

Simplify Business Transformation with Tanzu Standard

How to harness Tanzu Standard on VMware Cloud on Dell EMC

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Introduction

Simplifying infrastructure and application modernization reduces the friction and barriers that impede progress toward business transformation. This is because simplifying decision-making, design, and processes for implementing new IT infrastructure projects leads to less choosing and more doing. We often hear that IT leaders are frustrated with the pace of their infrastructure modernization efforts, so they pursue moving to cloud because it is synonymous with ease of consumption, integration and operations. With cloud they can avoid complex choices and get right to providing IT services. We also hear application developers demand simple, open source tools to build and run modern applications. They turn to cloud because it provides the simple and consistent tools they want. This has led to rapid adoption of both cloud computing and Kubernetes as a way to orchestrate containerized applications. However, there are still contrary forces that can't be ignored.

Technical or governance constraints often mandate that applications and data remain on-premises. On prem environments are typically based on over-engineered architectures that delay impact and add costs. This is because they require complicated design phases, lengthy deployment and integration efforts, and constant monitoring and maintenance by IT staff or contractors. The dependencies between hardware, software, and support of these systems create microfractures in IT operations that introduce friction and potential instability. These may go unnoticed under normal conditions, but with stress, the brittle nature of these systems becomes apparent and can result in dramatic disruptions. This is true for traditional enterprise applications as well. These applications are monolithic in nature and place significant demands on application development teams to secure, patch or upgrade them. Fortunately, two important offerings from VMware allow customers to modernize and simplify infrastructure and applications at the same time. This simplification-modernization sweet spot smooths the microfractures in systems and applications, accelerating digital transformation, containing cost, and fortifying service and application delivery. These offerings are VMware Cloud™ on Dell EMC and VMware Tanzu™ Standard.

When deployed together, VMware Cloud on Dell EMC and VMware Tanzu Standard deliver a unique hybrid cloud solution for modern applications where VMware takes on the burden of managing the underlying infrastructure in a customer's data center, edge or co-location. These technologies unite the enterprise capabilities of VMware Cloud deployed on top of Dell EMC hardware with the market-leading capabilities of VMware Tanzu. The result is a simple, secure, and scalable platform to host both traditional business applications and modern applications. This liberates customers to focus on delivering business transformation while VMware worries about the underlying infrastructure.

Solution overview

VMware Cloud on Dell EMC combines the simplicity and agility of the public cloud with the security and control of on-premises infrastructure delivered as a service to data center and edge locations. It is built on the latest VMware software-defined data center suite, including industry-leading compute, storage, and network virtualization. This suite is optimized for, and built upon, Dell EMC VxRail hyperconverged infrastructure. It is easy to procure and it delivers a cloud-like consumption model. This solution provides an excellent digital foundation for customers to run modern microservices applications in containers orchestrated by Kubernetes alongside traditional business applications running in virtual machines.

Tanzu Standard dramatically simplifies the implementation and ongoing management of Kubernetes clusters so that modern applications can run in tandem with traditional business applications. Both application types can access enterprise data and services located in a VMware managed SDDC or in a customer's existing upstream network.

Audience

This paper is intended for technology decision-makers, IT directors, and architects who are responsible for deploying and managing Kubernetes solutions in their data center or in a co-location. It is not meant to address all possible deployment scenarios, but rather to provide enough business value and technical detail to facilitate an informed conversation with VMware and partners when building a solution to fit specific business needs.

Business case

The ability to run both virtual machine-based applications and modern applications orchestrated by Kubernetes in the same operational environment creates a critical bridge for customers to rapidly transform their businesses while controlling the costs of that transformation. While building modern applications in public cloud is a great way to start a new business, many customers need to transform their existing business. They need to keep older applications running while they build the applications that will drive future business opportunities. To make this transformation cost effective and with minimal disruption, these customers need a subscription-like service that removes the burdens of data center modernization and management. They also need an enterprise-grade solution for Kubernetes that is upstream conformant, easy to deploy and simple to manage. Finally, they need an option for doing both of these things in on-premises data centers, at edge locations, or partner provided co-locations. This is important because modern applications don't only run in the cloud. They run wherever the business is. VMware's approach to Cloud computing and Kubernetes is to meet the business where it's happening and free application runtime from the gravity of complex, purpose-built environments.

