

Dynatrace Architecture

Core Components of Dynatrace Architecture

Component	Description
Dynatrace OneAgent	Installed on each monitored host (physical, virtual, container). Automatically discovers and monitors processes, services, and dependencies. Collects metrics, logs, traces, and topology data. Supports auto-instrumentation for many technologies.
Dynatrace ActiveGate	Acts as a communication proxy between OneAgents and Dynatrace Cluster (SaaS or Managed). Handles traffic encryption, compression, and routing. Also used for synthetic monitoring, cloud API integrations (AWS, Azure, GCP), and remote monitoring of internal networks.
Dynatrace Cluster	Central processing and analysis engine. Stores metrics, logs, events, and traces. Provides the web UI for dashboards, Smartscape, PurePath, Davis AI insights, alerts. Available in two forms: Dynatrace SaaS (hosted) and Dynatrace Managed (self-hosted).
Davis AI Engine	Dynatrace's AI for automatic anomaly detection, root cause analysis, and alerting. Analyzes metrics, logs, traces, and events in real-time.
Smartscape Topology	Visualizes dynamic relationships between infrastructure, services, and applications. Continuously updates based on real-time data.
PurePath Technology	End-to-end distributed tracing engine. Follows every transaction across tiers (frontend to DB). Captures timings, call trees, and exceptions.
AppEngine and Extensions	AppEngine: Custom observability apps using Dynatrace data. Extensions: Plugins for third-party systems like network devices, storage, etc.

Core Components of Dynatrace Architecture

Dynatrace OneAgent

Dynatrace ActiveGate

Davis AI Engine

Smartscape Topology Model

PurePath Technology

AppEngine and Extensions

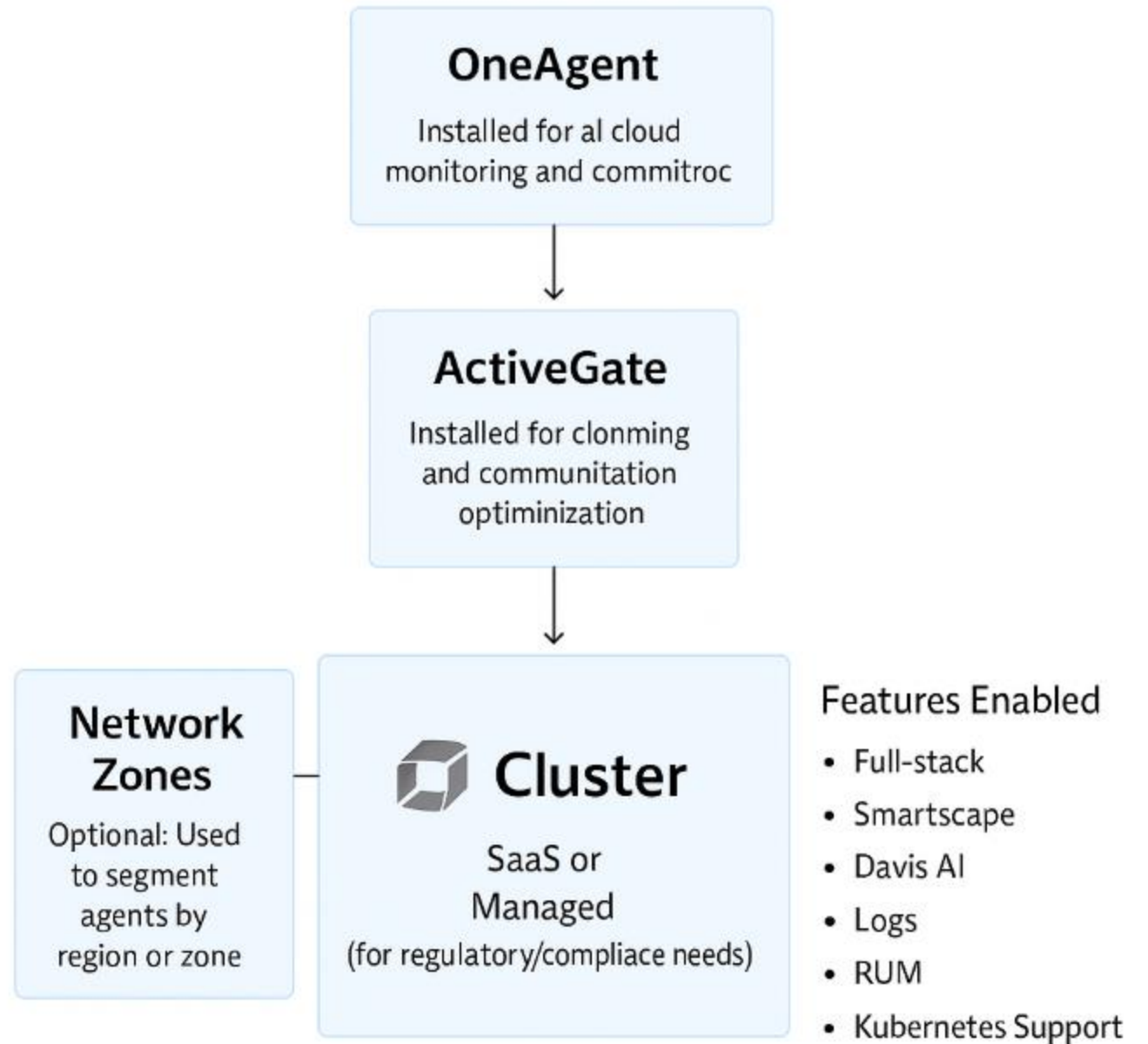
Deployment Architectures: Small Setup (Single App / Host / Cloud Instance)



