

CNAB2322US

# Redis & VMware: Leverage Redis Enterprise real-time scale with VMware Tanzu

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#vmwareexplore

vmware®

EXPLORE

2022



# Agenda

- ❖ Redis?
- ❖ A Gentle Introduction to Redis Enterprise and the Redis Enterprise Kubernetes Operator
- ❖ Redis Enterprise + Tanzu

# Who and What is Redis?

# Our Roots are in Open Source

An **In-memory open source database**, supporting a variety high performance operational, analytics and hybrid use cases



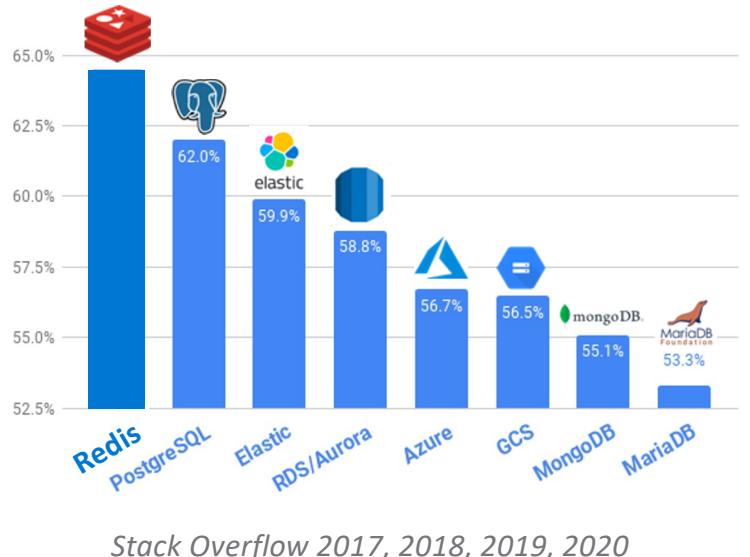
# redis

# Redis is the Most Loved Database...

## Developer Love

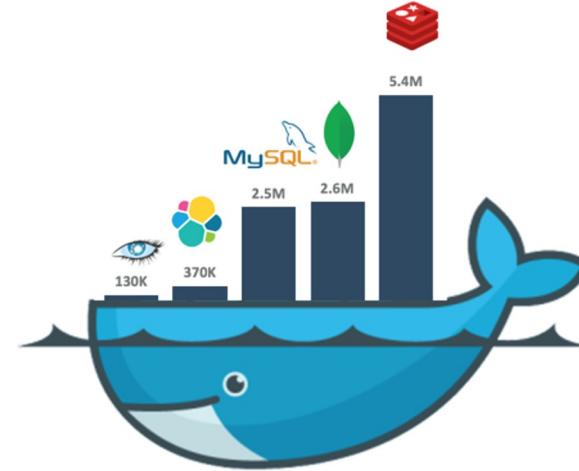


The **most loved** database in Stack Overflow's Developer Survey for **five years in a row**



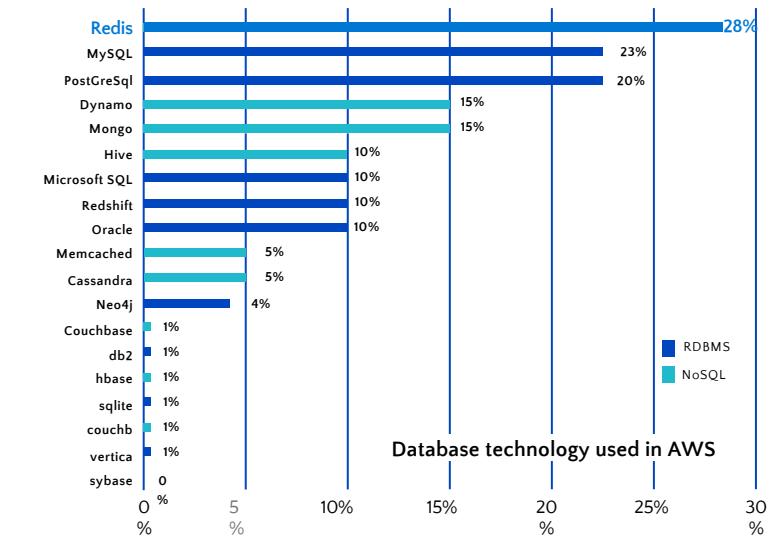
## Popular Open-Source Software

**162** clients in **80** languages  
Over **6 million** daily downloads  
on Docker



## Hyperscaler Adoption

Adopted by all of the top public cloud providers including **GCP, AWS, Azure**.



