CXS1373BCN

vmware EXPLORE

Migrating Thousands of Workloads? No Problem!

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Required Disclaimer

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- This overview of new technology represents no commitment from VMware to deliver these features in any generally available product.
- Features are subject to change, and must not be included in contracts, purchase orders, or sales agreements of any kind.
- Technical feasibility and market demand will affect final delivery.
- Pricing and packaging for any new features/functionality/technology discussed or presented, have not been determined.

Agenda

Why: Migrations as a multi-cloud feature

What: A framework for successful migrations

How: Guidance and detailed steps

Digital Business

Cloud Initiatives

35% Cloud spend growth in 2021. Up from 28%

App Transformation

90% prioritizing App Modernization

Requirements

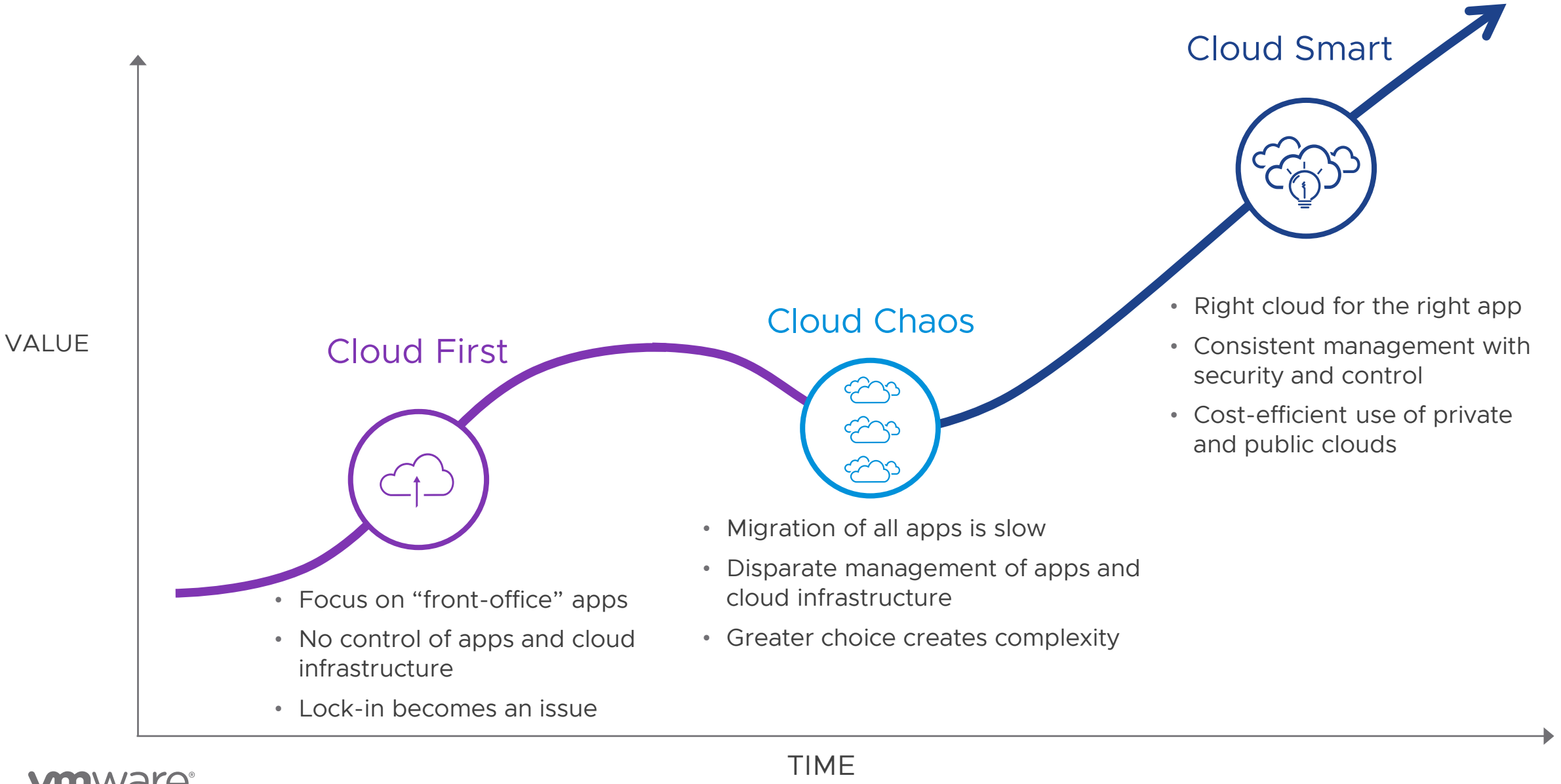
Modern apps at the speed of the business.

Build and run-on **cloud of choice, data center, or edge.**

Business transformation with **enterprise resiliency, security and operations.**

Source: Forrester 2021 Cloud Computing Predictions, Jan 2021, VMware Executive Pulse Study, Feb 2021

A Typical Customer Journey to the Cloud

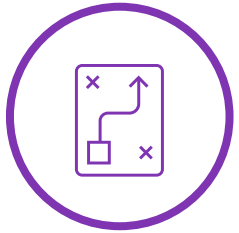


VMware Cloud Well-Architected Framework

Guidelines to a prescriptive migrations to cloud

Plan Build Secure Modernize Operate

via.vmw.com/VMCWAF



Migration Guidance – Plan

Planning for Migration

"Failing to plan is planning to fail"

What applications or group of workloads are the "best" to move together to VMware Cloud™?

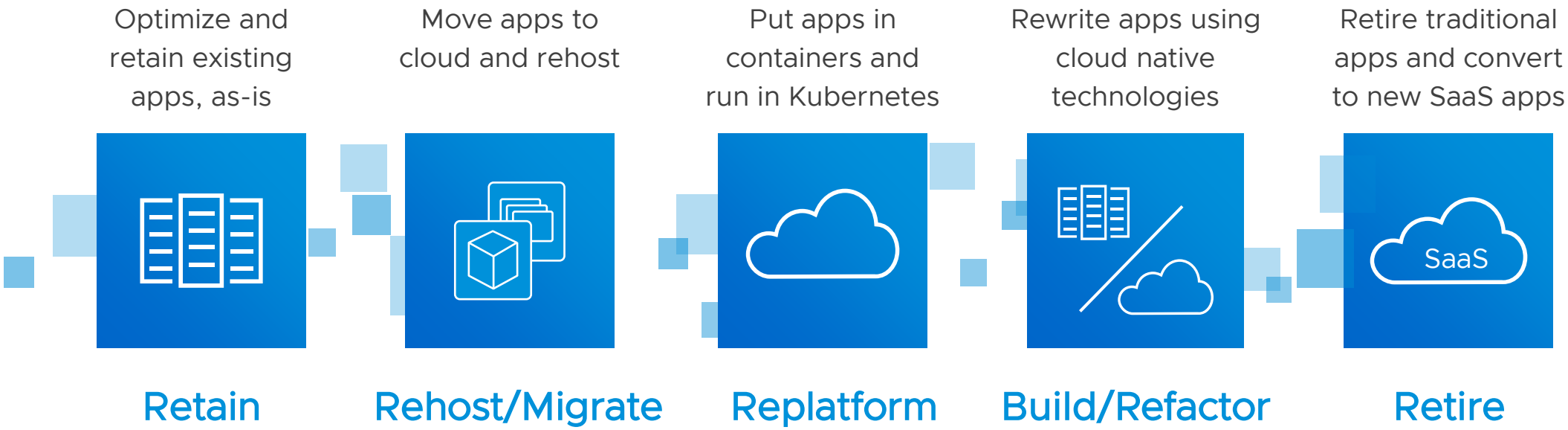
Are some applications better candidates than others and how do I rank them?

Which VMs should not be moved and why?

How do I ensure I am not splitting an application up, missing a VM that might be crucial to it functioning properly?

What about network outbound charges?

