

CKP Product Datasheet

CoreEdge Kubernetes Platform

Datasheet

A complete, CNCF-certified Kubernetes distribution with integrated cluster lifecycle management, built for enterprise-grade deployments across baremetal and virtual infrastructure.

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Platform Overview

CKP (Coredge Kubernetes Platform) is a custom Kubernetes distribution built on top of the upstream Kubernetes repository by Coredge.io. CKP binaries are functionally identical to upstream Kubernetes, but are versioned, packaged, and digitally signed by Coredge.io for enterprise traceability and supply chain integrity. All supported versions are CNCF Certified.

Property	Details
Platform Type	Custom Kubernetes Distribution + Cluster Lifecycle Management
Vendor	Coredge.io
Certification	CNCF Certified Kubernetes (all supported versions)
Package Signing	PGP-signed by Coredge.io with mandatory integrity verification
Architecture	Two-layer: Distribution Layer (distro) + Management Layer (CAPI/Compass)
Supported K8s Versions	v1.29.0, v1.30.6, v1.31.2, v1.32.11, v1.33.7, v1.34.3, v1.35.1
Version Suffix	-ckp (e.g., v1.31.2-ckp)

Distribution Layer

CKP Packages

Package	Description
kubeadm	Cluster bootstrapping and lifecycle management
kubelet	Primary node agent for pod execution
kubectrl	CLI for Kubernetes API
kubernetes-cni	Container Network Interface plugins
cri-tools	CRI diagnostic tools (crictl)
containerd	Container runtime with CNI support

BYOH Bundle Availability

Operating System	Availability
Ubuntu 20.04	All K8s versions (v1.29.0+)
RHEL 9	All K8s versions (v1.29.0+)

All packages are custom-built Debian binaries for AMD64. BYOH bundles are OCI-compliant image artifacts pulled via imgpkg. Container images for all core components (kube-apiserver, kube-controller-manager, kube-scheduler, kube-proxy, etcd, CoreDNS, pause) are hosted on the Coreedge Docker Hub registry.

Compatibility Matrix

K8s Ver	etcd	CoreDNS	Containerd	CRI	Pause	Calico	CNCF
v1.29.0	3.5.12-0	v1.11.1	1.7.0+	v1	3.9	v3.28.2	Yes
v1.30.6	3.5.15-0	v1.11.3	1.7.0+	v1	3.9	v3.28.2	Yes
v1.31.2	3.5.15-0	v1.11.3	1.7.0+	v1	3.10	v3.30.5	Yes
v1.32.11	3.5.15-0	v1.11.3	1.7.0+	v1	3.10	v3.30.5	Yes
v1.33.7	3.5.15-0	v1.11.3	1.7.0+	v1	3.10	v3.30.5	Yes
v1.34.3	3.5.15-0	v1.11.3	1.7.0+	v1	3.10	v3.30.5	Yes
v1.35.1	3.5.15-0	v1.11.3	1.7.0+	v1	3.10	v3.30.5	Yes

Management Layer (CAPI + Compass)

Component	Version / Details
Cluster API (Core)	v1.7.7
Kubeadm (Bootstrap + CP)	v1.7.7
BYOH (Infrastructure)	v0.6.1
Kamaji (Control Plane)	v0.16.0 – Konnectivity, CoreDNS, KubeProxy, LoadBalancer
Cert-Manager	v1.15.3 (10-year TLS certificates)
Compass Platform	Unified UI + REST/gRPC APIs; multi-tenant (domain + project scoped)

Infrastructure Providers

Capability	Orbiter Baremetal (BMS)	CCS Virtual Machine (CCP)
Provisioning	Cloud-init templates	Automated VM lifecycle
Networking	Physical server allocation	Neutron integration, security groups
Autoscaling	Not supported	Karpenter (CPU-based)
Architecture	AMD64	AMD64 and ARM64
OS Support	Ubuntu 20.04, RHEL 9	Ubuntu 20.04, RHEL 9

Networking, Storage, Backup & Autoscaling

Networking & Storage

Property	Details
Pod Network	Configurable CIDR
Service Network	Configurable CIDR
CNI (CAPI)	Cilium (eBPF)
CNI (Compass)	Calico v3.28.2/v3.30.5
Additional CNI	Flannel
Storage	Ceph (ckp-block)
Standalone CSI	OpenEBS hostpath

Backup & Autoscaling

Property	Details
Backup Tool	Velero (S3-compatible)
Backup Isolation	Project-level
Autoscaler	Karpenter (CCS VM only)
Scaling Limits	CPU-based
Storage Class	ckp-block (Delete reclaim)
Volume Expansion	Enabled
Deployment	Helm chart

Security & Compliance

Property	Details
Package Signing	PGP by CoreEdge.io; mandatory verification
Image Registry	CoreEdge Docker Hub registry
Host Auth	mTLS + Pre-Shared Key (PSK)
TLS Certificates	10-year validity; Cert-Manager v1.15.3
Build Security	Hardened base images; non-root
CNCF	All K8s versions CNCF Certified

System Prerequisites

Prerequisite	Details
Supported OS	Ubuntu 20.04, 22.04, RHEL 9
Container Runtime	Containerd (v1.6.14+)
OCI Runtime	runc (v1.1.3–v1.1.10)
CRI Tools	crictl (v1.27.0)
CNI Plugins	v1.1.2–v1.3.0
Helm	v3
Kernel	overlay, br_netfilter, swap off

Cluster Lifecycle (14-Step)

Phase	Steps
Provisioning	Request ☒ Resolve provider ☒ Provision hosts ☒ Register (mTLS)
Bootstrap	Approve ☒ Assign group ☒ CAPI resources ☒ Reconcilers
Cluster Ready	Kamaji CP up ☒ Workers join ☒ Ready state
Addons	Storage + Cilium + Velero + Karpenter + 10yr TLS

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