# Redis OSS Is...

## Use Cases



Leaderboards



Caching



Session Management



## Data Structures



Redis



Strings



Bit Field



Sorted Sets



Geospatial



Lists



Bitmaps



Hashes



Sets



HyperLogLog



Streams

## Functionality



Durability



Backup & Restore

# Redis Enterprise

An in-memory multi-model database

**Built on top of Redis OSS**



# Redis Enterprise Is...

## Use Cases



Leaderboards



Caching



Session Management



## Data Structures



Strings



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Bitmaps



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HyperLogLog



Streams



ENTERPRISE

## Functionality

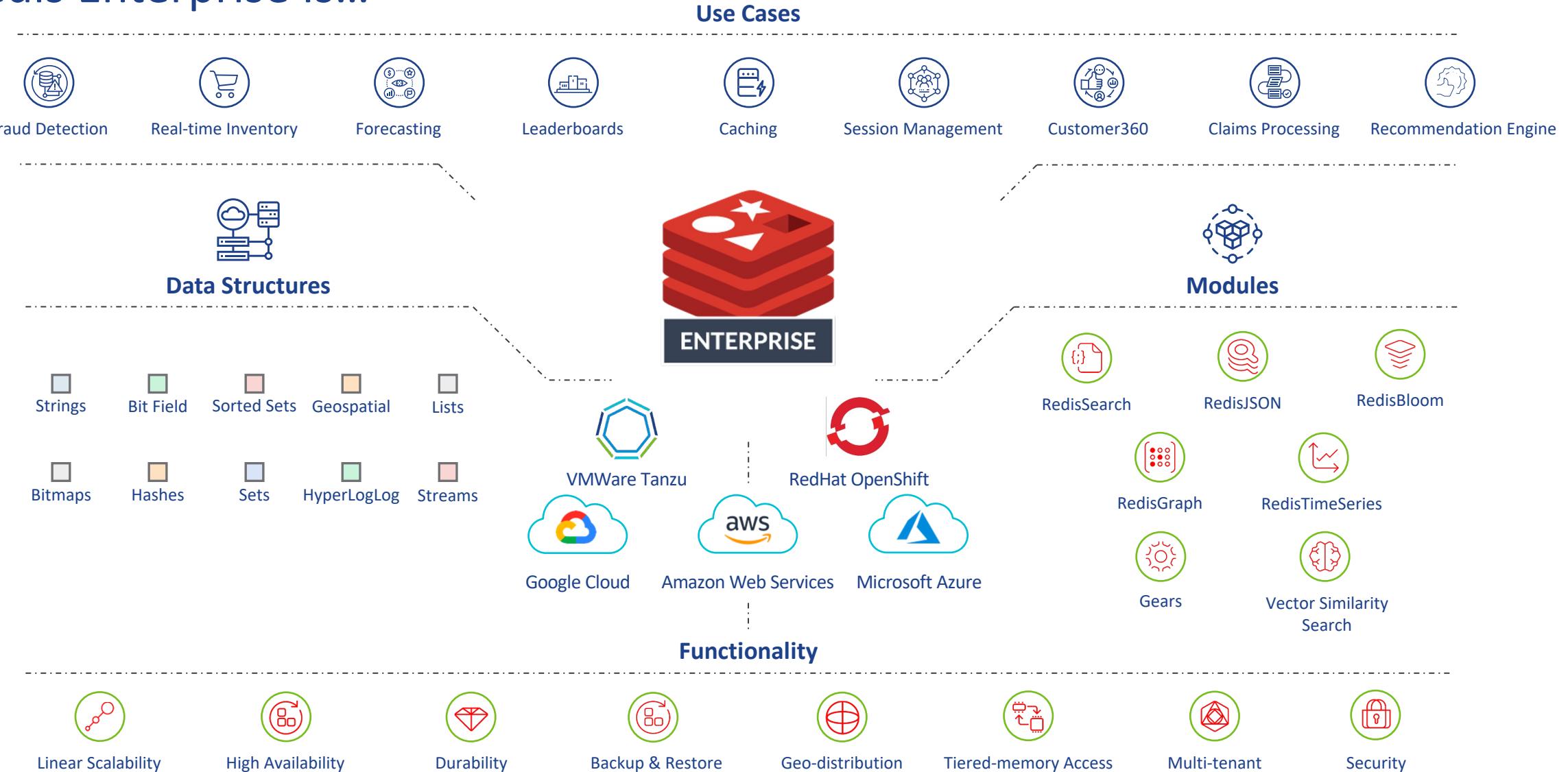


Durability



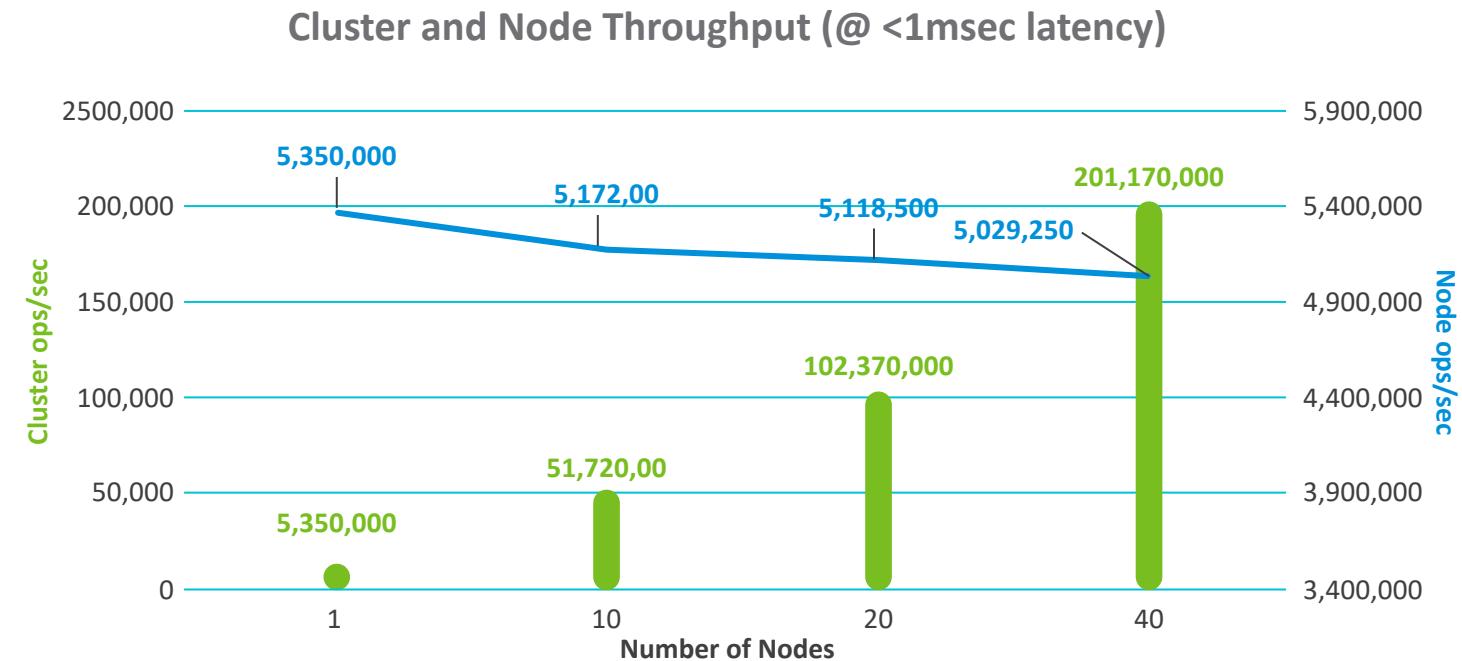
Backup & Restore

# Redis Enterprise Is...



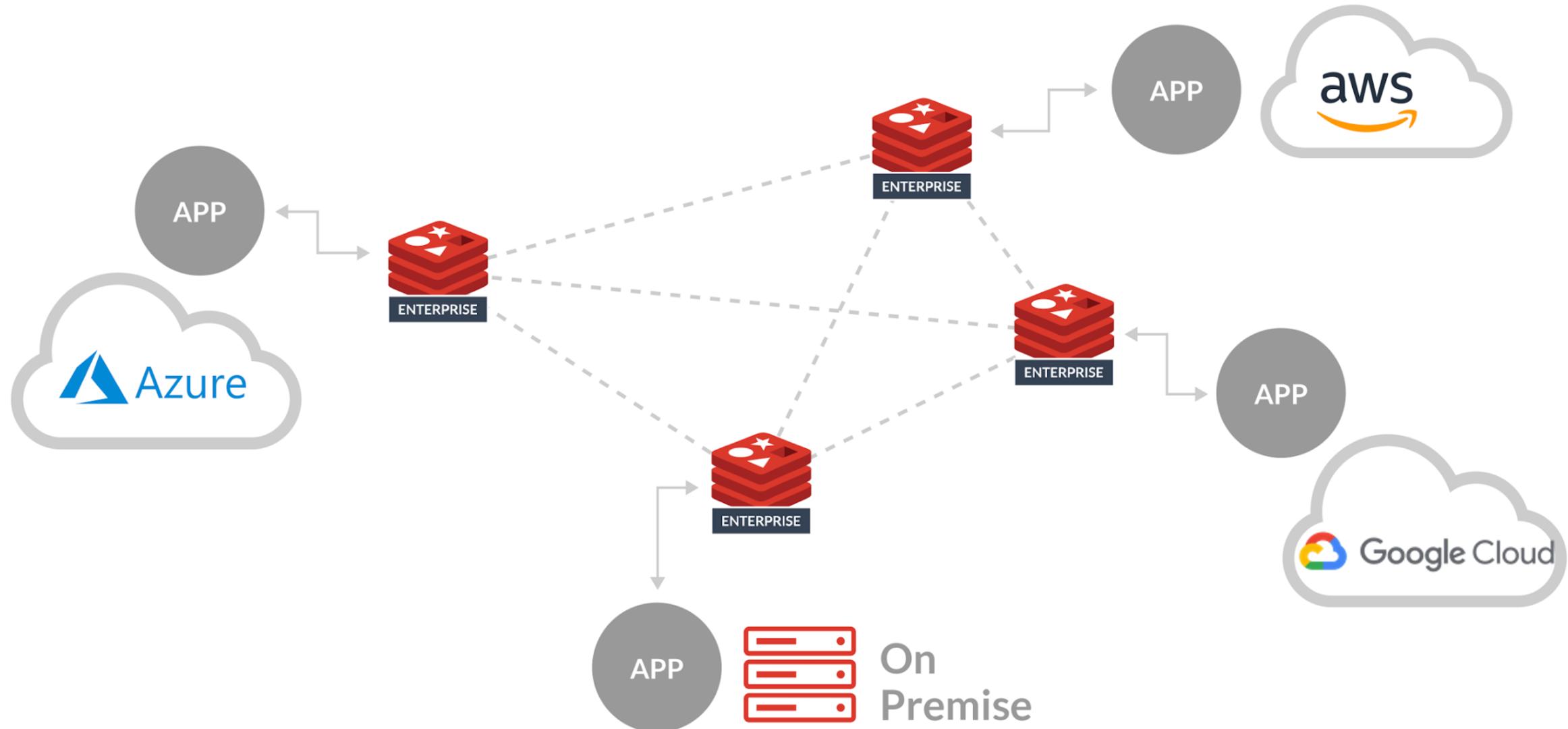
# Redis Enterprise brings the Most Loved Database to Petabyte Scale

