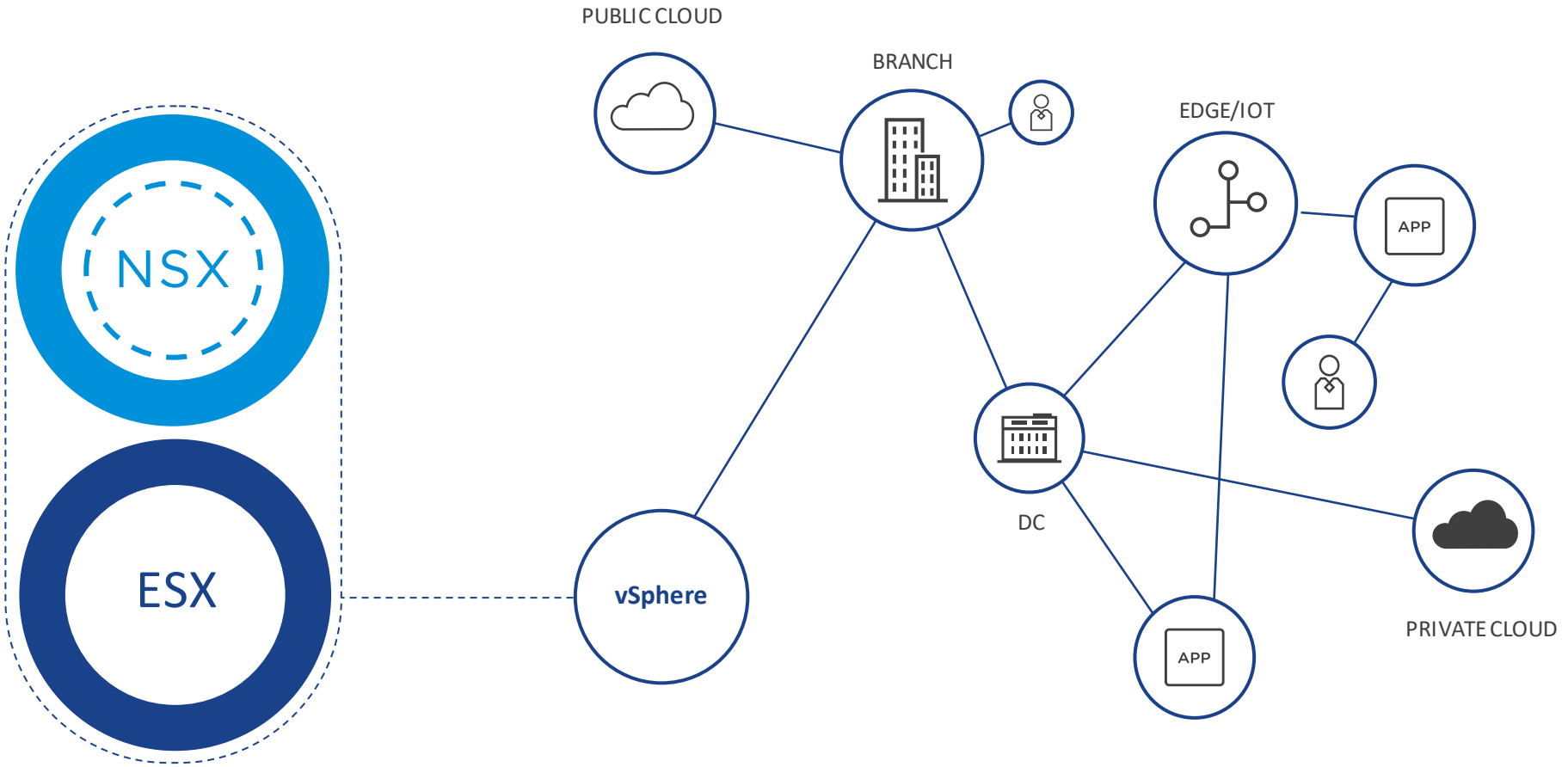
NSX-T Webinar

Agenda

- NSX-T and NSX-V
- Features Comparison
- Use Cases
- Architecture
- Introduction to Migration from NSX-V to NSX-T
- Q&A

NSX Evolution



Solutions Comparison

NSX for vSphere vs. NSX-T

NSX Dat

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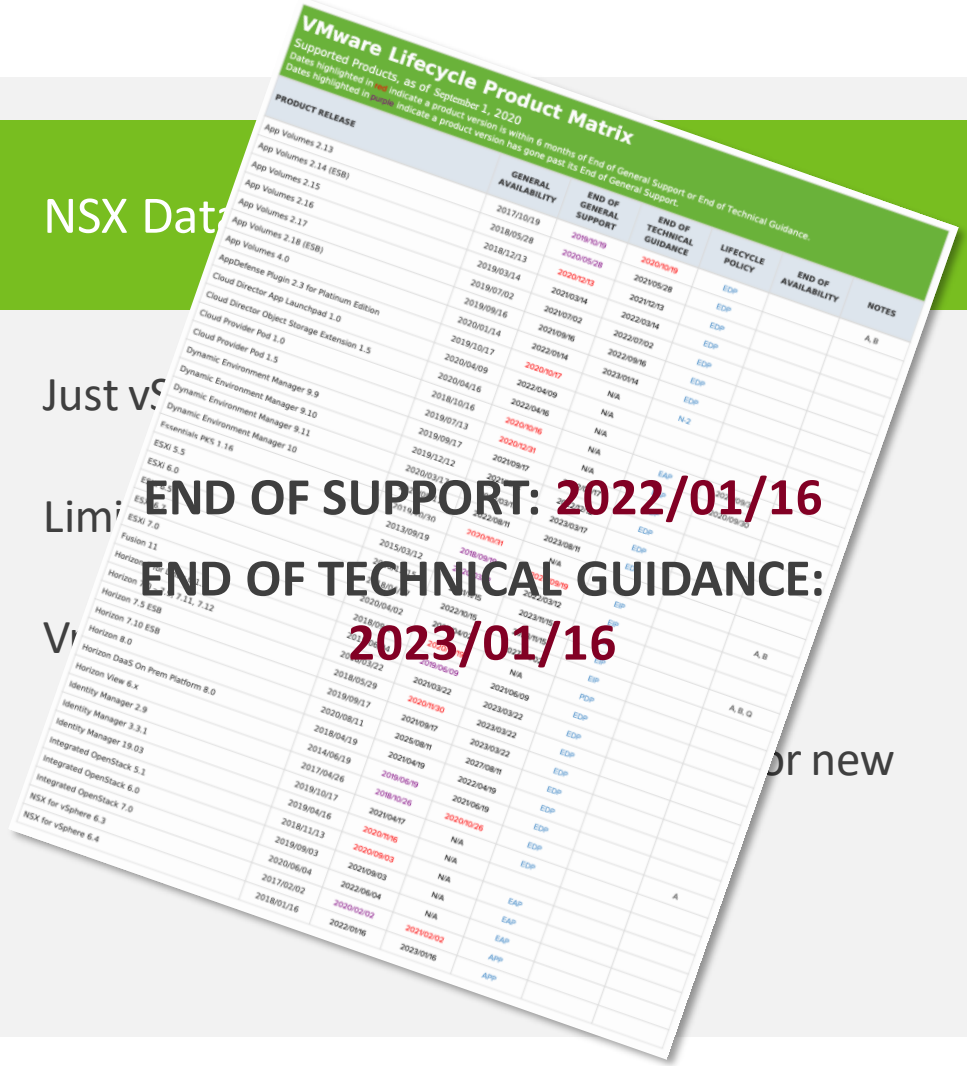
or new



END OF SUPPORT: 2022/01/16

END OF TECHNICAL GUIDANCE: 2023/01/16

NSX-T Data Center

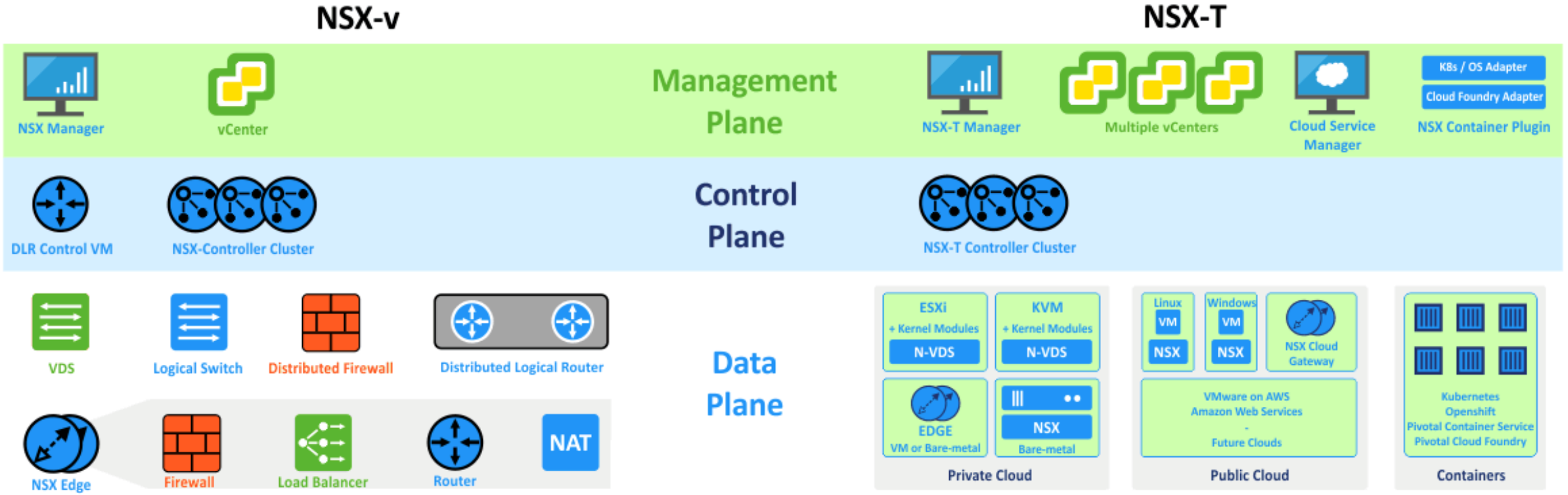
Na indenpendent product for security and networking

All types of workloads: virtual servers, containers, public cloud, bare metal

Development roadmap with hundreds of new features

Solutions Comparison

NSX for vSphere vs. NSX-T



NSX-V and NSX-T comparison

Functional Differentials

	NSX-V	NSX-T
Requires vCenter Server	Yes	No
Supports multiple vCenter Server instances	No	Yes
NSX Edge deployment options	VM only	VM or bare-metal
Overlay encapsulation protocol	VXLAN	GENEVE
Support for two-tier distributed routing	No	Yes

No DLR Control VM

Extreme Performance with DPDK Edge Nodes

Multi-Tier distributed routing

Advanced BGP Attributes

Multi-Tenancy can be realized on the same Edge Appliance (using different Logical Routers)

No dynamic routing protocol between distributed Router and Centralized Services

NSX-T 3.1 Feature Highlights

Deliver a Public Cloud experience in the Data Center

Architected for Cloud Scale

- Federation - High availability for DR sites, Terraform automation
- Multi-tenancy with Multicast

Simplified Cloud Operations

- vRNI – Configuration assurance and intent verification
- Faster Upgrades – Support for VMware Life Cycle Manager (vLCM)

