

Lumen® Intelligent Internet

Service & Reference Architecture Guide

Lumen® Intelligent Internet: Control Capacity at the Speed of Business

- **Rapid Activation & Scalability**

Provision and modify dedicated internet connectivity in minutes through portal or API without hardware or waiting.

- **Capacity That Matches the Moment**

Scale bandwidth up or down in minutes for peaks, migrations, events, or AI-driven bursts.

- **Predictable Cost & Elastic Capacity**

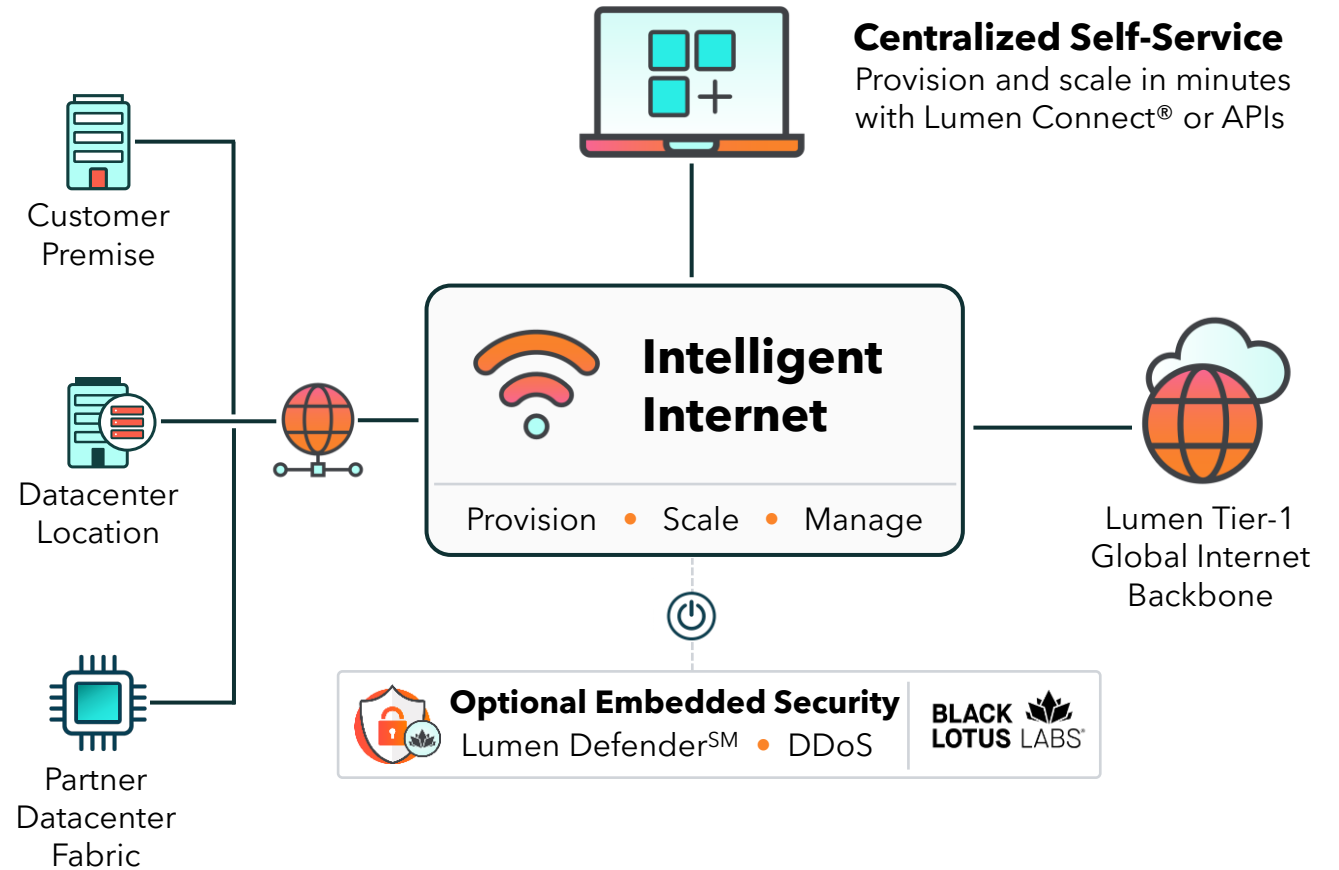
Combine term-based cost predictability with the agility to scale bandwidth up or down in minutes to align spend with demand.

- **Enterprise-Grade Performance**

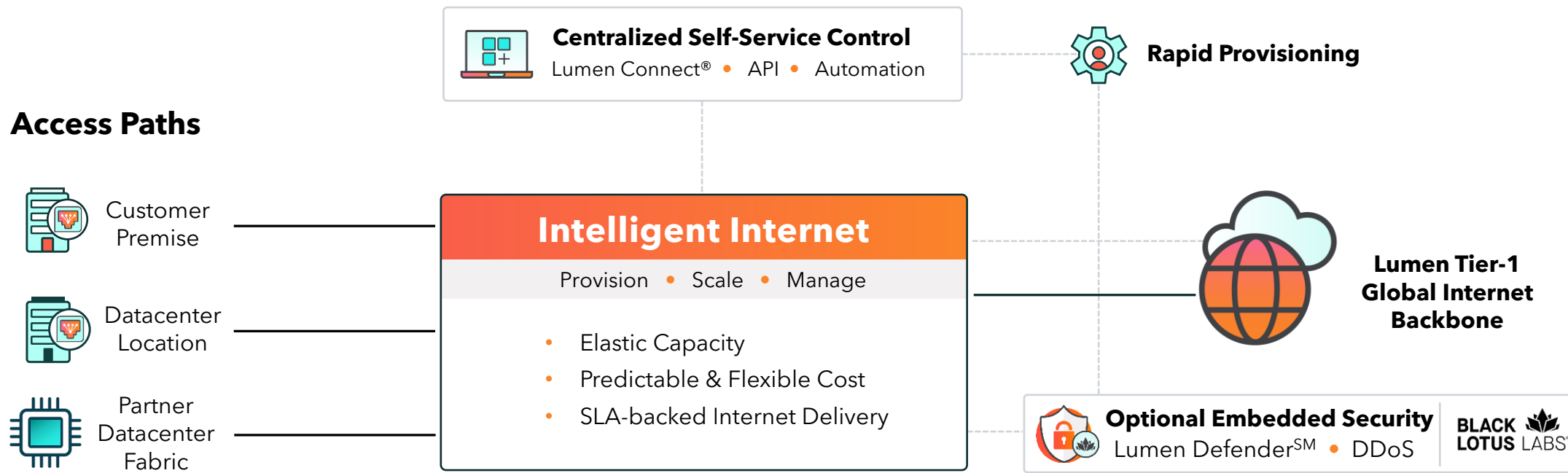
Dedicated, SLA-backed, symmetrical internet access over the Tier-1 Lumen backbone.