- Shared-nothing architecture to enable **near linear scaling**
- Fully utilizes **multi-core / multi-node** architecture for vertical and horizontal scaling
- **Scaling and resharding** without downtime



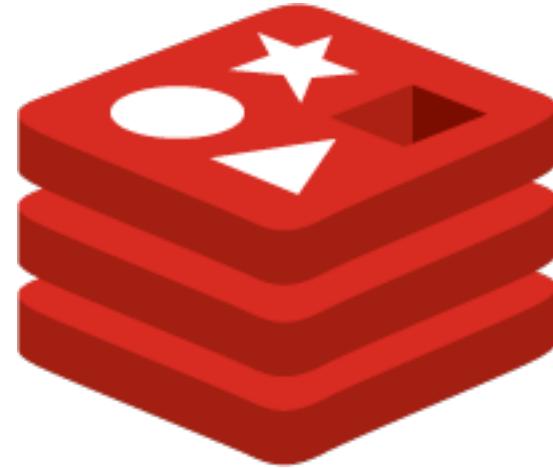
Redis Enterprise with **200M ops/sec @ <1ms latency**  
on 40 AWS instances

# Redis Enterprise: On Premise, Hybrid Cloud, Multi Cloud

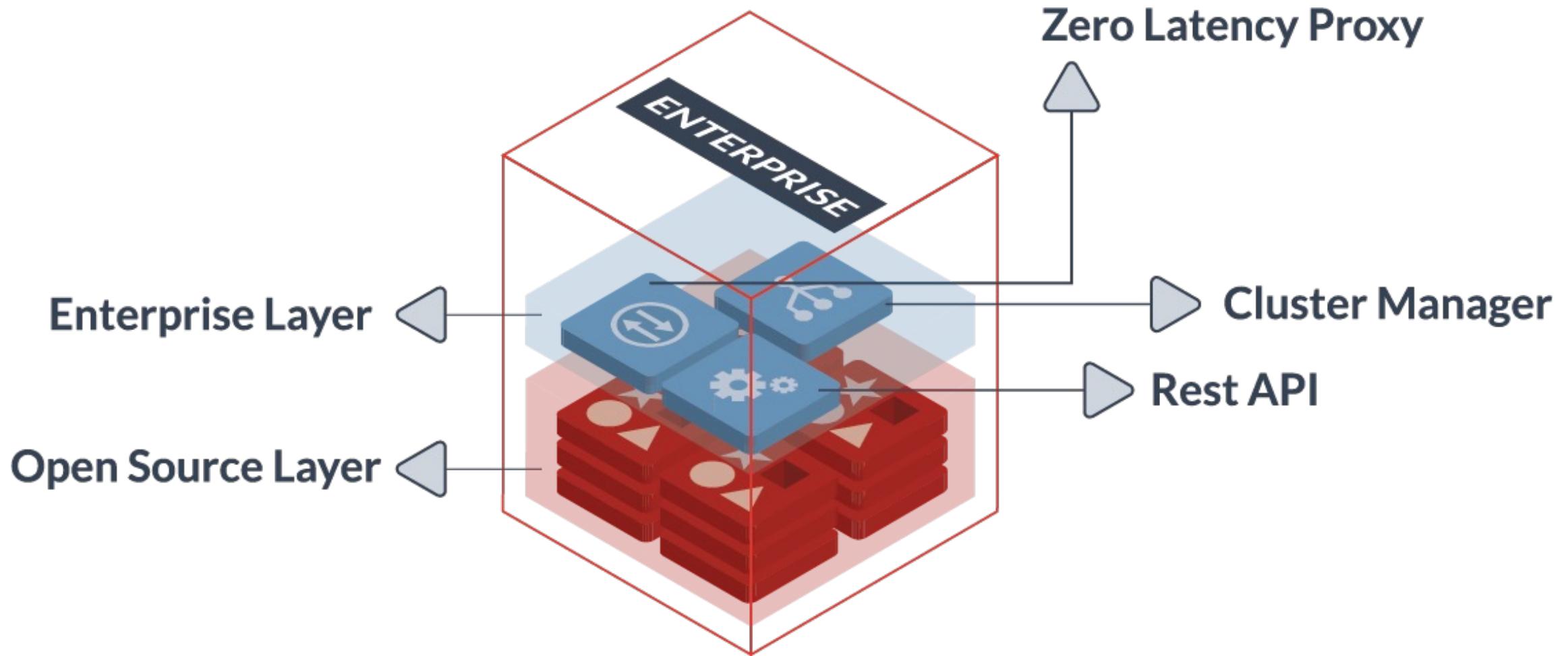


