

## Project Pacific: Frequently Asked Questions

### Q1: What is Project Pacific?

A: Project Pacific is a new evolution of the vSphere platform that tightly integrates a Kubernetes control plane with vCenter, ESXi (compute), networking and storage. Project Pacific enables developers to use familiar Kubernetes APIs to self-service manage data center infrastructure. The Kubernetes control plane is managed completely by vCenter, allowing IT operators to deliver Kubernetes clusters and ESXi native Pods to developers, in a self-service manner

### Q2: Why should I care about Project Pacific?

A: Project Pacific empowers IT Operators and Developers to accelerate innovation by converging Kubernetes, containers and VMs into VMware's vSphere platform. VMware rearchitects vSphere with native Kubernetes and extend its capabilities to all modern and traditional applications. Project Pacific transforms vSphere into the app platform of the future.

### Q3: When will Project Pacific be available for VMware customers?

A: Project Pacific was announced on August 26, 2019 at VMworld US, 2019 as a Technology Preview. A "technology preview" not announcing commercial terms for Project Pacific at this time. Specifically, we do not have a timeline to make these capabilities available to customers in vSphere. Just like any other technology preview, note that the features showcased may evolve over time and/or may not make it into a final product.

### Q4: Who is the target audience for Project Pacific and what are their day to day problems?

A: Two key personas targeted by Project Pacific are IT Operators and Enterprise Application Developers.

Problems faced by IT operators when it comes to modern apps are:

- Infrastructure is siloed across different technology stacks and application types, making it difficult to provision and manage applications
- Security isolation of modern apps and sensitive databases is difficult
- Each infrastructure and application have inconsistent operational tools and workflows, slowing down and limiting IT governance

Problems faced by developers are:

- Long lead times for accessing modern developer services and IT resources necessary for modern application development and operations
- Performance and availability of infrastructure is not adequate towards meeting demands of modern apps
- Day 2 operations and lifecycle management of Kubernetes clusters either requires too much work for developer teams or provides insufficient flexibility for application demands

## **Q5: What are the key innovations of Project Pacific?**

A: Key innovations of Project Pacific are as follows:

- **vSphere with native Kubernetes**
  - Embed Kubernetes into the control plane of vSphere for unified access to compute, storage and network resources
  - Operators can deliver Kubernetes clusters as a service to developers
  - Developers and IT Operators can converge VMs and containers using the new ESXi native pods that are high performing, secure and easy to consume
- **App-focused management**
  - App level control for applying policies, quota and role-based access to developers
  - Apply vSphere features (HA, vMotion, DRS) at the app level and to the containers
  - Unified visibility in vCenter for Kubernetes clusters, containers and existing VMs
- **Dev & IT Ops collaboration**
  - Developers use the familiar Kubernetes APIs to access the software defined datacenter resources (compute, storage and networking)
  - IT operators use the familiar vSphere tools to deliver Kubernetes clusters and ESXi native Pods to developers, in a self-service manner
  - A consistent view of the Kubernetes clusters, VMs and containers between Dev and IT Ops via Kubernetes constructs in vSphere

## **Q6: What are ESXi native pods?**

A: Project Pacific has fundamentally rearchitected vSphere by adopting Kubernetes natively, as a means to operate applications running on vSphere. Developers can now easily create and consume high performance Pods that are native to ESXi and highly secure. No lifecycle management would be required for these ESXi native pods. Embracing Kubernetes into vSphere natively is a huge step that has allowed VMware to change the experience of IT operators and developers to enable a game-changing collaboration.

## **Q7: How does Project Pacific compare to vSphere Integrated Containers (VIC)?**

A: ESXi native pod runtime from Project Pacific is an evolution of the lessons learned from VIC. The native pods are high performance, secure and easy to create and consume. There is also no need to lifecycle manage these pods individually by developers as they are native to ESXi. Another important distinction is that Project Pacific embraces Kubernetes as the API to the platform. One of the most common questions among VIC users was how it would work with Kubernetes. Following are a few other distinctions compared to VIC, given the native Kubernetes architecture of vSphere:

- 1- VIC focused only on running containers, whereas Project Pacific extends Kubernetes APIs to manage Kubernetes clusters, VMs and ESXi native pods on entire datacenter infrastructure (compute, networking and storage)
- 2- VIC runs each Container isolated in its own VM, Project Pacific isolates Kubernetes Pods in their own VM. This allows multiple containers to run together in the same VM boundary making it easier to consume and create by developers.
- 3- VIC was an add-on to vSphere and worked entirely on top of existing hypervisor capabilities. Project Pacific takes this a step further by embedding Kubernetes into ESXi to better support containers and eliminate the need to install any separate add-on.

**Q8: How does Project Pacific's support for Kubernetes Clusters compare to VMware PKS?**

A: Project Pacific is aligned with VMware PKS in a mission to build a consistent implementation of open source Kubernetes across environments (a grid that makes Kubernetes capability as available as a utility like electricity). Project Pacific will offer the best implementation of Kubernetes in a future release of vSphere. VMware PKS offers the best implementation of Kubernetes across current releases of vSphere, public clouds and edge environments.

**Q9: Why would I buy VMware PKS now rather than wait for Project Pacific to be available?**

A: There are two primary reasons: (1) your enterprise needs to deploy Kubernetes now to start realizing business impact, and (2) VMware PKS is built on the exact same common elements as the Kubernetes service in Project Pacific (open source Kubernetes, lifecycle management) for flexibility; with VMware you will never be locked in to one distribution or environment.

**Q10: How does Project Pacific relate to the Tanzu announcement from VMware?**

A: Project Pacific is aligned with VMware Tanzu in a mission to build a consistent implementation of open source Kubernetes across environments (a grid that makes Kubernetes capability as available as a utility like electricity). Project Pacific will offer the best implementation of Kubernetes in a future release of vSphere.

**Q11: Will Enterprises be able to run existing VM-based applications in Project Pacific using its app-focused management capabilities?**

A: Yes. Project Pacific will deliver the ability for IT operators to operate existing VM based applications alongside Kubernetes clusters & containers; and visualize all of these as objects in the vCenter Server inventory.

**Q12: What's the difference between a Supervisor Kubernetes Cluster and a regular Kubernetes Cluster? Why do we need both the layers of Kubernetes? Could I just continue using upstream Kubernetes clusters with Project Pacific?**

A: A regular (or upstream) Kubernetes cluster uses Linux or Windows as the worker nodes and pods execute on those worker nodes, which one can run on Project Pacific to get full version compatibility and portability of Kubernetes cluster. In the supervisor cluster, pods run natively on ESXi hosts providing a higher performance and security as compared to containers deployed on bare metal.

In discussions with customers, we find there are two very different operational use cases for Kubernetes. One use case is "Kubernetes as Infrastructure", where there are a small number of centralized Kubernetes clusters run by IT and developers get shared access to one or more of these clusters. The other use case is "Kubernetes as application component", where each developer team or microservice runs in its own dedicated Kubernetes cluster.

VMware Project Pacific allows the best of both worlds on vSphere because neither of these models are wrong, and in fact we find that most organizations need both. The supervisor Kubernetes cluster provides a vSphere native way of running "Kubernetes as Infrastructure", and extends Kubernetes to manage VMs and other SDDC resources. The Kubernetes cluster service on the Supervisor enables the "Kubernetes as application component" use cases, and can also be used to provide a variant of the "Kubernetes as infrastructure" where the customer wants to use a purely upstream compliant centralized Kubernetes platform.