Gigamon 5G Traffic Intelligence

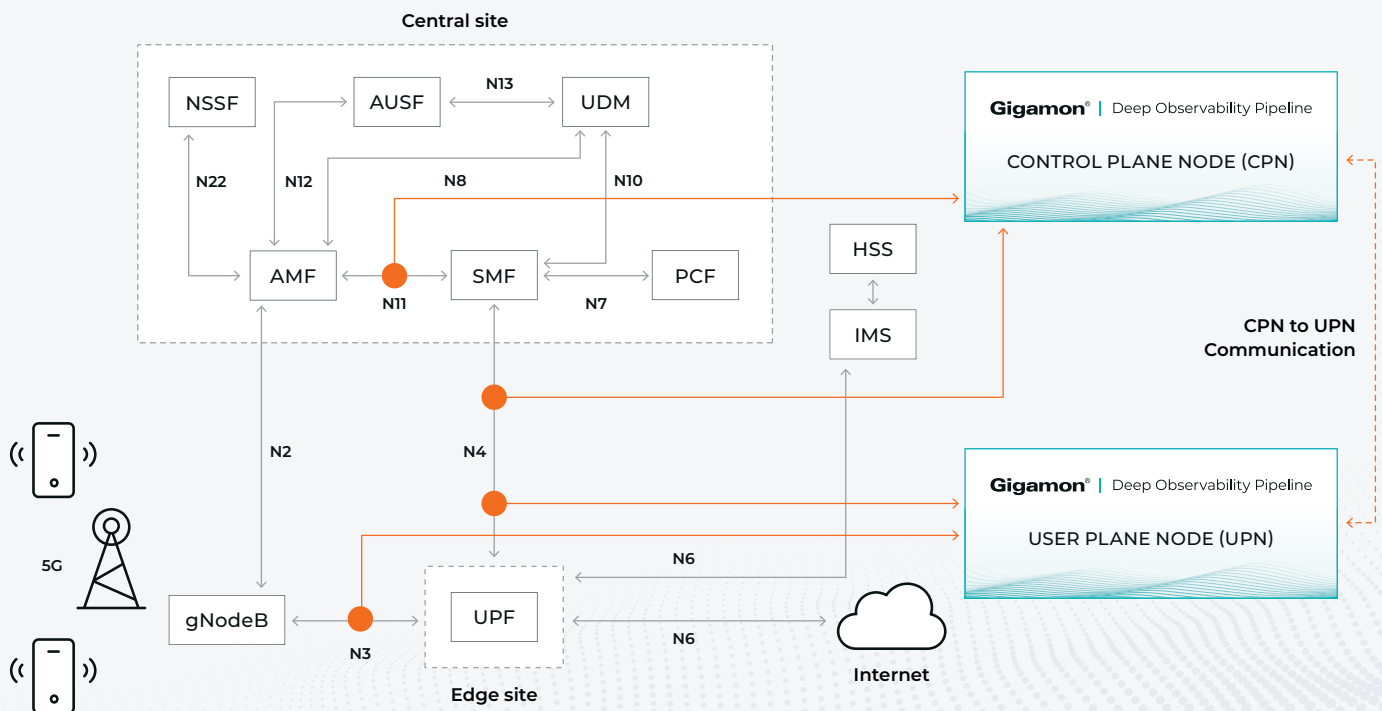## Breaking the Cost Curve of 5G Core Network Monitoring and Security

Figure 1. Typical 5G core network interfaces for visibility feeds.

Service Provider operations teams are increasingly challenged with gaining pervasive network and application visibility across physical, virtual and cloud infrastructures. The 5G evolution is another level beyond that – along it's huge investment. 5G Service Providers need to run faster and adapt more rapidly – or become obsolete. And they must optimize – or go broke. Gigamon 5G traffic intelligence is a collection of GigaSMART applications that provide coherent reduction and delivery of monitoring traffic to increase the efficiency of network monitoring, security and customer experience tools.