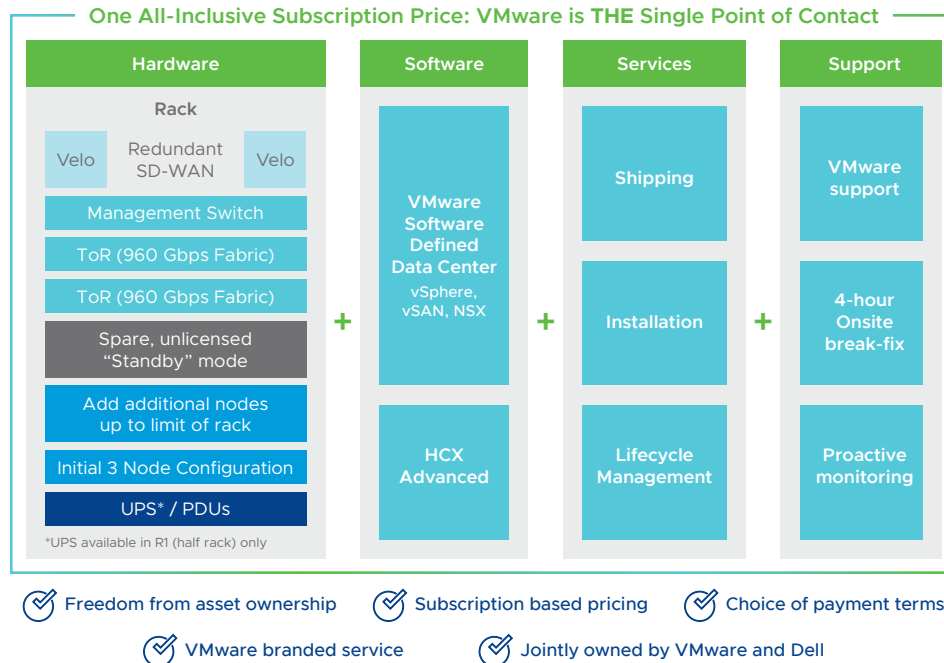
VMware Cloud on Dell EMC provides modern infrastructure that easily expands on-premises data center capacity that is consistent with all VMware environments. It does this quickly with minimal need for on-site customer contact. VMware Tanzu provides streamlined and reliable container operations across multi-cloud infrastructure. Together these technologies give customers the flexibility to modernize their applications at a cost and pace aligned to their business.

Key benefits

Combining VMware Cloud on Dell EMC with Tanzu Standard provides several key benefits:

- Modernize underlying infrastructure to host both traditional and modern applications
- Easily extend data center capacity to accommodate new workloads
- Minimize the burden on IT staff of deploying and managing VMware infrastructure
- Run the same Kubernetes across data center, public cloud and edge for a consistent, secure experience
- Simplify Kubernetes operations with an easy-to-upgrade Kubernetes runtime
- Align to open source Kubernetes and run containerized applications on an upstream conformant distribution

VMware Cloud on Dell EMC: what's included?



Compute

VMware Cloud on Dell EMC is built on the latest VxRail hardware that offers high performance through modern CPUs and memory, flash storage devices, and high-speed networking. These hyperconverged infrastructure (HCI) hosts combine physical compute and storage with VMware vSphere® into one integrated high-performance system, which makes them ideal building blocks for hosting both virtual machines and containers. See the [data sheet](#) for host details.

Storage

The VMware Cloud on Dell EMC offering is based on hyperconverged infrastructure, which means the storage scales with the number of compute hosts in the rack. VMware vSAN™ all-flash datastores provide extremely high performance for a wide range of demanding workloads. The vSAN datastore is encrypted to protect customer workload data.

Networking

VMware Cloud on Dell EMC includes VMware NSX-T®. This software defined networking component provides robust security. Not only does NSX-T help secure North/South network traffic in the data center, it also secures East/West traffic between workloads creating a zero-trust security model. This is accomplished when micro segmentation is applied through granular firewall rules in NSX-T between VMs or workload groups. NSX-T was designed to simplify networking for modern containerized applications.

Tanzu Standard: what's included?

Tanzu Standard is for organizations that want to operate a Kubernetes-based container solution across multiple clouds. It provides the flexibility to extend a consistent, open source aligned Kubernetes distribution across on-premises, public clouds and edge locations. The alternative is to operate multiple Kubernetes distributions from legacy vendors and/or hyperscalers, each with different access controls and policy configurations, making it challenging to operate with consistency across clouds. Tanzu Standard allows customers to operate a single, simple distribution anywhere and gain consistent management over all Kubernetes clusters with global observability, common configuration control, and centralized data protection across any environment.

