



# GATESPEED™

**Flexible High-Performance Networking Using  
Intel® Architecture Based Whiteboxes**

**Intel® Network Builders Webinar**

February 2024

# The GateSpeed Leadership Team



**David Giannini**  
Founder & Executive Chairman  
GateSpeed

Core Communications  
(acq. Swisscom)  
Spring Valley Capital



**Julian Lin**  
Principal  
GateSpeed

Fastsoft (acq. Akamai)  
QuickFire (acq. Facebook)  
Hillcrest Venture Partners

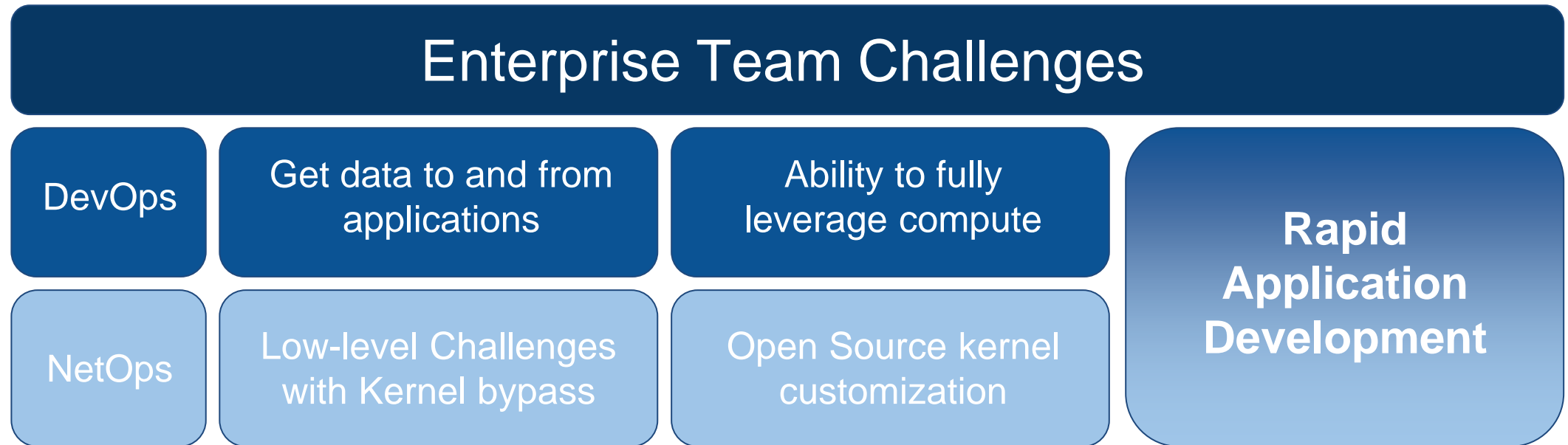


**Onkar Sangha**  
Chief Technology Officer  
GateSpeed

Neutron Comm. (acq. Cortina)  
Ishoni Networks (acq. Philips)