Application Portfolio Planning

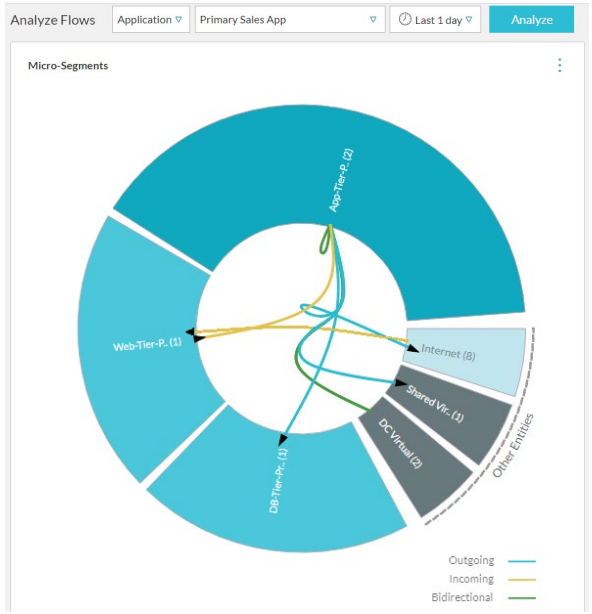


Analyze the Dependency and Applications Mapping

Discover application dependencies, analyze plan and validate

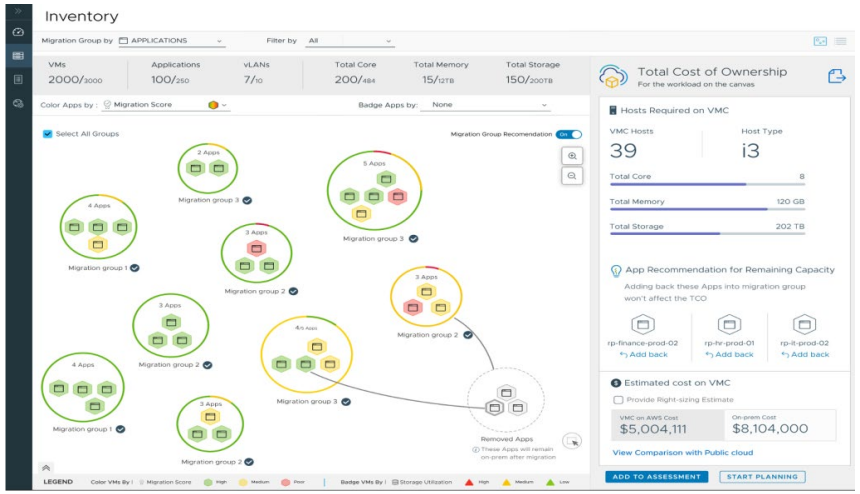
Discover and Verify

- Physical workloads
- Virtual workloads
- Applications
- Infrastructure



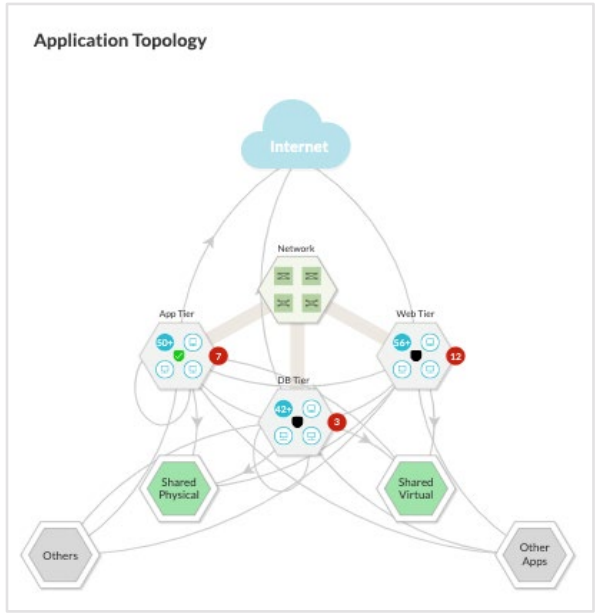
Analyze

- Capacity
- Network connectivity/throughput
- Packet flow
- BCDR requirements
- Performance / Costs

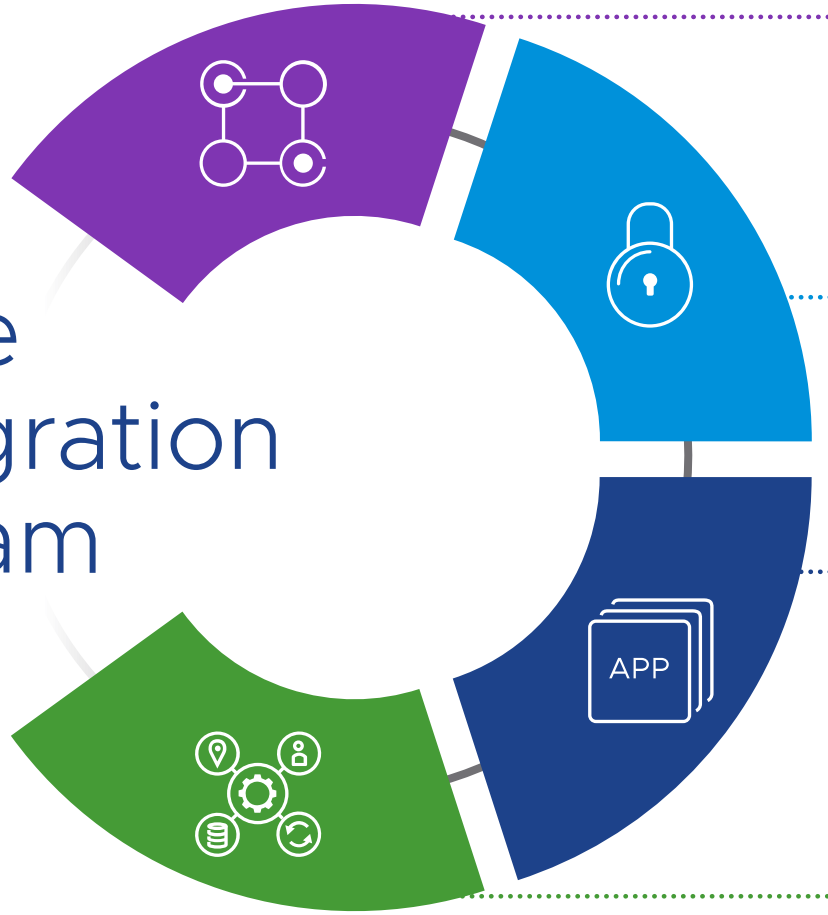


Plan for Security

- Plan security including recommend firewall policies, application micro-segmentation
- Compliance and security requirements



The Migration Team



Infrastructure Administrators/Architecture

Compute, Storage, Network and Data Protection

Networking and Security

Security and Compliance

Application Owners

Applications, Development and Lifecycle

Support and Operations

Automation, Lifecycle and Change Management

Other Migration Considerations

Physical Hardware

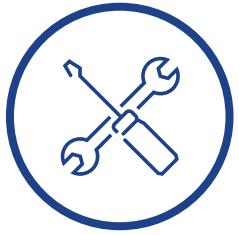
- Physical to virtual migration
  - Begin migration of virtual workloads which will free up on-premises capacity
- Co-locate equipment in proximity

Active Directory/ DNS/DHCP/ Time Sync

- Use native cloud services where it makes sense
- Migrate into VMware Cloud

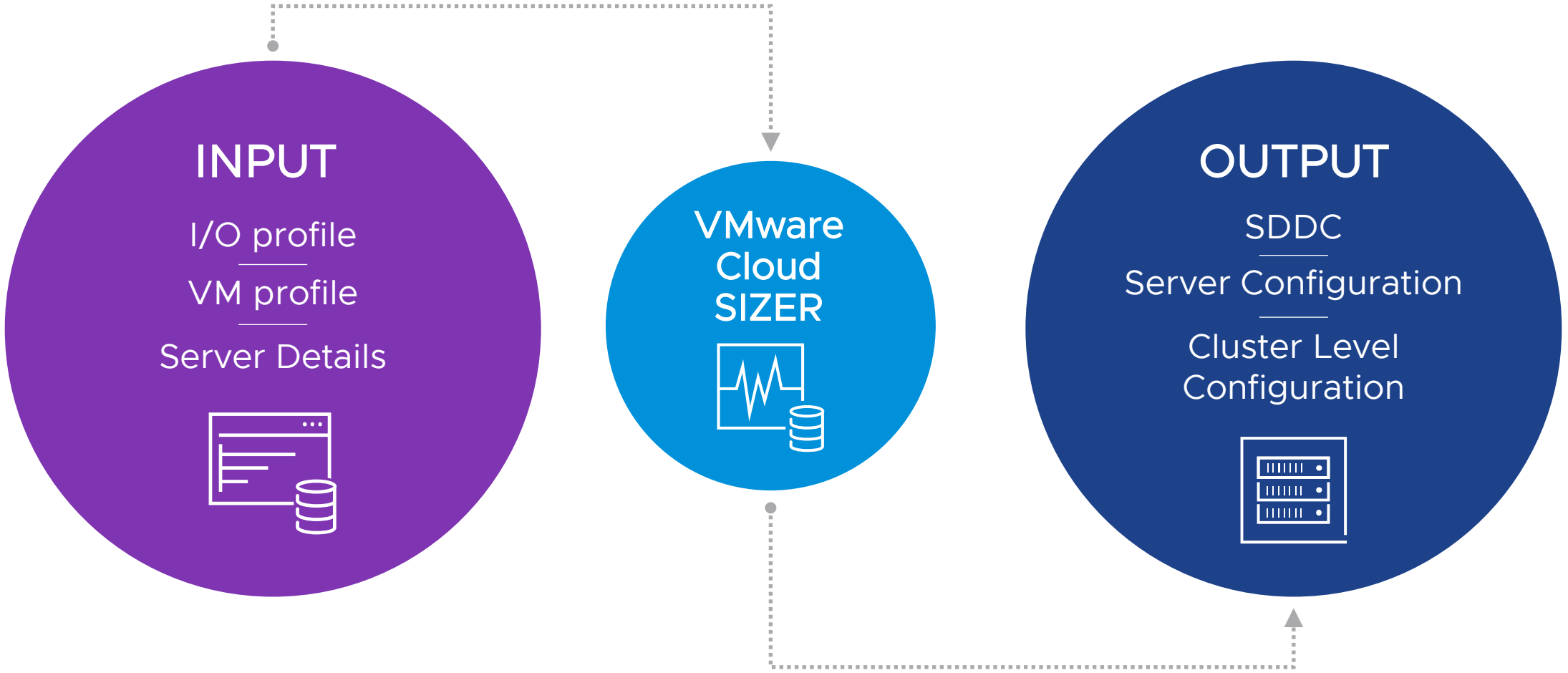
Load Balancing/ Edge Security

- Native Cloud Load Balancer
- VMware NSX® Advanced Load Balancer™ / load balancing appliances
- NSX advanced security IDS, IDP



