

# Zenlayer Global Accelerator

## White Paper

#1 cross-border dynamic content  
& application accelerator





# Content

Introduction	2
What is Zenlayer Global Accelerator?	2
Who Benefits from Zenlayer Global Accelerator?	2
Product Advantages	2
Acceleration Solution Options	3
Customer Use Cases	3
ZGA Features	4
ZGA Architecture	5

# Introduction

High-speed service is now an essential utility like water and electricity. End-users today expect instant access to digital services, regardless of location. Companies therefore need to ensure fast and efficient connectivity to meet customer expectations, drive sales, and maintain productivity.

Yet, global corporations today face a variety of challenges when connecting distributed users to websites, platforms, and applications. Common issues include poor application performance, slow synchronization across regional cloud servers, and interruptions during cross-border downloads. Businesses must tackle these issues to remain competitive and avoid customer churn.

## What is Zenlayer Global Accelerator?

Zenlayer Global Accelerator (ZGA) is a new network acceleration service that runs on Zenlayer's expansive global private network. ZGA provides instant access to the origin server by creating a stable, high-speed connection to the nearest node. This greatly reduces issues like latency, jitter, and packet loss, while improving transmission efficiency by up to 60%. ZGA guarantees seamless cross-border, game, application, and web platform acceleration, ensuring optimal end user experiences from any location.

## Who Benefits from Zenlayer Global Accelerator?

If your company's business is experiencing any of the following problems, ZGA will be your best choice:

### 1. Heavy Reliance on the Dynamic Transmission of Information

After decades of development, the network industry has many good solutions for static data transmission. For example, CDN can pre-cache data at edge nodes to reduce transmission delay. However, for dynamic services, it cannot be pre-cached and must be transmitted point-to-point from the origin server to the end users. ZGA solves this problem through technological innovation and accelerating dynamic data to the greatest extent.

### 2. Long-distance Network Transmission

With globalization, a company's business may reach all corners of the world. If your company is also a fast-growing global company, or it is only in its infancy but the business must cross the oceans, ZGA can provide the greatest boost to your business by taking advantage of Zenlayer's global data centers and backbone networks.

### 3. Business Sensitive to Network Speed

If your business requires fast network feedback, and every network freeze, delay, and packet loss will affect the user experience, then ZGA will be an effective means to solve your problem and avoid public network congestion. We provide better backbone network transmission and network optimization for various protocols, giving you an efficient, fast and secure network experience.

## Product Advantages

### Cross-border Coverage

Zenlayer's network spans six continents, offering high-speed connectivity to global destinations throughout emerging markets. The network features over 270 global edge points of presence (PoPs), offering 40 Tbps of network capacity, and direct internet connections.

Zenlayer maintains extensive relationships with local and global telecom operators and guarantees efficient transmissions from any location across more than 400 private lines.

### Multiple Acceleration Modes

ZGA supports acceleration through multiple protocols such as TCP, UDP, HTTP, HTTPS, WSS, SSH, and FTP, It also enables MUC and client access, for maximum flexibility.

### Self-serve Deployment

Clients can easily set up, deploy, and manage ZGA through the user-friendly Zenlayer Console.

### Flexible Billing

The platform supports two billing methods, based on traffic (metered billing) and bandwidth (bandwidth billing), with additional custom methods available for VIP customers.

### WOW Service

ZGA comes with full access to Zenlayer's advanced technical team. 24-hour support is available at Zenlayer's network operations center (NOC) for rapid response troubleshooting in both English and Chinese. Zenlayer resolves more than 95% of issues within 4 hours.

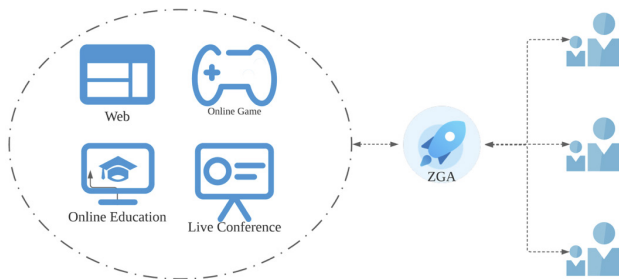
# Acceleration Solution Options

## Origin Server Acceleration

Cross-border websites, e-commerce platforms, online conferences, and online education companies all struggle with delays and packet loss during peak times on the public network. These problems can affect users and lead to attrition and profit loss.

