Checkmarx One on Google Cloud: Single-Tenant Deployment Overview

Checkmarx One is a comprehensive, cloud-native application security platform designed to meet the complex needs of modern development environments. To support enhanced data isolation and compliance requirements, Checkmarx One offers **Single-Tenant deployment on Google Cloud Platform (GCP)**, enabling organizations to retain full control over their security posture and infrastructure.

Checkmarx One's single-tenant GCP deployment ensures dedicated infrastructure, enhanced security, and scalable performance tailored to each customer's requirements, delivering enterprise-grade AppSec in a flexible and isolated environment.

Core Architecture

At the foundation of a Checkmarx One single-tenant deployment on GCP is a **Virtual Private Cloud (VPC)**, which houses both application and database subnets, architected to span multiple availability zones for high availability and fault tolerance.

The application itself runs within **Google Kubernetes Engine (GKE)** as a collection of containerized microservices. These services make up the complete Checkmarx One platform and are orchestrated within your dedicated Kubernetes cluster.

Key Service Integrations

↘ **Memorystore for Redis** is utilized as an in-memory, ephemeral key-value cache to optimize performance across internal services.

↘ **PostgreSQL on Cloud SQL** serves as the backend relational database, storing structured application data.

↘ **ActiveMQ,** deployed as a container within GKE, enables robust internal messaging and asynchronous service communication.

Storage and Access

↘ **Google Cloud Storage** is used as the main file storage solution, with MinIO gateways allowing the application to interact with buckets. Users upload and download files securely via pre-signed URLs.

↘ **Cloud DNS** manages the DNS resolution for the Checkmarx One platform URL, ensuring reliable access for both human users and automated systems.

↘ **GKE Ingress Load Balancing** provides traffic routing and entry control for external users accessing the application.

Monitoring, Logging, and Security

↘ **ElasticSearch** acts as the central log management system, storing and indexing logs from various services.

↘ **Kibana,** paired with ElasticSearch, offers a visual interface for log analytics and dashboards.

↘ **FluentBit** handles log shipping from Checkmarx One services to ElasticSearch, ensuring real-time visibility.

↘ **Cloud Trace** is leveraged for distributed tracing and performance insights.

↘ Optional services include **Cloud Key Management** for custom encryption key control, **Cloud Armor** for advanced security policies, **Cloud CDN** for static content delivery and route control, **SecurityHub**, and **DevOps Guru** for security insights and operational intelligence.

Architecture Overview

Checkmarx One Single Tenant deployment on GCP.
The main components of this architecture are described below.

CxOne GCP Reference Architecture
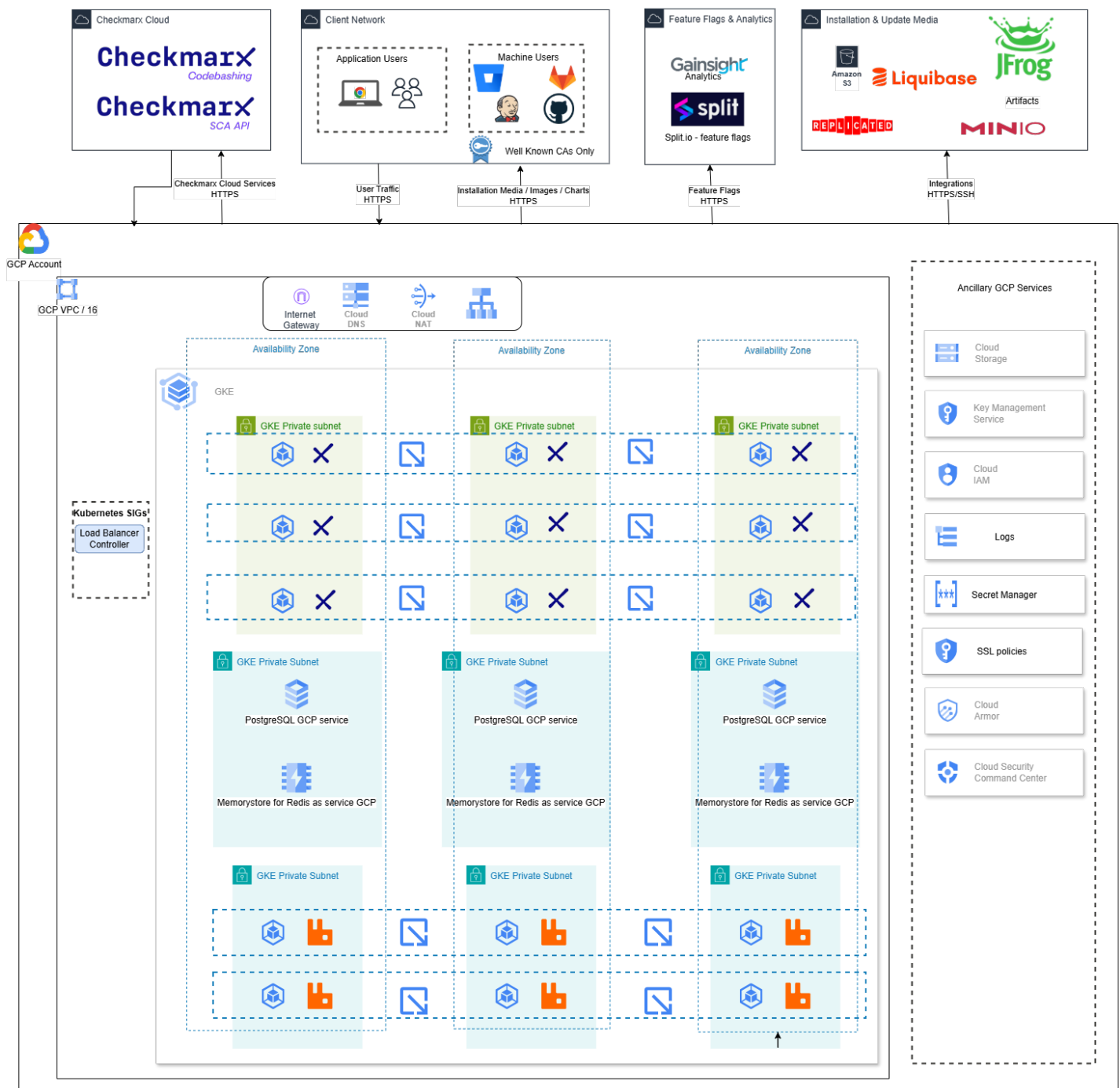
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