Migration Guidance – Build

Find the Most Optimized SDDC Configuration



SDDC Prerequisites

IP SPACE

- Management CIDR
- VMware HCX® subnet
- VPC and subnet

SDDC CONFIGURATION

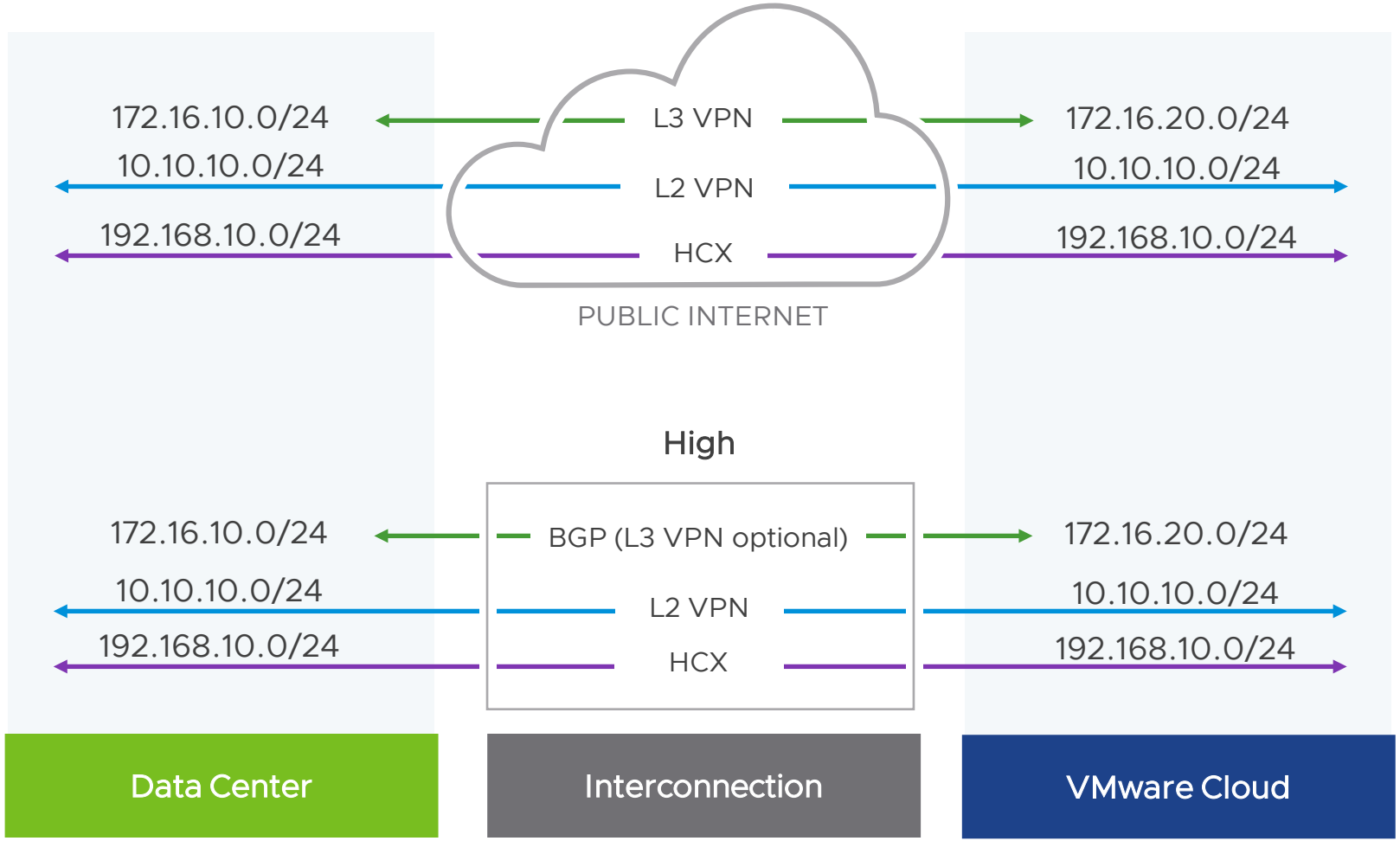
- Region: Close to users / where best connectivity
- Single-AZ / Multi-AZ
- Dedicated connectivity or cloud VPN
- Host type: Each vendor has different HW type
- Link funds, purchase RIs

CLOUD SETUP

- Cloud account
- Enable subscription
- Where any native workloads that communicate with the SDDC run
- Leverage native cloud services (i.e., AD, DNS, FileServers)

Network Connectivity

Networking Options



L3 VPN / BGP

Traditional IPSec VPN Tunnel over Internet or BGP over Partner connectivity (DX, ExpressRoute, etc)

Compatible with any on-premises router.

Interconnect two distinct network ranges.

NSX L2 VPN

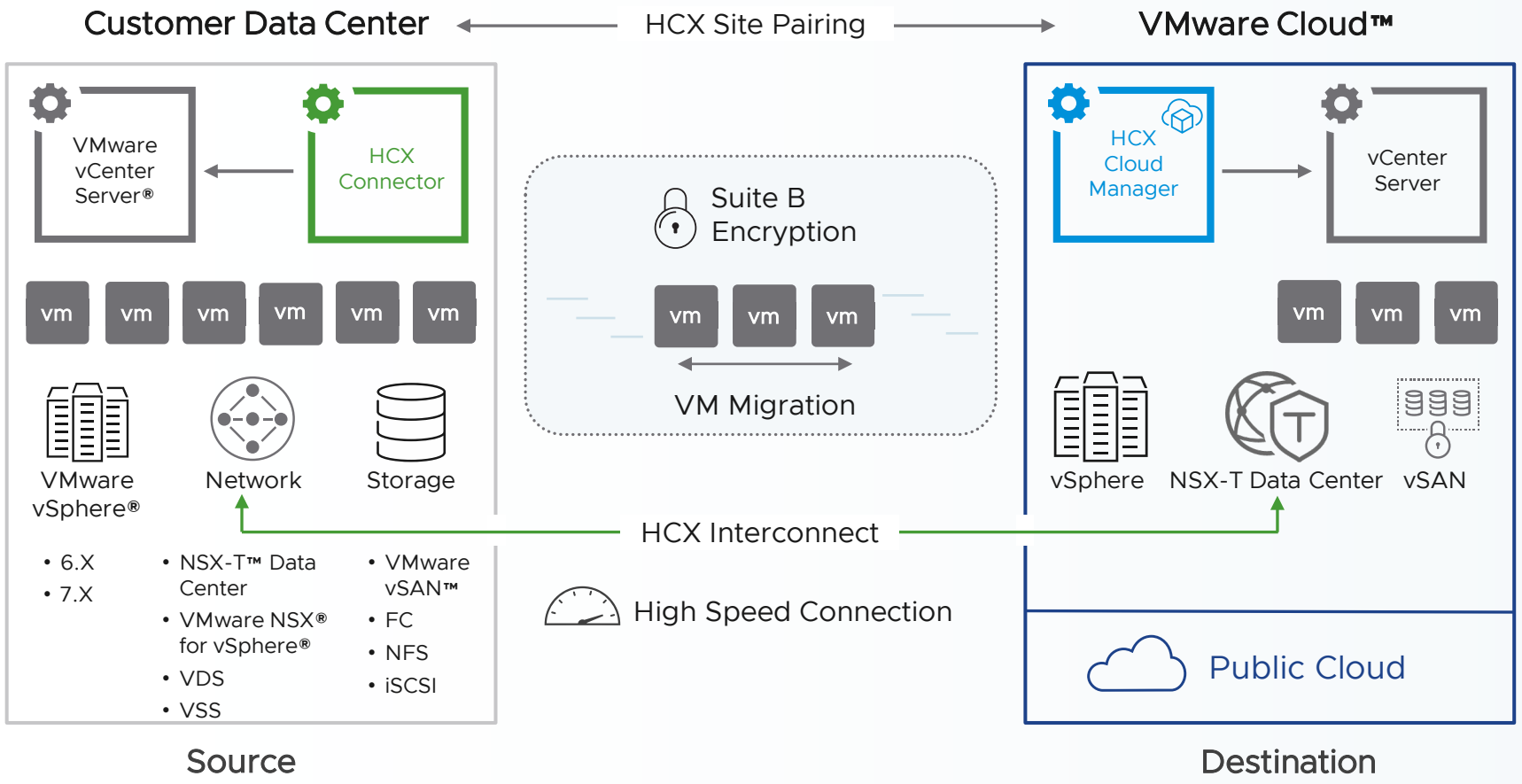
Stretch networks between private and public cloud.

