VMware NSX

La piattaforma di virtualizzazione della rete e della sicurezza

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Agenda

- VMware Software Defined Data Center Vision
- Virtualizzazione Network (NSX)
- Sicurezza: il modello «Zero Trust»
- Perché VMware

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SDDC is the Architecture for Cloud Computing



SOFTWARE-DEFINED DATACENTER

ALL INFRASTRUCTURE IS VIRTUALIZED AND DELIVERED AS A SERVICE, AND THE CONTROL OF THIS DATACENTER IS ENTIRELY AUTOMATED BY SOFTWARE

Standardized, Adaptive, Automated, Holistic, Resilient



There Are Two Approaches



MWare[®]

The anatomy of the most agile & efficient data centers is SDDC

Google / Facebook / Amazon Data Centers



The Choice for "New IT" – SDDC or HDDC







Any Storage

Any IP network

Hardware Defined Data Center (HDDC)



"New IT" will be SDDC



VMware's Software-Defined Datacenter Strategy

Unified Platform

Best-in-class VMware technologies across the hybrid cloud



Any Application

Rapid development, automated deployment and secure consumption of enterprise apps



Flexible Control

Choice in datacenter automation and management





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The VMware Software-Defined Data Center





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A little bit of history...

• 1993





vSphere 5

• 2013



switch# configure terminal switch(config)# interface ethernet 3/1 switch(config-if)# switchport mode trunk switch# configure terminal switch(config)# interface ethernet 3/1 switch(config-if)# switchport mode trunk

Why Network Virtualization

Physical Network: A Barrier to Software Defined Data Center



Provisioning is slow



Why Network Virtualization

Solution: Virtualize the Network



- Programmatic provisioning
- Place any workload anywhere
- Move any workload anywhere
- Decoupled from hardware
- Operationally efficient

Network Virtualization Abstraction Layer

Compute Virtualization Abstraction Layer





What is Network Virtualization?



Services Distributed to the Virtual Switch



Security – Complete Isolation



The Power of Distribution – Distributed Routing





East-West Layer 3 / Host to Host

The Power of Distribution – Distributed Firewall



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Why do breaches still occur?







Today's data centers are protected by strong perimeter defense... But threats and exploits still infect servers. Lowpriority systems are often the target. Threats can lie dormant, waiting for the right moment to strike.



Attacks spread inside the data center, where internal controls are often weak. Critical systems are targeted.



Server-server traffic growth has outpaced client-server traffic. The attack spreads and goes unnoticed.



Possibly after months of reconnaissance, the infiltration relays secret data to the attacker.

Security Dilemma

Perimeter-centric network security has proven insufficient, and micro-segmentation is operationally infeasible



Solution: Leverage SDDC Approach for Micro-Segmentation

- Hypervisor-based, in kernel distributed firewalling
- Platform-based automated provisioning and workload adds/moves/changes



SDDC Platform – Native Security Capabilities



20 Gbps Firewalling throughput per host

Hypervisor-based, in kernel distributed firewalling

- High throughput rates on a per hypervisor basis
- Every hypervisor adds additional east-west firewalling capacity
- Native feature of the VMware NSX platform

Platform-based automation

- Automated provisioning and workload adds/moves/changes
- Accurate firewall policies follow workloads as they move

Data center micro-segmentation becomes operationally feasible



Policy Rules Objects – Security Group

Security Group rule based: Example

mware [,] vSphere Web Cli	ent ท	ø				Updated at 6:13 PM 🕑	root@localos +	Help -
(4 Home) 🕤 🕱	Firewall							
Networking & Security	Configuration Saved Configurations							
MSX Home	NSX Manager: 10.35.28.226 +							
Installation Installation Logical Switches	General Ethernet							1979 - 19
III NSX Edges	· (1) ×	2 mit ma 1953 La				Bearch		(IIII) ~
💾 Firewali	No.	Nome	ficuree	Destination		Bervice		Aution
M SpoofGuard Service Definitions	▼ DFW (Rule 1 - 2)						+ 17	× 1.
	01	SG Windows - SG Linux - BLOCK	SECURITY-GROUP-WINDO	SECURITY-GROUP-LINUX	• any			Block
Data Security Flow Monitoring	© 2	WEB LS - DB LS - BLOCK	WEB-logical-switch-1	D8-logical-ewitch-3	* any			Allow
Activity Monitoring	► Dotault Se	sction Layer3 (Rule 3 - 5)			+ 🗗 🖉	r >= 1}		

- SECURITY-GROUP-WINDOWS: dynamic membership: Computer OS name contains "Windows"
- SECURITY-GROUP-LINUX: dynamic membership: Computer OS name contains "Linux"



The "Goldilocks Zone"



Trading Off Context and Isolation



SDDC Virtualization Layer – Delivers Both Context and Isolation



SDDC – A Platform for Industry Innovation





Application Delivery

Services

6

NSX Extensibility: Partner Integration

intel

NSX Use Case – On Demand Micro-Segmentation



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VMware NSX Value Prop

VMware NSX Transforms the Operational Model of the Network



Customer Momentum for VMware NSX: Over 250 Customers

4 of 5

top investment banks



Leading Global **Enterprises, Service Providers & Public Sector Organizations M C KESSON** Columbia at&t Empowering Healthcare TradeStation colt rackspace NTT vodafone

Medtronic Matural

NERGENT



Avondale

Illini Cloud

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Approfondimenti

VMware Software Defined Data Center <u>https://www.vmware.com/software-defined-datacenter/index.html</u>

VMware NSX product page http://www.vmware.com/products/nsx/

VMware NSX hosted evaluation (virtual lab) https://my.vmware.com/web/vmware/evalcenter?p=nsx-hol

VMware Hands On Labs on demand http://labs.hol.vmware.com