Strengthen Defense

- Prevent threats with IPS functionality
- Network Intelligence – Visualization of physical servers, context correlation, Anomaly Detection*
- Certifications – FIPS compliant mode with vSphere 6.7 & 7.0

V2T Migration

- Support for vRA deployments
- Multi topology support
- Increased scale
- Migration coordinator enhancements

General Platform

Feature Comparison

Feature	NSX for vSphere	NSX-T
ESXi Support	☑	☑
KVM Support	☒	☑
Controller Clustering	☑	See next item
Manager Clustering (includes central control plane)	☒	☑
CDO	☑	N/A
Migration Coordinator (NSX-V to NSX-T)	Integrated in NSX-T	☑

Edge Platform

Feature Comparison

Feature	NSX for vSphere	NSX-T
Edge in VM Form Factor	☑	☑
Edge in Bare-Metal Form Factor	☒	☑
Edge DPDK Optimized Forwarding	☒	☑
Edge as Transport Node	☒	☑

Switching

Feature Comparison

Feature	NSX for vSphere	NSX-T
Distributed Switching	☑	☑
VLAN Backed Logical Switching	☑	☑
Overlay Backed Logical Switching	☑	☑
Multiple TEP/VTEP Support on ESXi	☑	☑
Multiple TEP/VTEP Support on KVM	☒	☒
Optimized ARP Learning and Broadcast Suppression	☑	☑
Overlay Encapsulation	VXLAN	GENEVE
Replication Modes	Unicast, Multicast, Hybrid	Unicast, Headend Replication
Spoofguard	☑	☑

Switching (continued)

Feature Comparison

Feature	NSX for vSphere	NSX-T
LACP	☑	☑
Load Balance Teaming Mode	☑	☑
NIOC v2	☑	Deprecated
NIOC v3	☑	☑
Private VLAN	☑	☒
MAC Learning	☑	☑
BPDU Guard	☒	☑
Guest VLAN Tagging	☑	☑
Enhanced Data Path – VLAN Backed Logical Switches	☒	☑
Enhanced Data Path – Overlay Logical Switches	☒	☑

