VIRTUAL LOAD BALANCER

L3–L7 Application Delivery at Extreme Scale

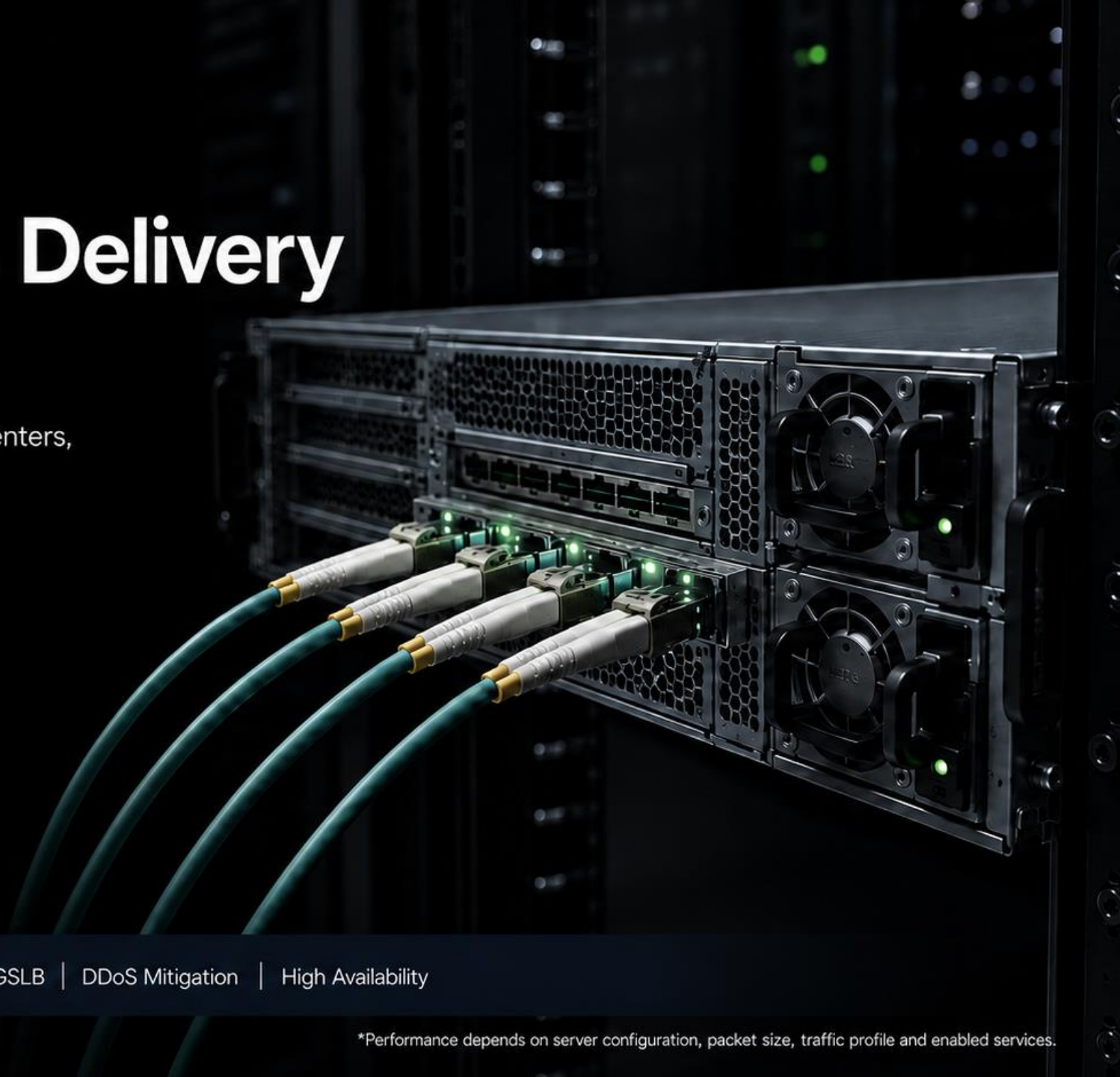
High-Performance Traffic Distribution for Modern Data Centers, Cloud Platforms and Mission-Critical Applications

PERFORMANCE HIGHLIGHT

400 Gbps

Up to 400 Gbps on a Single Validated x86 Platform*

Built for Traffic. Engineered for Continuity. Ready for Scale.



FEATURE SET | L3–L7 Load Balancing | Maglev | SSL Offload | GSLB | DDoS Mitigation | High Availability

*Performance depends on server configuration, packet size, traffic profile and enabled services.

THE APPLICATION DELIVERY CHALLENGE

When Traffic Growth Outpaces Traditional Infrastructure

Modern digital services must remain responsive and available while traffic volume, connection rates and security threats continue to grow.

TODAY'S INFRASTRUCTURE CHALLENGES

- Rapid growth in application and API traffic
- Complex multi-cloud and multi-data-center environments
- Increasing demand for always-on digital services
- DDoS attacks targeting application availability
- High volumes of concurrent and short-lived connections
- High cost and limited flexibility of proprietary appliances
- Compute-intensive SSL/TLS processing
- Operational complexity caused by fragmented tools



Application delivery must scale without becoming a bottleneck.

PRODUCT OVERVIEW

One Platform. Every Layer of Application Delivery.

Virtual Load Balancer is a software-based Application Delivery Controller designed to distribute high-volume traffic, protect application availability and optimize service performance across physical, virtual and cloud environments.

CORE CAPABILITIES

- L3–L7 traffic load balancing
- High-performance TCP and UDP processing
- Advanced HTTP and HTTPS traffic management
- Content switching and application-aware policies
- SSL/TLS termination and server offload
- Local and global load balancing
- Integrated routing and network segmentation
- Health monitoring and automatic backend recovery
- High availability and rapid service failover
- Centralized management, automation and troubleshooting

PRODUCT POSITIONING

High Performance | Software Freedom | Operational Control



SOFTWARE-DEFINED BY DESIGN

Performance Without Proprietary Hardware

Virtual Load Balancer delivers advanced application delivery capabilities through a flexible software architecture running on standard x86 infrastructure.

BUSINESS BENEFITS

- No dependency on proprietary network appliances
- Flexible server and NIC selection
- Faster and more economical capacity expansion
- Simplified hardware lifecycle management
- Reduced vendor lock-in
- Efficient use of compute and network resources
- Deployment flexibility across data center and cloud environments
- Predictable scaling aligned with actual traffic demand

Transform standard infrastructure into a high-capacity application delivery platform.



SLIDE 5

DEPLOYMENT FLEXIBILITY

Deploy Where Your Applications Run

The platform adapts to existing and future infrastructure strategies without forcing organizations into a single deployment model.



BARE METAL



VIRTUAL MACHINE



NFV INFRASTRUCTURE



PRIVATE CLOUD



PUBLIC CLOUD



EDGE & REGIONAL DATA CENTERS

One software architecture—from centralized data centers to distributed edge environments.

