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Private Cloud Director

Hands-On Lab for VMware Admins

Agenda

- Platform9 & Private Cloud Director
- Architectural Overview
- Infrastructure Concepts
  - Transitioning from VMware
  - Hosts, Clusters, Blueprints, and more
- Hands-on: VM Deployment
- Hands-on: VM Networking
- Migrating VMs with vJailbreak

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Lab Logistics

Expectations

- You'll get a hands-on, real world operational experience
- You'll leave with a deeper understanding of Private Cloud Director
- Everything learned applies to all form factors of Private Cloud Director

Resources

- Slides are linked in your lab environment
- You'll receive a recording of this lab afterwards
- You'll have access to your lab for 3 days

Questions?

- ✅ Use Zoom's Q&A function

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Platform 9 & Private Cloud Director

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Why Platform9?

Proven VMware-native expertise you can trust

Founders built **VMware vCloud Director**

100+ years combined VMware engineering experience

Mission: Open, flexible private cloud without lock-in

Running at **global enterprise scale**

(Fortune 500, large providers)

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Enterprises Choose Private Cloud Director

1

Familiar VM Management, admin friendly

Run VMs and containers on the same integrated platform with a single management plane

2

ALL critical VMware features

VM High Availability, Distributed Resource Rebalancing, VM Live Migration, Distributed Virtual Switches, Software Defined Networking, storage operation offloading, and more

3

Integrates with existing storage and server infrastructure

Protect existing investment in storage and server hardware - we don't lock you into our HCI stack or our OS

4

BEST migration experience in the industry with vJailbreak

Can execute live / cold migration of entire vSphere clusters to Private Cloud Director in weeks or months, vs years, at 1/10th the industry cost substantially lowering switching costs

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Fits into your existing ecosystem

STORAGE

DELL EMC
cisco
Lenovo
Hewlett Packard Enterprise
NetApp
Tintri
PURESTORAGE
SUPERMICRO
Hitachi Vantara
Lenovo INFINIDAT

ENTERPRISE PLATFORMS

DATADOG
new relic
splunk>
OpenTelemetry
Grafana
FORTINET
servicenow
omnissa
argo
harness
f5

NATIVE INCREMENTAL BACKUP

Commvault
COHESITY
storware
TRILIO
VEEAM
rubrik

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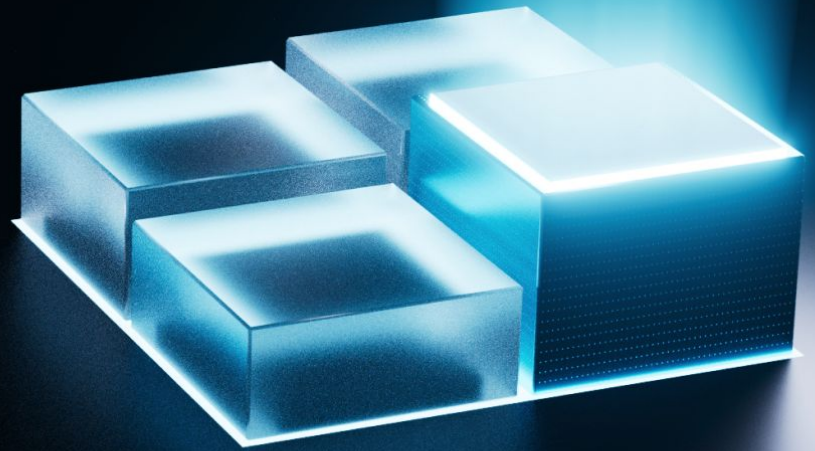
New to the quadrant. Not to the exodus.

Platform9 named a Visionary in the 2026 Gartner® Magic Quadrant™ for Server Virtualization Platforms.

We've been migrating enterprises off VMware since before there was a chart to prove it — entire vSphere clusters, moved in weeks, on the hardware they already own.

Download the Gartner Report >

60-Day Migration Guarantee



Flexible Deployment Options

Same product, different install form factors

Community Edition

- Mgmt plane on single host
- Full-featured, 100% free
- Community support

Learn more

- platform9.com/docs
- reddit.com/r/platform9

Pf9-Hosted Mgmt Plane

- Private management plane per customer
- Hypervisors & workloads on-premises
- Enterprise support tiers available

Self-hosted Mgmt Plane

- Mgmt plane, hypervisors, and workloads run entirely on-premises
- Highly available & scalable
- Airgapped optional
- Enterprise support tiers available