# The Problem & GateSpeed Solution

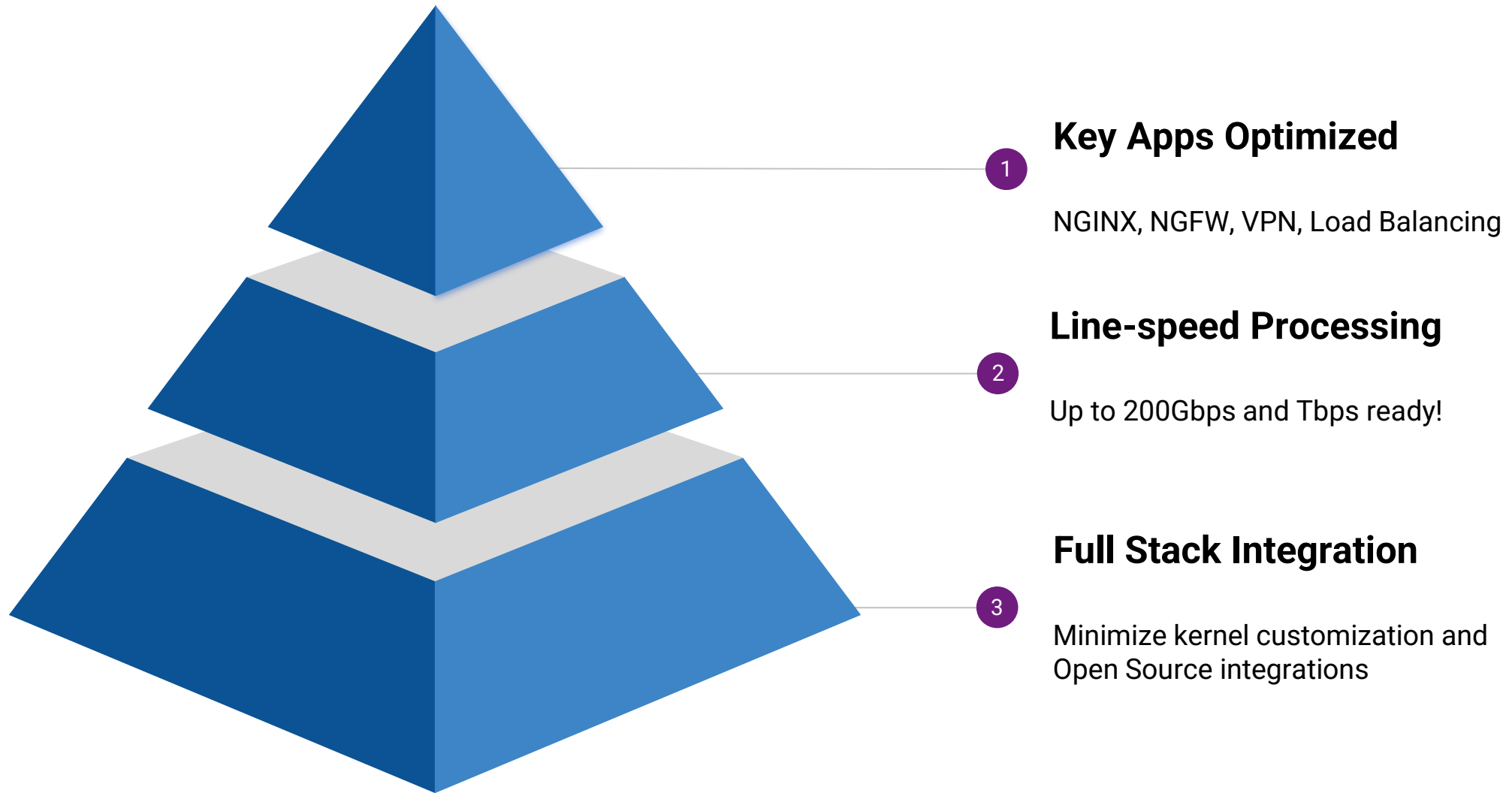
*To stay competitive, today's DevOps/NetOps teams must adopt solutions that maximize user density