Palette

Palette Virtual Machine Orchestrator

The situation

While the world moves to containerized microservices, virtual machines and monoliths still have a role to play, just as the data center is still relevant even though public clouds exist. As a result, like many enterprises you may have:

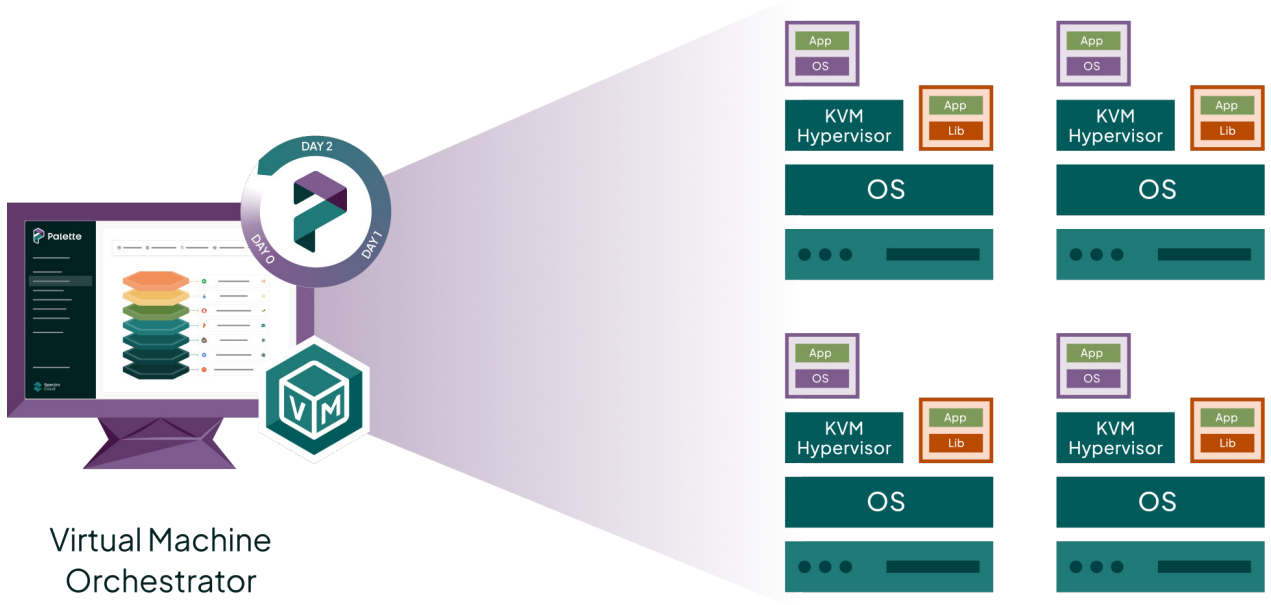
- VMs that you plan to refactor in the future, but not today
- VMs that you plan to keep using indefinitely
- Hybrid workloads using both containers and VMs
- New VM-based applications being built where it makes sense to do so.

You may think this leaves you running two sets of infrastructure in the data center: a cloud-native stack with Kubernetes for your containers, and a virtualization stack for your VMs — each not only with different operating models, but potentially also requiring different underlying infrastructure or hardware, managed by separate teams with distinct skill sets. This dual-stack complexity can introduce inefficiencies, increase costs, and slow down innovation, especially when teams must maintain and secure parallel environments that don't easily interoperate. But there is another way.

The solution

Palette's Virtual Machine Orchestrator (VMO) feature enables you to run your VM-based applications natively inside your Kubernetes clusters—on bare metal servers in the data center or at the edge, including in air-gapped environments. You can run VMs on the same clusters as containers, and manage them from the same unified platform. VMO enables you to

- **Streamline**: Standardize on a single Kubernetes-based operating model for all your workloads, eliminating inefficiencies and leveraging the Kubernetes skills you've invested in
- **Innovate**: Give your VMs the benefit of Kubernetes capabilities around declarative management, scheduling and resiliency, as well as access to the K8s software ecosystem
- **Save**: Reduce your dependency on VMware and cut TCO through elimination of vSphere licenses and consolidating platforms and teams.
- **Migrate**: With the new Virtual Machine Migration Assistant, you can easily migrate VMware vSphere VMs to Palette, removing a major hurdle in switching to a Kubernetes-centric platform for both VMs and containers.



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How it works

VMO is a capability that you can activate at no additional cost within the overall Palette Kubernetes management platform.

You install VMO into each bare-metal or edge cluster where you want to be able to run VMs, by adding the Virtual Machine Orchestrator Pack to a Cluster Profile and applying that Profile to your cluster. The Pack contains all the components you need.

