Solution Brief

VMware Tanzu Kubernetes Grid Plus on VMware Cloud on AWS

VMware Tanzu Kubernetes Grid Plus runs on VMware SDDC that runs on dedicated Amazon EC2 elastic, bare-metal infrastructure.

VMware Tanzu Kubernetes Grid Plus is an enterprise-ready Kubernetes runtime that packages open source technologies and automation tooling to help you get up and running quickly with a scalable, multi-cluster Kubernetes environment.

When deployed on VMware Cloud on AWS, it provides elastically scalable infrastructure for containerized workloads and helps create and scale Kubernetes clusters as per your needs.

It provides a fast path for developers to deploy modern apps, while offering a consistent Kubernetes experience for operators across enterprise environments, including vSphere on-premises, in the public cloud, and at the edge.

It expands container-based applications running on Kubernetes to be available across failure domains.

Application development has an evolutionary cycle of requiring different dependencies on the infrastructure. Modern applications require new platforms that embrace declarative use but also embody transient qualities. The underlying infrastructure must adapt to these new trends to accommodate modern workloads.

In line with this modernization initiative, IT organizations have seen increasing need to support container-based applications. The rate of change in the container space leapfrogs itself over every calendar quarter. Traditional IT organizations that need to manage all types of infrastructure and applications simply don't have the time to keep up. The pace at which container technology matures requires an infrastructure that is elastically scalable as per the business needs and that runs on latest and greatest software that helps accelerate innovation.

As organizations progress toward building and deploying cloud native applications, there needs to be consistent and reliable technology that simplifies and removes a lot of the underlying guess work. In order to help customers in this regard, we are bringing VMware Tanzu Kubernetes Grid Plus (TKG+), VMware's supported Kubernetes runtime, on VMware Cloud on AWS. Organizations that want to start running containers and Kubernetes on VMware Cloud on AWS can get started today with VMware Tanzu Kubernetes Grid Plus. Designed to align with the Kubernetes community to ensure consistency across environments, Tanzu Kubernetes Grid Plus provides secure access to the critical open source technologies including Kubernetes, cluster lifecycle management (Cluster API) and a container image registry (Harbor).

With VMware Tanzu Kubernetes Grid Plus support, customers have a simplified path to running Kubernetes on VMware Cloud on AWS. This solution offers infrastructure standardization, convenience, and reliability to address the challenges of deploying and managing applications tailored for Kubernetes. With VMware TKG+ on VMware Cloud on AWS, it combines the enterprise capabilities of the VMware Software Defined Data Center (SDDC), including compute, storage, and networking, delivered as a service on AWS, with the market-leading capabilities of VMware TKG+ for a simple, secure and consistent container deployment.

Challenges

Customers need consistent infrastructure and operations in order to deploy, run and manage Kubernetes clusters across on-premises and cloud environments.

In order to develop modern applications, **customers need scalable infrastructure** in the cloud that caters to changing business needs and optimizes infrastructure cost.

Customers want to focus on applications and innovation, vs. low value infrastructure lifecycle management.

Customers want to reduce operational burden while deploying and managing a growing number of Kubernetes clusters

WHY VMWARE TANZU KUBERNETES GRID PLUS ON VMWARE CLOUD ON AWS?

Speed: On-demand provisioning, scaling, patching and updating of Kubernetes clusters via simple CLI, eliminates complex deployment and management processes

Portability: Tanzu Kubernetes Grid Plus embraces Kubernetes as the modern application platform that allows a customer's applications to be portable across any type of infrastructure, including multiple VMware Cloud on AWS deployments.

Scalability: As a singular application begins to scale or the amount of applications increase within Tanzu Kubernetes Grid Plus, more worker nodes can be added when needed. When deployed on VMware Cloud on AWS, customers can take advantage of elastic infrastructure in the cloud to quickly create and scale Kubernetes clusters.

Consistency and reliability: VMware Cloud on AWS provides a platform that is consistent with any vSphere-based cloud environment, enabling easy migration of existing applications without disruption. It also provides a pre-packaged SDDC environment that delivers the necessary compute, network, and storage infrastructure for VMware Tanzu Kubernetes Grid Plus, allowing customers to transform targeted application or application components of their choice.
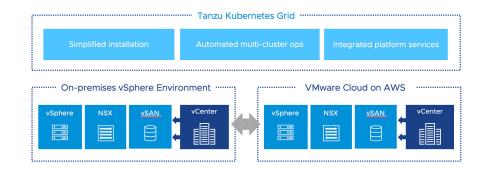
Automation: VMware automates and manages the underlying infrastructure lifecycle, allowing customers to focus on their applications.

Solution Description

VMware Tanzu Kubernetes Grid Plus on VMware Cloud on AWS enables you to deploy your SDDC in the cloud, with all the required components needed to architect and scale Kubernetes to fit your needs. VMware Cloud on AWS delivers a seamlessly integrated hybrid cloud solution that extends on-premises vSphere environments to a VMware SDDC running on Amazon Elastic Compute Cloud (Amazon EC2), a bare-metal infrastructure that is fully integrated as part of AWS.

With Tanzu Kubernetes Grid Plus deployed on VMware Cloud on AWS, you can take advantage of elastically scalable infrastructure in the cloud for containerized workloads and quickly create and scale Kubernetes clusters as per your needs. This establishes a flexible and reliable foundation for application modernization. Built on Kubernetes, you get true application portability, so applications are never locked into a vendor-specific distribution.

With the release of a new Kubernetes version, VMware works with the open-source community to test and harden it upstream. Once the stable upstream binaries are published, VMware will sign the binaries for security purposes and make it available for download. Building and managing VMware TKG+ has never been easier knowing it has been developed by Kubernetes professionals.

Key Capabilities

Simplified Installation: Tanzu Kubernetes Grid Plus is engineered to include the tools and open source technologies needed to deploy and consistently operate a scalable Kubernetes environment wherever you need it to run- on vSphere, in your VMware Managed Cloud, in the public cloud, or at the edge

Automated multi-cluster operations: With declarative, multi-cluster lifecycle management, streamlined upgrades and patching and API and CLI tool for automated operations, Tanzu Kubernetes Grid Plus helps you more easily manage large-scale, multi-cluster Kubernetes deployments and automate manual tasks to reduce business risk and focus on more strategic work.

Integrated platform services: Tanzu Kubernetes Grid Plus streamlines the deployment of local and in-cluster services to simplify the configuration of container image registry policies, monitoring, logging, ingress, networking and storage, and ready your Kubernetes environment for production workloads.

Open source alignment: Tanzu Kubernetes Grid Plus helps you run your containerized applications on an upstream-aligned Kubernetes distribution and key open source technologies like Cluster API, Fluentbit, and Contour, so that you can enable portability and benefit from the support and innovation of the global Kubernetes community. Also it provides you a break-fix and proactive support for your open source ecosystem with Customer Reliability Engineering.

Enterprise Grade Support: Customers deploying Tanzu Kubernetes Grid Plus on VMware Cloud on AWS can benefit from 24x7 break-fix support for Kubernetes and key open source ecosystem technologies, along with proactive architectural guidance from VMware's Customer Reliability Engineering team. Additionally, customers that intend to transform the way they build applications can engage VMware Pivotal Labs to drive agile development methods into their organization and shorten the path to production.