Requires installation of NSX standalone edge client on-prem
(does not require NSX licensing on-prem).

Easy to configure.

HCX

VMware HCX 4.x Overview

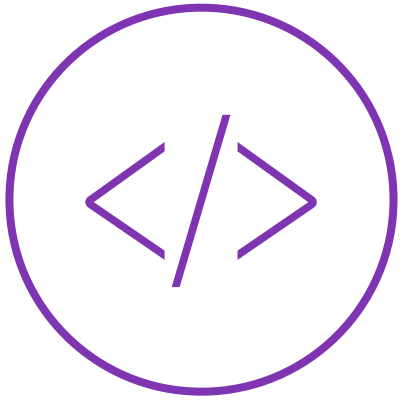


- Included add-on for VMware Cloud
- Online and offline VM migration at scale options
- Built-in Layer 2 extension, WAN optimization, de-dupe, and compression
- Accessible via
  - vSphere HTML5 plugin
  - HCX standalone client
  - HCX API and PowerCLI

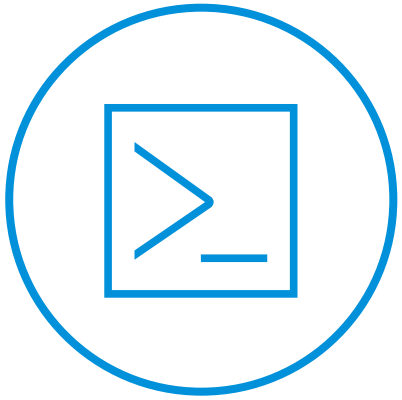
HCX Migration Options

Migration Using HCX		VM State	Data Transfer	VM Migration	
Cold Migration		Off	Offline	Cold	NFC Protocol
Bulk	Bulk Migration	On	Online	Warm	Parallel Large-Scale
	Bulk with OS Assisted Replication	On	Online	Warm	Parallel Agent Based
VMware HCX vMotion®	HCX vMotion	On	Online	Live	Serialized
	Bulk Migration with Replication Assisted vMotion	On	Online	Live	Parallel Large-Scale

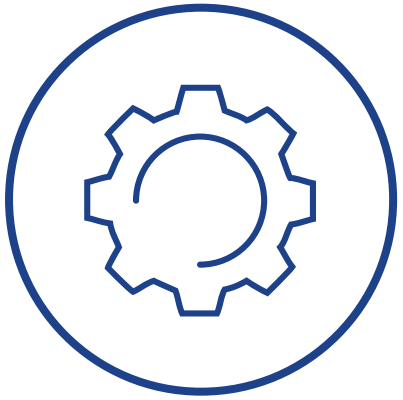
Automation Capabilities



REST API



PowerCLI



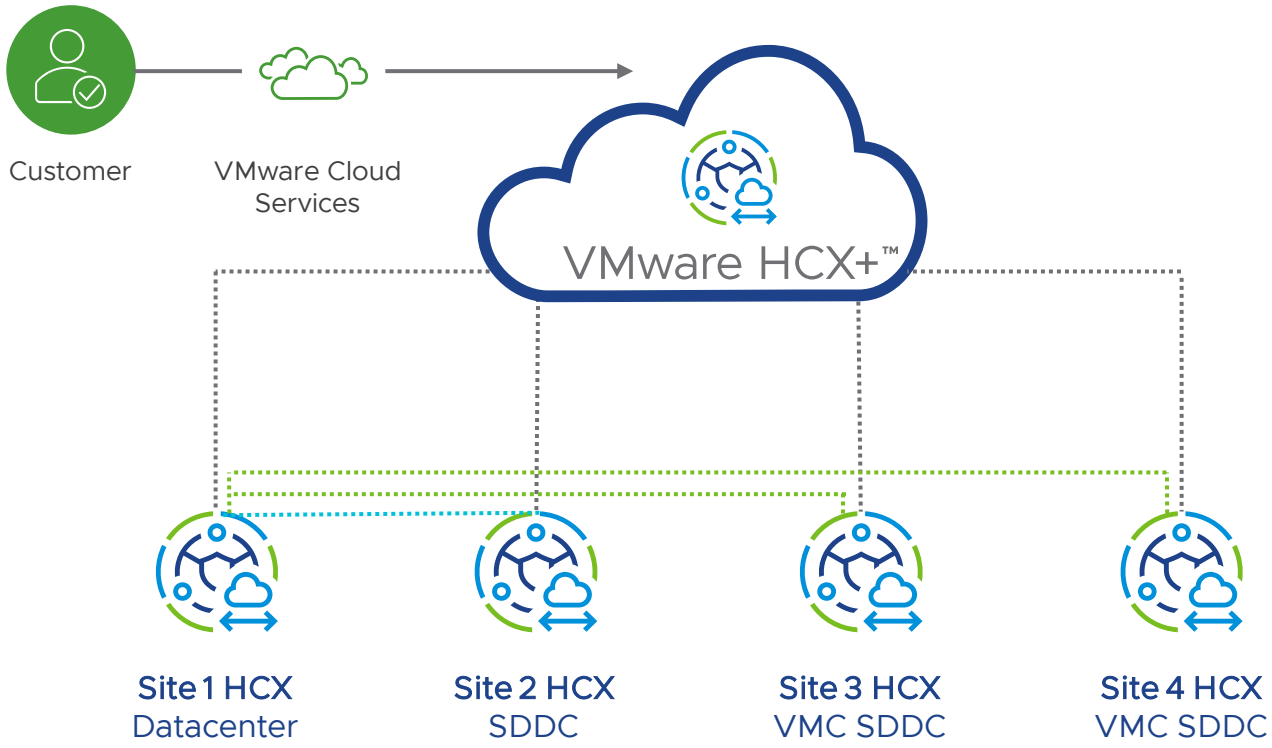
Terraform

Community Module
adeleporte/hcx

VMware HCX+

Fully VMware-managed Workload Migration and Mobility as a Service

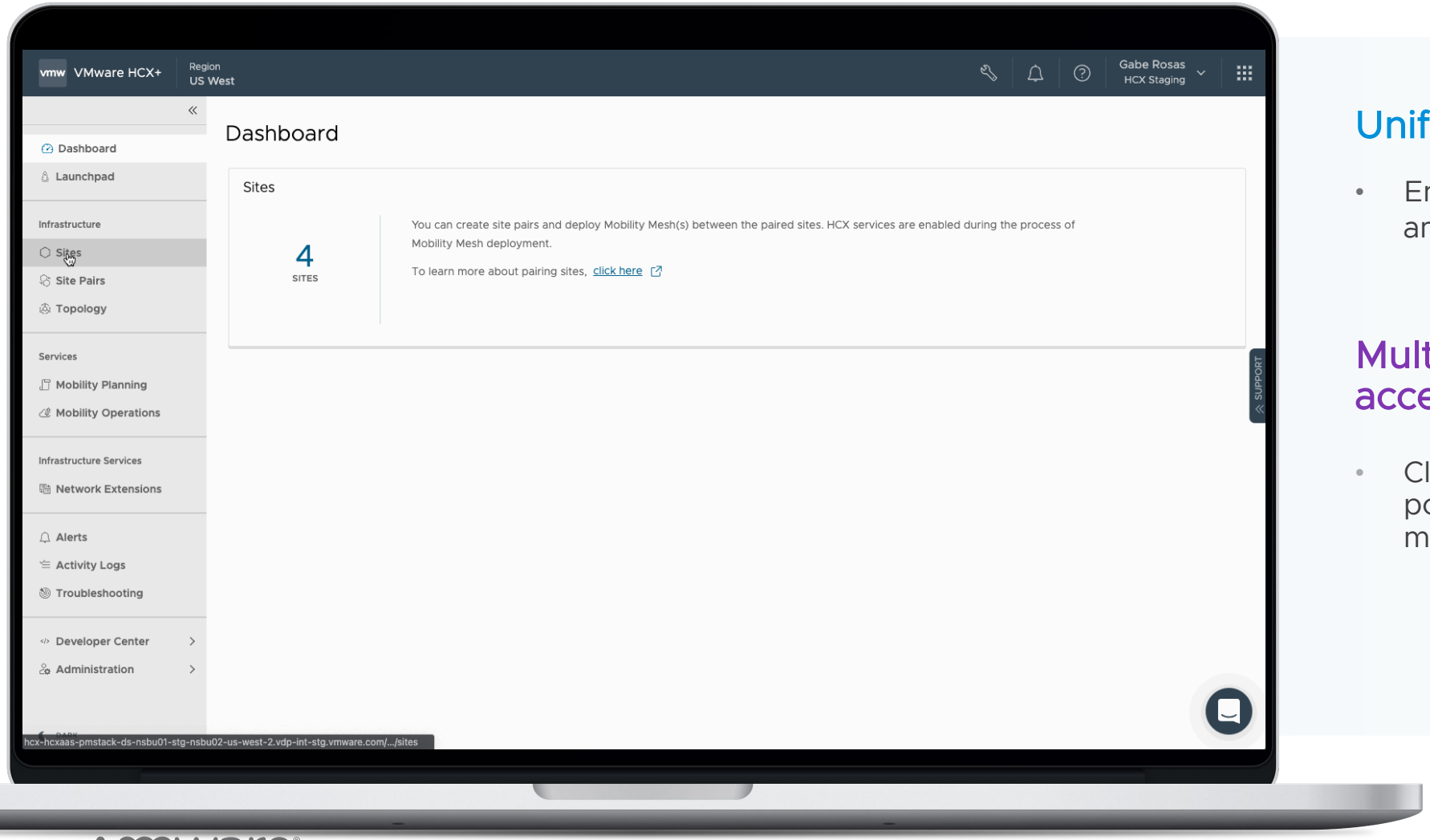
- Unified console for HCX site lifecycle & intelligent operations
- Centralized workload mobility for multi-cloud environments
- Enhanced reporting and visibility across sites and migration