When you install VMO, a new tab called 'Virtual Machines' will appear in the cluster view of the Palette UI, where you can deploy and manage your VMs, with VMs represented as first-class citizens alongside your containers, and using the same policies, Role-Based Access Control (RBAC), and automation features.

VMO supports fundamental virtualization features, such as (but not limited to) live migration, snapshots, clone operations, templates, auto-balancing the VMs in the cluster based on the node consumption, backup/restore, maintenance mode for physical nodes, and more. VMO is built on the following:

- KubeVirt, an open-source add-on for Kubernetes that enables it to run VM workloads
- Persistent CSI storage infrastructure, such as Portworx, essential for VMs
- VLAN-capable network infrastructure, including Cilium and Multus.
- Role-based access control (RBAC) for secure, granular VM access across teams

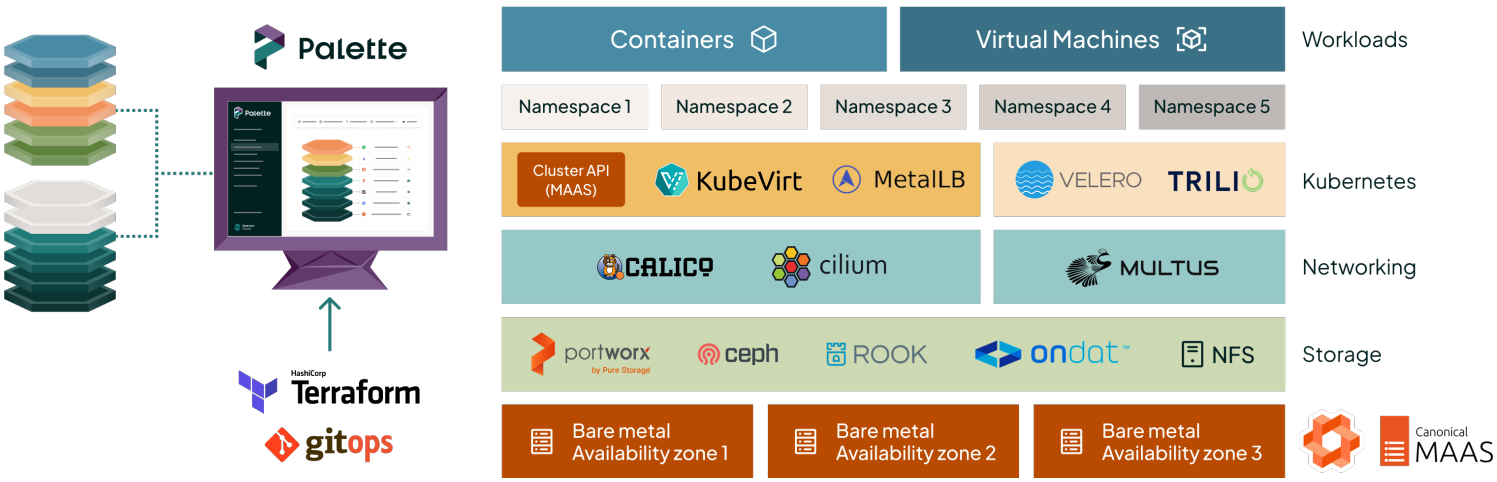
For customers migrating from VMware, Palette's VM Migration Assistant streamlines both vSphere VM migrations and OVA imports—removing major adoption barriers.

Why choose Palette

Other vendors offer some ability to run VMs on containers, and if you're brave, it's possible to DIY using KubeVirt. But with Palette you get.

- The simplest and most flexible way to deploy and manage bare-metal or edge including air-gapped clusters with VMs and containers running side by side as first-class citizens.
- Easy setup, with KubeVirt and all its dependencies preconfigured in a Spectro Cloud-supported Pack, managed centrally via cluster profiles for repeatable deployments.
- Easy migration from VMware vSphere through our VM Migration Assistant (VMA)
- Native multicluster support, for unified management of VM workloads spanning your entire fleet via a single UI/API
- Always-on declarative management, enforcing cluster desired state and eliminating configuration drift and ensuring compliance
- Production-grade VM management capabilities, including live migration, dynamic resource rebalancing and maintenance mode, backups and RBAC
- Simple and safe access to ecosystem innovation, through 50+ out-of-the-box integrations.
- Canonical MAAS integration for bare-metal automation, with Cluster API support for OS, Kubernetes, and lifecycle management.

You can see examples of solution elements in the diagram below. For full details of the technical implementation, or ask your Spectro Cloud contact for a copy of the VMO Reference Architecture.



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