Features Enabled

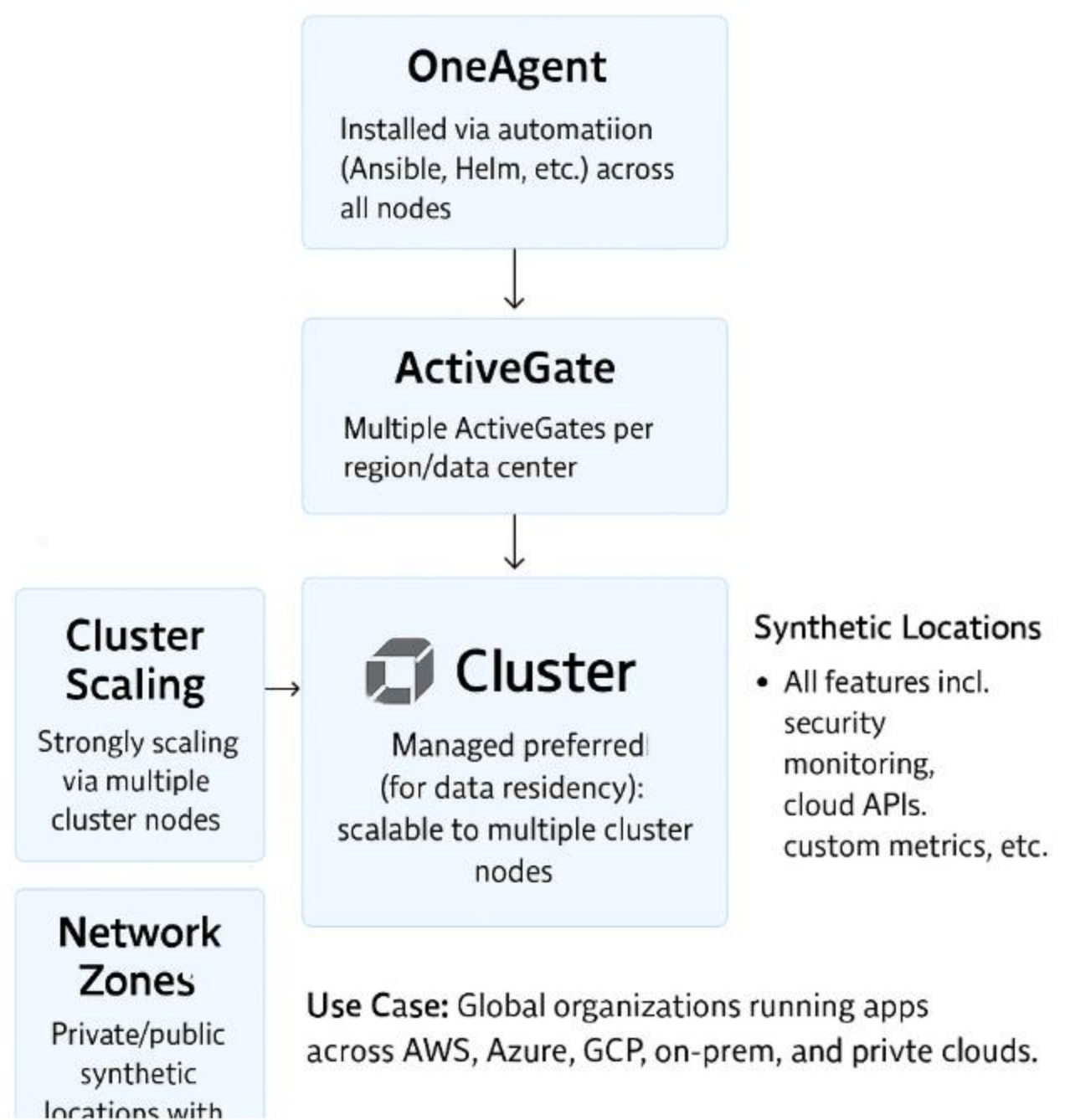
- Full-stack
- RUM
- Log Monitoring
- PurePath

Deployment Architectures: (10-100 Hosts / Cloud VMs / Microservices)



Use Case: Microservices in Kubernetes, Azure,

Deployment Architectures: Large Setup (Enterprise Multi-Cloud / Hybrid / 1000+ Hosts)

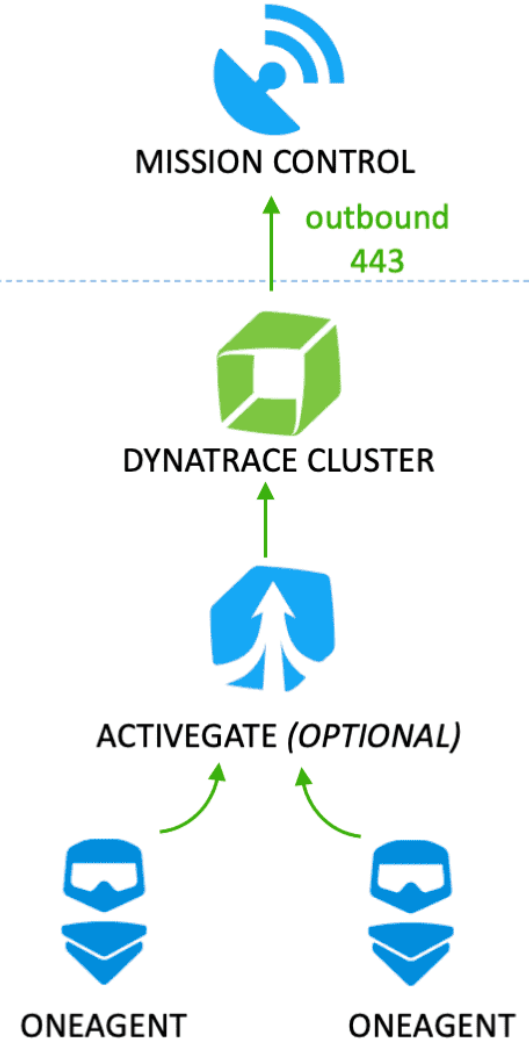
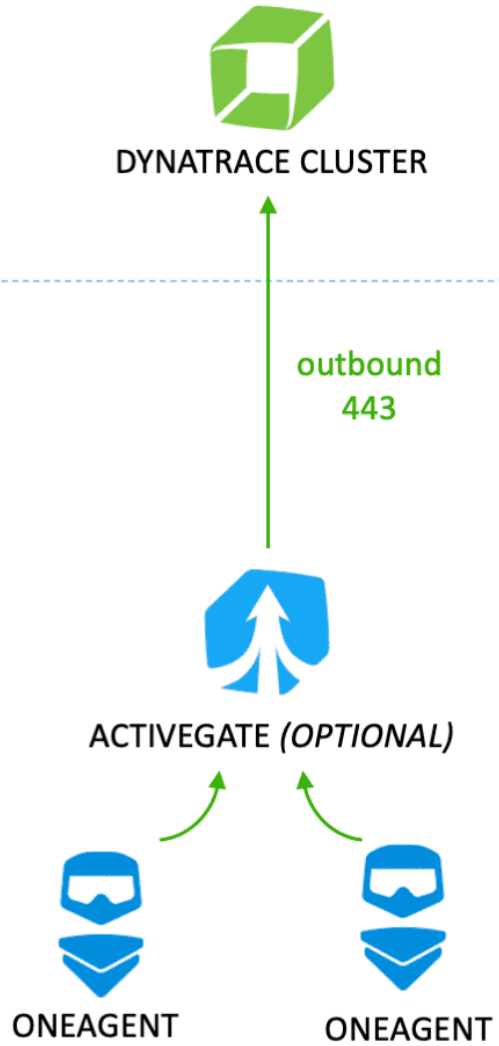


