

VMtalks México

Analizando la red

Desde el servidor físico hasta el
Contenedor con VMware vRNI

Daniel Aguirre, Solutions Engineer NSBU
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23 Junio 2020

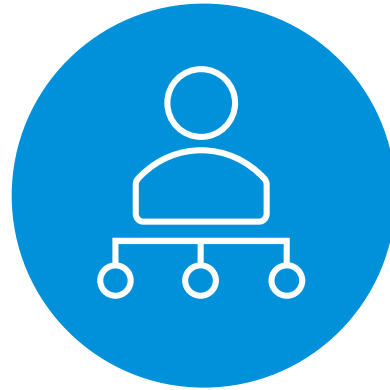
VMtalks México

Sesiones de junio



Seguridad end-to-end
de siguiente
generación con
VMware Carbon Black

Junio 18



Analizando la red
desde el servidor físico
hasta el contenedor
con VMware vRNI

Junio 23



Como mejorar el
desempeño y los
costos de su red
utilizando SD-WAN

Junio 25

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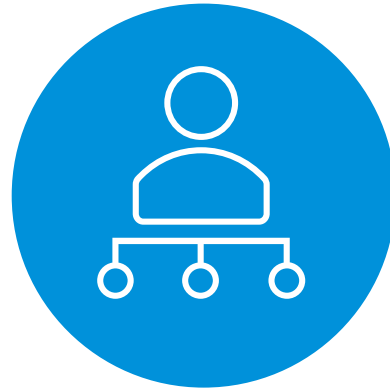
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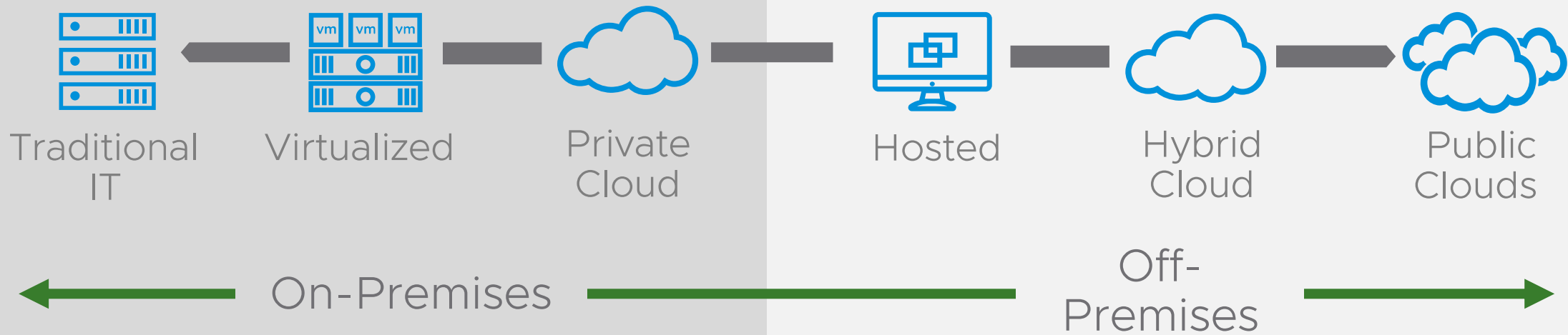


Como mejorar el
desempeño y los
costos de su red
utilizando SD-WAN

Junio 25

Los ambientes actuales demandan visibilidad

Disponibilidad, desempeño, costo, seguridad, cumplimiento son algunas de las variables que requieren visibilidad y monitoreo



La visibilidad END-TO-END
Se complica pues cada solución integra su propio monitoreo