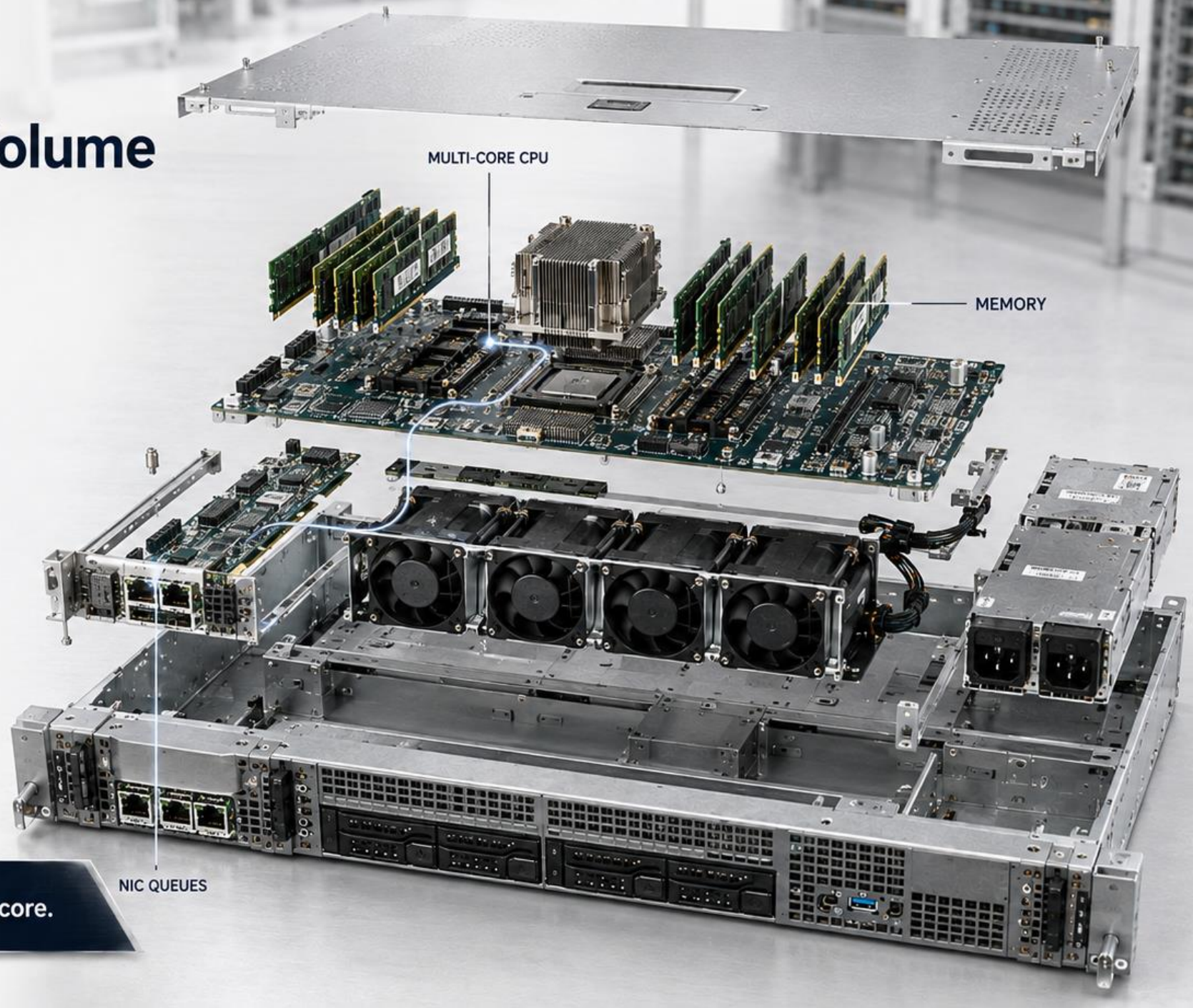
HIGH-PERFORMANCE DATA PLANE

Engineered for High-Volume Packet Processing

The data plane is designed to minimize processing overhead and maximize the value of modern multi-core x86 platforms.

PERFORMANCE ARCHITECTURE

- High-speed multi-core packet processing
- Zero-copy-oriented TCP processing architecture
- Efficient utilization of CPU and memory resources
- Parallel packet handling across NIC queues
- Configurable TCP processing profiles
- Optimized forwarding for high connection volumes
- Support for modern high-speed Ethernet interfaces
- Reduced dependence on traditional kernel packet-processing paths



More traffic per server. More efficiency per CPU core.

UP TO 400G PERFORMANCE

400 Gbps

Scale Application Delivery to 400 Gbps

The Virtual Load Balancer is designed for high-load environments and can deliver up to 400 Gbps on a single validated x86 platform, subject to hardware configuration and traffic profile.

PERFORMANCE DIMENSIONS

- 01 High aggregate throughput
- 02 High packet-processing capacity
- 03 Large concurrent connection scale
- 04 High new-connection processing rate
- 05 Efficient TCP and UDP traffic handling
- 06 Consistent operation under sustained traffic loads
- 07 Scale-up and scale-out capacity models

Performance must be measured against the real application profile—not throughput alone.

*Performance depends on server configuration, packet size, protocol mix and enabled application services.

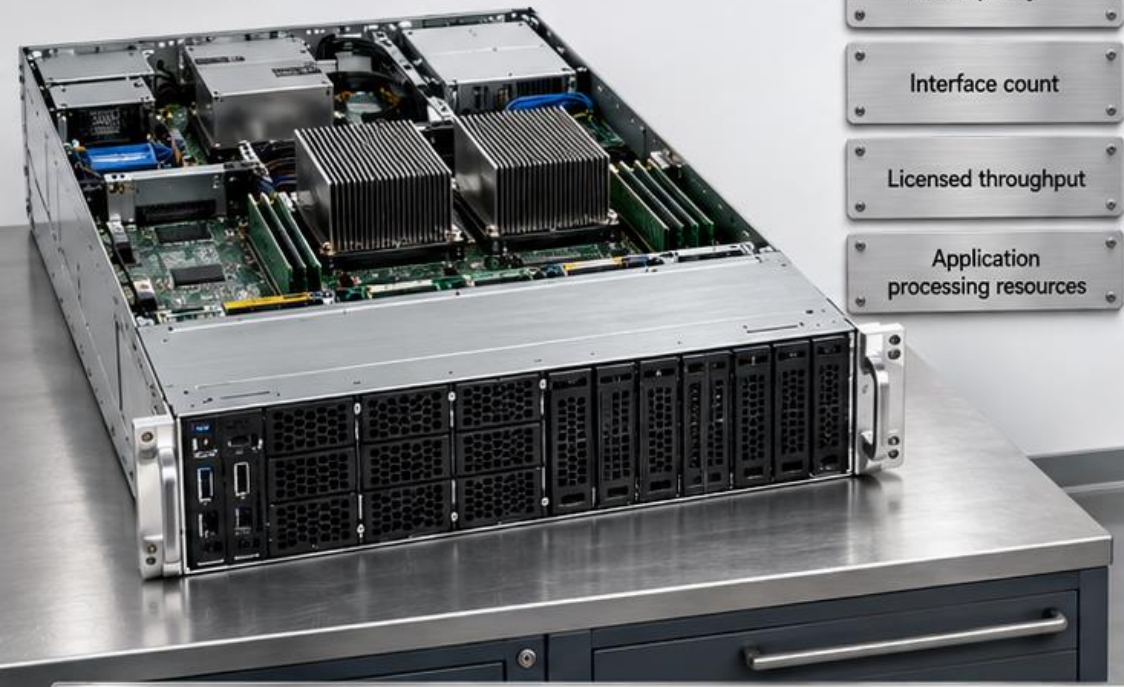


Expand Capacity Without Replacing the Architecture

SCALE-UP

Increase the performance of each instance by expanding:

- CPU cores
- Memory
- NIC capacity
- Interface count
- Licensed throughput
- Application processing resources



SCALE-OUT

Increase total service capacity by adding nodes and distributing traffic through:

- BGP
- ECMP
- DNS-based service distribution
- Multi-site deployment
- Horizontal load-balancer clusters
- Distributed application delivery

Start with the capacity you need.

Expand without redesigning the service.

L3–L7 LOAD BALANCING

Control Traffic at Every Relevant Layer



LAYER 3

IP-based forwarding, routing integration and network-level traffic distribution.

SUPPORTED TRAFFIC CATEGORIES

- IP



LAYER 4

High-performance TCP and UDP load balancing based on connection and transport information.

SUPPORTED TRAFFIC CATEGORIES

- TCP
- UDP



LAYER 7

Application-aware traffic management using HTTP, URL, cookie, header and SSL-related information.

SUPPORTED TRAFFIC CATEGORIES

- HTTP
- HTTPS
- DNS-BASED GLOBAL SERVICES

From packet forwarding to application-aware delivery—within one platform.



Balance for capacity, connection load, consistency or session affinity.

MAGLEV AT SCALE

Stable Traffic Distribution for Dynamic Server Pools

Maglev consistent hashing combines fast lookup, balanced traffic distribution and connection stability for high-scale application environments.

OPERATIONAL ADVANTAGES

- Predictable flow-to-backend mapping
- High-speed backend selection
- Reduced disruption when a backend is added or removed
- Improved connection affinity
- Efficient operation across large server pools
- Multiple hash-key options for different service requirements

USE CASES

- Large web platforms
- Content delivery services
- Distributed APIs
- Carrier and cloud infrastructure
- Services with large numbers of parallel flows



Change the server pool without unnecessarily reshuffling the entire traffic map.

ADVANCED CONTENT SWITCHING

Route Requests Using Application Intelligence

Traffic can be classified and directed using information from the network, HTTP requests and encrypted service context.



POLICY INPUTS
Source & destination IP · URL & URI · Host header · HTTP cookies
HTTP request fields · SSL variables · Custom variables · Regular expressions

POLICY OPERATIONS
Add · Delete · Modify · Match · Combine · Redirect

RULE LOGIC
Functions · Variables · Logical operators
Regular expressions · Multi-condition policies

Deliver each request to the backend best suited to process it.

SSL/TLS OFFLOAD

Protect Applications Without Burdening Web Servers

The Virtual Load Balancer can terminate encrypted client connections and reduce cryptographic processing demand on application servers.

KEY BENEFITS

- Centralized SSL/TLS processing
- Reduced CPU consumption on backend servers
- Simplified certificate deployment
- Application-aware HTTPS traffic management
- Access to SSL variables for policy decisions
- Improved consistency of encryption policies
- Flexible HTTP or HTTPS connectivity toward backends



Reserve backend compute resources for applications—not repetitive encryption tasks.