- **Network-Level Security**

Optional threat intelligence and intrusion detection monitoring informed by Black Lotus Labs



Intelligent Internet Delivery: Speed, Scale and Control as a Service



How **Intelligent Internet** Streamlines **Operations**



Agility

Routing models that align with your network, including BGP. Activate and rapidly scale bandwidth up or down through self-service as needs change.



Simplicity

Lumen Connect® is a single place to monitor, manage, and get help. See performance and usage statistics, open repair tickets, and quickly get support without calls or multiple tools.

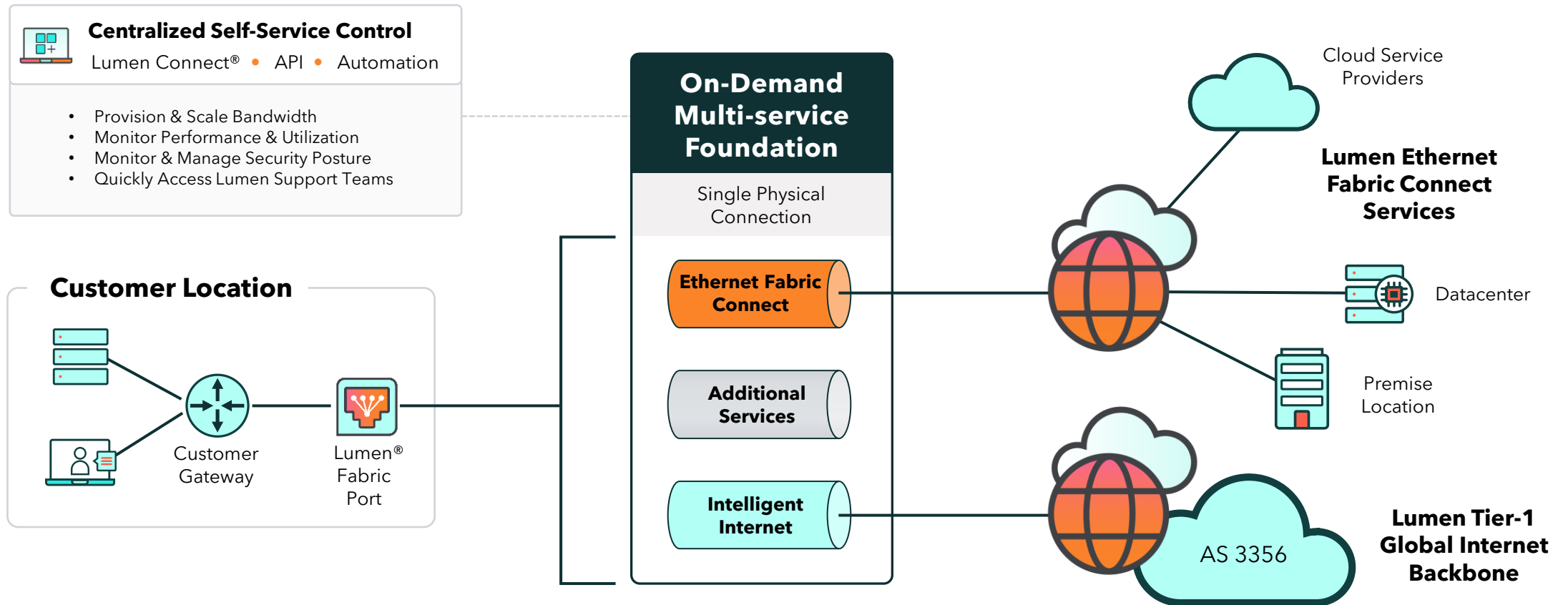


Optimization

Reporting visibility to track utilization and security measures helps optimize cost and resilience. Scale with automation through APIs. Tier-1 means direct low latency paths to internet destinations.

One Port. Multiple On-Demand Services.

Add, scale, or change services with a single physical connection.

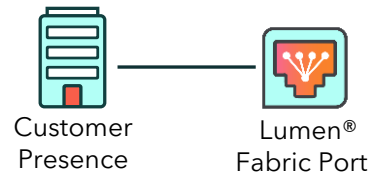


Intelligent Internet Connectivity: Designed to Meet You Where You Are

Connect your infrastructure into a single on-demand networking experience.

Access Path Options

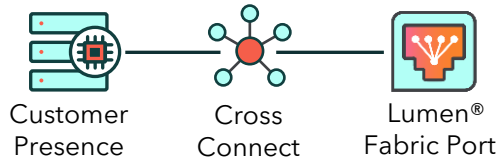
Premise Locations



Premise-based Access

Scalable, on-demand internet directly to your locations through a Lumen Fabric Port, providing a consistent, SLA-backed internet experience from your location.

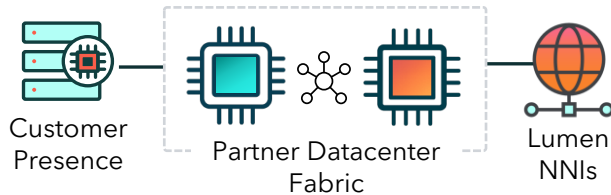
Datacenter Cross-Connect



Datacenter Physical Connection

Simple, direct, dedicated internet into your datacenter environments, enabling new or expanded connectivity, delivering the same SLA-backed internet experience.