Key Features

- **Traffic acquisition** from physical, virtual machine, and container network environments with a choice of physical TAPs, virtual TAPs, and infrastructure provided mirroring services

- **De-duplication of packets** aggregated from multiple network links/sources

- **Selective slicing** of flows or sessions

- **Subscriber-aware** filtering, forward-listing, sampling, and/or balancing of 5G and 4G LTE CUPS control and user sessions

- **Application Metadata Intelligence** of flows or sessions

- **Decryption of SSL/TLS flows**

Key Benefits

- **Monitor** your 5G core and edge networks regardless of technology or architecture deployed

- **Minimize** your organization's capital and operational expenditures for 5G and/or 4G LTE CUPS network performance monitoring, security and troubleshooting

- **Reuse** your existing monitoring, security and troubleshooting tools thereby preserving current investments

- **Maintain** complete subscriber sessions for 5G, 4G and 3G network monitoring and security analysis

- **Reduce** volume of user plane traffic and focus on certain subscribers or traffic types to avoid tools overload whilst maintaining SLAs

- **Visibility** into encrypted traffic

5G Challenges Facing Service Provider Operations

Today's rapid digital transformation and network evolutions from 10G and 40G to 100G and 400G, physical to network function virtualization (NFV), and 4G to 5G mobile are disrupting service providers and forcing your service operations teams to be more agile and evolve to adapt — or become obsolete. Pervasive visibility into data in motion, applications and services across your infrastructure requires you to acquire traffic from anywhere and then aggregate, filter, correlate intelligently and distribute the right traffic to the appropriate tools.

Coherent distribution of multi-session traffic, like control and user sessions or signaling and data sessions, to monitoring, analytics and security tools is a common challenge for service provider operations — especially as traffic volumes increase per subscriber and more devices (e.g. IoT) are serviced by the network.

Since the user and data plane sessions represent the bulk of the traffic volume, and typically exceeds the capacity of a single monitoring device, it is desirable to reduce the volume of user or data traffic and distribute it to monitoring tools in a controlled manner.

The Solution

The Gigamon Deep Observability Pipeline, offers a number of basic and advanced packet and flow-brokering capabilities to help service providers minimize their monitoring infrastructure expenditures and get the most out of their existing tools.

It all starts with the ability to acquire the traffic to start with, which is not quite as simple as it was for purely physical networks. With NFV, which is fundamental to 5G, operators have numerous choices for selecting an NFV infrastructure (NFVI), such as technology (virtual machines, containers), infrastructure (Kubernetes, OpenStack, Red Hat, VMware), and implementation (self-constructed, NFV vendor provided). GigaVUE Cloud Suite, a key part of the Gigamon Deep Observability Pipeline, offers a range of virtual TAP solutions and infrastructure mirroring service integrations. Such integrations include with Ericsson's 5G Core vTap, F5's AspenMesh mirroring, and Nokia's service communication proxy mirroring.

Before Gigamon

As the network grows, probe costs grow in direct proportion.

- ■ Network Growth (50% YoY)
- ■ Prior Probe Spend
- ▫ New Probe Spend
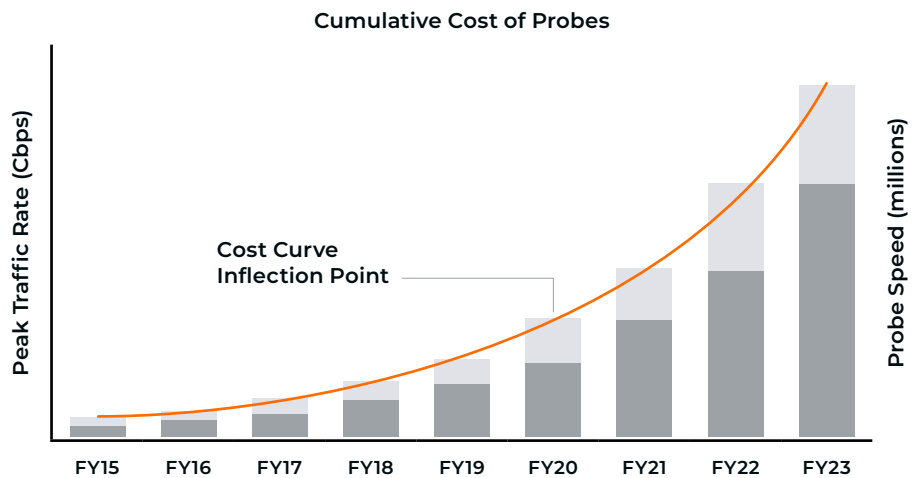
After Gigamon

Breaking the cost curve by implementing advanced data policies.