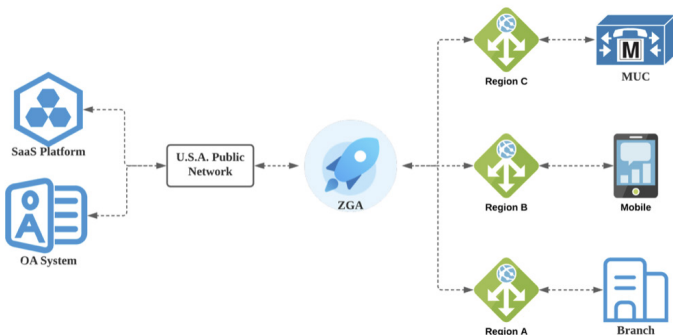
For example, the problem is noticeable in China right now. It can take roughly 30 seconds to load a small 1 MB page on the public internet during peak hours.

Zenlayer's high-quality global backbone network allows corporate users to instantly access various internet applications, preventing performance issues from negatively impacting the user experience.



## Corporate Application Service Acceleration

Multinational companies usually store application services and corporate data in the country where their corporate headquarters are located. However, corporate branches, employees, and partners are often distributed around the world. When end users try to access application services and data using a public network, they commonly experience high latency and low transmission speeds. ZGA speeds up regional and corporate sites as well as internet platforms, providing a robust framework for collaboration and communication.



# Customer Use Cases

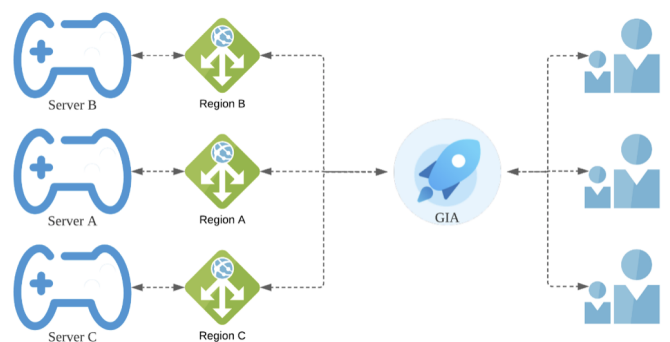


Here are three examples of how Zenlayer customers are using ZGA to accelerate global application performance.

## 1. Online Gaming

**Challenge:** The customer is a global online mobile game provider that needed to improve the user experience for its worldwide users. The client uses CDN for game package downloads and distributes its battle servers to reduce user delay in various regions. However, some services must be returned to the origin server for processing like user identification and virtual item trading. This causes information synchronization problems and affects the user experience.

**Solution:** The customer's origin server is in Frankfurt. Before using ZGA, the delay for users in Singapore and Indonesia was as high as 600 ms and players often got stuck in the login and checkout interface. Now with ZGA, Asian users can access the nearest Zenlayer node through Cname. The players experience the game as if the origin server is in their own city, and the delay is reduced to 10 ms with 0 packet loss. The game interface login is much smoother, and payment processing takes place instantly.



## 2. Corporate Business Operation

**Challenge:** The customer is a traditional manufacturing company running a global sales and service operation over a unified SaaS platform. The company's IT department spent a lot of time and capital working with local network providers to support its global operations. However, the organization was still experiencing poor network conditions, resulting in customer complaints, and reduced operational efficiency.

**Solution:** ZGA eliminates the need to connect to different dedicated regional network providers. Now, the company enjoys seamless global connectivity. In addition, ZGA removes the need to configure and maintain networking equipment. ZGA saves the company a significant amount of resources and helps avoid customer complaints.

## 3. Cloud Interconnect

**Challenge:** Many organizations today are using public clouds to deploy business services. But despite offering benefits like convenience and cost savings, cloudification also introduces new challenges like bandwidth constraints across multiple clouds and complicated configurations.

**Solution:** Businesses can use Zenlayer Global Accelerator to streamline connectivity between multiple clouds. The service only takes a few minutes to configure, and enables fast and easy connections between any two clouds, with stable high-bandwidth connections for inter-cloud data transmission and migration. Customers can use Zenlayer's blacklist and whitelist for secure transmissions between clouds.

# ZGA Features

## Connectivity

- **Extensive coverage:** ZGA offers a wide range of direct peer-to-peer connections with global operators, for instant connectivity to almost any destination.
- **Instant cloud access:** Connects to leading cloud providers like AWS, Azure, AliCloud, Ucloud, TencentCloud, IBM, and Huawei using existing lines throughout key regional hotspots.
- **SLA uptime guarantee:** Zenlayer's backbone network offers a 99.9% uptime guarantee, along with real-time monitoring.