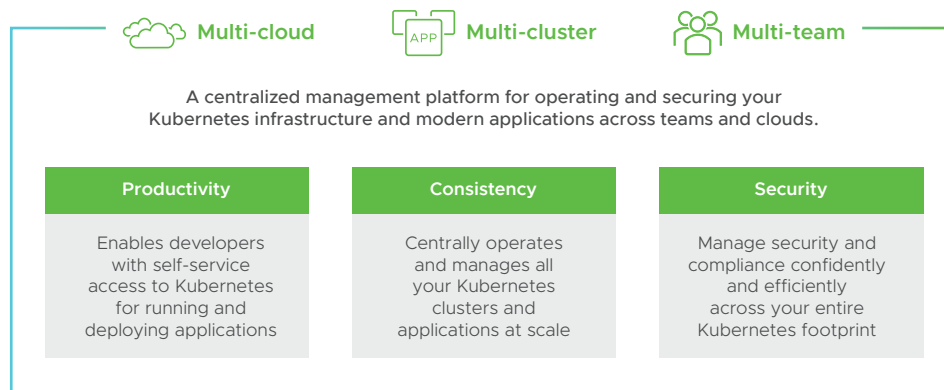
The following table lists the components included in Tanzu Standard:

COMPONENTS	TANZU STANDARD
VSPHERE 7-SPECIFIC CAPABILITIES*	VSPHERE POD SERVICE, STORAGE SERVICE, NETWORK SERVICE, REGISTRY SERVICE
Kubernetes cluster lifecycle management	Cluster API
Image registry	Harbor
Container networking	Antrea/Calico
Load balancing	VMware Load Balancer Services for Kubernetes
Ingress controller	Contour
Observability	<ul style="list-style-type: none">• Fluent Bit & Fluentd• Prometheus and Grafana for platform monitoring
Operating system	Photon OS and Bring-your-own node image
SaaS global management	<ul style="list-style-type: none">• Lifecycle management of provisioned clusters• Attach and manage any conformant Kubernetes cluster• Cluster and workload health observability• Centralized access and security policy management• Backup and restore clusters and namespaces (with built-in Velero)• Backup scheduling• Cluster conformance inspections• System events and audit logs• Integration with Tanzu Observability and/or Tanzu Service Mesh

*Not currently available on VMware Cloud on Dell EMC

Tanzu Mission Control

Tanzu Mission Control is a centralized management platform for consistently operating and securing Kubernetes infrastructure and modern applications across multiple teams and clouds. It provides operators with a single control point to give developers the independence they need to drive business forward, while enabling consistent management and operations across environments for increased security and governance.



Why would a customer want to host Kubernetes in an on-premises software-defined data center?

Let's consider a customer who seeks to evolve their business through digital transformation; a manufacturing customer, for example, who is in the midst of bringing a new product to market. To do this, they need to rapidly modernize their infrastructure and applications without disrupting ongoing operations while preserving traditional enterprise services. They need the speed and agility offered by public cloud providers. They need stability and resilience for existing applications. And they need Kubernetes to orchestrate containers for their new applications. All of this must be implemented quickly and with minimal business disruption. The catch for this customer is that while public cloud has been key to their business strategy, they also need an on-premises solution. The applications, data, and telemetry associated with their production lines can't tolerate network latency. Also, the intellectual property associated with their new product, and the compliance requirements mandated by their industry, make public cloud ill-suited to address all of their needs.