# Redis Enterprise Architecture

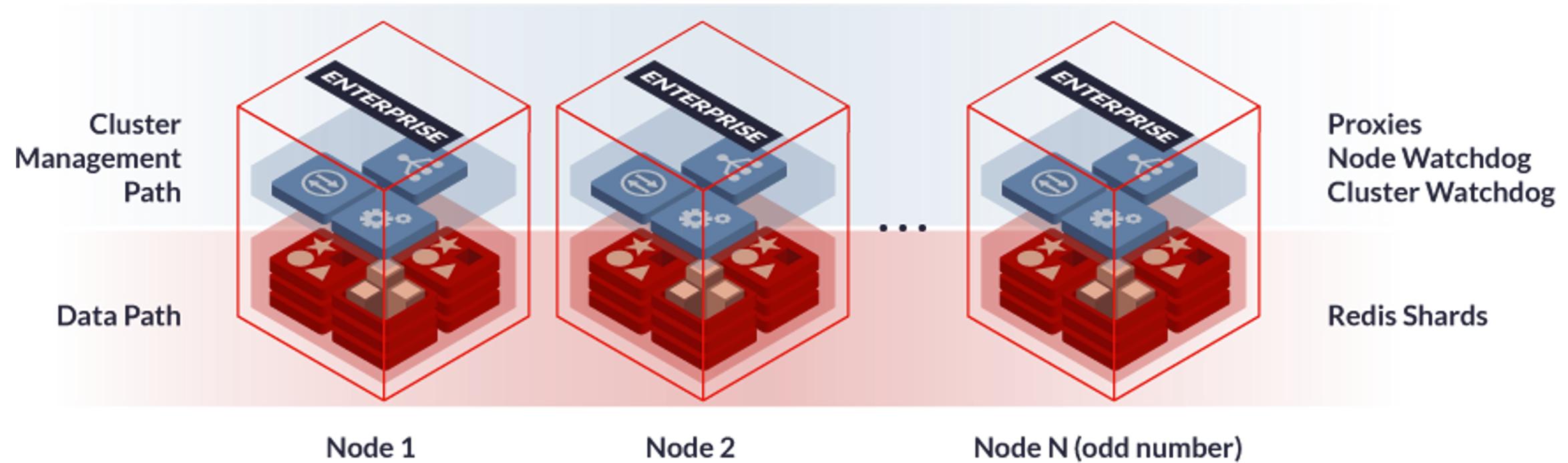
# Redis Enterprise Shard



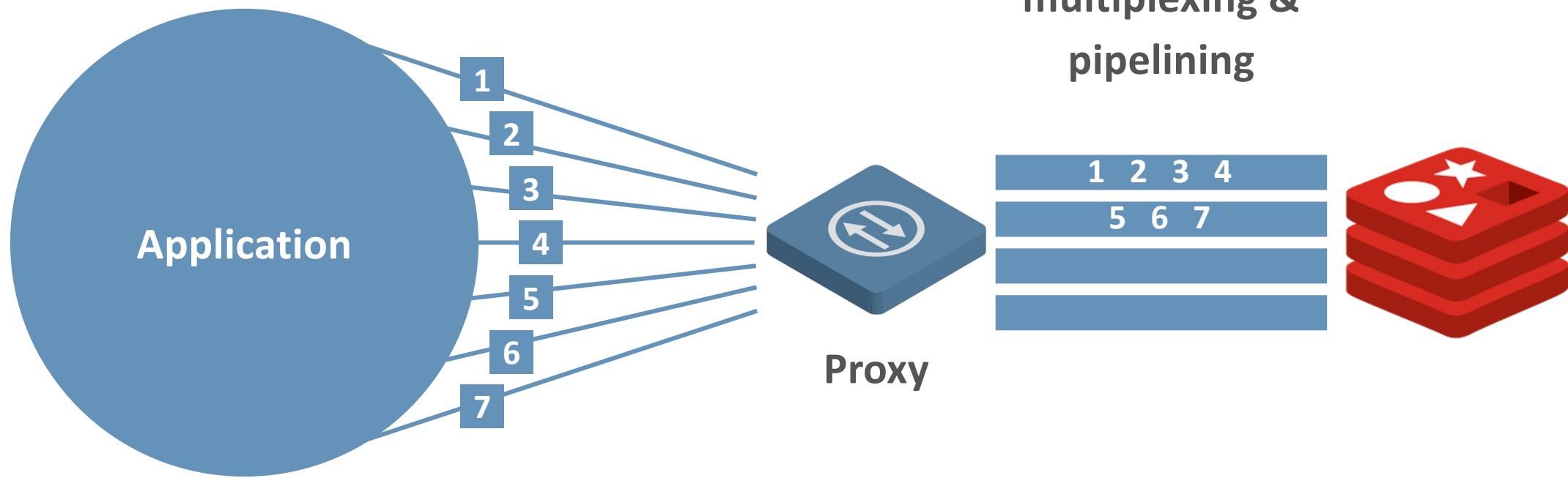
# Redis Enterprise Node



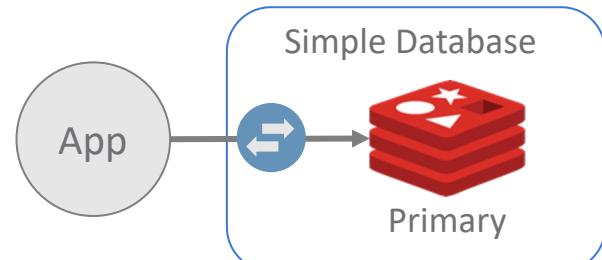
# Redis Enterprise Cluster



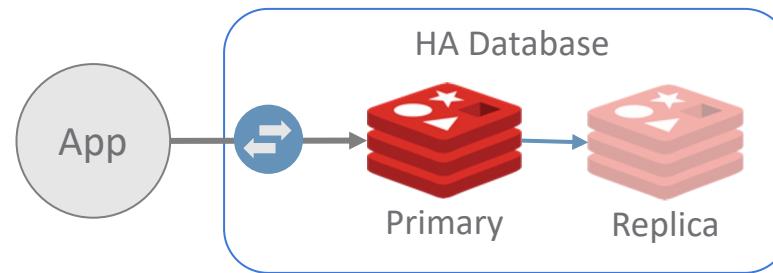
# Redis Enterprise Proxy



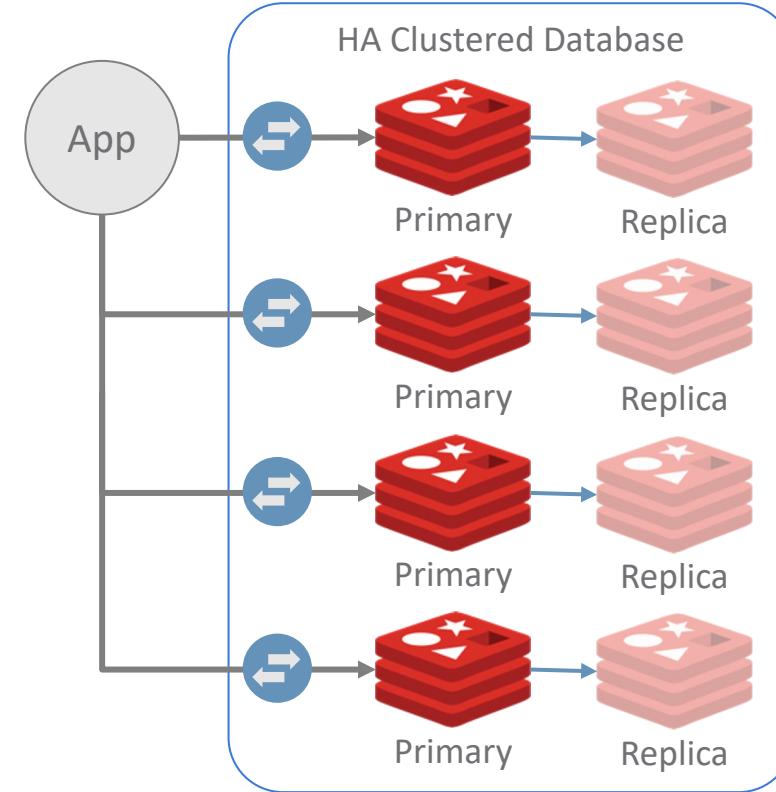
# Redis Enterprise: HA, Scale, Geo-Distributed AA