VMware vRealize®
Network Insight™

BROAD VISIBILITY

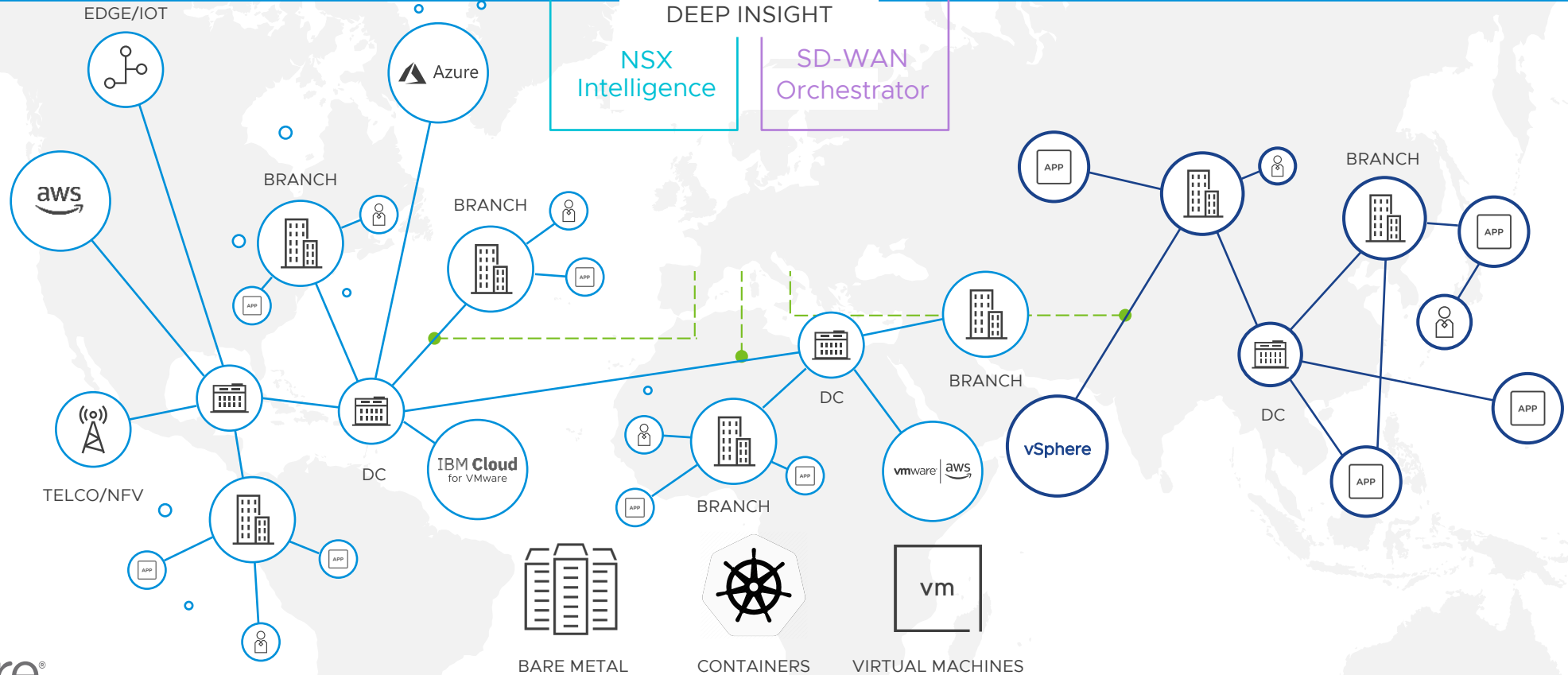


NSX

DEEP INSIGHT

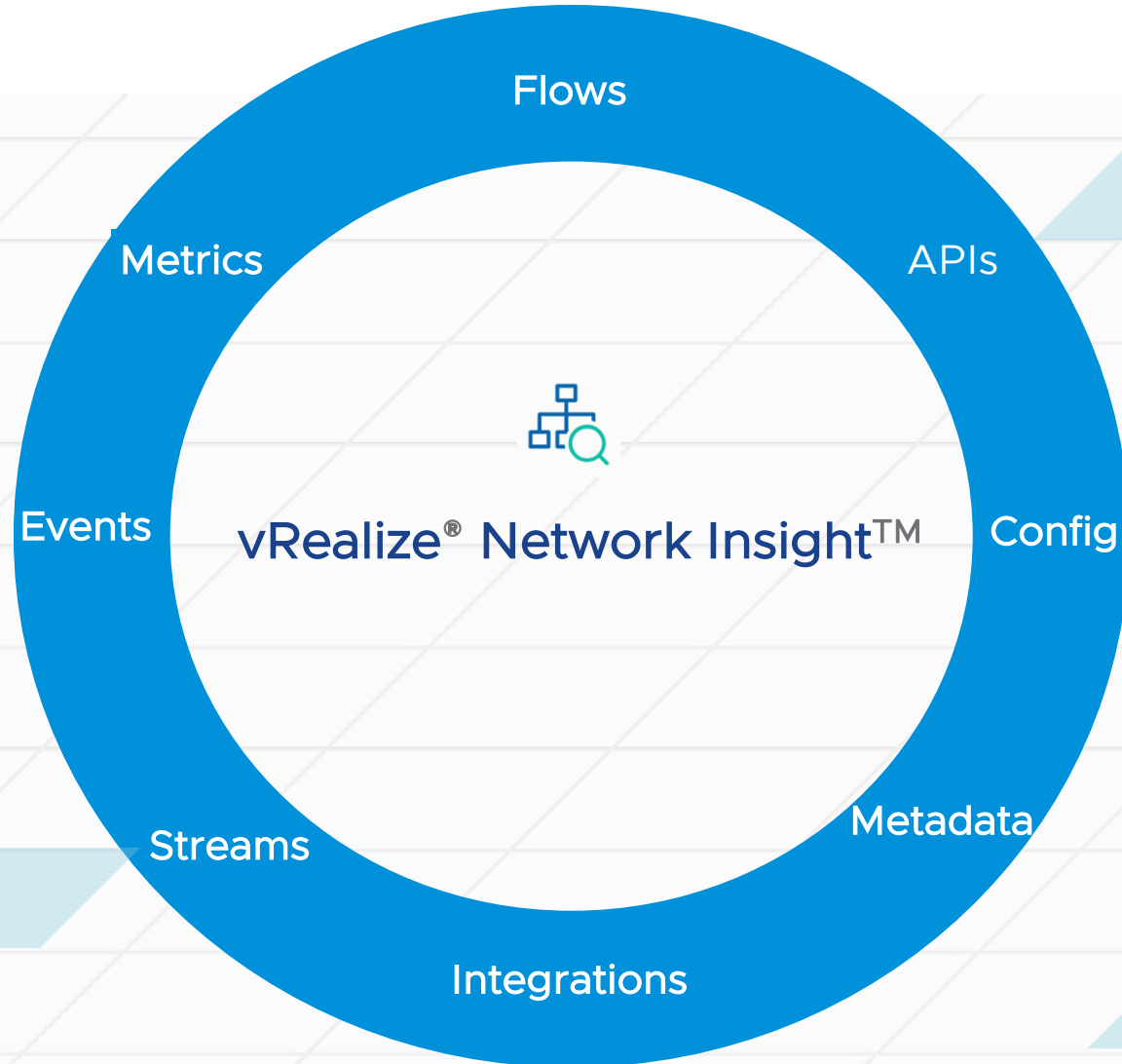
NSX
Intelligence

SD-WAN
Orchestrator



Plataforma de operación de redes y seguridad

End-to-end, Agentless, Scale out en Software y SaaS



Campus, Branch Offices,
VMware SD-WAN™
by VeloCloud®



Hybrid Cloud
Public Cloud



VMs, Containers,
Microservices, Applications



Data Center & Private Cloud,
vSphere, NSX, Switch, Router,
Firewall, Physical



Virtual Desktops, IoT

Aborda distintos casos de uso



Network Admin:

Visibilidad Overlay-Underlay
Comunicación Branch-DC-Cloud
Optimización de red



Infra/Cloud Admin:

Descubrir
Migrar
Conectar y asegurar



Network/Security Admin:

Planeación de la seguridad
Micro-segmentación
Auditoria y cumplimiento

Redes

Aplicaciones

Security

Operaciones de red y seguridad centrada en la Aplicación

Aplicaciones

Descubrimiento, modelado, visibilidad

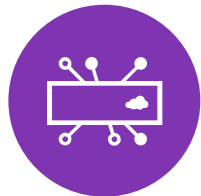
Redes

- Troubleshooting, Análisis, Topologías
- Desempeño y análisis de latencia de red*

Seguridad

- Visibilidad del tráfico por aplicación
- Operaciones, control de cambios, recomendaciones

vRealize Network Insight



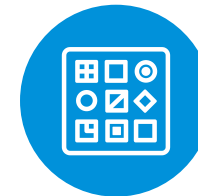
Branch and Edge
(VeloCloud)



Physical
(Switches, Routers,
Load Balancers
& Firewalls)



Virtual
(SDDC/NSX,
VCF)



Containers
(K8s, PKS, OpenShift)



Multi-cloud
(VMC, AWS, Azure)

Operaciones de red y seguridad centrada en la aplicación

The screenshot displays the VMware NSX Manager interface, which is application-centric. On the left, the 'Saved Applications' section shows a list of 78 applications, including frontend, infrastructure, and various business applications like CRM and 3TierApp02. A network topology diagram shows these applications connected to an Internet cloud. The main area features a 'Network Topology' view with a list of 28 events. The events are categorized by type, such as 'Console Access Pass...' and 'Reachability'. The topology diagram includes components like AWS Cloud, Google Cloud, Internet, NY, Dallas, PR-DC, and Backbone. A legend at the bottom identifies symbols for Internet, Gradation, Shared Services, Other Apps, Status Unknown, and Unprotected Apps.

