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The Gaylord Texan
Dallas, Texas

Secure Cloud Is Not An Oxymoron

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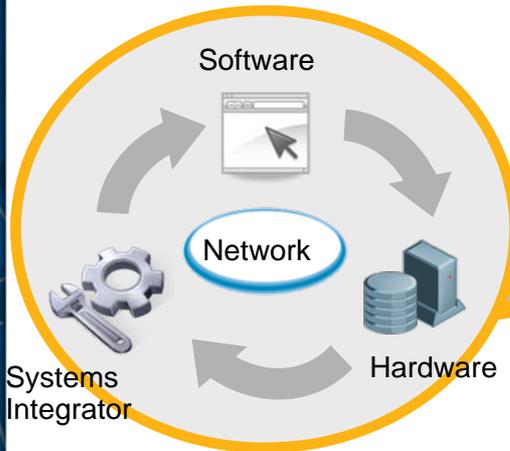


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IT architectures are evolving toward the cloud

SaaS

Traditional



Systems Integrator

- Complex management
- High TCO
- Capital intensive
- Upfront fixed costs

Migrate to new ecosystem

Standardized, On Demand Apps



Consumed by SMBs, enterprises
Delivered by ISVs

IaaS/PaaS



Packaged & Custom Apps

Non-vertically integrated ISVs

Consumed by enterprises, ISVs, developers

Extend existing ecosystem

Virtual Private Cloud

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Understanding the 'cloud'



Cloud services and technology stack



Cloud deployment models



Software as a Service



Platform as a Service



Infrastructure as a Service

Private Cloud

- Single tenant
- Dedicated infrastructure
- On-premises or hosted

Virtual Private Cloud

- Hybrid model
- Trusted logical separation
- Private or VPN connectivity

Public Cloud

- Internet based
- Massive multi-tenancy
- Best-effort reliability

Virtual private cloud combines the security and performance of *private cloud* with the economics and flexibility of *public cloud*

Buying experience: user self-service under an enterprise umbrella

Feature set: flexibility to support diverse workloads across the enterprise

Use cases: complement or extend existing IT operation, not replacement

Governance framework: identity, access, roles, hierarchy, auditability

Networking: performance, security and simplicity of on-net access

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What Are We Afraid Of?



Cloud Attributes

Benefits

Ubiquitous

- ▶ “In The Network”
- ▶ IT anywhere

Scalable

- ▶ Empower developers to innovate
- ▶ Integrate with your software and apps

Flexible

- ▶ Give your staff direct control
- ▶ Drive business agility and velocity

On-Demand

- ▶ Use what you need, when you need it
- ▶ Match capacity to demand

Pay-Per-Use

- ▶ Avoid upfront costs or commitments
- ▶ Pay for only what you use

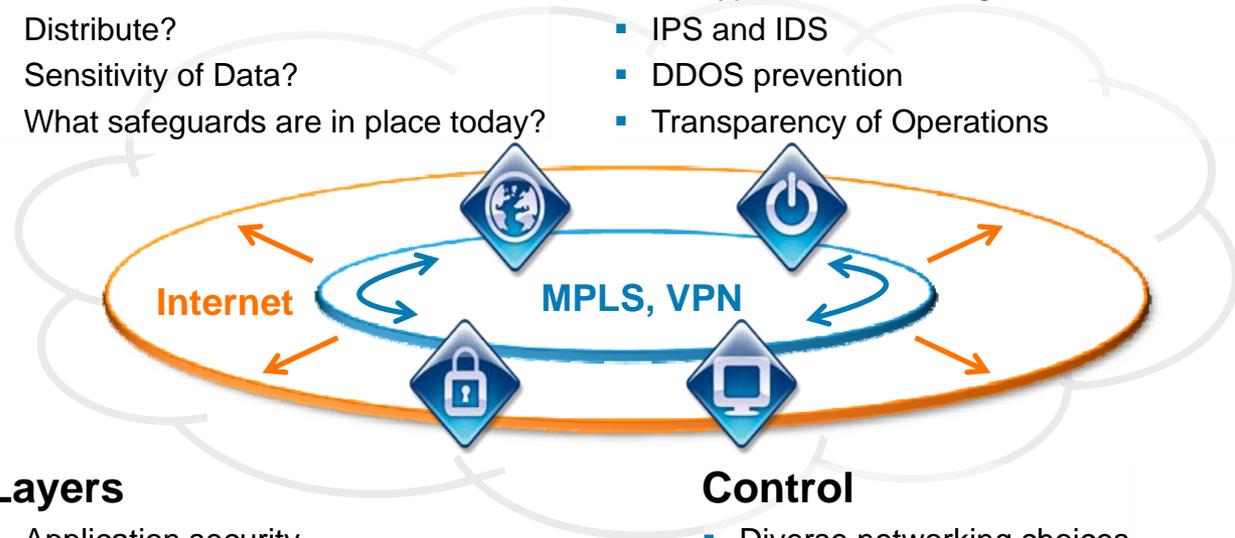
Data Protection In The Cloud

Evaluate/Catalog Apps

- Virtualize?
- Distribute?
- Sensitivity of Data?
- What safeguards are in place today?

What do we do to protect information?

