



# Adaptive Monitoring Fabric

Software-defined network (SDN) packet broker architecture provides pervasive and deep visibility across geographically distributed data centers leveraging open networking Ethernet switches

As Enterprise and Service Providers are digitally transforming to become more efficient, improve customer experience and increase agility for faster time to service, IT teams must deliver a secure, high performance and always-available network as the foundation for this transformation. Continuous real time monitoring of application performance over this infrastructure is mandatory to make sure these networks are performing as expected, highly available and fully secure.

Traditional approaches to visibility and monitoring are based on an expensive box-by-box appliance approach that is complex to manage makes the network very costly to monitor at scale. Network architects and operations teams prefer solutions which offer simplicity in design, agility and flexibility in terms of automation and the ability to scale across geographically distributed locations. As monitoring solutions have evolved from chassis-based packet brokers to network-based packet brokers to SDN fabric-based packet broker architectures, momentum has increased for fabric-based approaches.

### **Pluribus Adaptive Monitoring Fabric: Dynamic Adaptation is Important**

Pluribus Adaptive Monitoring Fabric (AMF) is the industry's first dynamic network packet broker fabric solution which is simple to deploy, can scale-out to seamlessly monitor across geographically distributed data center networks and can rapidly adapt to changing network conditions. In order to gain deeper visibility and insights from the production traffic, customers deploy AMF so that all traffic coming from the production network can be intelligently filtered at wire speed and delivered to multiple security, performance, and compliance tools. AMF works on the same principle of distributed, controllerless SDN architectures, where the switches in the monitoring fabric form a peer-to-peer relationship to exchange state information so that all the switches act as one logical switch making the provisioning and day to day operations and troubleshooting very easy. This controllerless approach eliminates costly controllers and at the same time improves reliability and flexibility.

The AMF solution is also unique in that it can dynamically load balance traffic across multiple links for efficient resource utilization and multiple resilient connections inbound from TAP/SPAN sources and outbound to multiple tools. This same dynamic architecture allows AMF seamlessly span multiple sites, allow tools to be placed either in a centralized pool or distributed across locations without restriction and to deliver completely automated and rapid sub-second re-convergence. Paths are dynamically computed for each flow of each policy which ensures the monitoring fabric is optimized for cost while also being able to quickly adapt to network changes, including link and node failures.

## Highlights

- **Industry First, Integrated Packet Broker Fabric**

Deploy out-of-band like a traditional monitoring fabric, or completely integrated in the production network as a virtualized packet broker service running on the same switches that are providing network services

- **Highly Available Monitoring Architecture**

Automatic path computation between any TAP/SPAN & any tool anywhere across Adaptive Monitoring Fabric with sub-second path failover with any link or switch failure along any path from ingress (TAP/SPAN) to egress (tools)

- **Cost-effective Solution**

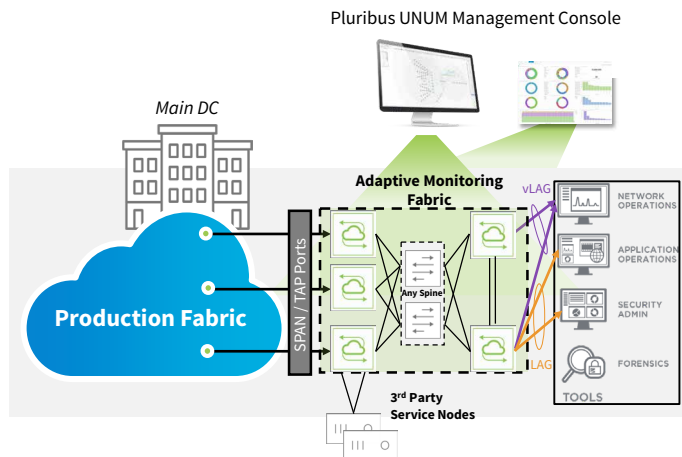
Open white box hardware + fabric-wide automation + integrated flow visibility without requiring expensive hardware probes = lower cost and better TCO

## Deployment Models

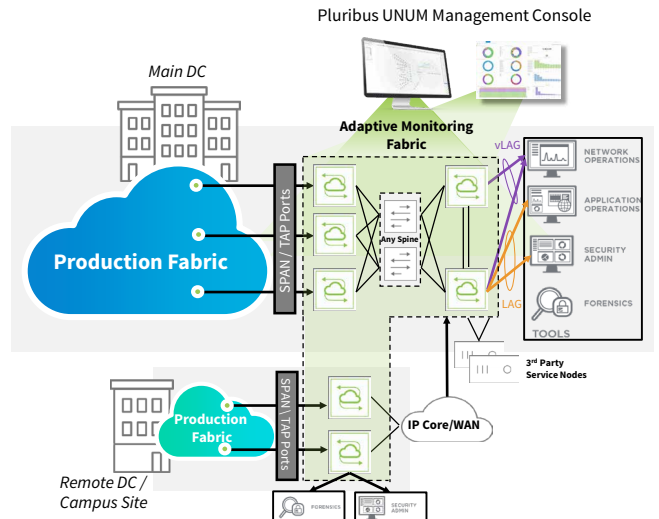
Pluribus Adaptive Monitoring Fabric offers various deployment models on how the monitoring solution can be architected

