

Bridge the AI/ML Divide Between Data Science and IT Infrastructure

DKube and VMware Tanzu



Our Partnership

DKube and VMware Tanzu complement each other and help organizations manage their AI/ML model and modern workloads.

Learn More

[DKube on VMware Marketplace](#)

[VMware Tanzu Overview](#)

[About DKube](#)

One of the key challenges of commercializing artificial intelligence and machine learning (AI/ML) projects is that IT and data science teams often operate in separate environments with very little synergy. As a result, AI/ML projects tend to incur high costs and rarely make it into commercial production. Now, with DKube Machine Learning Operations (MLOps) Platform on VMware Tanzu, the divide between teams can be closed.

DKube is a Kubeflow based enterprise grade end-to-end MLOps platform that enables data scientists to develop, tune, deploy and monitor complex models. DKube consists of several Kubernetes services including DKube Controller, Data Versioning, Logging & Monitoring, Authentication and Model Monitoring to enable the definition, execution and tracking of ML workloads.

All of this functionality is integrated into a flexible, UI-based workflow that is intuitive enough to allow team members across an organization - from data to production engineers - to collaborate on common AI/ML projects within hours of starting the installation. Given the open source foundations of Kubeflow and MLflow, customers have access to the top-of-the-line services at much lower costs than other MLOps products in the industry.

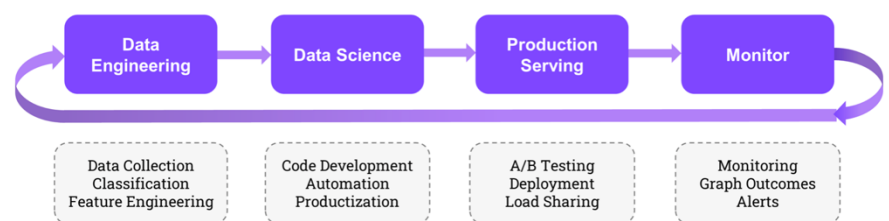


Figure 1: DKube end-to-end MLOps workflow

With the VMware Tanzu portfolio of products, VMware enables customers to make the most of modern applications on any cloud. The Tanzu portfolio provides the foundation of a modern application platform that drives scale across multi-cloud and Kubernetes operations—with the right levels of connectivity, governance, observability, and automation.

About DKube

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About VMware Tanzu

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Benefits of DKube on VMware Tanzu

With DKube MLOps Platform and Tanzu, data scientists and IT teams can more easily advance AI/ML projects from the research stage to commercial adoption and deployment. DKube is optimized to run on either private or multi-cloud environments, making it a perfect complement for VMware Tanzu Kubernetes Grid, which offers companies a simple and consistent interface for Kubernetes workloads in any public cloud or private on-premises infrastructure.

Efficient Installation

By utilizing DKube with Tanzu, teams can off-load the difficult, time-consuming task of integrating the hardware or infrastructure of a private or public cloud with authentication, storage, and data sources to DKube's Helm-based installation and post-install scripts. With proper planning, DKube can be operational on your Tanzu Kubernetes cluster on the same day of installation.

Cloud Flexibility

Because it runs on top of Kubernetes, DKube works with the same look, feel, workflow, and reliability on any cloud-based platform including private cloud. Therefore, your work can be quickly and easily migrated back and forth as necessary.

Automated AI/ML Model Lifecycle Management

One of the key innovations in the industry for AI/ML product development has been the concept of Kubeflow pipelines, which are built into DKube's MLOps platform and automate the lifecycle management of Kubernetes-based AI/ML models. Kubeflow pipelines can run nearly anywhere Kubernetes can run, giving Tanzu and DKube customers a highly flexible and malleable platform for their AI/ML model lifecycle management.



Efficient Installation



Cloud Flexibility



Automated Management

DKube in Action

DKube on VMware Tanzu is beneficial across use cases that require complex modeling, such as pharmaceutical, federal/defense contracting, and manufacturing.

Use cases

DKube on top of Tanzu is beneficial across a variety of industries that require complex modeling, including life sciences for early disease detection, pharmaceutical drug development, federal and defense contracting for manufacturing, and more.