Quality of Service

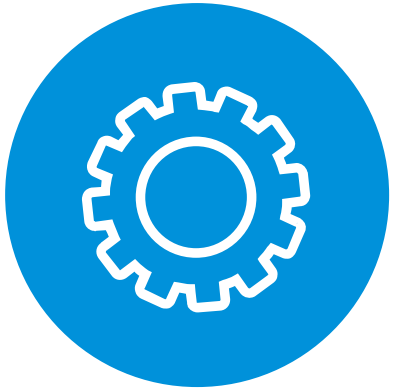
Feature Comparison

Feature	NSX for vSphere	NSX-T
QoS Marking	☑	☑
QoS DSCP Trust Boundary	☑	☑

NSX Data Center Use Cases

Security

Multi-Cloud Networking

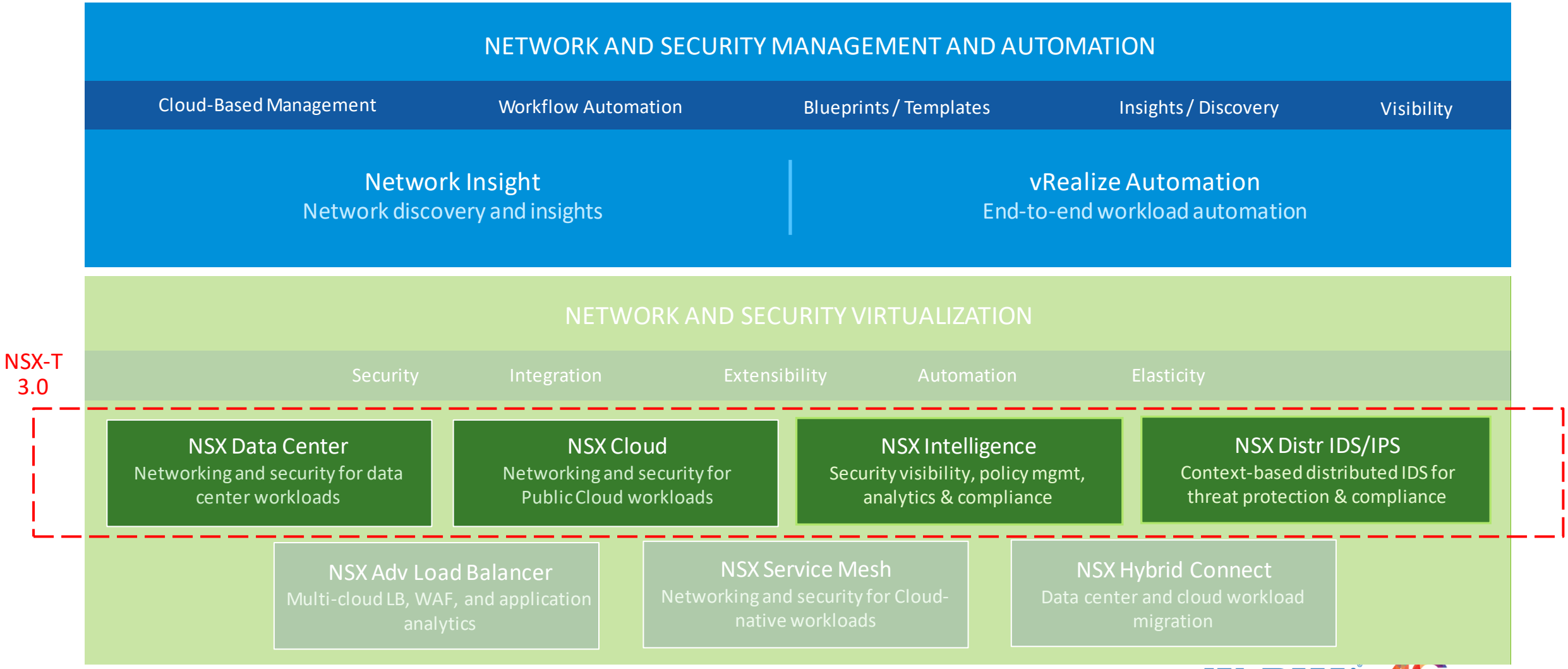


Automation

Modern Apps

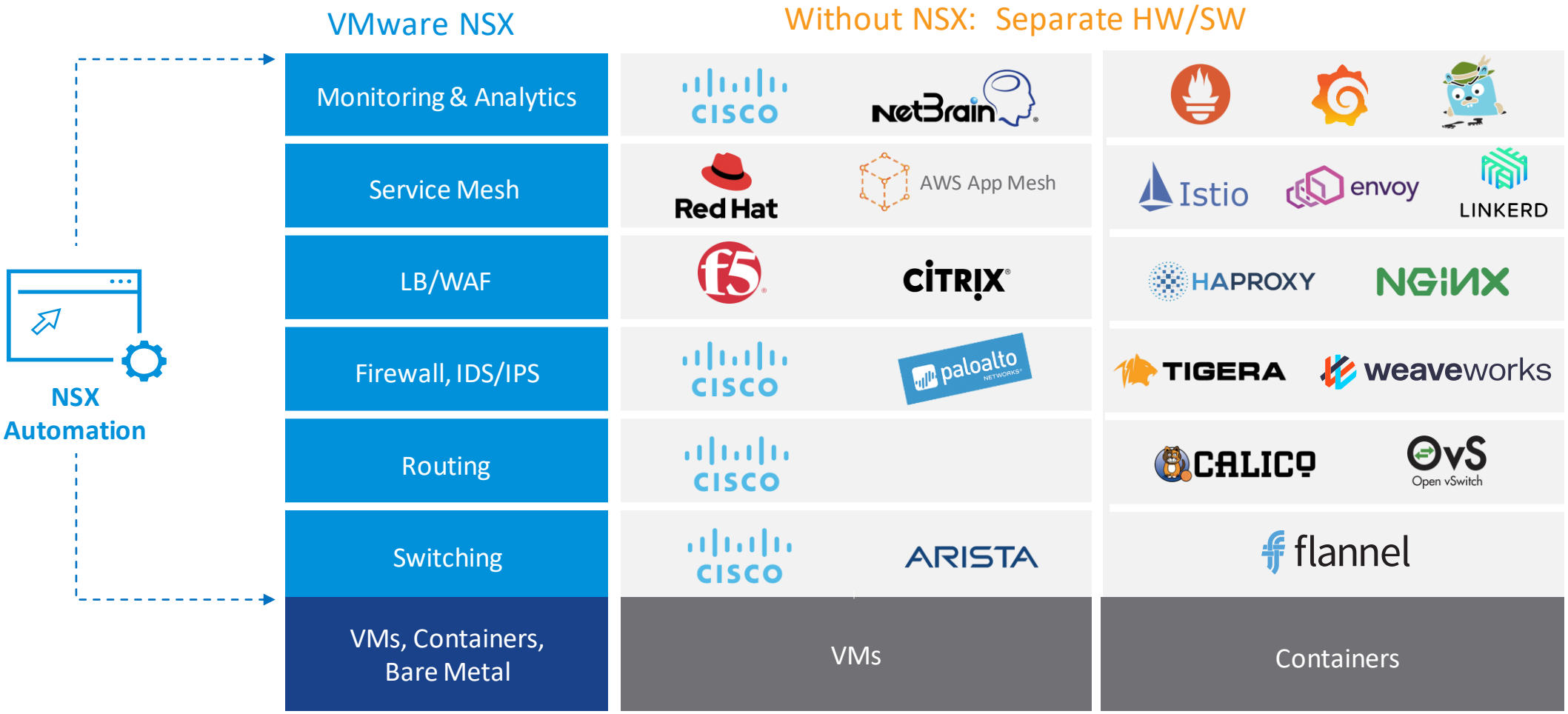
VMware NSX Portfolio

The Foundation of the Virtual Cloud Network



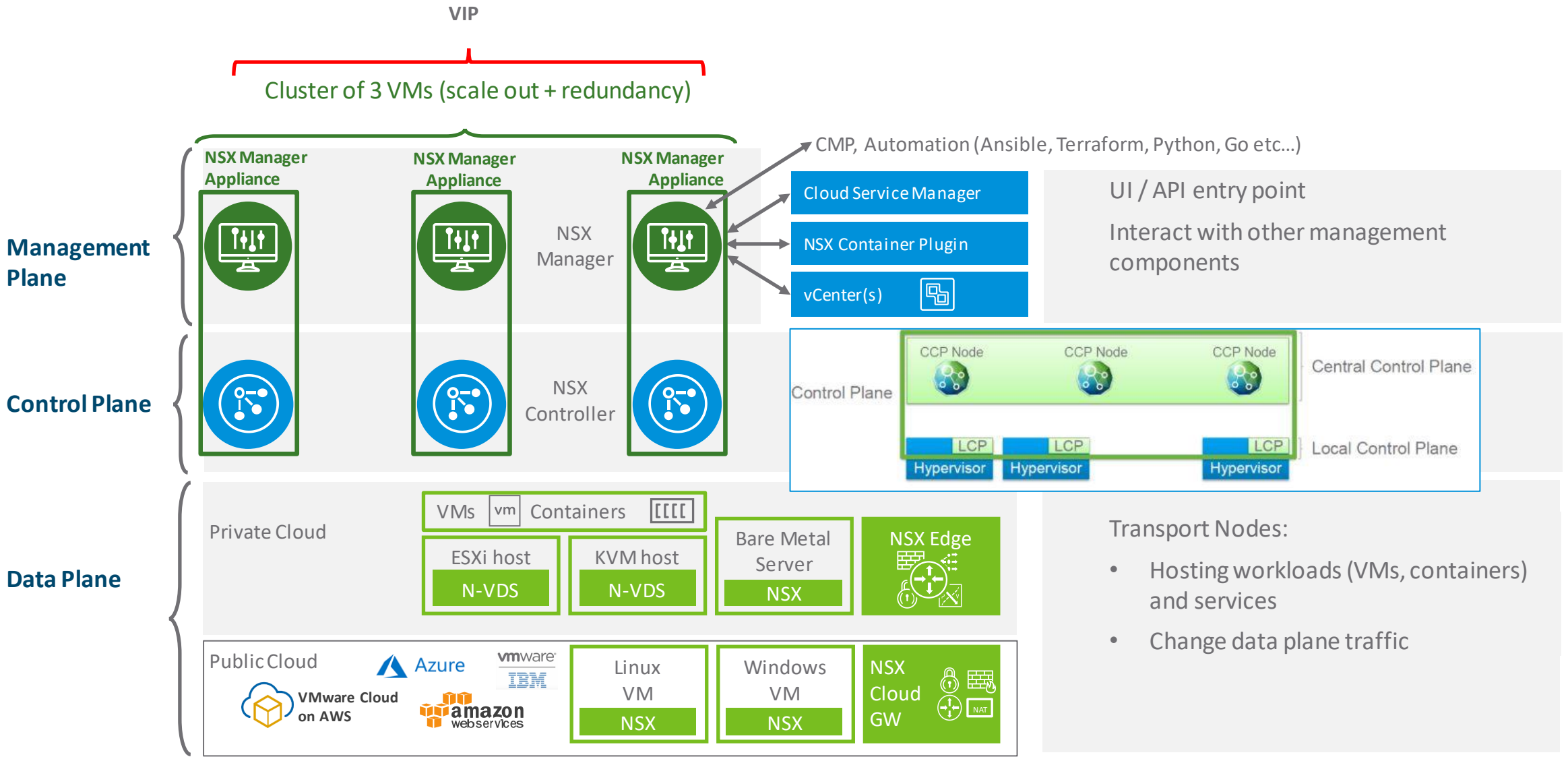
NSX Supports VMs, Containers, and Bare Metal Workloads

Full-stack Networking and Security from Data Centers to Cloud



NSX-T Architecture

NSX-T Components



NSX Architecture for Private Cloud, Public Cloud & Containers

MANAGEMENT PLANE

CONTROL PLANE

DATA PLANE

Private or Public cloud infrastructure

NSX Manager

Compute & Cloud Service Managers

NSX Container Plugin

K8s / OS Adapter

CloudFoundry Adapter

More...

NSX Central Controller Cluster

(VPN Gateway, DirectConnect, ExpressRoute)

