

# Redis Enterprise for Pivotal Cloud Foundry

## The Preferred In-Memory Database for Cloud Native Applications

**Pivotal Cloud Foundry** delivers a cloud-native modern application development and operations environment that lets your developers focus on generating value for your customers. Redis, the world's most popular in-memory NoSQL is the preferred database for cloud-native applications because of its persistence, versatility and incredibly high performance.

**Redis Enterprise** is software for deploying enterprise-grade highly available and scalable Redis clusters with substantially lower operational costs than any other Redis deployment method. Twelve factor apps built in PCF can utilize the BOSH-integrated Redis Enterprise to scale Redis instances automatically and without downtime or application-level code changes, gain stable high performance (even with large datasets) and achieve hassle-free high availability that includes persistence, cross-rack/zone/datacenter in-memory replication, instant failure detection and automatic failover within single-digit seconds.

## Why Choose Redis Enterprise on Pivotal Cloud Foundry?

**Redis Enterprise is optimized for growth and innovation.** Redis Enterprise on Pivotal Cloud Foundry enables faster time-to-market for new applications or application modernization initiatives. With Redis Enterprise on PCF, you can:

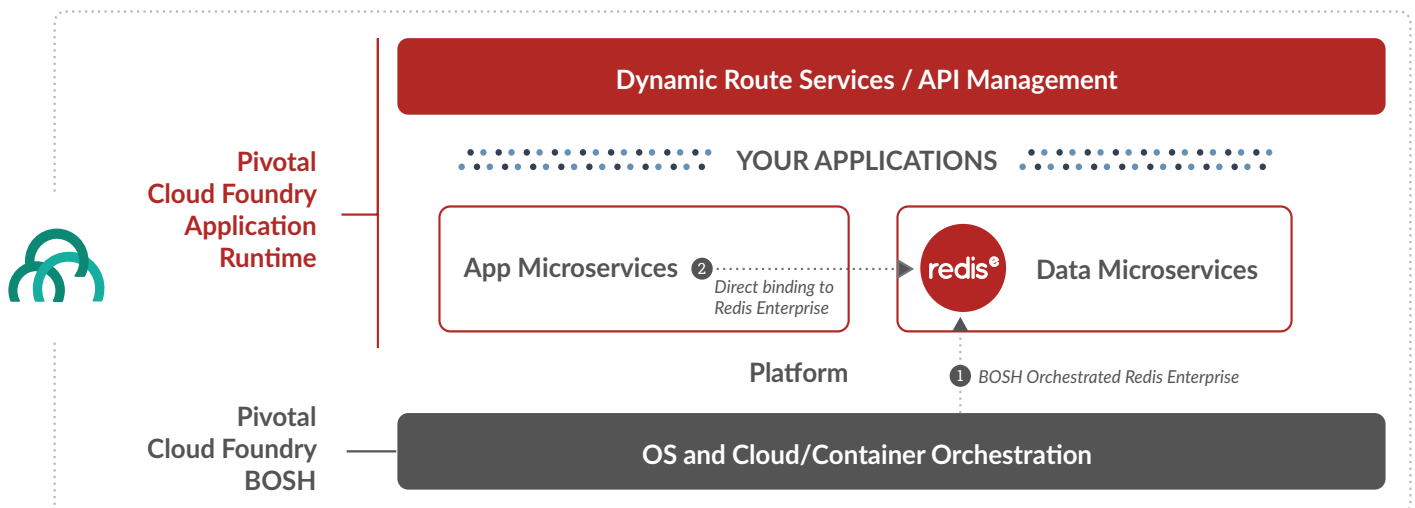
- Grow from single instance Redis to scaled out, high performance Redis seamlessly and without disruption
- Gain from the expertise and innovation of the team that develops and supports the database most loved by developers
- Keep pace with the latest innovations from the Redis community, with up-to-date version support and enterprise-grade integrations

**Redis Enterprise is ideal for developers.** With Redis Enterprise on PCF, you can enjoy the extreme high performance and superb low latencies of Redis, delivered with minimal operational overhead. With access to highly scalable Redis Enterprise, you can:

- Enjoy the versatility of Redis data structures and modules for a variety of use cases such as user-session management, time-series data, real-time analytics, machine learning, full text search, fast data ingest, graph analyses and many more
- Develop high performance geographically distributed applications with simplicity using a range of consistency models, including Active-Active strong eventual consistency using CRDTs, as well as Active-Passive with tunable consistency
- Develop highly scalable microservices-based and Kubernetes-orchestrated applications with Redis Enterprise in all PCF environments

### Quick Facts: Redis is the #1:

- Most loved database – StackOverflow
- Database on Docker – Docker Hub
- Database technology on AWS – Sumologic
- In growth among top 3 NoSQL databases – db-engines
- Database used by Node.js developers – Node.js
- NoSQL database in user satisfaction – G2Crowd
- Database in skill demand - UpScored



Redis Enterprise delivers high-performance data services within the Pivotal Cloud Foundry architecture. It is integrated with Pivotal Cloud Foundry BOSH for effortless orchestration.

**Redis Enterprise is painless for operations teams.** Redis Enterprise on Pivotal Cloud Foundry provides the operational control, high availability and enterprise-grade security needed by operations teams including:

- A complete suite of database high-availability options, including persistence (snapshots and AOF per write or per minute), in-memory continuous replication across racks/zones/datacenters and WANs, and automatic failover without data loss or application interruption
- Enhanced security controls, including encrypted client access, encrypted replication of data in-motion and multiple authentication mechanisms
- Access to a high-performance data layer that can execute a multitude of functions including caching, streaming data ingest, continuous analytics, machine learning model serving, high performance search, graph analyses and more
- Access to Active-Active and Active-Passive configurations for local latencies with distributed datasets

## Redis Enterprise Advantages

### Performance at Scale

- Dynamic scaling across servers, and without downtime or application-level changes by simply adding/removing nodes and shards to/from the cluster
- Full support for all Redis commands when running clustered Redis
- Zero-latency distributed proxy accelerates throughput by reducing context switching overhead, maximizing command pipelining, supporting long-lived socket-based persistent connections with Redis instances, and other optimizations
- Amplified performance by running multiple Redis instances on multiple cores on the same servers
- Shared-nothing cluster architecture with separate management and data paths that enables linear performance scalability and an easy, non-intrusive upgrade process

### Active-Active Geo Distribution (CRDTs)

- Achieve local latency and global availability, with reads/writes in multiple geographical regions to the same dataset
- Built-in consensus-free conflict resolution for simple and complex data types with strong eventual consistency, simplifying development of globally distributed applications

### HA, Durability, DR

- Tunable features for replication and persistence to maintain high performance when persisting data to disk
- Rack-aware, cross-datacenter/region/cloud in-memory replication with unique WAN compression technology
- Instant automated failure detection and failover to protect your applications against unplanned downtime, outages, and data loss
- Policy driven data persistence, continuous replication, backups and disaster recovery for full resilience

- Periodic backups to AWS S3, Azure Blob Storage, Google Cloud Storage, OpenStack Swift, or an FTP server

### Robust Security

- SSL-based encrypted communication with clients, administrators and across clusters
- Certificate and password-based authentication; role-based authorization for administration
- Monitoring and alerting, with administrator action logging for forensics

### Built-In Search

- Rapid-fire simultaneous real-time indexing and search
- Text, numeric and geospatial searches, with filtering, stemming and auto-complete
- Secondary indexing of data from any DBMS to boost query performance

### Redis Enterprise Flash + More Savings

- Supports Flash memory as a RAM extender; ideal for large dataset sizes
- Uses tiered memory access to deliver the same sub-millisecond latencies as RAM while reducing costs by 70% or more
- Built-in multi-tenancy with a Docker-like architecture maximizes resource utilization

### Automation and Support

- Flawless orchestration of Redis Enterprise platform with BOSH integration
- UI, CLI or API-based automated administrative operations like sharding, re-sharding, shard-migration and re-balancing performed without disrupting applications in any way
- 24x7 enterprise-grade support backed by expertise in managing and scaling 550K+ Redis databases for thousands of customers in production worldwide

