ZenConsole Whitepaper

Version: English 1.0
Date: 202506
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ZenConsole Overview

As multi-cloud and edge deployments become the norm, enterprises demand faster, more agile, and globally coordinated infrastructure. Yet, they face persistent challenges:

- Fragmented connectivity without centralized control;
- Complex manual setup with high cost and slow delivery;
- Inefficient multi-cloud and cross-region orchestration.

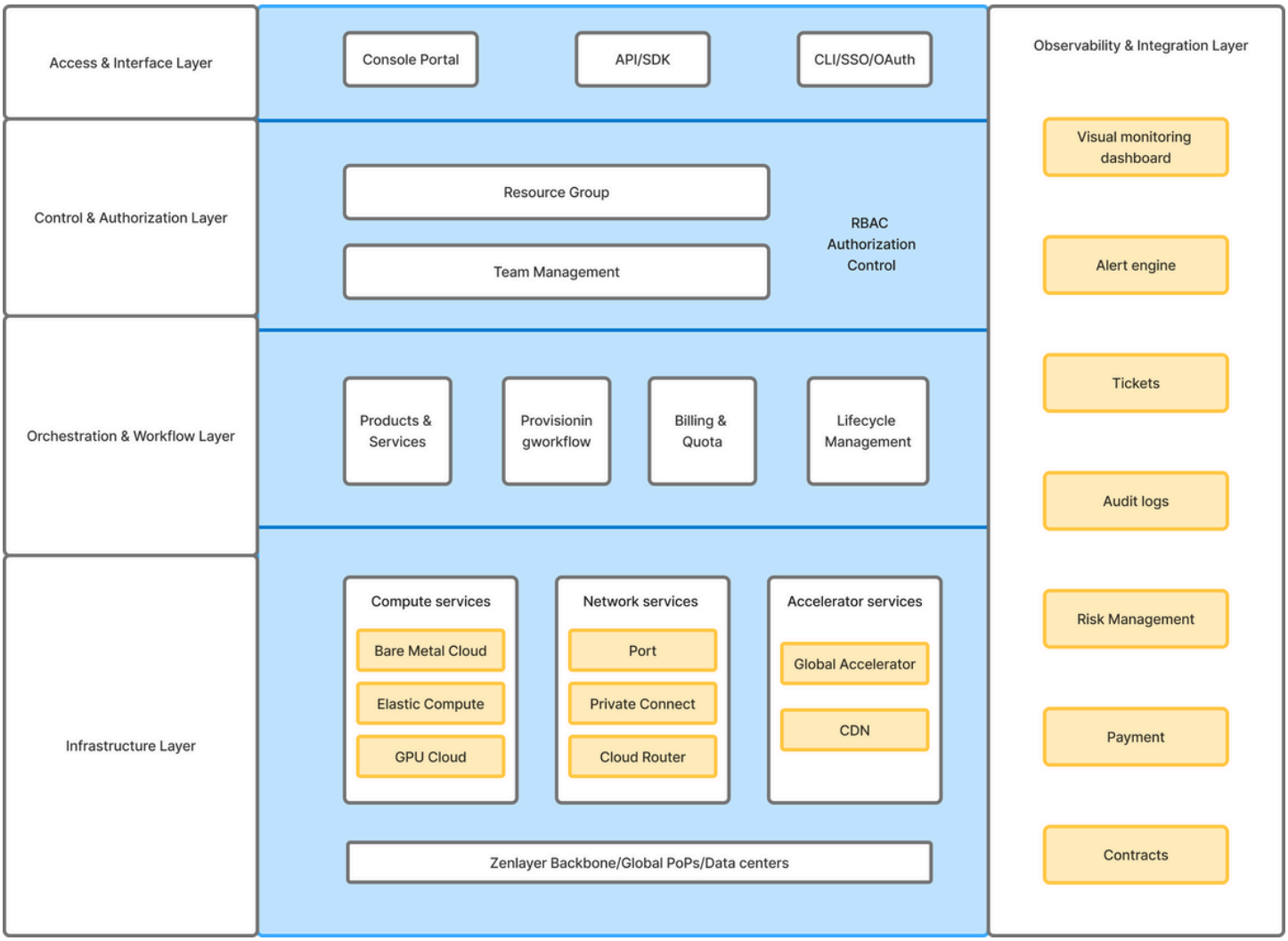
A unified platform is urgently needed to enable self-service provisioning, automated networking, and full-stack visibility.