HCX+ Provides Global Insight to Activities

No guess-work in where your workloads are moving

Centralized Management



Unified Console

- Enable many-to-many site connectivity among independent entities

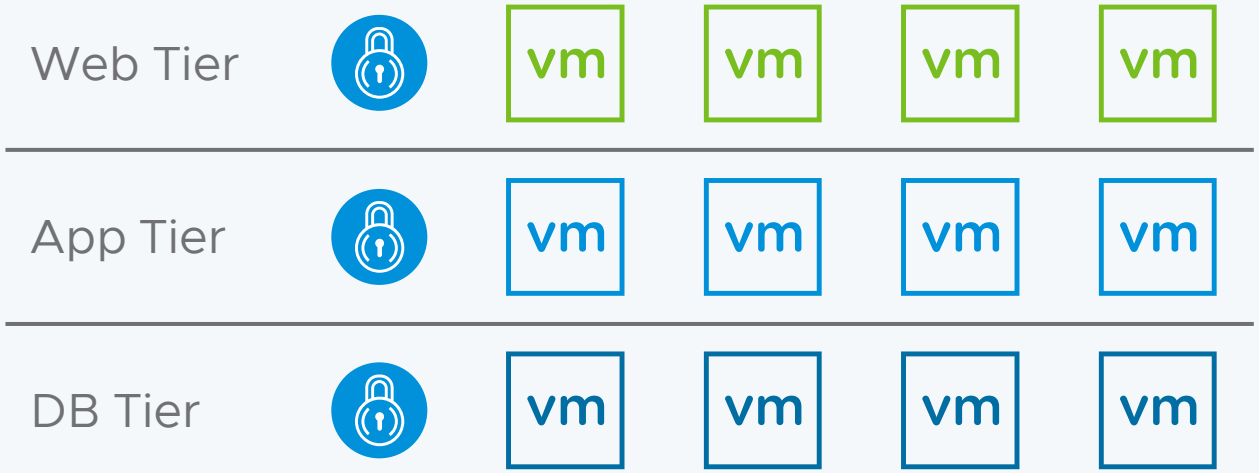
Multisite cloud-based identity and access management

- Cloud platform-powered authentication policies by offering federated, multifactor authentication