Events (28)

Event Type	Count	Action	Duration
Console Access Pass...	6	Show all	6 min
Infrastructure L3 Switch Console...			6 min
Console Access Pass...	6	Show all	6 min
Infrastructure L3 Switch Console...			6 min
Reachability	2	Show all	6 min
Reachability event occurred for...			6 min
Console Access Pass...	6	Show all	8 min
Infrastructure L3 Switch Console...			8 min
Console Access Pass...	6	Show all	2 days
Infrastructure L3 Switch Console...			2 days
Console Access Pass...	6	Show all	3 days
Infrastructure L3 Switch Console...			3 days
Console Access Pass...	6	Show all	3 days
Infrastructure L3 Switch Console...			3 days

Casos de uso

VMware vRealize® Network Insight™

Casos de uso de vRealize Network Insight



Redes



Aplicaciones



Seguridad

App Discovery
Micro-Seg y Compliance
App Migration
Network Performance Monitoring and Diagnostics (NPMD)
Multi-Cloud (VMC, AWS and Azure)
VMware SD-WAN™ by VeloCloud®
Kubernetes Containers

Descubrimiento de Aplicaciones

Applications, Flows, Policy & Network

Discover Apps

- Naming Convention, Tags, CMDB, Security Tags, Security Groups, or auto discovery by ML on flows.

Curate/Approve

- Add physical end points
- Save → Auto-Baseline

Operate

- Security: Traffic Analysis, Planning, Audit
- Troubleshooting: App and Topology
- Analytics: Top Flows, Latencies, Anomalies

The screenshot displays the VMware NSX Discover Applications interface. At the top, there are tabs for 'Saved Applications' and 'Discovered Applications'. Below these are filter tabs: 'Tags', 'Name', 'Service Now', and 'Custom'. A search bar contains the text: 'Look for all VMs where Applications are defined by Name matching expression (*):*:*: and Tiers are defined by Name matching expression *::(*):*:'. A 'Modify' button is to the right.

The main area is split into two parts. On the left is a network topology map showing a central node connected to several other nodes, all represented by hexagonal shapes. On the right is a table of discovered applications.

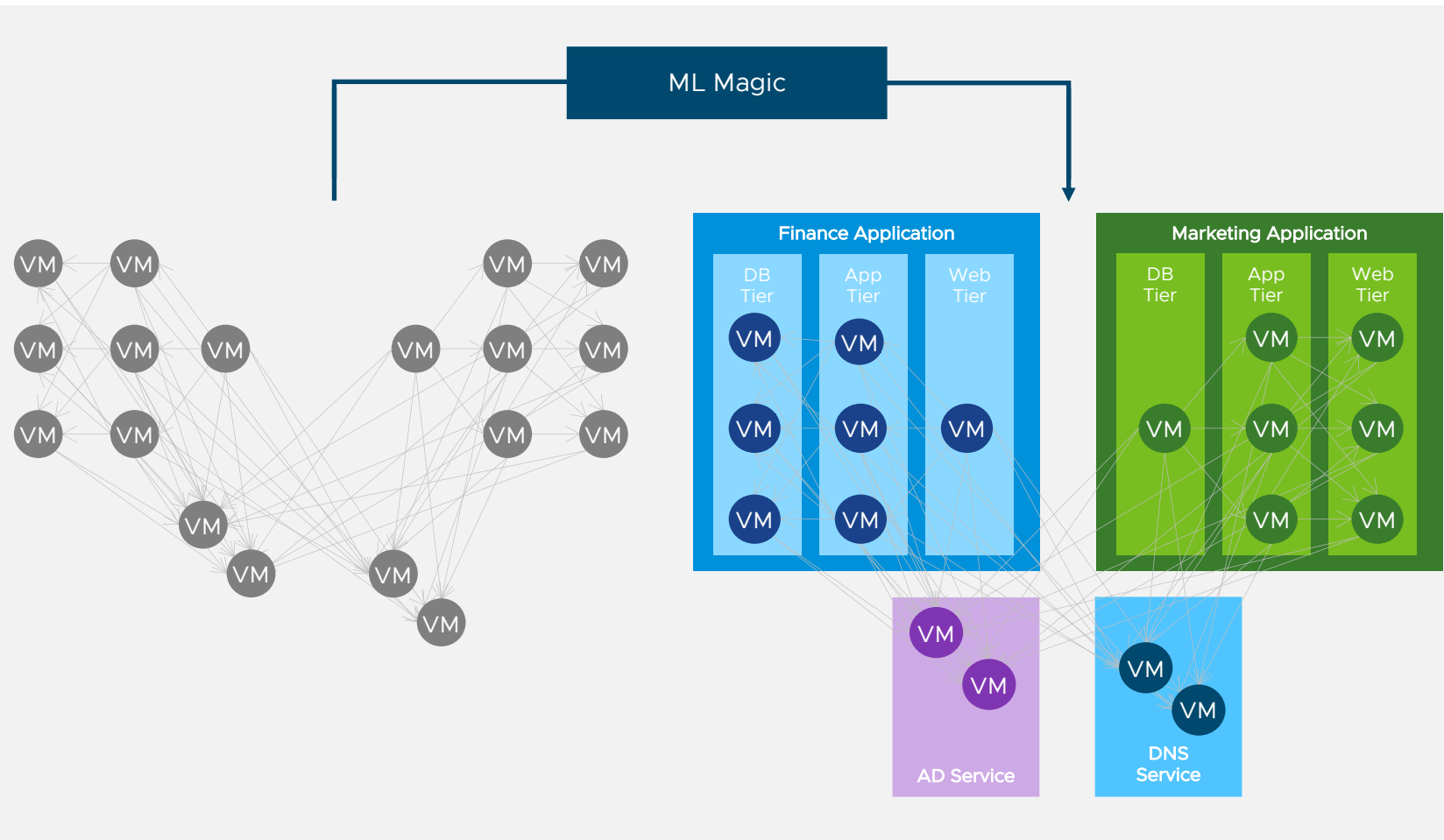
Application Name	Protected Flows	Dropped Flows	# of Tiers	# of Members
App-1415	0	3	2	8
App-40	0	363	2	8
App-120	0	23	2	8
App-24	0	214	3	8
App-104	0	390	3	8
App-119	0	32	2	7
App-114	0	104	3	7
App-61	0	30	3	7
App-66	0	8	3	7
App-137	0	14	2	7
App-161	0	0	2	7
App-131	0	95	3	7
App-25	0	115	2	7

Below the table, there is a detailed view for 'App-131' showing its tiers and definitions:

Tier	Me...	Definition
be	2	(name) and ((name matches '{App-131}:::*') and (n;
web	2	(name) and ((name matches '{App-131}:::*') and (n;
db	3	(name) and ((name matches '{App-131}:::*') and (n;

Descubrimiento basado en flujos

Using Machine Learning on Traffic Patterns



Outcomes

- Automatically discover application boundaries without any input.
- Keep application definitions up to date when new VMs are added.