Partner Datacenter Fabric Access



Datacenter Fabric Virtual Connection

Seamless integration with partner datacenter fabrics to support hybrid and multi-cloud architectures, combining cloud-like agility with an SLA-backed internet experience.



Centralized Self-Service Control

Lumen Connect® • API • Automation

- Provision & Scale Bandwidth
- Monitor Performance & Utilization
- Monitor & Manage Security Posture
- Quickly Access Lumen Support Teams

Intelligent Internet

Provision • Scale • Manage

- Elastic Capacity
- Predictable & Flexible Cost
- SLA-backed Internet Delivery



Optional Embedded Security

Lumen DefenderSM • DDoS

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Tier-1 Global
Internet
Backbone

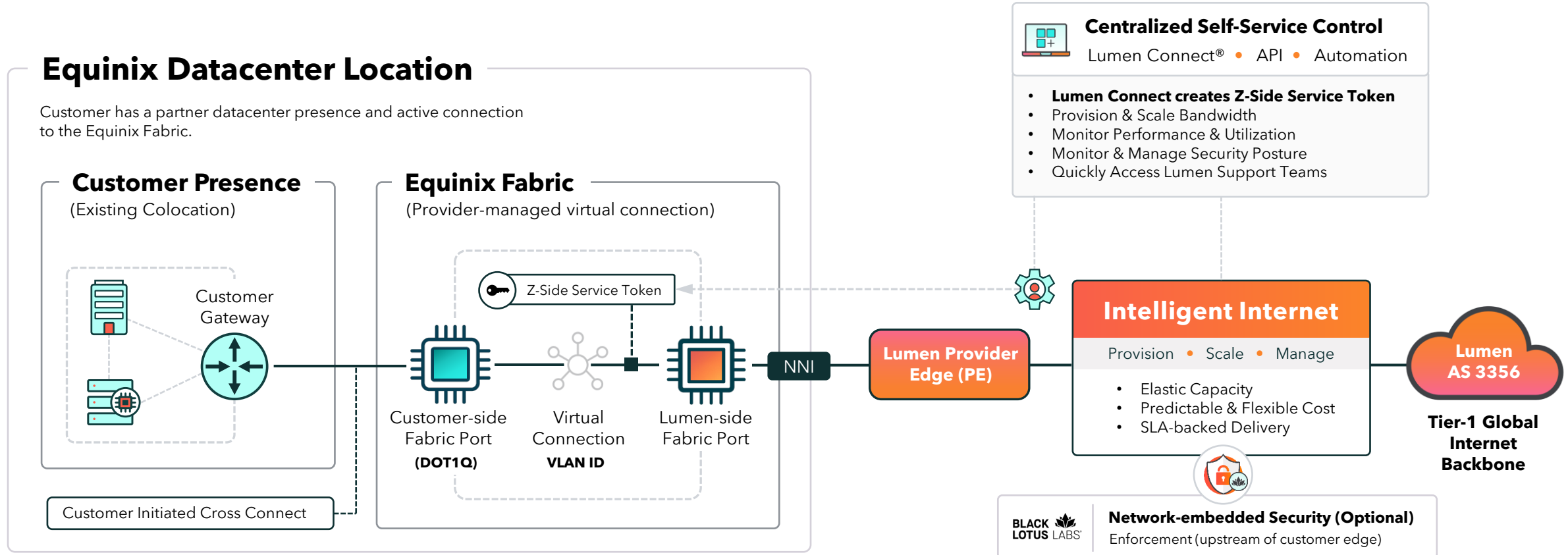
*All access models connect into the same Intelligent Internet service experience

Lumen® Intelligent Internet to Equinix Fabric

Partner Datacenter Fabric-based ingress into Intelligent Internet

Equinix Datacenter Location

Customer has a partner datacenter presence and active connection to the Equinix Fabric.

