Enabling Cloud Computing for your Enterprise
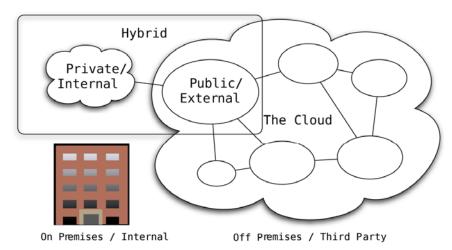
Cloud Types

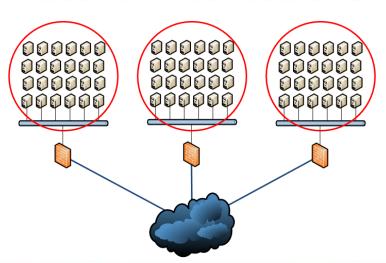| Public	**Hybrid**	Private
Trusted	Glass	Dedicated
PCI	Open	Green
Low Cost	Transaction	Test-Dev
SaaS	**IaaS**	PaaS

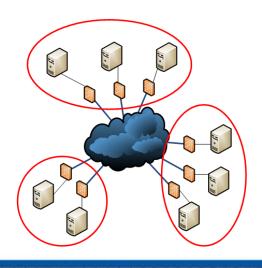Cloud Computing Types CC-BY-SA 3.0 by Sam Johnston

Cloud Security

[Cloud Computing] is a security nightmare and it can't be handled in traditional ways – John Chambers
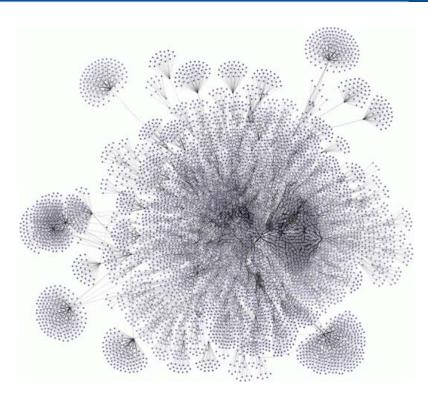
Macro-Management
Macro-Enforcement

Macro-Management
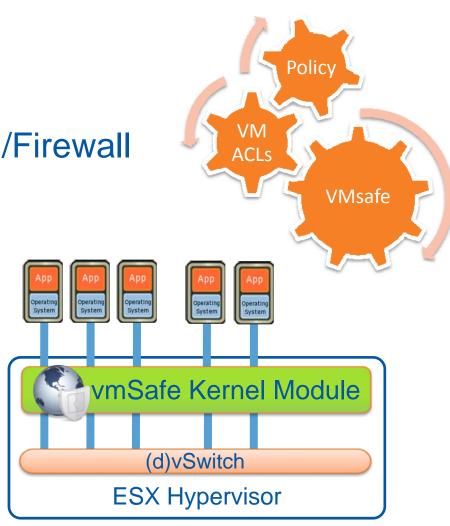**Micro-Enforcement**

Securing the Enterprise

❖ **Every Switch Port**
  - ❖ Firewall
  - ❖ IDS/IPS
  - ❖ DLP
  - ❖ NAC
❖ **Physical vs. Virtual**
  - ❖ Deploying 2000 physical firewalls intractable
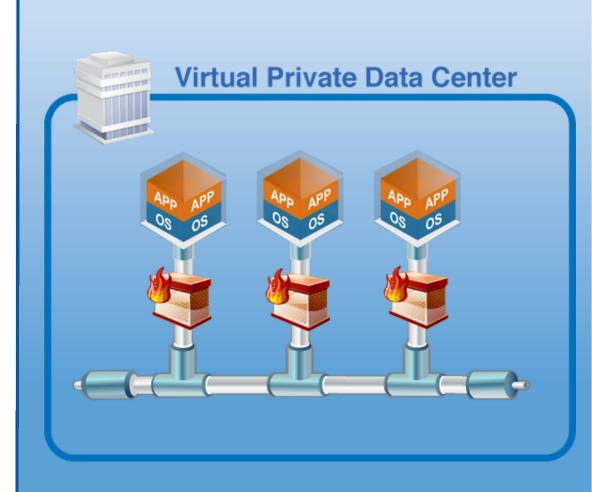❖ **Large Management Challenge**

REFLEX

VMsafe Integration

- ❖ Low-Level Enforcement
- ❖ Part of the Hypervisor
- ❖ VM Network Segmentation/Firewall
- ❖ Multi-Virtual Center Aware
- ❖ vMotion Aware
- ❖ Policy Mobility

Policy

VM
ACLs

VMsafe

App
Operating
System

App
Operating
System

App
Operating
System

App
Operating
System

App
Operating
System

vmSafe Kernel Module

(d)vSwitch
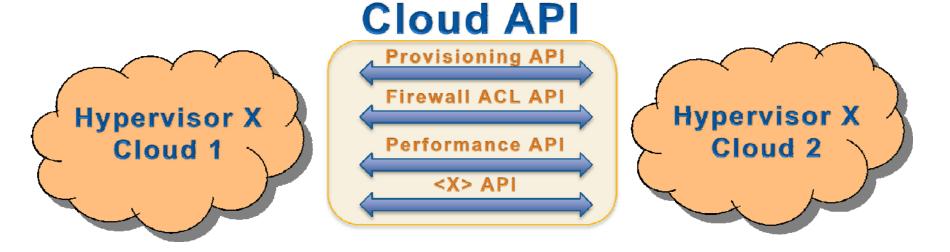
ESX Hypervisor

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Service Provider Integration

- ❖ VM/vNic Firewall
- ❖ Between VM & Network
- ❖ All traffic to/from VM
- ❖ Movement
  - Intra-Cluster
  - Inter-Cluster
  - Inter VC
  - Inter-Cloud
- ❖ Unique Identification

Virtual Private Data Center

Cloud API

Cloud API
- Provisioning API
- Firewall ACL API
- Performance API
- \<X\> API

Hypervisor X Cloud 1
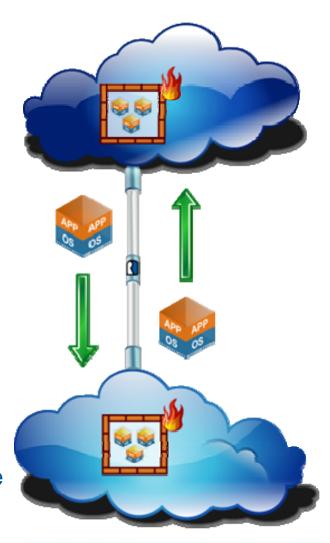
Hypervisor X Cloud 2

❖ VMsafe Enables Cloud Security API

❖ Cloud Security API Enables Micro-Enforcement

❖ Micro-Enforcement Enables Macro-Management

Enabling Hybrid Cloud Computing

Agility

➔ Move an existing application into the cloud

➔ Deploy portions of an application into the cloud

➔ Burst the number of virtual machines dedicated to an application into the cloud

➔ Adjust application resources seasonally

➔ Make applications more accessible to worldwide teams

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Cloud Policy Extension

When virtual assets move to an internal or external cloud environment, the business, IT and security policies adapt and move with the virtual assets.

External Cloud

Financial Zone

Shared Resource

Oracle

ERP Zone

Policy Extension to the cloud Policy

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