Benefits

- Discover all applications in hours, not days/weeks.
- Complete your CMDB with actual application behavior.
- Reliable application groupings based on network traffic.

Micro-segmentación basada en aplicaciones

NSX

1

Assess current environment



FREE Virtual Network Assessment Available!

2

Deploy NSX Data Center



NO changes to your current physical network!

3

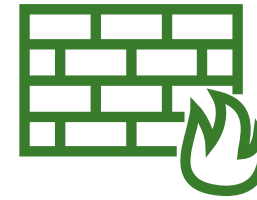
Identify Application Boundaries



Discover services, applications and their boundaries!

4

Get Recommended Firewall Rules



NSX Firewall IPS/IDS helps provide application level rules!

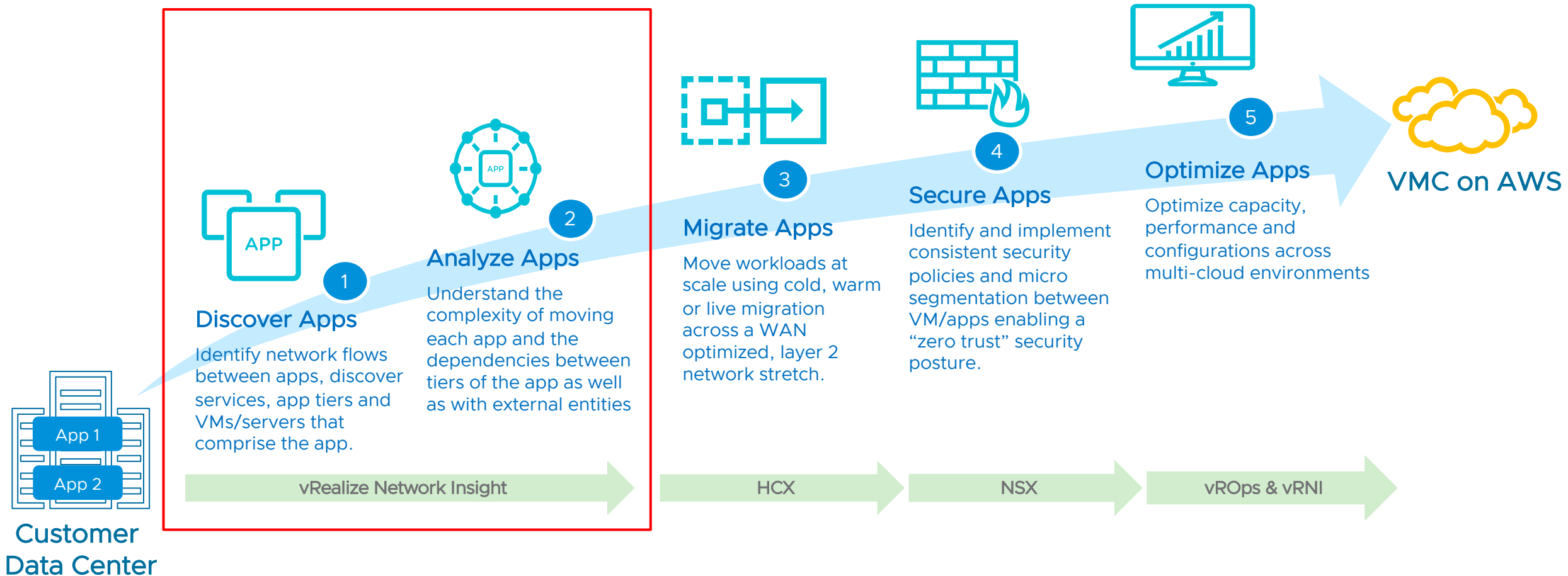
5

Repeat, Monitor, Troubleshoot



Deploy micro-segmentation starting with most critical apps first!

Migración de Aplicaciones



Cumplimiento

PCI sections covered - This dashboard provides data to help assess compliance against below PCI requirements in a VMware NSX environment [i](#)

- 1 Section 1.1.1 - A formal process for approving and testing all network connections and changes to the firewall and router configurations.
- 2 Section 1.1.2 - Network diagram that identifies all connections between the data environment and other networks.
- 3 Section 1.1.3 - Network diagram that shows all data flows across systems and networks.
- 4 Section 1.1.4 - Requirements for a firewall at each Internet connection and between any demilitarized zone (DMZ) and the internal network zone.
- 5 Section 1.3.1 - Implement a DMZ to limit inbound traffic to only system components that provide authorized publicly accessible services, protocols, and ports.
- 6 Section 2.3 - Encrypt all non-console administrative access using strong cryptography.
- 7 Section 6.4 - Follow change control processes and procedures for all changes to system components.

Clear text protocol flows (Section 2.3) [i](#)



4 Flows

Jul 03, 12:05 - Jul 04, 12:05

172.16.25.25(3TierApp02-LB-App) -> 172.16.20.21(3TierApp02-App-VM01) [port:80]