N-VDS ESXi HV

N-VDS KVM HV

Multi-Hypervisor

NSX Edge VM or Bare Metal

Layer 2 Bridge

NSX Cloud Gateway

Linux VM

Windows VM

APP

APP

APP

Private Cloud

Public Cloud

Containers

Any Infrastructure

VMware Cloud on AWS

amazon web services

vmware IBM

Azure

vmware Cloud Provider Partner

VMware Tanzu

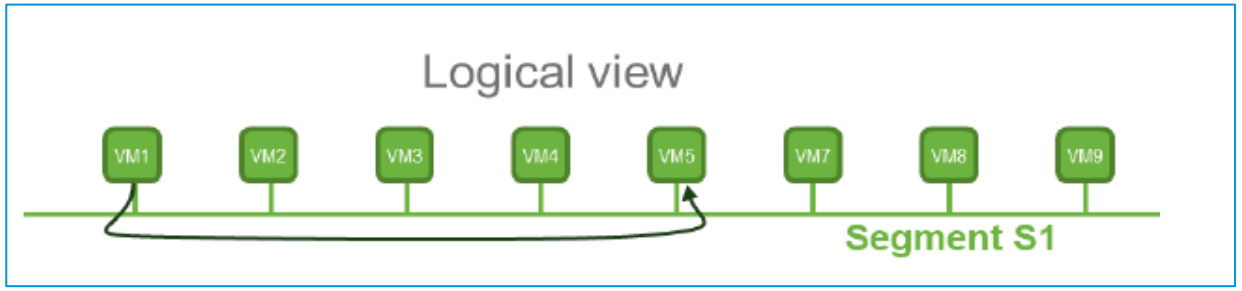
Pivotal Container Service

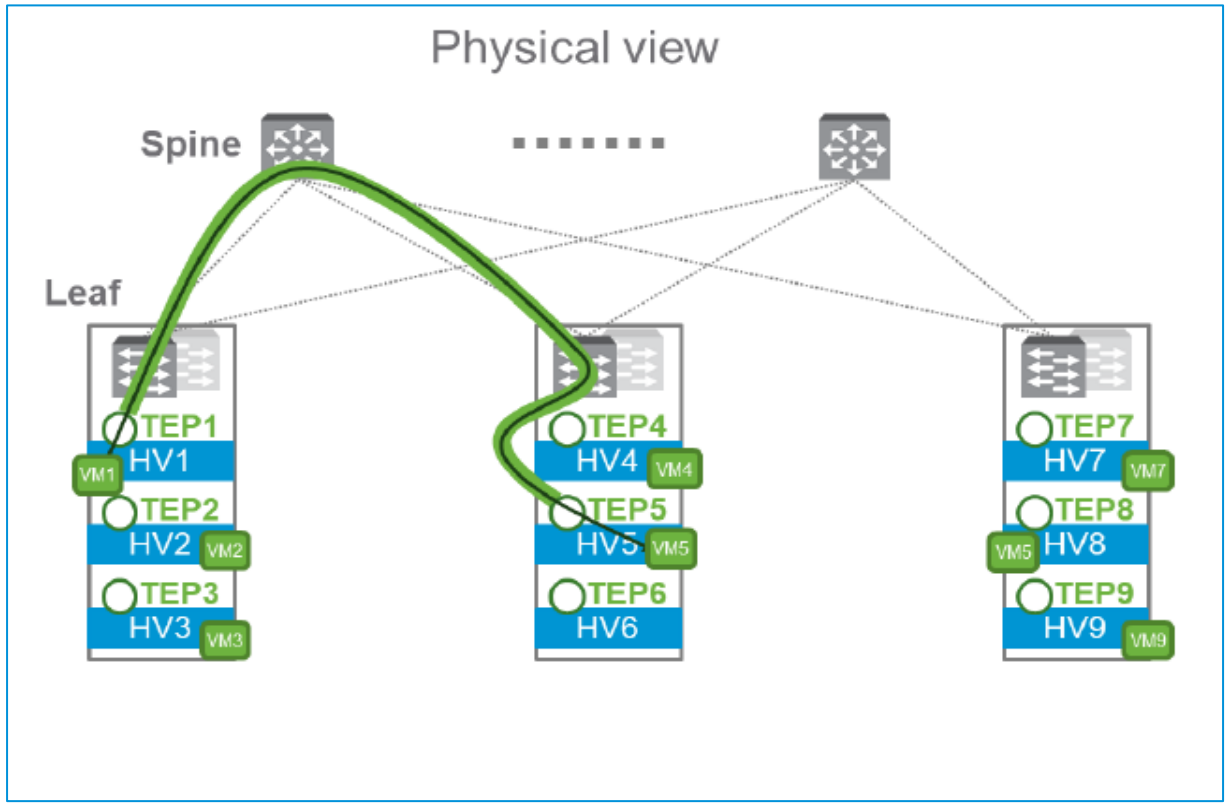
Pivotal Application Service

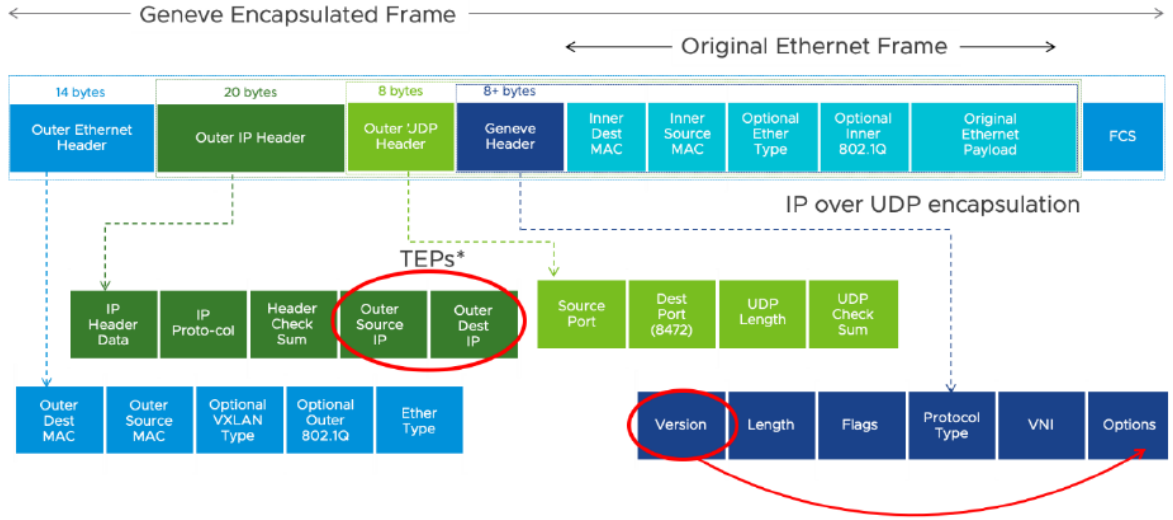
kubernetes

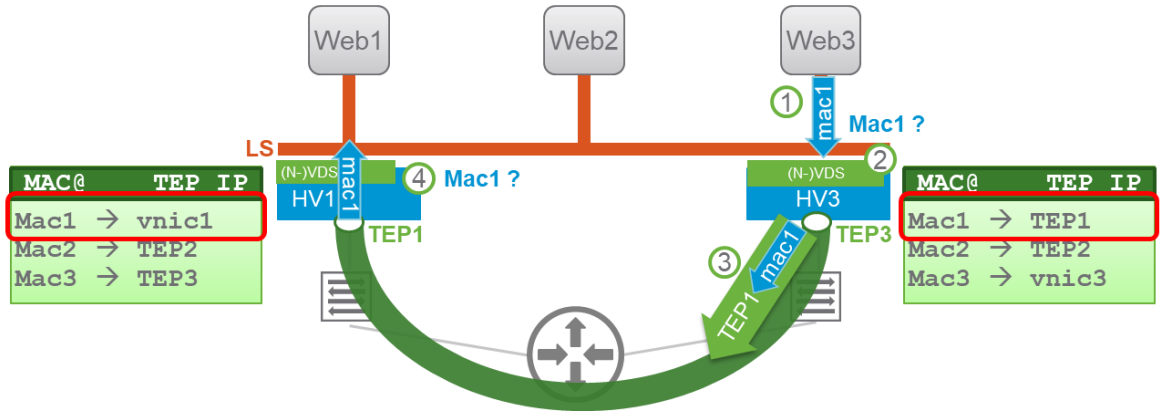
vmware

NSX-T Logical Switching



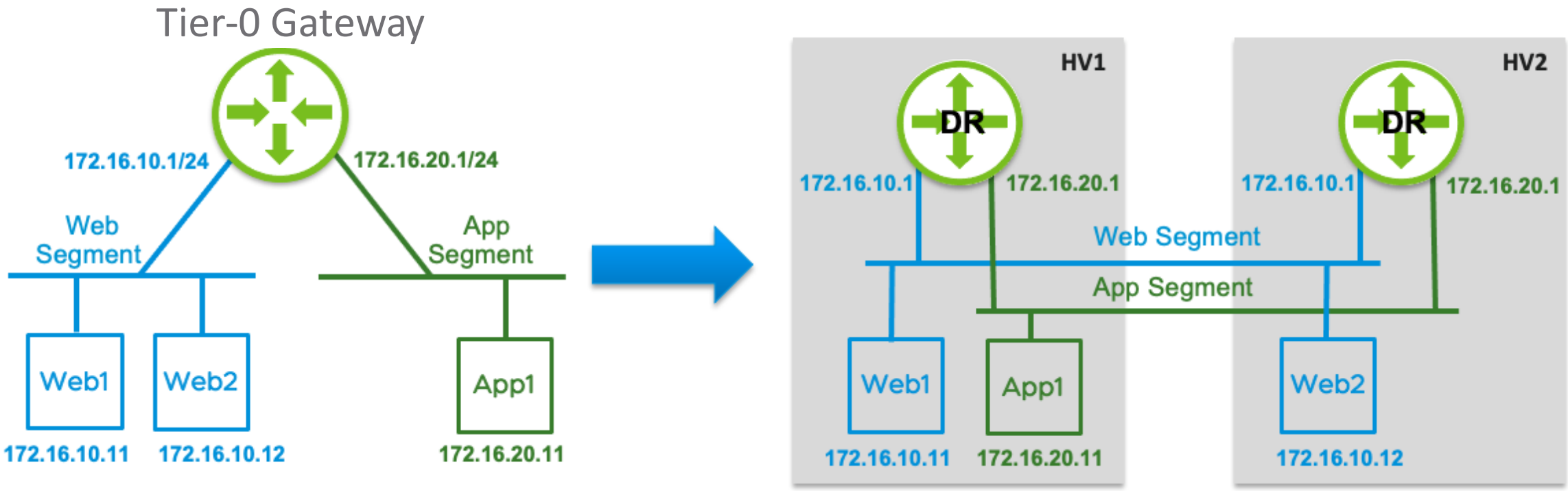






NSX-T Logical Routing

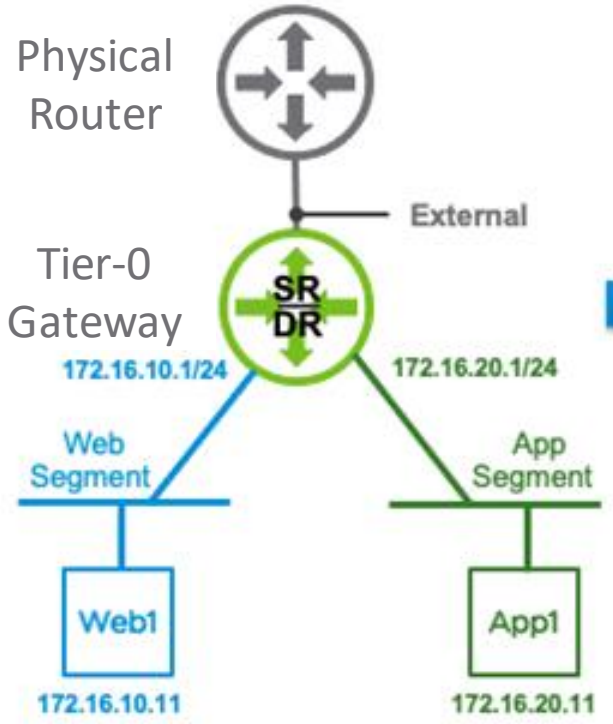
Distributed Router (DR)



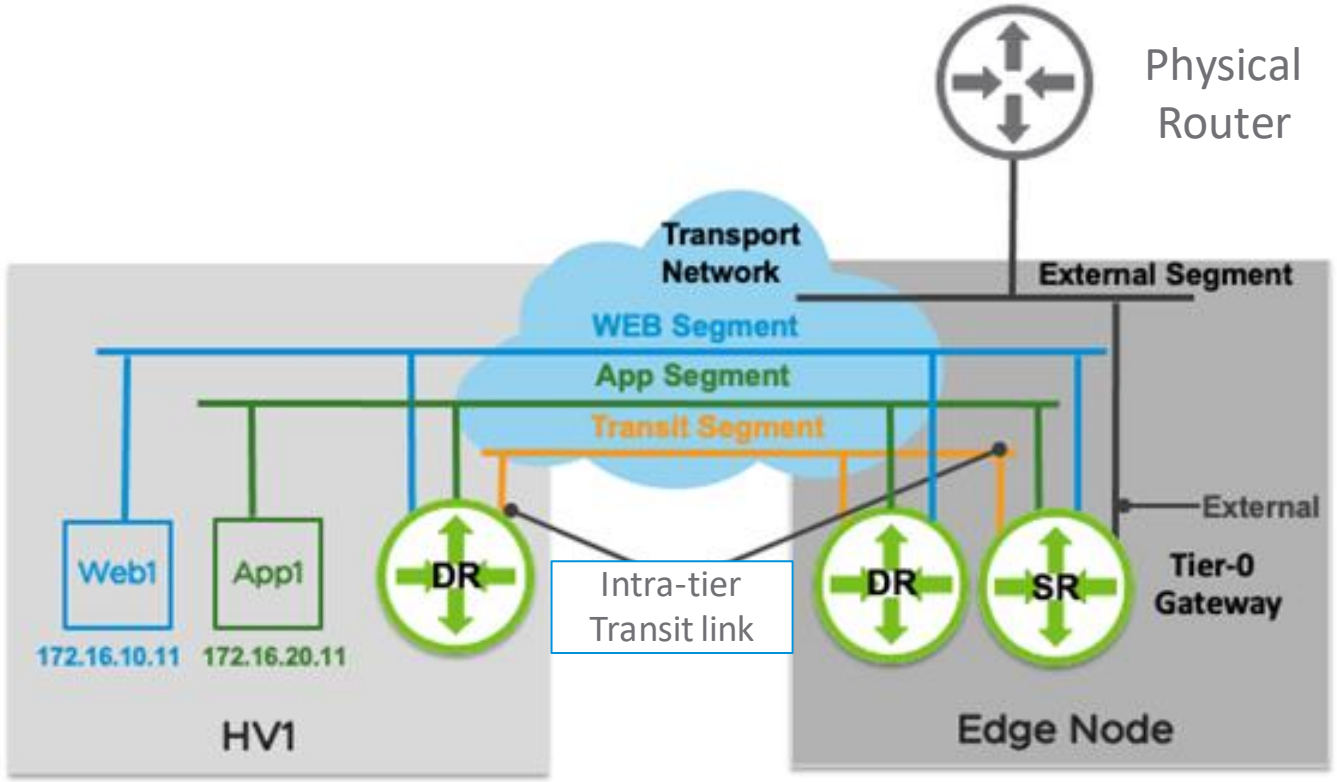
NSX-T Logical Routing

Services Router (SR)