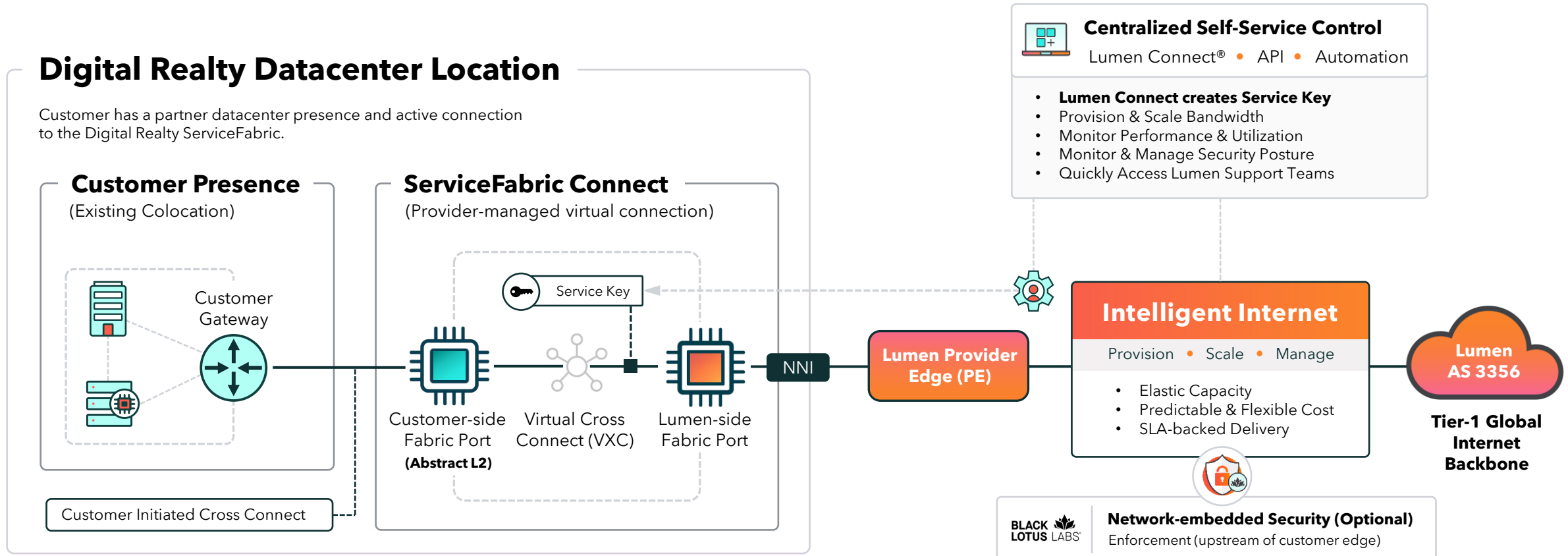


Lumen® Intelligent Internet to Digital Realty ServiceFabric

Partner Datacenter Fabric-based ingress into Intelligent Internet

Digital Realty Datacenter Location

Customer has a partner datacenter presence and active connection to the Digital Realty ServiceFabric.

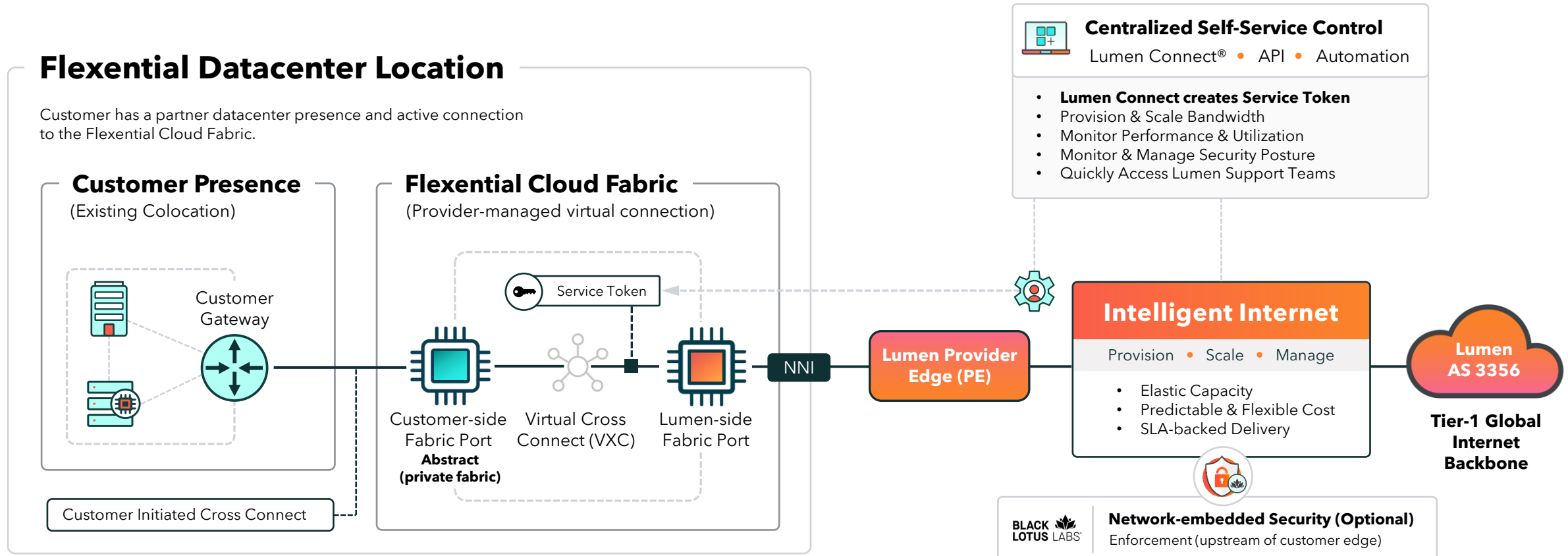


Lumen® Intelligent Internet to Flexential Cloud Fabric

Partner Datacenter Fabric-based ingress into Intelligent Internet

Flexential Datacenter Location

Customer has a partner datacenter presence and active connection to the Flexential Cloud Fabric.



Lumen® Intelligent Internet: Layered Holistic Protection

Lumen Security Solutions are built to take the pressure off your existing environments and better protect your data and apps.



Lumen® DDoS Essentials

Volumetric protection designed to prevent circuits from being flooded by a DDoS attack.

What it Blocks

- Volumetric Bots
- Volumetric Reflectors



Lumen DefenderSM

Automatically blocks traffic to/from internet-based hosts belonging to threat actors.

What it Blocks

- Bots
- Attacks
- Proxy
- Spam
- Malware
- Phishing
- C2
- Scanning



Customer Firewall

Filters traffic based on custom, user-defined rules.