Total Flow Traffic: 1.7 GB

Network Traffic Rate: 169.5 kbps

Protocol

TCP

Source VM

3TierApp02-LB-App

Destination VM

3TierApp02-App-VM01

PCI Compliance

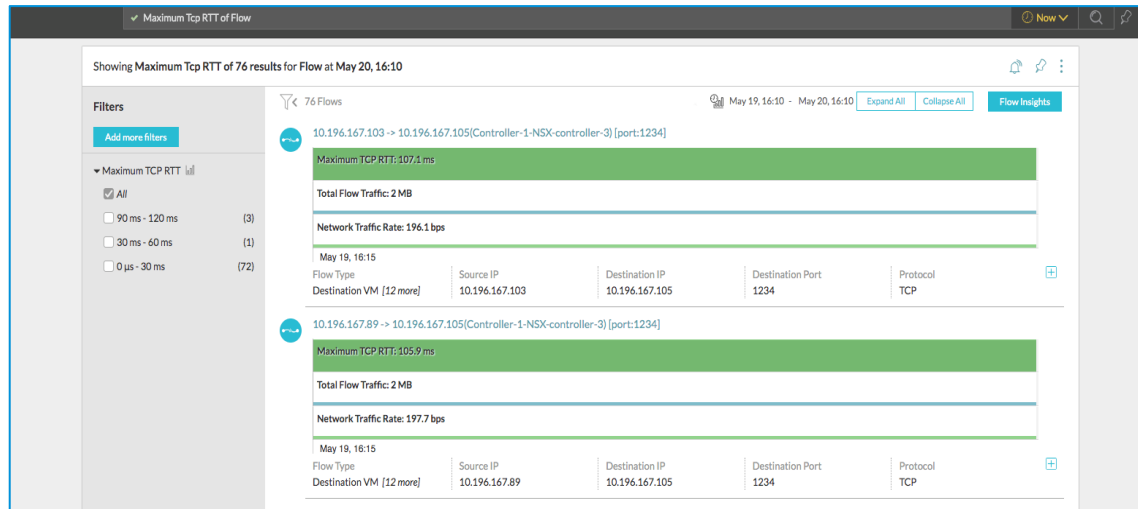
Scope

Duration

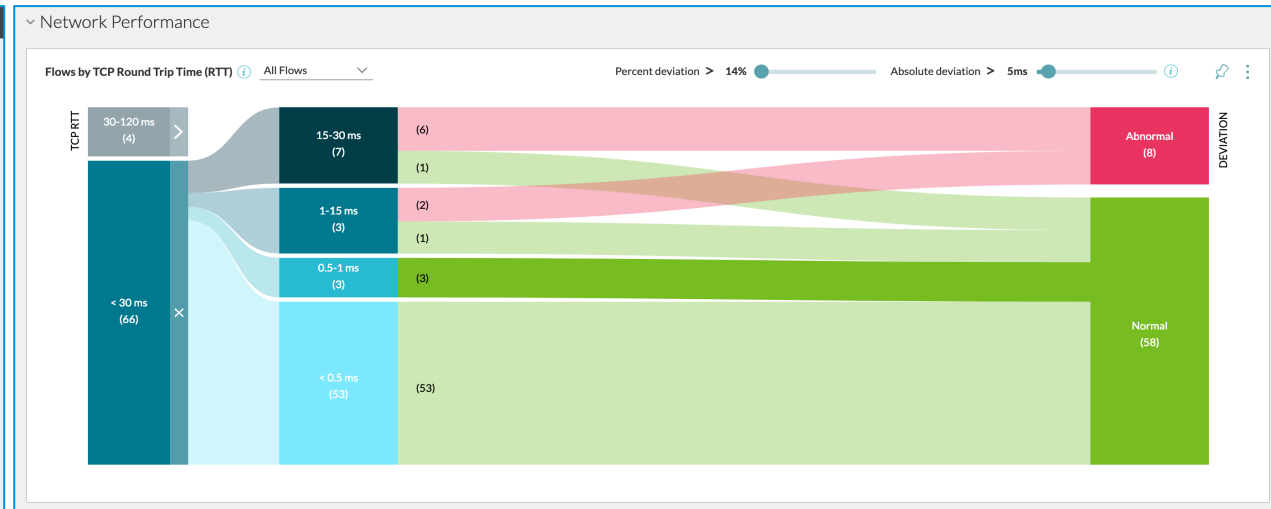
- Application
- Cluster
- Datacenter
- Resource Pool
- Security Groups
- Security Tag
- vCenter
- Virtual Machine name like
- VLAN
- VXLAN
- NSX-T L2 Network
- NSX Policy Segment

Desempeño y diagnóstico de la red

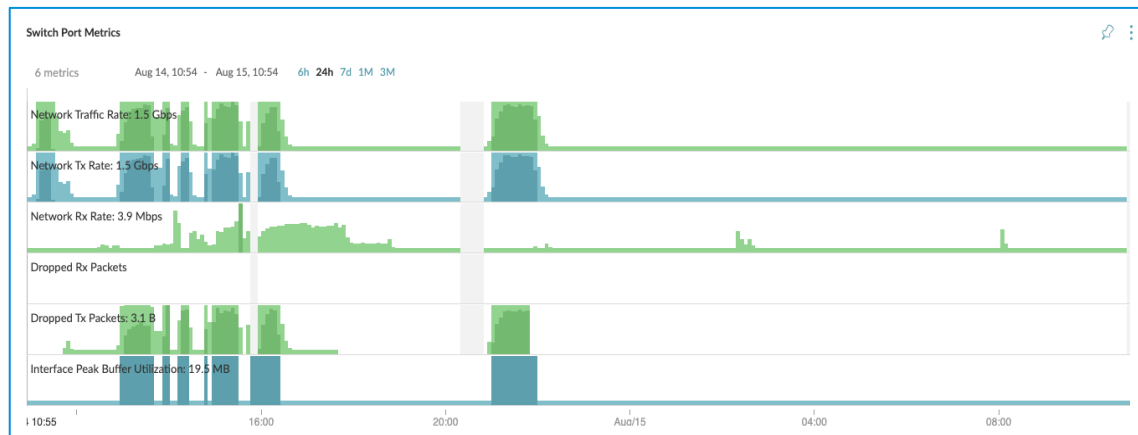
Métricas RTT por flujos



Detección de anomalías en flujos



Métricas de Latencia



Metrics Metrics of VMs on this host Host Metrics Network Latency per pNIC Network Latency Details

pNIC to vNIC Laten...

VM	PNIC	VNIC	pNIC to vNIC Latency	Max pNIC to vNIC Latency
VM-2	[10.196.167.88]-[vmmnic1]	[VM-2]-[Network adapter 1]	74.3 μs	2.0 ms
VM-1	[10.196.167.88]-[vmmnic1]	[VM-1]-[Network adapter 1]	74.6 μs	1.9 ms
VM-11	[10.196.167.88]-[vmmnic1]	[VM-11]-[Network adapter 1]	76.2 μs	253.0 μs
Edge-1-0	[10.196.167.88]-[vmmnic1]	[Edge-1-0]-[Network adapter 1]	52.0 μs	104.0 μs

Integración con vRealize Operations

The screenshot displays the vRealize Operations Manager interface. The top navigation bar includes 'vm vRealize Operations Manager', 'Home', 'Dashboards', 'Alerts', 'Environment', and 'Administration'. The main content area is titled 'ESG-02-Load' and shows a 'Summary' tab. A 'Recommended Actions' section features a donut chart with '1 Objects' and a legend for alert severity: Critical (0), Immediate (1), Warning (0), Normal (0), and Unknown (0). Below this is a table of alerts:

