



DEEP NETWORK OBSERVABILITY

&



**Mahlet**  
Grace in Defense

# *Full-Stack Network Visibility Starting at Layer 1*

**JOINT SOLUTION BRIEF**

**PROFITAP & MAHLET**

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## Full-Stack Network Visibility – Insight Beyond Anything Else Available

### Executive Summary

Modern fiber-optic networks form the backbone of global industry, carrying mission-critical traffic for enterprises, service providers, and infrastructure operators. Yet most visibility solutions still deliver only partial visibility, overlooking Layer 1 protocols, telemetry, and tunneled traffic hidden deep in the optical overhead.

Layer 1 optical infrastructure & protocols introduce serious vulnerabilities, including covert data paths, initial access via trusted management (GCC) channel hijacking, unauthorized rerouting, encryption subversion, and stealthy network degradation and take-down attacks that all completely bypass traditional defenses.

Mahlet provides unprecedented access to the raw optical signals your network depends on, delivering rich telemetry, Layer 1 management traffic, tunneled higher-layer protocols, metadata, and Layer 1 threat alerts, all previously invisible to monitoring and security systems. Profitap complements this with industry-leading, 100% lossless packet access & all-in-one network monitoring solutions (IOTA) across the rest of the protocol stack.

Together, Mahlet + Profitap deliver the most complete, ground-up network visibility solution available today, enabling unmatched performance monitoring, advanced security detection, and operational intelligence for unparalleled reliability and resilience without ever disrupting live traffic.

### Joint Solution Environments

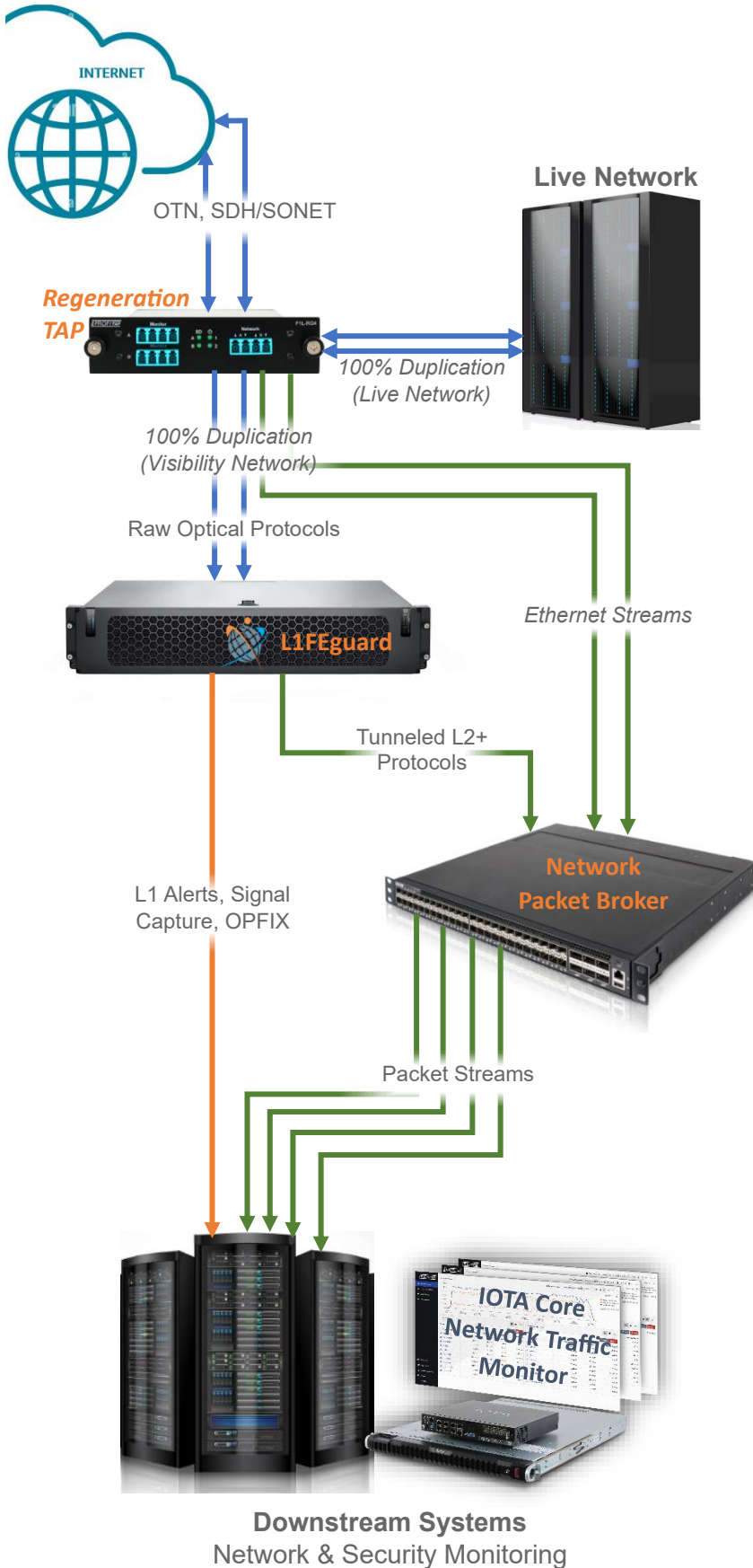
- ❖ Cloud and hyperscale data center providers, along with their large enterprise tenants.
- ❖ Industries with direct fiber-optic ingress, egress, or transport between major network segments.
- ❖ Federal and state agencies where regulatory compliance and national security are non-negotiable.
- ❖ Fiber infrastructure providers and carriers responsible for backbone connectivity and high-speed transport.