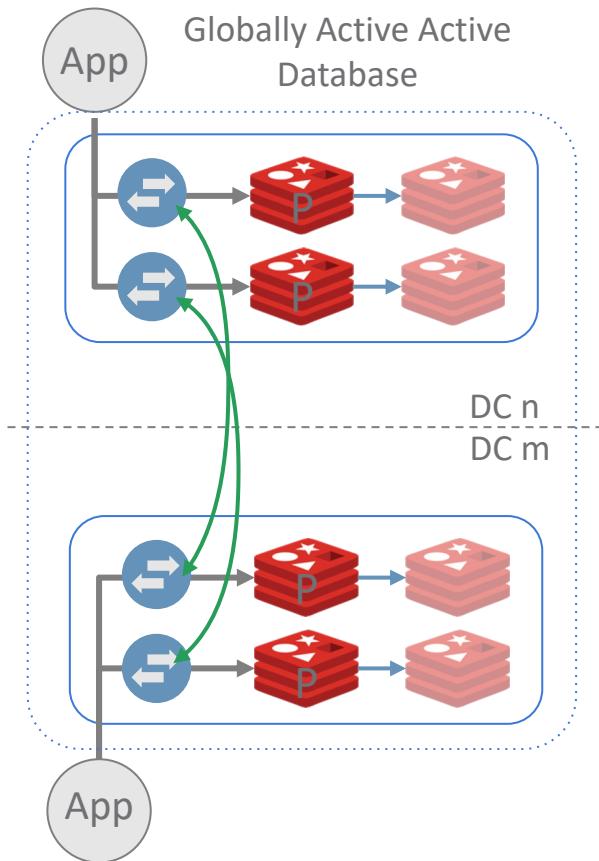
Suitable for :  
Dev/Test/MVP



Suitable for Production:  
Most internal apps (< 100k users)  
(< 20GB, < 20k Ops/sec @ 1ms )



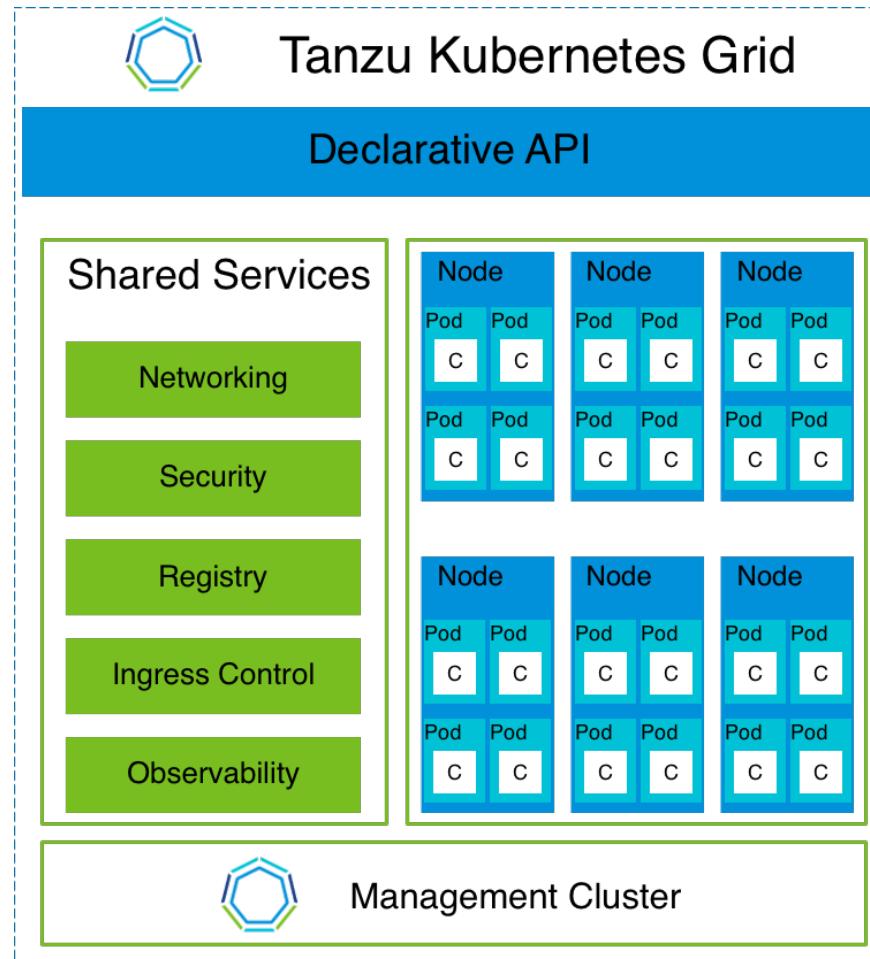
Suitable for Production:  
External Apps w > 100k users  
( > 25GB, > 25k Ops/sec @ 1ms )



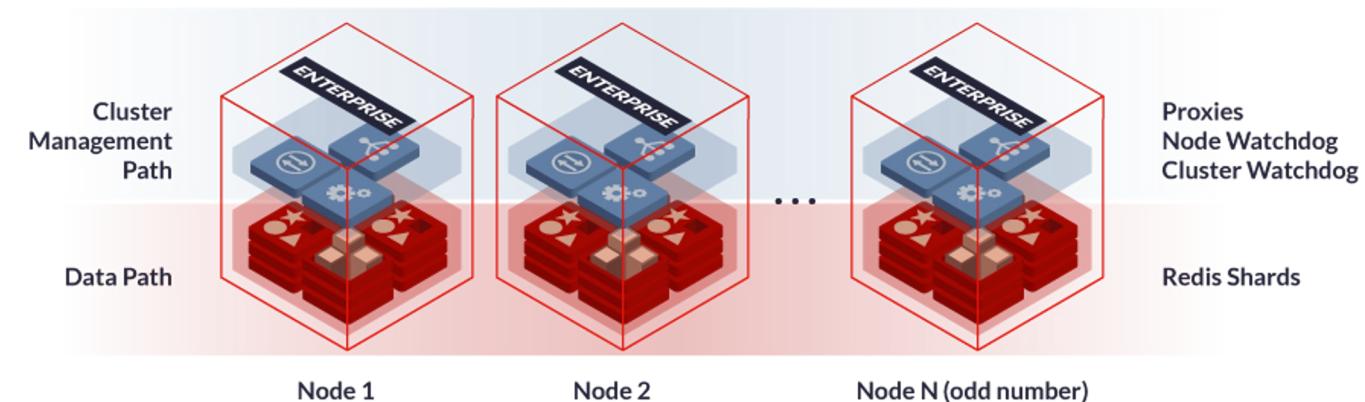
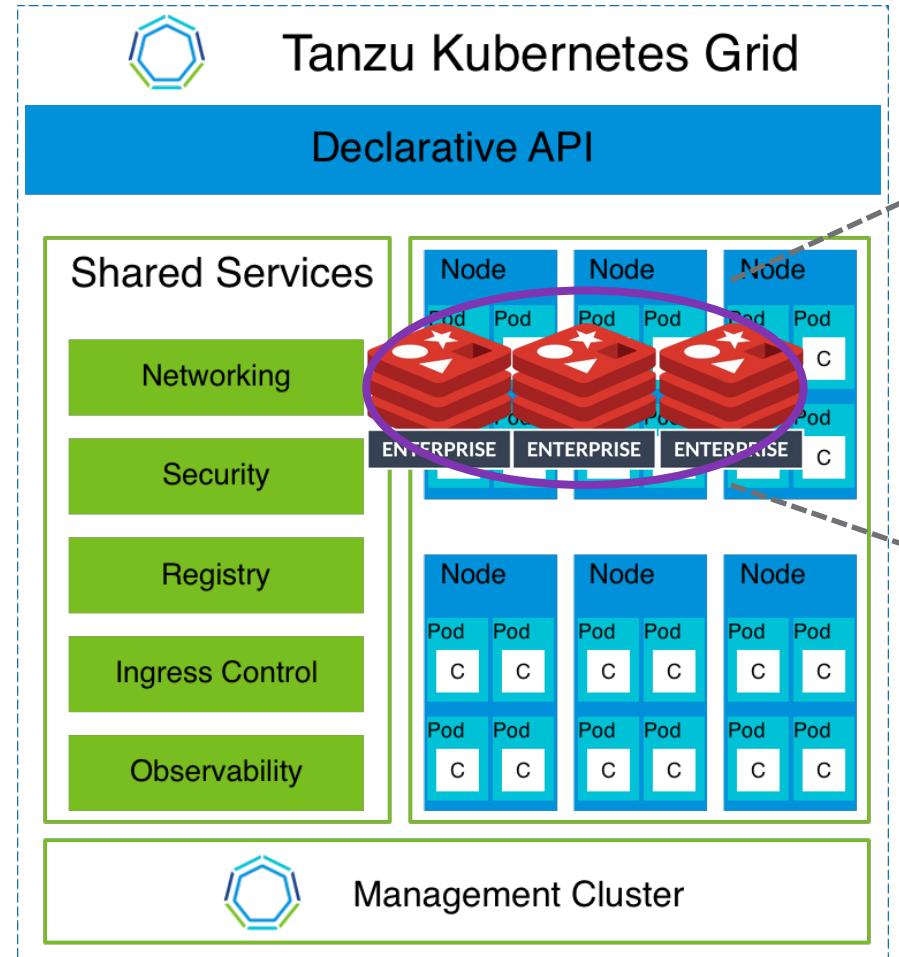
Suitable for Active Active  
Production Applications

