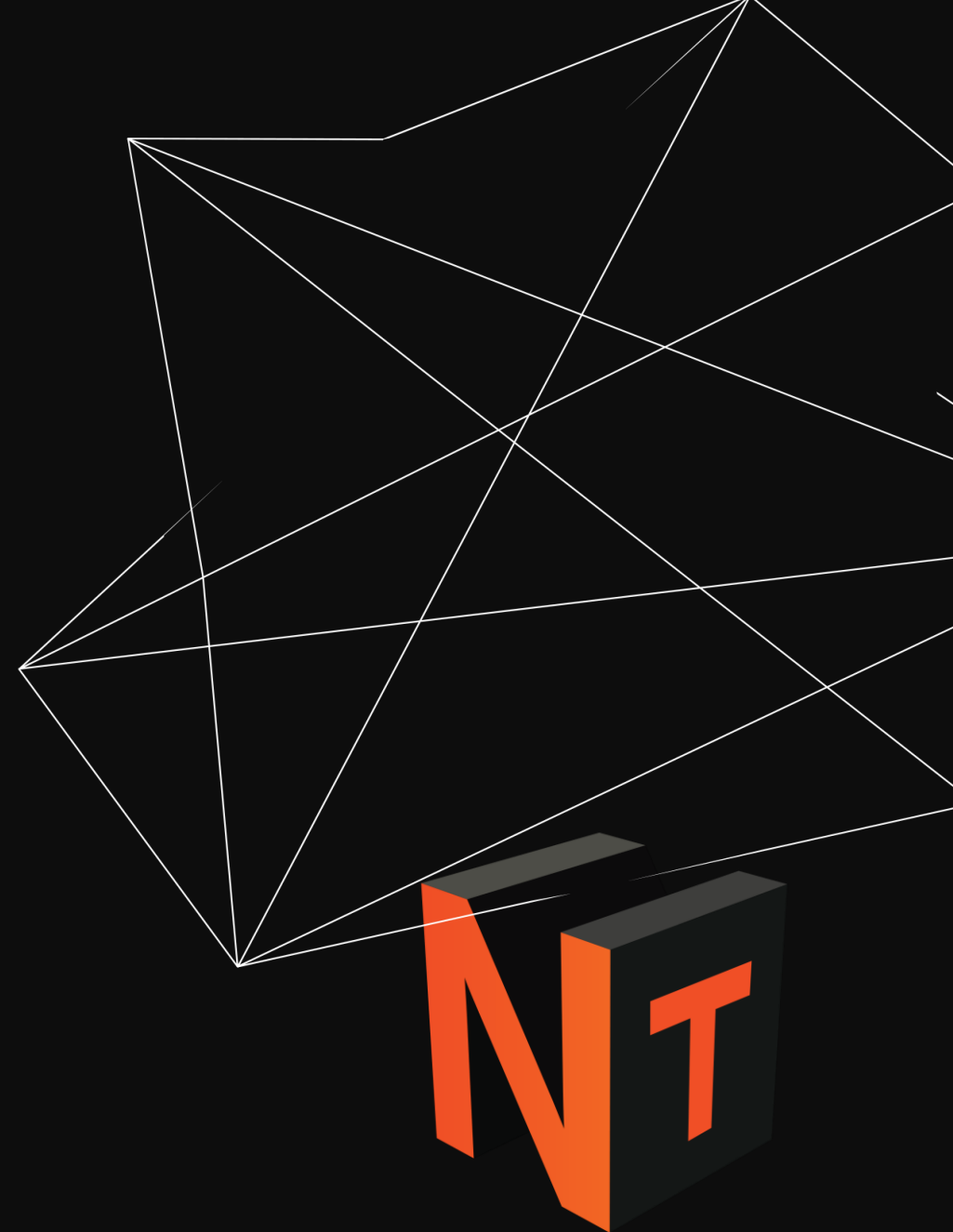


Azure Networking inside and out

Mustafa Toroman



Speaker Introduction

- Mustafa Toroman
- Senior System Engineer @ Authority Partners
- @toromust
- <http://toroman.cloud/>
- Microsoft Azure MVP
- MCSE, MCP, MCSA, MCITP, MCSD, MCT, MS v-TSP



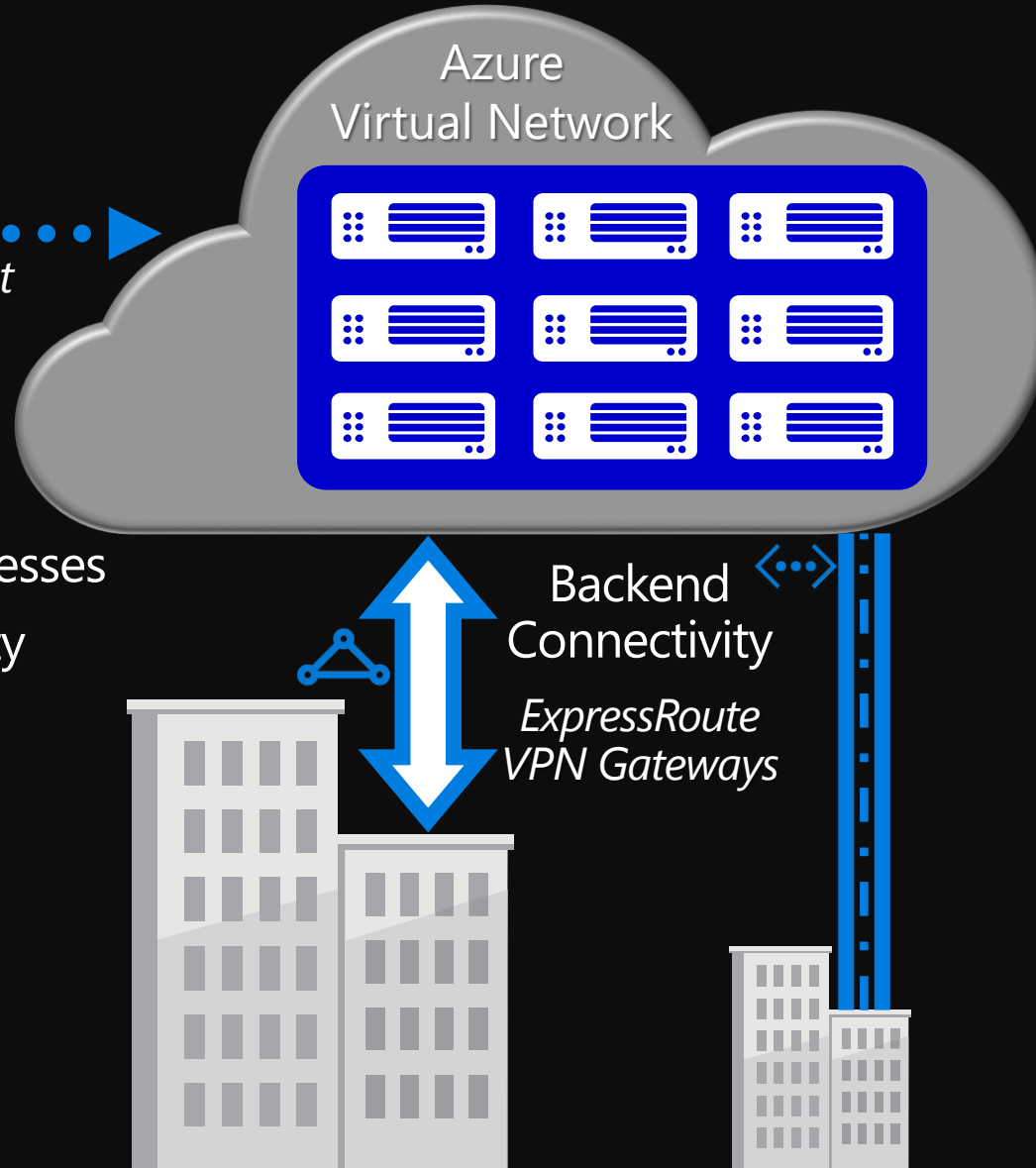
The Big (Network) Picture



Users
Internet

Front-End Access

- Dynamic/Reserved Public IP addresses
- Direct VM access, ACLs for security
- Load balancing
- DNS services: hosting, traffic management
- DDoS protection