SaaS

Managed

CLOUD

ON-PREMISE



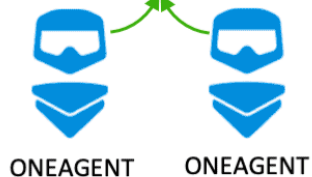
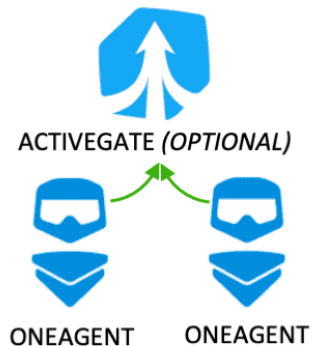
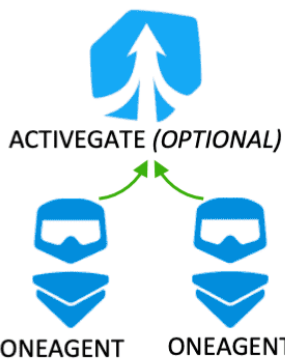
SaaS

Managed

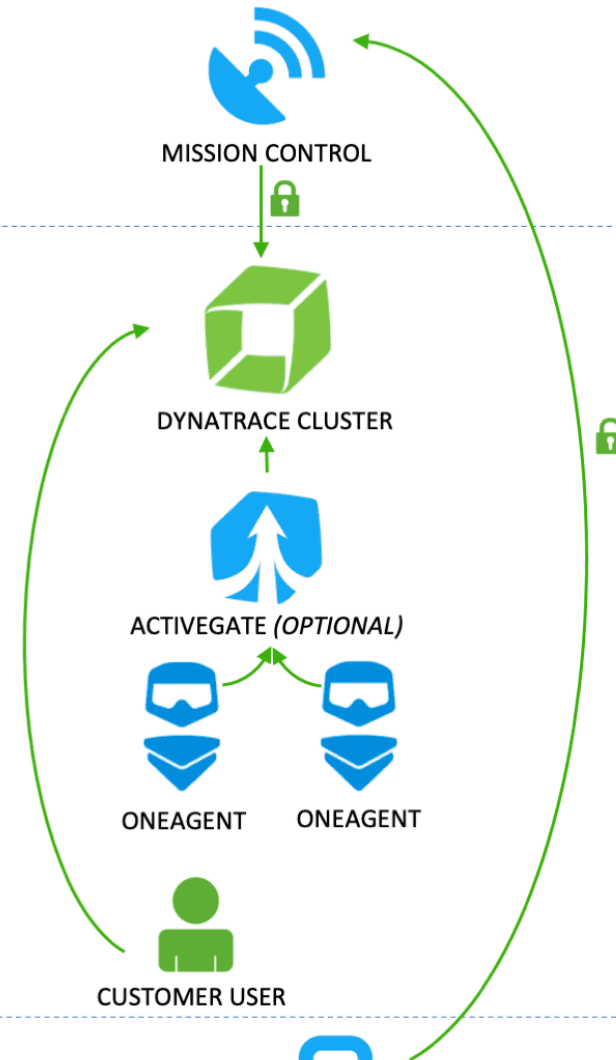
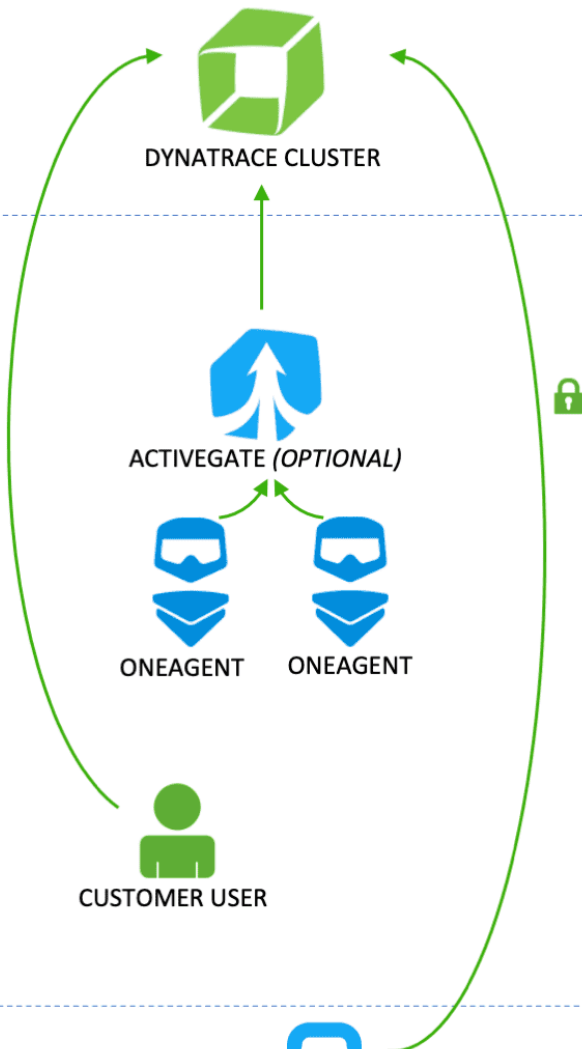
CLOUD