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Infrastructure Concepts

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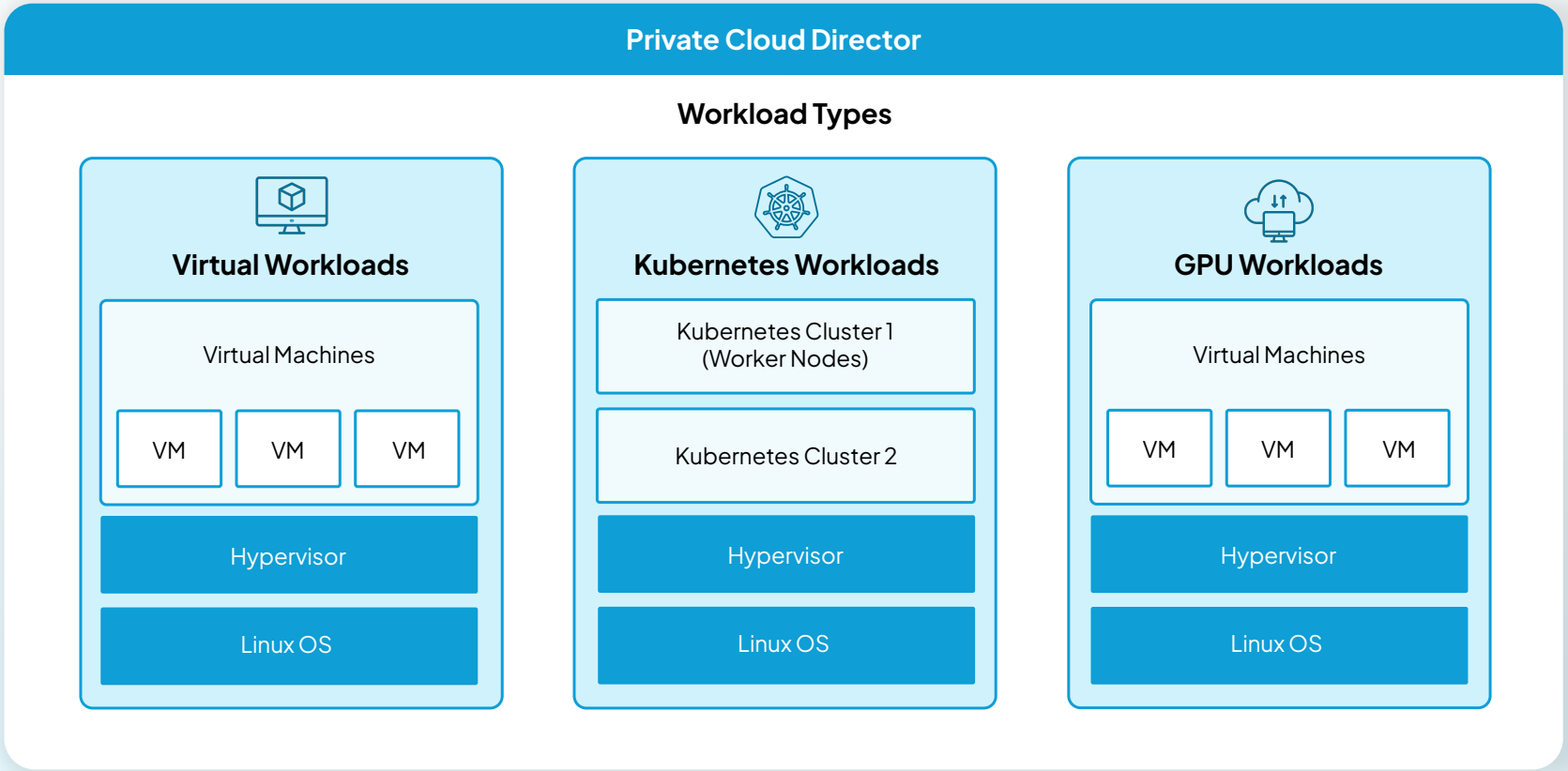
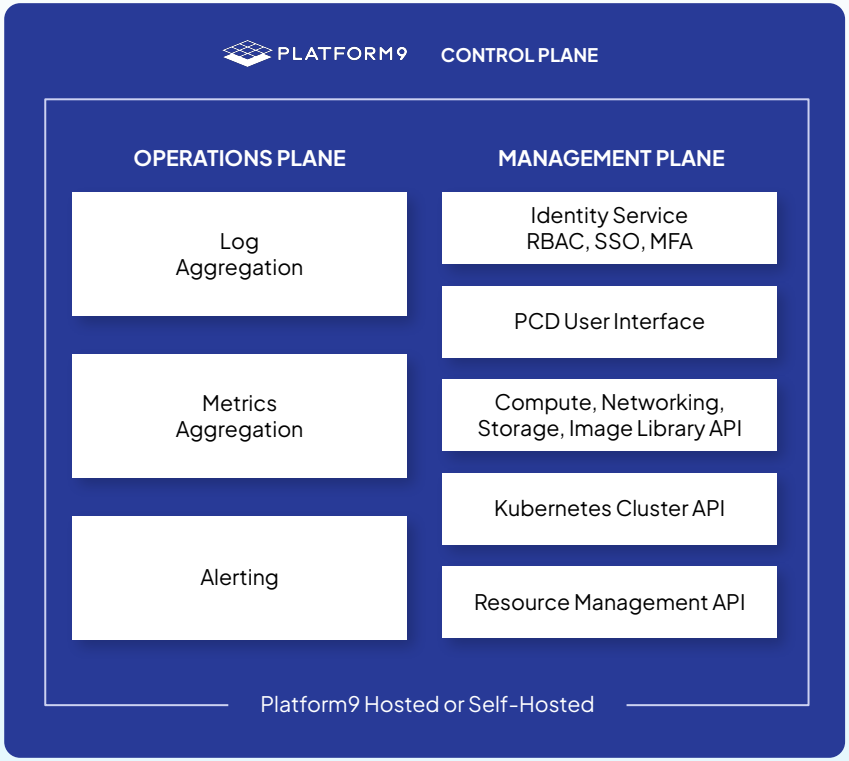
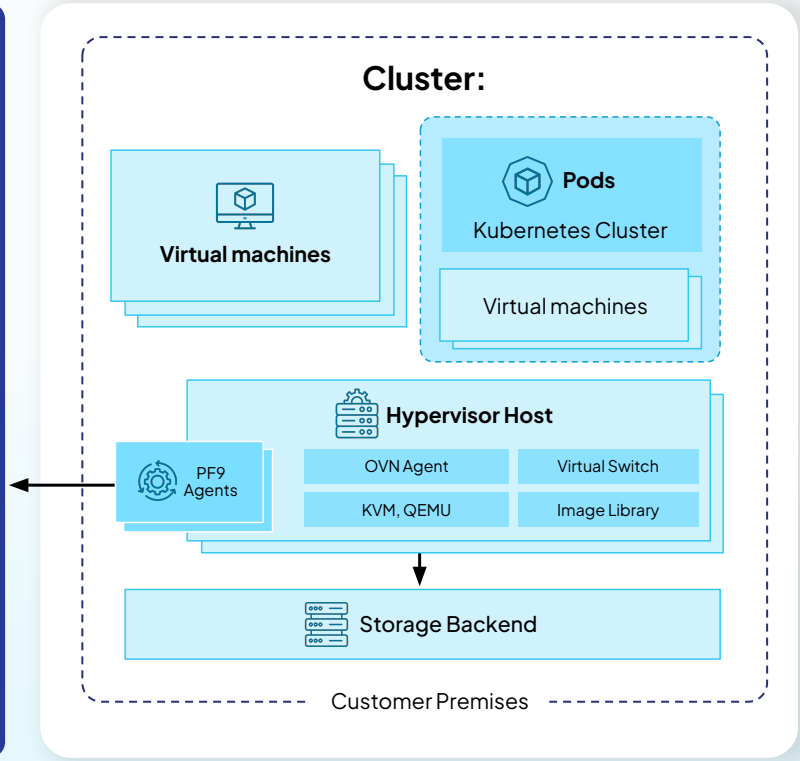
VMs, Kubernetes, and GPU Workloads Side-By-Side