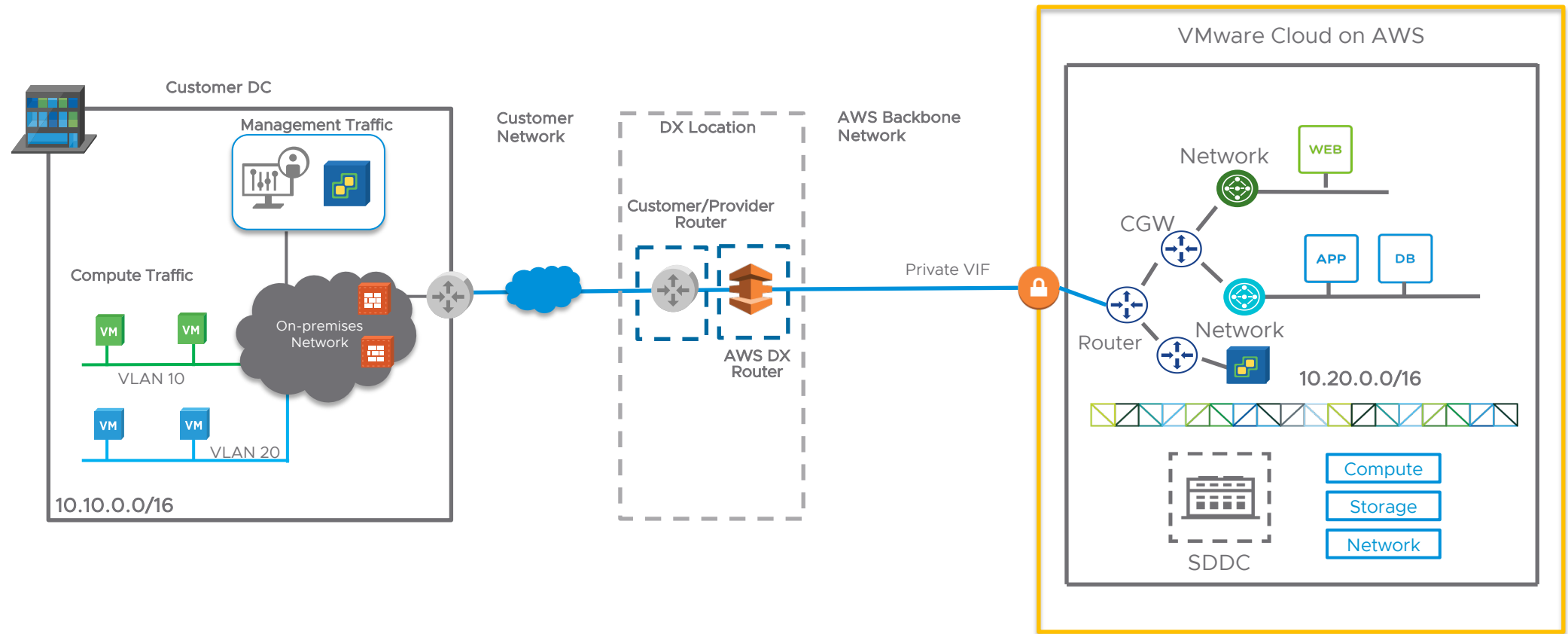
Name	Alert	Alert Type	Alert...	Time	Suggested Fix	Action
ESG-02-Load	High Availability is not enabled on the Edge	Network Alerts	Co...	3/25/...	Enable High Availability o...	
ESG-02-Load	vRNI-OSPF is enabled on the NSX Edge, but Interface to OSPF area mapping configuration is missing	Network Alerts	Co...	3/25/...	Configure the OSPF to int...	
ESG-02-Load	vRNI-High Availability is not enabled on the	Network Alerts	Co...	3/25/...	Enable high availability ...	

The right sidebar shows the object details for 'ESG-02-Load' (Object Type: NSX-vSphere Edge) with resource usage metrics: CPU|Provisioned: null, CPU|Used: 98.2 MHz, Disk|Provisioned: null, Disk|Used: null, Memory|Provisioned: null, Memory|Used: null.

- Objetos soportados:
 - Virtual Machine
 - NSX-v Edge
 - NSX-v Controller
 - NSX Manager
 - vSphere Host
 - vSphere Cluster
 - NST-T en próximas versiones

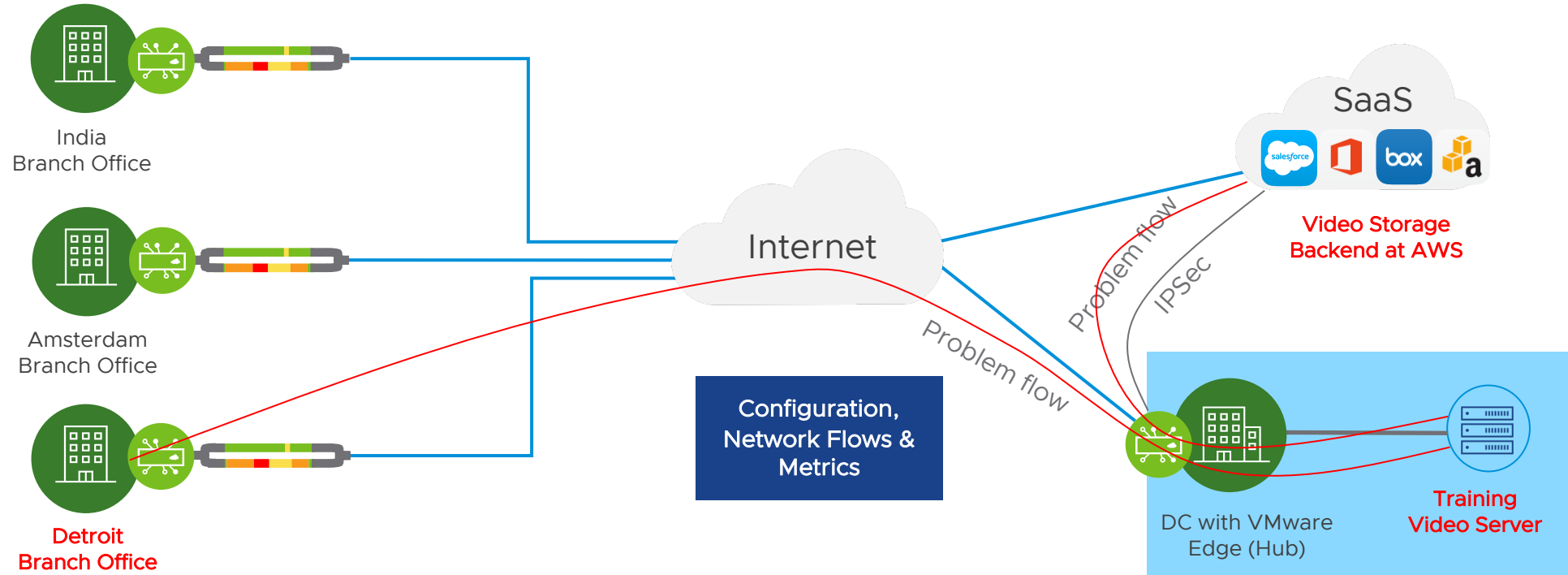
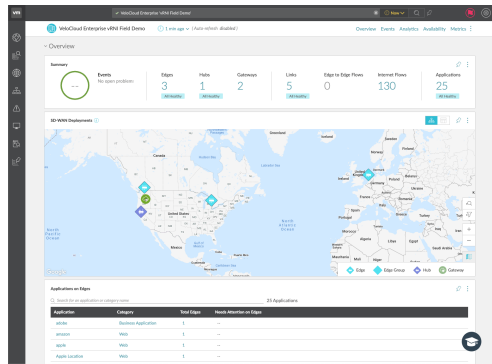
VMware Cloud on AWS – Direct Connect