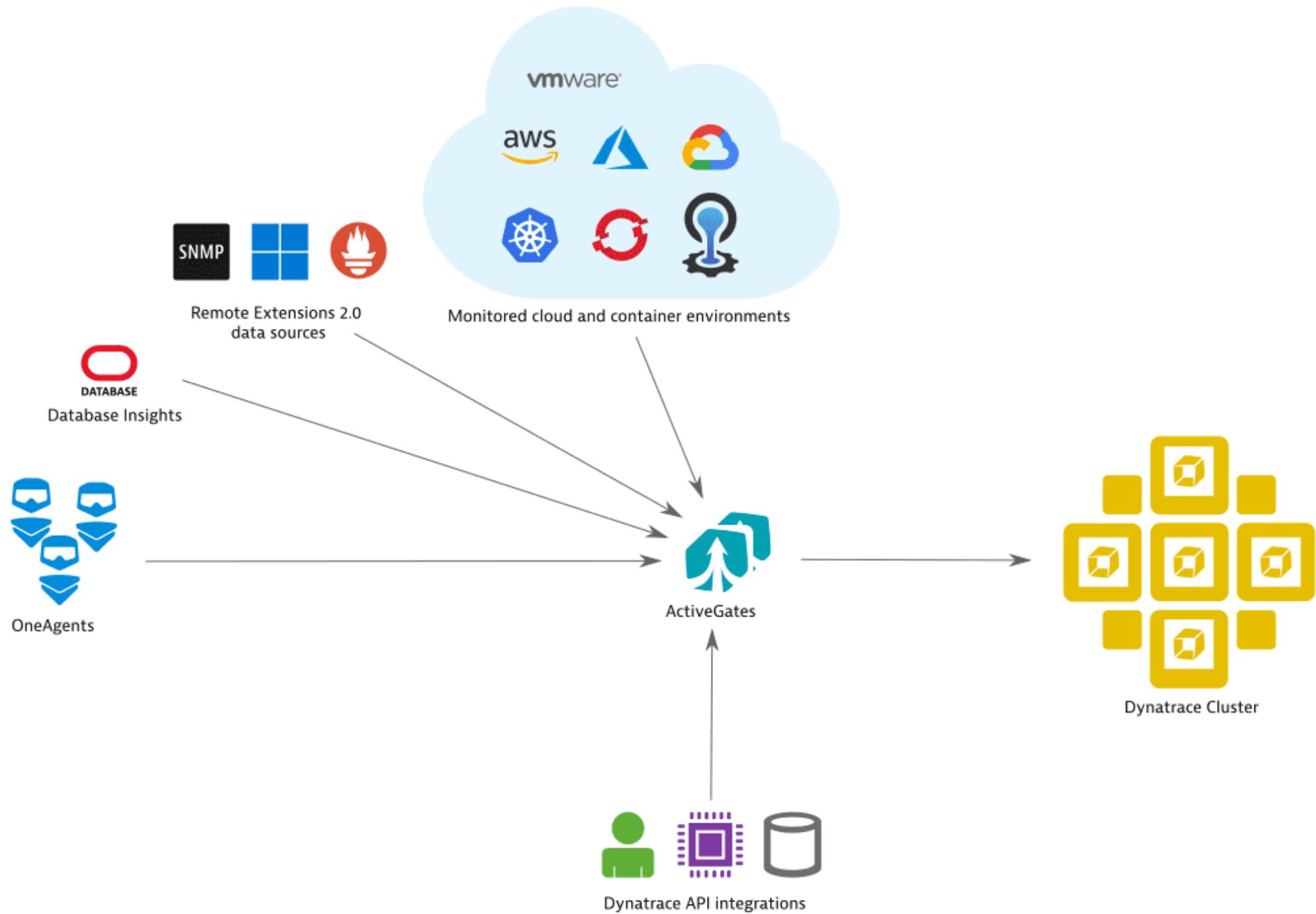


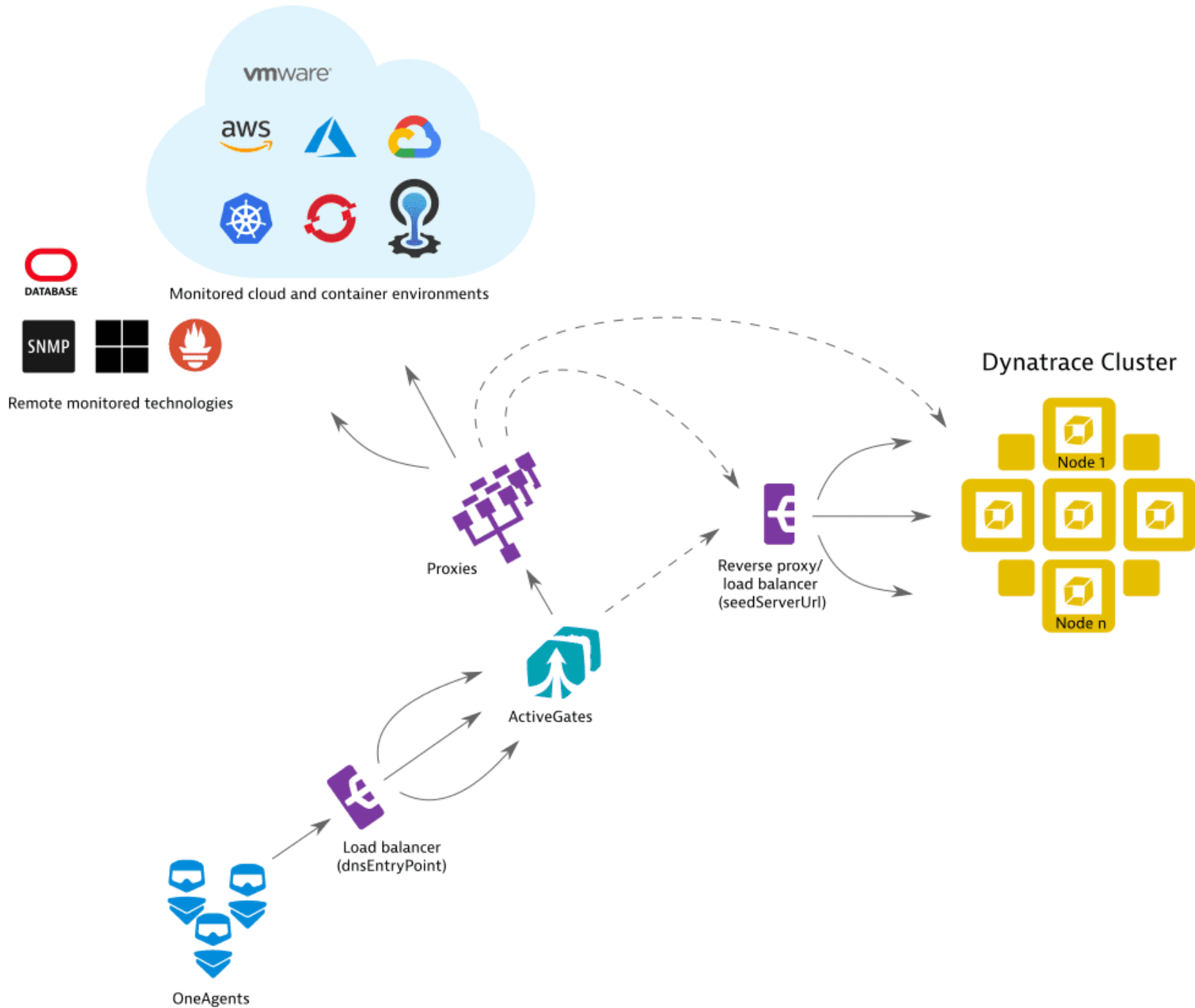
ON-PREMISE