ZenConsole simplifies global edge deployments by solving issues of fragmentation, complexity and inefficiency. Key values include:

Category	Services & Products
Compute	**Bare Metal Cloud**: Dedicated physical servers integrated with networking, storage, and data center infrastructure—ideal for performance-sensitive workloads. **Elastic Compute**: Scalable virtual machines running on global VPCs, seamlessly integrated with our SDN backbone and equipped with built-in networking features like NAT gateway, load balancing, dual-stack IPv4/IPv6, and more.

IP Transit	**IP Transit**: High-speed, reliable internet connectivity backed by our 130+ Tbps global backbone and over 10,000 peers worldwide—ensuring low-latency, highly redundant BGP routing across regions.
Networking	**Port**: A physical access point that connects customer colocation or on-premise environments directly into our SDN backbone—serving as the foundational link for private networking, transit, or cloud access. **Private Connect**: A point-to-point Layer 2 service built on virtual circuits over our SDN backbone, enabling secure, low-latency connectivity between two endpoints. **Cloud Router**: A software-defined Layer 3 routing service that connects Zenlayer Bare Metal, Elastic Compute VPCs, and external cloud provider networks over our SDN backbone. It supports dynamic routing protocols like BGP, enabling scalable, resilient multi-site and hybrid cloud connectivity.
Accelerator	**Global Accelerator**: A global application acceleration service that optimizes user traffic by routing it over Zenlayer's private backbone. It improves performance, availability, and latency for dynamic applications.
Content Delivery	**CDN**: A global edge-based content acceleration service that enables high-performance delivery, intelligent caching, and low-latency user experiences.
Analytics & Security	**Edge Pulse**: An observability platform for real-time monitoring, analytics, and alerting across your global infrastructure—featuring customizable dashboards, metrics, logs, and event insights.
GPU & AI	**GPU Cloud**: High-performance virtual machines powered by dedicated GPUs—optimized for AI/ML training, inference, rendering, and other massively parallel workloads, with support for popular frameworks and scalable deployment.

