![JioCloud]

API Gateway

Overview

JioCloud API Gateway is a fully managed platform taking the complexity out of API delivery from publishing, security, scaling to monitoring. Built on proven open-source technologies like APISIX, it gives teams a robust, centralized control plane for API management across hybrid and multi-cloud environments.

Built with deep integration in Kubernetes, onboarding developers to expose services is fast and secure, as you don't have to worry about compliance and security. You also have governance, traffic control, analytics, and developer access built in to adopt and move fast with confidence.

Key Features

- **Unified API management**
  Create, version, and retire APIs from a single portal.

- **Traffic control built-in**
  Set rate limits, throttle requests, and balance loads automatically.

- **Robust security 0ptions**
  Apply OAuth2, JWT, mTLS, and more to secure every endpoint.

- **Custom rules at the Gateway**
  Add plugins to modify requests, apply policies, or run logic - right at the API layer.

- **Real-time dashboards**
  Track traffic patterns, latency, and API consumption at a glance.

- **Self-service developer portal**
  Internal and external teams can discover APIs and manage access without waiting on IT.

- **Built-in Web Application Firewall (WAF)**
  Shield APIs from common attacks.

- **High availability and autoscaling**
  Maintain performance even under heavy load.

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Benefits

- **Faster API launches**
  Launch new APIs quickly with built-in governance and security.

- **Stronger compliance posture**
  Enforce policies and monitor access in real time.

- **Optimized performance**
  Automatically scale and distribute traffic to keep latency low.

- **Actionable insights**
  See how your APIs are used and what needs to improve.

- **Less infrastructure overhead**
  Let our platform handle scaling, updates, and uptime.

Technologies Supported

- **Gateway Engine:** Apache APISIX (OpenResty/LuaJIT), etcd (configuration store)
  Protocols: HTTP/1.1, HTTP/2, gRPC, WebSocket; TLS 1.2+

- **Authentication/Authorization:** OIDC/OAuth2, JWT, mTLS, HMAC, API keys; integrate LDAP/AD via IdP

- **Policies/Plugins:** Rate limiting, quotas, CORS, header/body rewrite, caching, request/response transformation

- **Service Discovery:** Kubernetes services/endpoints, DNS, static upstreams
  Edge Integrations: L4/L7 load balancers; WAF (e.g., Radware, ModSecurity)

- **Observability Stack:** Prometheus, OpenTelemetry exporters; log shipping to SIEM

- **Environments:** Jio Cloud Kubernetes on ROS (OpenStack) and Azure HCI; VMs as upstreams

Technical Specifications

Availability and scale
- **Control plane:** 3-node HA (multi-AZ)
- **Data plane:** APISIX pods on Kubernetes with HPA (CPU/RPS/latency-based scaling)

Security
- TLS everywhere, with optional mTLS to upstreams
- Store secrets via KMS/OpenBao; enforce rotation policies
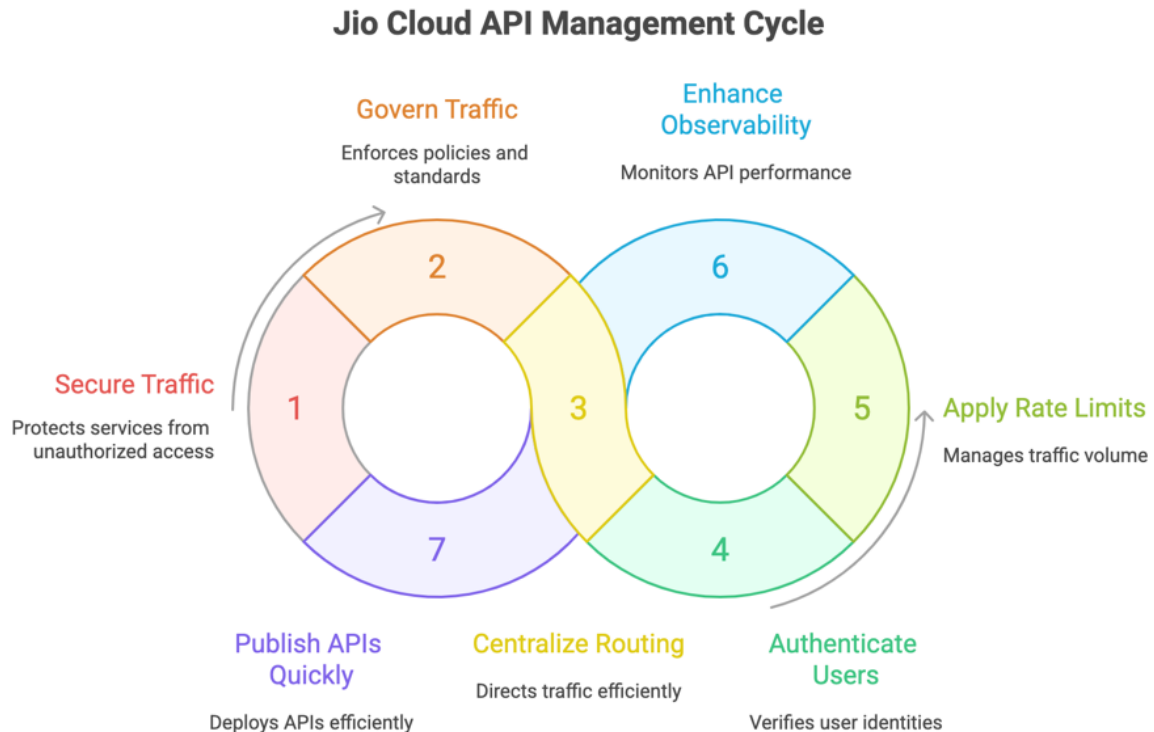- Apply per-route security policies; integrate WAF at the edge

Performance
- Zero-copy routing, connection reuse, buffering controls
- Enable canary/weighted routing without modifying upstreams

Data protection

- Maintain versioned gateway configurations; schedule backups of etcd/state
- Observability
- Provide route, consumer, and workspace dashboards; configure alert hooks

Architecture Diagram

Jio Cloud API Management Cycle

Govern Traffic — Enforces policies and standards

Enhance Observability — Monitors API performance

Secure Traffic — Protects services from unauthorized access

Apply Rate Limits — Manages traffic volume

Publish APIs Quickly — Deploys APIs efficiently

Centralize Routing — Directs traffic efficiently

Authenticate Users — Verifies user identities

Use Cases

- **Secure API publishing**
  Expose REST and GraphQL APIs with built-in access controls like OAuth2.

- **Client-level traffic control**
  Apply rate limits by consumer type to avoid backend overload.

- **Self-service access**
  Let developers generate keys, read documentation, and manage access without waiting on IT.

- **Real-time monitoring**
  Track latency, security metrics, and usage through intuitive dashboards.

- **No infrastructure to manage**
  Focus on API delivery while JioCloud handles scale, security, and uptime.