One Control Plane. One Connection. Total Control.

How Private Cloud Director is deployed and operated





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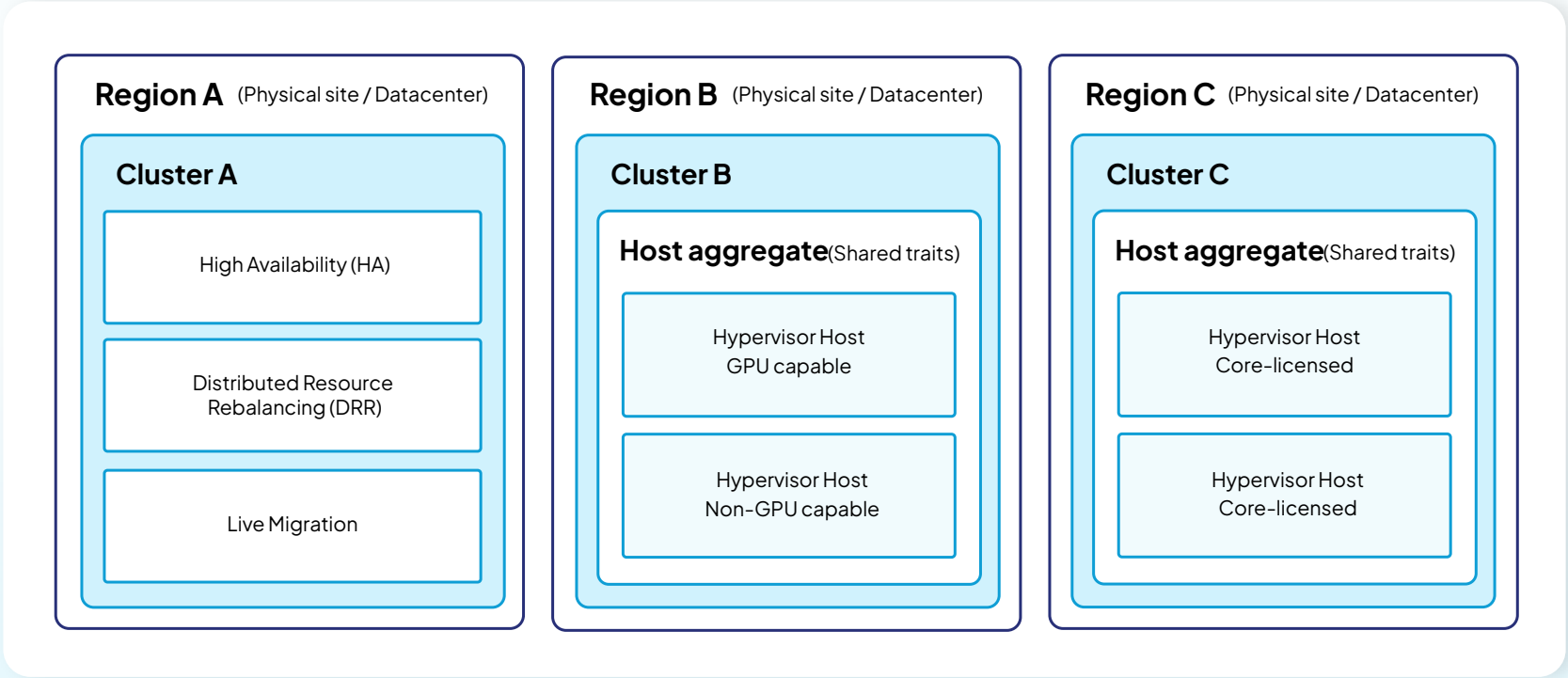
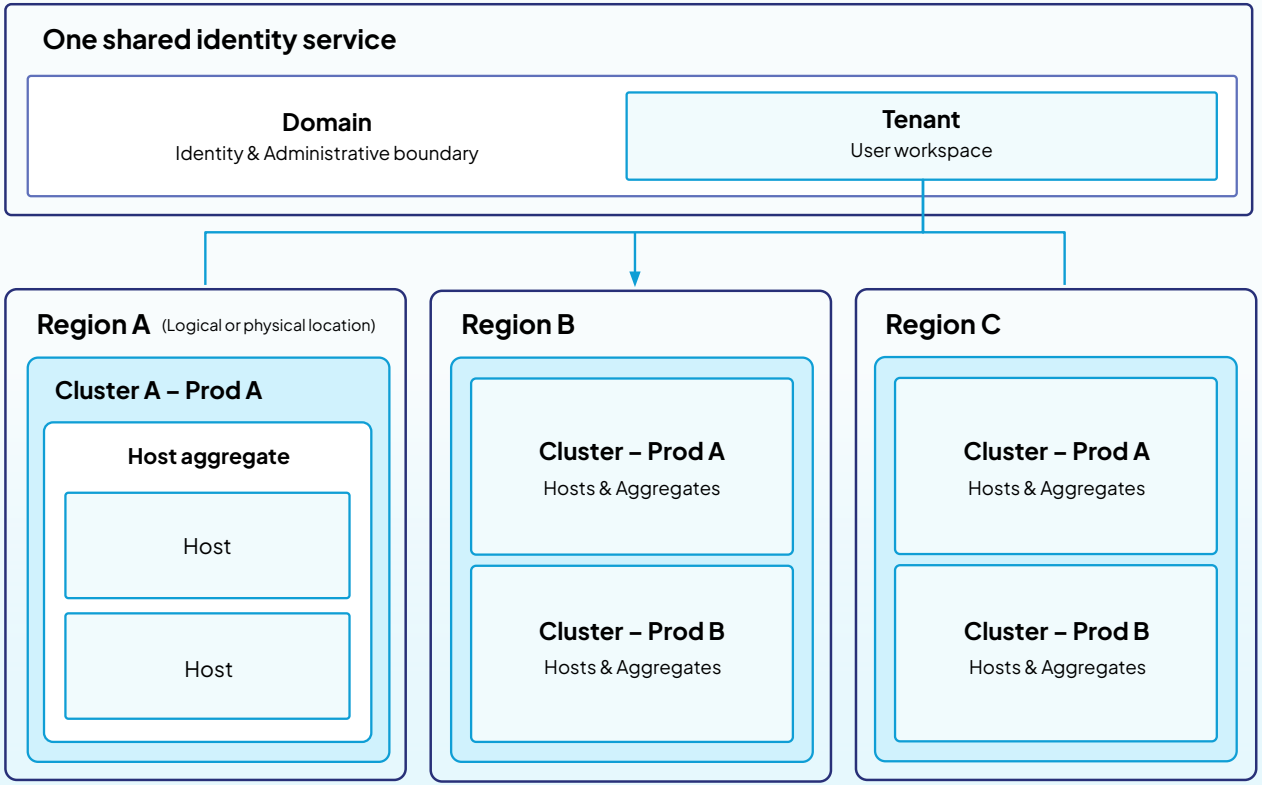
Built on a Hierarchy of Regions, Clusters, and Hosts



Multiple Regions. One Shared Identity.

Independent infrastructure, centralized identity

- Each region runs its own services — compute, block storage, networking and image library.
- Tenant resources and quotas are scoped per region; only identity is shared.
- Cluster names are unique per region
- Tenants have access to all regions



Transitioning from VMware

vSphere Terms	Private Cloud Director Terms
vCenter	PCD management plane (SaaS, on-prem)
ESXi	KVM (open source, not proprietary)
vSphere cluster	Virtualized cluster & blueprint
VMware DRS	DRR (Dynamic Resource Rebalancing)
DRS host groups, VM-host rules	Host aggregates
EVC (Enhanced vMotion Compatibility)	CPU model defined on cluster
VMware HA	VM HA (high availability)
vMotion	VM Live Migration
VMware Template / Content Library	VM Flavors & OS Images
VMware Snapshot	VM Snapshot to Image
VMware Datacenter	PCD Region… sort of
VMware VMFS Datastore	No proprietary VM file system LVM or external block storage (NFS, iSCSI, FC)
VMware vVol	Storage operation offloading using open source Cinder
VMDK disk format	QCOW2 open disk format
vCenter Storage Policies	Storage array capabilities expressed as Volume Types

Cluster Blueprint

Define once per region, apply during hypervisor host onboarding

Network

- Virtual networking segmentation (VLAN, VXLAN, GENEVE)
- Host network interface maps physical interfaces to management traffic types
- Physical Network labels abstract interface names across different hardware and map to networks created in the UI

Storage

- External block storage configurations
- Storage volume types

Cluster defaults

- Image Library location (local path or storage volume type)
- Ephemeral VM storage path
- Shared storage toggles for HA environments