Platform Architecture

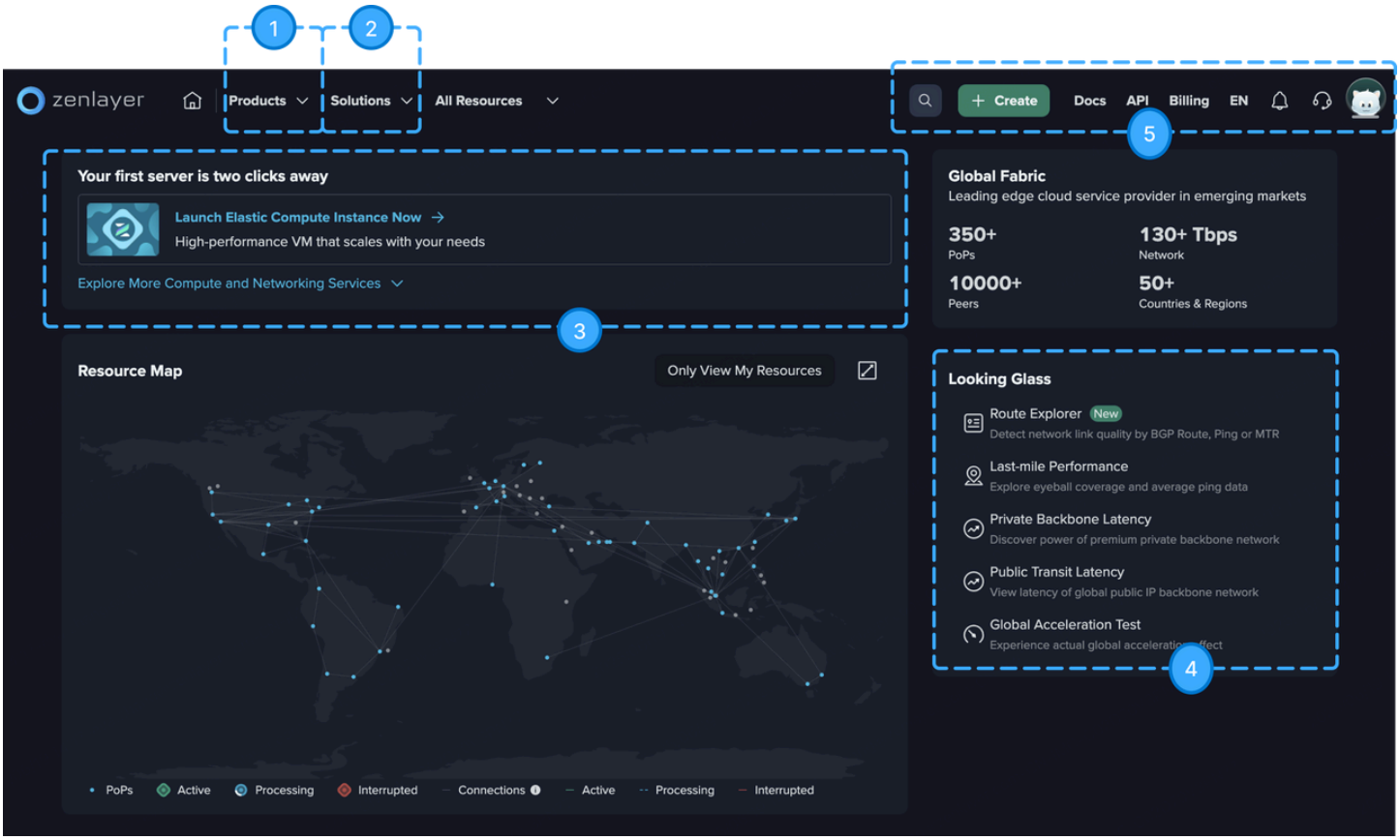


	Description	Strategy
Access & Interface Layer	**Provides a unified access point for users and systems to interact with the platform.** 📍A user logs into the console to manage instances while developers automate tasks via API—no context switching required.	**Console Portal**: Web-based UI for managing infrastructure and services. **API** / **SDK**: RESTful APIs and language-specific SDKs for automation and integration. **CLI** / **SSO** / **OAuth**: Command-line tools and support for Single Sign-On and OAuth-based authentication.

Control & Authorization Layer	**Centralized identity and access management (IAM) with fine-grained, role-based controls mapped to enterprise structures.** 📍Developers and operators in the same team can access different services based on role-based controls.	**Resource Group**：Logical boundaries that organize resources, enabling access control by project, region, or team structure. **Team Management & RBAC**：Users are assigned to teams and roles, with scoped permissions to resources and actions across the platform.
Orchestration & Workflow Layer	**Automates the provisioning, configuration, and management of compute, network, and other Zenlayer services.** 📍 A user selects Bare Metal + SDN, and the system provisions and connects resources automatically.	**Products Catalogue**：Centralized listing of available compute, networking, storage, and acceleration services. **Provisioning Engine**：Automates resource allocation, config setup, connectivity, validation, and state reporting. **Lifecycle Management**：Supports create, modify, scale, suspend, and delete operations with high availability. **Billing & Quotas:** Integrated metering, quota enforcement, and cost visibility for governance and optimization.

Infrastructure Layer	**The foundational layer comprising the underlying physical and virtual resources—Bare Metal servers, Elastic Compute VMs, ports, and virtual circuits—that are provisioned and managed by the orchestration layer.** 📍When a user provisions a service via ZenConsole, it draws from available infrastructure components such as servers, storage, and network circuits deployed across Zenlayer's global footprint.	**Bare Metal & VMs**: Compute resources provisioned on demand. **Ports & Circuits**: Physical ports and software-defined virtual circuits for backbone and customer connectivity. **CDN & Global Accelerator**: Edge infrastructure services deployed across global PoPs for optimized content delivery and application performance.
Observability & Integration Layer	**Delivers real-time insight, telemetry, and extensibility for DevOps workflows.** 📍A bandwidth spike triggers an alert, which auto-scales compute resources and logs the event for audit.	**Monitoring Dashboard**: Real-time visibility into performance metrics, connectivity status, and system health. **Alert Engine**: Policy-driven alerting based on thresholds and anomaly detection, with webhook and API trigger support. **DevOps Integration**: Supports integration with external CI/CD, ITSM, and monitoring tools via APIs and webhooks.