# VMware Tanzu and the Redis Enterprise Operator

# Tanzu: Universal Infrastructure



# Redis Enterprise + Tanzu



# Redis Enterprise REC and REDB Resources

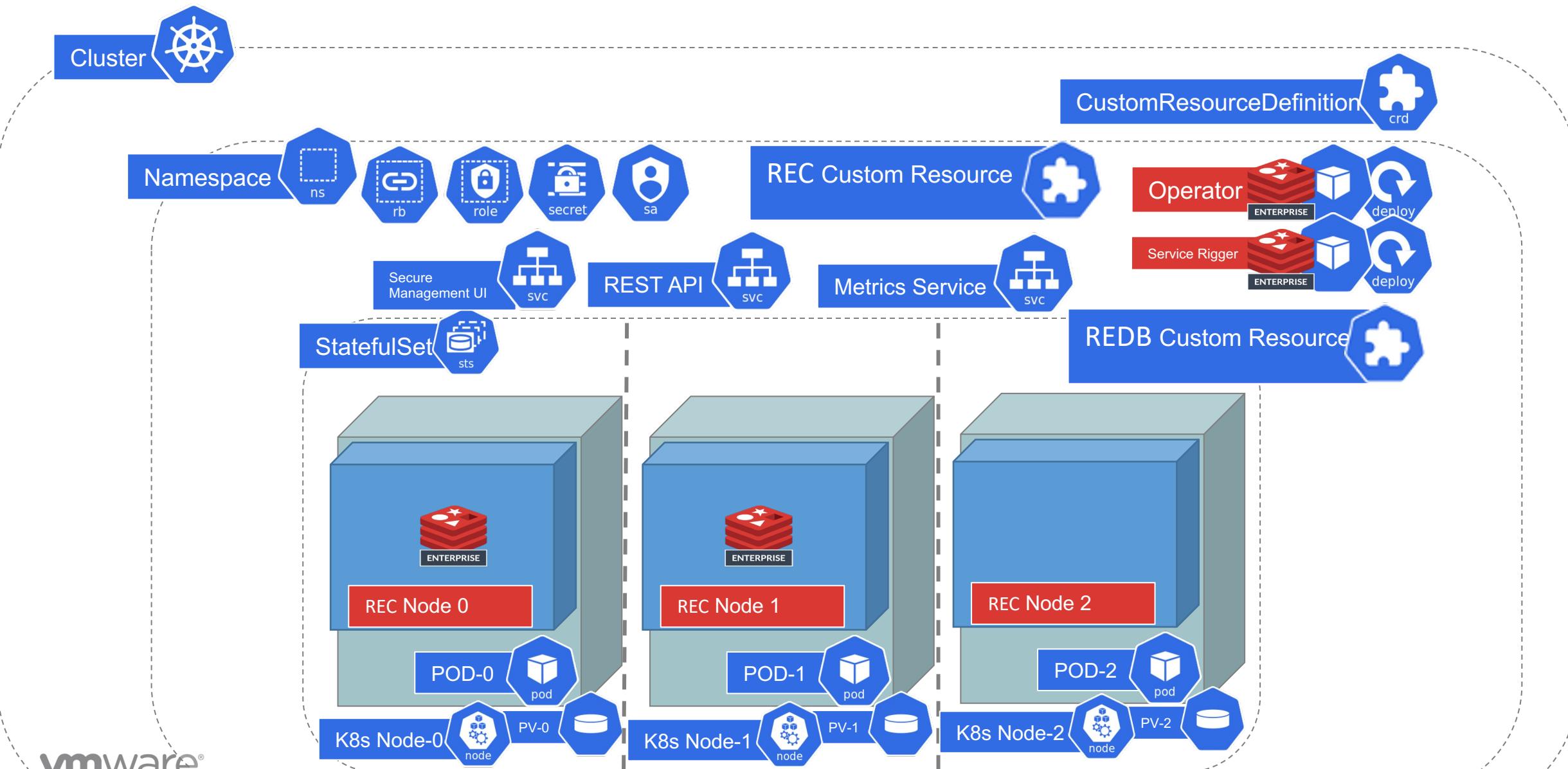
## Redis Enterprise Cluster

```
apiVersion: app.redislabs.com/v1
kind: RedisEnterpriseCluster
metadata:
  name: andre-rec-demo
spec:
  nodes: 3
  redisEnterpriseNodeResources:
    limits:
      cpu: 4000m
      memory: 4Gi
```