Virtual Network

"Bring Your Own Network"

Segment with subnets and security groups

Control traffic flow with User Defined Routes

Backend Connectivity

Point-to-site for dev / test

VPN Gateways for secure site-to-site connectivity

ExpressRoute for private enterprise grade connectivity

Internet IP Addresses & Load Balancing

Public IP Addresses in Azure

Can be used for instance (VM) level access or load balancing

Instance-level IP

Internet IP assigned exclusively to a single VM Entire port range is accessible by default

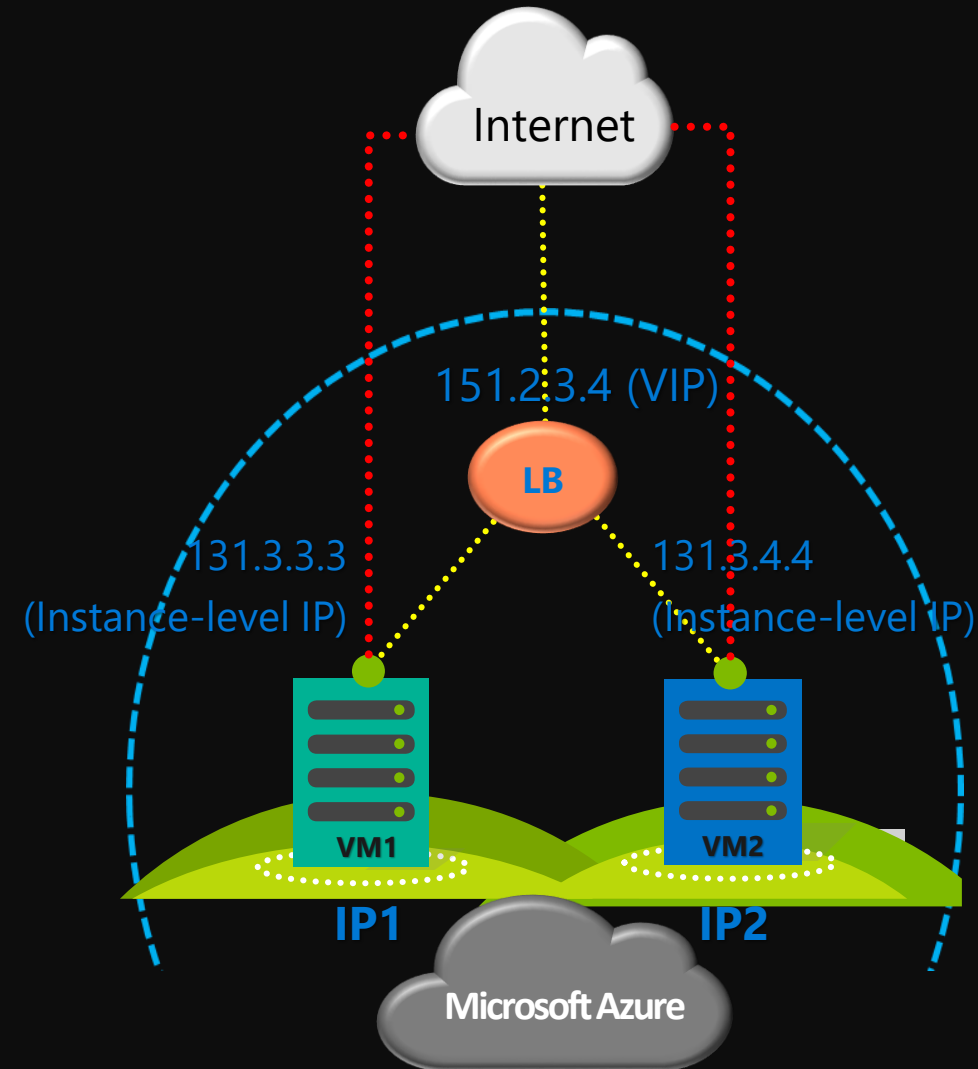
Primarily for targeting a specific VM

Load balanced IP (VIP)