Key Capabilities & Features



❶ **Unified Service Access**: Access all Zenlayer services via a single portal—compute, network, connectivity, and acceleration.

❷ **Multi-cloud & SDN Integration** : Integrated with major clouds and SDN backbone for easy cross-cloud and regional networking.

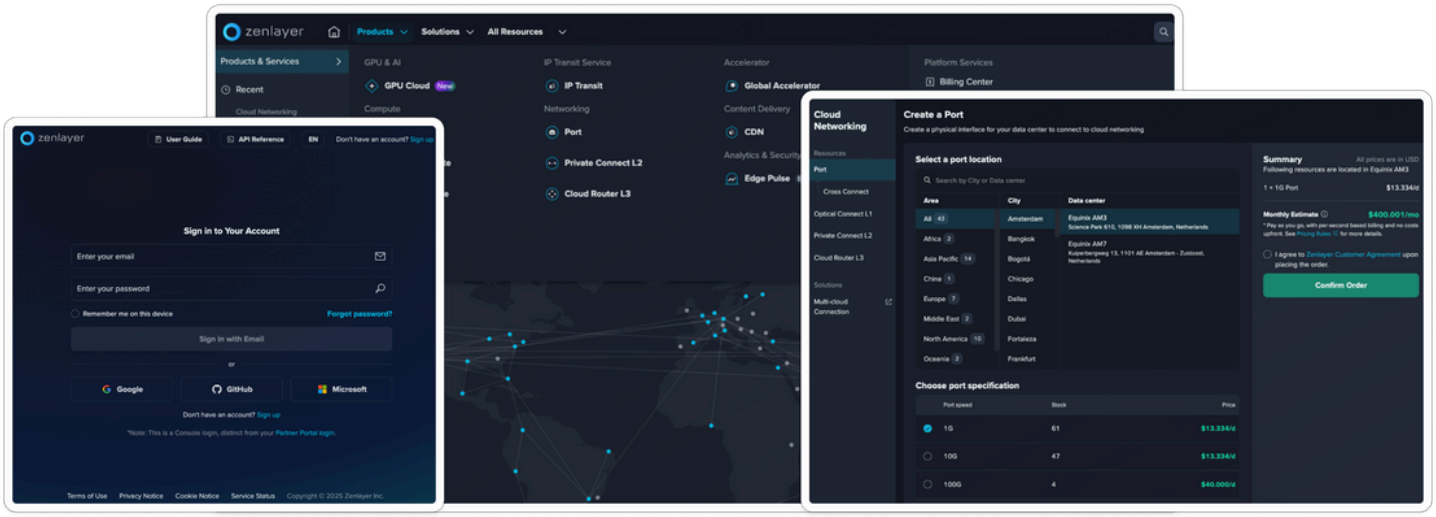
❸ **Self-Service Provisioning** : Deploy edge resources in minutes via self-service UI or APIs—no ticketing required

❹ **Global Resource Visualization**: Visual dashboards for real-time monitoring of global nodes, bandwidth, and services.

❺ **Role-Based Access & Automation**: Full API & SDK access with RBAC support for enterprise automation and CI/CD pipelines.

