Prism - Microservices Infrastructure

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Microservices Infrastructure (MSP) provides a common framework for delivering microservices associated with Prism Central-based components such as Flow Virtual Networking, Objects, and the Security Dashboard. MSP also provides services such as Identity and Access Management and internal service load balancing.

Before MSP, Prism Central was a monolithic application. With MSP enabled, certain services are migrated and spun up in a Kubernetes (K8s) cluster as pods. Over time, most of the Prism Central services will be migrated and converted to microservices leveraging the common platform. This will enable services to be upgraded independently through LCM, so particular services can be upgraded without having to upgrade the entire PC instance, resulting in faster upgrades and quick patch updates.

As of PC.2022.9, the Microservices Infrastructure is enabled by default. When you upgrade to the latest version of Prism Central, MSP will be automatically enabled. Refer to the Prism Central MSP documentation for the full list of prerequisites and considerations.

Network Configuration

When MSP is enabled, a Kubernetes cluster is created on Prism Central. This Kubernetes cluster is one node with a standalone Prism Central and three nodes with a scale-out Prism Central.

MSP uses the following subnets.

|---|---| |Subnet|Purpose| |10.100.0.0/16|Reserved for K8s pod network| |10.200.32.0/24|K8s Services (Flow Virtual Networking, IAM, etc)| |10.200.0.0/16|Reserved for K8s Services network| |10.100.0.0/24|K8s pod - PC1| |10.100.1.0/24|K8s pod - PC2| |10.100.2.0/24|K8s pod - PC3|

If you already use these subnets for DNS or Active Directory and require different IP ranges, contact Nutanix Support.

On the firewall, bidirectional traffic should be allowed between Prism Central and:

- All of the Prism Element CVM IPs
- Prism Element Virtual IPs
- Prism Element Data Services IPs

On TCP ports:

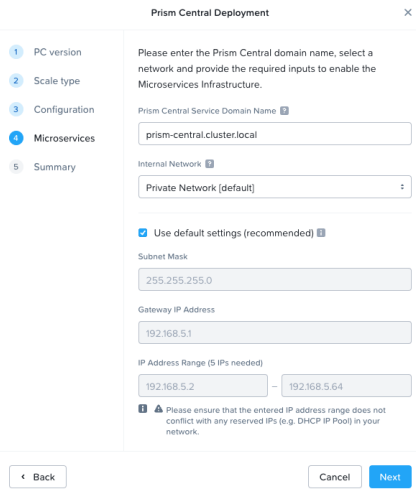
- 3205 - iSCSI data plane connection
- 3260 - iSCSI control plane connection
- 9440 - Prism UI/API

Additionally, Prism Central should be able to ping all the Prism Element CVM IPs and Prism Element Virtual IPs.

During deployment, Prism Central must access several cloud services over port 443. For the most up-to-date list and diagrams, refer to the Ports & Protocols page on the Support Portal. There is also a dark site method of deployment for networks without Internet access, which is covered in the Prism Central MSP documentation.

When deploying Prism Central or enabling MSP, there are two options for the internal network configuration.

- Private Network (default): an internal private network is deployed using VXLAN for Kubernetes node communication. The default settings use 192.168.5.0/24. This requires no additional IPs from the physical network.
- VLAN Network: a managed or unmanaged VLAN network that has been configured on the Nutanix cluster. Five IPs are needed from the physical network for a single-node PC setup and 10 IPs are needed for a three-node scale-out PC setup. This option will add a second NIC to every PC VM for Kubernetes node communication.



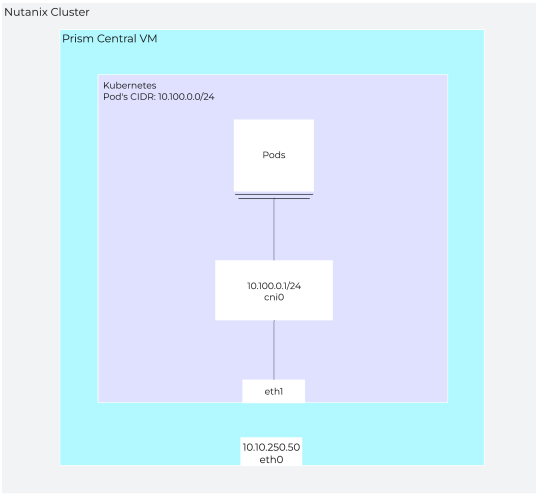
Microservices Setup During Prism Central Deployment

Architecture

The diagrams below assume the default private VXLAN network.

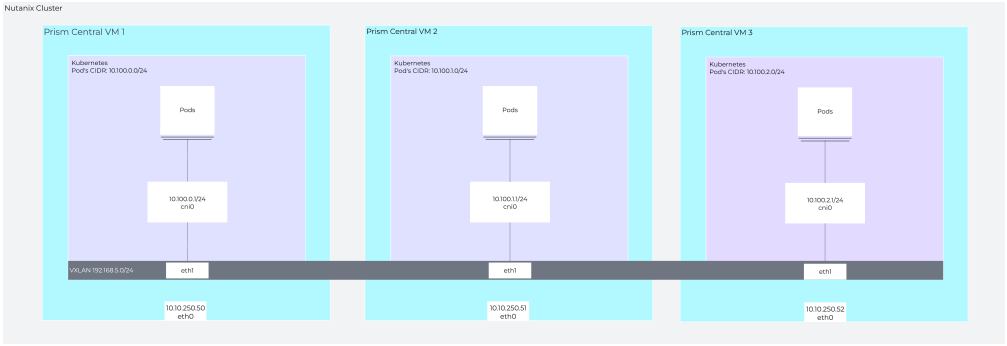
An example architecture diagram for the Kubernetes node on a single-PC deployment looks like the following. Note that the example does not show every service running in the Kubernetes cluster.

In this example, 10.10.250.50 is the IP address assigned to the PC VM and 10.100.0.0/24 is used as the network for the Kubernetes pod.



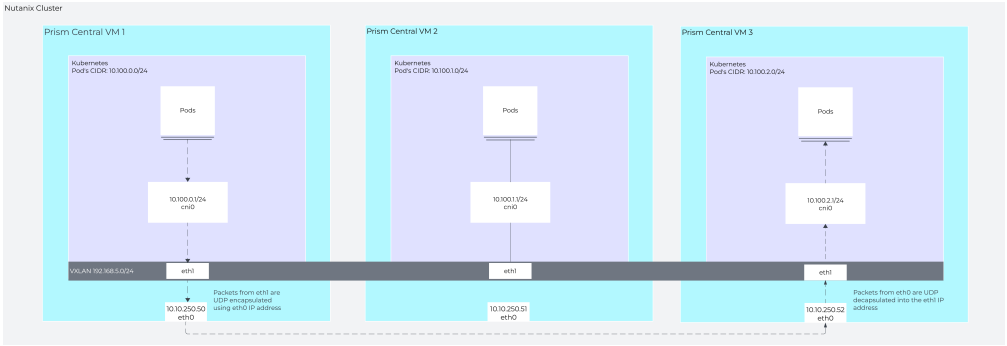
Single Node PC

For scale-out PC, two additional Kubernetes nodes are provisioned and they use the 10.100.1.0/24 and 10.100.2.0/24 networks for their pods, respectively.



Scale-out PC

In a scale-out PC setup with VXLAN, pod-to-pod traffic across nodes uses direct routing and is encapsulated using the Prism Central VM IP.



Traffic from a pod on PC VM 1 to a pod on PC VM 3