Success Story

MICROLAND
Connect with the best

One Global Network. Five Segments. Zero compromise.

How a leading U.S. energy company unified the United States, Europe, Brazil, Malaysia, and two on-premises network domains on AWS Cloud WAN

4+1	5	7	100%	1
regions + on-prem	network segments	routing rules	traffic inspected	global control plane

About Client

The client is a leading global energy technology company in US, co-headquartered in Texas, and London. As one of the world's largest providers of oilfield services, industrial solutions, and energy technologies, it delivers a broad portfolio of products and services that support oil and gas exploration and production, as well as a wide range of energy and industrial applications worldwide.

Key Challenges

The client needed to unify a fragmented global network spanning multiple AWS Regions and on-premises environments. Its AWS estate spanned the U.S., Europe, Brazil, and Malaysia, while two distinct on-premises domains carried their own routing and security requirements.

Connectivity

Four regions and on-prem

Strict Segmentation

Production, Non-Production, Enterprise, and FC traffic isolated by default; route exchange allowed only between explicitly approved domains

Stateful Inspection & Symmetry

All designated traffic must traverse Palo Alto NGFWs at regional TGWs and return through the same firewall to avoid stateful drops

Route Hygiene

Enterprise advertises Enterprise routes only; FC advertises FC routes only. Traffic filtering enforced on-prem

Operational Drag

Manual cross-region TGW peering and route-table edits could not keep pace with growth

Solution

Microland deployed an AWS Cloud WAN core network connecting the United States, Europe, Brazil, and Malaysia with the customer's on-premises Enterprise and FC (facility/field-control) networks. The solution uses five Cloud WAN segments to enforce network isolation through policy rather than manual route-table management and integrates Palo Alto Networks next-generation firewalls (NGFW) attached to regional Transit Gateways for centralized traffic inspection. A dedicated "OnPrem Return" segment guarantees symmetric routing through the firewall stack which is one of the hardest problems in inspected multi-region architectures.

Five Segments, One Network Policy

Production

Production AWS routes. All prod VPC attachments across four regions map here

Enterprise

Corporate network routes from on premises. Enterprise prefixes only

Non-production

Dev, test, and staging routes are isolated from production by default

Facility Control

Facility-control network routes from on-premises. FC prefixes only

OnPrem Return

Anchors symmetric routing through the Palo Alto NGFW at the regional TGW. Return traffic re-enters the same firewall

MICROLAND
Connect with the best

Regional Coverage

GEOGRAPHY	ROLE	CONNECTIVITY
United States	Primary hub	Core network edge, TGW peering, Palo Alto NGFW, Direct Connect
Europe	European operations	Core network edge, regional VPC attachments
Brazil	South America operations	Core network edge, regional VPC attachments
Malaysia	Asia-Pacific operations	Core network edge, regional VPC attachments
on-premises	Enterprise + FC domains, data centers	Hybrid connectivity into Cloud WAN; filtering enforced on-prem

Seven Rules That Run the Network

Every requirement including the one-way propagation that keeps firewall sessions symmetric is expressed declaratively in the Cloud WAN core network policy:

#	SOURCE	DESTINATION	DIRECTION	POLICY / FILTER
1	Enterprise Net (on-prem)	Enterprise Segment	Mutual	Advertise Enterprise routes only; traffic filtering enforced on-prem
2	FC Net (on-prem)	FC Segment	Mutual	Advertise FC routes only; traffic filtering enforced on-prem
3	Enterprise Segment	Prod / Non-Prod Segments	Mutual	Corporate users reach AWS workloads; Enterprise isolated from FC
4	FC Segment	Prod / Non-Prod Segments	Mutual	FC sites reach AWS workloads; FC isolated from Enterprise
5	Prod Segment	Cloud WAN Attachment RT (TGW)	Mutual	Stitches Prod segment into the regional TGW route domain
6	OnPrem Return Segment	Security VPC Attachment RT (TGW)	Mutual	Anchors the inspected return path through Palo Alto security VPC
7	Prod / Non-Prod Segments	OnPrem Return Segmen	One-way reverse blocked	Routes propagate forward only. Reverse blocked — eliminates loops andguarantees return traffic cannot bypass the NGFW

Design Rationale

Least-privilege route exchange

Enterprise and FC on-prem domains each advertise only their own prefixes (rules 1–2), preventing route leakage between corporate and facility-control networks

Controlled hybrid reachability

Enterprise and FC segments exchange routes with Prod and Non-Prod (rules 3–4), giving on-prem users access to AWS workloads while keeping Enterprise and FC isolated from each other

TGW integration for inspection

The Prod segment exchanges routes with the Cloud WAN attachment route table on the regional TGW (rule 5), and the OnPrem Return segment exchanges routes with the Security VPC attachment route table (rule 6), stitching the firewall stack into the global path

One-way propagation for symmetry

Prod/Non-Prod routes flow into OnPrem Return, but advertisements in the reverse direction are blocked (rule 7). This eliminates routing loops and guarantees that return traffic cannot bypass the NGFW

Policy As Code, Wave By Wave

Design & Policy Authoring

Segments, attachment policies, and route filters modelled in the core network policy document; peer reviewed as code

Core Network Deployment

Core network edges provisioned in the U.S., EU, Brazil, and Malaysia via infrastructure-as-code

Hybrid Integration

Enterprise and FC networks connected with prefix filtering validated on both sides

Security Integration

Palo Alto security VPCs attached to regional TGWs; symmetric flows validated with stateful session testing

Migration & Cutover

VPC attachments migrated wave-by-wave. Non-Prod first, then Prod with rollback plans and live traffic validation at every step

Business Value Delivered

Cloud WAN's segment model mapped one-to-one onto the customer's security domains, and its policy language expressed every requirement including the subtle one-way propagation behind firewall symmetry declaratively. Pairing Cloud WAN for the global backbone with Transit Gateway for regional Palo Alto service insertion gave the customer both: a global policy plane and a proven regional inspection pattern.

One global control plane

Four AWS geographies and two on-prem domains governed by a single policy-driven network

Deterministic segmentation

Prod, Non-Prod, Enterprise, and FC isolation enforced by Cloud WAN policy — not hand-maintained route tables

Inspection without asymmetry

The OnPrem Return design eliminated asymmetric-routing drops on the Palo Alto firewalls

Onboarding by policy change

New regions, segments, and VPC attachments land through a policy edit and no cross-region peering rework

Audit-ready by design

The core network policy document is the single, reviewable source of truth for global routing posture

Recognized by Global Analysts

Gartner

Leader in Magic Quadrant for Managed Network Services, 2026 (six times in a row)

ISG

Leader in Provider Lens Study - Networks - Software Defined Solutions and Services, 2024

AVASANT

Leader in Avasant Radarview - Network Managed Services, 2023 - 2024

ISG

Leader in Provider Lens Study - AIOps quadrant of Intelligent Automation Services, 2024

About Microland

Microland is a leading AI-first, platform-led, technology infrastructure services company. We have enabled enterprises to build intelligent, resilient, and future-ready operations and are a trusted partner to global enterprises. We bring over 35 years of expertise in digital networks, cloud, data centers, workplaces, and cybersecurity, and combine it with our commitment to customer centricity, delivery excellence, and continuous innovation. Our operations, currently in more than 100 countries, are supported by a strong global delivery model and our AIOps platform, intelligeni, powered by Agentic AI, which is shaping the future of autonomous technology operations across enterprises.

www.microland.com