1. Single site out-of-band
2. Multi-site out-of-band
3. Integrated mode

### Single site out-of-band deployment



### Multi-site out-of-band deployment



### Pluribus Adaptive Monitoring Fabric Deployment

#### Architectural Benefits

- Paths are dynamically computed for each flow of each policy
- Sub-second path failover with any link or switch failure
- Per flow dynamic load balancing across the fabric

In this deployment model, the Adaptive Monitoring Fabric provides fully redundant fabric architecture with multiple open networking switches running Pluribus Netvisor ONE Network OS. The production traffic comes into the fabric through the TAPs and the fabric dynamically load balances the production flows across all the links for efficient bandwidth utilization towards the monitoring tools. The fabric intelligently does automatic path computation between any tap & any tool as well as sub-second path failover with any link or switch failure along the path.

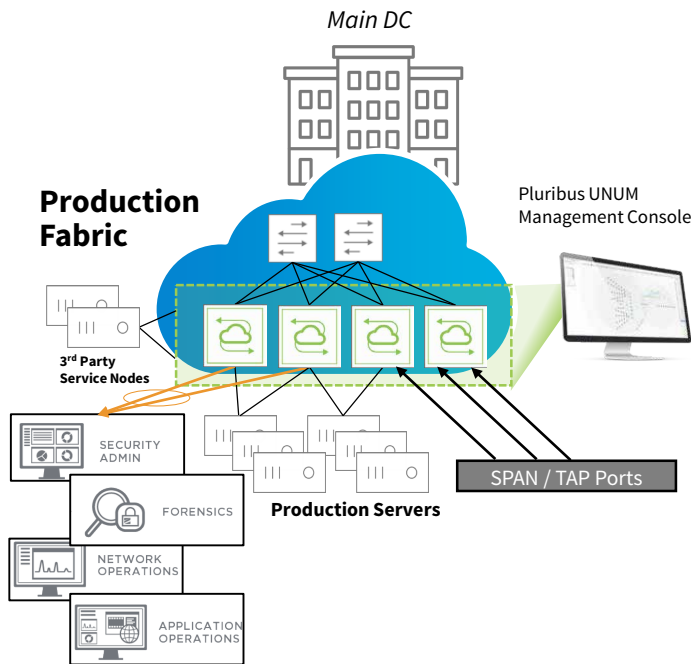
### Pluribus Multi-Site Adaptive Monitoring Fabric Deployment

#### Architectural Benefits

- Automatically connect taps and tools anywhere across the IP Core / WAN
- One fabric, one forwarding mechanism across any location
- Fabric built-in flow telemetry and Insight Analytics integrated with UNUM

In this deployment model, the Adaptive Monitoring Fabric extends the fully redundant fabric architecture across multiple geo distributed data centers and remote locations. The fabric automatically connects the remote TAPs and the remote production traffic is forwarded to the centralized monitoring tools making the remote location integration very simple to extend and extremely cost-effective. Users of AMF can have tools deployed at any location without restriction.

## Integrated Mode deployment



Pluribus Integrated Mode Adaptive Monitoring Fabric Deployment

### Architectural Benefits

- Integrates network packet broker service in the production fabric
- TAP traffic segmented and isolated from production traffic
- Cost-efficient and radical operational simplification compared to building a separate fabric

In the Integrated mode approach, the network design is drastically simplified by completely eliminating two separate fabrics and combining them together for better operational efficiency and cost-effectiveness. The TAP traffic is segmented and isolated from the production traffic by keeping it in its own virtual environment, radically simplifying the network design.

## Key Advantages of Adaptive Monitoring Fabric Features and Advantages

### Industry First, Integrated Packet Broker Fabric

- Deploy out-of-band as traditional monitoring fabric, or completely integrated in the production network as a virtualized packet broker service.
- Single pane-of-glass within a single datacenter or across geo-distributed remote sites (e.g. Data center, campus buildings, branches, edge locations).
- Policies deployed with a single atomic operation (RESTful API, CLI or UNUM) across the entire distributed fabric for maximum operational simplification.

### High Availability Monitoring Architecture

- Automatic path computation between any Tap & any Tool anywhere across Adaptive Monitoring Fabric.
- Sub-second path failover with any link or switch failure along any path from ingress (TAP/SPAN) to egress (Tools). Multi-chassis LAG HA towards monitoring tools.
- Dynamic per flow load balancing across all the fabric links for efficient bandwidth utilization.
- Distribute Taps and Tools anywhere across geo-distributed sites without any topology restrictions.

### Cost-effective Solution

- Leveraging Ethernet merchant silicon white box economics to reduce CapEx by 30-60%.
- No need for centralized controllers, making the solution very cost effective even for small deployments.
- Integrated flow visibility in the monitoring fabric without requiring expensive hardware probes.

### Time to Simplify

The Pluribus Networks approach to next generation SDN Packet Broker Fabric for wire speed data center visibility and security delivers an open, virtualized and programmable network and monitoring fabric that ensures the optimum performance and availability across data centers with simplified management and powerful performance analytics.

The combination of open networking hardware and the Pluribus Adaptive Monitoring Fabric delivers a capability set that is designed to empower any size organization to do more with their next generation network packet broker architectures while eliminating complexities, reducing risk, and speeding the time to value for their monitoring investments.