FLEXIBLE TRAFFIC FORWARDING

Choose the Data Path That Matches the Service

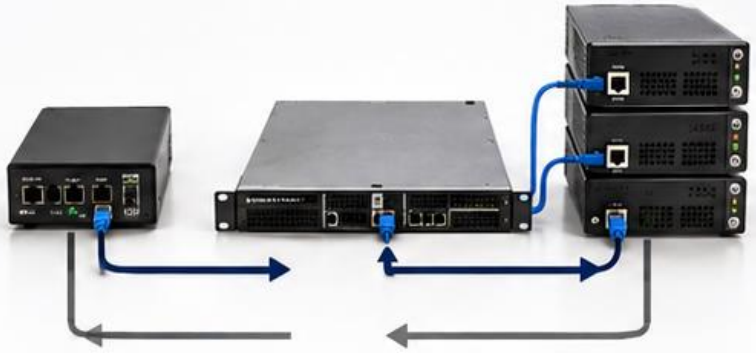
FULL NAT
Destination NAT



VIP 203.0.113.10 → Backend 10.20.1.12

Client 198.51.100.24 → SNAT 10.10.0.20

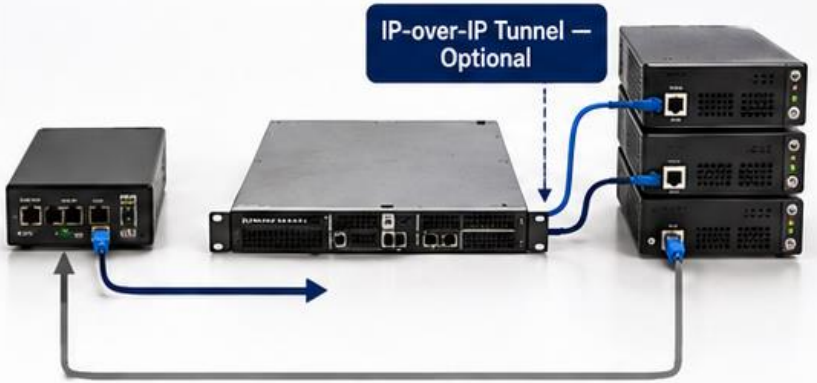
SOURCE POOL NAT



SOURCE POOL
10.10.0.20–10.10.0.29

Selected Source: 10.10.0.23

DIRECT SERVER RETURN
DSR / IP-over-IP



Request Path

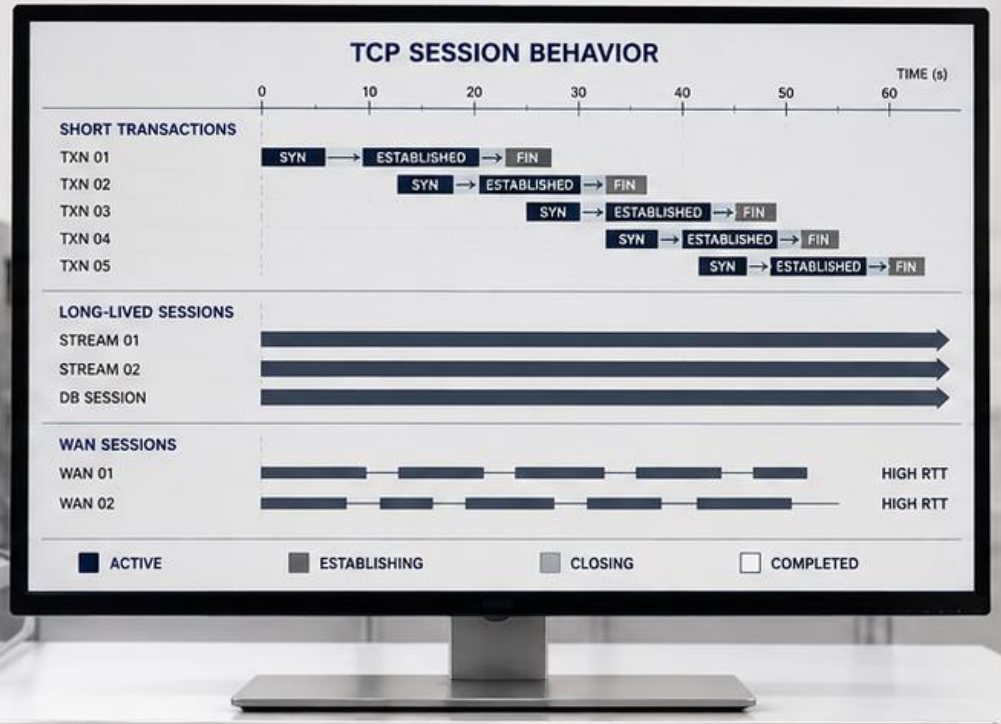
Response Path

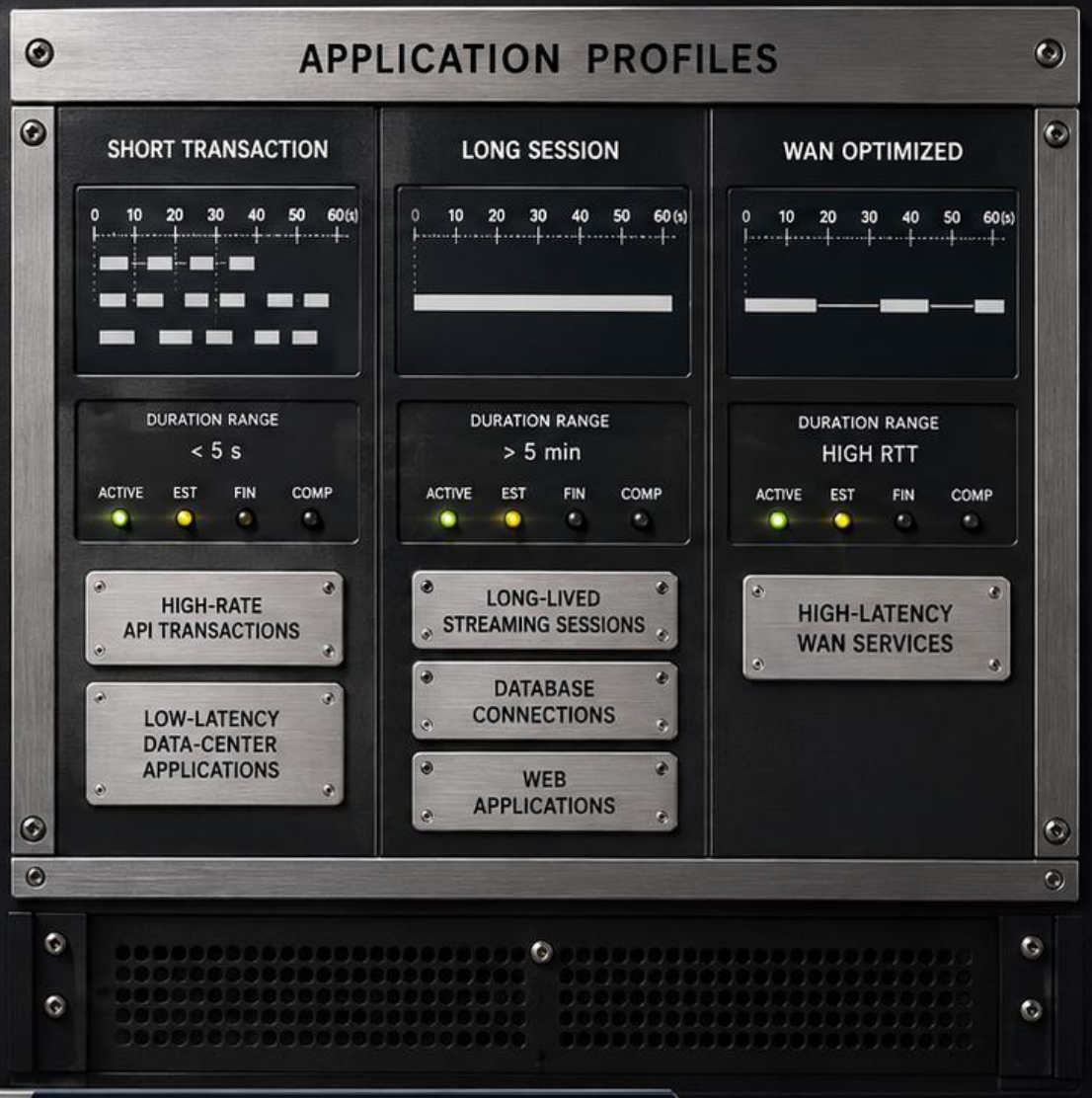
PROXY PROTOCOL v1/v2 — Original client and connection information preserved

Full-proxy control when required. Direct return efficiency when traffic demands it.

ADVANCED TCP PROCESSING

Optimize Connection Handling for Different Applications





TCP CAPABILITIES

- High-performance TCP connection processing
- Zero-copy-oriented TCP architecture
- Flexible TCP stack configuration
- Multiple TCP profiles
- Support for short-lived and long-lived connections
- Proxy Protocol v1 and v2
- Backend-specific connection behavior
- Efficient connection establishment and teardown