while maintaining high-quality user experience.*



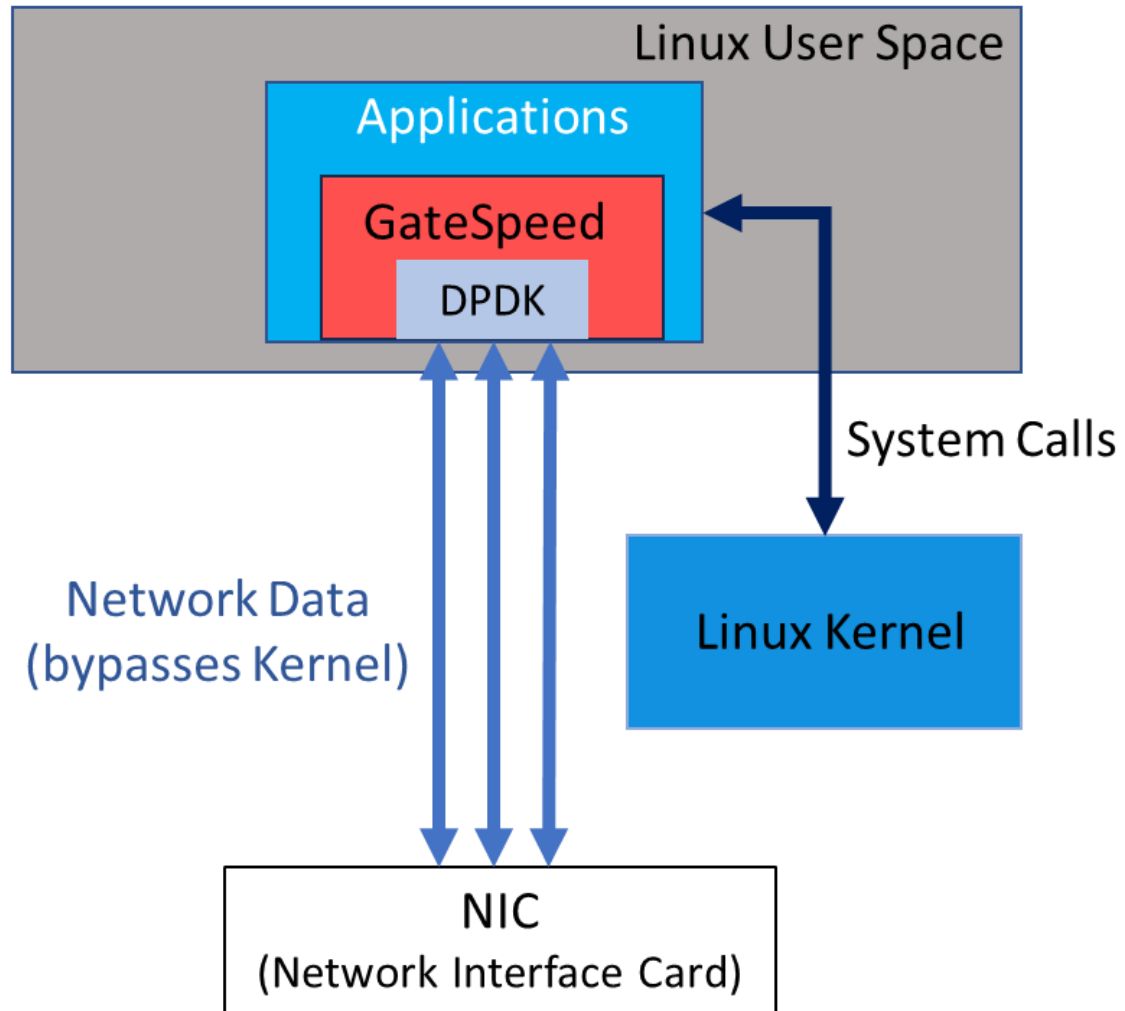
***GateSpeed enables DevOps Teams to realize full application potential -***

