

# Kubernetes by Canonical delivered on NVIDIA DGX systems

Canonical is the company behind Ubuntu, the most popular operating system for container, cloud, and hyperscale computing. NVIDIA leverages Ubuntu as the basis of NVIDIA DGX, EGX, NGC containers and more. Canonical Kubernetes provides a hardened, conformant, multi-cloud Kubernetes with full lifecycle automation.

It is built on NVIDIA DGX optimised Ubuntu host images and provides unparalleled integrations and operations, on any compute environment. Together, these provide a perfect match for NVIDIA DGX systems, leveraged by AI experts for at-scale training.

Full lifecycle automation

Multi-cloud compatibility

Outstanding integrations

Hardened K8s platform



Optimised software stack

Unmatched AI leadership

Scalable AI clusters

Access to AI expertise

## Attributes of Canonical Kubernetes – across Charmed and Microk8s

- CNCF-certified & OCI compliant (NGC containers)
- Day-0 support on latest upstream Kubernetes version
- Support for upto n-2 versions
- Security maintenance upto n-4
- Enterprise support for entire stack, including Charmed Kubeflow for AI/MLOps
- Cluster lifecycle automation with Juju Open Lifecycle Management
- GPU & Network operator support

## Why use NVIDIA DGX?

Today's enterprise needs an end-to-end strategy for AI innovation to accelerate time to insights and reveal new business frontiers. To stay ahead of the competition, they also need to construct a streamlined AI development workflow that supports fast prototyping, frequent iteration, and continuous feedback, as well as a robust infrastructure that can scale in an enterprise production setting.

NVIDIA DGX™ systems are purpose-built to meet the demands of enterprise AI and data science, delivering the fastest start in AI development, effortless productivity, and revolutionary performance—for insights in hours instead of months.

## Why use Ubuntu LTS?

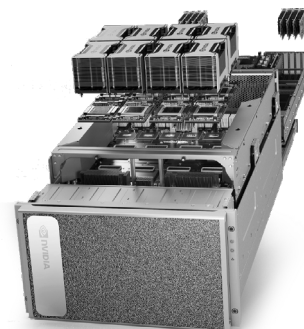
Ubuntu is the enterprise-grade Linux most loved by developers - in the cloud or at the edge. Unlike other enterprise Linux distributions, developers can get started for free. Users benefit by teams working continuously to add the latest NVIDIA software into Ubuntu, enabling native integration into technologies like NVIDIA PeerDirect, NVIDIA GPUDirect and GPUDirect Storage in addition to a variety of signed NVIDIA GPU drivers to choose from. Each Ubuntu LTS brings 10 years of bug-fixes and security patches to NVIDIA DGX systems, so your systems remain secure, and run perfectly out-of-the-box. Leading AI practitioners today use Ubuntu/DGX OS combination on DGX systems to run their high-performance workloads cleanly. Integrations with Canonical Kubernetes provide a highly performant, one-stop solution for orchestrating a datacenter with NVIDIA DGX nodes, while enterprise-class support is just a few clicks away through Canonical and NVIDIA.

## MicroK8s

### A Low-ops Kubernetes-based AI platform for small to medium data science teams

MicroK8s is a zero-ops, developer-first Kubernetes that encourages learning, and experimentation and lets you expand it as your needs change. It comes with a feature-rich, supported add-on ecosystem that offers a *"batteries-included"* experience.

With NVIDIA DGX, MicroK8s takes the experience to the next level by providing unparalleled performance and integration for data science teams looking to do serious AI model training quickly, using the power of NVIDIA DGX hardware.



#### Workloads

#### Kubernetes API / Kubelet

Containers



Ubuntu

DGX-OS



Hardware  
Platform

NVIDIA  
DGX

- Single command Kubernetes deployment
- Single-node or high-availability (HA) multi-node
- Kubernetes add-ons
- Automated Kubernetes datastore maintenance
- Automatic OTA updates & security patching
- Distributed block storage solution with OpenEBS-Mayastor

# Charmed Kubernetes

## For large data science teams consuming IT-Supported AI-aaS solutions

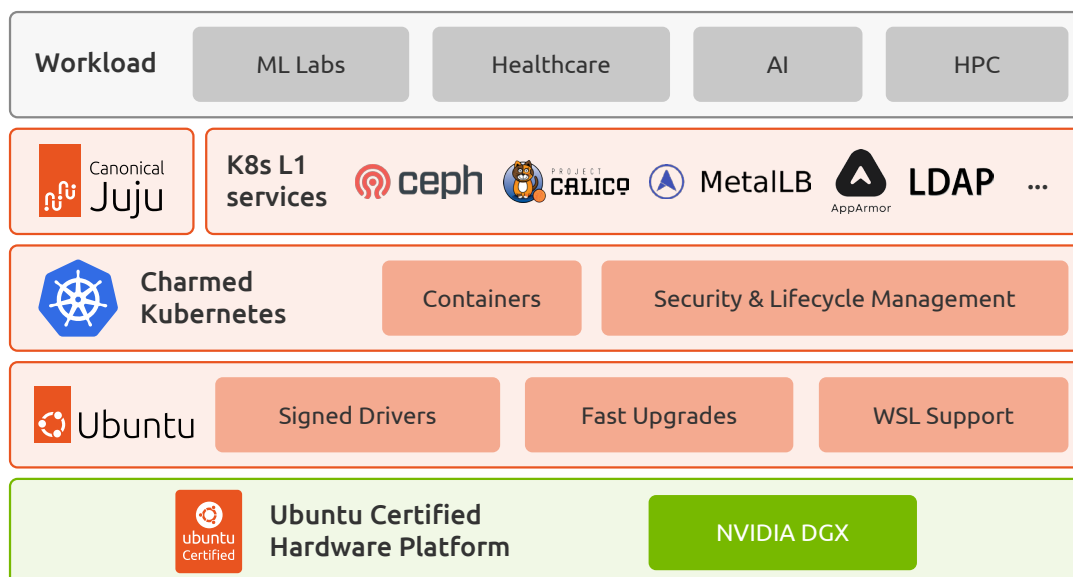
Charmed Kubernetes is Canonical's flagship Kubernetes offering. It is composable and backed by an ecosystem of charmed operators and intelligently managed applications.

Scaling, resilience and compliance are all key features that set Charmed Kubernetes apart, as the de facto vendor-neutral, multi-cloud distribution. Charmed Kubernetes lets you design the perfect cluster to suit the needs of your business - enabling you to focus on building great products.

Canonical and NVIDIA have worked to bring a level of architectural flexibility, a catalogue of high quality components and deep integrations with the underlying hardware technology. Charmed Kubernetes, certified as part of the NVIDIA DGX-Ready Software program, enables IT departments to create an optimised experience for their organisation.



- Kubernetes clusters at scale
- Model-driven operations
- Composable architectures



For more information about Canonical's Kubernetes, please visit: [ubuntu.com/kubernetes](https://ubuntu.com/kubernetes)

To learn about the NVIDIA DGX-Ready Software program, please visit: [nvidia.com/dgx-mlops](https://nvidia.com/dgx-mlops)

To check Kubernetes on DGX systems, please visit: [microk8s.io/docs/nvidia-dgx](https://microk8s.io/docs/nvidia-dgx) and <https://ubuntu.com/kubernetes/docs/nvidia-dgx>

Contact us with your requests: <https://ubuntu.com/kubernetes#get-in-touch>