DYNATRACE







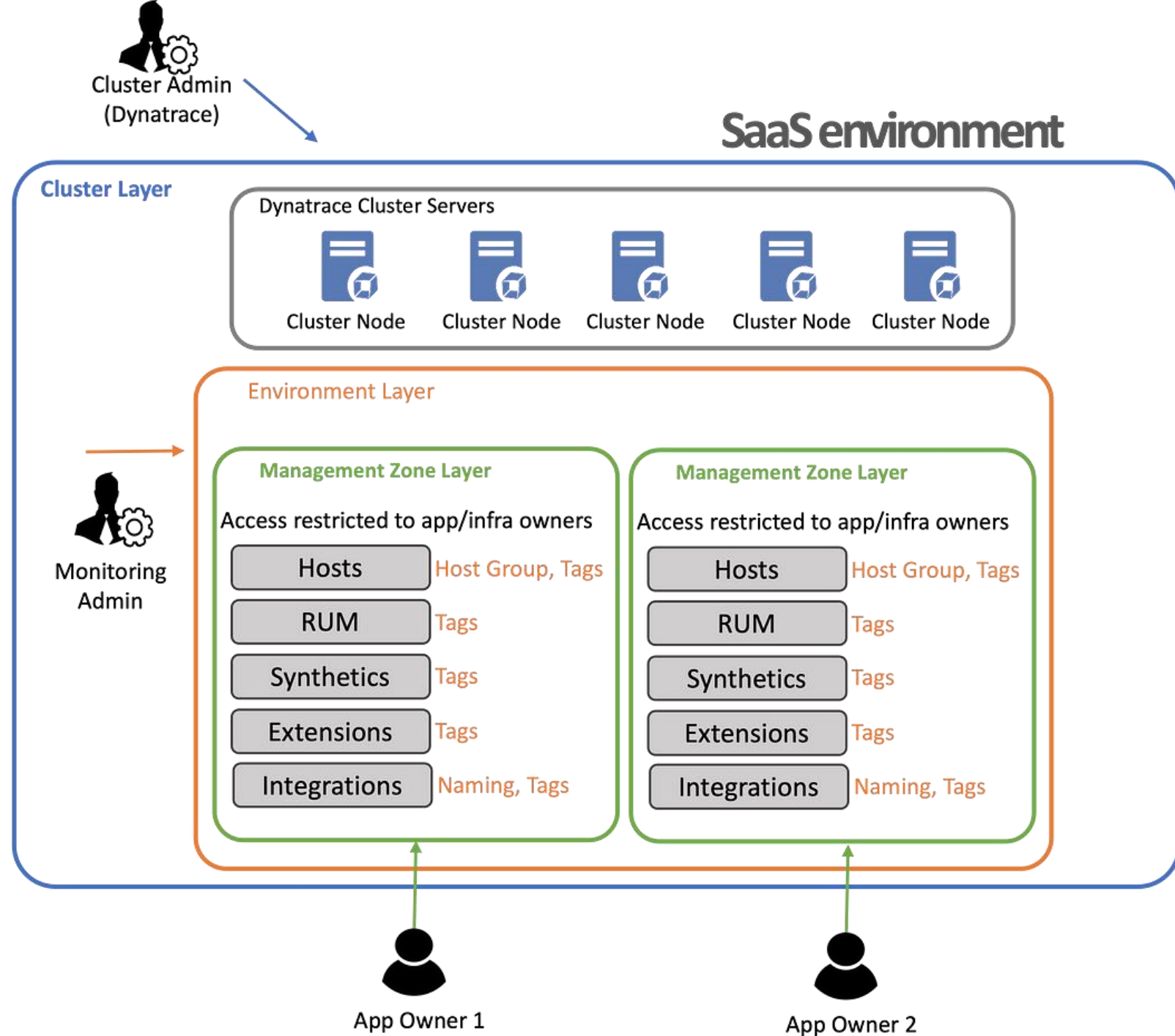
Dynatrace terminology

What is a Tenant in Dynatrace?