End to End Visibility - across on-premises to VMC SDDC



Visibilidad de SD-WAN by VeloCloud

vRealize® Network Insight™



Application Availability

Dashboards: Applications (L7 detection), Sites, Edges, Hubs,

Flow Analysis

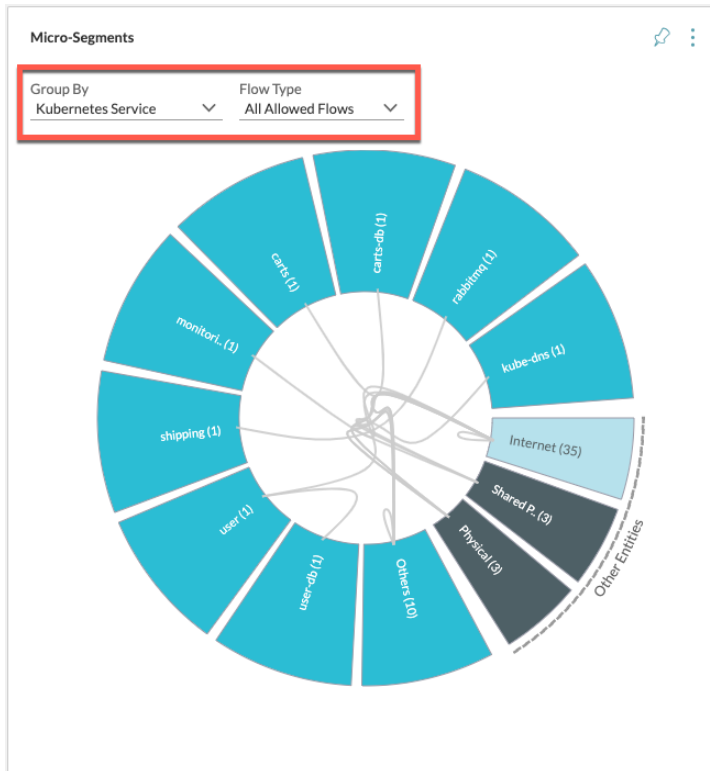
Quality of Experience
Application Usage
Top Edges
Bad Links

Full Path Visibility

Plot out topologies between Edge to the Data Center or to the Cloud
Visualize all network components and identify potential issues.

Visibilidad en entornos Kubernetes

Bring network visibility to containers



Plan security policies for micro-services

The 'Services and Flows for orders' dashboard displays the following summary statistics:

- Services in this group: 2
- External Services Accessed: 13
- Flows (Incoming and Outgoing): 17
- Recommended Firewall Rules: 8

The 'Recommended Firewall Rules' table is as follows:

Source	Destination	Services	Protocols	Action	Related Flows	Export as CSV	Export as YAML
<input checked="" type="checkbox"/>	orders	user	80 [http]	TCP	ALLOW	0	<input type="checkbox"/>
<input checked="" type="checkbox"/>	orders	carts	80 [http]	TCP	ALLOW	0	<input type="checkbox"/>

Connect the dots between containers and virtual & physical infrastructure

The 'Kubernetes Pods' details for 'catalogue-db-66ff5bbbf5-ltxfn' are as follows:

Component	Value
NSX Manager	192.168.111.8
Kubernetes Cluster	prod-cluster
Kubernetes Namesp...	sock-shop
Kubernetes Services	catalogue-db
Kubernetes Node	9bc41255-6f9b-4944-8b97-ece533ad527b
IP Address	40.0.8.8
VM	vm-336caf8a-98ca-4efe-b363-ec14d5be773a
Host	192.168.111.37
Logical Port	pks-945e6889-b9fb-4b6e-a677-831f24e9a682-catalogue-db-66ff5bbbf5-ltxfn
Labels	name:catalogue-db [1 more]

VMware vRealize® Network Insight™ 5.2 + NSX-T 3.0

April 14, 2020 - Comprehensive End-to-End Visibility and Analytics

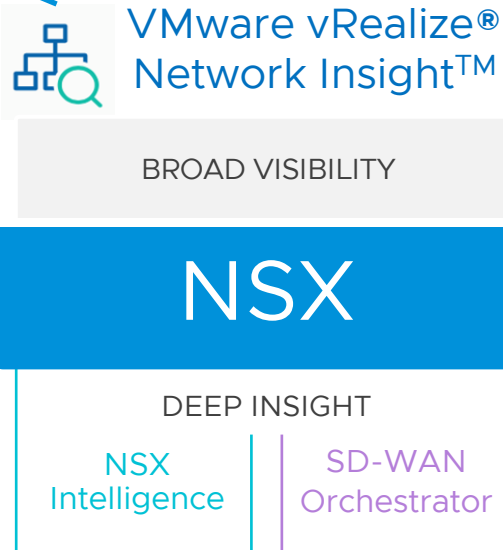
vmware®

Application Discovery

- Automatic Discovery of Applications using Machine Learning and Network Flows (in SaaS only)
- Troubleshoot in App Context, Plan Security, Migrate to Cloud

Enhanced End to End Visibility

- VMware Cloud on AWS Visibility with AWS Direct Connect
- VMware SD-WAN™ by VeloCloud® Application and Business Policy Statistics



NSX-T Troubleshooting and Day 2 Operation

- NSX-T 3.0 Support w/ 35+ Events and Alerts
- NSX-T Edge, Host and Management Node Dashboards
- NSX-T Host Transport Node Latency and Packet Drops

Integrations

- Integration with vRealize Operations (Network Info, Alerts, Events, Launch in Context)

Better Together

Cobertura e integraciones

Ambientes físicos y virtuales

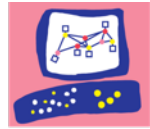
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CISCO™



Check Point®
SOFTWARE TECHNOLOGIES LTD



FORTINET®



kubernetes



RED HAT®
OPENS SHIFT



Pivotal
Container
Service™



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paloalto
NETWORKS

servicenow

vmware
NSX



Evaluación gratuita

VMware vRealize® Network Insight™

Realiza tu Virtual Network Assessment

vmware.com/go/vna

VMware Virtual Network Assessment Service

Powered By VMware vRealize Network Insight Cloud



What is VMware Virtual Network Assessment Service?