What it Blocks

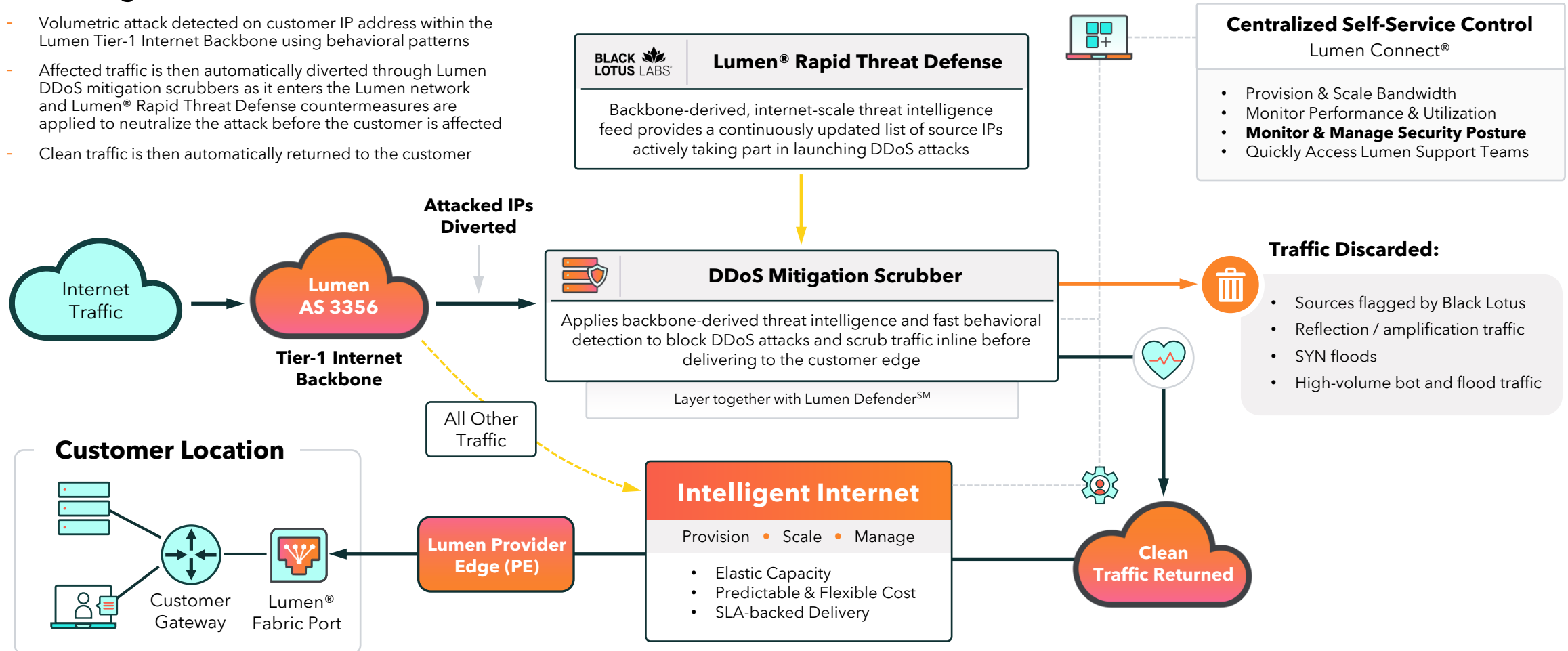
- Unsupported Applications
- Unused Ports
- Unauthorized Users

Lumen® DDoS Essentials for Intelligent Internet

Network-embedded volumetric protection powered by Black Lotus Labs® intelligence.

- **DDoS Mitigation Flow:**

- Volumetric attack detected on customer IP address within the Lumen Tier-1 Internet Backbone using behavioral patterns
- Affected traffic is then automatically diverted through Lumen DDoS mitigation scrubbers as it enters the Lumen network and Lumen® Rapid Threat Defense countermeasures are applied to neutralize the attack before the customer is affected
- Clean traffic is then automatically returned to the customer

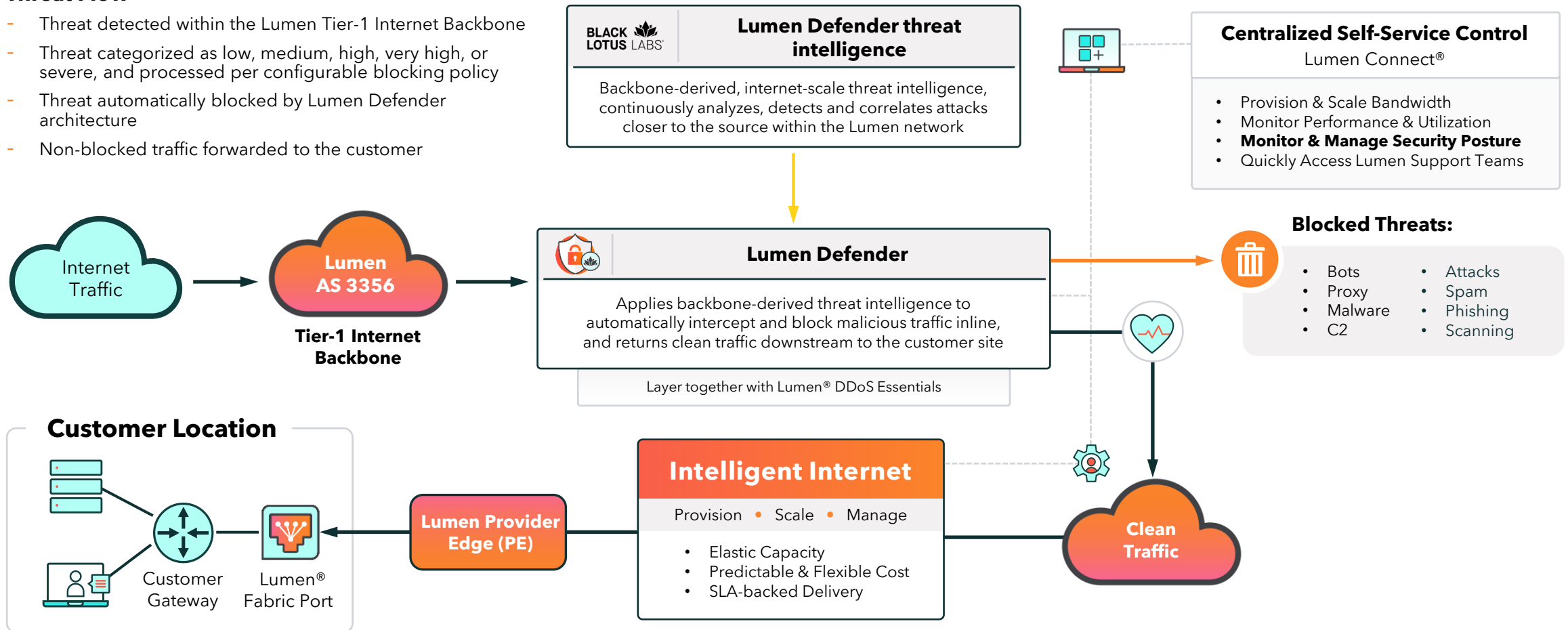


Lumen DefenderSM Plus for Intelligent Internet

Network-embedded, customizable upstream protection powered by Black Lotus Labs[®] intelligence.