- ■ Network Growth (50% YoY)
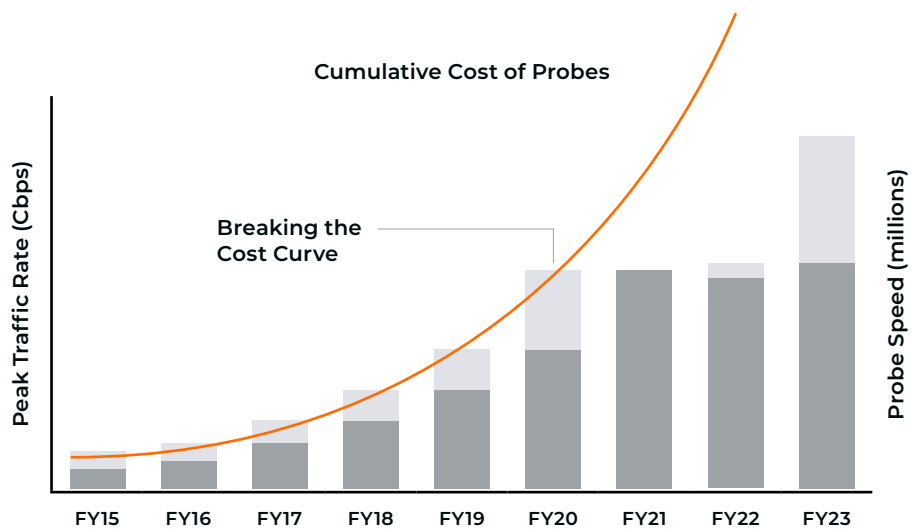- ■ Prior Probe Spend
- ▫ New Probe Spend

Figure 2. Breaking the cost curve.

Once the traffic is acquired, the key "smart" capabilities, available as GigaSMART® applications, that benefit visibility for 5G networks fall into three main categories: traffic intelligence, application intelligence and subscriber intelligence.

Traffic Intelligence

- Packet De-duplication
- Advanced Flow Slicing
- SSL/TLS Decryption

Key benefits:

- Remove duplicate packets that result from mirror/SPAN ports and from multiple tapping points, which results in at least 50 percent reduction in monitoring traffic
- Remove or truncate packets in a flow following initial session establishment packets
- Gain visibility into encrypted traffic, including TLS 1.3 encrypted flows

Application Intelligence

- Application Filtering Intelligence
- Application Metadata Intelligence

Key benefits:

- Ignore or focus in on specific applications within user traffic making your monitoring and security more effective and efficient
- Generate rich metadata for the control and user plane traffic to feed monitoring and security tools (e.g. SIEM) that don't ingest actual raw packets

Subscriber Intelligence

- 5G and CUPS Correlation
- GTP Correlation
- FlowVUE™ Flow Sampling

Key benefits:

- Coherently filter, forward-list and/or sample user plane sessions based on subscriber, device, RAN or network slice identifiers focusing on only the traffic of importance
- Coherently balance control and user plane load across multiple instances of the same tool based on subscriber, device or RAN identifiers

Conclusion

5G is disrupting service providers and requiring a huge investment. Gigamon 5G traffic intelligence provides your operations teams with the ability to maximize network monitoring and security costs whilst at the same time attaining pervasive visibility into the important data in transit (applications, services, subscribers) across your infrastructure by optimizing the content and delivery of the right traffic to the appropriate tools. Gigamon enables your 5G network operations teams to run fast, stay secure and optimize during your network evolution journey.

For more information on GigaSMART applications please read the data sheet. Learn more.

About Gigamon

Gigamon offers a deep observability pipeline that harnesses actionable network-level intelligence to amplify the power of observability tools. This powerful combination enables IT organizations to assure security and compliance governance, speed root-cause analysis of performance bottlenecks, and lower operational overhead associated with managing hybrid and multi-cloud IT infrastructures. The result: modern enterprises realize the full transformational promise of the cloud. Gigamon serves more than 4,000 customers worldwide, including over 80 percent of Fortune 100 enterprises, nine of the 10 largest mobile network providers, and hundreds of governments and educational organizations worldwide.

To learn more, please visit gigamon.com.

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