Unified Service Access with Integrated Resource Inventory

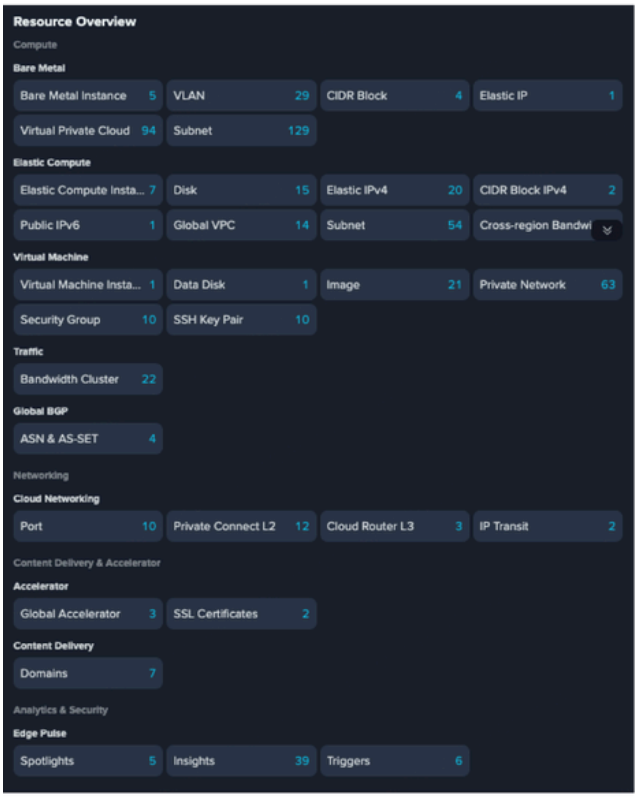
Streamlined access to all edge resources, no more switching platforms or managing separate systems.

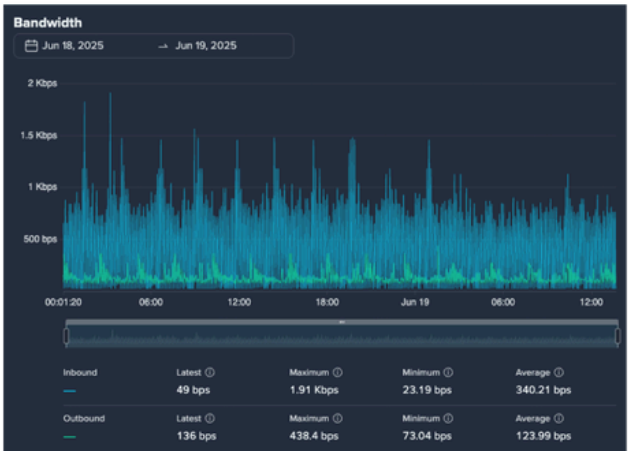


1 Log in to the console (or call APIs) → 2 Discover locations, products & services → 3 Select desired services for provisioning

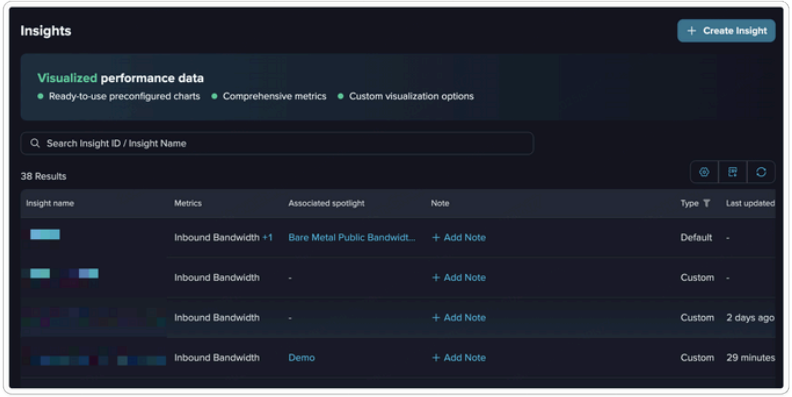
Real-Time Resource Monitoring, Visualization, and Alerting System