Internet IP load balanced among one or more VM instances

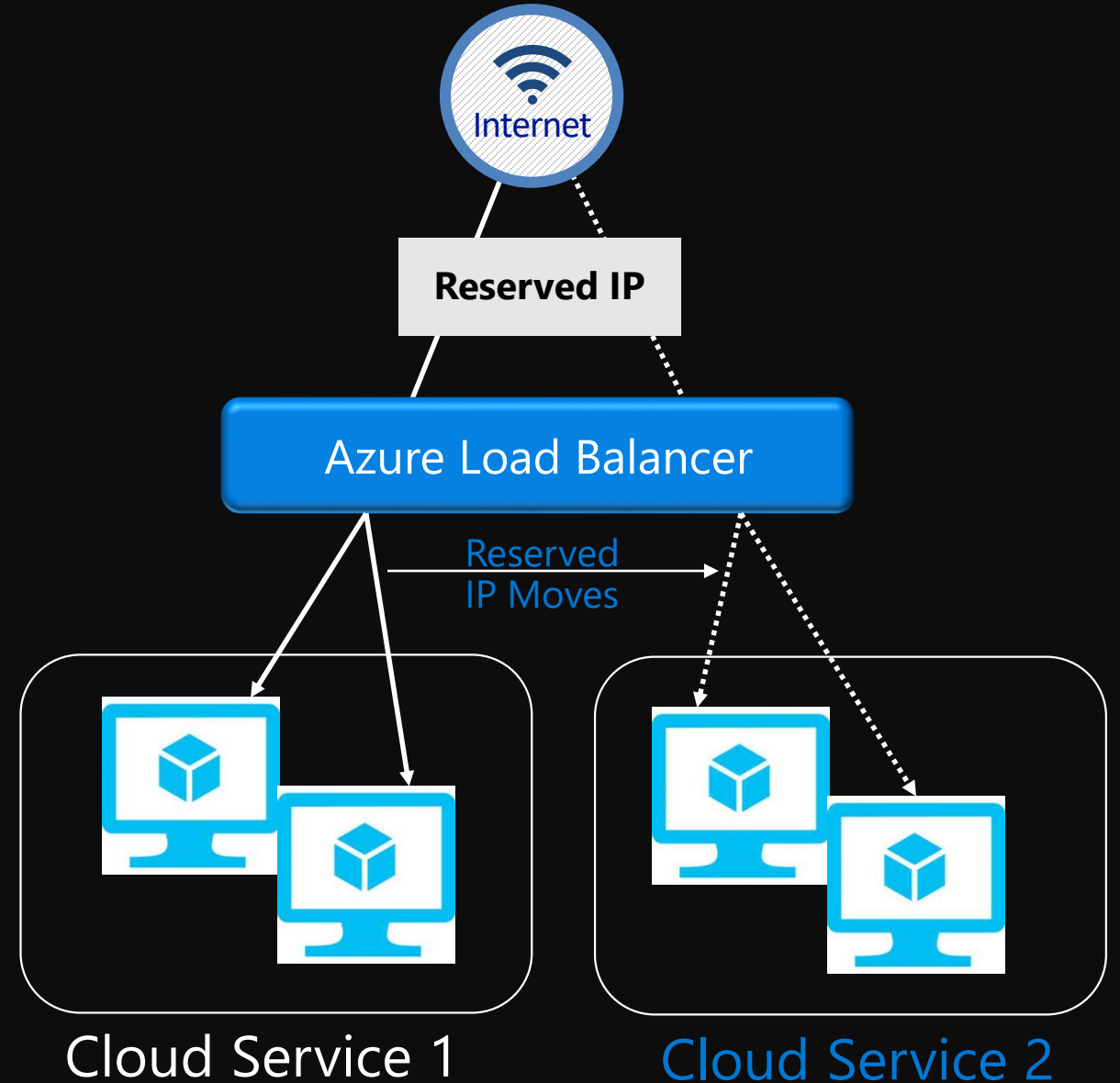
Allows port redirection

Primarily for load balanced, highly available, or auto-scale scenarios



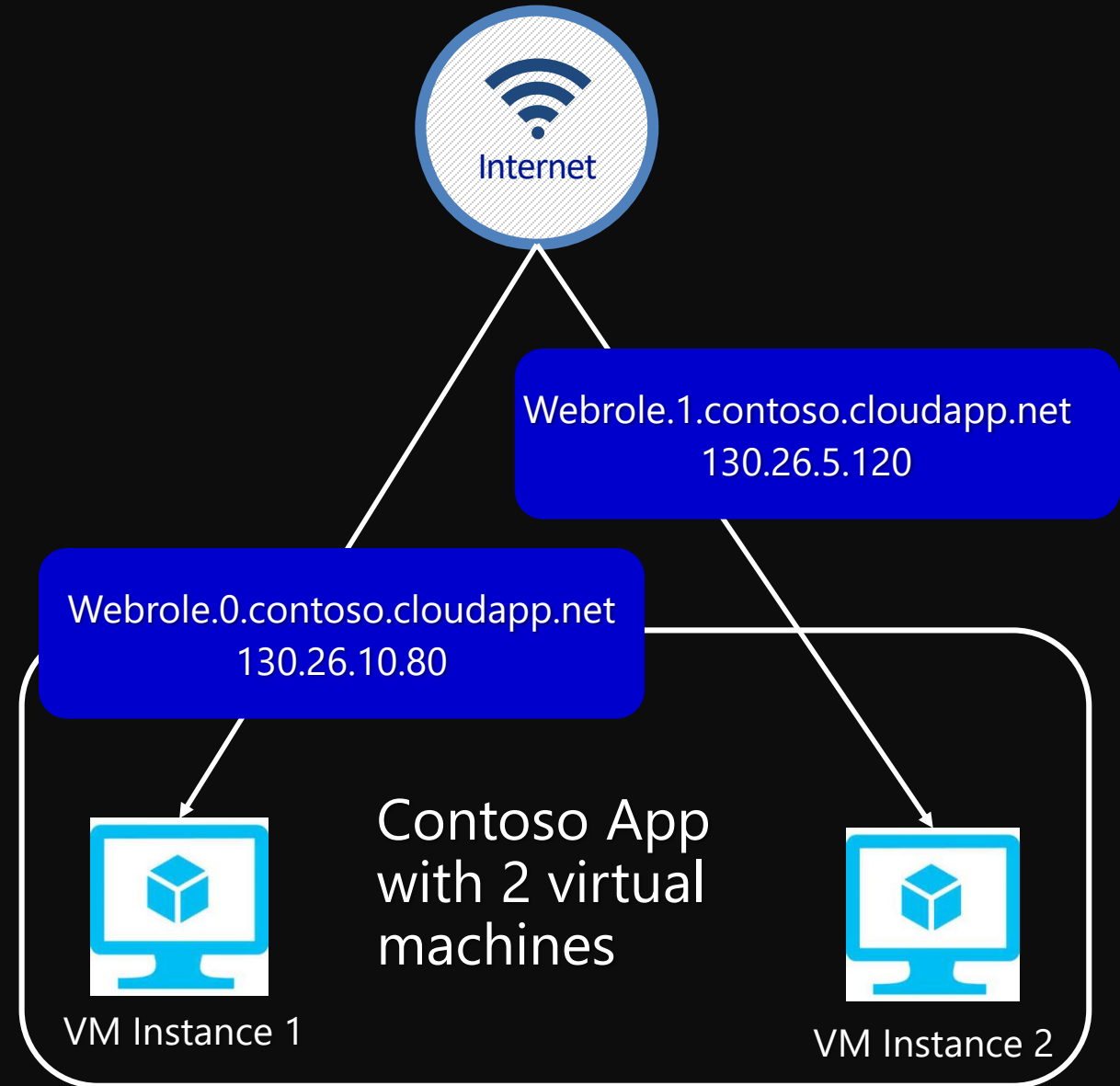
Reserved IPs

- Retain your IP addresses
- IPs on existing services can be reserved
- IPs can be moved between services in seconds