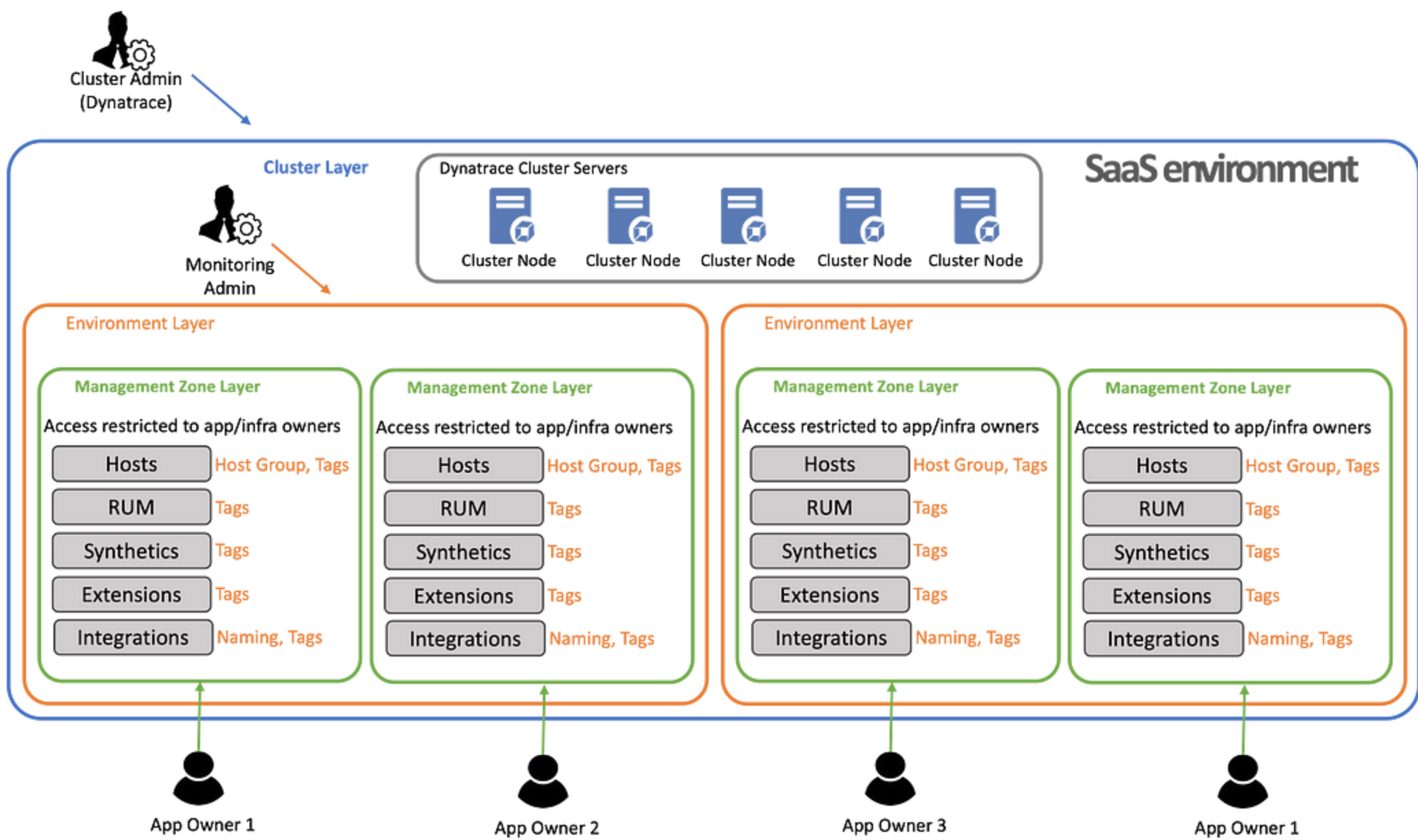
A **tenant** in Dynatrace represents a **logically isolated monitoring environment**. Each tenant has:

- Its own data storage
- Its own configuration
- Its own access control and users
- Its own dashboards, alerts, and rules

Single Tenant



Multi Tenant



Dynatrace Single-Tenant vs Multi-Tenant

Feature	Single-Tenant	Multi-Tenant
Definition	One monitoring environment per cluster or instance	Multiple isolated monitoring environments (tenants) in a single cluster
Isolation	All data is stored and managed in one shared environment	Each tenant has strict data and configuration isolation
Use Case	Smaller teams, single project, single company/unit	Enterprises, MSPs, multi-region companies, compliance-separated teams
Security	Shared access for all users within that tenant	Each tenant has its own access rules, users, RBAC
Scalability	Suitable for small to medium environments	Highly scalable; allows centralized management of many environments
Data Separation	No hard separation between teams' data	Full separation—each tenant has its own metrics, logs, traces
Dynatrace SaaS	Every SaaS customer gets a single-tenant instance	Multi-tenancy is not exposed in SaaS—one tenant per SaaS customer
Dynatrace Managed	Supports both single and multi-tenant setups	One cluster can host multiple isolated tenants