Migration Guidance – Secure

Today's Data Center Security

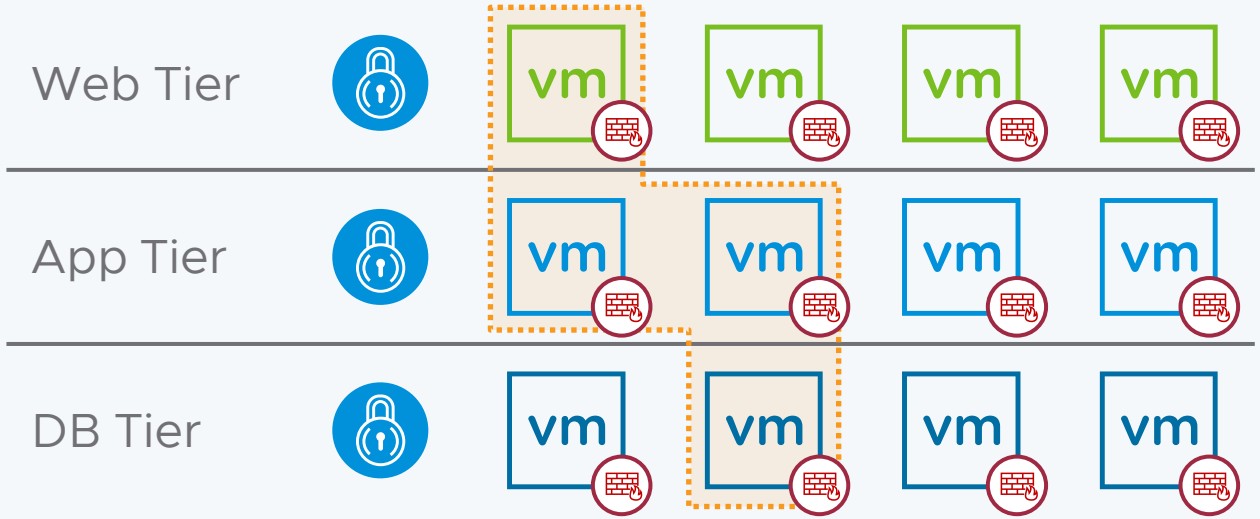
Traditional segmentation



Policies align to the environment instead of the application

Fixing Today's Data Center Security

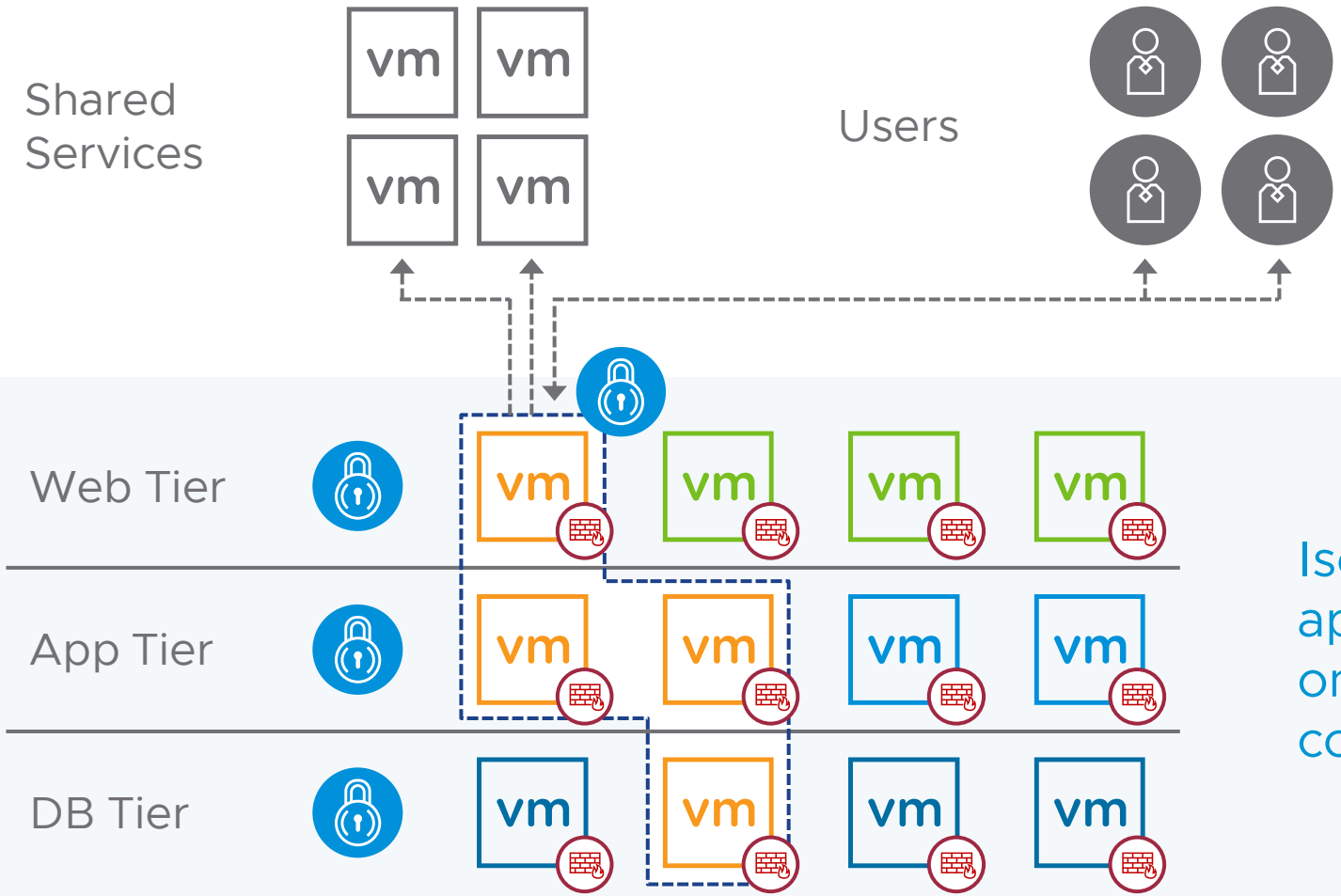
Zero trust through context



Identify application boundaries and determine intended network traffic

Fixing Today's Data Center Security

Zero trust through context

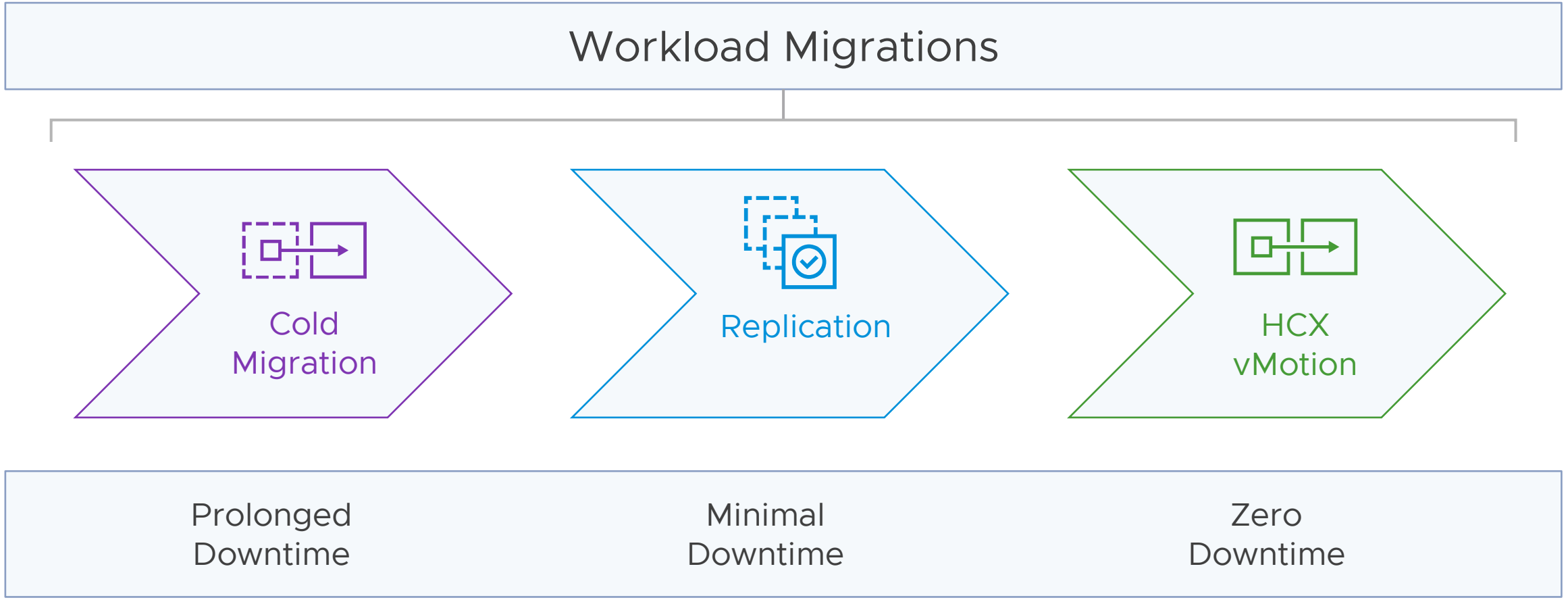


Isolate the application and only allow required communication

Migration Guidance – Modernize

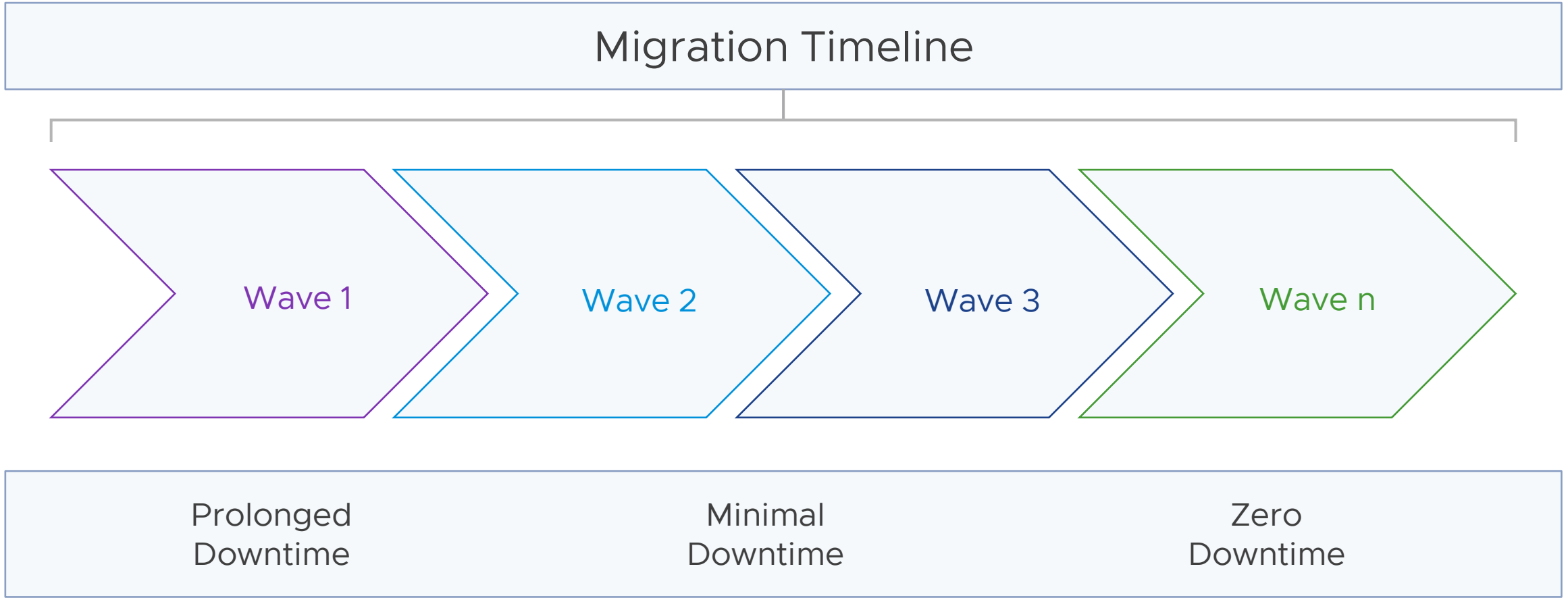
Downtime Tolerance

Business and technical impact of the migrations



Migration Waves

Working with the business and operations



Example: Planning a Series of Waves for 1000 VMs (Aggregate)

Wave 1: 50 VMs	Wave 2: 50 VMs	Wave 3: 150 VMs	Wave 4: 150 VMs	Wave 5: 200 VMs	Wave 6: 200 VMs	Wave 7: 100 VMs	Wave 8: 50 VMs	Wave 9: 25 VMs	Wave 10: 25 VMs

Each Wave

Example: 1000 VMs, aggregate 200 TB, and migration transfer capacity = 500 Mbps

Aggregate replication time = 200TB/500Mbps = 40 days

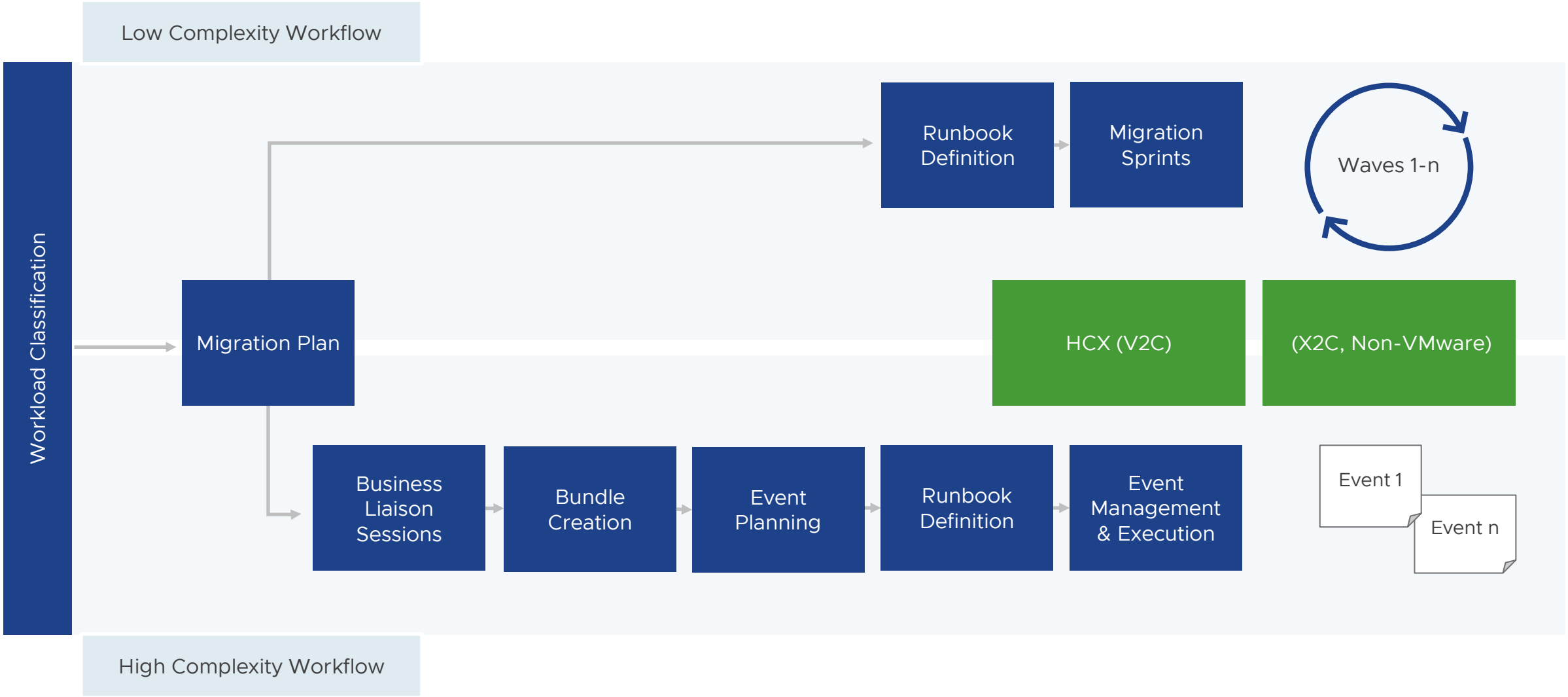
Aggregate long pole cutover time = 1000 VMs * 3 mins = 3000 mins = 50 hours (~2 days)

