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Connect to Protect

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Take it to the Cloud: The Evolution of Security Architecture

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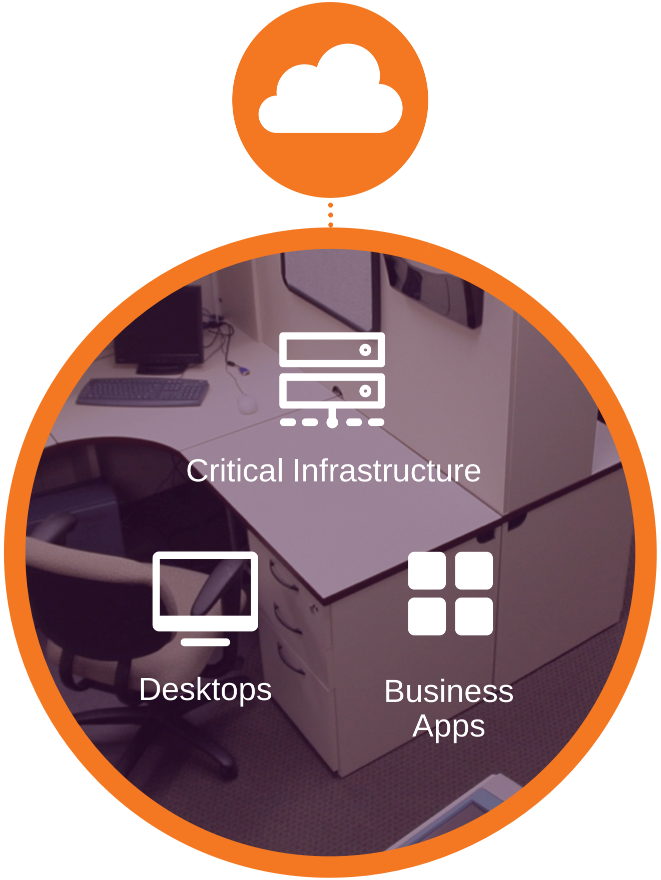
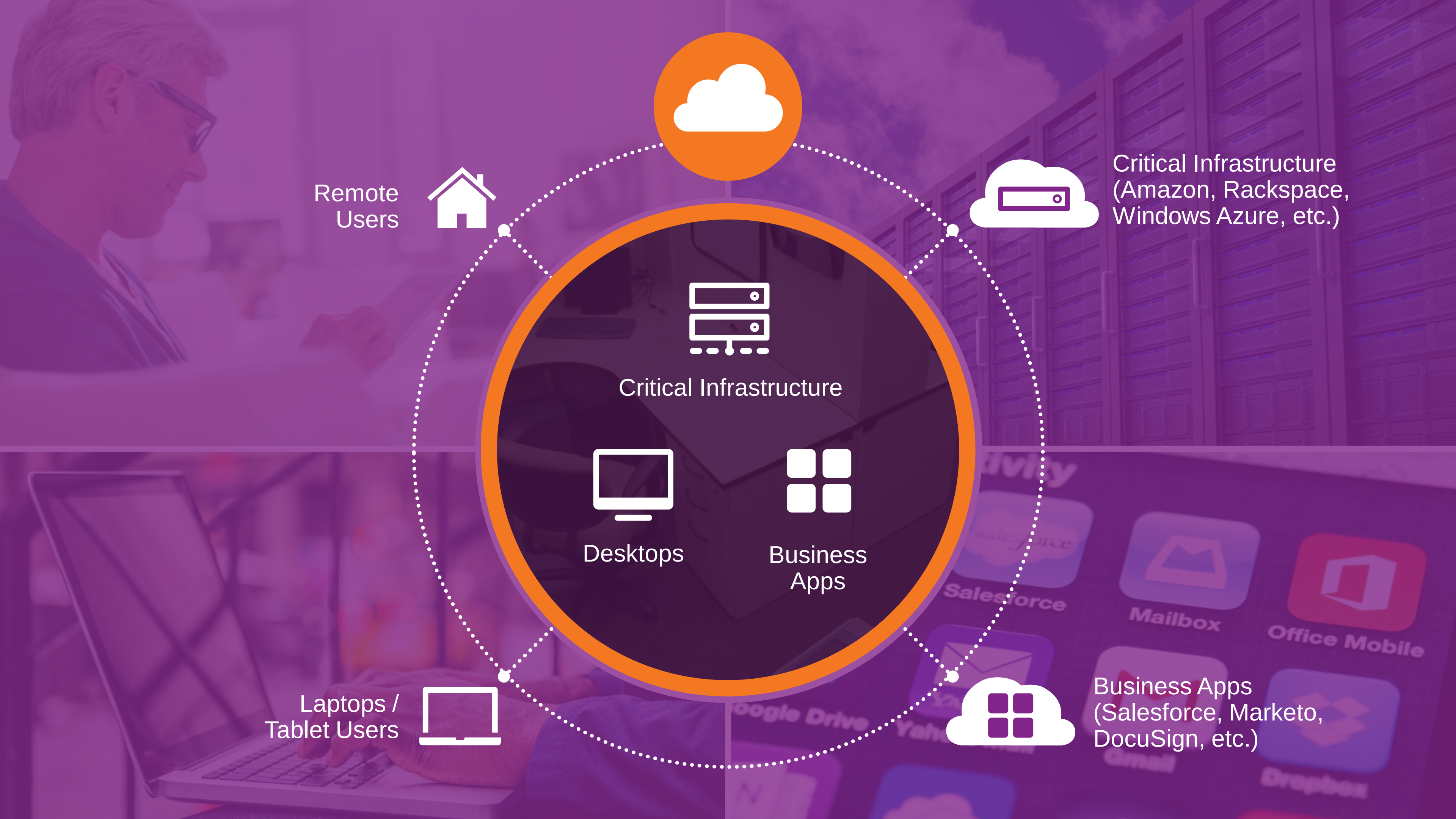
#RSAC