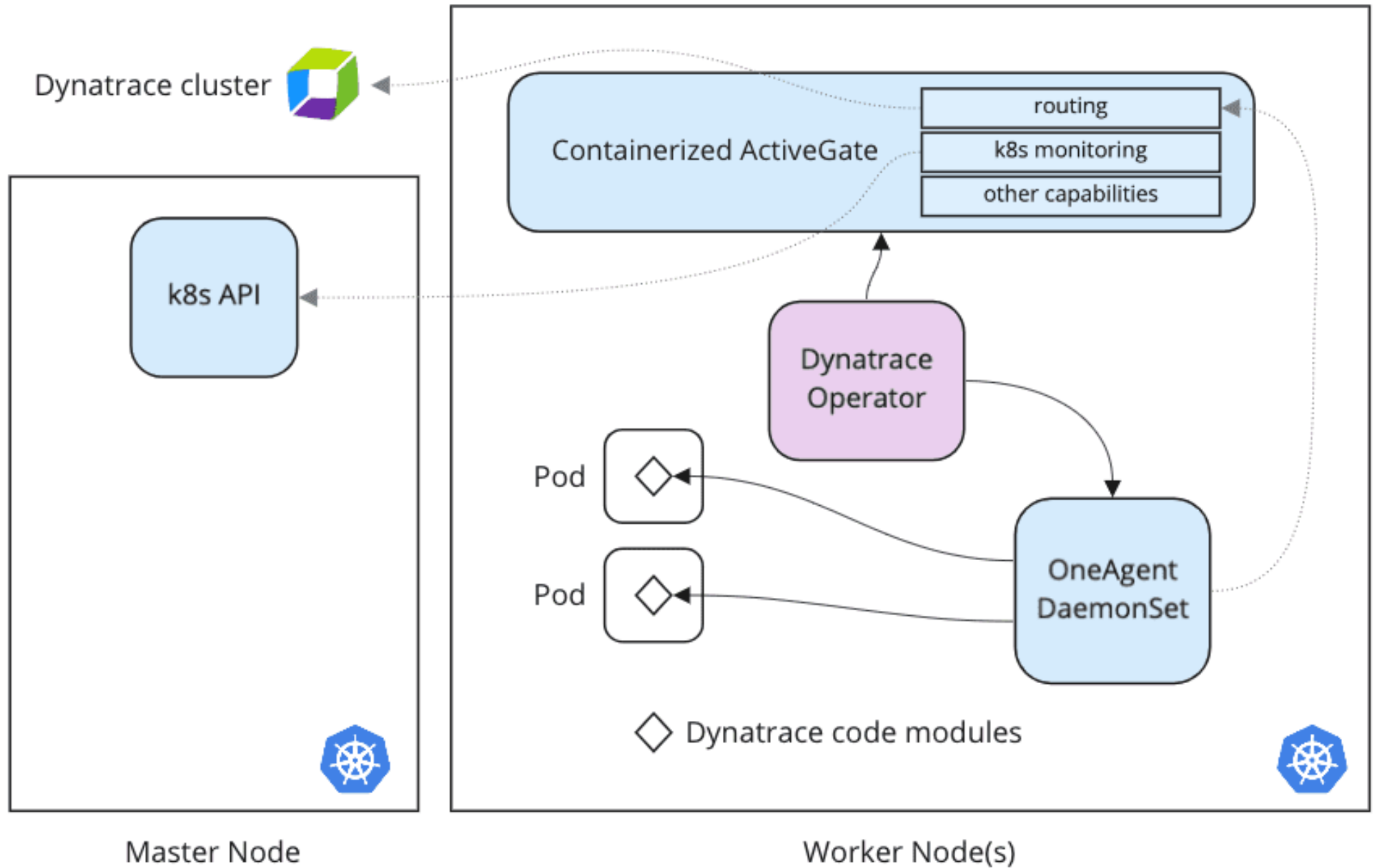
Dynatrace User Terminology & Definitions

Term	Definition
Tenant	A logically isolated environment in Dynatrace (used to separate customers, teams, or business units).
Environment	A monitoring space associated with a particular application or set of services, typically within a single tenant.
Management Zone	Logical partitions within an environment to isolate and control access to services, applications, and data for specific teams or roles.
Monitoring Mode	The level of monitoring enabled (Full-Stack, Infrastructure-Only, Discovery).
Entity	Any object monitored by Dynatrace, such as a host, service, process, or application.
Smartscape	Real-time topology visualization of your monitored environment (dependencies between hosts, processes, and services).
PurePath	End-to-end distributed trace of a transaction, capturing the full execution flow.
Problem	Dynatrace-detected anomaly based on Davis AI, which aggregates related issues into a single, actionable incident.
Tagging	Labels used to categorize and filter entities; can be automatic or manual.
OneAgent	The lightweight agent installed on hosts to collect monitoring data.
ActiveGate	Proxy component used to manage communication between OneAgent and Cluster, and to extend monitoring capabilities.
Davis AI	Dynatrace's artificial intelligence engine for root cause analysis and anomaly detection.
RUM (Real User Monitoring)	Tracks user interactions in web and mobile applications to analyze performance and experience.
Synthetic Monitoring	Simulated monitoring using test requests (e.g., browser click paths, API checks) to proactively identify issues.