***and allows NetOps to eliminate network friction for max application performance.***

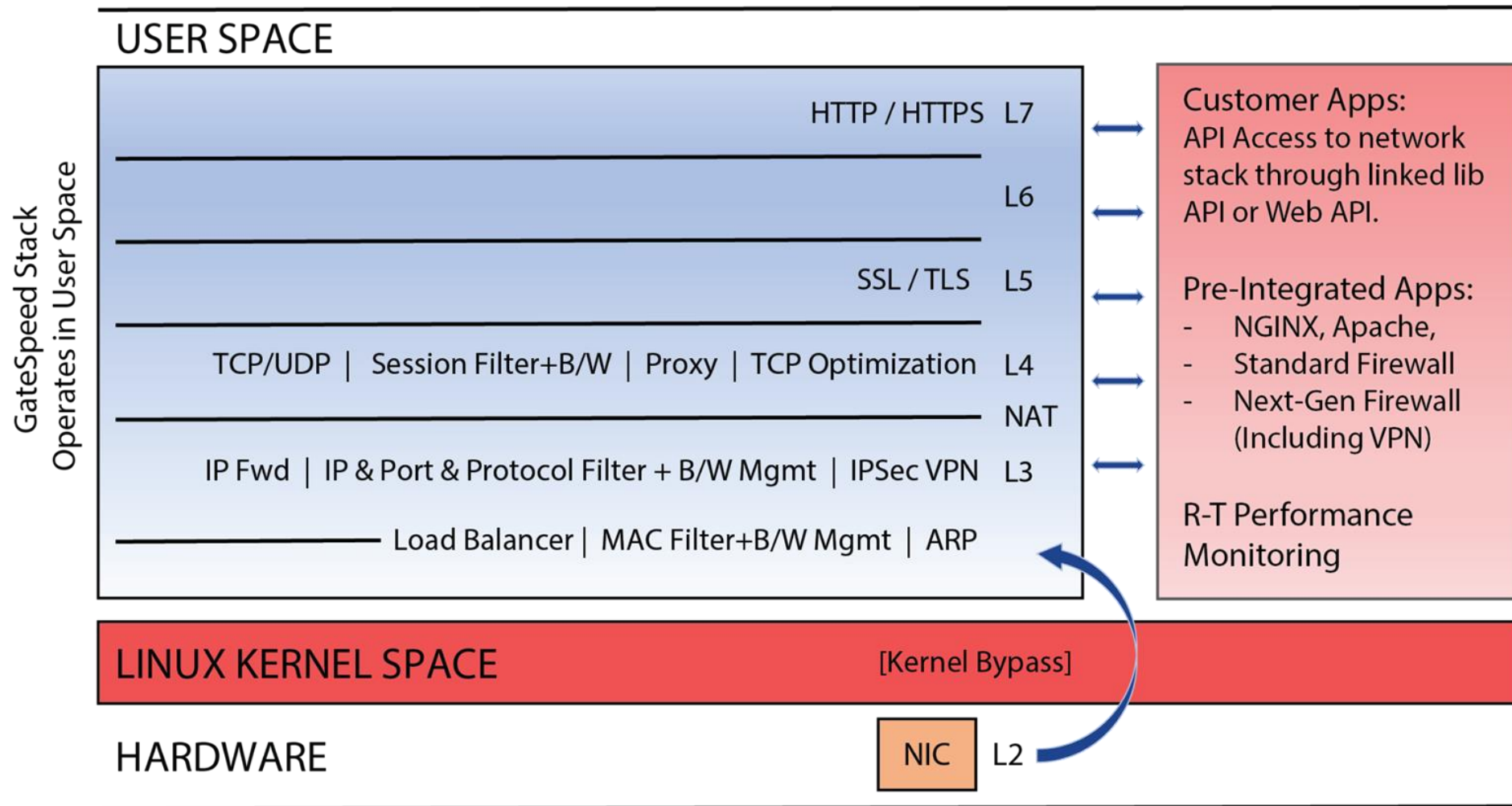
# The GateSpeed Approach



# GateSpeed Architecture Overview



# Gatespeed Networking Stack Functionality



# How We Do It: Maximize User Experience & User Density

## High-Value Applications

NGINX

VPN

Load Balancing Router

Firewall

B/W Manager (MAC, IP ,Session)

## Scalability

Linear Scaling

Multiple CPU types (Intel® Atom® to Xeon® Scalable Processors)

Prepares for surge in network speeds

## Custom Integrations

Layer 2 through 5 Support with DPDK Integrated

Binaries for linking to apps via GNU tools

Network socket functions for communications

Programmatic APIs or RESTful APIs for management

Bare metal, container, VM capable

## Efficiency

ASIC Competitive Performance

Line-rate processing with minimal cores

Increased throughput per watt



# GateSpeed + Intel® Partnership

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# Gatespeed Applications and Network Functions