Logical Topology

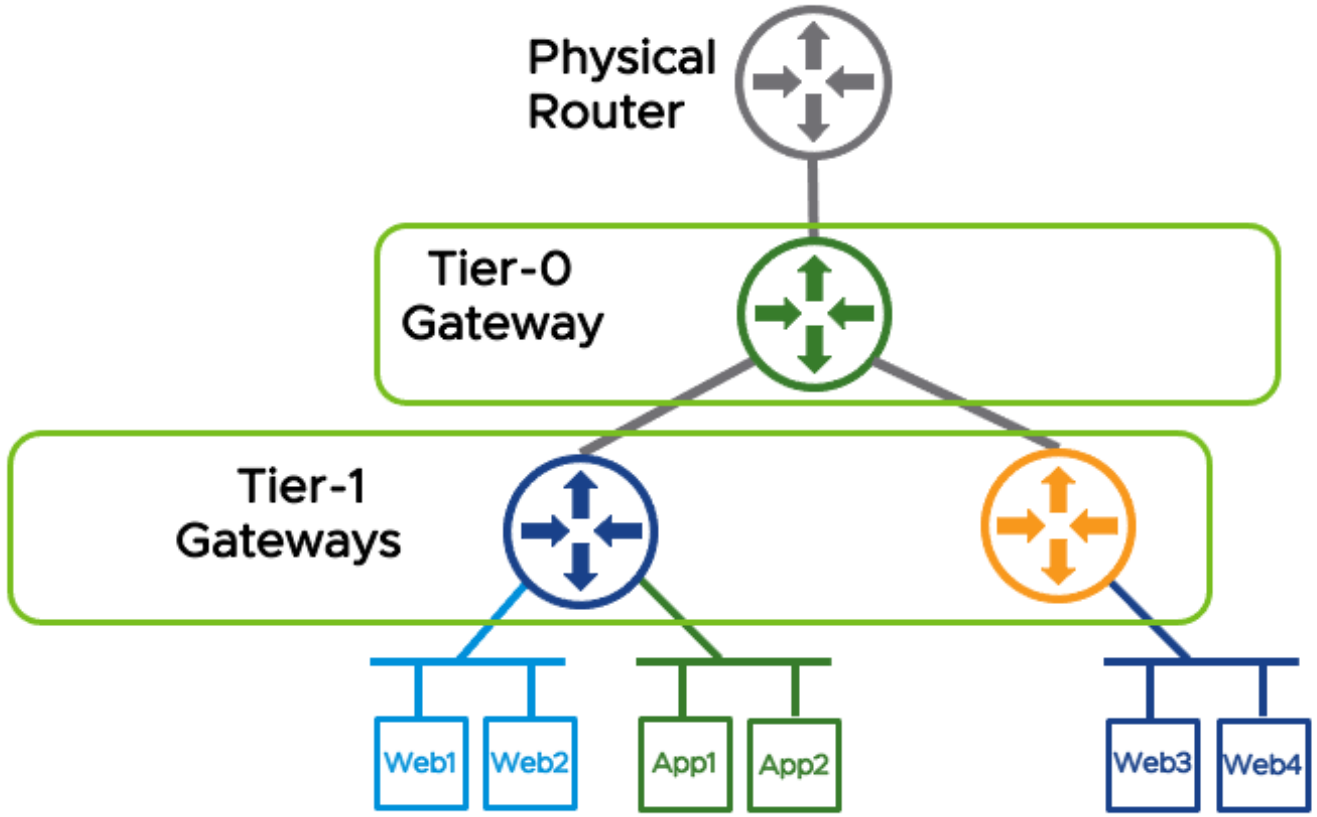


Physical Topology

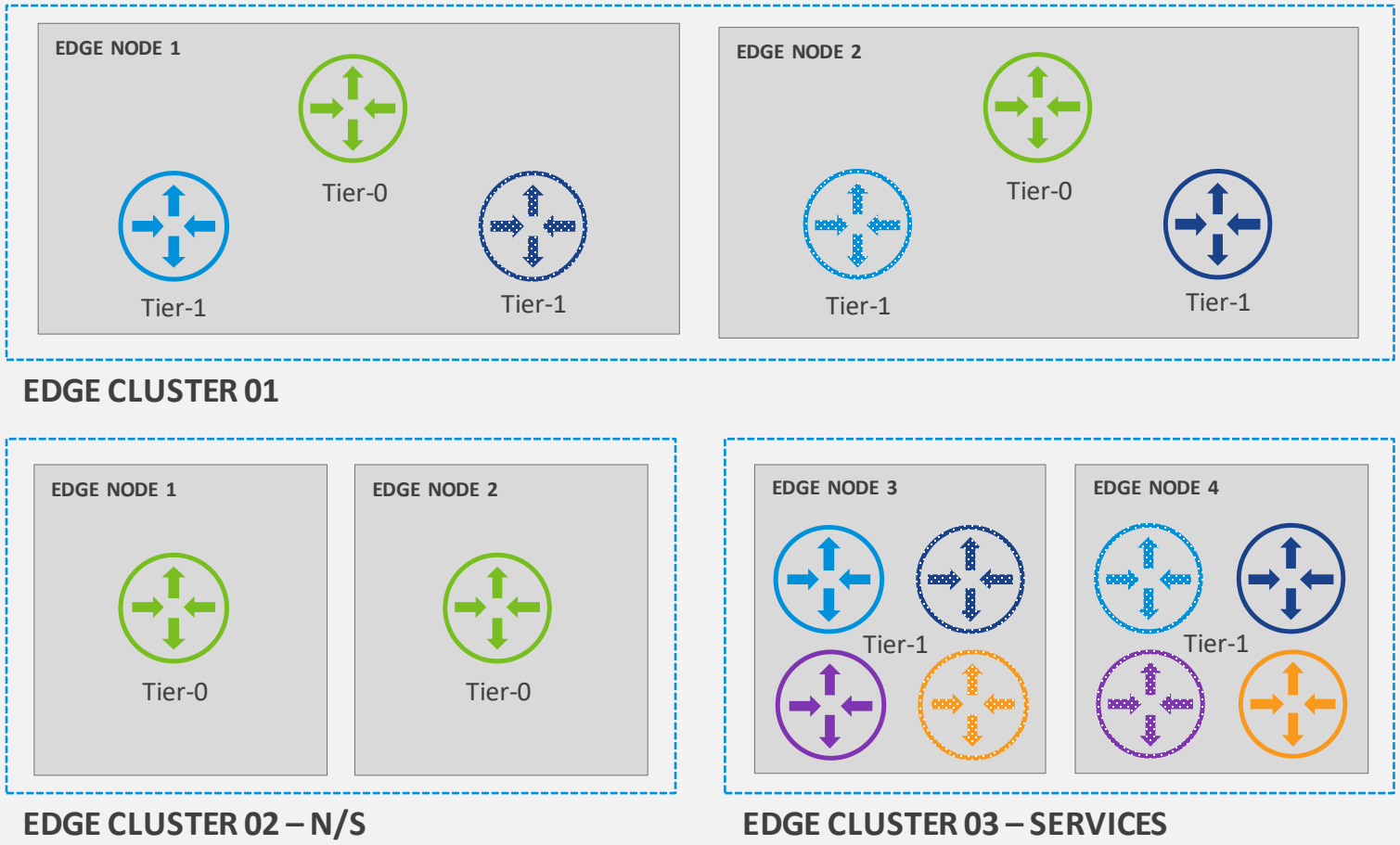


NSX-T Logical Routing

2-Tier Routing



NSX-T Edge Nodes



Edges are devices with capability groups to handle services that are not distributed.

It takes advantage of DPDK technology for fast package processing.

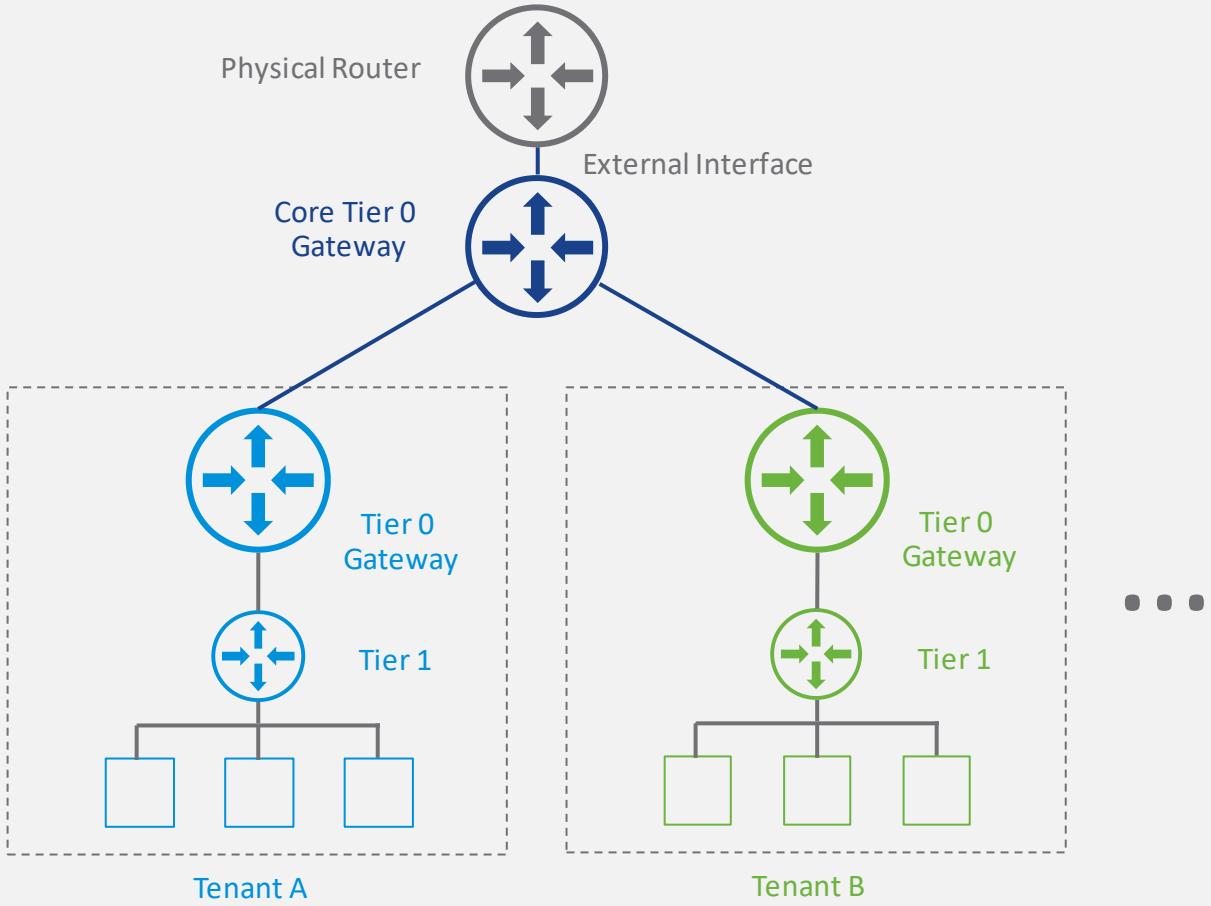
Nodes are clustered for horizontal scaling and redundancy.

Edge Nodes are available in two forms: Bare Metal and VM.

An Edge Node is a transport node in its own right (the hypervisor doesn't need to be prepared).

The Need for VRF Lite

Logical Routing Today



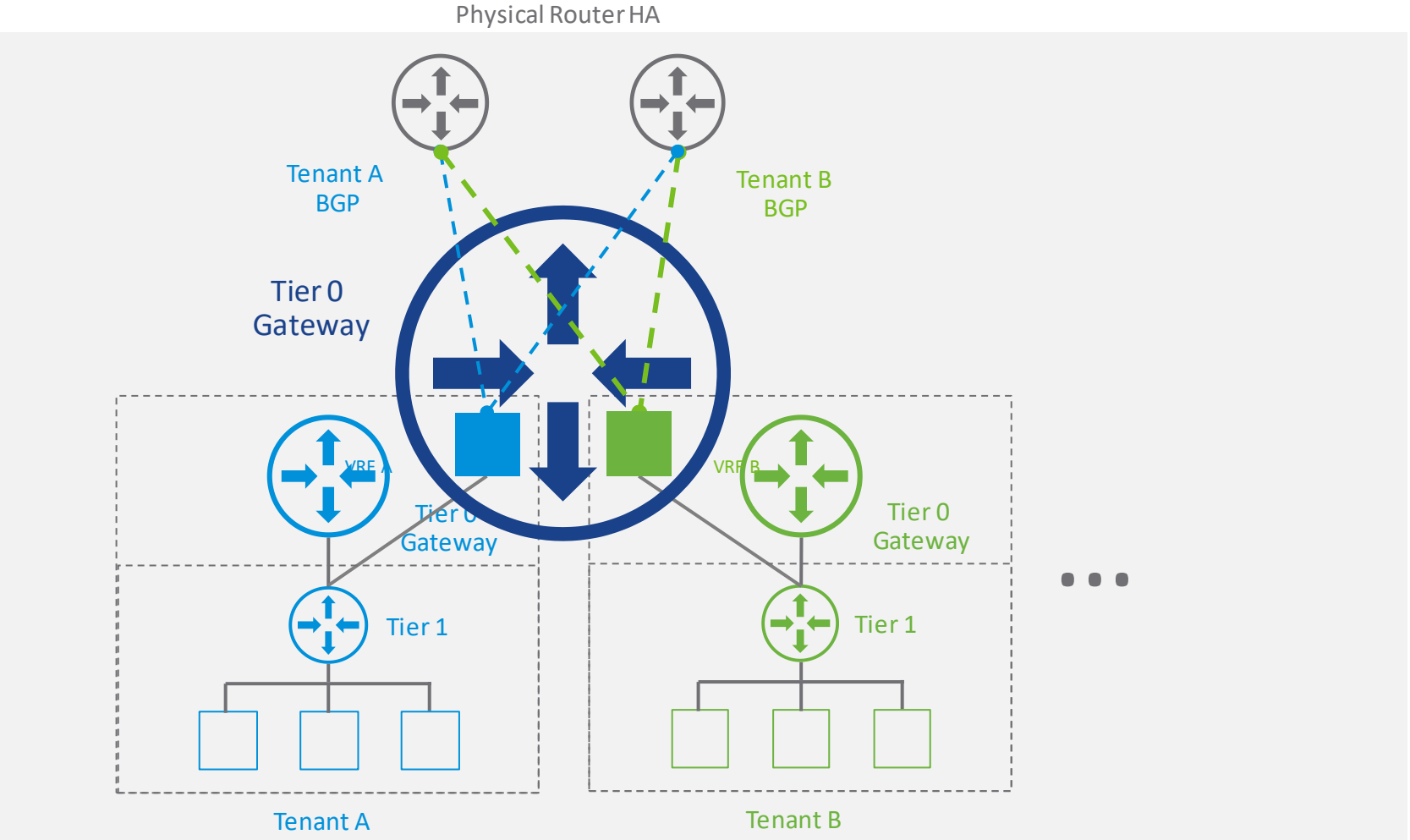
Dedicated Tier0 gateway for each tenant

Single routing table for all tenants

2-level of Tier-0 to offer common services access without adding new BGP peering per tenant on Physical Router