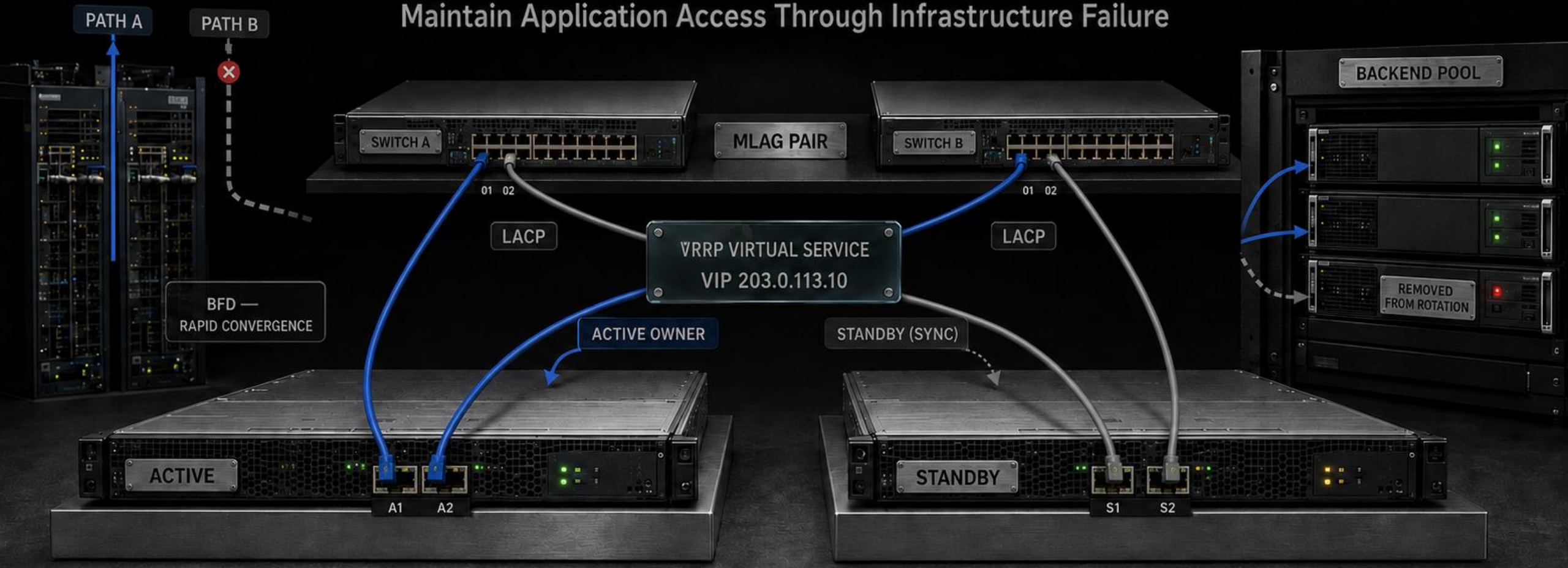
APPLICATION PROFILES

- High-rate API transactions
- Long-lived streaming sessions
- Database connections
- Web applications
- High-latency WAN services
- Low-latency data-center applications

Different applications require different TCP behavior.

HIGH AVAILABILITY BY DESIGN

Maintain Application Access Through Infrastructure Failure



VRRP | ACTIVE / STANDBY | LINK REDUNDANCY | LACP | HEALTH MONITORING | BFD | MULTI-NODE

Application availability must survive more than a backend failure.



MULTI-LAYER HEALTH MONITORING

Send Traffic Only to Services That Are Ready

L3 — **LAYER 3 HEALTH CHECKS**
ICMP-based reachability verification.

L4 — **LAYER 4 HEALTH CHECKS**
TCP port and transport-level service validation.

L7 — **LAYER 7 HEALTH CHECKS**
HTTP and HTTPS application-level availability verification.

AUTOMATED SERVICE RESPONSE

01 Detect backend failure
02 Remove unhealthy servers from rotation
03 Continue service through healthy pool members
04 Monitor recovery
05 Restore traffic after successful validation

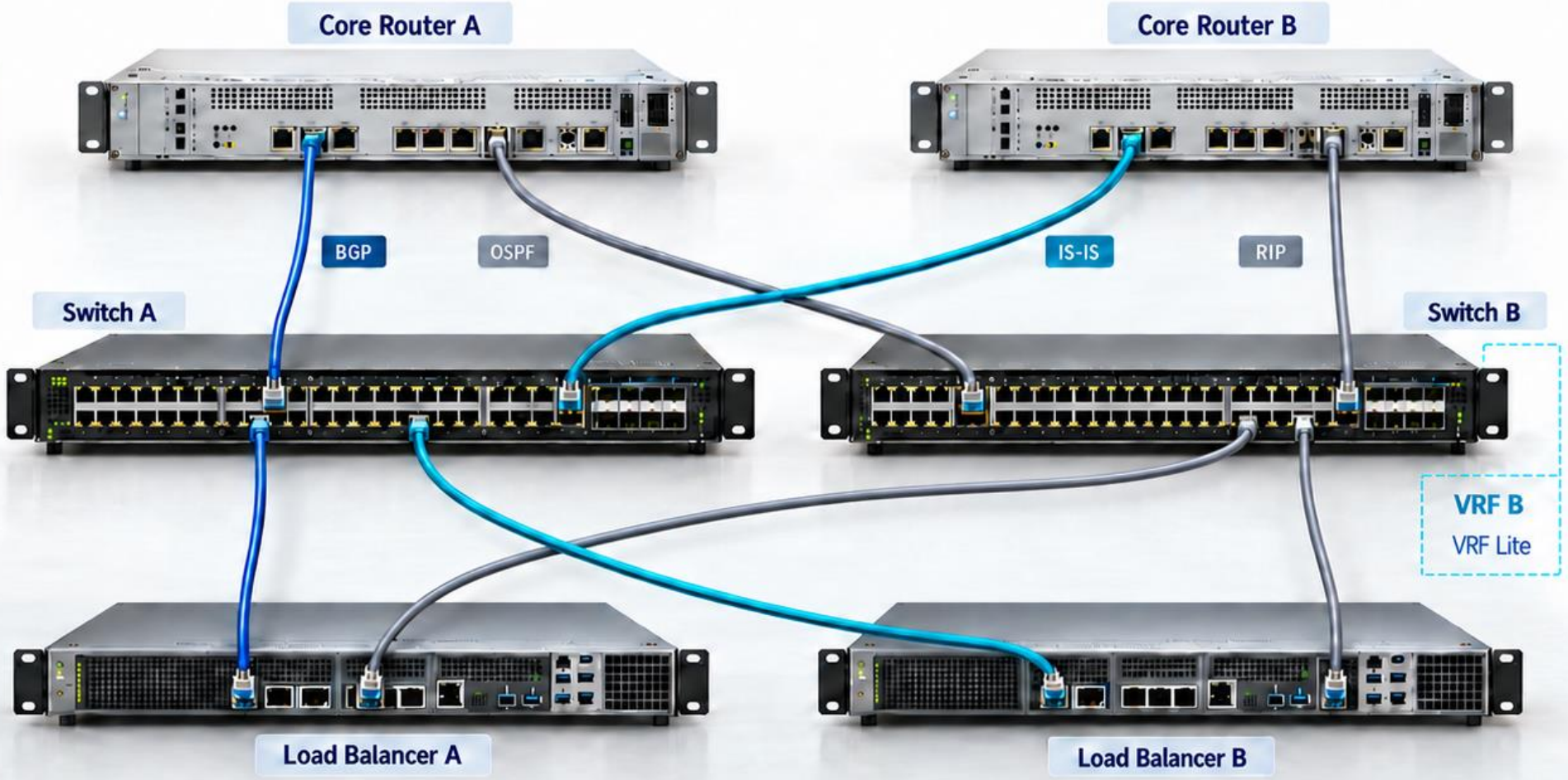
Reachability is not enough.
Validate the application itself.