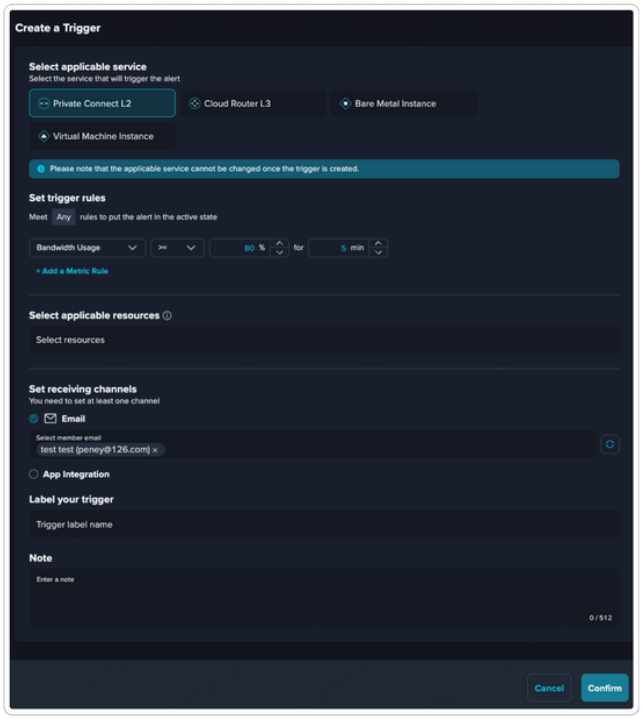
Visual resource dashboard & resource status





Customizable monitoring views and alert rules





Use Cases & Reference Scenarios

Case Study 1

Southeast Asian Service Provider Boosts Digital Capability and Global Reach

Customer Profile:

A Southeast Asian digital service provider focused on local enterprise solutions. By **white-labeling solution(reebrand and resell your platform powered by Zenlayer)**, the company built its own console platform to deliver network services to global customers.

Services & Products:

- No in-house development capability to build a cloud platform
- Lack of professional operations team
- Focused on customer acquisition and retention with limited resources
- Digital infrastructure in Southeast Asia is fragmented, with barriers to global delivery

ZenConsole Solutions & Benefits:

Instant platform ownership without development resources

No technical team required—gain a full-featured platform for compute, network, billing, and monitoring from day one.

Automated operations replace the need for a dedicated ops team

Provisioning, orchestration, health checks, and scaling are fully automated—no manual operations team needed.

On-demand regional deployment supports global partnerships

Partners can leverage SEA edge nodes to serve global clients and improve regional presence.

Enterprise-grade billing and auditing for compliance and trust

Built-in metering, invoicing, RBAC, and audit logs support public-sector and enterprise compliance standards.

Case Study 2

Global Short Video Platform Scales Seamlessly Across 50+ Edge Locations

Customer Profile:

A fast-growing short video streaming company operating in emerging markets. It manages over **3,000 bare metal servers** and **700+ virtual machines**, spanning **50+ edge cities** and **4 major regional hubs**.

Challenges:

- Needed to launch in dozens of cities rapidly to meet user growth
- Required low-latency content delivery in underserved regions
- Sought granular usage-based billing and advanced data analytics for cost control

ZenConsole Solutions & Benefits:

High bandwidth supports traffic surges

Large bandwidth capacity ensures smooth streaming during peak usage.

Diverse local resources for flexible edge selection

Extensive IP and provider coverage allow flexible and strategic deployment.

Instant provisioning of edge nodes

New nodes can be provisioned instantly via Console for rapid regional rollouts.

Multi-business billing and resource visibility

Business-line grouping and role access support cost transparency and team autonomy.

Case Study 3

Global Game Company Achieves Elastic Scaling and Real-Time Operations

Customer Profile:

A globally distributed online gaming company with operations across North America, Europe, and Southeast Asia. It manages over **1,000 bare metal servers** and **1,000 virtual machines** across **20+ city nodes**.

Challenges:

- Business surges during game updates require rapid scaling
- Lack of real-time visibility and alerting
- High latency in key regions impacting user experience

ZenConsole Solutions & Benefits:

Elastic scaling to meet business growth

Elastic resource provisioning within minutes to handle peak traffic and global campaigns.

Real-time monitoring with intelligent alerting

Dashboards provide real-time insights and alerts for latency, CPU, traffic, and link health.

Edge access significantly reduces latency

Deploying services at edge PoPs near users reduces average latency by 25%.

Regionalized resource and access control

RBAC and regional resource groups enable secure collaboration and cost visibility.

Appendix

ZenConsole Manual Documentation: Welcome | Zenlayer Docs

API Documentation: Introduction | API References

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