Take the VMware Virtual Network Assessment Service, for free insight into the security and network posture of your data center. Using this service, you can generate a report that will allow you to:

- **Quantify the security vulnerability in your environment by showing the East-West traffic percentage:** This is the percentage of traffic in your data center that's not protected by the perimeter firewall. Traditional approaches to securing a data center focus on strengthening the perimeter to protect from incoming threats – However in this instance, when the perimeter firewall is breached, hackers can magnify the scale of attack by compromising multiple hosts within the data center.
- **Quantify the scope for optimizing your data center network infrastructure:** The assessment gives you detailed percentages of traffic – whether it's switched, routed, going out to the Internet, within a host, or VM to VM. This information helps you to build an optimized network where frequently communicating VMs can be located together on the same Layer 2 network, or even the same host.
- **Identify anomalous behavior, top talkers and application communication patterns in your data center traffic:** Using this functionality, customers have reported detecting anomalous behavior such as hosts that were compromised for mining Bitcoins, anomalous traffic going out to unspecified counties, and others.



Virtual Network Assessment Service Overview Video



Quick How-To Video

Request Access to the VMware Virtual Network Assessment Service

Business Email



First Name



Last Name



Assessment para SD-WAN

Powered by vRealize Network Insight Cloud

VMware Cloud



vmware®

VMware SD-WAN Assessment Service

Powered By VMware vRealize Network Insight Cloud



What is VMware pre-SD-WAN Assessment Service?

Take the VMware pre-SD-WAN Assessment Service for insight into the benefits of running VMware SD-WAN™ solution by VeloCloud®. Using this service, a report will be generated that will justify migrating your traditional branch to an SD-WAN branch.

The VMware pre-SD-WAN Assessment will analyze configuration, metrics, and the flow patterns of the various branch offices and data center sites to estimate the cost savings that VMware SD-WAN™ by VeloCloud® can bring over their existing traditional WAN setup. The following insights present possible OPEX and CAPEX savings.

The assessment will give a breakeven time for the investment in SD-WAN based on your current branch WAN costs using data from 1 to 20 routers for the assessment and then extrapolating the calculation across all their branches.

The savings will automatically be calculated by incorporating an analysis based on WAN uplink costs, optimization and reduction of MPLS monthly costs, device savings with Dell routers, internet traffic rates, bandwidth utilization, packet drops, and application service analysis.

Benefits of taking the VMware SD-WAN Assessment Service:

Request Access to the VMware SD-WAN Assessment Service

Business Email ★

First Name ★

Last Name ★

Company ★

velocloud™
Now part of VMware

vmware

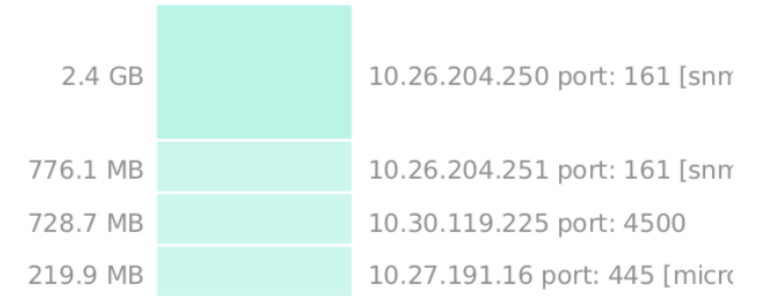
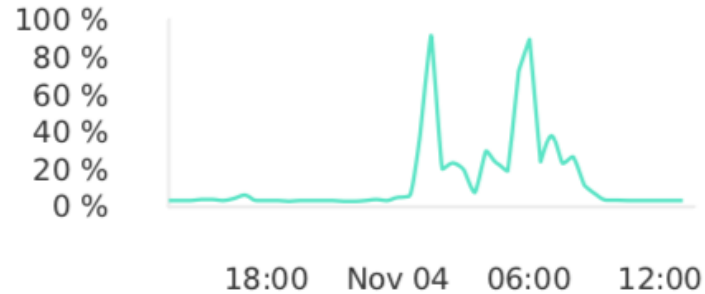
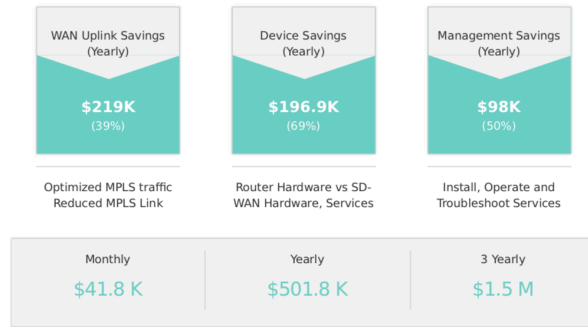


vRealize Network
Insight Cloud

<https://pages.cloud.vmware.com/vrni-sd-wan-assessment>

vRNI & SD-WAN Pre-Assessment

<https://pages.cloud.vmware.com/vrni-sd-wan-assessment>



ROI

- WAN link savings
- Device Savings
- Management Savings

Link Metrics

- Bandwidth Utilization
- Packet Drops
- Link Availability

Across MPLS and Internet links

Applications

- Top Applications
- Top Services

Across MPLS and Internet links

Recommendations

Site	Current BW Utilization	Current Top Applications	Edge-Type	Recommended BW Tier	Recommended Edition
Site 1	9 Mbps	Office 365	Edge 510	10 Mbps	Premium
Site 2	87 Mbps	Sales Force	Edge 510	100 Mbps	Premium
Site 3	173 Mbps	AWS	Edge 540	200 Mbps	Premium

30 day trial vRealize Network Insight Cloud

<https://cloud.vmware.com/network-insight-cloud#get-started>

Hands On Labs

<https://labs.hol.vmware.com/HOL/catalogs/catalog/1212>

Recursos adicionales

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Discover, Optimize and Troubleshoot App Security and Network Connectivity

VMware vRealize Network Insight helps you build an optimized, highly available and secure network infrastructure across hybrid and multi-cloud environments. It provides network visibility and analytics to accelerate micro-segmentation security, minimize risk during application migration, optimize network performance and confidently manage and scale NSX, SD-WAN, VeloCloud, and Kubernetes deployments.



vRealize Network Insight Overview (2:26)

Discover how vRealize Network Insight delivers intelligent networking and security operations from the data center to the cloud and to the branch.



vRealize Network Insight Cloud

Explore vRealize Network Insight Cloud, the SaaS version of the product, delivering full scale and feature parity, with support for SDDC, Amazon AWS, VMware Cloud on AWS, Microsoft Azure and VeloCloud by VMware.

[Access the Network Insight Service](#) >

Total Economic Impact of vRealize Network Insight

Forrester Consulting conducted a Total Economic Impact (TEI) study of vRealize Network Insight. Read what they uncovered.

[Download Forrester Study](#) >

vRealize Network Insight Summary of Benefits

Discover the benefits of vRealize Network Insight and visualize the cost and time savings that Forrester Consulting calculated.

[See Forrester Infographic](#) >

Contacts: vrni-tech@vmware.com





vRealize Network Insight Demo