

Challenge in Today's 3G & 4G/LTE Traffic Visibility

Mobile service providers are facing a deluge of traffic from their subscribers and the proliferation of smart-connected devices and mobile applications. Driven by “Big Data”, it is becoming more difficult for the current tool infrastructure to sustain the levels of incoming traffic volumes to perform accurate analysis. Operators have been struggling with the scalability of their tool rail and tool processing throughput. Traditional approaches have left operators with few options: invest in prohibitively expensive tools or remain subject to the current tools which may pose limited visibility into subscriber traffic.

Traffic Intelligence and Management with the Gigamon FlowVUE™ Application

Gigamon’s FlowVUE application offers a new subscriber-based IP sampling paradigm which helps carriers turn Big Data into manageable data. The application enables existing tools to connect to the latest high-speed pipes by providing a representative view of traffic for diagnostic coverage. GPRS Tunneling Protocol (GTP) is commonly used to carry mobile data across service provider networks and includes the control plane (GTP-c) and a user-data plane (GTP-u) traffic. FlowVUE allows for active sampling of a subscriber’s device (known as a user endpoint IP or UE IP) across GTP-u tunnels. The integrity of the subscriber flows is preserved by forwarding all the flows associated with the sampled UE IP to the probes and analysis tools.

In contrast, traditional methods randomly sample packets without any correlation to the flows which provides limited visibility into subscriber behavior and experience. FlowVUE is able to intelligently reduce the amount of traffic, while keeping the integrity of the data flows intact, but at a lower speed feed within a smaller pipe.

Leveraging FlowVUE, providers can enhance quality of experience (QoE) monitoring by forwarding all of the control plane traffic to the tools infrastructure and only perform intelligent user-plane sampling (a configurable percentage of UE IPs) to get a representative view of application usage. Not all traffic is created equal. Certain traffic types have a higher incident rate of error or need greater monitoring. Other traffic types rarely need monitoring. When combined with the advanced filtering capabilities of GigaSMART® adaptive packet filtering, operators can further filter, replicate, and forward specific traffic flows of interest based on application ports and packet content-based payloads for all or a subset of the sampled subscribers. This further reduces the volume of traffic to the tool infrastructure. The ability to sample a subset of subscriber devices and transmit all the associated sessions of interest to the monitoring tools, intelligently reduces the amount of data while enabling Big Data throughput processing, with existing cost structures.