## Speed

- **Lowest latency:** Provides < 10 ms latency in major cities and < 30 ms latency to all other locations for true real-time data transmissions.
- **Intelligent routing:** Ensures the best routes, using real-time quality awareness, application-level intelligent routing, and advanced switching.
- **Dynamic acceleration:** Optimizes enterprise services like virtual private networks (VPNs), video conferences, and internal workflow applications. ZGA also accelerates game dynamic instruction, improves blockchain data synchronization, and reduces frame loss and lag with video and audio.

## Security

- **Source site protection:** Provides source site hiding, source site load balancing, and source site real-time monitoring.
- **SSL encryption:** Protects middle mile transmissions with full SSL encryption.
- **Access control:** Uses last mile detection mechanisms like IP blocklist and allowlist and HTTPS self-service certificates. ZGA also provides IP access control lists (ACL), distributed denial of service (DDoS) protection, and web access firewall (WAF) security.

## Customization

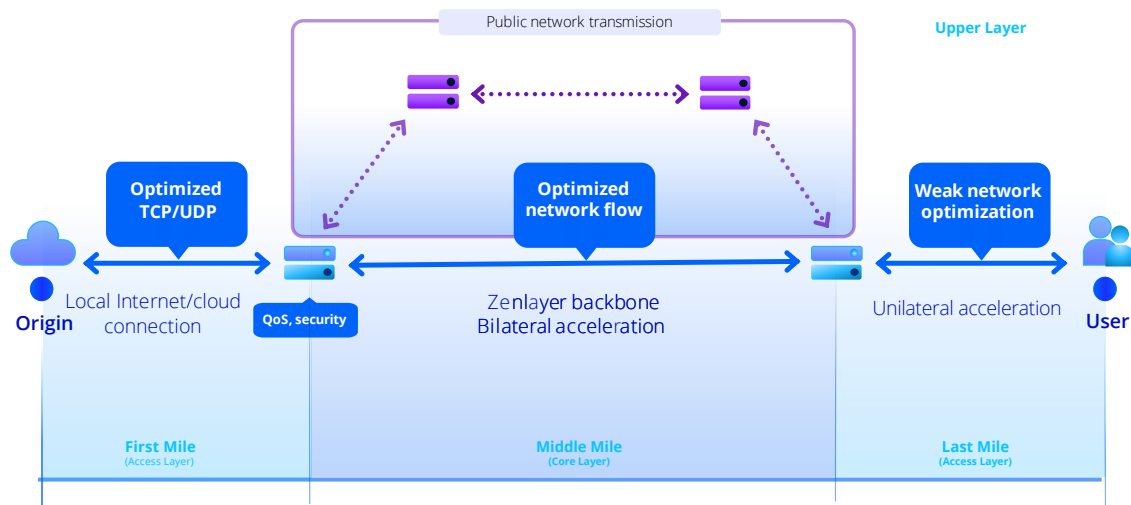
- **Protocol support:** Supports domain name access, L4-L7 protocols including TCP/UDP, WebSocket, socket 5, HTTPS, FTP, ICMP, TLS 1.3 with backward compatibility, SSH, SPS and additional private protocols.
- **Protocol optimization:** Combines forward error correction (FEC), network optimization, and other technologies to improve internet quality and optimize last mile connectivity. ZGA also supports unilateral acceleration, image compression, and byte stream caching.
- **Core support:** Contains a proprietary congestion control algorithm, core TOA module, core TCP large file download module, and core TCP small file download module.
- **Dual-direction acceleration:** Supports dual-direction acceleration (C2G, G2C), enabling global access regardless of the origin server's location.

# ZGA Architecture

## Backbone Network Architecture

Most global organizations rely on the public internet for cross-border content sharing and application delivery. Yet, the public internet is slow, insecure, and unreliable. ZGA serves as a fast lane for global connectivity, as an alternative to the public internet. Most companies offering network acceleration today provide middle mile acceleration between two PoPs. ZGA goes a step beyond, providing intelligent end-to-end acceleration, across the first, middle, and last mile for a much more comprehensive level of support.

- **First mile:** Zenlayer provides cloud direct connections to the public cloud.
- **Middle mile:** ZGA uses the Zenlayer software defined networking (SDN) backbone and protocol optimization for lightning-fast acceleration between PoP sites.
- **Last mile:** ZGA detects the user's access area using smart DNS and provides access to the nearest local PoP.



The ZGA backbone network architecture has three layers. The access layer corresponds to the first and last mile, the core layer corresponds to the middle mile, and the upper layer corresponds to the console and API components. There are also two access methods in addition to the ordinary Cname and IP access points, including MUC access and client access.

## Access Layer

The first mile of the network uses cloud direct connect with cloud service providers to accelerate transmissions. This system routes traffic back to the hosted source server through dedicated private networks, along with extra security through IP origin hiding.