VRF Lite in NSX-T 3.x

Multiple VRFs for complete tenant isolation



Feature

Tenant data plane isolation with separate routing table per VRF

Inter VRF communication is done using static routes

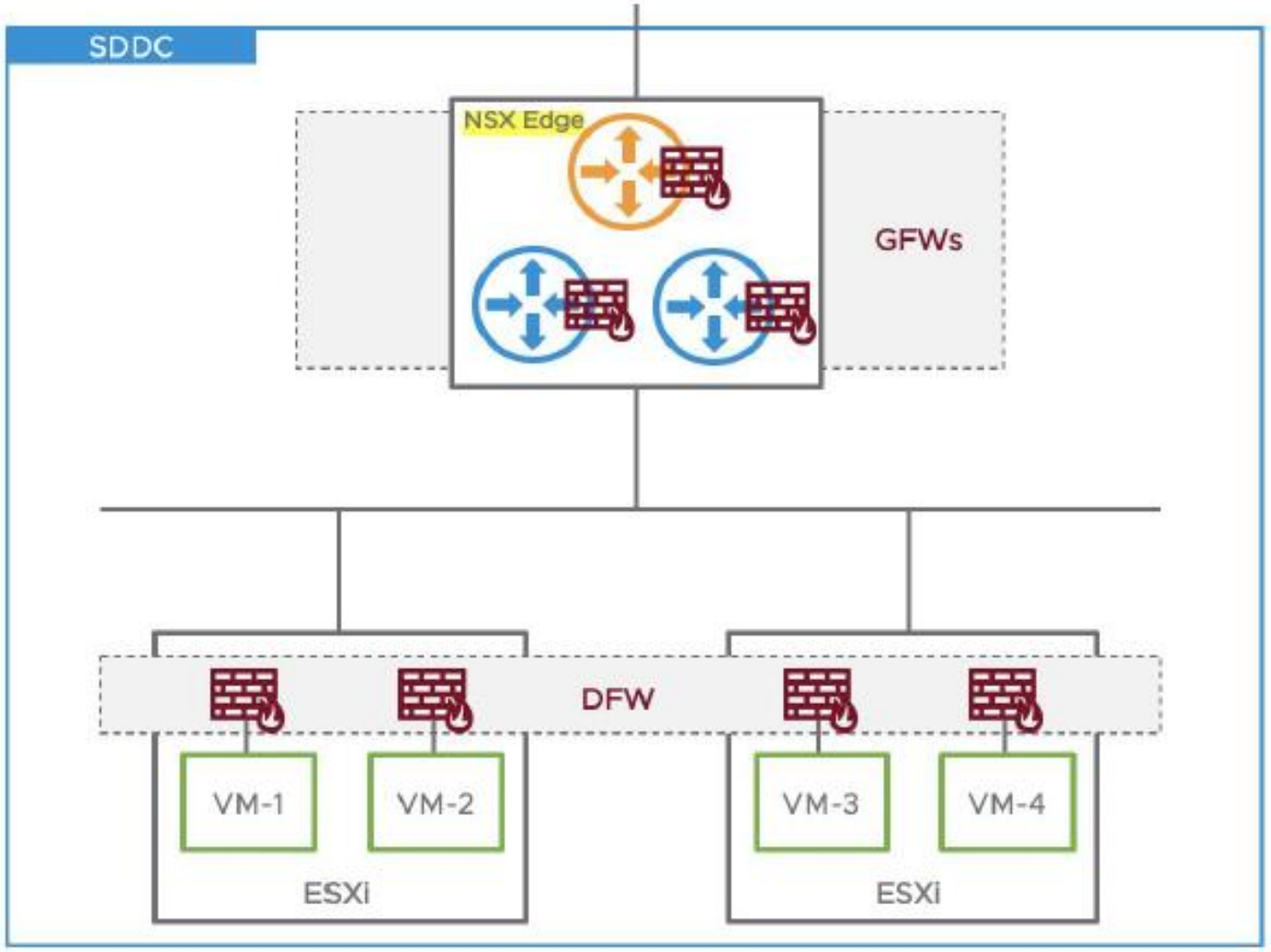
NAT, Edge firewall supported inside the VRF

Scale: 100 VRFs per Tier0 GW

Benefit

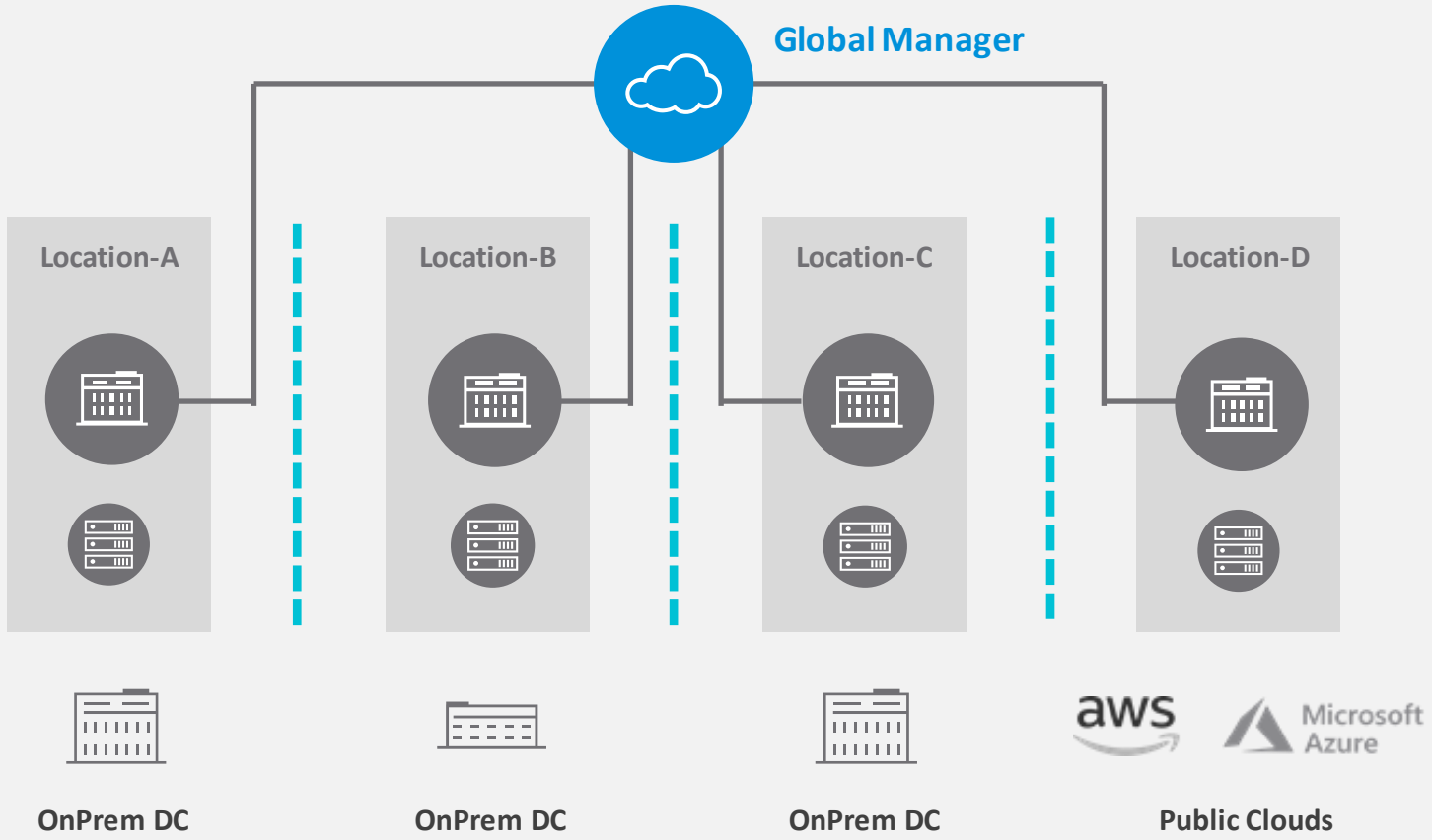
Avoid having to deploy Tier0 per tenant and reduce the number of Edge nodes

NSX-T Firewall and IPS



NSX Federation

Centralized, consistent policy framework across large scale NSX deployments



Consistent Policy Configuration and Enforcement

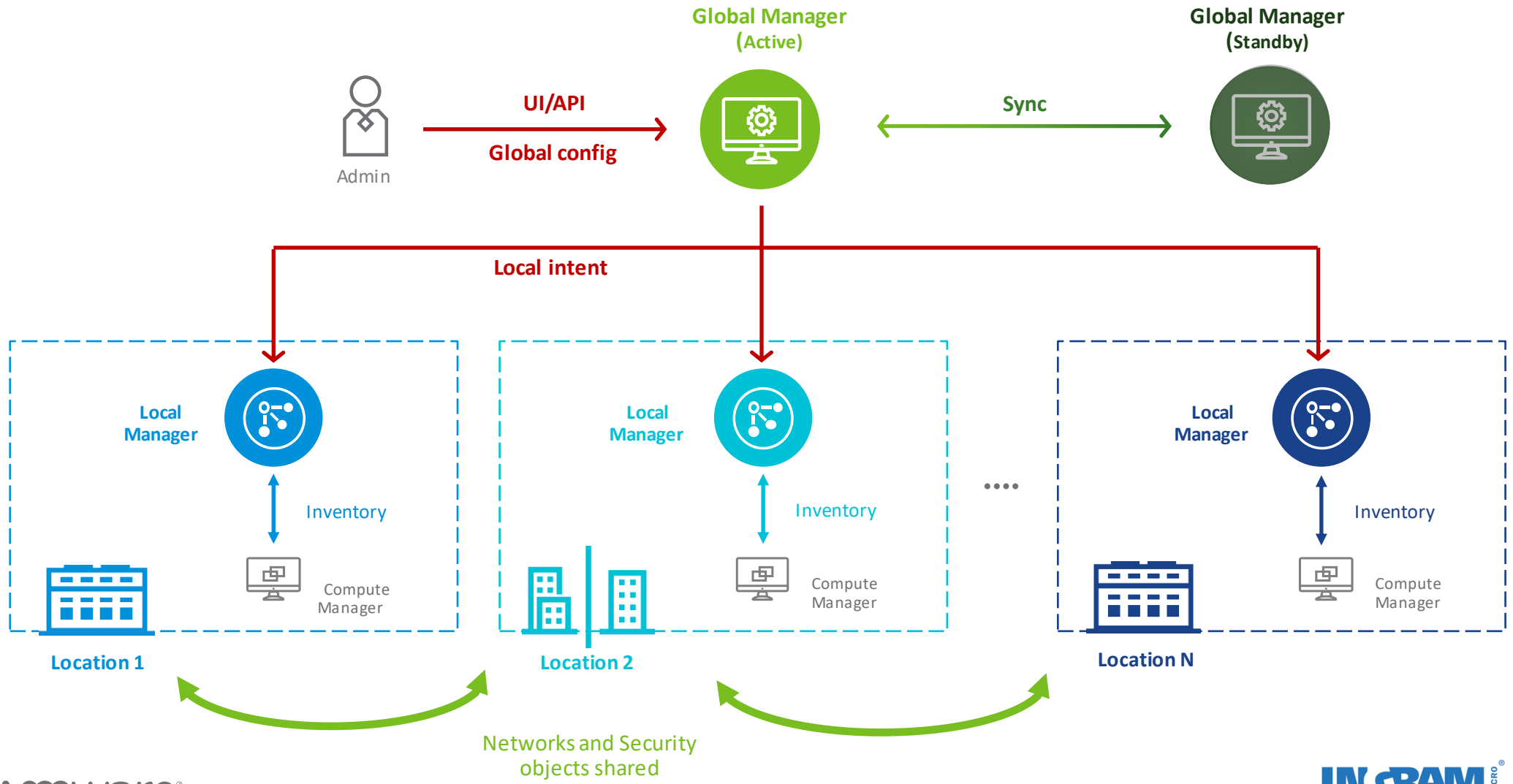
Operational Simplicity for NSX-T Data Center and NSX Cloud