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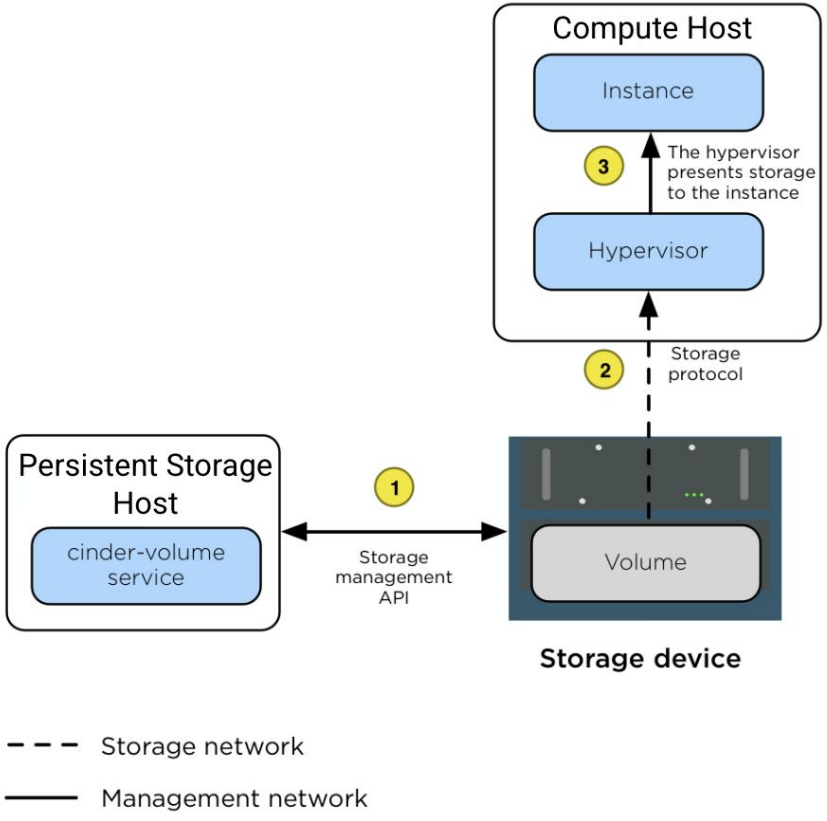
External Storage

Your existing arrays, managed by the platform

- Storage operations (create, snapshot, clone, resize) offloaded directly to the array via vendor-specific drivers
- Volumes persist independently of VMs
- Volume types defined in the blueprint map to external storage capabilities
- Protocols: iSCSI, Fibre Channel, NFS, NVMe/NVMeoF
- Supports **NetApp**, **Pure**, **Dell EMC**, **HPE 3PAR**, **Hitachi**, **Lenovo Infidat**, **Tintri** and any Cinder-compatible driver



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Clusters

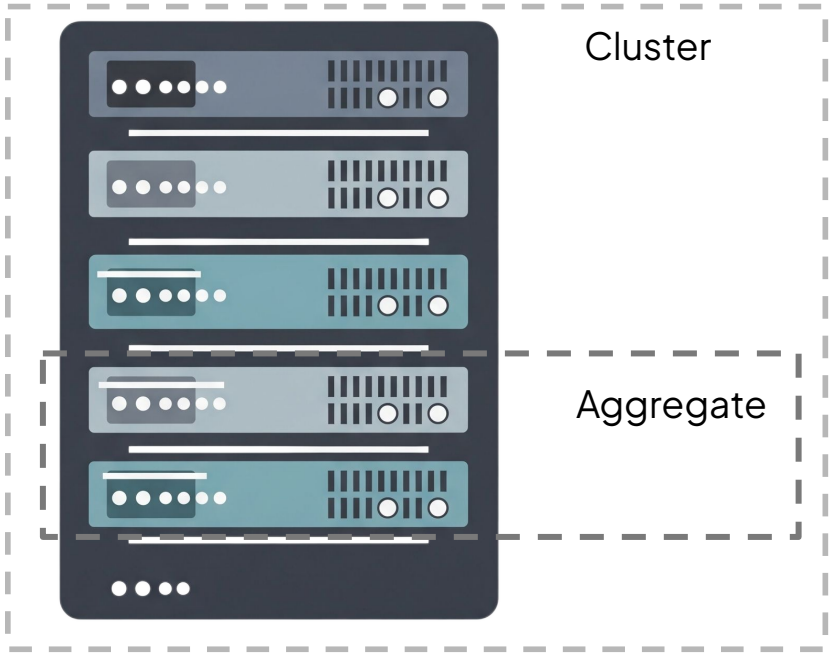
Group hosts, enable features at the cluster level

Per-cluster feature decisions:

- VM High Availability (HA)
- Dynamic Resource Rebalancing (DRR)
- GPU Mode (Passthrough or vGPU)
- CPU Mode (similar to VMware EVC)

Multiple clusters for: tenant isolation, third-party licensing restrictions, or hardware specialization

Host Aggregates: subgroups within a cluster for hosts that share a common trait (e.g., NVMe storage, high memory)



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Host Roles

One host, multiple functions

- **Hypervisor** role runs VMs (KVM). Assign to all hosts unless dedicating a host to another role.
- **Image Library** Stores VM images for the cluster. At least one host required.
- **Persistent Storage** Runs the block storage service connecting to external arrays.
- **DNS** enables DNS as a Service (optional)

Roles are combined on the same host or split across dedicated hosts depending on scale and performance requirements.

