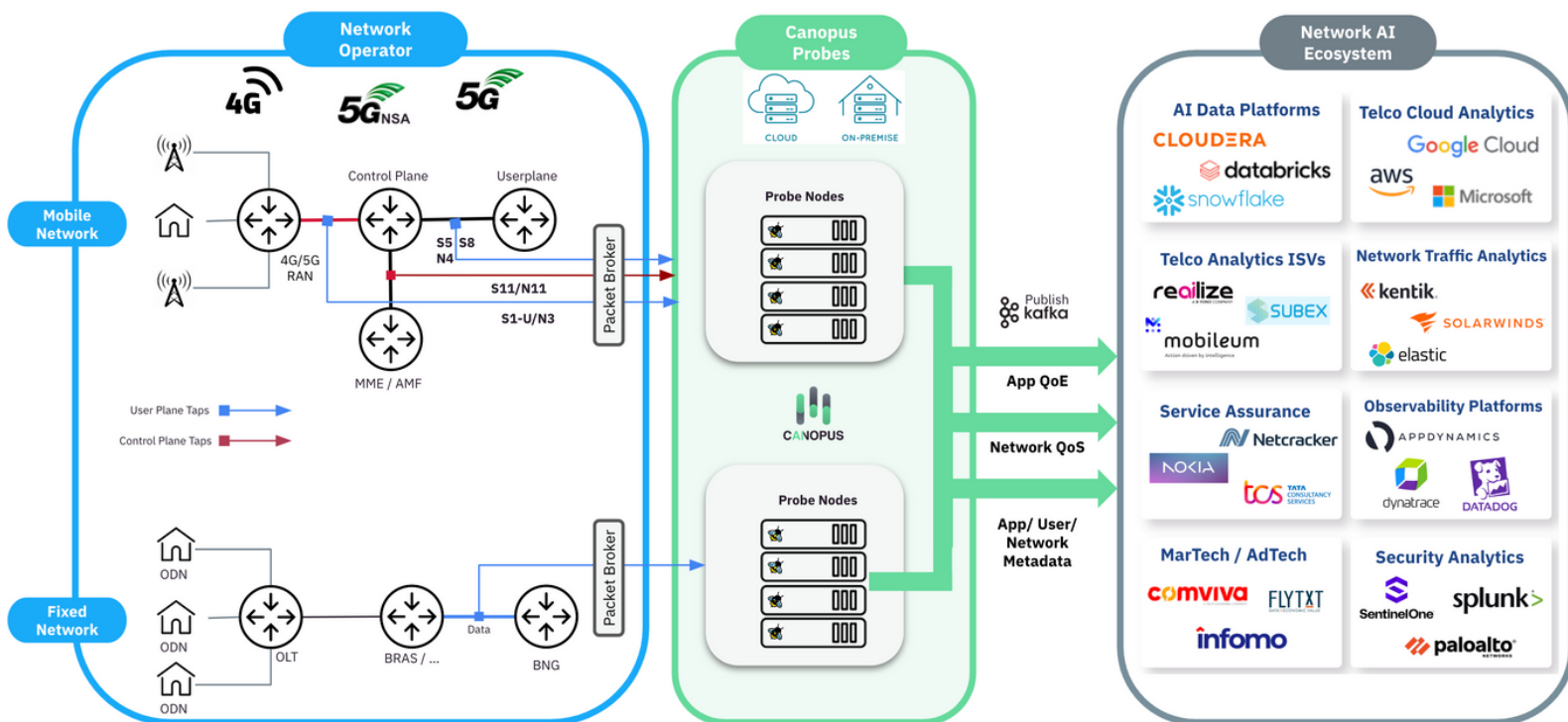


SuperNetflow by Canopus Networks

High Fidelity Network Intelligence for CSPs

Purpose-built for AI, Analytics & Automation
in Fixed and Mobile Networks



SuperNetflow by Canopus Networks is a network intelligence platform that provides Communication Service Providers (CSPs) with high fidelity data streams containing application intelligence and per-user Quality of Experience (QoE) measurements. These data streams enable CSPs to generate data-driven insights from their 4G, 5G & fixed networks to improve customer experience, reduce operational costs & drive profitability.

SuperNetflow processes terabits of network traffic using cloud-native eBPF-based probes that tap into carrier networks, producing ultra-fine data streams with metadata, network QoS and application QoE that brings unprecedented visibility at a subscriber level.

Using patented AI engines trained on stochastic behavioral models from live networks, **SuperNetflow** not only classifies encrypted traffic at scale but also measures application QoE at sub-second levels for timely actions.