The last mile of ZGA has two types of service methods, including IP and domain access. Weak network optimization is also available with packet compensation.

## Core Layer

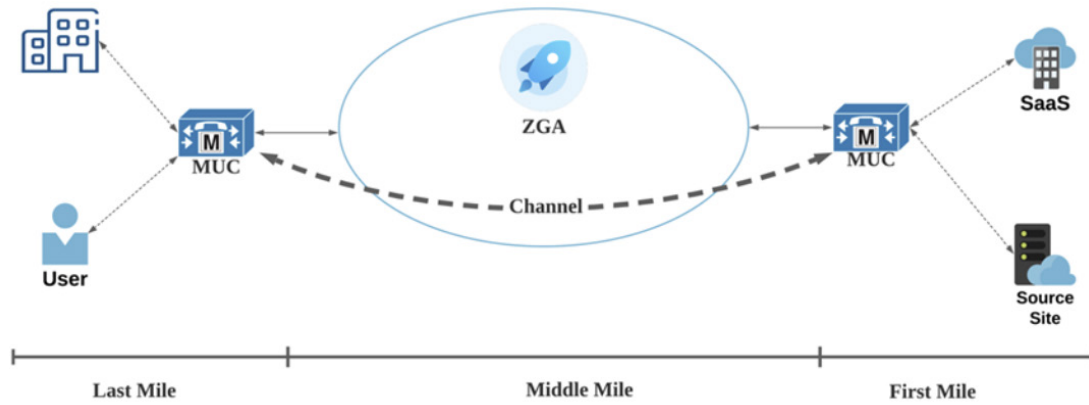
ZGA is built on Zenlayer's private global backbone for exceptional speed and reliability. Middle mile acceleration is possible with Zenlayer's optimal path selection and bilateral acceleration techniques.

ZGA improves availability and performance using TCP protocol optimization over a self-developed enhanced Linux kernel. TCP protocol optimization reduces bottlenecks on long-haul transfers.

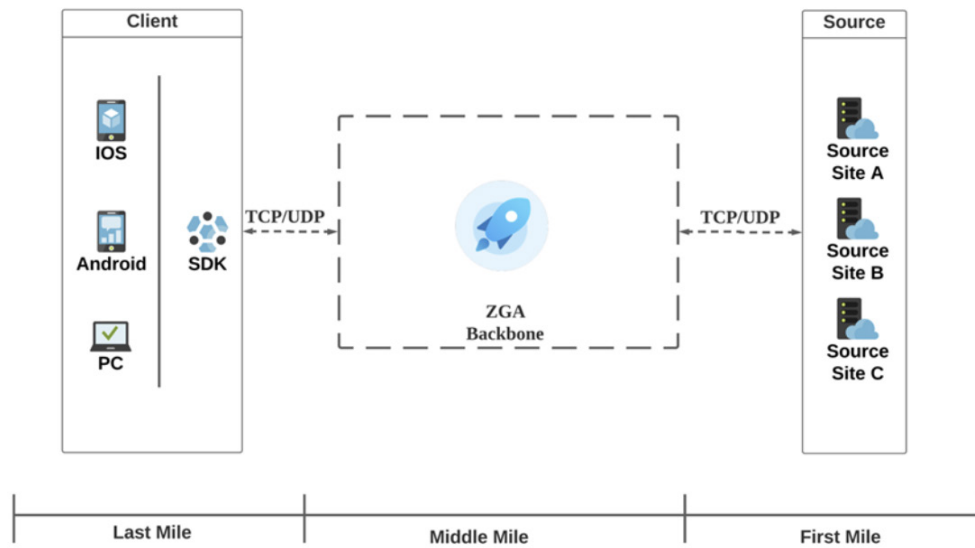
## Upper Layer

Customers can use the Zenlayer Console for user-friendly self-service. Partners can also access an API when reselling the product.

# MUC Access Architecture



# Client Acceleration Architecture



## Ready to accelerate?

Companies with globally distributed users can no longer afford to roll out slow and inefficient applications. They need to optimize their digital services, to remain competitive and keep up with rising customer expectations. ZGA is a fast, easy, and affordable way to achieve network acceleration.

To experience the power of ZGA, contact Zenlayer:

Website: [www.zenlayer.com](http://www.zenlayer.com)

Email: [sales@zenlayer.com](mailto:sales@zenlayer.com)

ZGA self-service: [console.zenlayer.com/auth/signup](https://console.zenlayer.com/auth/signup)

More info about ZGA: [zenlayer.com/pvproducts/zenlayer-global-accelerator/](https://zenlayer.com/pvproducts/zenlayer-global-accelerator/)