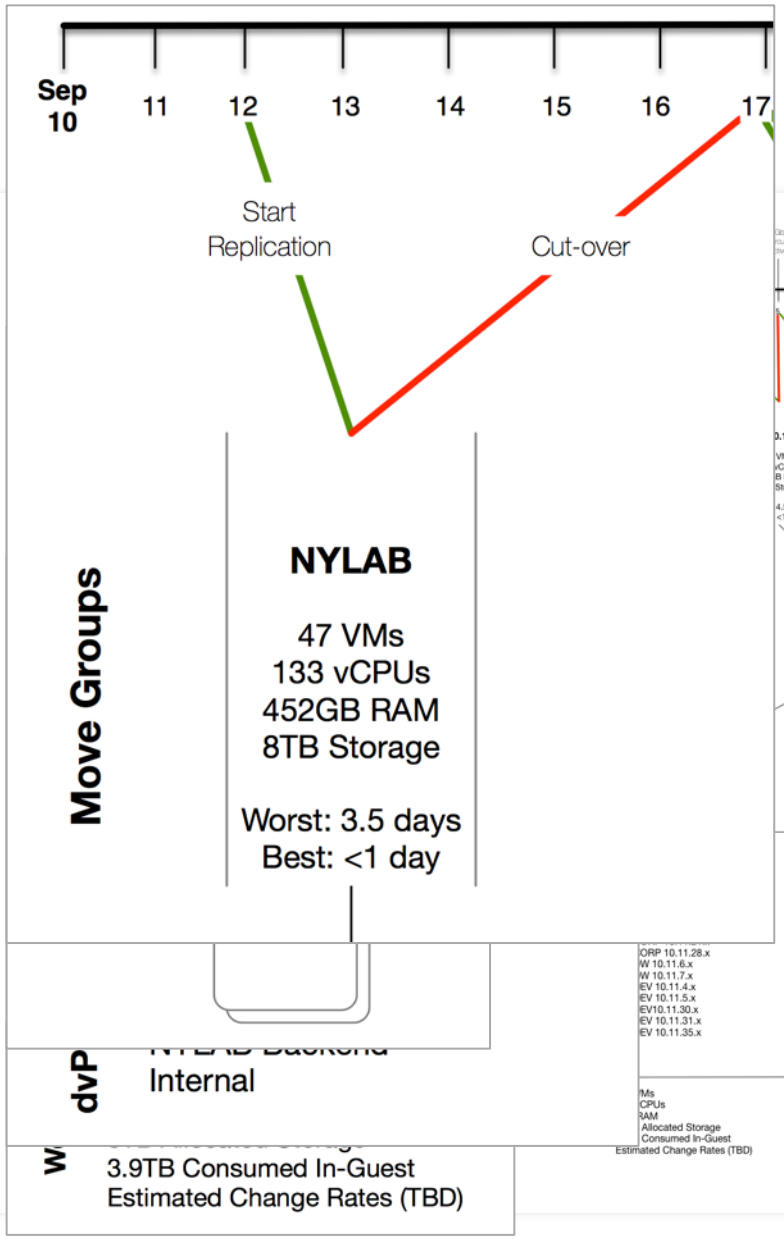
Consider an example recommendation of 100 VMs in a wave: 10 waves

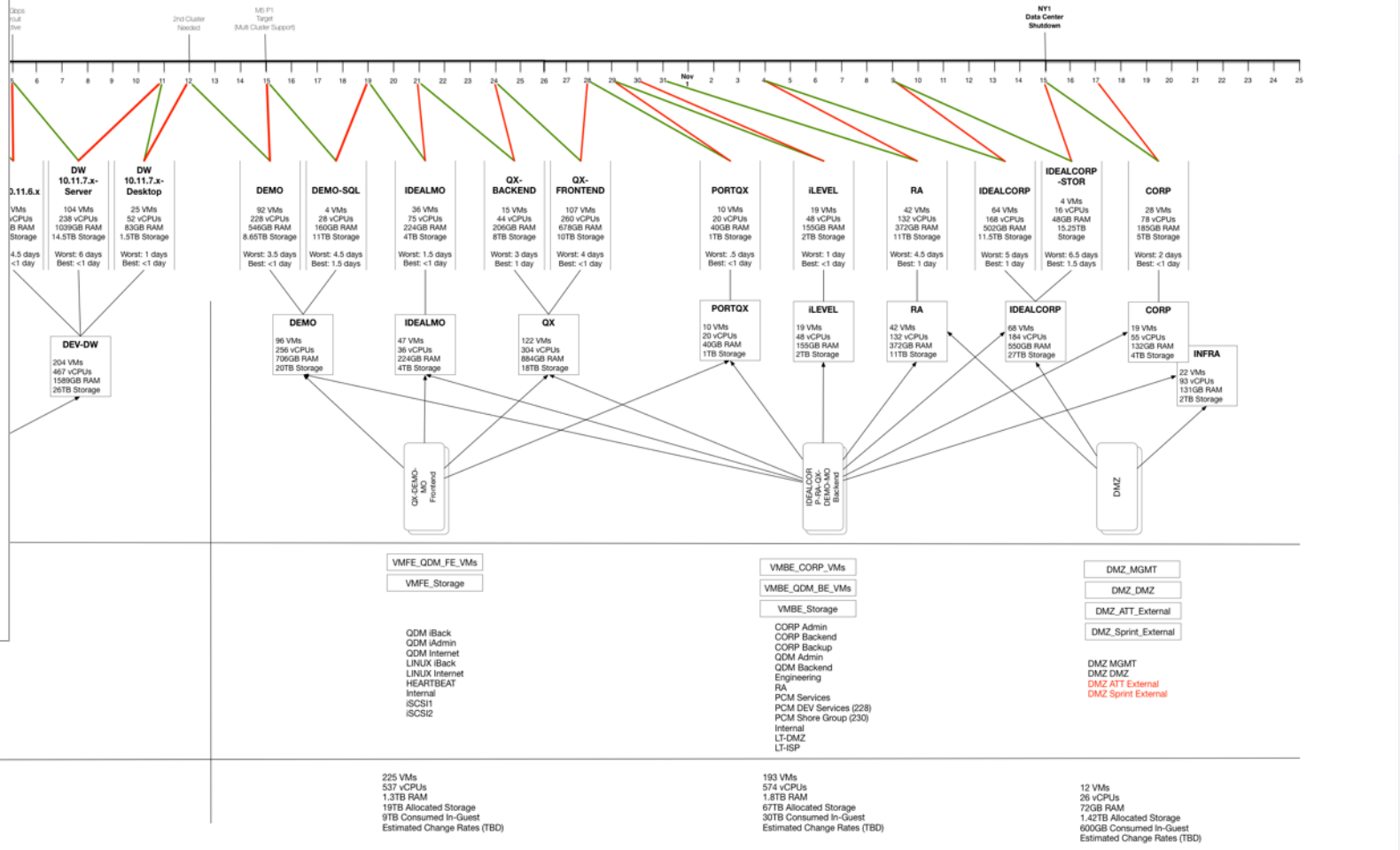
Each wave: 4 days of replication, and 5 hours of cutover time (assumes all similar sized VMs)

Note: Above is a conservative estimate of replication time. Deduplication of traffic with HCX WANopt, and overlapping waves by starting a new wave with completion of previous wave's initial replication have potential to compress replication time by 10-60% (mileage can vary).