Routing-Integrated Application Delivery

Operate as Part of the Network—not as an Isolated Appliance

ROUTING CAPABILITIES

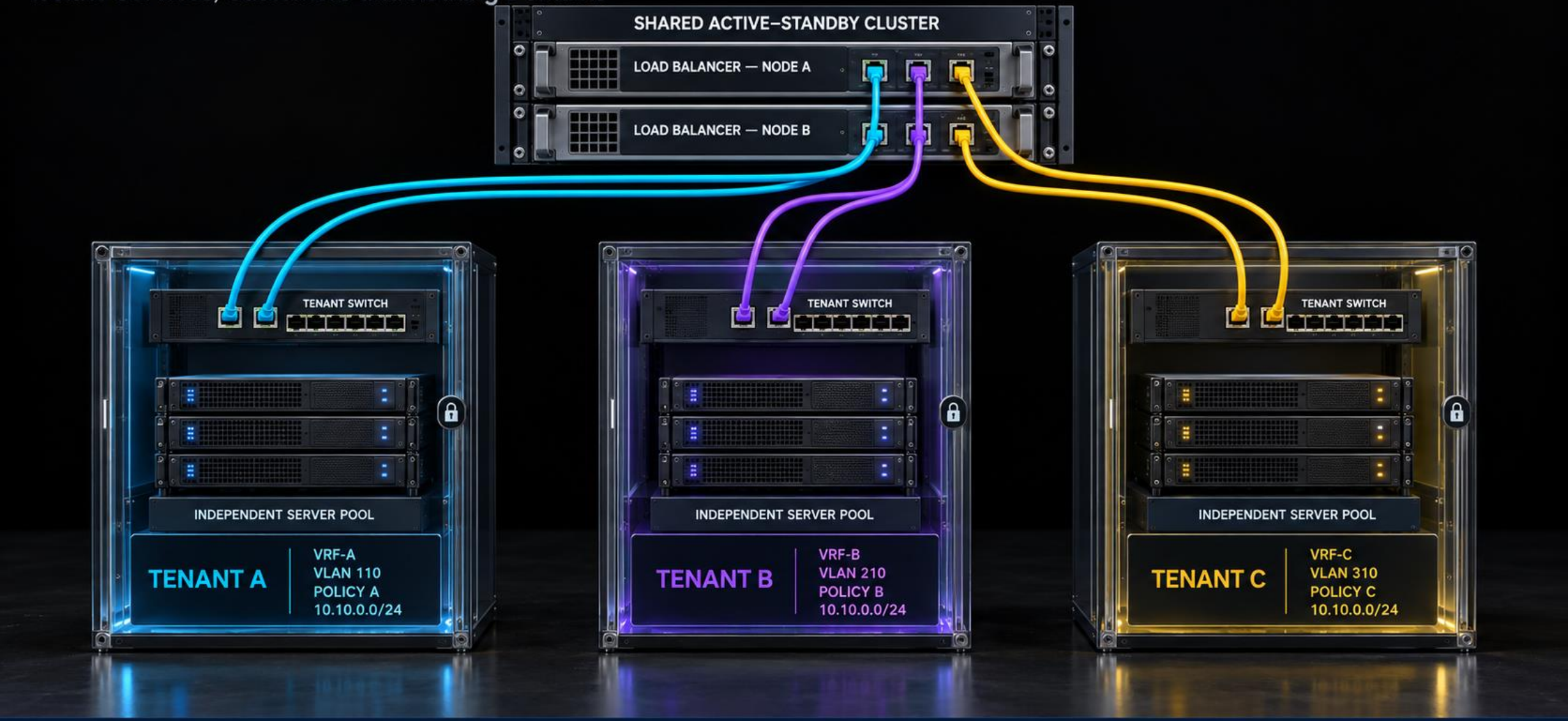
BGP • OSPF • IS-IS • RIP • BFD • VRF Lite



Combine application intelligence with carrier-grade routing integration.

Network Segmentation and Multi-Tenancy

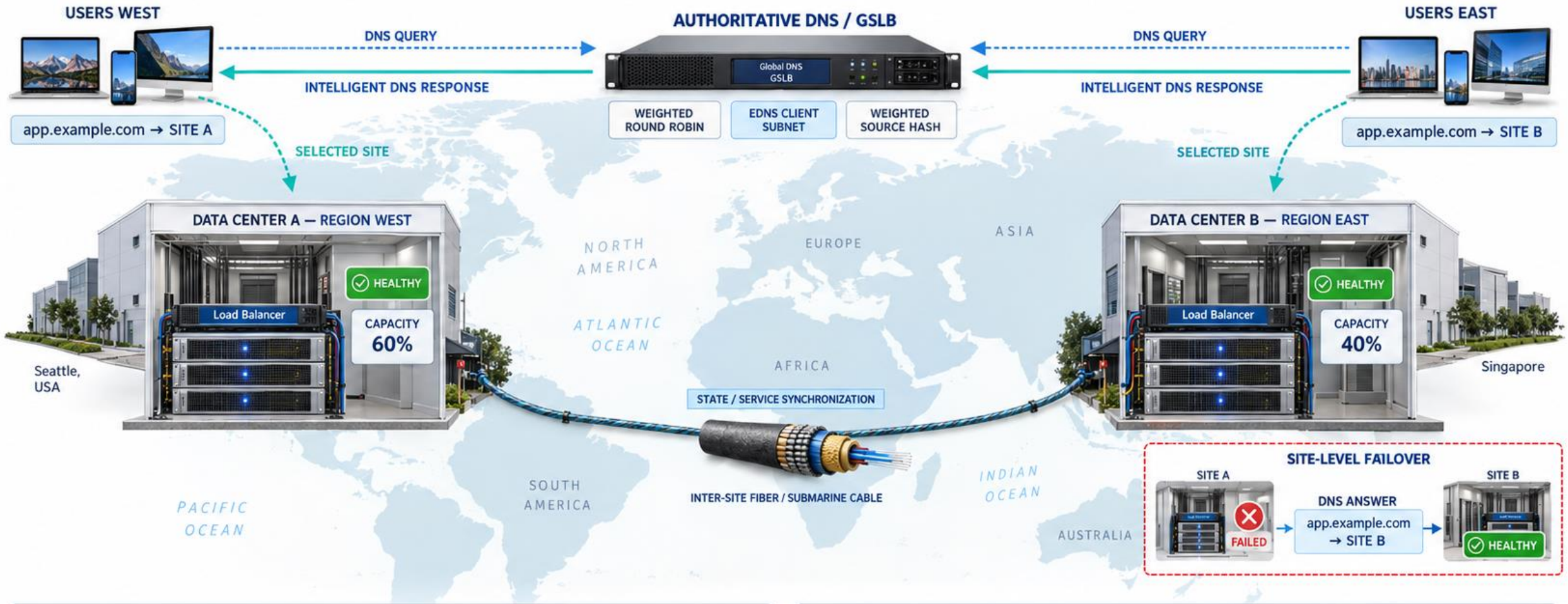
Isolate Services, Customers and Routing Domains



Shared infrastructure. Isolated services. Independent policies.