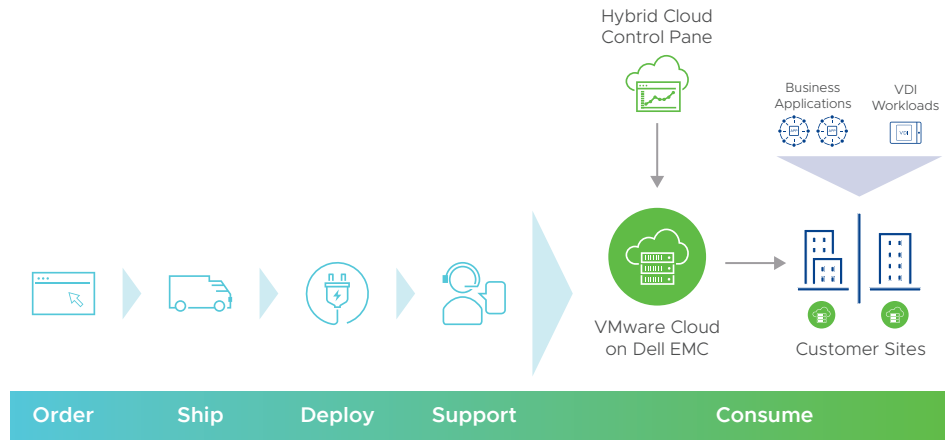
As described above, VMware Cloud on Dell EMC addresses the on-premises use case, but also delivers the simplicity and ease of consumption of a vendor-managed cloud service. VMware Tanzu provides the key benefits of upstream conformant Kubernetes plus enterprise services, application consistency, and mobility across locations. As an added benefit, the solution can accommodate traditional applications while maintaining the financial benefits of preserving existing enterprise agreements from a 3rd party software vendor. This is because VMware Cloud on Dell EMC is considered an on-premises solution and therefore does not mandate that customers switch to cloud licensing schemes.

Some of the key application-oriented benefits of this combined solution are:

- Reducing the time required to onboard product development teams and engineers
- Rapidly scaling infrastructure to prepare for traffic spikes due to seasonal demand
- Removing downtime for infrastructure and application upgrades
- Simplifying infrastructure and application security patching
- Increasing developer-to-operator ratio thus spending more resources on building new features instead of keeping the production infrastructure running

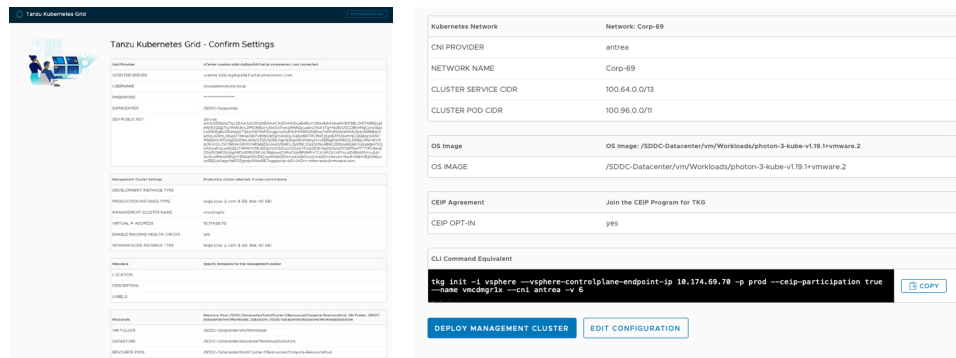
VMware makes it simple to adopt a new software-defined data center and implement Kubernetes

VMware has simplified the adoption of VMware Cloud on Dell EMC and the Tanzu solution. For example, ordering a VMware-managed software defined data center is easy. A customer goes to the VMware Cloud portal and selects the desired HCI nodes and rack configurations from a variety of prescriptive options. VMware then takes care of the provisioning and shipping of both the hardware and software. Once the infrastructure arrives on site, a certified technician connects the new infrastructure to the customer's network. Once the link to VMware Cloud is established the customer is consuming the SDDC as a service in their data center while VMware worries about the lifecycle management of both hardware and software.



VMWARE CLOUD ON DELL EMC: From order to consumption

To install Tanzu, customers download the Tanzu Standard installer bundle. They then use the web-based UI or command line interface (CLI) to deploy the management cluster and Tanzu clusters to VMware Cloud on Dell EMC. Finally, they use the tools that Tanzu provides to configure their Kubernetes instance. See the [deployment instructions](#).



VMware offers both UI and CLI installation options for Tanzu Standard

Once Tanzu Standard is deployed, the customer can connect to Tanzu Mission Control.

Conclusion

When customers choose simple, opinionated offerings like those highlighted in this paper, they spend less time choosing and more time doing. This leads to streamlining and accelerating business transformation due to a straightforward and dynamic approach to modernizing IT services. VMware Cloud on Dell EMC provides ITOps teams with a modern on-premises cloud service managed by VMware. VMware Tanzu provides DevOps teams with modern, secure, open source container orchestration that can run on any cloud. This combined solution is the simplest way for customers to modernize both infrastructure and applications so they can focus on transforming their business instead of worrying about the underlying technologies that power it.

Learn more about [VMware Cloud on Dell EMC](#) and [Tanzu](#).



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