

Private Ethernet Paths Across Any Network

Automating private Ethernet paths over fiber and DIA across partner networks and cloud environments.



Overview

MaiaEdge delivers network infrastructure for automating private Ethernet path provisioning across any underlying transport. The Path Border Controller sits at your network edge while the Path Computation Engine continuously evaluates real-time latency, utilization, and policy metrics to provision and maintain optimal paths automatically.

New circuits, sites, and services activate in minutes across existing infrastructure and partner networks, with hop-by-hop visibility into jitter, packet loss, and latency across every path.

How It Works

The MaiaEdge solution consists of two primary components: the Path Border Controller (PBC) appliance and the Path Computation Engine (PCE), a cloud-native orchestrator. The PBC handles line-rate forwarding and encryption at every deployment point, while the PCE manages path computation, automates provisioning, and enforces policies across the network.



PATH BORDER CONTROLLER

PBC

A dual 100G, 1RU appliance deployed at aggregation points, data centers, meet-me rooms, and strategic interconnection points. Merges L2 switching and L3 routing to provision deterministic private Ethernet paths over any underlying transport. For additional port density, the PBC pairs with the MaiaEdge Port Extender, an integrated switch that adds 48 tenant ports per appliance.



PATH COMPUTATION ENGINE

PCE

A cloud-native orchestrator that continuously evaluates real-time latency, utilization, and policy metrics to provision and maintain optimal paths across every PBC in the network. The PCE automates circuit activation, enforces policy across every segment, and serves as a carrier-neutral interconnection engine for establishing automated NNIs with partner networks.

From an intuitive dashboard, operators get point-and-click circuit provisioning and hop-by-hop telemetry including jitter, packet loss, and latency across every path. An optional white-label portal extends self-service provisioning and performance visibility directly to customers and built-in multi-tenancy ensures each customer is isolated from one another.

Architecture Overview

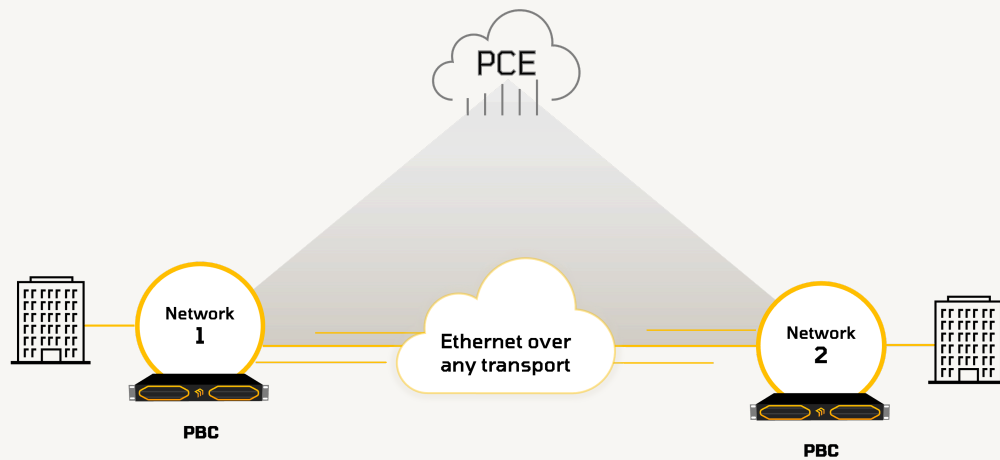


Figure 1: Cloud-based PCE orchestrates private paths across PBCs in the network, over any available transport.

Key Features

Feature	Benefit
Automated Provisioning	Activate new circuits, sites, and services in minutes. Eliminates manual configuration steps and the configuration drift that comes with them.
Transport Agnostic	Provision private Ethernet paths over any underlying transport, including dedicated fiber, DIA, or satellite.
Deterministic Path Engineering	Real-time route calculation based on latency, utilization, and policy metrics. SRLG-aware path selection ensures true physical redundancy by automatically avoiding shared risk link groups.
Secure by Default	Every path is secured automatically with line-rate AES-256-GCM IPsec encryption, with less than 2 μ s latency overhead.
Hop-by-Hop Telemetry	Monitor jitter, packet loss, and latency across your network, partner networks, and cloud on-ramps.
Multi-Tenancy	MaiaEdge utilizes automated Q-in-Q tagging to logically isolate multiple clients on shared infrastructure.
Carrier-Neutral Interconnection	Interconnect with partner providers without traditional manual coordination and configuration bottlenecks. Maintain hop-by-hop visibility and policy enforcement across every network boundary.
White-Label Portal	Optional operator-branded portal for customer self-service provisioning and real-time performance visibility.

Extending Layer 2 Services

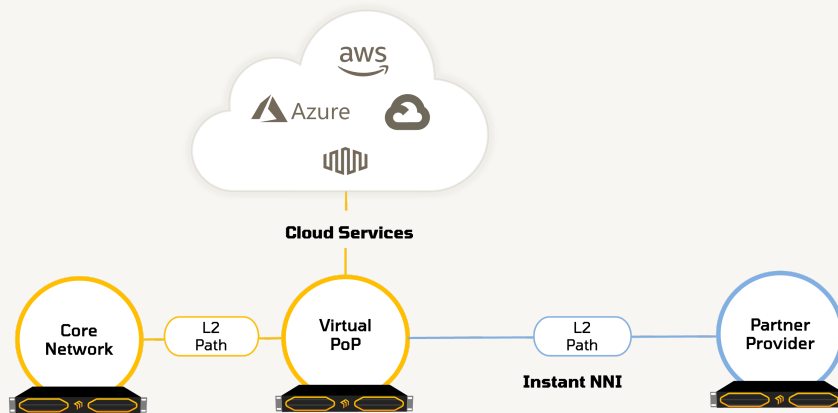


Figure 2: Deploy a PBC to instantly extend your network fabric, reach cloud services, and establish NNIs with partner providers in minutes.

Use Cases

01 Extend Network Reach Without New Builds

Deploy a PBC at any location to extend network reach without extensive fiber builds. Activate Layer 2 services between PBCs automatically over any available transport.

02 Establish NNIs in Minutes

Establishing a Network-to-Network Interconnect (NNI) has traditionally required weeks to months of LOA negotiations, VLAN coordination, and manual configuration. Once live, telemetry and policy enforcement vanish the moment traffic leaves your network edge. With MaiaEdge, NNIs are activated automatically, so operators can start passing traffic across partner networks in minutes instead of months. Visibility and SLA control extend across network boundaries with hop-by-hop performance insights across the full path.

03 Simplify Cloud Connectivity

Through native API integrations with Equinix and Megaport, MaiaEdge enables point-and-click provisioning of private Ethernet paths to AWS, Azure, GCP, and beyond. For operators already offering cloud connectivity, MaiaEdge simplifies provisioning, provides end-to-end telemetry from the customer site to their cloud environment, and provides an avenue to further monetize cloud access. For operators not yet offering cloud services, MaiaEdge offers a low barrier to entry for this high-demand service. For more on cloud connectivity, see the [Simplifying Cloud On-Ramp Solution Brief](#).

Programmable Private Paths for an Instant Network Fabric

TALK TO AN EXPERT

MaiaEdge gives operators a practical path to extend Layer 2 services anywhere customers demand. Reach new sites and services with programmable private paths across any existing transport and across partner networks. Seamlessly extend service offerings to clouds and AI infrastructure and activate new circuits in minutes instead of months. With MaiaEdge, you can turn your network into an instant private fabric.