Global Server Load Balancing

Extend Availability Across Data Centers and Regions



GSLB CAPABILITIES

DNS Service Responses · Weighted Policies · EDNS Client Subnet · Multi-Site Distribution · Regional Capacity · Site Continuity

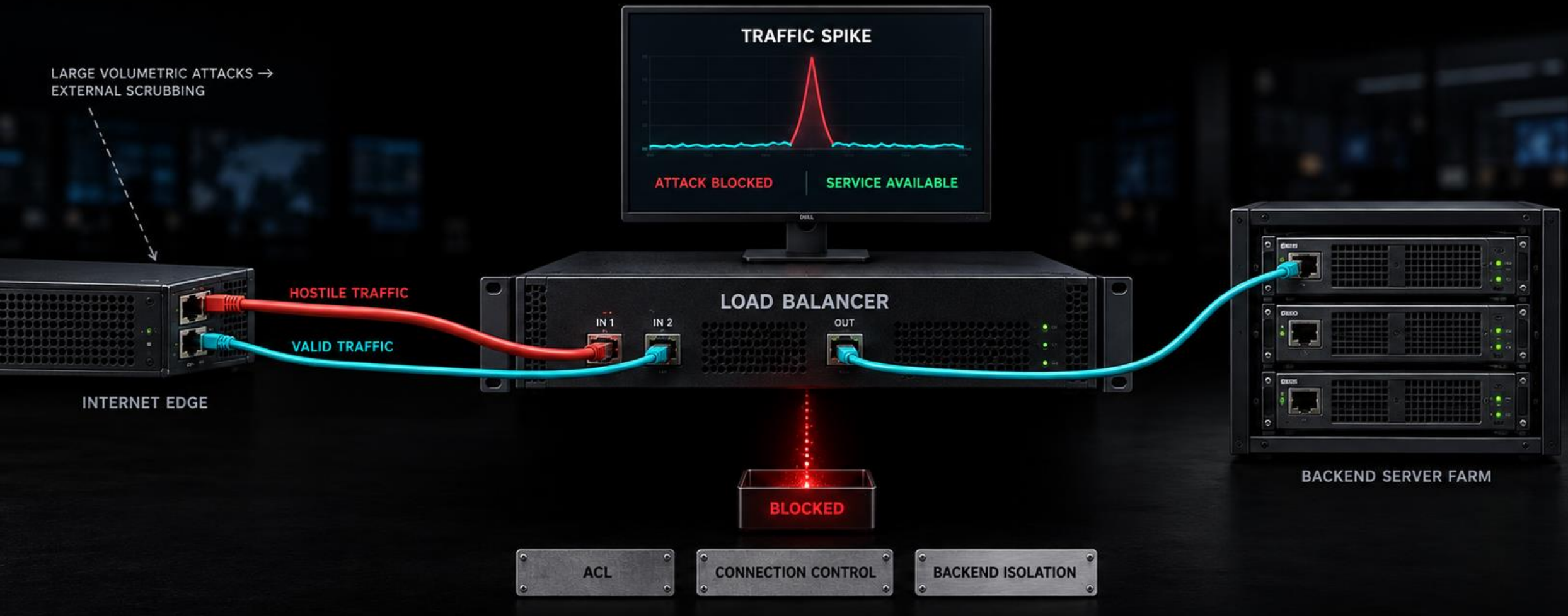
USE CASES

Active–Active · Disaster Recovery · Regional Cloud · Hybrid Cloud · Distributed Content

Balance traffic across servers locally—and across data centers globally.

DDoS Mitigation and Access Control

Preserve Application Availability Under Hostile Traffic



Integrated mitigation complements dedicated large-scale scrubbing.

Filter hostile traffic. Preserve application availability.

Centralized Management

One Operational View Across Application Delivery Services

MANAGEMENT INTERFACES

- WEB GUI
- COMMAND-LINE INTERFACE
- REST API

Configure, observe and control from one unified operational layer.



Automation and Service Orchestration

Turn Application Delivery into an On-Demand Service



Provision application delivery at software speed.

Monitoring and Operational Visibility

See Service Health Before Users Feel the Impact



Correlate network, connection and application health in real time.

Built-In Troubleshooting

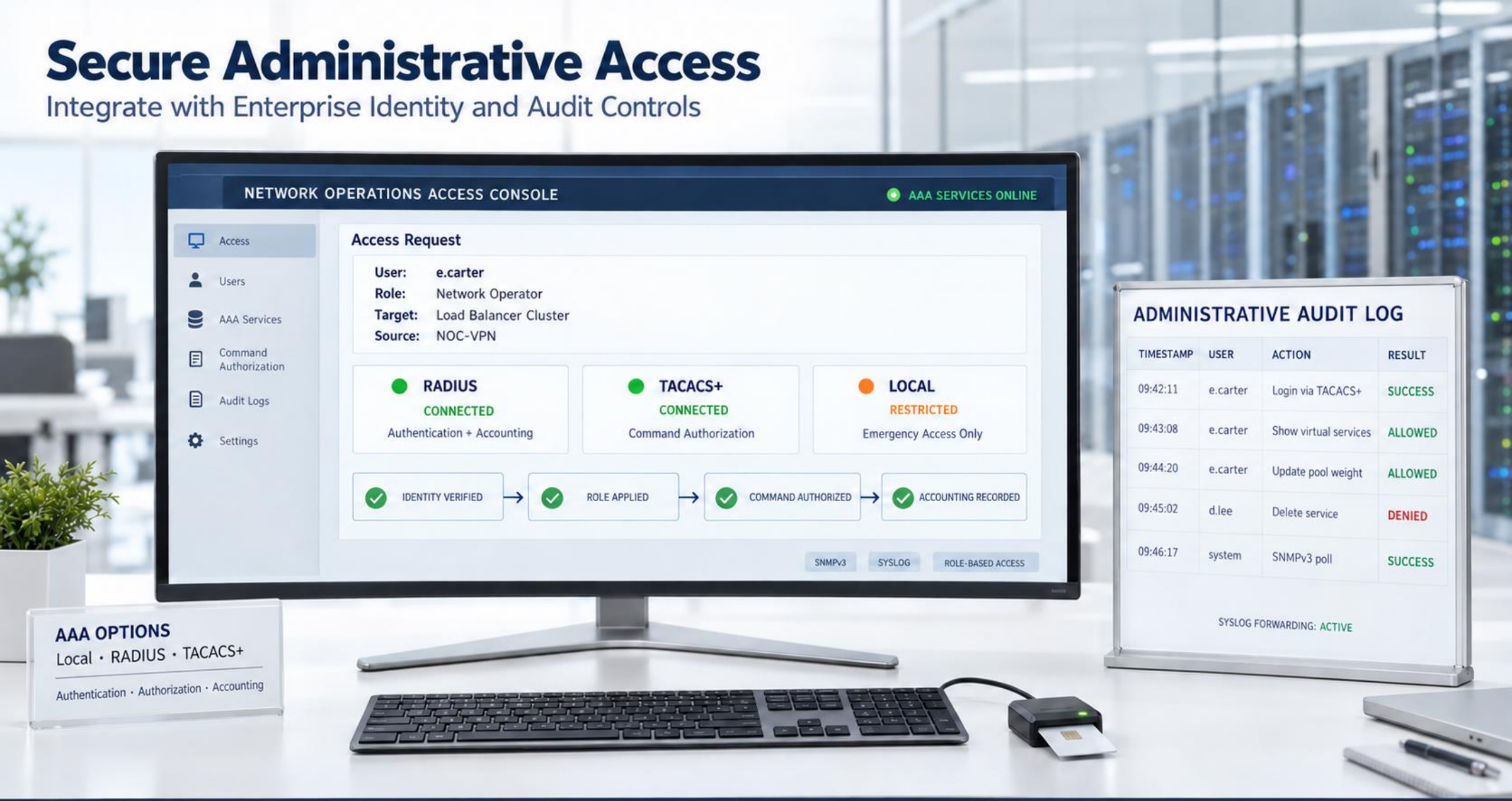
Diagnose Traffic Behavior at Packet Level