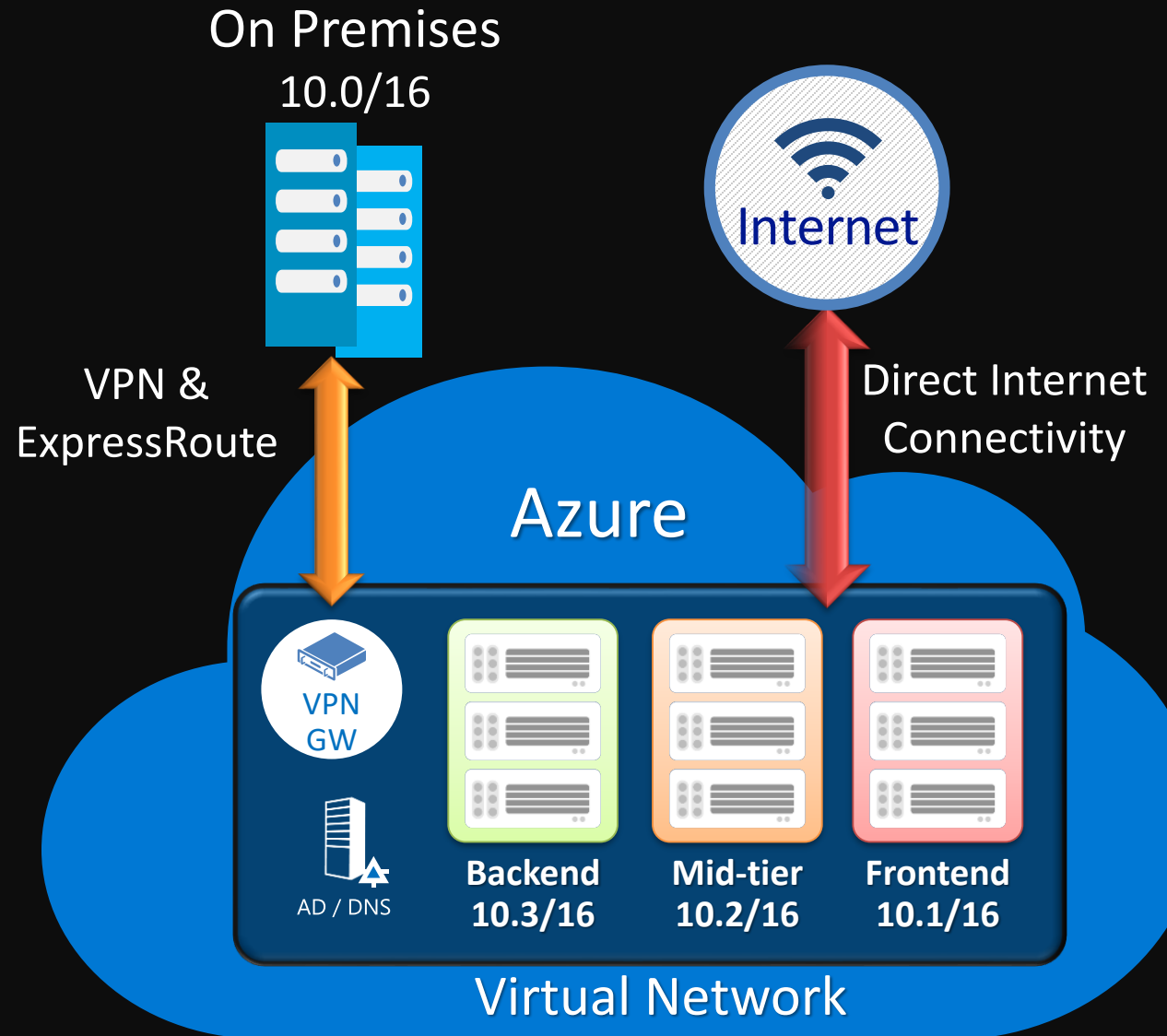
DNS Names for Public IP

- FQDN access to a virtual machine
- Available for virtual machines and web/worker roles
- Automatic DNS registration/de-registration during scale-up, scale-down



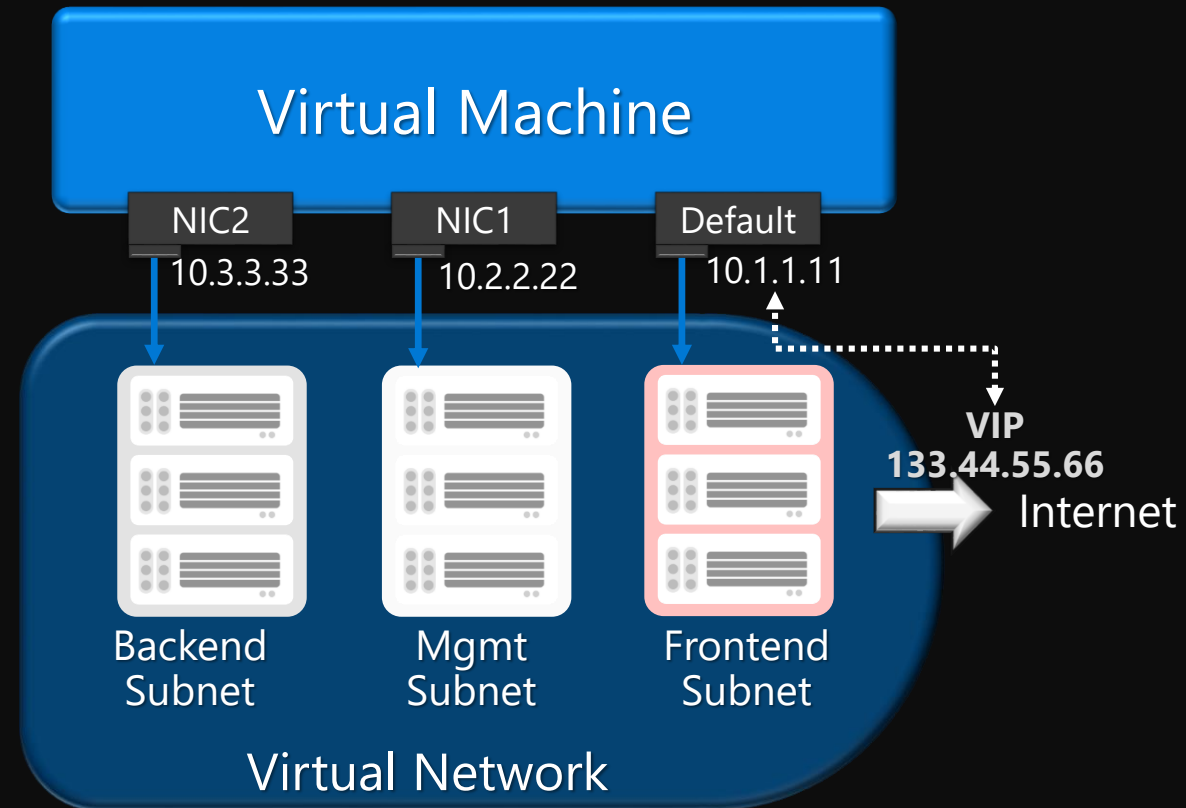
Virtual Network

- Bring your own network
- Create subnets with your private or public IP addresses
- Bring your own DNS or use Azure-provided DNS
- Secure with Network Security Group ACLs
- Control traffic flow with User Defined Routes