Hands-on: VM Deployment

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Lab login

Follow these directions to get your lab

- Go to platform9.com/hol
- Click **Get your lab!**
- Enter your registration email address
- Use the Zoom Q&A for questions

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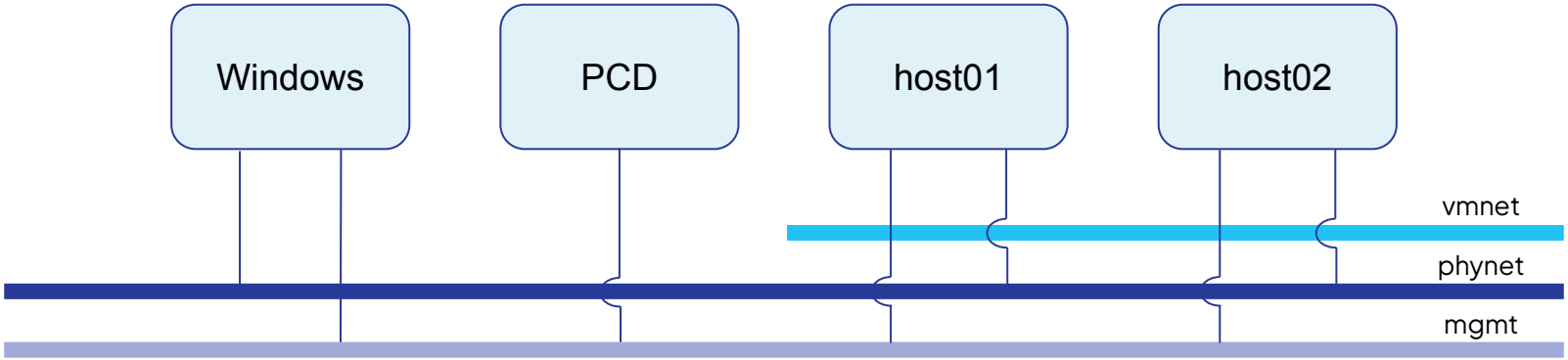
Lab architecture

Just for reference



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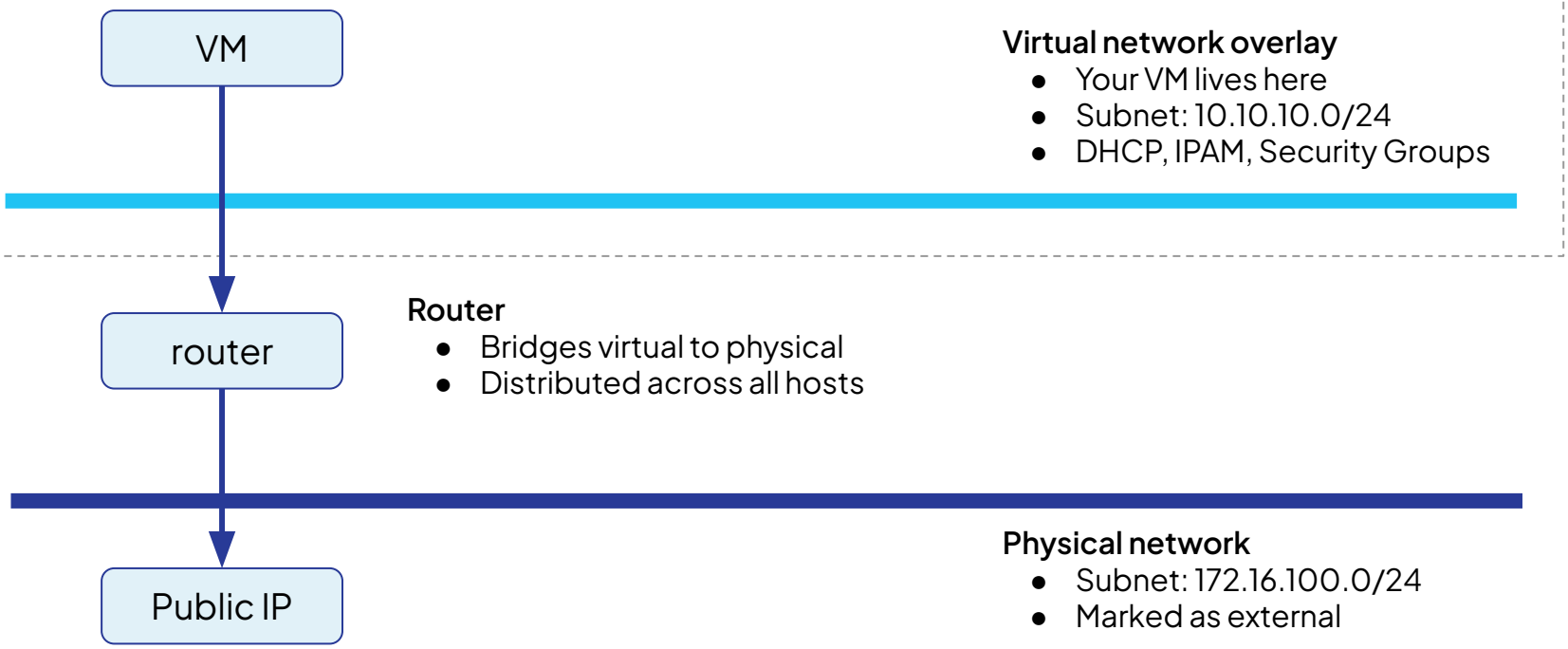
What we're building