Move from symptom to root cause without leaving the platform.

Secure Administrative Access

Integrate with Enterprise Identity and Audit Controls



Proven in High-Traffic Environments

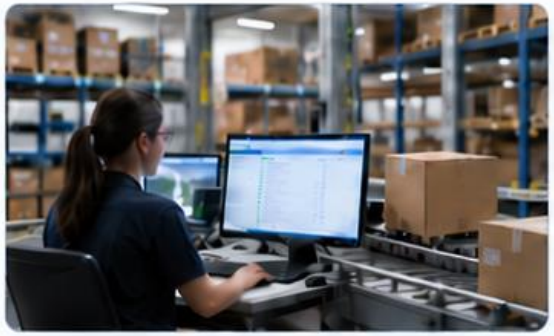
Designed for the Demands of Large Digital Platforms



VIDEO STREAMING



FINANCIAL PLATFORM



E-COMMERCE



TELECOM NOC



Built for applications where performance and availability are inseparable.

Why Horizon Networks

Application Delivery Without Infrastructure Constraints



PERFORMANCE

400G

Single Validated x86 Platform



INTELLIGENCE

L3–L7 • Content Switching • Maglev



APPLICATION OPTIMIZATION

SSL Offload • HTTP • TCP Profiles



RESILIENCE

Health • VRRP • Routing • Multi-Site



NETWORK INTEGRATION

BGP • OSPF • IS-IS • RIP • BFD • VRF Lite • LACP • VLAN



OPERATIONS

GUI • CLI • REST API • SNMP • Syslog • Packet Trace • PCAP



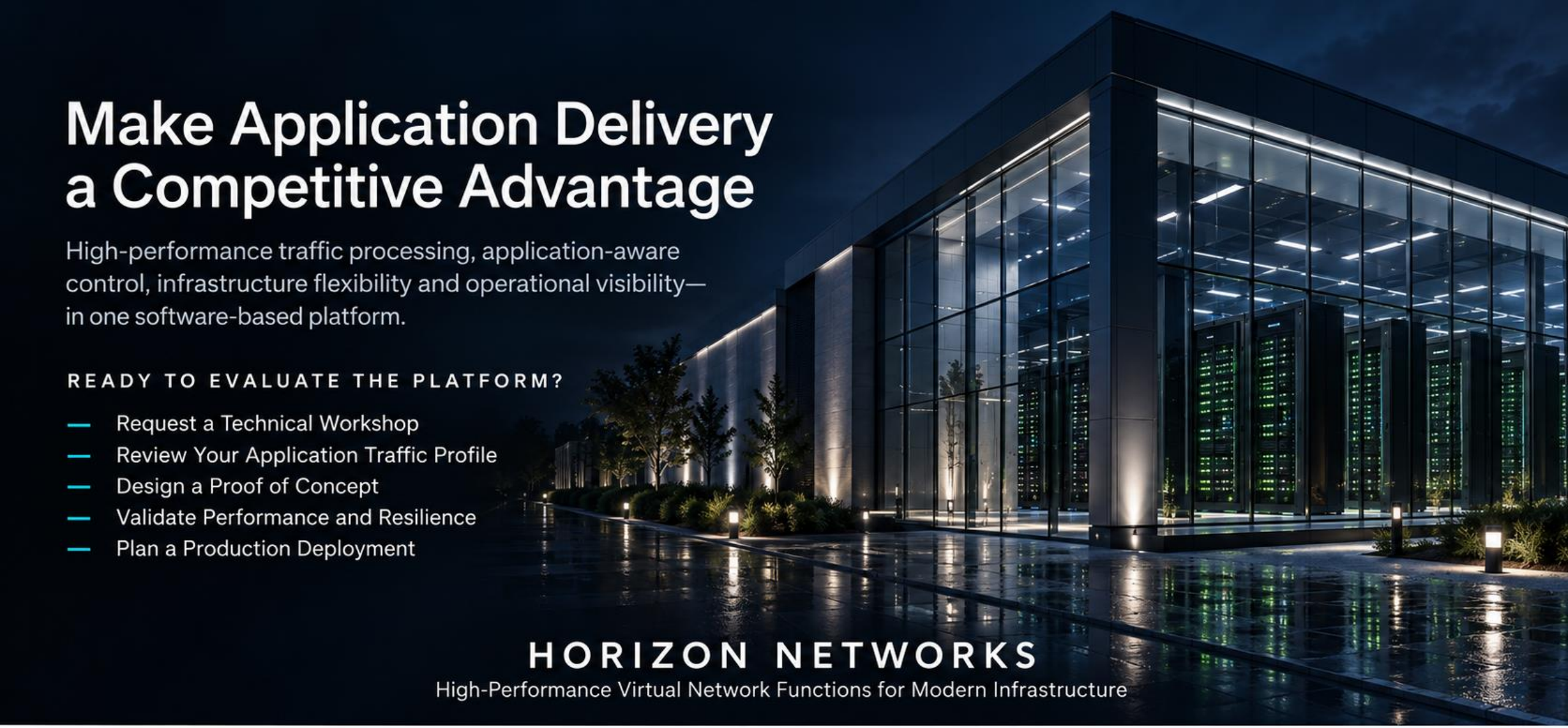
INFRASTRUCTURE FREEDOM

Bare Metal • VM • NFVi • Private Cloud • Edge

More Performance per Server. More Control over Traffic. More Freedom for Infrastructure.

Make Application Delivery a Competitive Advantage

High-performance traffic processing, application-aware control, infrastructure flexibility and operational visibility—in one software-based platform.



READY TO EVALUATE THE PLATFORM?

- Request a Technical Workshop
- Review Your Application Traffic Profile
- Design a Proof of Concept
- Validate Performance and Resilience
- Plan a Production Deployment

HORIZON NETWORKS

High-Performance Virtual Network Functions for Modern Infrastructure

Schedule a Technical Workshop | Request a Live Demo | Start a Proof of Concept

EMAIL | WEBSITE | PHONE