



## Customer Experience Assurance (CEA) in NFV Environments

### Virtualized Visibility Reference Architecture Validated on HPE OpenNFV Platform

#### Challenge

Customer retention through stellar subscriber experience is critical to communications service provider (CSP) business success. As CSPs pursue NFV's promise of speed and agility, they must overcome new challenges in deploying high-fidelity, real user CEA monitoring.

Unfortunately, today's NFV frameworks like OpenStack do not have orchestrated mechanisms to intelligently deliver mirrored user equipment (UE) traffic, that is groomed and correlated, to CEA or other out-of-band tools. This is a core requirement to monitor, record, and secure virtual networks—and to conform to SLA and regulatory compliance.

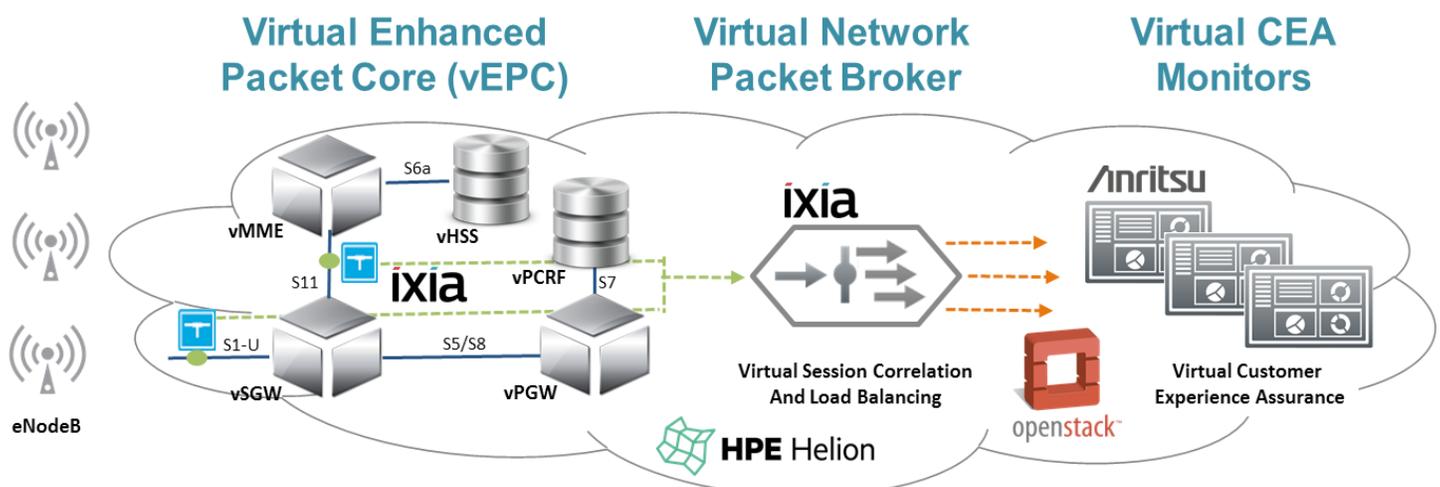
Real-time traffic mirroring is well understood in the physical world and easily accomplished with SPAN ports, taps, and network packet brokers (NPB). However, this is not the case in the virtual world due to immature APIs and standards, indeterminate processing overhead, and host network bandwidth limitations. These blind-spots in virtual environments can slow NFV adoption.

#### Solution

To help CSPs accelerate NFV adoption, Ixia has partnered with HPE and Anritsu, to develop a comprehensive NFV Visibility Reference Architecture. The Reference Architecture has been validated on HPE OpenNFV platform and all the building blocks are available now.

The Reference Architecture starts with Ixia Phantom vTap, which provides an orchestrated methodology for tapping virtualized EPC element communications. The tapped user data is filtered and GRE-tunneled to Ixia's virtualized GTP Session Load Balancer for UE session correlation and load balancing. This flows to a pool of distributed Anritsu MasterClaw CEA monitoring tools for analytics and visibility of subscribers' perceptions of their applications and services.

Operators can now leverage Ixia's NFV Visibility Reference Architecture to accelerate PoCs, trials, and production deployments.



## Ixia Phantom vTap

Enabling CEA in virtualized environments starts with capturing real user workload hidden in VM to VM traffic. This traffic is commonly referred to as the blind spots of east-west traffic as this traffic never hits a physical interface. The Phantom vTap captures, filters, and then sends inter-VM traffic of interest to the tools that are already monitoring your physical network or to virtual tools. It's integrated management console orchestrates VM tapping across many hosts and multiple hypervisor platforms in large data centers while supporting VM motions.

- Extends monitoring access into the inter-VM networking layer for security, performance, and compliance in virtualized environments
- Supports KVM and ESXi hypervisors
- Single plane of glass to set capture, filter, and forwarding policies for all hosts in the control domain

## Ixia Virtual GTP Session Load Balancer

Ixia's new virtual GTP Session Load Balancer is the industry's first GTP session-aware virtualized load balancer. It provides elastic scalability and network visibility by ensuring that mobile user (UEs) GTP traffic is correlated across interfaces and load-balanced prior to delivery to probes. This allows monitoring probes to focus their resources on QoE analysis instead of spending cycles attempting to correlate GTP session traffic, enabling easy and quick horizontal scaling of probe instances.

- The virtual GTP Session Load Balancer understands GTP and Diameter protocols and performs session correlation across multiple EPC 3GPP interfaces and delivers all UE traffic and signaling to the same probe
- Automatically detects probe failure and redistributes traffic until the probe recovers
- Provides simple but rich browser-based UI for configuration and real-time statistical insights

## Ixia IxLoad VE-Wireless

The IxLoad VE test suite delivers full-featured application testing of wireless networks and components. IxLoad VE emulates real-world subscriber traffic— voice, video, data—simultaneously emulating multiple mobile subscriber activities such as handovers, TAU, and idle-connected transitions. IxLoad VE was used to test the Reference Architecture by emulating vEPC workloads.

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## Anritsu MasterClaw™

MasterClaw is a scalable and cost-effective solution that uses latest-generation big data architecture and high performance passive probes to provide unrivalled visibility of subscriber experience across multiple technologies, from voice to mobile application, from Next GenNFV networks to legacy TDM.

- Provides real-time customer experience KPIs via a powerful, user friendly dashboard for your NOC and SOC staff
- Collects data on the experience of EVERY subscriber on your network - right down to the Apps they use.
- Provides actionable insights via dashboards, troubleshooting, next-generation customer experience analytics and reports, using correlated detailed records

**Web:** <https://www.anritsu.com/en-US/service-assurance>

## HPE OpenNFV

HPE OpenNFV provides an open, NFV-ready reference architecture including vertical integration point, which enables CSPs to transition to NFV; pulling in and through network equipment providers (NEPs) and emerging independent software vendor (ISV) solutions and components as desired.

With the OpenNFV reference architecture, CSPs have a blue-print to pre-tested best-of-breed solutions from the HPE portfolio and its growing partner ecosystem.

**Web:** <http://www8.hp.com/us/en/cloud/nfv-architecture.html>

## About Ixia Visibility Architecture

Ixia's Visibility Architecture provides complete network visibility into physical and virtual networks, improves network security, and optimizes monitoring tool performance. Ixia's solution ensures that each monitoring tool gets exactly the right data needed for analysis. This improves the way you manage your data center and maximizes return on investment. Our customers include large enterprises, service providers, educational institutions, and government agencies.

**Web:** [www.ixiacom.com/solutions/visibility-architecture](http://www.ixiacom.com/solutions/visibility-architecture)