## Same DUT @ Intel

GS  
NGINX

HTTP, 40K Connections,  
2MB file - 2 Cores 82 Gbps

GS  
Firewall

64B, 2K Rules - 1 Core 28 Gbps

GS  
VPN Gateway

IPSec VPN SW Only - 6 cores 92 Gbps

GS QAT®  
VPN Gateway

IPSec VPN QAT® - 4 cores  
(2 SW + 2 QAT®) 96 Gbps

GS  
Router +  
B/W Mgmt

L3 Fwd - 1 Core 200 Gbps

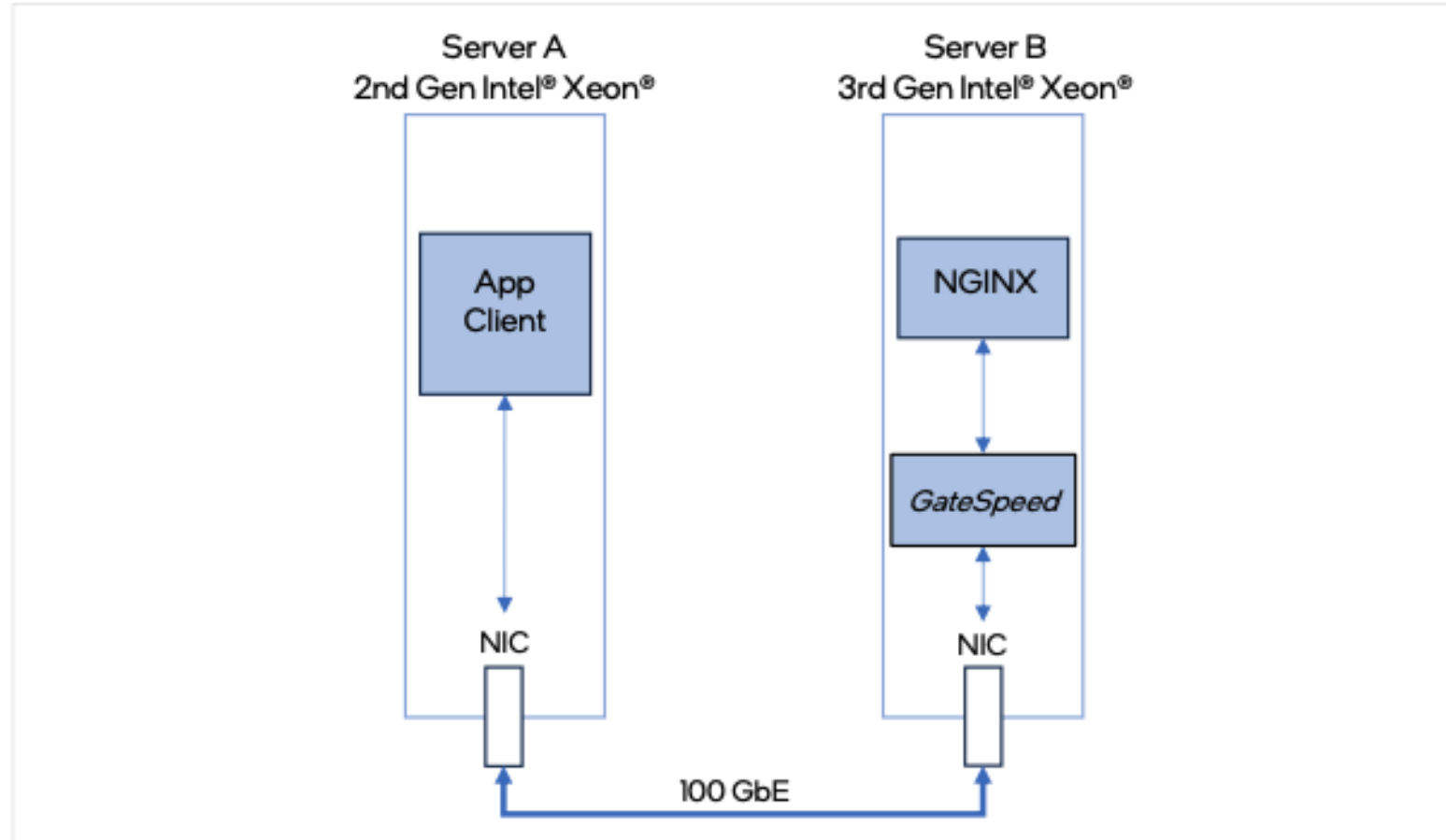
## Future

GS  