ACCURATE
AI MODELS

ACTIONABLE
ANALYTICS

REAL-TIME
AUTOMATION

At-a-Glance

Low TCO, High ROI

Deploy as containers,
virtual-machines or
bare-metal

Real-Time, High-Fidelity
Data Streams

Traffic Classification
with patented AI

Network QoS and
Application QoE Metrics

Terabit-speed with
elastic scalability

Cloud Native
eBPF Probes

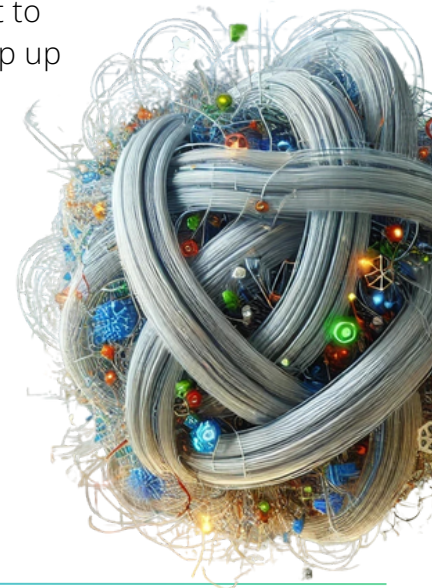
CSP Industry Economics are Challenging



CSP's arguably carry the most valuable data in the world. But the truth is they have been unable to cost-effectively extract insights to run and grow the business.

Challenges in Data-Driven Decisioning:

- ▶ **Limited Visibility into Application and User Experience:** Traditional network probes struggle to accurately measure user experience on streaming, gaming, conferencing, and other performance sensitive applications, leaving blind spots in critical data needed for network performance and management.
- ▶ **Reactive Monitoring, Not Real-Time:** Many solutions provide historical or delayed data, preventing real-time actions and forcing operators to react long after issues arise.
- ▶ **Data is the Fuel for AI, But It's Limited:** Carrier networks rely on data to power AI, Analytics, and Automation, but most available data is either network-centric or coarse or delayed. Almost none of the data today is purpose-built for AI.
- ▶ **Hardware Probes Drive Up Costs:** Traditional network probes are expensive to deploy, maintain, and scale, especially as network demands increase with 5G and high-speed fixed-line services. Their high upfront costs and high total cost of ownership (TCO) become prohibitive to deploy at network-scale.
- ▶ **Lack of Flexibility and Scalability:** Most network probes are rigid and difficult to scale dynamically. As networks evolve and expand, these probes struggle to keep up with demand, increasing operational complexity and costs.
- ▶ **Inability to Filter Specific Traffic on Demand:** Traditional probes capture everything indiscriminately, overwhelming data load and storage needs.
- ▶ **Lacking Subscriber-Level Intelligence:** Traditional solutions offer coarse, network-wide data, making it difficult to drill down to individual subscriber behavior and application performance in real-time.



Disrupting the DPI Appliance Industry with a Cloud-Native, Open Ecosystem

▶ **AI-powered traffic classification and experience measurement:**

Accurate and fine-grained visibility into user experience measures for a wide range of applications, underpinned by AI engines trained on stochastic behavioral models.

▶ **Unlock subscriber-level insights with ultra-fine data streams:**

Go beyond network-wide averages and understand individual user experiences with real-time, subscriber-centric data.

▶ **Shift from reactive to proactive monitoring:**

Measure QoE in sub-second intervals, allowing for real-time network optimization.

▶ **Eliminate DPI Appliances with cloud-native eBPF probes:**

Replace expensive appliance-based DPIs with scalable, software-based eBPF probes that offer elastic scalability at lower costs.



▶ **Scalable processing for terabit-speed networks:**

Handle large volumes of carrier network traffic and scale effortlessly as network demands grow.

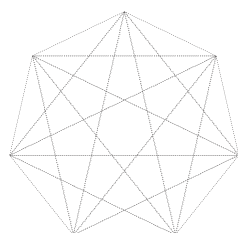
▶ **Low CAPEX, On-Demand Deployment:**

Canopus' on-demand data streams drastically reduce capital expenditures by eliminating the need for full network-wide deployment, enabling targeted and scalable solutions.

▶ **Democratized Access to Network Intelligence:**

SuperNetFlow opens up high-fidelity data streams to any analytics or AI platform, empowering organizations to build their own AI models, actionable analytics, and automation with the best possible data.