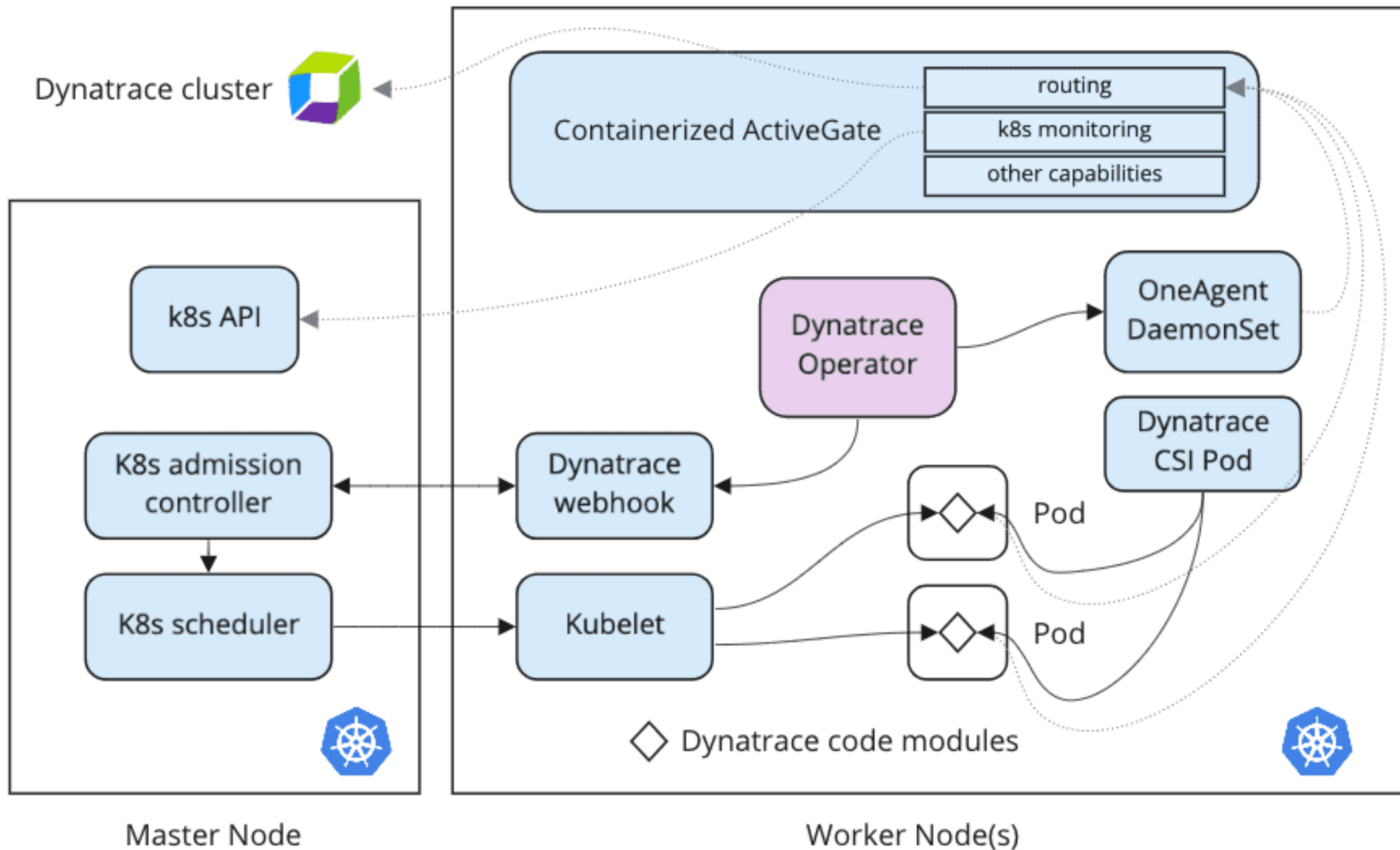
Network and Security Considerations

- **TLS Encryption:** All communication between OneAgent, ActiveGate, and Cluster is encrypted.
- **Ports:**
 - OneAgent → ActiveGate: 9999 (default)
 - ActiveGate → Cluster/SaaS: 443
- **Proxy Support:** ActiveGate supports outbound proxy for restrictive environments.
- **Data Privacy:** Supports GDPR compliance, role-based access control, and data masking.

With K8



With K8



Application Insights

Java • .NET • PHP • Node.js • z/OS • Nginx



Mobile • Web • Smart Devices • Cloud Services

User Insights



SAP • Citrix • Oracle EBS • VoIP • TCP/IP

App-Aware Network Insights



Application Insights

Dynatrace Application Monitoring



Dynatrace User Experience Management

User Insights

Dynatrace Synthetic Monitoring



Dynatrace Data Center Real User Monitoring

App-Aware Network Insights





Lifecycle

Application Insights

Dynatrace Application Monitoring



Expert Services

Dynatrace User Experience Management

User Insights

Dynatrace Synthetic Monitoring



Dynatrace Data Center Real User Monitoring

App-Aware Network Insights





Discussing Dynatrace ActiveGate

Dynatrace ActiveGate



Optional



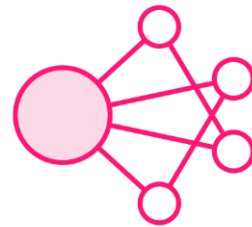
Secure



Collect



Additional



Query



Set up

Two types of ActiveGates

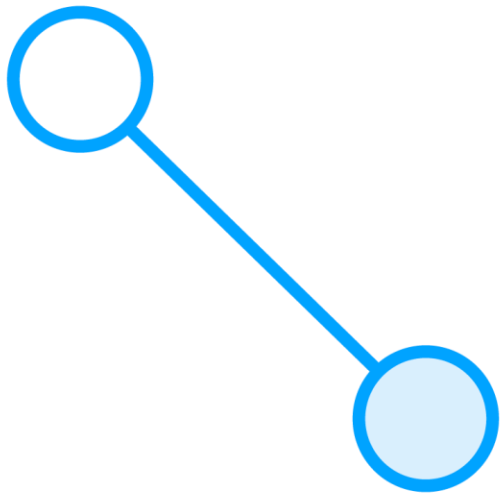
Environment ActiveGate:
SaaS

Listens on port 9999
Forwards to port 443

Cluster ActiveGate:
Managed

Types of Dynatrace ActiveGates

Benefits of Adding Dynatrace ActiveGate



Single point for all monitoring data

Reduces roundtrips between OneAgents and Dynatrace

Monitors cloud environments that can't support OneAgent

Installing and Configuring Dynatrace ActiveGates



ActiveGates can be installed on Linux, Windows, or containers

Recommended to install ActiveGates on dedicated systems

Open necessary ports for communication

Routing ActiveGates

Synthetic ActiveGates

Zremote ActiveGate

Plugin ActiveGate

Types of ActiveGates in Dynatrace

ActiveGate Type	Purpose	Key Functional Modules
Routing ActiveGate	Routes OneAgent traffic to Dynatrace clusters, especially useful in environments with restricted internet access. It handles message routing, buffering, compression, and authentication.	OneAgent Routing, Memory Dumps, Log Monitoring, Metric Ingestion, OpenTelemetry Ingest, REST API, Beacon Forwarder
Synthetic ActiveGate	Executes synthetic monitors (HTTP and browser) from private locations to simulate user interactions and monitor application availability and performance.	Synthetic Monitoring
zRemote ActiveGate	Facilitates monitoring of IBM z/OS mainframe systems by routing z/OS traffic to Dynatrace. It compresses and encrypts binary data for secure transmission.	zRemote
Plugin ActiveGate	Hosts and executes custom extensions to monitor external technologies and services not natively supported by Dynatrace.	Extensions 1.0, Extensions 2.0



Demo: Deploy ActiveGate

Demo



Step-by-step guide to install ActiveGate

ActiveGate deployment tips and best practices