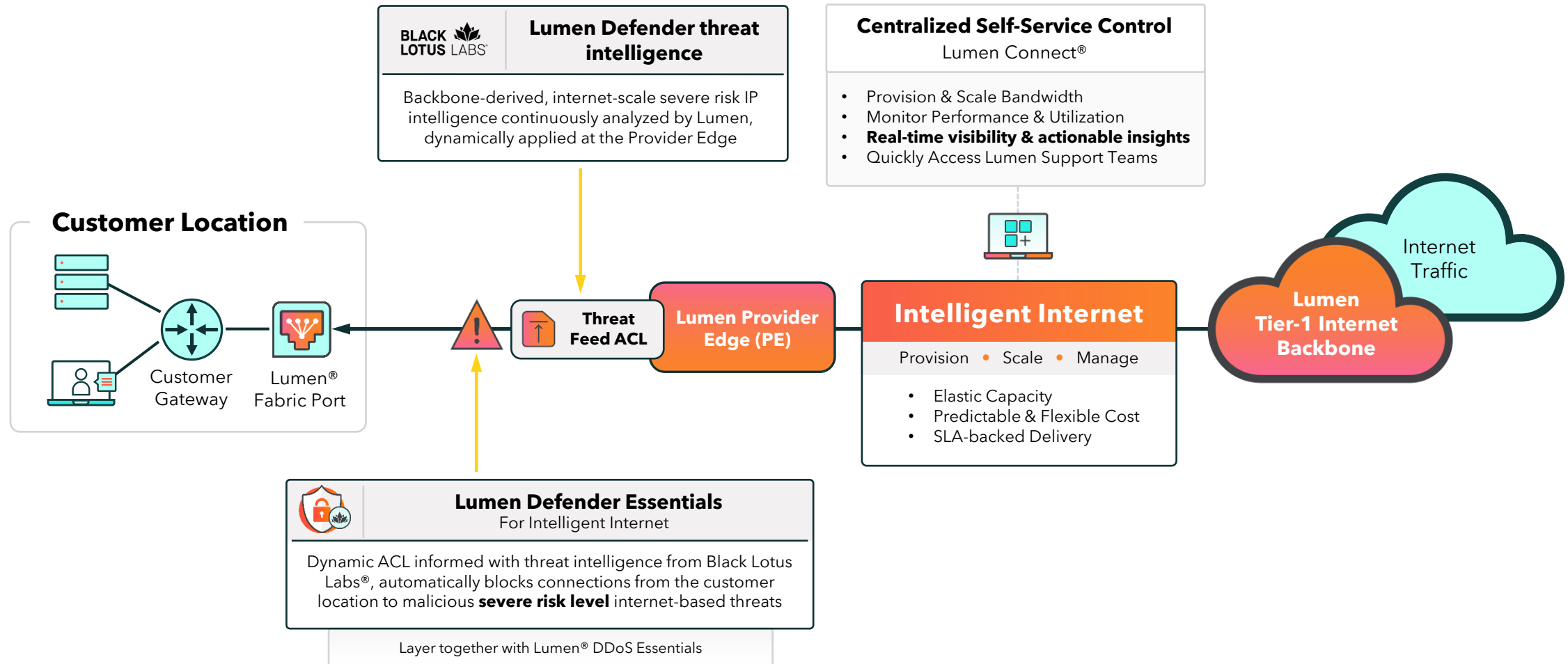
- **Threat Flow**

- Threat detected within the Lumen Tier-1 Internet Backbone
- Threat categorized as low, medium, high, very high, or severe, and processed per configurable blocking policy
- Threat automatically blocked by Lumen Defender architecture
- Non-blocked traffic forwarded to the customer



Lumen DefenderSM Essentials for Intelligent Internet

Network-embedded severe risk level protection powered by Black Lotus Labs[®] intelligence.



Lumen® Intelligent Internet Delivered Off-net

Intelligent Internet service for your business, delivered through a single operational model—regardless of location.

Port

Defines the maximum available access capacity at the location (physical limit)

Access Capacity

Partner-provided access connects a location from outside the Lumen footprint into Intelligent Internet (scalable bandwidth limit)

Service

Lumen delivered Intelligent Internet with scalable bandwidth, self-service control and network embedded security

Port

Access

Service

Seamless Experience: Lumen manages all access-provider coordination and escalation behind the scenes

Elastic Capacity: Scale Intelligent Internet Service bandwidth up to the access capacity

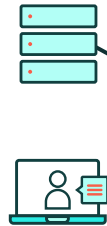


Centralized Self-Service Control

Lumen Connect® • API • Automation

- Provision & Scale Bandwidth
- Monitor Performance & Utilization
- Monitor & Manage Security Posture
- Quickly Access Lumen Support Teams

Customer Location



Customer Gateway

Lumen® Fabric Port

Partner Interconnection

Partner Provider Edge

Lumen Provider Edge (PE)

