VMware hopes a raft of new Kubernetes-based enhancements can position the company as the right choice for customers interested in container migration while they retain investments in vSphere.

The strategy centers on [Tanzu](https://searchservervirtualization.techtarget.com/news/252469322/VMware-plans-to-overhaul-vSphere-for-Kubernetes), a product portfolio VMware introduced at the VMworld conference in August. A chief component is the Kubernetes Grid, a distribution of the container orchestration engine that sets up clusters in a consistent way across various public clouds and on-premises infrastructure.

Another product, Tanzu Mission Control, provides management tooling for Kubernetes clusters. VMware has also pushed its [acquisition of Bitnami](https://www.techtarget.com/searchcloudcomputing/news/252463455/VMwares-Bitnami-buy-targets-multi-cloud-deployments) under the Tanzu header. Bitnami, which offers a catalog of pre-packaged software such as the MySQL database for quick deployment across multiple environments, is now called Tanzu Application Catalog.

Finally, VMware has rebranded Pivotal Application Service to Tanzu Application Service and changed its Wavefront monitoring software's name to Tanzu Observability by Wavefront.

This flurry of [product development](https://www.techtarget.com/searchnetworking/news/252481484/NSX-T-30-enriches-VMwares-offering-for-hybrid-IT) and marketing around [Kubernetes](https://www.techtarget.com/searchitoperations/definition/Google-Kubernetes) has a critical purpose for VMware.

"Kubernetes has practically stolen virtualization from VMware, so now it needs to upgrade the engine room, while keeping the promenade deck the same and hoping the passengers stay on board and do not jump ship," said Holger Mueller, an analyst at Constellation Research.

A big part of this plan involves the new vSphere 7, which has been reworked to run both container and virtual machine workloads by embedding Tanzu Kubernetes Grid and other components. This vSphere option is initially available only through [VMware Cloud Foundation](https://searchconvergedinfrastructure.techtarget.com/news/252452214/Dell-EMC-VxRail-HCI-builds-on-VMware-Cloud-Foundation) 4, which is supported on AWS, Azure, Google, Oracle, Rackspace and IBM's public cloud services, as well as through other VMware partners.

VMware also plans to release a separate, Kubernetes-less edition of vSphere 7 for customers who don't want that functionality. Tanzu Kubernetes Grid, Application Catalog and Mission Control are available now, while Cloud Foundation 4 and [vSphere 7](https://www.techtarget.com/searchvmware/tip/The-future-implications-of-VMware-Project-Pacific) are slated for release before May 1.

**Users gravitate towards containers**

VMware's announcements further confirm the industrywide trend of users moving away from their core virtualization platforms and more seriously exploring container migration. With VMware the longtime industry leader in virtualization, the announcements carry added weight.

"There is a transition happening in compute technology of what is being used to deliver the apps that is moving away from virtualization to containers -- not that virtualization isn't useful for other things," said Gary Chen, IDC's research director of software-defined compute. "VMware is trying to make that transition, and they appear to be pretty serious about it."

VMware's efforts around Kubernetes stem back a few years. It previously offered Pivotal Container Service as an add-on to its core platform, and acquired a batch of Kubernetes talent and related IP through its purchase of Heptio in 2018. Two of the three original authors of Kubernetes now work at VMware.

"At the end of the day, [Kubernetes](https://www.computerweekly.com/news/252474575/VMware-doubles-up-on-Kubernetes-play) is still an orchestration tool for automating containers, but what if you are not in a developer group?" said Brian Kirsch, an IT architect and instructor at Milwaukee Area Technical College. "What they are introducing here is for people writing their own software and moving toward containers, but will there be enough support on the back end for those not ready for Kubernetes or containers, or who may never need them? We support 45,000 students here, but we still buy our software and don't write it."

Many companies in large vertical markets, such as manufacturing and healthcare, are often slow to move to another DevOps environment once they have settled on a product. Traditionally, many applications in those markets aren't updated often by the vendors and it can be a monumental task to pursue container migration, even for long-time vSphere users.

"Up until just a few years ago, some of the larger EHR apps were still in VB [Microsoft's Visual Basic] for the front end," Kirsch said. "It just takes time."

While VMware executives tout that Cloud Foundation and vSphere products can work on competitors' cloud platforms, Kirsch said he thinks the company is overplaying the importance of that capability.