Load Balancer

GS  
NAS

GS  
Streaming  
Video Server

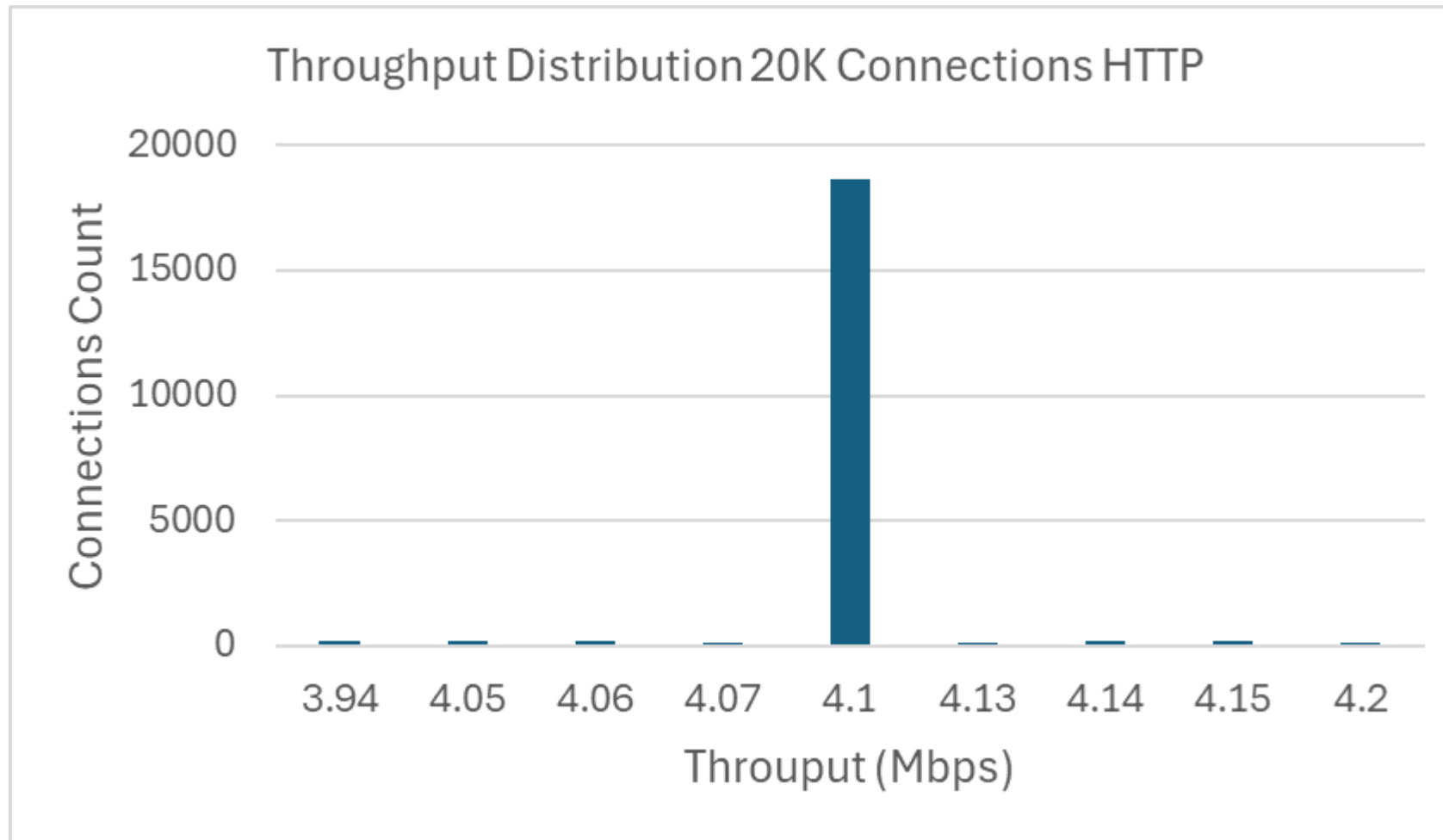
# Intel Labs Testbed: NGINX Tests



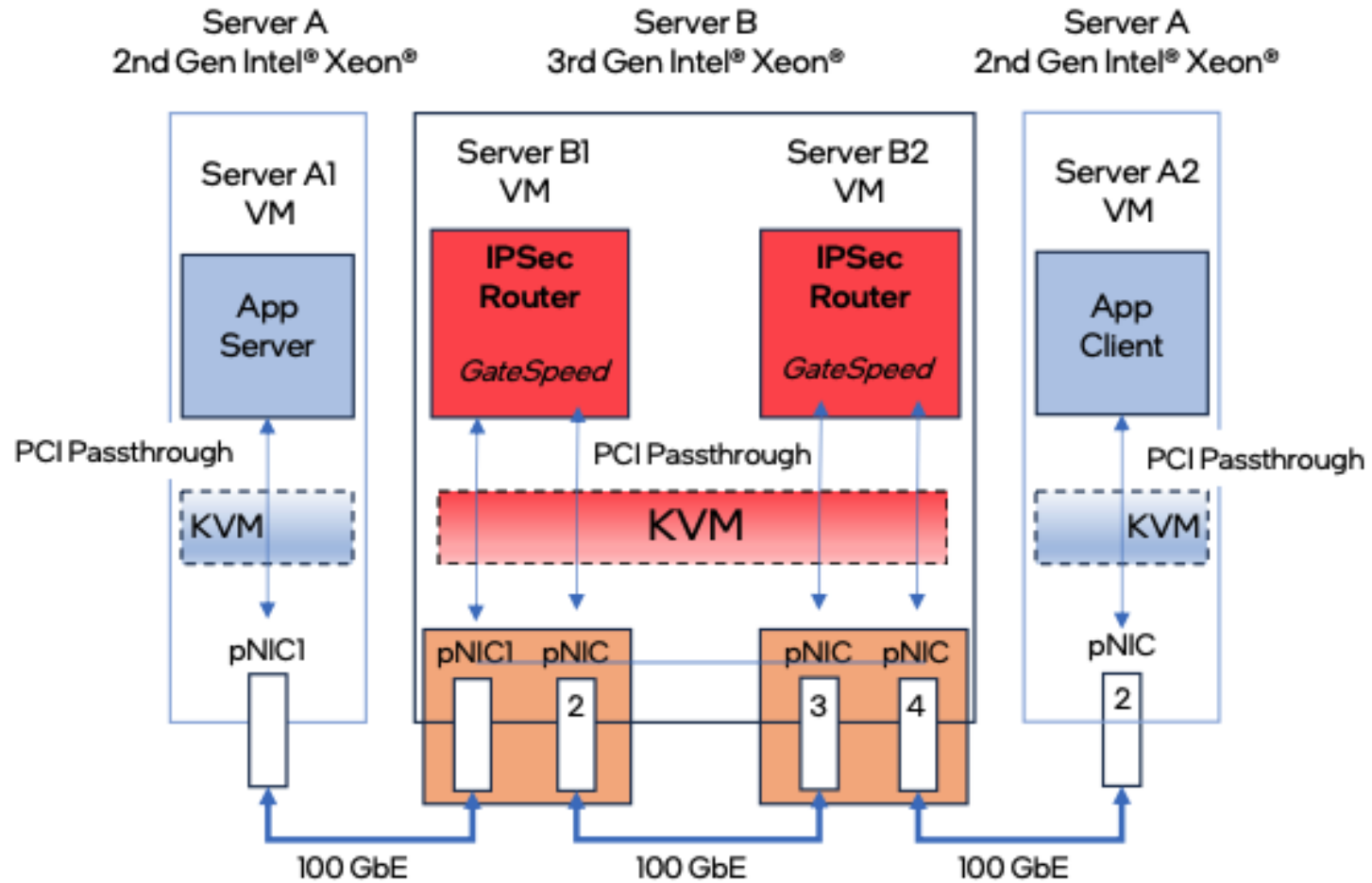
# GateSpeed: NGINX Performance Leap

Protocol	Concurrent Connections	Delay	File Size	NIC Throughput	CPU Cores Used (Remaining cores idle)
HTTP	10,000	0 msec	2MB	82 Gbps	2 Cores
HTTP	40,000	0 msec	2MB	82 Gbps	2 Cores