Consistent Policy Configuration and Enforcement

Simplified DR

NSX Federation

Operational Simplicity + Consistent Policy Configuration and Enforcement



VMware NSX Advanced Load Balancer

Consistent L4-L7 enterprise-grade app services across multi-cloud environments

LOAD BALANCING

- L7 (HTTP) LB
- L4 (TCP/UDP) LB
- Global Load Balancing
- Content Switching
- Caching/Compression
- Autoscaling

SECURITY

- Web App Firewall
- SSL Termination
- DDoS Protection
- L3-4 ACLs
- L7 Rules/Policies
- Rate Limiting

ANALYTICS

- Application Map
- Service Health Score
- Network Performance
- App Performance
- Request Logging
- Security Insights

PLATFORM

- Central Management
- 100% REST API / SDK
- Self-Service
- Multi-Tenancy
- Service Discovery
- IPAM/DNS

CONTAINERS

kubernetes, VMware Tanzu, Pivotal Container Service, OPENSHIFT

SDN

cisco, vmware, nuagenetworks, Juniper CONTRAIL

OPENSTACK

openstack., redhat OPENSTACK PARTNER, MIRANTIS, ubuntu

AUTOMATION

Terraform, python, ANSIBLE, Swagger

ON-PREM or OFF

intel BARE METAL, Google Cloud Platform, aws, Azure, INGRAM MICRO, 40 YEARS

NSX-V to NSX-T Migration

Migration Strategies

Migration Journey

From NSX for vSphere to NSX-T

Discovery

Use cases and architecture

PoC / Trial

Deploy NSX-T in a lab or proof-of-concept environment

Education

Training for the team that will run NSX-T

Co-Exist

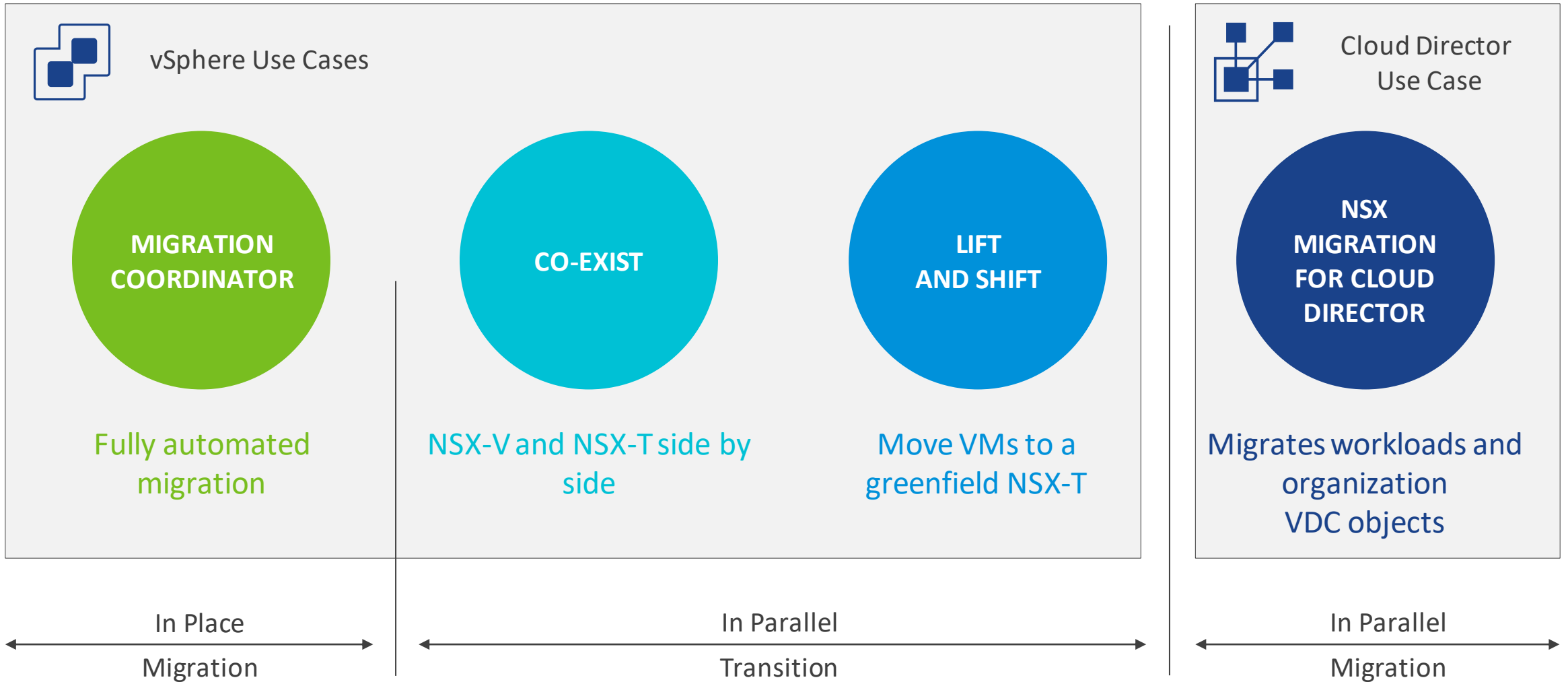
Run NSX-V and NSX-T in parallel to understand operational differences

Migrate

Migration of workloads from NSX-V to NSX-T

Migration Scenarios

Various approaches to migrating from NSX for vSphere to NSX-T



Migration Coordinator Features

First released in NSX-T 2.4, improved with each release

- Minimal Interruption
- A minimum of additional computing hardware is required (1)
- Automated
- Pre-migration verification to ensure a successful migration
- Fully compatible without purchasing additional products

1 Capacity required for maintenance mode, NSX-T Managers and Edges

Pre-requirements

Pre-migration requirements

NSX for vSphere

stable environment

Version that can be migrated: NSX-V 6.4.4 or later

vSphere

No pending host reboots

NSX-T compliant version (6.5 / 6.7 / 7.0) 1

Ability to put hosts in maintenance mode

NSX-T

NSX Management Cluster, (MP / CCP) and Edge nodes deployed in vCenter cluster for hosting management and Edge functions

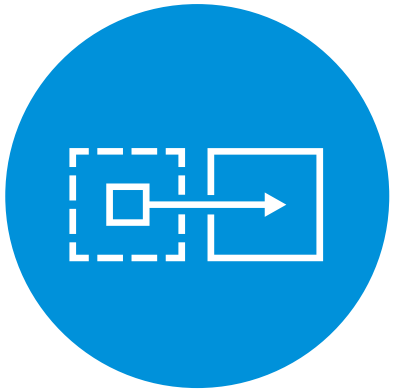
[1] Please refer to the VMware interop page for details on exact versions

