

Vendor Profile

Network-as-a-Service Provider – Algoblu

Ajeet Das

IDC OPINION

As carriers continue to drive toward greater agility, flexibility, efficiency, and innovation in their respective networks, the virtualization of network functions will become the norm across all domains of carrier networks. To provide agility in the service creation at a port level and providing end-to-end network-as-a-service (NaaS) offerings, there is a need for the virtualization of the layer 2 resources. Algoblu's Network Element Virtualization (NEV) patented technology can virtualize the underlying network resources (e.g., Ethernet port) into 100,000 individual atomic channels through self-developed FPGA-based chip. The scheduler and orchestrator allocate certain amount of atomic channels to form the service interface (SIF) per resource requirement. Virtualization of networks is expected to deliver multiple services over a common infrastructure. Infrastructure management and orchestration will be table stakes as carriers attempt to harness infrastructure complexity and seamlessly manage and orchestrate the service life cycle across disparate infrastructure with multiple use cases that apply to a diverse set of customers. The automation of network infrastructure is the number 1 carrier need across all domains. It is the only way carriers can tame opex challenges, monetize their infrastructure investments more effectively, and increase their operating margins in the future. Key to network automation is the ability to programmatically manage and orchestrate network infrastructure end to end. Software-defined networking with end-to-end network virtualization will be a critical building block in the drive toward greater network automation and service agility. Further:

- IDC observes network equipment provider (NEP) incumbents, traditionally enterprise-focused datacenter vendors, cloud infrastructure software vendors, and NaaS providers, as potential stakeholders.
- IDC expects the overall spending on NFV software (NFVI and VNF/CNF) to grow from \$12.1 billion in 2021 to \$31.6 billion in 2026 at a CAGR of 21.2%.

IN THIS VENDOR PROFILE

This IDC Vendor Profile offers an overview of an innovative company that uses its patented technology, Network Element Virtualization (NEV), to abstract and virtualize the network resources. Algoblu is a NaaS provider that offers ultralow-latency network and security services using fully virtualized end-to-end architecture.

The NEV can virtualize the underlying network resources using self-developed FPGA-based chip. For example, it can virtualize a physical port and create fine-grained granularized virtual ports. The scheduler and orchestrator software allocates the bandwidth to virtual ports and can increase or decrease the bandwidth for each port instantly.

Algoblu NEV technology allows network to be built hop by hop for an end-to-end connection using dedicated virtual port per customer per application, hence guarantees the ultralow latency for time-

sensitive networks (TSN). The ability to provide SLA per dedicated virtual port and per application unlocks communications service providers' (SPs') monetization opportunity to provide premium services over their existing network, rather than just selling connectivity. These premier services could be latency, packet loss, or jitter-sensitive applications (e.g., virtual reality [VR], cloud gaming, ultra HD streaming/video).

The Algoblu NEV chip provides enhanced security because it uses TDMA to control network resource allocation and isolate different tenants or applications at any given time. It's a hardware implementation of micro-segmentation.

SITUATION OVERVIEW

Company Overview

Founded in 2012, Algoblu is a leading ultra-low-latency network and advanced security services provider with business presence in Canada, Hong Kong, and China.

Algoblu is one of the earliest start-ups to innovate in the SD-WAN technology area. Since its inception, Algoblu's mission was to build a flexible, programmable network that focuses on virtualizing network resources to achieve increased flexibility and scalability for telecom companies and enterprise customers. Today, Algoblu has developed a product line based on its network resource virtualization technology that has been adopted by customers around the world.

The company has built up its backbone across the world with more than 200 nodes and serve hundreds of corporate users, including some of the world's top 500 companies, which includes financial, insurance, retail, telecom operators, gaming, smart transportation, ecommerce, education, sports, and manufacturing.

Algoblu product portfolio includes:

- **NEV Elastic Private Line (EPL)** provides high-net-worth users with more technical and TCO advantages than traditional circuit leased lines, usually large bandwidth point-to-point leased lines of 1G or more, and can support multiple services simultaneously on a single NEV EPL leased line. Product features support multiple services mix on one fiber with different SLA and real-time bandwidth adjustment. It gives service providers the ability to deliver intranet with end-to-end encryption and internet simultaneously over existing access lines.
- **NEV Elastic Private Network (EPN)** provides multibranch networking services for large customers whose networks are deployed in hub-spoke, partial-meshed, full-meshed, and other topologies. It uses networkwide bandwidth pooling for real-time bandwidth adjustment and provides support for bandwidth provisioning offsite. Its elastic topology gives user an ability to customize and change the network topology at will, without going through the operator.
- **NEV APP Broadband** provides high-quality virtual private line services for different applications to many home broadband users, while users only need to pay the same price as ordinary broadband to build a point-to-point private line connection from home devices (TVs, set-top boxes, game consoles, cell phones) to targets (such as video content provider servers, game servers, SaaS service provider servers, cloud platforms). It provides ultralow latency (depending on physical distance), zero packet loss, and less than 0.1ms jitter for high-quality connections. The solution uses the subscriber's existing broadband access line to create multiple virtual private lines by service through NEV technology. It enables different users to

choose different QoS guarantees according to the service attributes. For example, the cloud gaming will get a different attribute than the regular internet services.