HTTP	10,000	25 msec	2MB	81 Gbps	2 Cores
HTTP	40,000	25 msec	2MB	79 Gbps	2 Cores
HTTPS	10,000	0 msec	2MB	68 Gbps	4 Cores
HTTPS	40,000	0 msec	2MB	64 Gbps	4 Cores
HTTPS	10,000	25 msec	2MB	67 Gbps	4 Cores
HTTPS	40,000	25 msec	2MB	60 Gbps	4 Cores

# NGINX User Experience



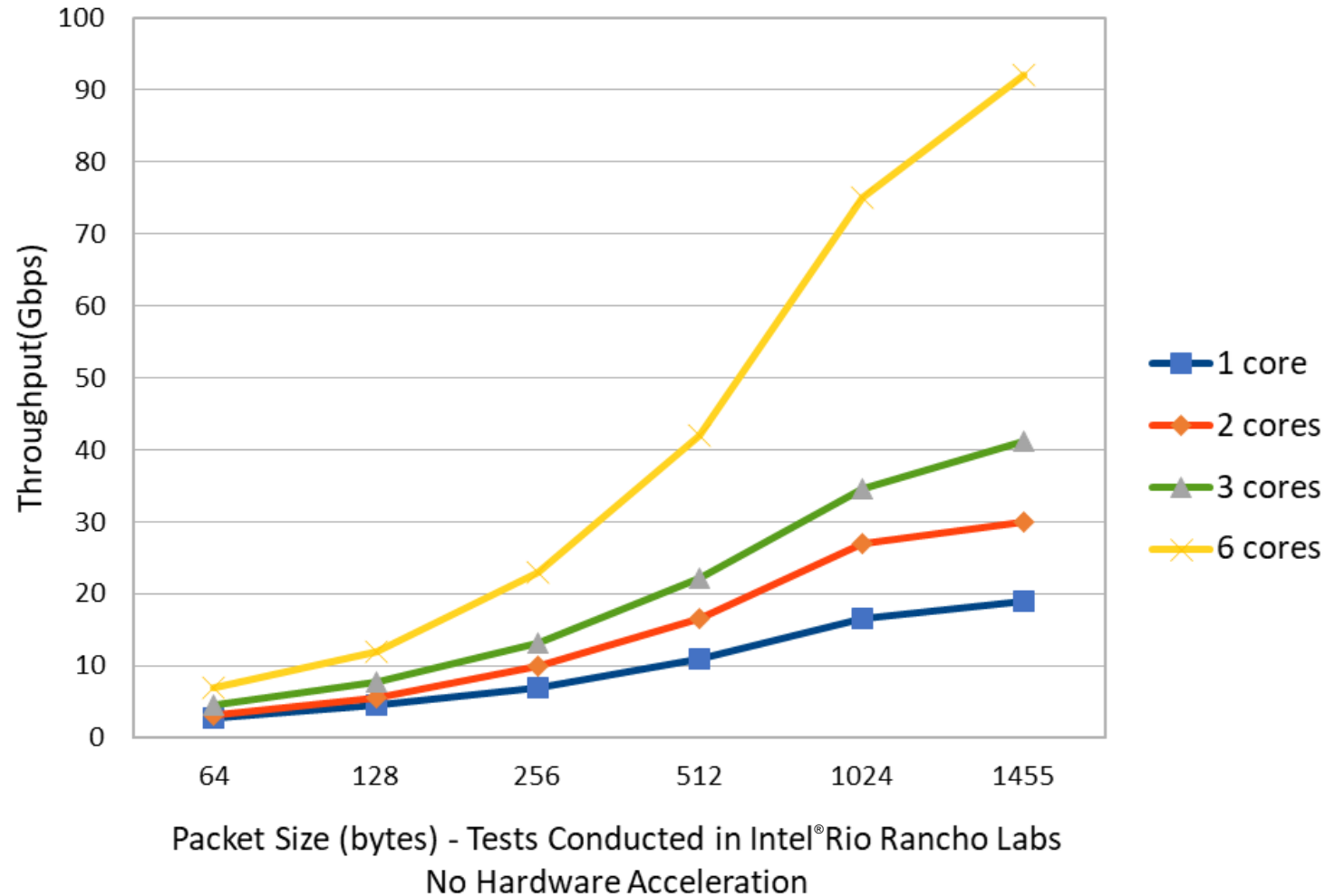
# Intel® Labs Testbed: IPsec Tests



Site-to-Site IPsec VPN.