Pharmaceutical

- Ingest, pre-process, transform and train with multi-model datasets
- Quarantine dataset as needed
- Full audit trail of changes to datasets and training models including all versions
- Provide traceability & governance according to the local/regional regulations

Federal/Defense Contracting

- Bring the dynamic ecosystem of Kubeflow community with DKube to your federal/defense AI projects
- On-prem optimized for federal/defense needs, while allowing cloud options should you need one
- From satellite imaging for agriculture or forest management, aerial surveillance for national security, or climate research

Manufacturing

- From automated mining, farming, construction equipment, or quality inspections Kubeflow based MLOps is now available
- On-prem optimized, while allowing cloud options should you need one
- Run inference and training on the same cluster if you wish for maximum utilization



Pharmaceutical



Federal/Defense Contracting



Manufacturing

Deploying DKube on VMware Tanzu

VMware and Dkubelab collaborated on a joint Reference Architecture that details how to deploy Dkubelab on Tanzu Kubernetes Grid (TKG). The architecture guide covers topics such as Kubernetes requirements and cluster layout for DKube.

By following the Reference Architecture, you should be able to create a highly performant, production-grade deployment of DKube with VMware TKG. However, you should not feel constrained by the exact path in the document if your specific use cases lead you to a different deployment

Get Started

For information on using DKube and VMware Tanzu, contact the DKube team by emailing info@dkube.io or reach out to your VMware Tanzu representative.

architecture. Design decisions in the architecture paper reflect the main design issues and the rationale behind a chosen solution path, and if necessary can help provide rationale for any deviation.

The Reference Architecture discusses several different cluster layouts. The level of availability and redundancy required by the workloads being deployed will determine the topology of the clusters—from a simpler, single cluster running in just one availability zone, to a more complex deployment of multiple clusters distributed all over the world, either on a single cloud provider or across multiple cloud providers.

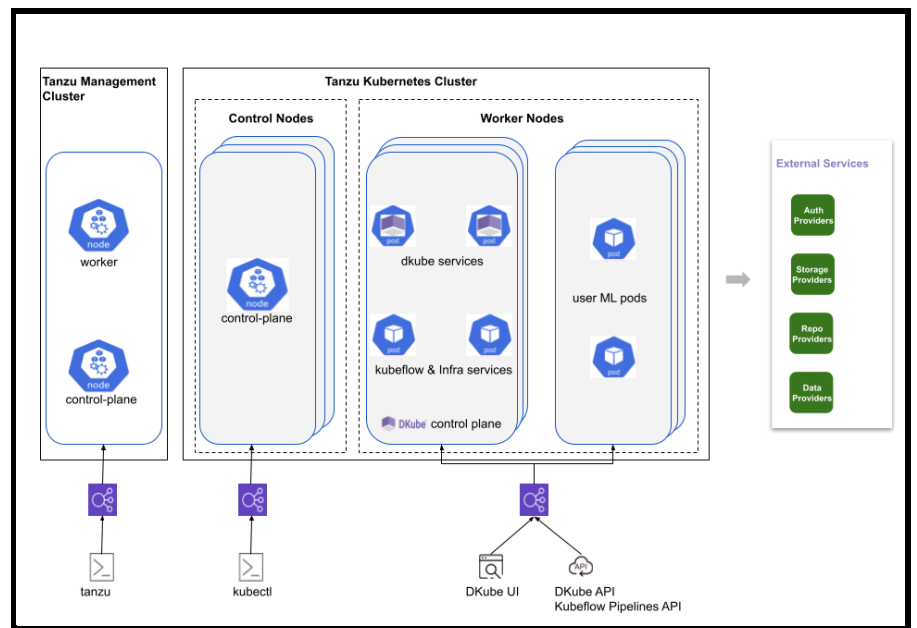


Figure 2: DKube and VMware Tanzu Reference Architecture Diagram

Summary

DKube on VMware Tanzu enables customers to save time with an efficient Helm-based installation, leverage cloud flexibility and automate the lifecycle management of Kubernetes-based AI/ML models. Help your IT and data science teams collaborate via best-in-class model operations and infrastructure management with DKube and VMware Tanzu.

How to get started

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