

SOLUTION BRIEF

Redis Enterprise for Pivotal Container Service (PKS)

Leading companies work with Pivotal to transform how they build and deploy software with distributed microservices architecture. A core principle of this journey is to reject monolithic frameworks in favor of sharing data between services. Rather than the use of a single large database, microservices emphasize building specialized service components, each with the option to use its own data store.

Kubernetes has become the defacto orchestration tool for managing containerized microservices and brings several key advantages to deploying modern applications:

- Decouple applications and services from infrastructure for portability and flexibility
- Update, extend or redeploy applications and services without affecting other workloads
- Reduce costs through efficient resource utilization

Redis Enterprise for Pivotal Container Service

Modern apps require modern databases. To provide a fast path to microservices and containers, Redis Enterprise is fully integrated with PKS to unify the management of Redis as a stateful database service with your container infrastructure, making it easy for platform operators to manage Kubernetes clusters on-demand with persistent storage. Redis Enterprise on PKS is ideal for:

- Stateful workloads like data ingest, search and transaction processing
- Running Redis instances in containers
- Provisioning persistent storage (PVCs)
- Keeping your workloads properly isolated
- Automatic service discovery and rolling upgrades with no data loss and no downtime

Key Redis Enterprise Use Cases for Modern Apps and Microservices

Redis Enterprise is trusted by 7,400 enterprises, including leading financial services, retail, communications and media companies, to power a variety of modern applications use cases including geo-distributed cache, session store, high speed transactions, real-time analytics, fast data ingest, messaging, job and queue management, search, recommendation engines, time-series and much more. Developers look to Redis for:

- **Inline Caching:** Store data to improve the speed of the operation
- **Message Queuing:** Task chaining and data processing
- **Operational Data Store:** All data for the app is stored in Redis
- **Session Caching:** A transitory data store that is retrieved via a token model
- **State Machine:** Transitory data store to track state data of a job in process
- **Publish / Subscribe:** Many-to-many messaging
- **Score Tracking:** Track numerical values assigned to logical identities



Company Overview

Pivotal combines a cloud-native platform, developer tools and unique methodology to help the world's largest companies transform the way they build and run their most important applications.

Product Snapshot

Pivotal Container Service, a certified Kubernetes distribution, is used by leading companies to deploy and run modern applications across private and public clouds.

Solution Highlights

- Rapid, on-demand provisioning of Redis and PKS clusters
- Multi-tenancy with cluster-level security
- High availability with health monitoring
- Zero-touch upgrades
- Multi-cloud infrastructure automation