Critical Infrastructure

Desktops

Business Apps



Remote Users

Critical Infrastructure (Amazon, Rackspace, Windows Azure, etc.)

Critical Infrastructure

Desktops

Business Apps

Laptops / Tablet Users

Business Apps (Salesforce, Marketo, DocuSign, etc.)

When we talk about cloud security…

Virtual Appliances
Hosted in Cloud

Security
Delivered in Cloud

Security for
New Architecture

Cloud Security Alliance

The Notorious Nine

2010	2013	2015	Top Threats
5	1		Data Breaches
5	2		Data Loss
6	3		Account Hijacking
2	4		Insecure Interfaces and APIs
N/A	5		Denial of Service (DoS)
3	6		Malicious Insiders
1	7		Abuse of cloud services
7	8		Insufficient Due Diligence
4	9		Shared technology vulnerabilities

#1&2 Data Breach/Data Loss

- What is it?
  - Data in the cloud that is exposed, lost or inaccessible
- New Vectors for Data Breach
  - Oct 2015 – "Seriously, Get Off My Cloud!" – Exposure of AWS customer crypto keys
  - Multi-Tenant Architecture Flaws in databases
- Data Loss is similar, but exacerbated
  - Secure Tunnel != Protection of Data
  - Losing encryption key
  - Offline backups