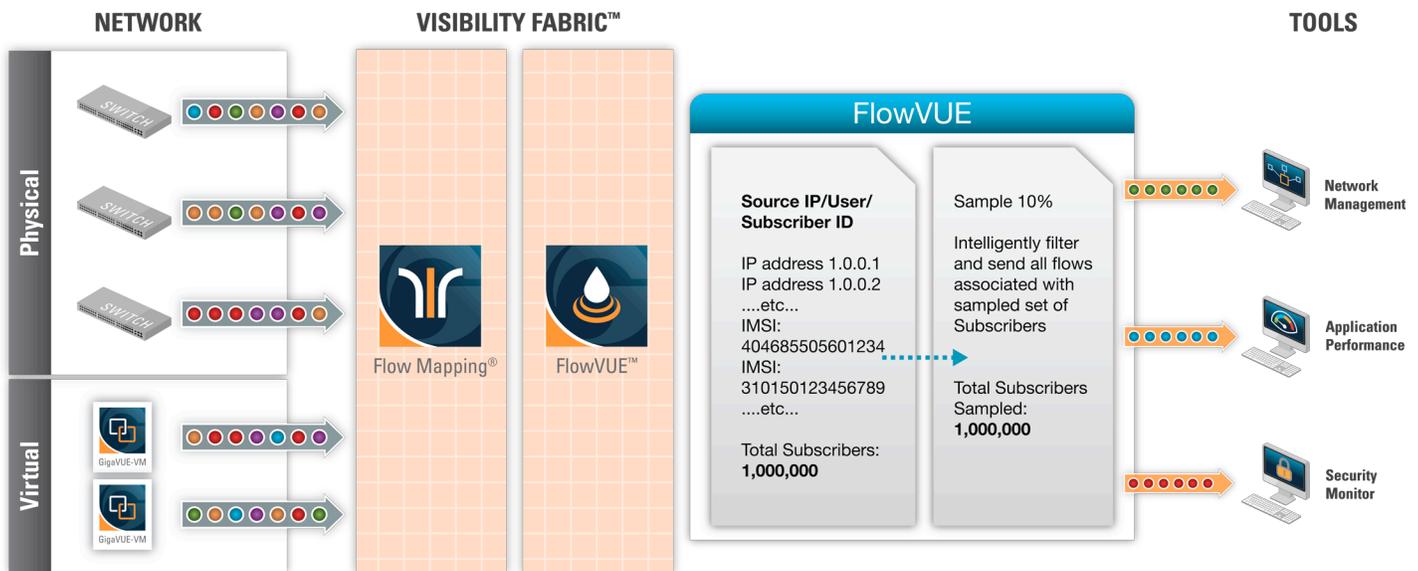


Figure 1: FlowVUE application

FlowVUE Features

- Flow-aware Sampling of Subscriber Devices: Intelligently filter and forward all flows “sourced” from a sampled set of subscriber device IP’s
- Flexible Sampling Engine
 - Subscriber IP/IP Ranges
 - Sampling Rates
- Intelligent Tracking of Active Subscribers: User-configurable timeouts to detect and replace inactive devices
- Sampling Supported for IP-based Flows and IP-based Flows Encapsulated in GTP-u Tunnels

Key Benefits

- Turning Big Data into Manageable Data
 - Enable carrier to selectively reduce traffic bound to monitoring and analytic tools
 - Deterministic results at a fraction of the data rate
- Maintain ROI: Mitigate rising tool costs by preserving or increasing tool utility based on real-time reduced data volume
- Harness Big Data as a Competitive Asset Versus an Overwhelming Burden
 - Tailoring pricing strategies based on usage patterns

Pervasive Visibility

In this era of Big Data, mobile carriers have searched for a way to efficiently and effectively monitor performance and quality of experience (QoE) for their subscribers, as well as identify and monetize new offerings. Converging on a single platform that not only simplifies and automates network traffic visibility, but also provides built-in intelligence to address Big Data will shape how mobile carriers choose to monitor and manage their network to provide better, faster connections and new services.

Legacy approaches to monitoring have offered limited traffic visibility with limited filtering capabilities; are difficult and costly to scale and manage; and often require change orders or network downtime in order to adapt to the evolving network.

Gigamon provides the architecture and intelligence for mobile operators to create a monitoring infrastructure that is designed for the new era of Big Data providing pervasive visibility, awareness, and control from the converged edge to the cloud. Sitting between the IT infrastructure and the tools that need the access to data, the Visibility Fabric provides a holistic approach to traffic visibility that includes:

Architecture Advantages: The GigaVUE® family of fabric nodes offers the volume, port-density, and scale needed to connect the right analytical tools to the appropriate large or bonded pipes. Tool trials are streamlined, new tools can easily be added or removed, and uptime is protected while downtime is prevented with a solution that is outside the production network providing pervasive visibility.

Feature Advantages: Advanced filtering and packet manipulation reduce the amount of data arriving at each tool while ensuring that the data is formatted precisely for the tool’s consumption. Each tool is optimized by not needing to parse the incoming stream or waste processor cycles on non-relevant data so it can focus on the more important task of data analysis.

GigaSMART Apps: Traffic intelligence and management provide effective monitoring of Big Data through the logical reduction of traffic so that it is more suitable to connect to an existing speed tool at 1Gb or 10Gb. Gigamon’s GTP correlation enables visibility at the subscriber/session level in order to maximize QoE and monetize services. The FlowVUE application intelligently manages Big Data traffic through active subscriber-aware flow sampling while keeping the integrity of the data flows intact.

About Gigamon

Gigamon provides an intelligent Visibility Fabric™ architecture to enable the management of increasingly complex networks. Gigamon technology empowers infrastructure architects, managers and operators with pervasive visibility and control of traffic across both physical and virtual environments without affecting the performance or stability of the production network. Through patented technologies, centralized management and a portfolio of high availability and high density fabric nodes, network traffic is intelligently delivered to management, monitoring and security systems. Gigamon solutions have been deployed globally across enterprise, data centers and service providers, including over half of the Fortune 100 and many government and federal agencies.

For more information about the Gigamon Visibility Fabric architecture visit: www.gigamon.com