Migration Steps

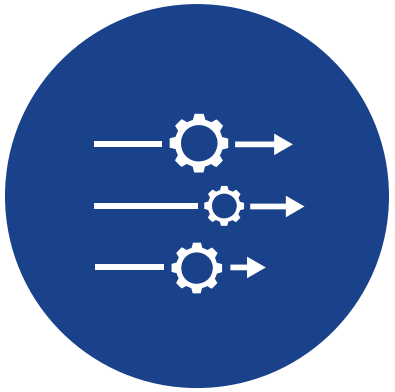
Step by step migration

Prerequisites

Pre-Migration Configuration



Config Migration



Workload Migration

Finalize Migration

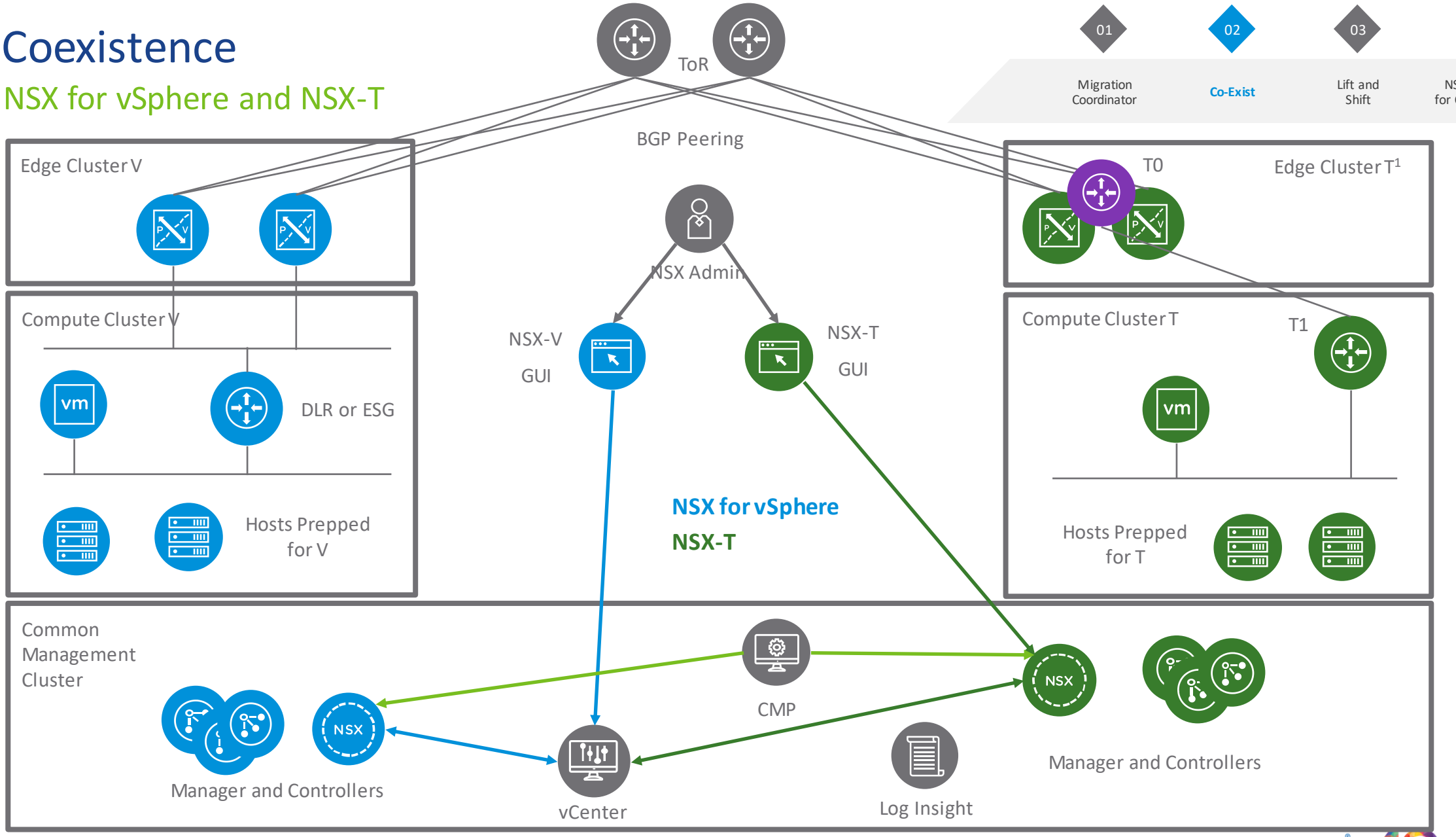
Nondisruptive

Assessment Tool

Coexistence

NSX for vSphere and NSX-T

01 Migration Coordinator | 02 Co-Exist | 03 Lift and Shift | 04 NSX Migration for Cloud Director

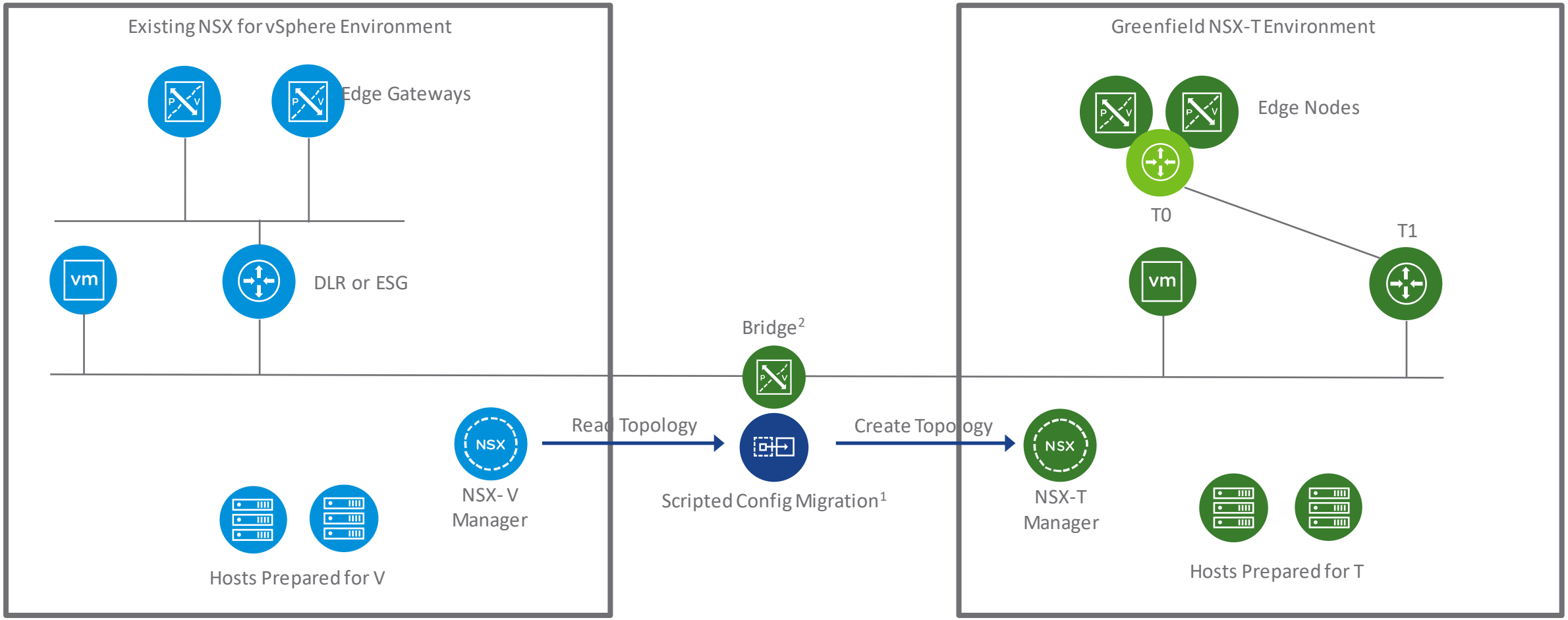


[1] Can also be bare-metal Edge. Edge cluster can be shared between NSX-V and NSX-T

Greenfield Deployment

Migrating to a new infrastructure

01 Migration Coordinator | 02 Co-Exist | 03 Lift and Shift | 04 NSX Migration for Cloud Director



NSX for vSphere

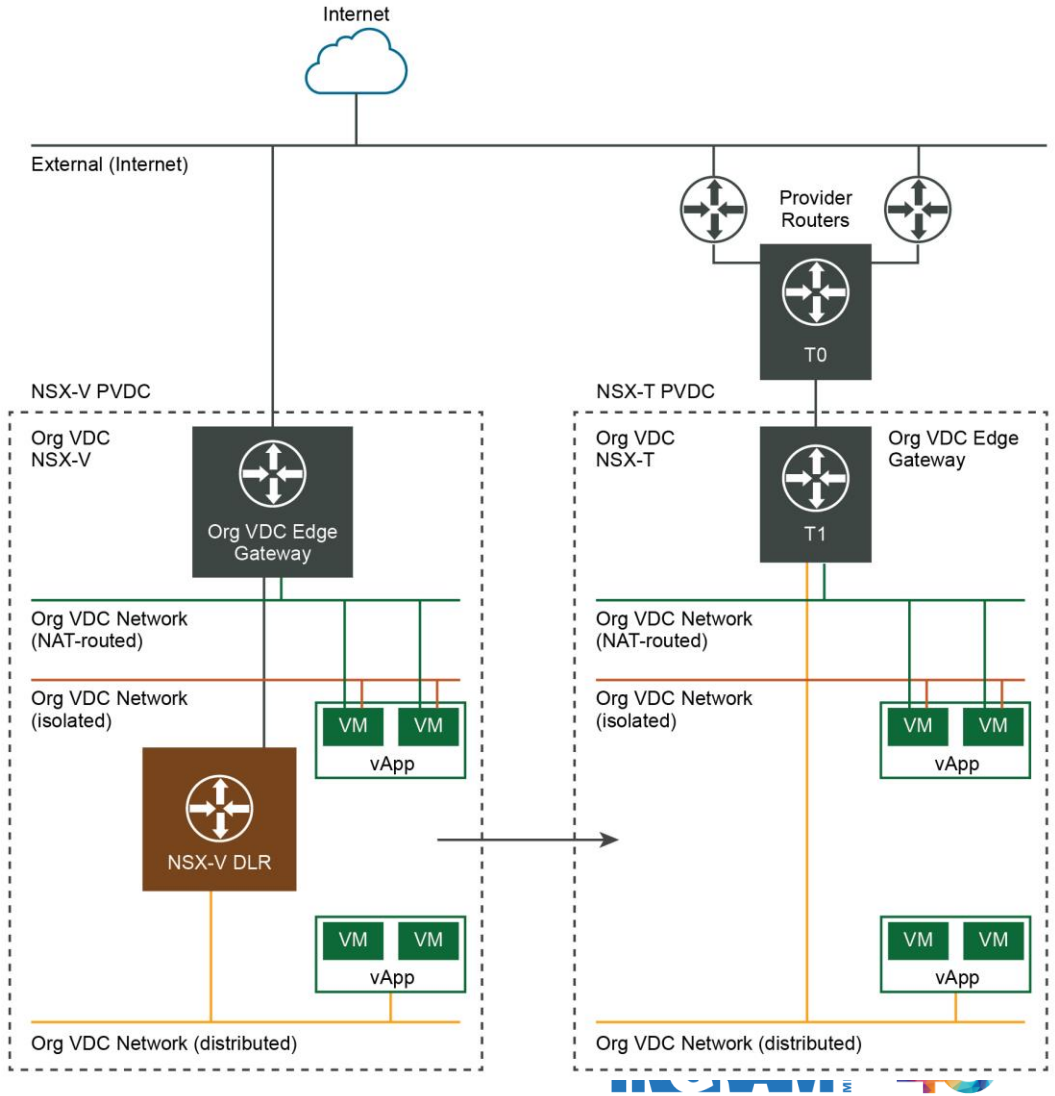
NSX-T

[1] Not a VMware product. Requires customer, partner product/services or VMware professional services to script configuration migration

[2] Can be NSX Bridge, L2VPN or VLAN Based

NSX Migration for VMware Cloud Director

Migrates workload virtual machines and other organization VDC objects to the same vCenter Server managed by VMware Cloud Director During the migration process, the edge nodes of the NSX-T Data Center act as a bridge between the networks of Source and destination organization VDC (ensures Layer 2 connectivity during migration process) IP addresses, routing, and other network services are also migrated from source gateway to gateway. destination of the organization's VDC for minimal disruption to North-South network traffic.



NSX Migration for VMware Cloud Director

Benefits

- **Automate Cloud Director metadata and workload migration from NSX-V to NSX-T**
- **VDC migration of the organization to the single tenant scope maintenance window.**
- **Minimize network downtime with bridged networks during migration**
- **Live migration with vMotion to ensure user workloads are not interrupted**
- **Keep the organization VDC source configuration and NSX-V environment as is to allow rollback**

Considerations

- On the same VCD cluster, NSX-V, and NSX-T on the same vCenter
- Migrate only the services supported by the VCD NSX-T integration
- Buffer hardware required for new NSX-T cluster
- The number of Edge nodes must be equal to or greater than the number of migrated Org VDC networks

NSX Migration for VMware Cloud Director 1.2

AVAILABLE

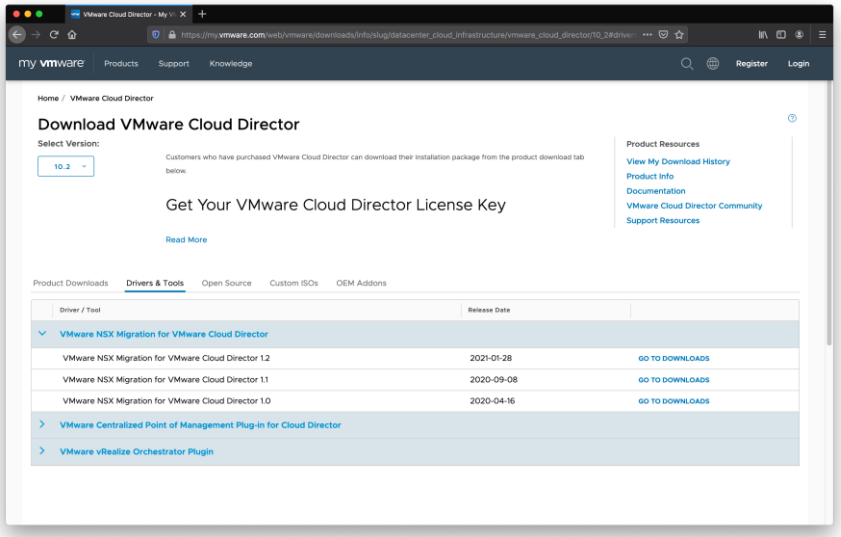
Support for new features and topologies

Edge Gateways connected to multiple External Networks

- Org VDCs with multiple Edge Gateways
- Isolated vApp networks with DHCP service
- Support for Cloud Director NSX-T new features:
  - Distributed Firewall
  - VRF-Lite
  - NSX-V Load Balancer migrated to NSX Advanced Load Balancer (Avi)
- …Complete list in the User Guide

Compatibility Matrix

- VCD 10.1.2, 10.2, 10.2.1
- NSX-T 3.0.1, 3.0.2, 3.1.0
- NSX-V 6.4.8*
- vSphere 6.7, 7.0



Realize the Promise of Technology