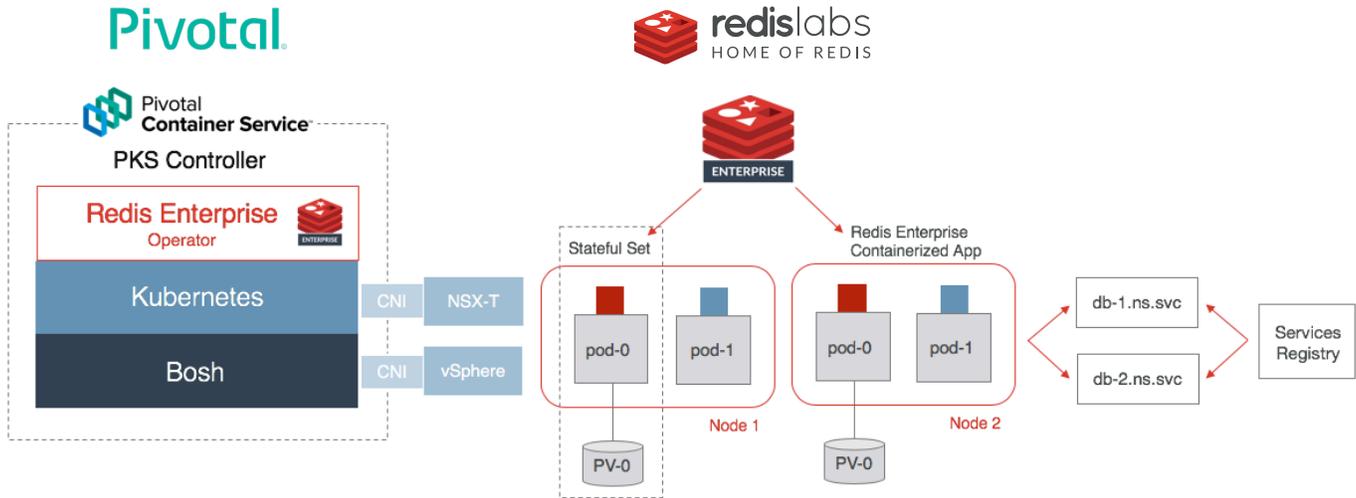
Solution Benefits

- Rapid development of apps and microservices
- Performance at linear scale with sub-millisecond latencies
- Ensures data consistency and local latency with Active-Active replication
- Delivers built-in high availability (no single points of failure)
- Reduce IT workload with automated deployment, scaling and upgrading

Customer Success

- Seven Fortune 10 companies
- Three of the four credit card issuers
- Three of the top five communication companies
- Three of the top five healthcare companies
- Four of the top seven retailers

Integration Architecture



Integration Overview

The Redis Enterprise Operator makes it easy for Kubernetes users to create, scale and manage Redis instances on-demand by using just a few commands. The deployment automatically publishes the Redis database endpoint in the Kubernetes service catalog.

Redis is deployed with StatefulSet and operates as a headless service to handle the DNS resolution of pods in the deployment. A Redis Enterprise node resides on a pod that is hosted on a different VM or physical server. A layered approach to orchestration enables Redis Enterprise to manage Redis tasks, and the Kubernetes orchestration to run outside the Redis cluster deployment. The integration leverages Kubernetes' secrets primitives to store Redis Enterprise license information and expose the Redis Enterprise UI.

Integration Highlights

- Redis Enterprise Operator unifies Redis deployment and lifecycle management
- Layered Redis Cluster (within a Kubernetes cluster) enables sharding and clustering
- Persistent storage with no data loss

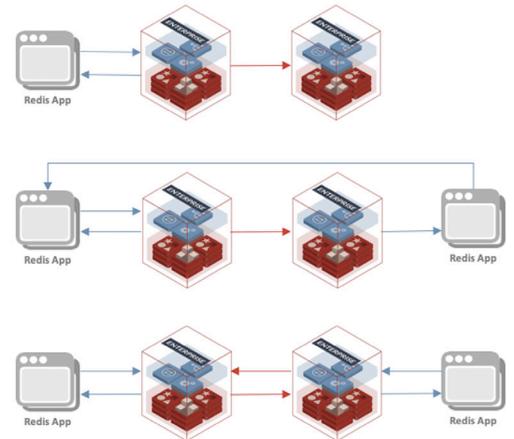
Design Patterns for Replication

Redis Enterprise with PKS safeguards your application with full resilience against every type of failure scenario (including process failure, node failure, complete data center outage or a network split event) using any of the following configurations:

Active - Passive: The passive server is a cold standby for high availability, disaster recovery and data durability.

Active - Read-replica: Read-replica is available in the read-only mode and commonly used for distributed caching.

Active - Active: All database instances are available for read and write operations for geo-distributed apps, load distribution and data consolidation.



Why Redis Labs + Pivotal

Pivotal and Redis Labs have partnered to accelerate our customers' journeys as they build cloud-native applications with Redis Enterprise, a leading in-memory NoSQL database. We work with many of the top financial services and retail companies improve operational efficiency by shifting the provisioning and deployment of Redis Enterprise clusters to developers so that IT resources can focus on high-value platform upgrade and maintenance issue resolution.

sb-pivotal-container-service