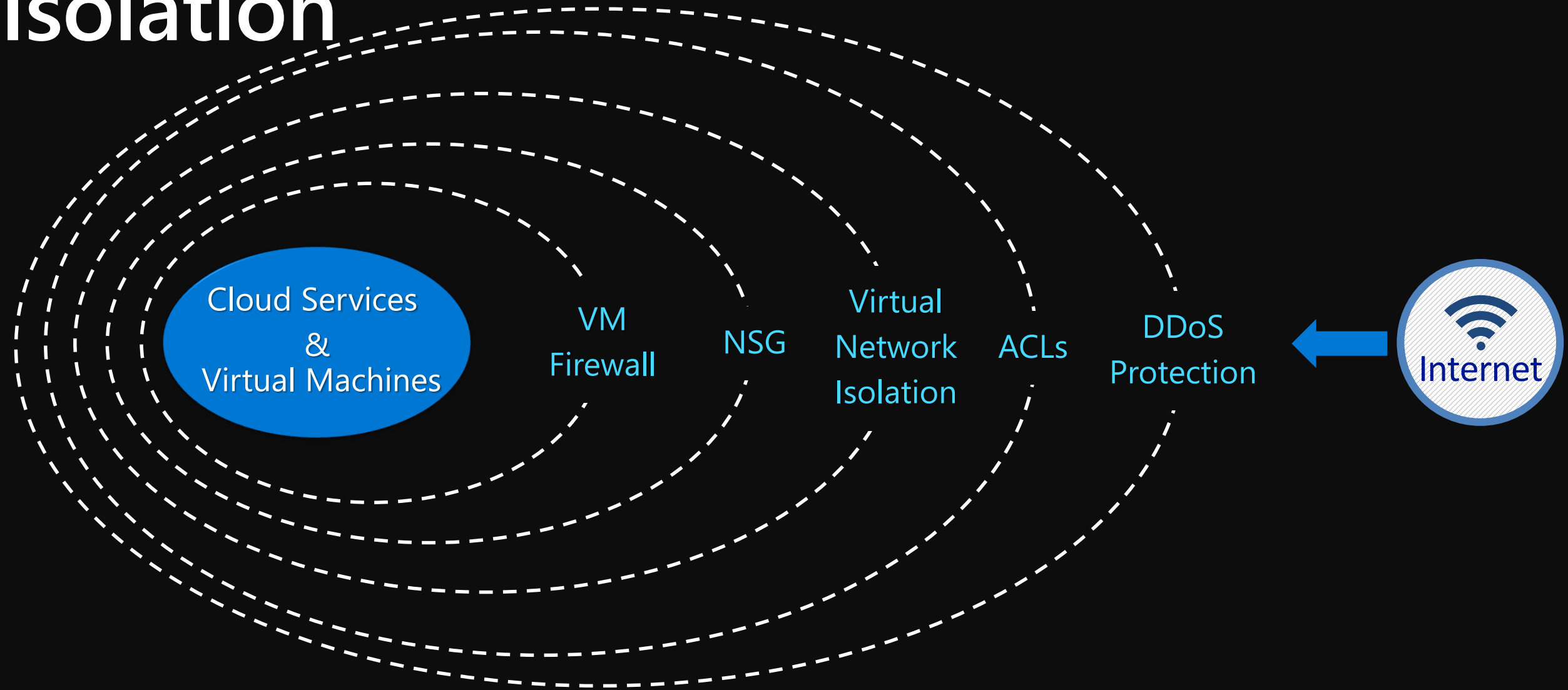


Multiple NICs in Azure VMs

- Up to 16 NICs per VM
- NSG and Routes on all NICs
- Can separate frontend, backend, and management

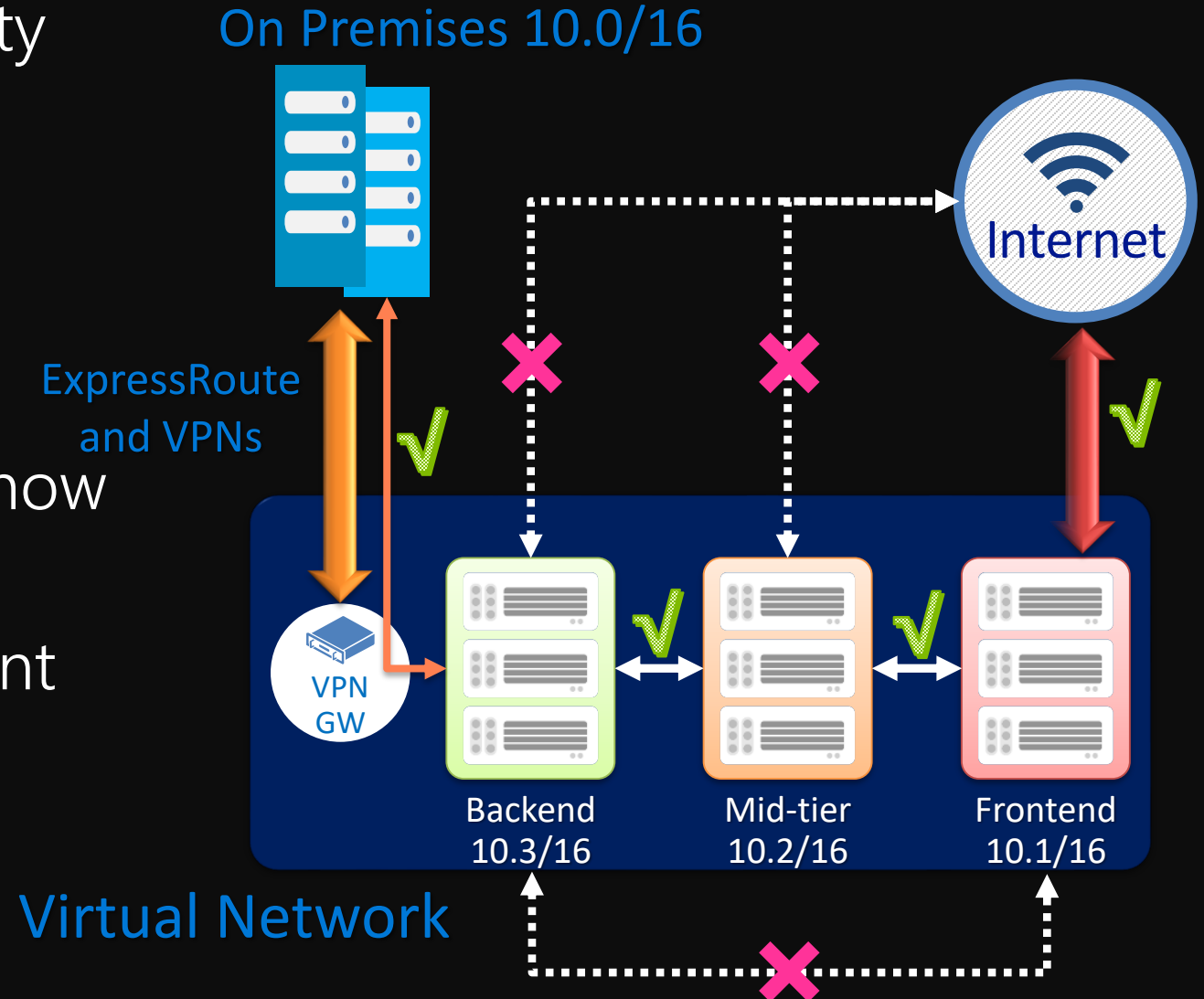


Layered Security, Protection, and Isolation



Network Security Groups

- Segment network to meet security needs
- Can protect Internet and internal traffic
- Enables DMZ subnets
- Associated to subnets/VMs and now NICs
- ACLs can be updated independent of VMs



Network Virtual Appliances

- Overview

- VMs that perform specific network functions
- Focus: Security (Firewall, IDS , IPS), Router/VPN, ADC (Application Delivery Controller), WAN Optimization
- Typically Linux or FreeBSD-based platforms

- Scenarios

- IT Policy & Compliance – Consistency between on premises & Azure
- Supplement/complement Azure capabilities