"Writing an app once and have it run wherever you want is good for some, but I don't know that many people who want to hop around that much," Kirsch said. "My question is: How many times have you left your cloud provider unless it goes belly up? A lot of work is involved with this and no matter how transparent it is, it's almost never like just flipping a switch," he said.

**Controlling the control plane**

Some analysts see the VMware announcements around container migration as counterpunching the competitive efforts of IBM-Red Hat and others to gain a firm grasp of the management software piece of both the cloud and on-premises applications.

"If Red Hat succeeded in commoditizing the enterprise OS space, making RHEL and Windows Server the two de facto standards, then the next layer to be commoditized is the control plane, which I still believe to be the PaaS layer," said Geoff Woollacott, senior strategy consultant and principal analyst at Technology Business Review. "Right now, the main rivals for that are VMware with this announcement, Azure and OpenShift."

The U.S. Air Force is in the midst of evaluating multiple Kubernetes distributions and management tools, including Red Hat OpenShift, Rancher and a beta version of Tanzu Kubernetes Grid. The various IT teams within the military branch can use whichever Kubernetes platform they choose. For the Air Force's purposes, the latest Red Hat OpenShift versions will beat VMware to the punch in disconnected and [Kubernetes edge environments](https://www.techtarget.com/searchitoperations/news/252479295/Kubernetes-edge-computing-takes-shape-on-container-frontier), along with real-time operating system support that the Air Force will use in F16 fighter jets. The Air Force will also wait until all of VMware's Tanzu product line becomes generally available before it commits to using it, and carefully watch how VMware brings together its new business units and their products.

"VMware is checking all the boxes, but details matter," said Nicolas Chaillan, the Air Force's chief software officer, and co-lead for the [Enterprise DevSecOps Initiative](https://www.techtarget.com/searchitoperations/news/252478994/Massive-DoD-DevSecOps-standards-push-may-aid-enterprise-IT) in the office of the Department of Defense CIO. "With mergers, there are always people leaving, conflicts, and you never know what's going to happen."

However, VMware retains its lead in server virtualization, and the Kubernetes IP and expertise the company has assembled with its Heptio acquisition and Pivotal merger can't be overlooked, Chaillan added.

"The vSphere piece, and the ability to tie that back to Kubernetes, is very interesting, and that alone could win the market," he said. "A lot of companies in finance and healthcare still need a virtualization stack on premises, and otherwise would have to use Google Anthos, Azure Stack or Amazon Outposts -- or they could go through vSphere, and have a single company that brings [them] the whole thing."

### Redesigning the crown jewels

VSphere 7.0, formerly called Project Pacific, has been significantly redesigned, according to Krishna Prasad, vice president and general manager of VMware's Cloud Platform Business. A large part of that redesigning was to tightly [integrate Kubernetes into vSphere](https://searchservervirtualization.techtarget.com/tip/Kubernetes-vs-VMware-Drive-the-choice-with-IT-architecture). One advantage of this for corporate users is when they stand up a cluster based on the company's ESX Server virtualization layer, those become [Kubernetes clusters](https://www.techtarget.com/searchitoperations/video/Explore-the-basics-of-Kubernetes-cluster-networking) along with the company's vCenter control plane, Prasad said.

"When we started rearchitecting, it wasn't driven by the need to accommodate Kubernetes workloads -- that was just one of the driving factors," Prasad said. "We realized it [Kubernetes] was a foundational piece we could bring into vSphere at the platform level that would enhance the platform itself. It would make the platform more modern like Kubernetes itself."

Another important consideration for the redesign was a direct response to what the company's core customers were asking for: to be able to deliver their infrastructure to their developers through a cloud consumption model.

"They want and we want to deliver infrastructure completely as code," Prasad said.

To this end, VMware also unveiled an [improved version](https://docs.vmware.com/en/VMware-NSX-T-Data-Center/index.html) of NSX-T that now offers full-stack networking and security services that connect and protect both VMs and containers.

"With the enhancements to NSX-T, as you deploy Kubernetes workloads it automates everything right through to the Kubernetes UI," Prasad said. "This is about writing infrastructure as code and automating the whole deployment instead of bringing in your own components. We think it is a critical part of delivering Kubernetes with full automation."