### Solution Architecture Breakdown

Visibility Stage	Product	What it Delivers	Regulatory Compliance
Traffic Access	Profitap Optical TAPs	100% passive signal duplication with zero packet loss and no impact on live traffic	NSM-10 EO14028 CISA BOD 23 OMB M-22-09 NIST SP 800-53 NIST SP 800-82 NIST SP 800-137 NIST SP 800-207
Advanced Visibility & Telemetry	Mahlet L1FEGuard™	Deep optical telemetry, Layer 1 network management traffic, detunneling of previously hidden protocols	
Traffic Optimization	Profitap Network Packet Brokers & Booster TAPs	Lossless aggregation, deduplication, filtering, and load balancing for clean, optimized traffic streams	
Full-Stack Monitoring & Security	Profitap IOTA Core All-In-One Network Traffic Monitoring Solution and customer's existing network monitoring and security tools	Complete, ground-up visibility via trustworthy and reliable datastreams enabling superior network monitoring and threat detection across the entire protocol stack	

# Full-Stack Network Visibility

## Joint Solution Brief – Minimal Latency Option



Profitap's Regeneration TAP technology splits all client ingress and egress signals, sending exact copies of all traffic to the Live Network and the Visibility Network.

- ✦ 100% visibility
- ✦ Zero packet loss
- ✦ Passive, unpowered & fail-safe
- ✦ No impact to operational systems

L1 Traffic Access

Mahlet's L1FEguard processes raw OTN, SONET/SDH, and high-speed Ethernet signals.

It performs layer 1 telemetry, protocol monitoring, higher-layer data de-tunneling, metadata summaries, and threat detection, and send de-tunneled higher layer protocols to the NPB.

L1 Advanced Visibility

Profitap's industry-leading Network Packet Brokers accept a copy of Live Network packet traffic and de-tunneled traffic from L1FEguard and can then aggregate, filter, deduplicate, timestamp, and load-balance so follow-on tools *see everything that matters*.

L2+ Traffic Optimization

Profitap's IOTA CORE and client's existing network monitoring, observability, and security tools receive appropriate packet streams, Layer 1 anomaly alerts, traffic summary metadata (OPFIX), and raw signal snapshots to rapidly identify, analyze, and resolve performance issues, application bottlenecks, and security risks.

L2-7 Monitoring & Security

Reliability, resilience, performance, and security - **from Layer 1 all the way to the top.**

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## Conclusion

Full-Stack Network Visibility solutions close the gaps for superior security, reliability, performance, and resilience from the optical infrastructure to the application layer.

Profitap delivers lossless packet capture and optimization; Mahlet provides deep raw signal telemetry, optical protocol monitoring, Ethernet PCS inspection, and de-tunneling of previously hidden protocols.

Together, they create the most complete network visibility available today - feeding your security and performance tools with clean packet streams plus critical Layer 1 intelligence. The result is stronger resilience, improved security, and full confidence from the fiber all the way up, without adding risk or complexity.



*DEEP NETWORK OBSERVABILITY*

Profitap develops and manufactures hard- and software solutions for packet-based network observability and analytics on all traffic across physical and virtual infrastructures. These network visibility solutions support network security, forensics, deep packet capture, and network & application performance monitoring sectors worldwide with highly reliable and actionable data.

Serving over 1,500 clients in 70+ countries, Profitap provides comprehensive visibility and analytics across physical and virtual infrastructures globally.

To learn more about our joint solution go to <https://www.profitap.com/contact-us/>



Mahlet provides advanced Layer 1 network visibility to enhance performance monitoring and strengthen cybersecurity. Our L1FEGuard platform allows you to see what all other tools miss: deep optical signal telemetry, in-band management traffic, higher layer protocol de-tunneling, and rich metadata from raw OTN, SONET/SDH, and high-speed Ethernet traffic. These capabilities uncover hidden threats, enrich downstream tools with clean packet streams, reduce troubleshooting time, and improve overall network resilience - all without impacting live traffic.

To learn more about Mahlet and how we're innovating, go to <https://www.mahlet.net/contact/>

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