Intelligent Internet

Provision • Scale • Manage

- Elastic Capacity
- Predictable & Flexible Cost
- SLA-backed Delivery

Lumen AS 3356

Tier-1 Global Internet Backbone

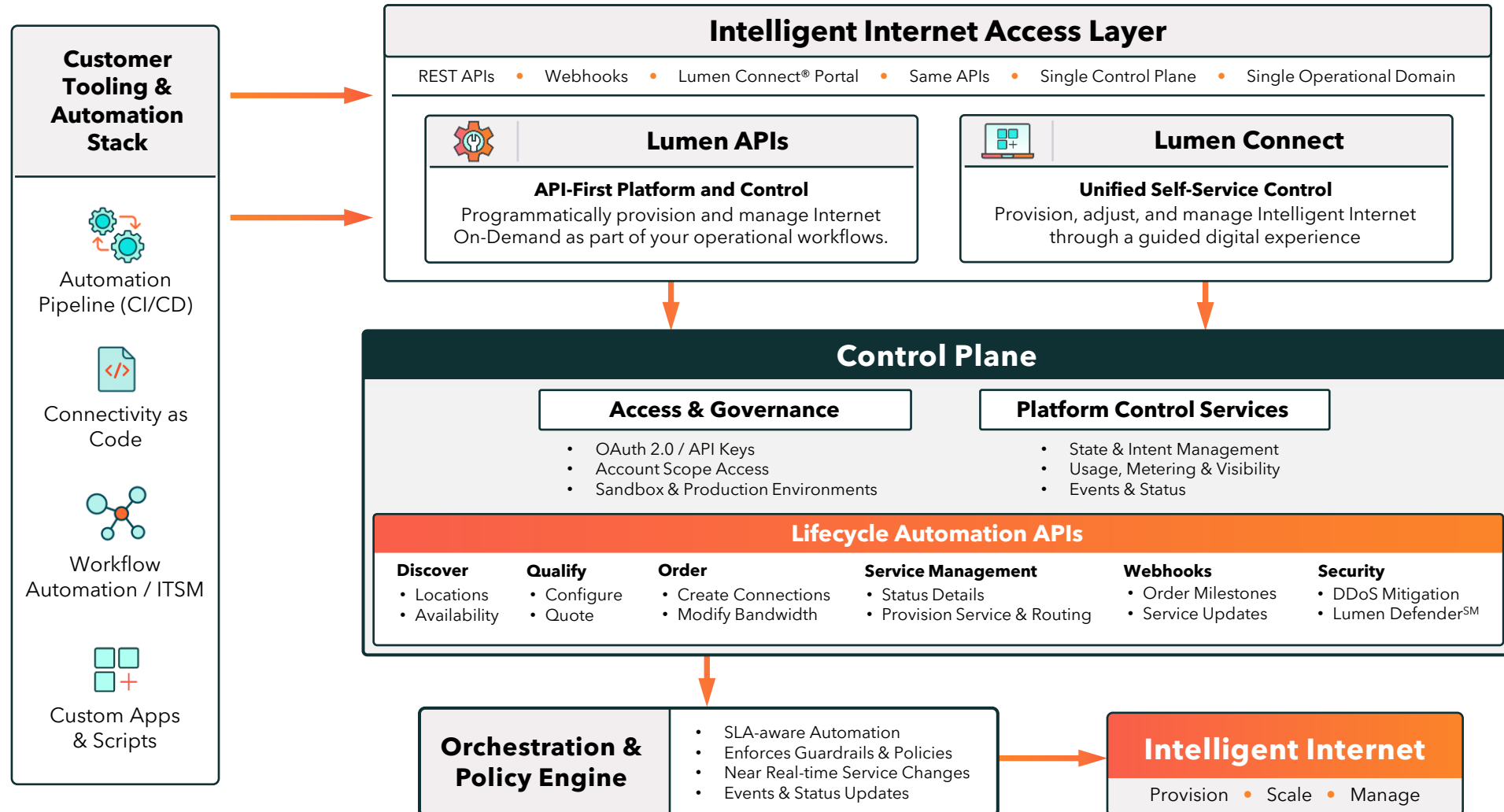
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Network-embedded Security (Optional)

Enforcement (upstream of customer edge)

Intelligent Internet: Unified API-First Automated Connectivity

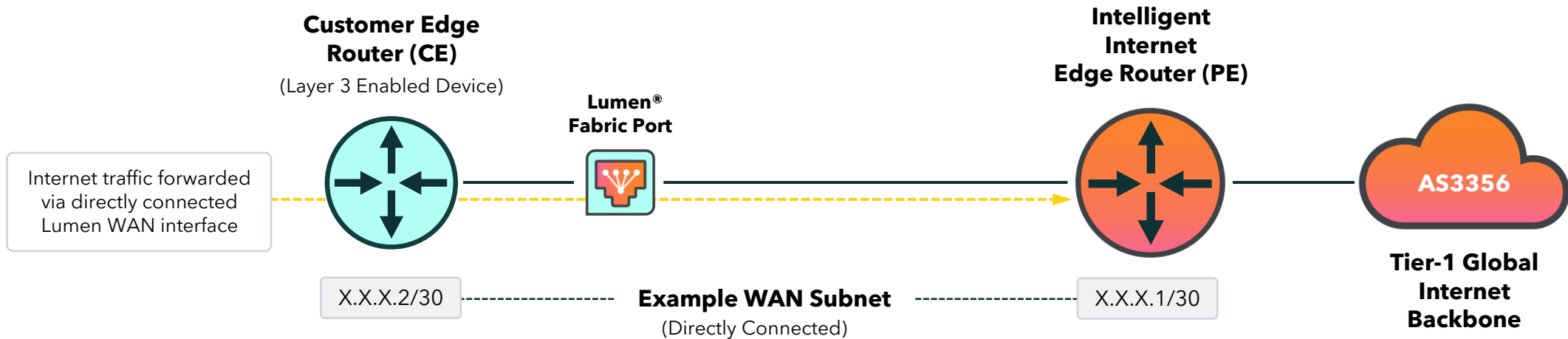
Programmable on-demand networking designed to enable customer-driven discovery, provisioning, and operations.



Lumen Connect® Routing & IP Options

Lumen® Intelligent Internet Routing: Directly Connected

Directly connected customer edge router using Intelligent Internet.