- Azure Marketplace

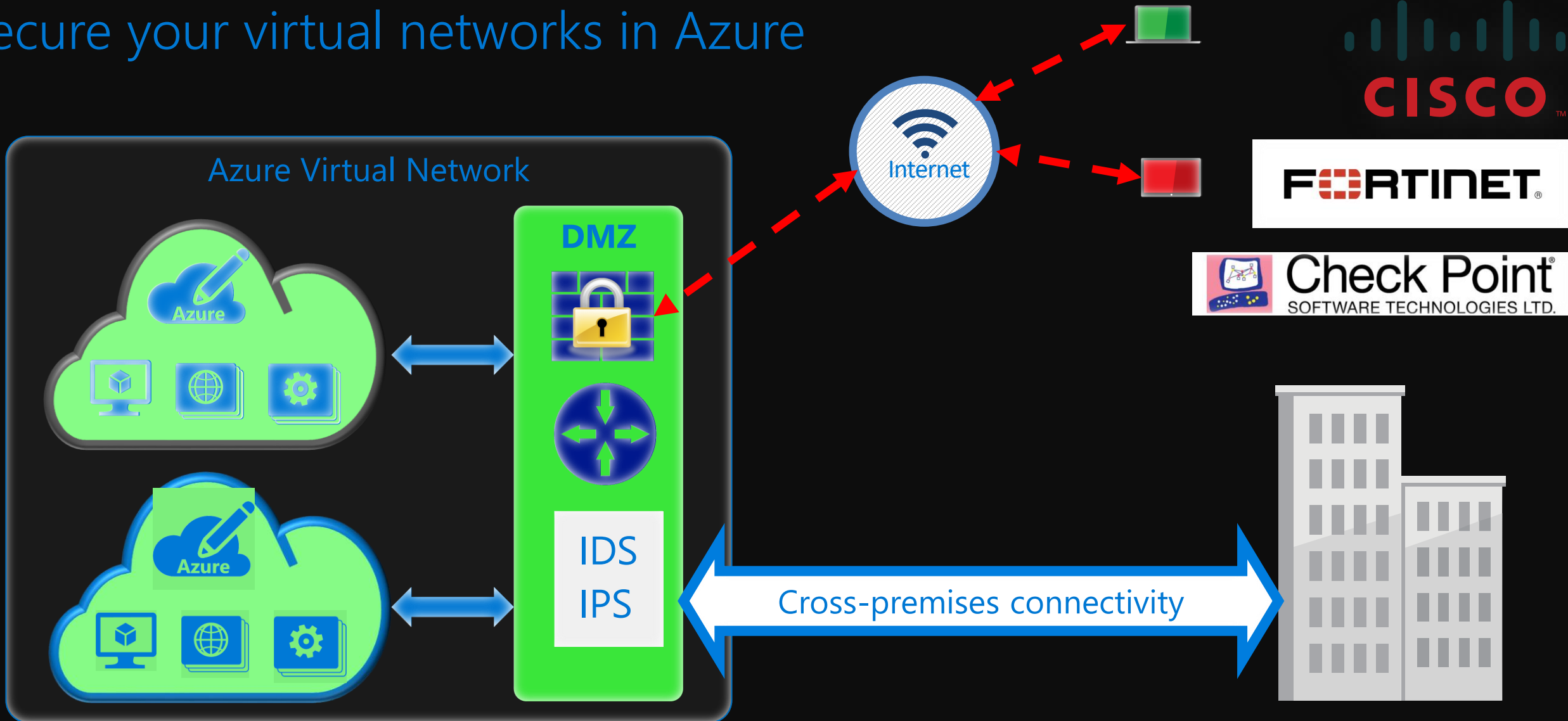
- Available through Azure Certified Program to ensure quality and simplify deployment
- You can also bring your own appliance and license

Microsoft
Azure

Certified

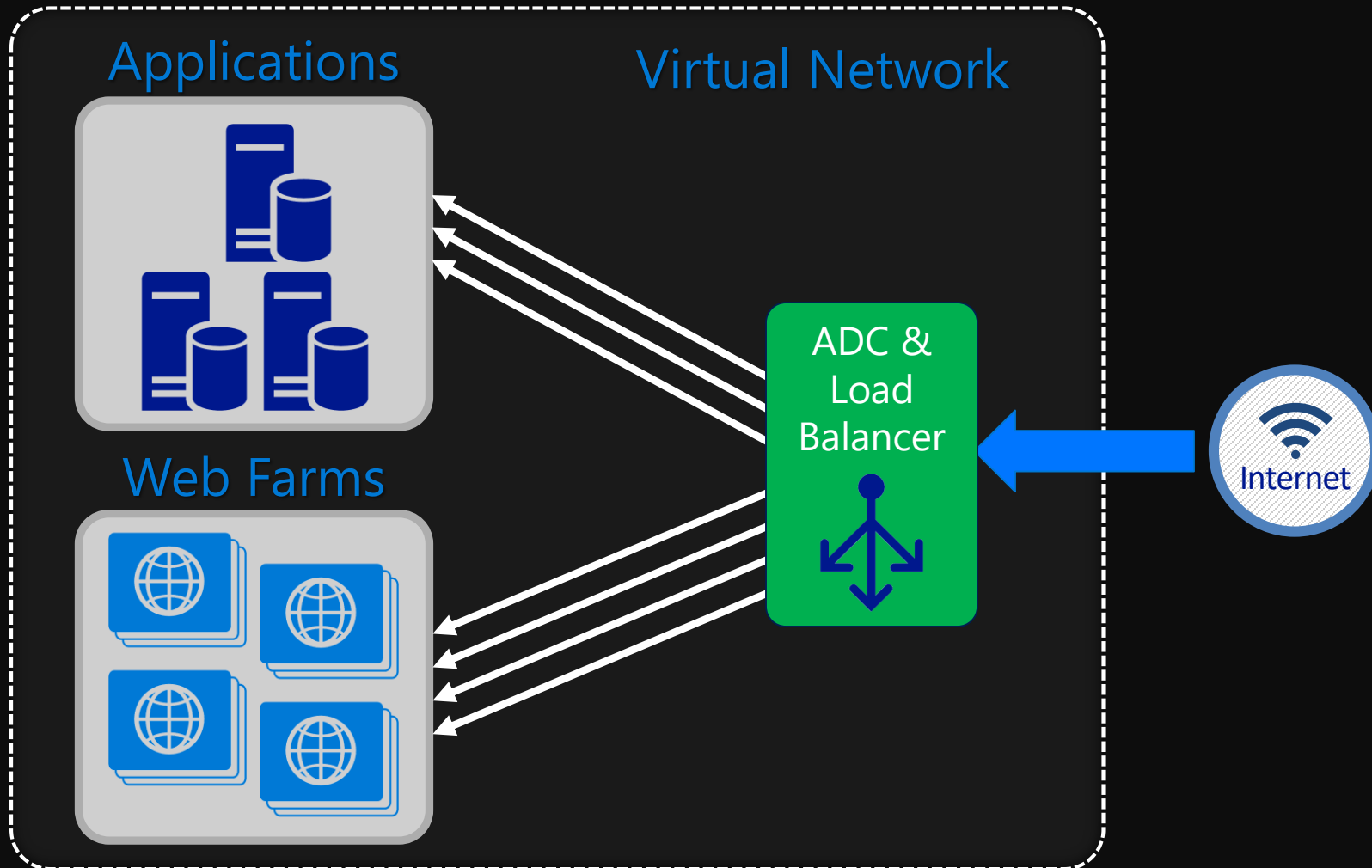
Virtual Appliances - Firewalls, IDS/IPS, VPNs