Key Differentiators



The Critical Fuel to Supercharge AI, Analytics and Automation

Business Benefits



Fuel for AI, Analytics & Automation

- Democratizes access to high-fidelity network intelligence across business units by breaking data silos for data-driven decisioning.

Improved Customer Experience

- Gain real-time insights into individual user behavior and application performance to improve CSAT and NPS.

Reduced CAPEX & OPEX

- Minimize the need for expensive hardware probes; reduce compute & storage operational costs with on-demand data streams.

Proactive Network Management

- Identify and resolve issues in near real-time with sub-second QoE measurements, improving network reliability.

Future-Proof, Elastic Architecture

- Easily scale with actual network demands, supporting both small deployments and carrier-scale networks, enabling CSPs to avoid locking into rigid hardware investments

Faster Time to Market

- Leverage AI-ready, structured data streams for effective analytics, enabling quicker business decisions for launching and managing Telco services.

Platform Attributes

Versatility: Supports 4G, 5G, and Fixed networks; Run on Bare-metal, Virtual Machine or Containerized infrastructure

Ultra-Fine Visibility: Provides Subscriber QoE & Application-level visibility with sub-second measurements

Cloud-Native: Container-based, offering elastic scalability across cloud and on-premise environments

Carrier-Scale: Efficiently handles millions of subscribers & Terabit traffic

Analytics & AI Ready: Data streams to feed into any Data Analytics, Assurance or Automation platforms.

Cost Efficiency: eBPF probes reduce hardware costs, scaling efficiently with demand

Patented IP: 8+ patents and 30+ academic publications



SuperNetflow by Canopus Networks

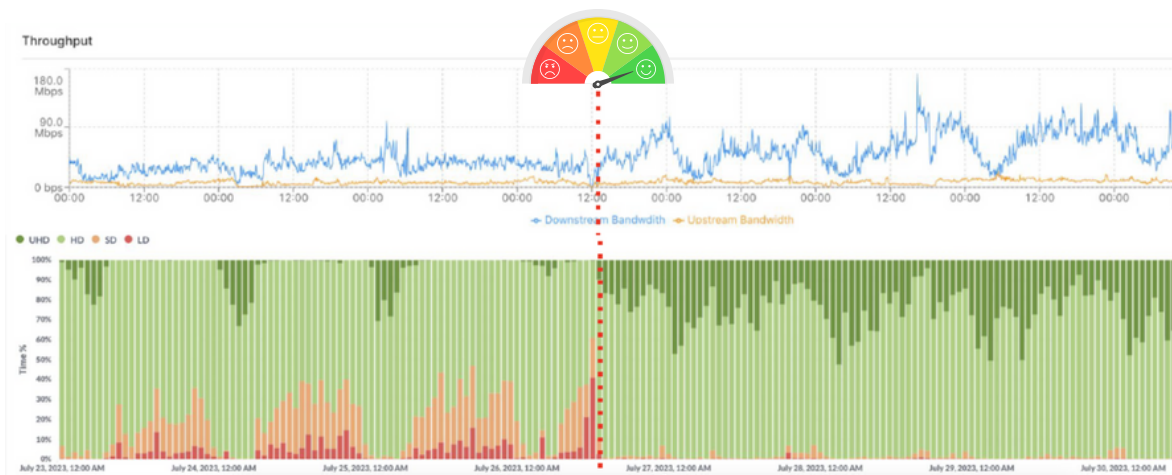
High Fidelity Network Intelligence for CSPs

Customer Case Studies



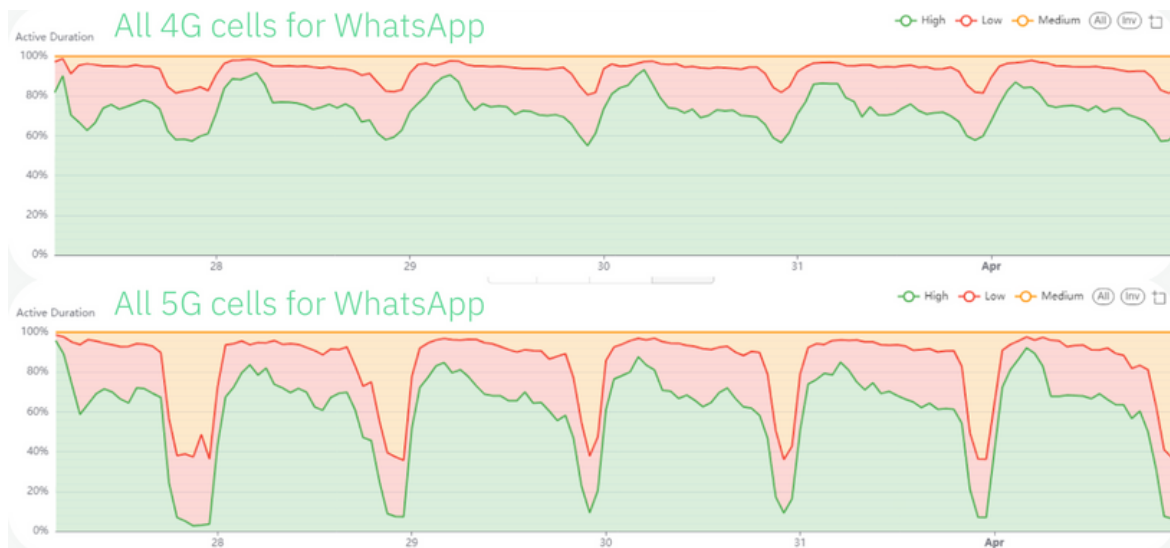
Network optimization to uplift application experience