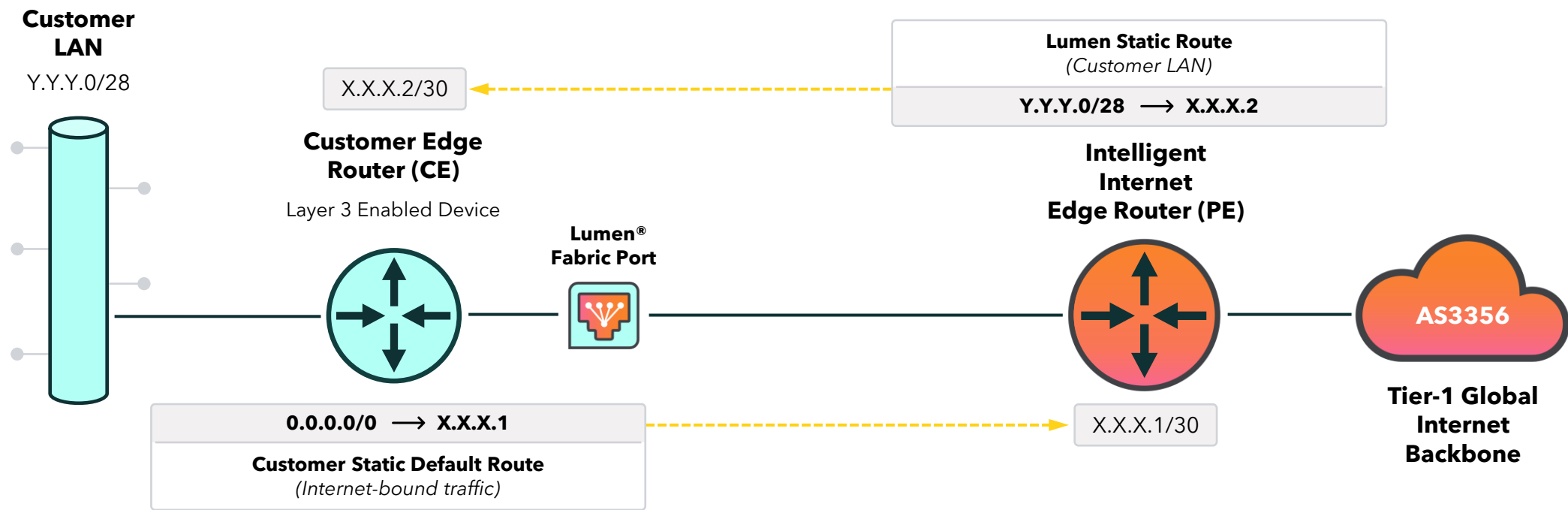


WAN Connected Subnet Options	
IPv4	/30, /29, /28
IPv6	/126, /125, /64

The customer edge router forwards internet-bound traffic over a **directly connected WAN interface** to the Lumen Intelligent Internet service, with **no static or dynamic routing protocol exchange**.

Lumen® Intelligent Internet Routing: Static Routing

Customer edge router connected with static routed customer LAN IP block.

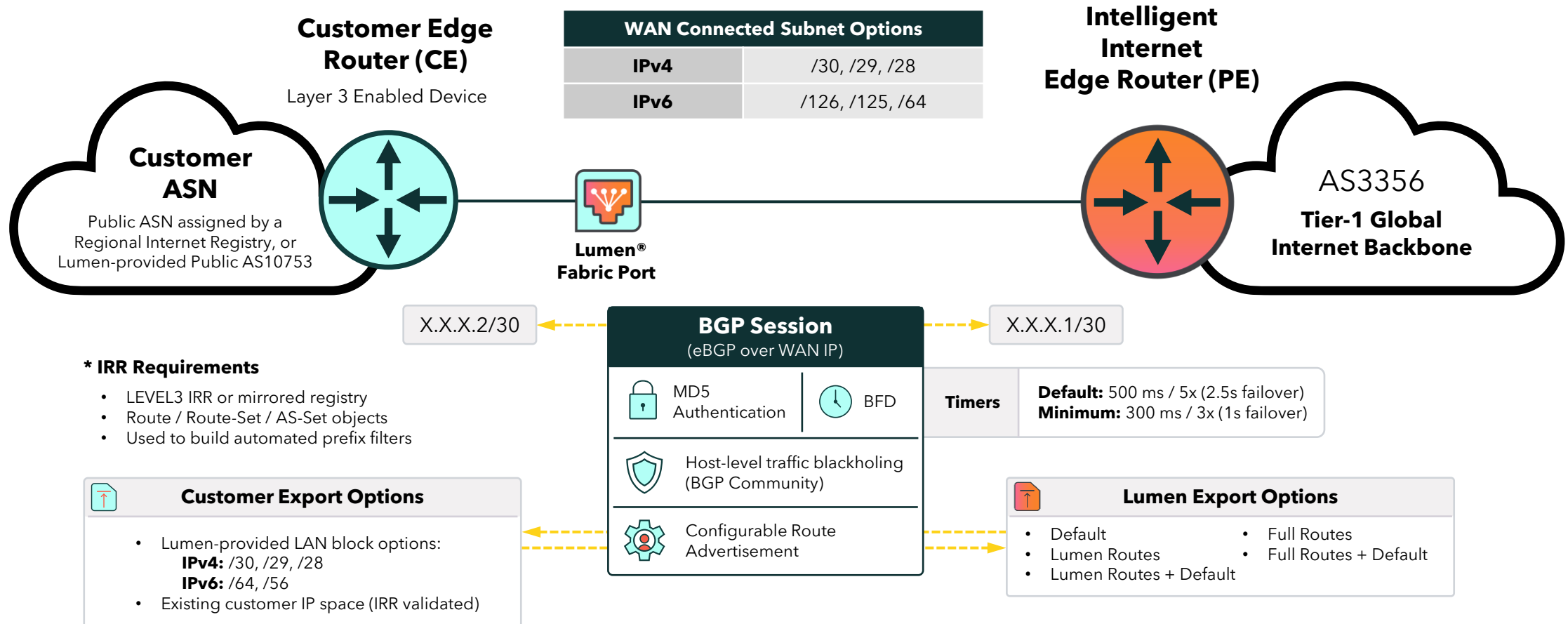


LAN Subnet Options		WAN Connected Subnet Options	
IPv4	/30, /29, /28	IPv4	/30, /29, /28
IPv6	/64, /56	IPv6	/126, /125, /64

Lumen installs static routes for customer LAN prefixes toward the customer WAN interface, while **the customer edge router uses a static default route** to forward internet-bound traffic to the Lumen Intelligent Internet service.

Lumen® Intelligent Internet Routing: BGP Routing

Customer edge router connected with BGP protocol enabled.



BGP enables policy-controlled route exchange between the customer and **Lumen AS3356**, including validated prefix advertisement via IRR, selectable route depth, fast failover with BFD, and optional traffic control through BGP communities.