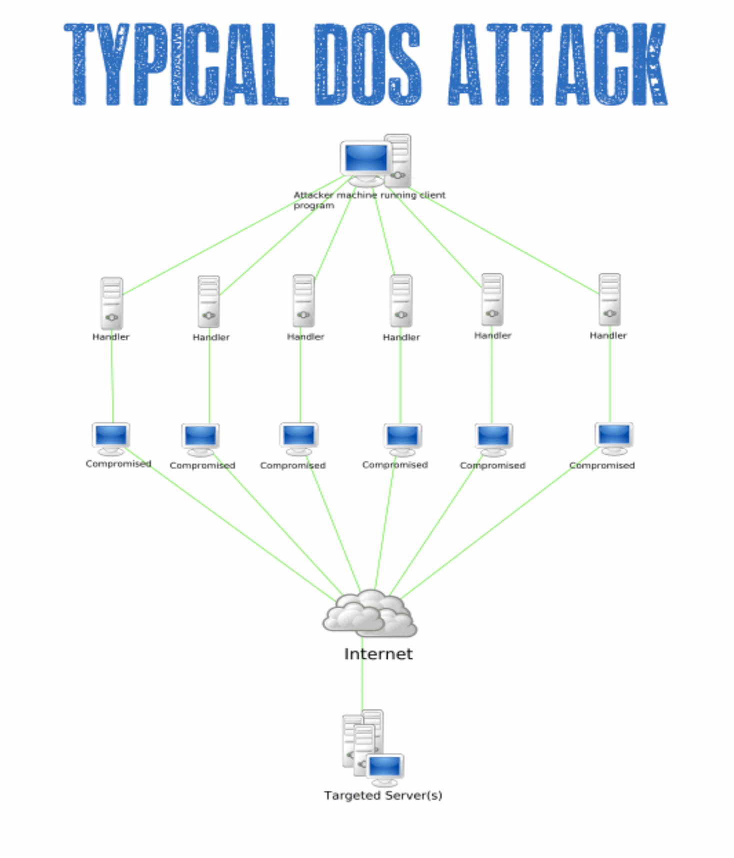
#3 Account Hijacking

- What is it?
  - Access to user identity & associated accounts
- How have attacks changed?
  - Reuse of credentials/passwords amplifies impacts of attacks
  - Man-In-The-Cloud stealing copy of synchronization token

#4 Insecure APIs

- What is it about?
  - APIs enables cross-cloud compatibility
- What are API attacks?
  - Kardashian Website Security Issues
  - The Buffer attack – due to improper OAUTH code

#5 Denial of Service (DoS)



- What is it about?
  - An attempt to make a machine or network resource unavailable to its intended users
- How have attacks changed?
  - Frequency: attacks per month on the rise
  - Collateral Damage
  - Size: Largest attack in 2004 was 8 Gbps. Now upwards of 400 Gbps
  - Complexity: multi-vector attacks are becoming more common

#6 Malicious Insiders

- What is it?
  - A threat to the organization that originates from people within the organization such as employees, contractors, etc..
- How have attacks changed?
  - Amplified for cloud services due to convergence of IT Services/customers under a single management domain
  - Management of Identity once an individual leaves the organization

Insufficient Due Diligence

- What is it?
  - Investigation into a CSP prior to signing a contract. Clarity on SLAs
- Why does it matter?
  - You are now more dependent on another provider for success of your business
  - Added complexity of auditing multiple vendors' security
  - Where cloud data resides, different laws apply

Solutions

Visibility

- Problems you want to solve
  - What Cloud Applications are being used across my enterprise?
  - What type of communication is happening to sanctioned & unsanctioned applications
  - How risky are the cloud applications being used?
- Who does it?
  - Secure Web Gateways
  - Cloud Access Security Brokers (CASB)
  - Next-Generation Firewall (NGFW)

Encryption / Data Loss Prevention (DLP)

Making a comeback?

- Problems you want to solve
  - Secure my data & reduce impact of data breach
  - Reduce impact data loss
- What do I need?
  - Use SSL
  - Encryption / Tokenization / Key Management
  - Apply DLP policies for Cloud Applications
  - Governance – Retention policy

Watching the User

- Problems you want to solve
  - Trust that proper controls are in place (CSP)
  - Prevent misuse of admin / employee accounts
- What do I need?
  - Identity Management
  - Access Management (audit trail, time-bound access, request for access)
  - User Entity Behavior Analytics

DDoS protection – who does it better?

- Problems you want to solve
  - Service stay up and running during a DoS or DDoS attack
- What do I need?
  - Leverage cloud architecture!
  - Absorption and mitigation of DDoS attacks

Researching your cloud vendor

- Problems you want to solve
  - Higher confidence level in the CSPs security posture
  - Incorporate CSPs SLAs and security processes into main IT process
  - Protection
- What do I need?
  - Ask the CSP to share their internal security processes or assessment/audit
  - Legally bind them to assessments. Review/negotiate indemnification clause.
  - Review all SLAs
  - Review of Architecture – look for APIs

In Review

Apply What You Have Learned Today

- Next week you should:
  - Identify sanctioned and unsanctioned applications in your company
- In the first three months following this presentation you should:
  - Understand cloud administrative accounts & monitor them
  - Review if/where critical company data resides in the cloud
  - Review existing legal contracts with CSPs to understand SLAs
- Within six months you should:
  - Identify new processes to put in place to integrate CSP security with internal security workflow
  - Identify new key technologies for protection of cloud assets

Questions?