- Encryption and masking
- IPS and IDS
- DDOS prevention
- Transparency of Operations



Layers

- Application security
- Policies and procedures
- Audits and certifications
- Physical security
- Information security
- Network security

Control

- Diverse networking choices
- Identity Management
- Audit/Pen Testing

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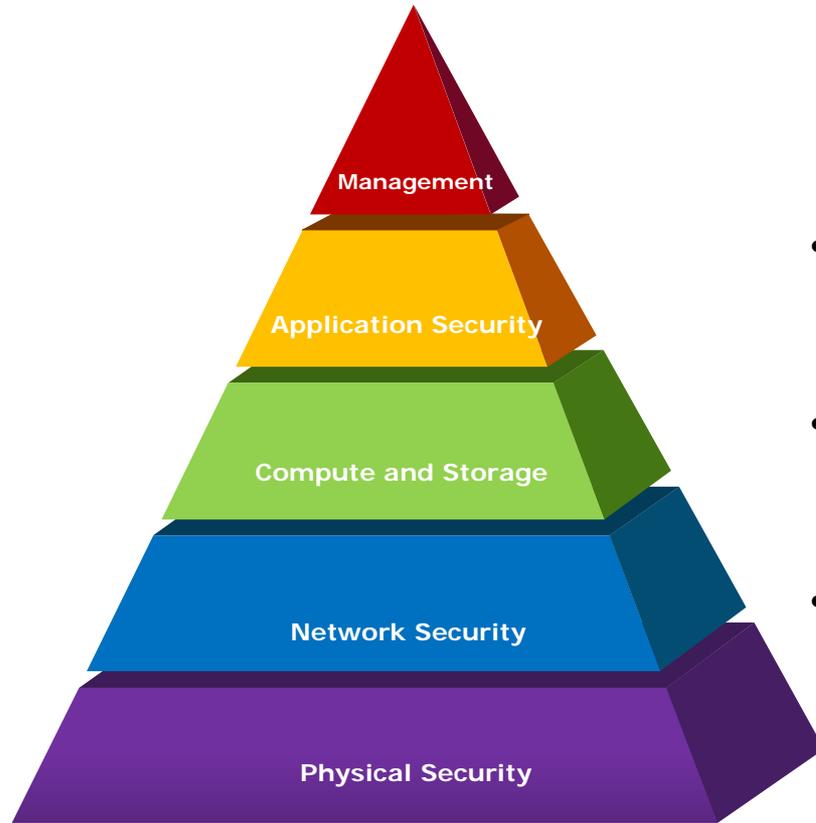
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Defense In Depth



- Evaluate Each Layer
 - Use Cases
 - Bandwidth requirements
 - Latency requirements
 - Geographic boundaries
 - Multi-tenancy or segregation
- Assess the Gaps
 - Security Risks
 - Privacy Needs
 - Regulation/Compliance
- Fill The Gaps
 - Mitigation Techniques
 - Management Framework
 - Know your provider
- Add to Governance Framework
 - BC/DR/COOP
 - Incident Management
 - SLAs
 - Reporting

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Information Security Into The Cloud

- Take a risk-based approach; it's not simply a matter of checking items off on a list.
- Need a measured, repeatable approach:
 - Analyze Risk
 - Assess controls
 - Ensure segmentation
 - Analyze Sensitivity of Data – encrypt all sensitive data
 - Make a BUSINESS decision to move information to the cloud.
- Safeguards and risk mitigations need to be *contractual* (between you and the provider), not just technical.
 - Provider disclose location/parameters of data processing and storage
 - Contract for right to audit (at least annually).

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Questions To Ask Yourself

1. How does a cloud deployment change my risk profile?
2. What do I need to do to ensure my existing security policy accommodates the cloud model?
3. Will a cloud deployment compromise my ability to meet regulatory mandates?
4. Which security standards or best practices are the cloud providers using (SAML, WS-TRUST, ISO)?
5. What happens if a breach occurs? How are incidents handled?
6. Who is liable (or who will be viewed as the responsible party) for securing my data?
7. How do I ensure only appropriate data is moved to the cloud?
8. How do I ensure only authorized employees, partners, and customers can access data and applications?
9. What factors should I use to decide if I can trust the provider(s)?

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Provider Assessment

- Homogeneity of infrastructure, processes, and systems interfaces make security/audit testing simpler.
 - Assess providers based on adherence to published, widely-accepted standards.
 - Assess providers' willingness to submit to penetration testing, on-site reviews, etc.
- Contract for 3rd party audits/reviews/attestations.
 - "Provider-level" compliance does not guarantee or ensure "customer-level" compliance.
 - Provider compliance with general practices is a starting point; provider's ability to comply with YOUR practices is the key to your success.

On-Going Assurance and Validation

- Follow roadmaps carefully, as they change frequently.
- Audit, log analysis, management discretion, exception reporting, threat evaluations, mitigation strategies...all are changing as well.
- Request roadmap discussions with key providers, and be candid with your description of your needs.
- Involve hw/sw providers in the discussion with providers...it's now a 3-way dialogue on evolution of services to meet your needs.
- Keep an eye on federated identity management, as it matures, and standards evolve.

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What are we really trying to GET out of the cloud?

- “What we were really after was promoting reference implementations which would allow us to leverage standard services, reduce time to market [for products], become much more agile and increase server utilization”
 - CTO at major bank describing benefits move to cloud

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