Secure your virtual networks in Azure











Scenario – Application Delivery Controller

- Frontend load balancing and delivery control

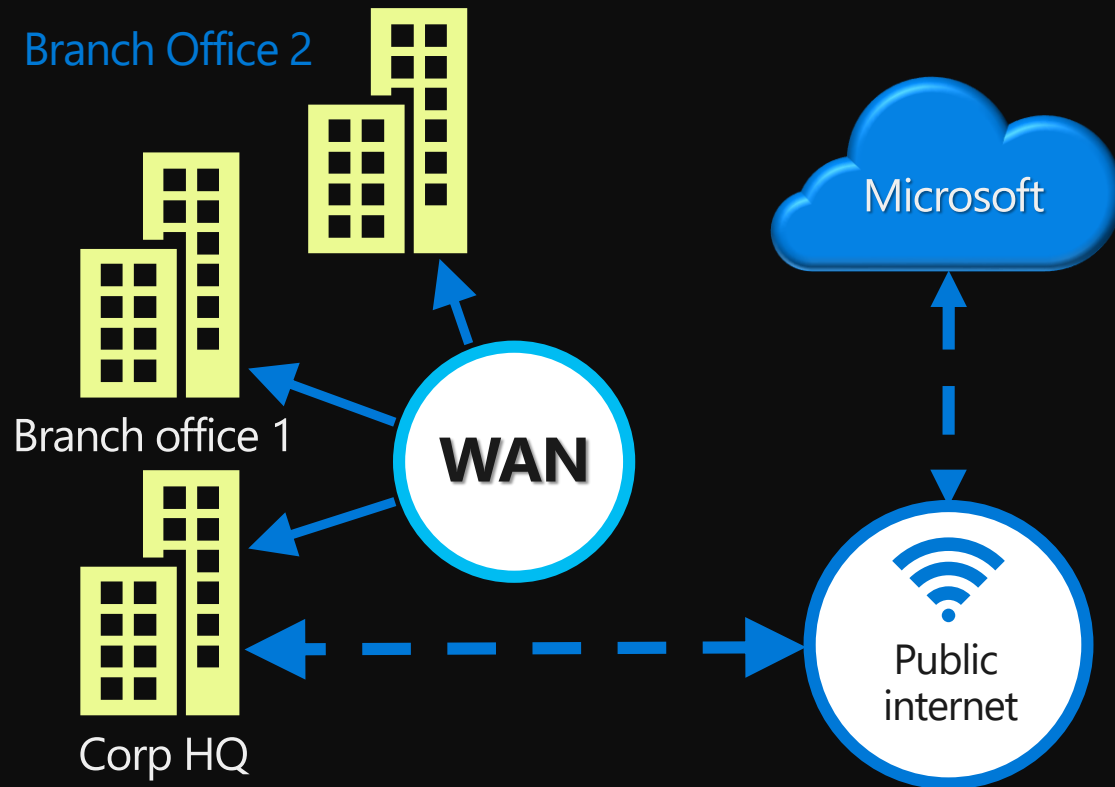


Cross premises connectivity

Connectivity Options and Hybrid Offerings

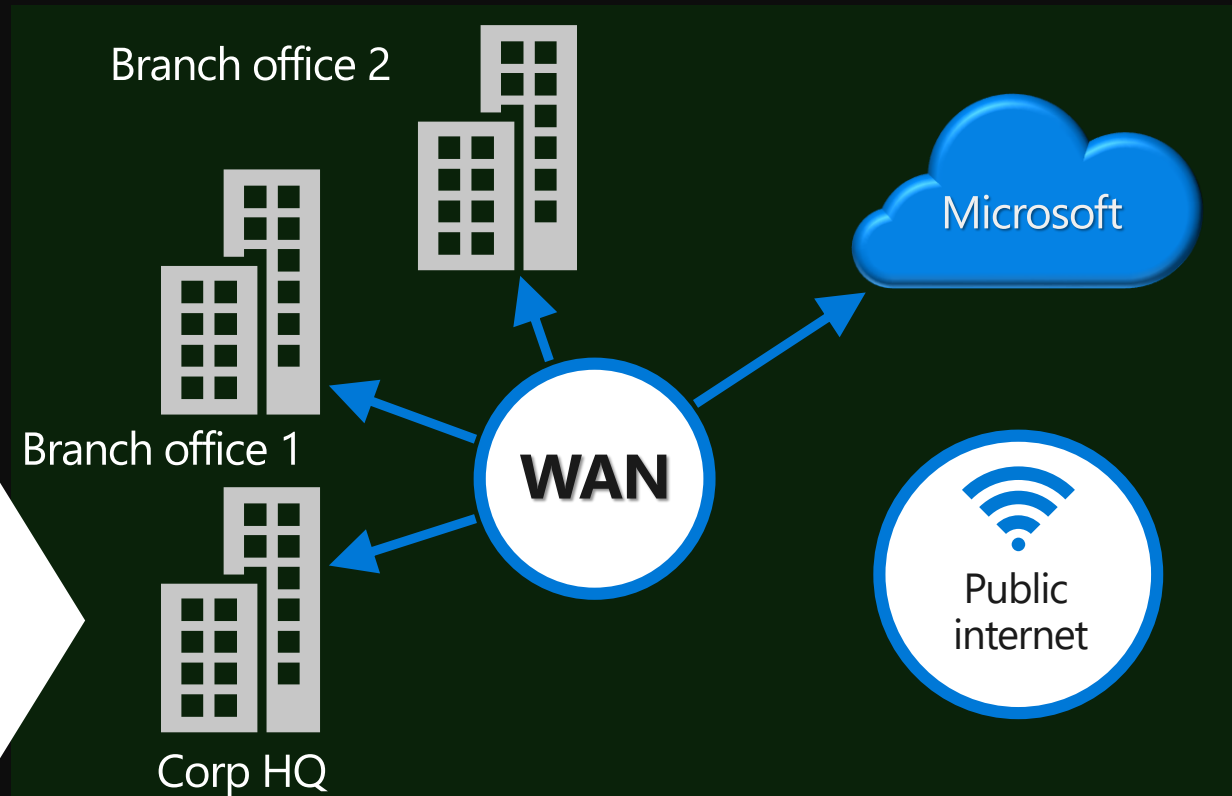
Cloud		Customer	Segment and workloads
	Internet Connectivity		<ul style="list-style-type: none">• Consumers• Access over public IP• DNS resolution• Connect from anywhere
	Secure point-to-site connectivity		<ul style="list-style-type: none">• Developers• POC Efforts• Small scale deployments• Connect from anywhere
	Secure site-to-site VPN connectivity		<ul style="list-style-type: none">• SMB, Enterprises• Connect to Azure compute
	ExpressRoute private connectivity		<ul style="list-style-type: none">• SMB & Enterprises• Mission critical workloads• Backup/DR, media, HPC• Connect to Microsoft services