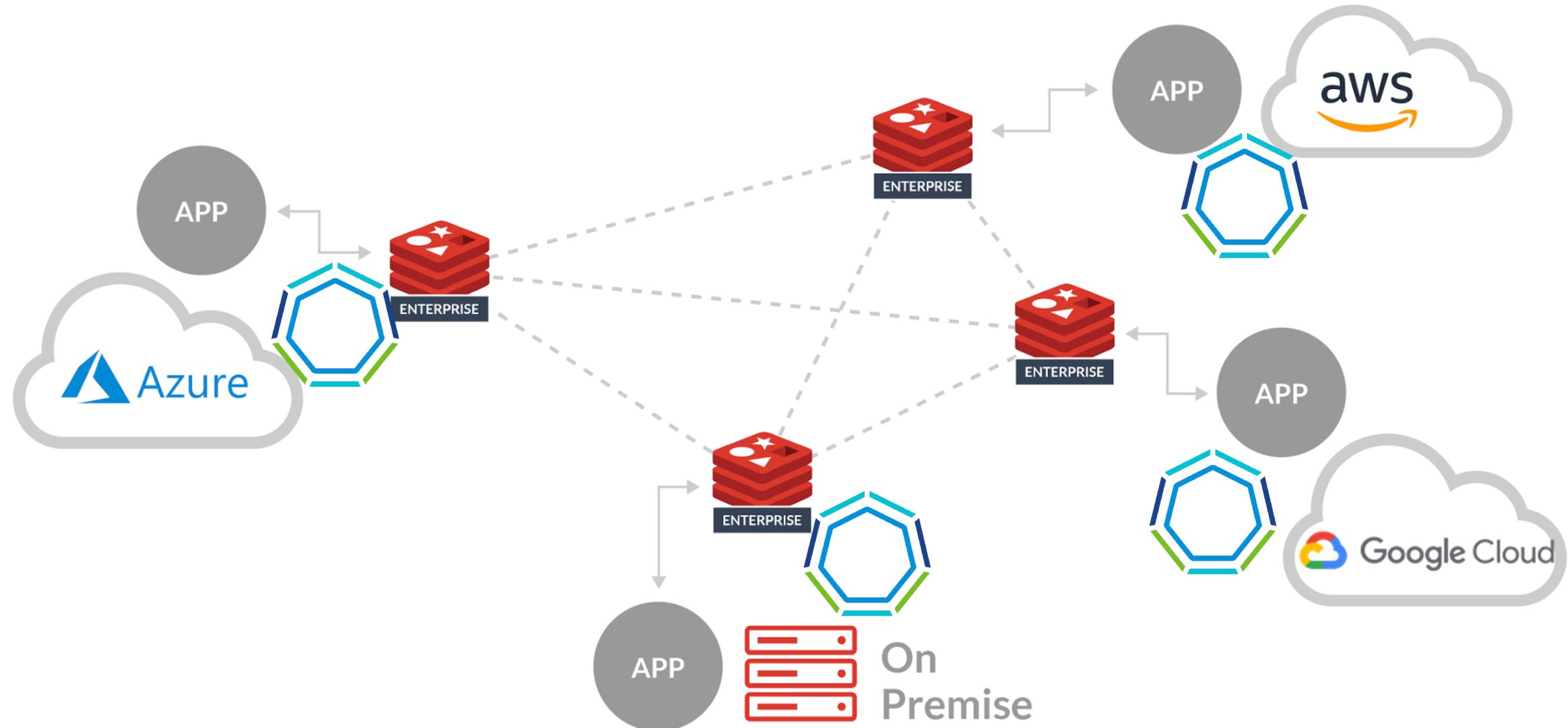
## Redis Enterprise Database

```
apiVersion: app.redislabs.com/v1alpha1
kind: RedisEnterpriseDatabase
metadata:
  name: andre-db-demo
spec:
  redisEnterpriseCluster:
    name: andre-rec-demo
    memorySize: 1G
    shardCount: 2
    replication: true
```

# Redis Enterprise Operator Creates and Sustains the Cluster



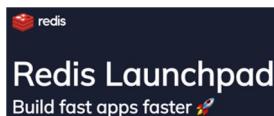
# Redis Enterprise + Tanzu: One Deployment Pattern Everywhere FTW