Mobile operator was able to identify performance degradations in Youtube and WhatsApp impacting large number of subscribers, and their operations team rectified the issue within minutes, not days, avoiding any customer complaints



WhatsApp Voice Calling Experience: 5G vs 4G

With SuperNetflow, customer was able to identify in near real-time that 5G users on fixed wireless had significantly worse experience than 4G users. They were subsequently able to narrow down the root-cause to worse RTP upload loss for calls from SuperNetflow QoE metrics



SuperNetflow by Canopus Networks

High Fidelity Network Intelligence for CSPs

Customer Case Studies



Gaming Analytics

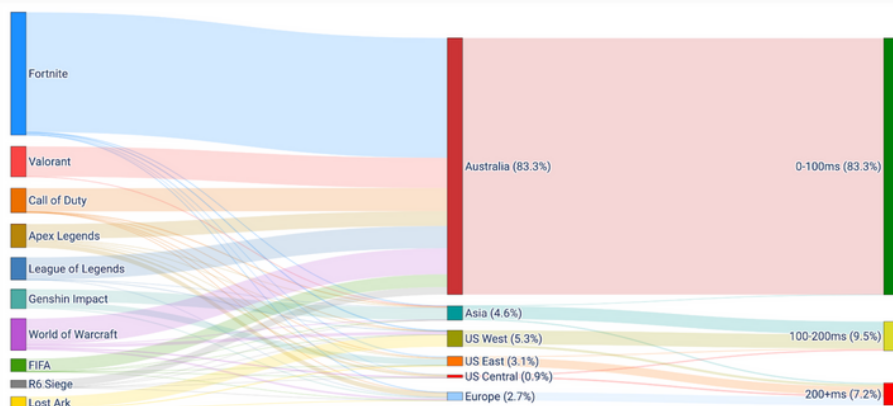
Fixed-line operator in APAC uses Canopus data streams for:

- Benchmarking game popularity, server locations, and latencies
- Identifying user uptake and evaluating latency improvements
- Identifying lower-latency routes and quantifying experience improvements



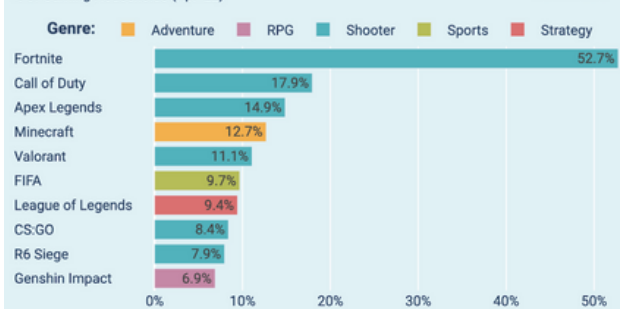
Latencies for Top-10 Games

CANOPUS NETWORKS



Most Popular Games

% of Gaming Households (Apr '22)



Most Engaging Games

Average Game Hours per Week (Apr '22)



SuperNetflow by Canopus Networks

High Fidelity Network Intelligence for CSPs

Real-Time Monitoring Use Cases



Real-time Network Monitoring at 100 ms latency

Network engineering teams use Canopus real-time TeleScope UI to continuously monitor user, application and network behaviors before and after making any network changes to measure impact of their decisions.

Real-time Per-User Per-App Monitoring

Service and Customer teams use Canopus real-time TeleScope UI to monitor per-flow or per-session application experience which are created by Canopus AI models from encrypted traffic.