Events vs Waves



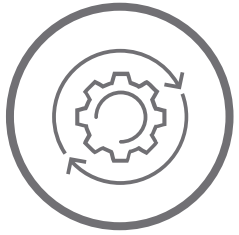




Post Migration Tasks

Some post-migration tasks need to be implemented

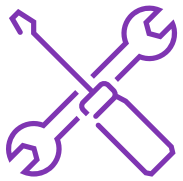
- Update **VMware tools** on migrated VMs
- Remove **extended networks**, if no longer required (migrating gateway)
- Reconfigure **load balancer** if required (new IP assigned to VM)
- Start converting **firewalls / security**



Migration Guidance – Operate

Day 2 Operations

1



Maintenance and Support

2

Monitoring

3

Logging

4

Data Protection

5

Networking and security

Maintenance and Support

Shared responsibilities considerations

VMware / Provider

Management/Compute Gateway

Management Virtual Machines

- VMware vCenter®, NSX-T Data Center, HCX, VMware Site Recovery Manager™

VMware ESXi™ Hosts

vSAN

Customer

Management/Compute Gateway Configuration

Customer Virtual Machines

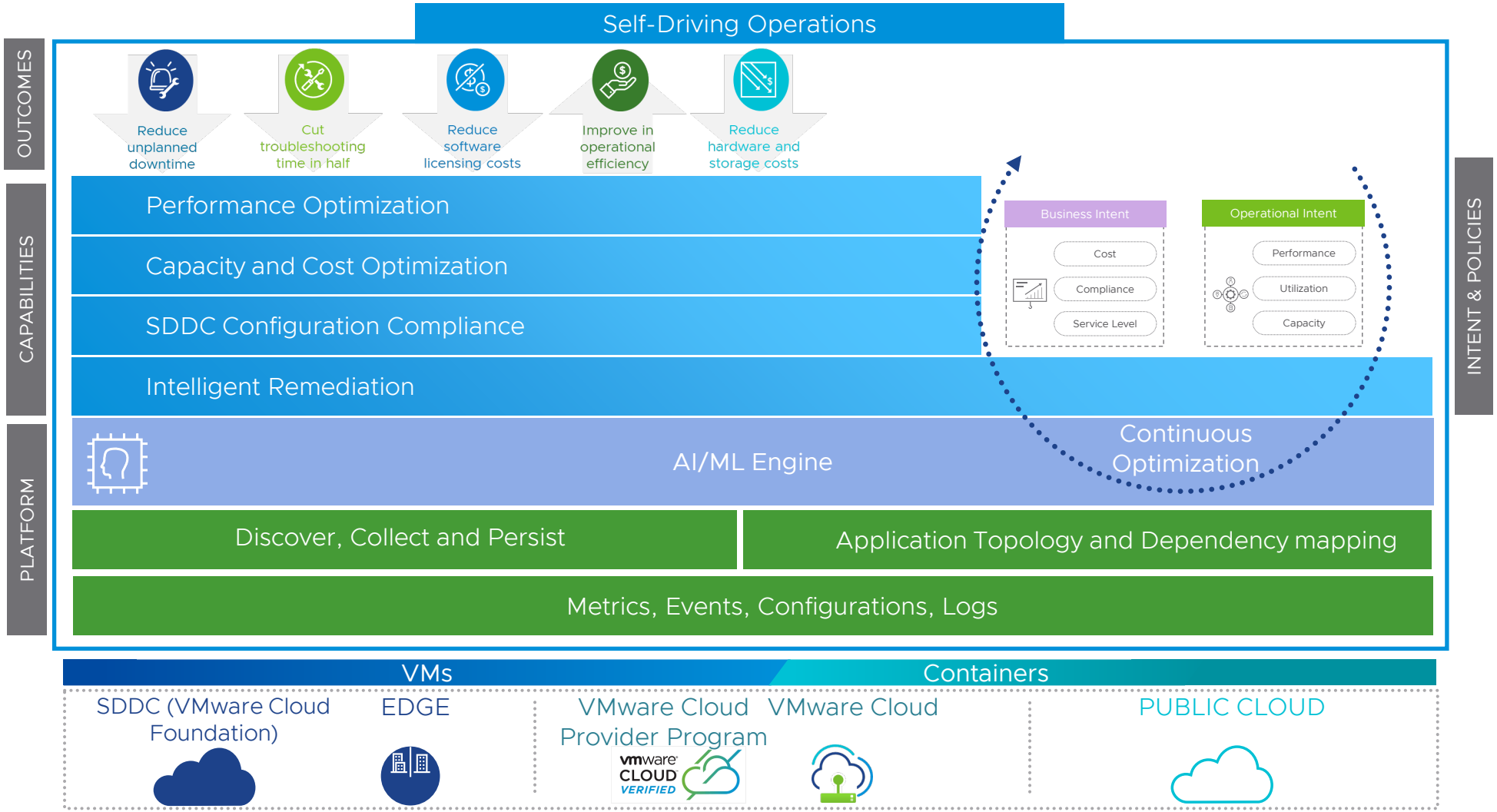
- Guest OS and VM Tools

Guest Applications

Guest Data

VMware Aria Operations: Self-Driving Operations

Consistent operations for consistent infrastructure



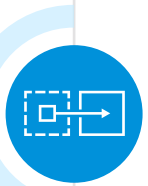
Summary

BEST PRACTICE #1

Get organizational buy-in with a solid team

BEST PRACTICE #2

Move quickly, minimize the changes



BEST PRACTICE #3

Discover and group apps and workloads in logical waves

BEST PRACTICE #4

Leverage cloud services to improve efficiency

BEST PRACTICE #5

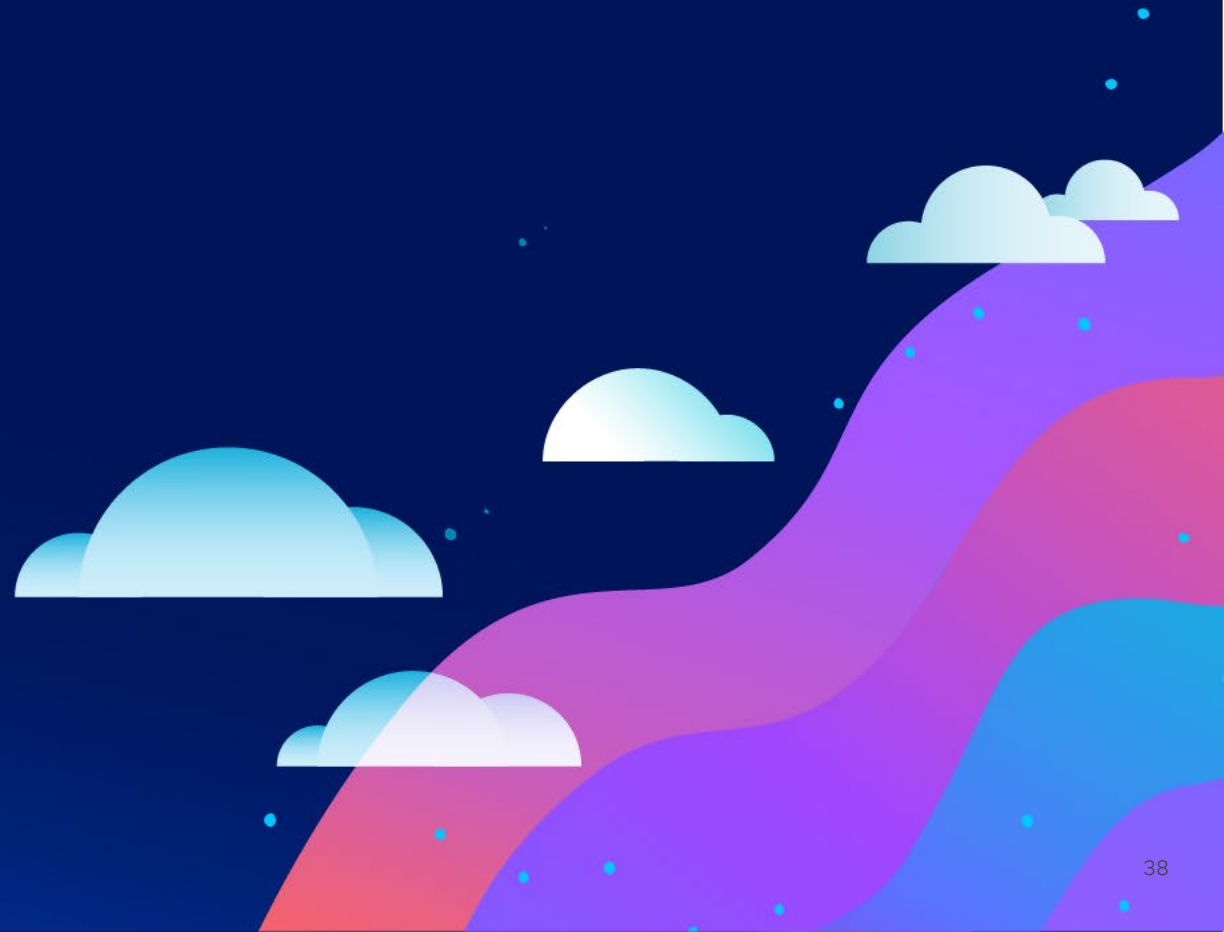
Monitor performance and optimize workloads

BEST PRACTICE #6

Enable and train your organizations to the new

vmware EXPLORE

Please take
your survey.



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Thank You