Connecting a VM on a virtual network to the outside world



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Deploy a virtual machine

Virtual Machines page > Deploy New VM

1. Name: **ubuntu**
2. Cluster: **cluster01**
3. Boot from: **New Volume, 20GB**
4. Image: **ubuntu-24.04**
5. No additional volumes
6. Flavor: **m1.medium.vol**
7. Network: **vmnet**
8. SSH key: **administrator**
9. Server group: **none**
10. Toggle: **Use cloud-init**
11. Migration priority: **unset**
12. **Deploy Virtual Machine**

Once active:

- Open the VM console
- Login: **ubuntu/winterwonderland**
- Ping 1.1.1.1

Hands-on: VM Networking

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Physical & Virtual Networks

Physical

- Maps to existing datacenter networks
- Can be flat or segmented (VLAN)
- Can be external (ex: LAN or DMZ)
- External networks can assign public IPs to VMs on virtual networks

Virtual

- Does not map to existing datacenter networks
- Uses the cluster blueprint segmentation type: VXLAN, VLAN, GENEVE
- Connects to other networks with a virtual router

Both

- Can be shared between tenants
- Can use DNS as a Service

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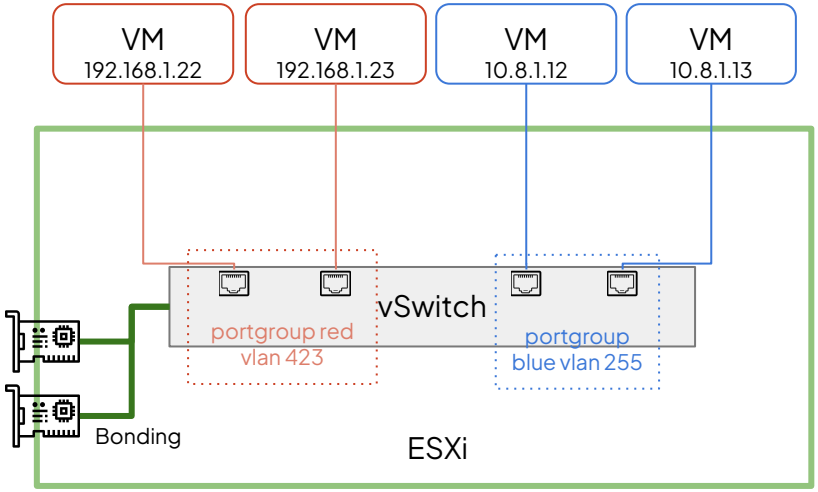
Private Cloud Director Layer 2 VM Networks

VMware vSwitch/dvSwitch equivalent

Layer 2 network

- Simple VLAN based network
- No DHCP; IP assigned in VM
- No IPAM
- No port/interface security



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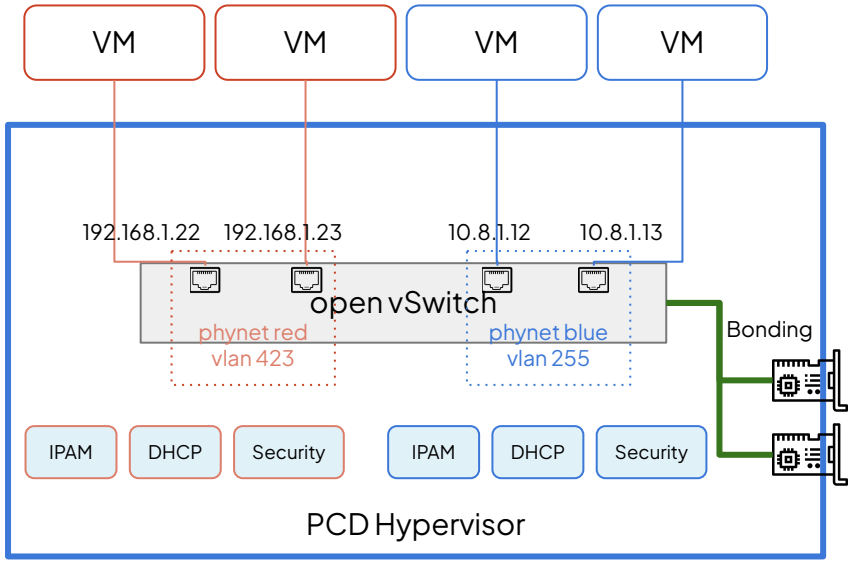
Private Cloud Director Managed VM Networks



- Fully integrated solution with IPAM and DHCP for each subnet
- Subnet DHCP range assigns a fixed IP to the port
- L3/L4 microsegmentation: Security groups define allowed ingress & egress traffic
- Can integrate with external DNS