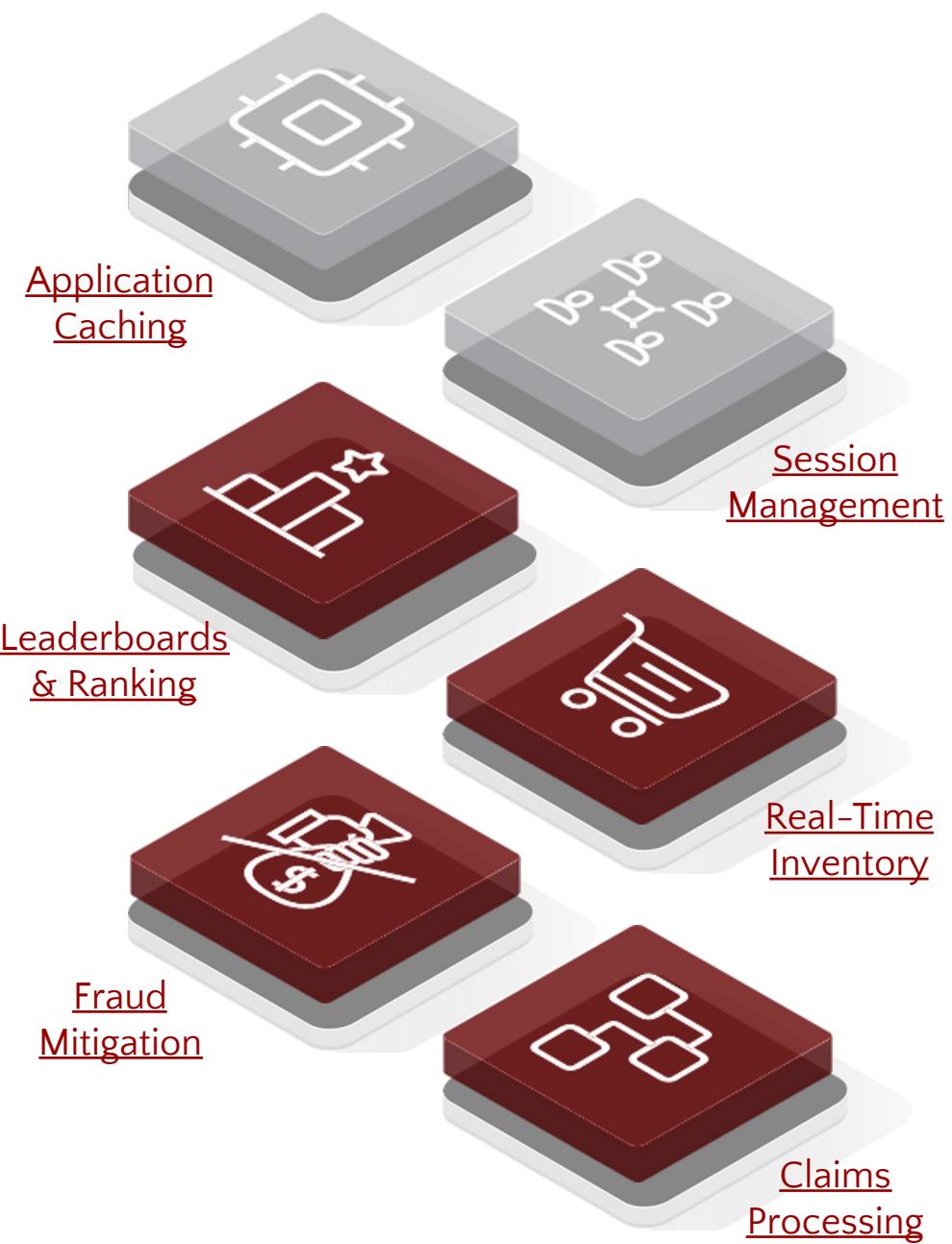
# Tanzu + Redis Enterprise Solutions

# Redis Enterprise Fast Data Solutions

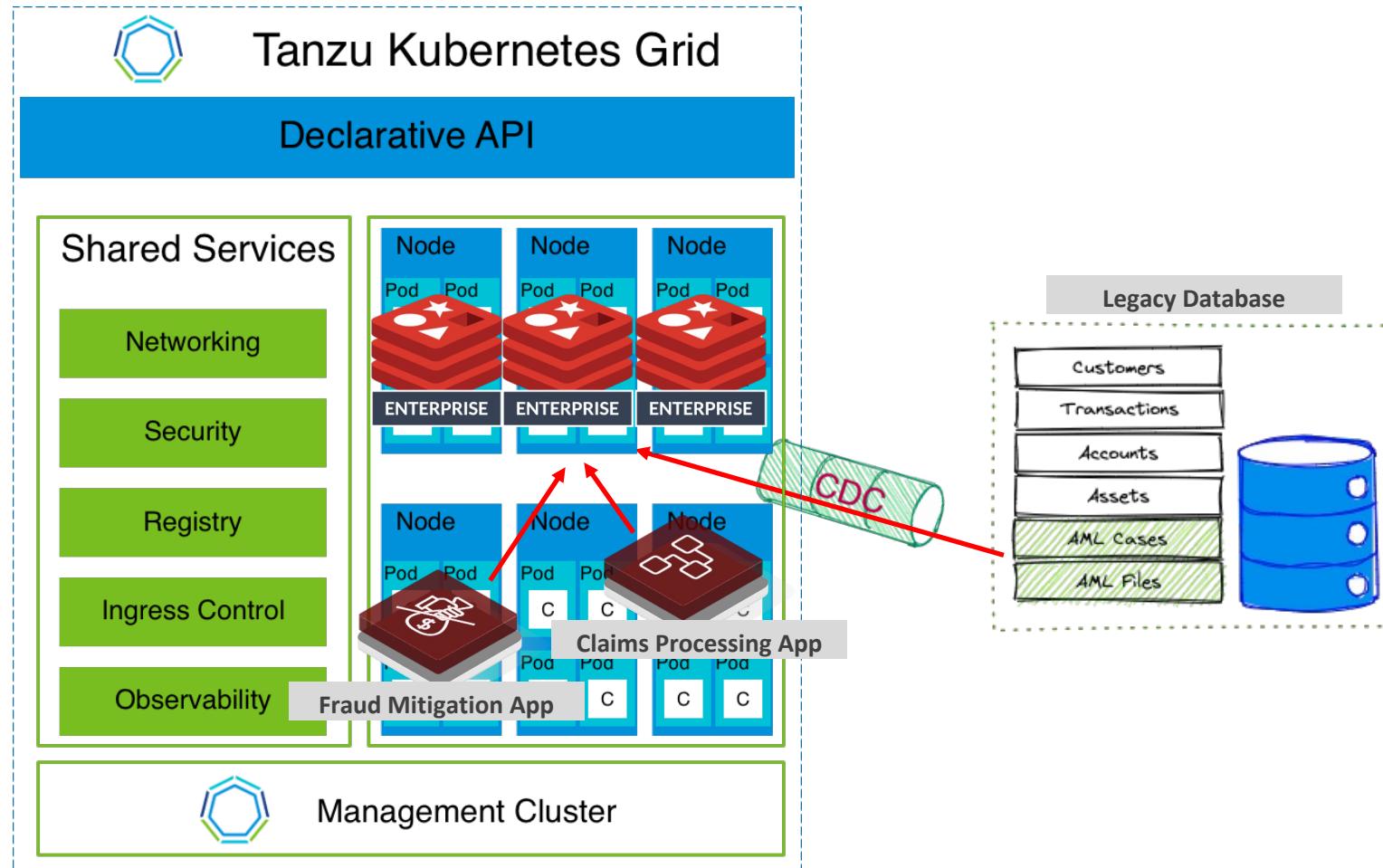
- **Leaderboards**: such as in sporting events and games showing real-time rankings, scores and other data of competitors.
- **Real-Time Inventory**: to track fast-moving inventory, real and virtual, across systems and channels, delivering consistent results.
- **Fraud Mitigation**: combines AI/ML analytics with high-throughput/low-latency to address complex real-time fraud detection.
- **Claims Processing**: supports real-time processing with event driven architectures, AI/ML models, instant member lookups, ...



<https://launchpad.redis.com>

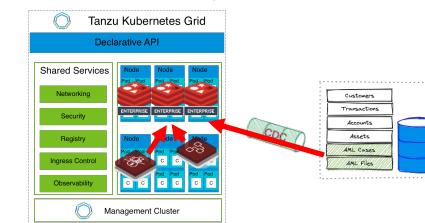
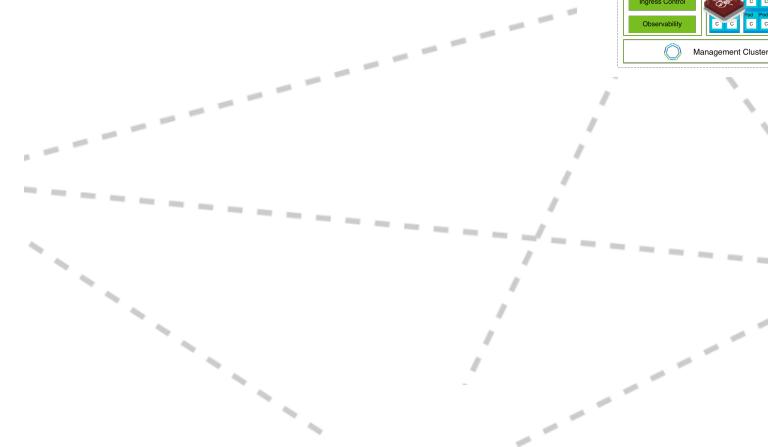
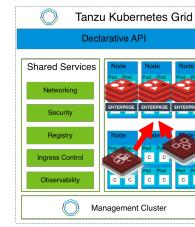


# Redis Enterprise + Tanzu: Unlocking Slow Data



- Financial company invested in a AML application based on a relational database
- Though the data ingestion works fine, the search service has degraded continuously as the tables grew
- They connected the tables via CDC to Redis Enterprise with RedisSearch, RedisTimeSeries and RedisJSON modules to send the data and index it in real time

# Redis Enterprise + Tanzu: Unlocking Slow Data Everywhere



On  
Premise



Please take  
your survey.



# Thank You

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# VMware Marketplace Overview



VMware Marketplace is a one-stop shop for **first-party** solutions, **third-party** solutions, **free open source** solutions, and curated, **hardened open-source images** for users.

**780+**

Publishers

**2,300+**

Published solutions in the catalog

**15+**

Solution categories

The screenshot shows the VMware Marketplace website. At the top, there are three main features: 'Certified and Validated Solutions' (with a purple checkmark icon), 'Discover, Try, Buy, Deploy' (with a blue dotted icon), and 'OVAs, Helm Charts, Containers, and more' (with a green cloud icon). Below these, the 'Redis Enterprise' product page is displayed. The page includes a product thumbnail, publisher information ('By: Redis, Inc'), and deployable platforms ('KUBERNETES', 'DATABASES', 'LISTING'). On the left, there's a sidebar with 'Product Status' (published), 'Deployable Platforms' (Kubernetes), and 'Operating System' (RHEL, Ubuntu, CentOS). The main content area has tabs for 'Overview' (selected), 'Pricing', 'Resource & Support', and 'Request Info'. The 'Description' section highlights Redis Enterprise as a real-time data platform. The 'Features' section lists high availability, zero-touch upgrades, simplified access, and rapid deployment. The 'High Performance Caching' section describes the architecture and performance. A note at the bottom mentions 'Active-Active replicated Redis databases (CRDB)'.

Link to Listing: <https://marketplace.cloud.vmware.com/services/details/redis-enterprise-1?slug=true>