Incident Response

- eDiscovery

- Mobile Device Management

- Remote Access

- Key Management

- Infrastructure Controls

- Contractual Agreements

Hosting Agreements

- ☑ Designated Security Professional
- ☑ Geographic location
- ☑ Policies and procedures
- ☑ Enterprise Risk Management
- ☑ Awareness and Education
- ☑ Identity and Access Management
- ☑ Multifactor Authentication
- ☑ Privilege account management
- ☑ Breach notification
- ☑ Incident Response Plan
- ☑ Disaster Recovery, backup and retention
- ☑ Data ownership
- ☑ Termination of services
- ☑ Right to audit

- ☑ SOC 2 Type 2 report or certification
- ☑ Forensics
- ☑ Application Security and SDLC
- ☑ Security patches and updates
- ☑ Vulnerability assessments
- ☑ Full or Responsible Disclosure
- ☑ Industry standard security controls
- ☑ Data Loss Prevention
- ☑ Encryption
- ☑ Change Management
- ☑ 3rd Party Software Requirements
- ☑ Background checks
- ☑ Denial of Service Protection
- ☑ Indemnification

Bottom Line

Questions?