Connectivity choices: Internet or Private



IPsec VPN over Internet

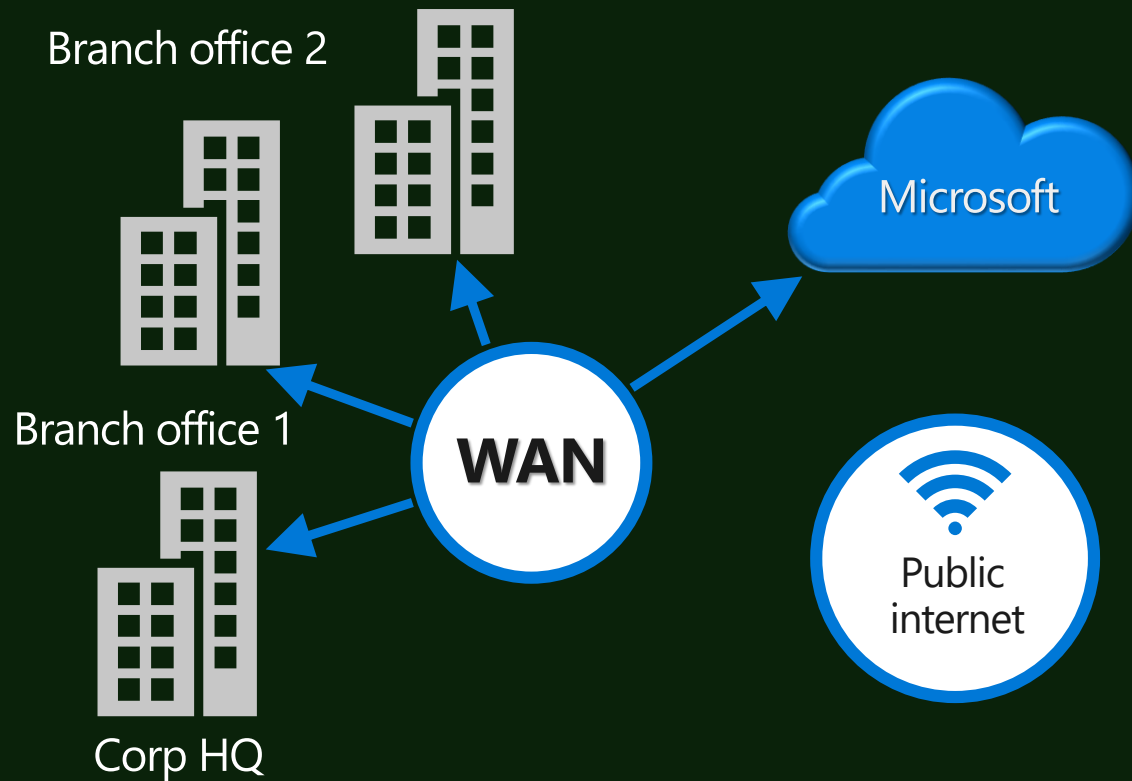
- ⌚ Encrypted data traverses Internet to reach Azure
- ⌚ Limited bandwidth and higher availability



Cloud on your WAN

- ⌚ Traffic flows directly from customer WAN to Microsoft
- ⌚ Reduces complexity
- ⌚ Lower latency, higher bandwidth and higher availability

ExpressRoute



ExpressRoute provides a private, dedicated, high-throughput network connection to Microsoft

Predictable performance



Security



High throughput

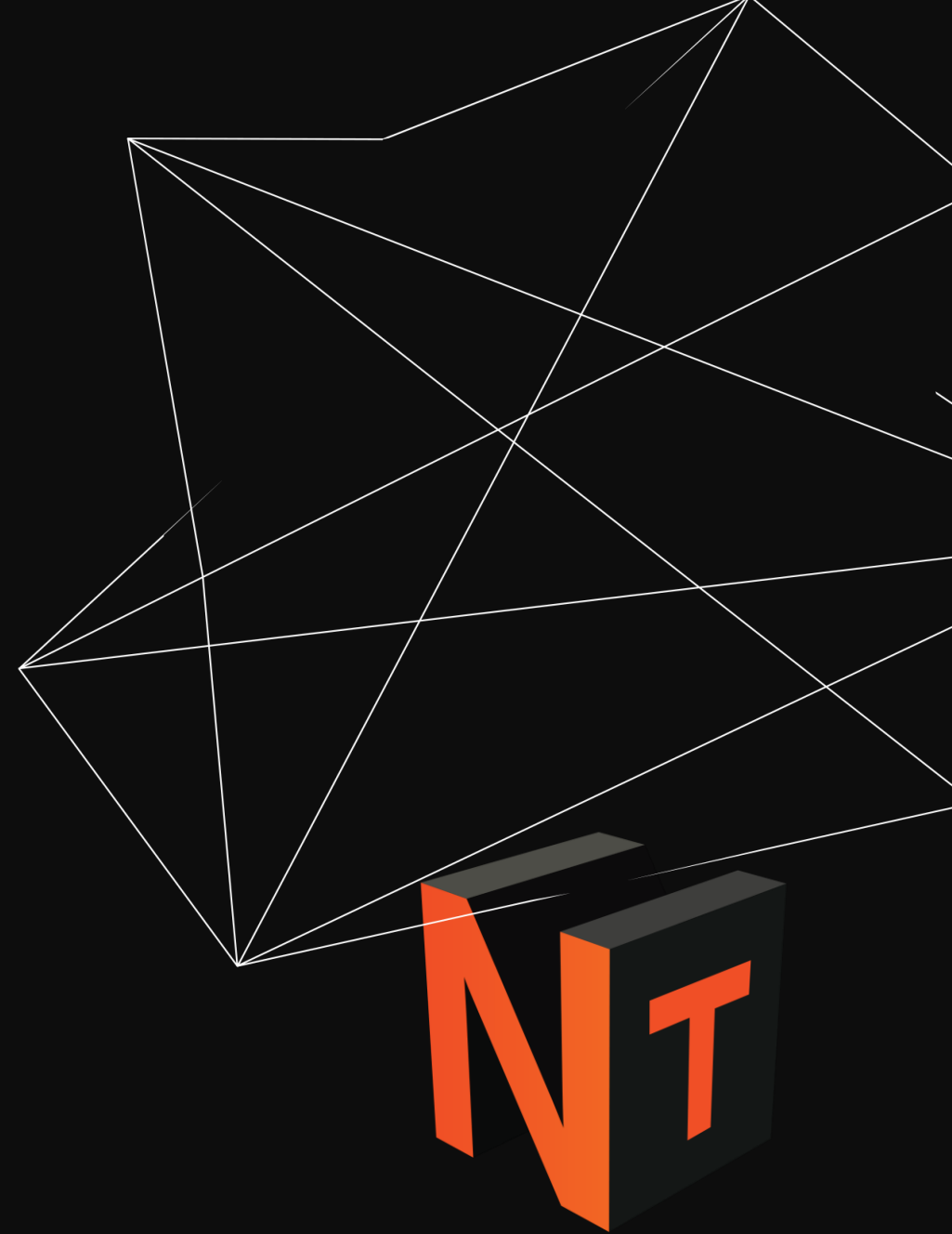


Lower cost



Demo Time!

#ntk18



2018
NT Konferenca
Portorož | 22. - 24. maj 2018

Q&A!

Thank you!