# Solving the Scaling Problem - IPSec

IPSec Performance Software Encryption 100 Gbps  
AESNI\_MB for aes-128-cbc-sha1-hmac



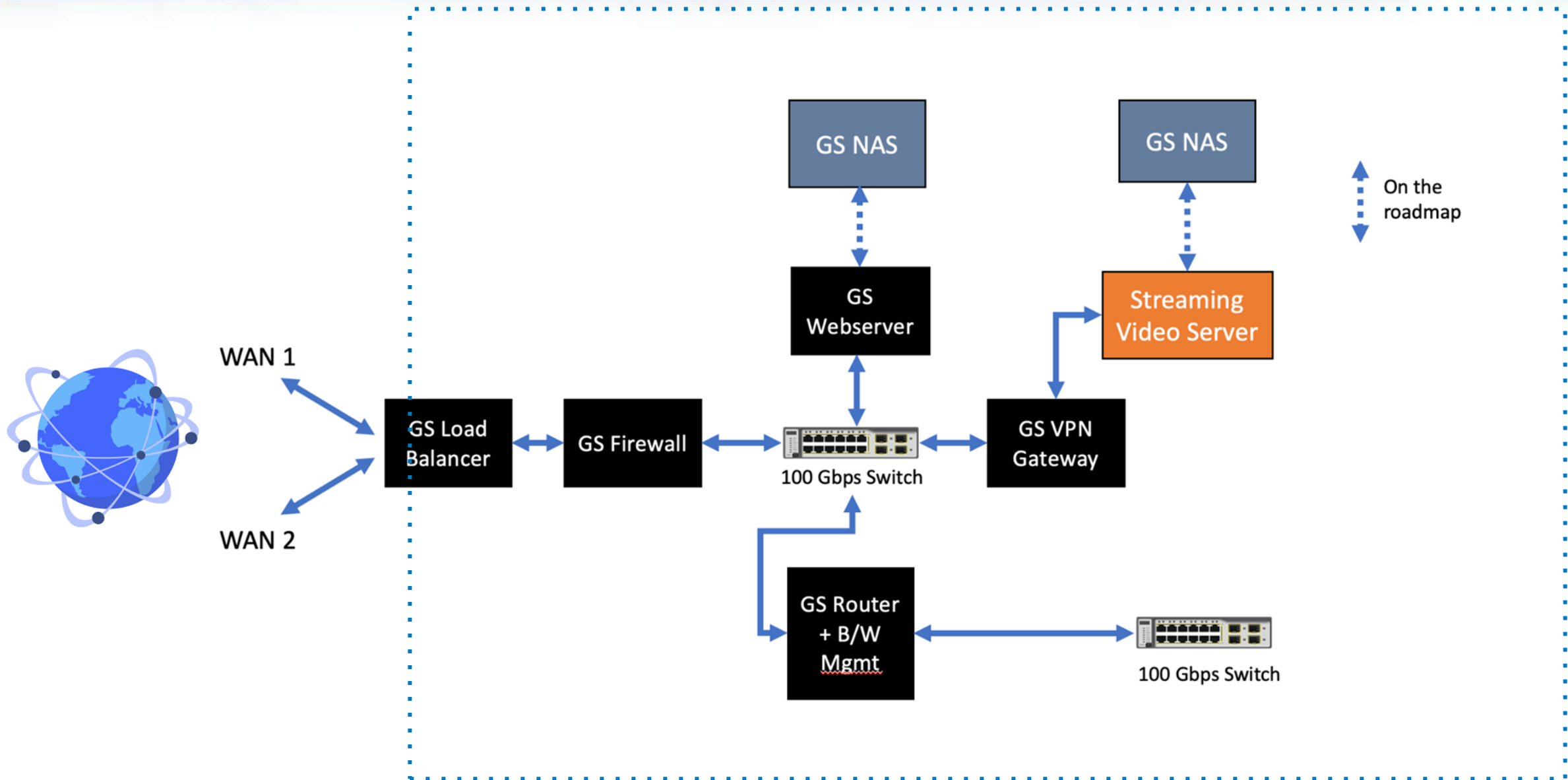


# Use Case: Bringing it Together

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# Specialized Data-Center : CDN, Compute Edge (AI-inference/Video/More)





# Thank you !

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