Company Strategy

Algoblu services global communications SPs and enterprise customers with its NEV EPL, NEV EPN, and NEV APP Broadband solutions. Most of the current business is related to sales to enterprise customers providing solutions for their wide area network virtualized solution.

The company is expanding its global footprint by actively recruiting partners in North America, South America, and Southeast Asia to develop regional enterprise market. Its long-term strategy is to focus on developing residential broadband market with its NEV APP Broadband solution. With that, Algoblu is closely working with OTT providers, such as Netflix, Meta, Apple, Disney+, and NVIDIA, to better serve residential customers.

To further extend its reach in the residential broadband market, Algoblu is working with customer premise equipment (CPE) vendors such as Arris and Hitron to authorize the NEV chip in their new CPE products.

The TSN infrastructure is paramount to the adoption of the autonomous vehicle or autonomous fleet deployment. Algoblu is partnering with electric vehicle vendors to leverage the TSN features of their NEV chip to build ultralow latency, highly secured, and reliable network connection.

FUTURE OUTLOOK

The need for end-to-end virtualized network is essential to meet the growing demand for on-demand elastic networks, which can provide SLAs to a very granular level. Although the virtualization of network functions is accelerating, the missing piece in the end-to-end virtualization is the ability to segment the underlay network to the application level and provide SLA. Algoblu NEV provides the ability to virtualize a physical port and create fine-grained granularized virtual ports associated with different services.

Algoblu is steadily diversifying its geographical presence as well as its overall portfolio to expand its addressable market. It has plans to build more POP sites in South America and Southeast Asia and expand its offerings to residential broadband.

In North America, it is working with carriers and OTT providers to bring the NEV application solution to their residential broadband customers. Also the possibility to authorize the NEV technologies to integrate with CPE devices will further expand its addressable market.

With the TSN feature set supported by the NEV chip, Algoblu is exploring the intelligent vehicle market.

ESSENTIAL GUIDANCE

Advice for Algoblu

Enterprise NaaS is a new model for consuming network infrastructure. While enterprise NaaS has been an evolution of the market years in the making, NaaS models are likely to see increased acceptance with multiple enterprise networking technologies and across a wide array of systems and

solution providers. The ability to further virtualize the underlay network on a per-service basis is an added advantage that can be offered by service providers to their enterprise and residential broadband customers.

Algoblu should provide customers with flexible deployment options and choice of technology ecosystem partners. The enterprise network edge is very diverse. Differences exist in terms of size of sites, throughput necessary, IT staff, and compliance and regulatory framework even within organizations in the same industry. Economics, performance, and regulation may dictate that specific VNFs be deployed on premises, in a public cloud, or via POP, or a combination of these choices. Vendors need to have the ability to satisfy a wide diversity of needs and configurations.

The company should clearly communicate the business value of network element virtualization to communications SPs and OTT service providers. Any evolution in network architecture comes with a learning curve and, potentially, initial resistance. Many organizational decision makers will ultimately choose a solution based on the articulation of its ability to contribute to the bottom line. NEV has the ability to optimize the performance of critical applications, including voice, video/collaboration, gaming, VR/AR, and ERP/CRM.

Also Algoblu should build the appropriate future use cases according to the reality and regional needs. Each country's network conditions, economic, geopolitical activities, regulations, and security needs must be considered.

LEARN MORE

Related Research

- *Worldwide Telecom Network Functions Virtualization Software (VNF and NFVI) Forecast, 2022-2026* (IDC #US47852622, November 2022)
- *Market Analysis Perspective: Worldwide Carrier Network Infrastructure, 2022* (IDC #US49627522, September 2022)
- *Carrier Network Infrastructure Trends in 2022* (IDC #US47851922, March 2022)
- *Worldwide vCPE/uCPE Forecast, 2020-2025: Emergence of SD-Branch and NaaS Provides Opportunity for Communications Service Providers* (IDC #US48177321, September 2021)
- *Worldwide Carrier Multi-Access Edge Cloud Software Forecast, 2021-2025* (IDC #US47309321, September 2021)

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Global Headquarters

140 Kendrick Street
Building B
Needham, MA 02494
USA
508.872.8200
Twitter: @IDC
blogs.idc.com
www.idc.com

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