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Hands-on: VM Networking

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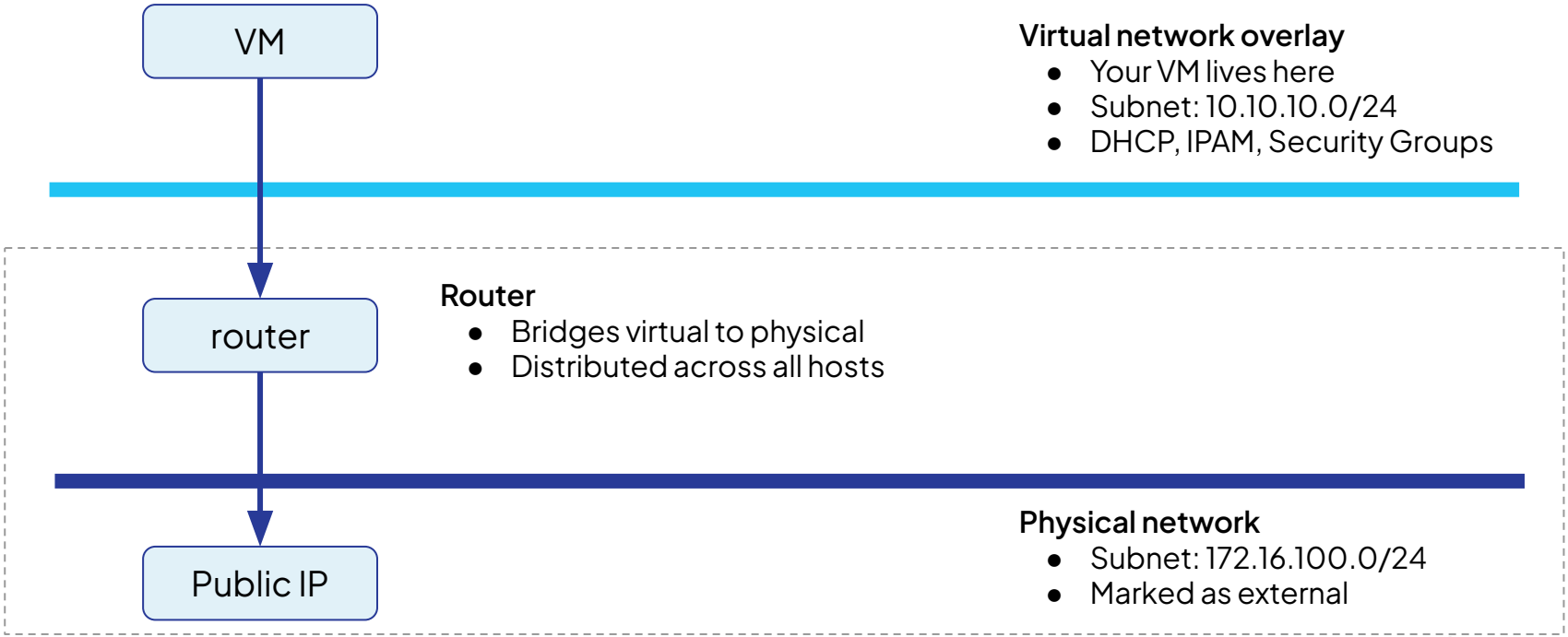
What we're building

Connecting a VM on a virtual network to the outside world



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Create a physical network

Networks and Security > Create Network > Physical Network

Network Configuration

1. Name: **phynet**
2. Select: **Managed Network**
3. Network label: **phynet**
4. Check: **Allow Public IPs**
5. Network type: **Flat**
6. Check: **Make Shared**

Subnet Configuration

1. Name: **phynet-subnet**
2. Network CIDR: **172.16.100.0/24**
3. Gateway IP: **172.16.100.1**
4. Allocation Pool: **172.16.100.10-172.16.100.15**

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Create a virtual router

Networks and Security > Routers > Create Router

Router Configuration

1. Name: **router**
2. External network: **phynet**
3. Interface configuration: **vmnet**
4. Create Router

Assign a public IP

Networks and Security > Public IPs > Create Public IP

Public IP Configuration

1. External network: **phynet**
2. Assign Public IP address
3. Select VM
4. Select VM port

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Create & assign security group

Networks and Security > Security Groups > Create Security Group

Security Group Configuration

1. Name: **ssh & ping**
2. Outbound Rule 1: **All traffic**
3. Add Inbound Rule: **Custom TCP**
4. Port Range: **22**
5. Source Type: **CIDR**
6. CIDR: **172.16.100.0/24**
7. Add Inbound Rule: **All ICMP**
8. Create Security Group

Assign group to VM

1. Navigate to Virtual Machines
2. Select **ubuntu** VM
3. Networking context menu: **Edit Security Groups**
4. Select new rule
5. **Update Security Groups**
6. Ping & SSH from Windows VM

Tenant: Quotas & VM Leases

Prevent sprawl, enforce resource boundaries

Quota types

- **Compute**: cores, RAM, number of VMs, server groups
- **Block storage**: Total capacity, volumes, snapshots, max volume size
- **Network**: Networks, subnets, routers, ports, floating IPs, security groups
- Set per tenant; users can have overrides

VM leases

- Set per tenant
- Can be extended up to the original lease time
- VMs can be automatically powered off or deleted when the lease expires
- Helpful for dev/test environments or to limit VM sprawl

Additional controls

- VM storage type (ephemeral or persistent, or both)
- Volume types

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Migrating VMs with vJailbreak

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Next Steps

So… now what?

Expect a follow-up email with the recording, slides, and a survey.

If you enjoyed this session, visit platform9.com to sign up for a webinar, to contact sales or to get started with Community Edition.

Documentation can be found at docs.platform9.com

You can also join the community at reddit.com/r/platform9

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Thank you

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