Performance & service quality monitoring on virtualized networks

September 2018







Solutions for Telecoms

- Network, service and subscriber analytics solutions
- Mobile/Fixed Operators, MVNOs and Enterprises
- Global customer base, spanning Middle East, Asia, Africa, Latin America



Solutions for Public Safety &

Defense

- 4.5G Macro Base Stations
- SDN & NFV Based Secure Network Infrastructure, SD-WAN+



Research and Innovation

- SDN & NFV Transformation
- 5G Center of Excellence, at the forefront of 5G initiatives and enabling technologies
- Multiple patent applications including SDN & RAN Slicing
- Active member of various open source communities (LFN, ONF, etc)

Argela Network & Customer Product Portfolio



Network Monitoring

- Full visibility across all networks: 2G, 3G, 4G, CS, PS, IMS
- Effective resource optimization and planning
- Vendor independent realtime analytics



Subscriber Analytics

- Customer experience analytics and management
- VIP & corporate analytics and SLA assurance
- Integration to CRM and DWH



Service Analytics

- Roaming and interconnection analytics
- LTE (CSFB and VoLTE) service analyser
- Service quality monitoring for voice, SMS, mobile broadband
- Device and location analytics

Argela Network & Customer Assurance Product Portfolio



High level performance indicators and drill down capabilities for fixed and mobile services. Evaluation of service quality and rich KPI reporting for each service in the portfolio, covering all networks



End-to-end service visibility across all domains, providing a comprehensive view of service performance – spanning mobile (2G/ 3G/ 4G/VoLTE), IMS/ NGN, Fixed (PSTN/ ISDN). Objective reporting for strategic insights

Network Operators are looking for next generation solutions based on SDN and NFV.



NFV will Change How the Network Operators do Business Forever!

Virtualization Benefits for the Operators



Operational cost savings by eliminating inefficiencies of physical networks

Increased operational flexibility and efficiency through VNFs

Increase revenue by quickly rolling out new services that subscriber demands



Cost Savings

Operational Flexibility

New Sources of Revenue



Challenges of Monitoring Virtual Networks





- Monitoring and optimizing performance in a virtual environment is more challenging
- NFV Orchestrator can modify network configuration by moving, deleting or adding new network nodes, making the conventional monitoring solutions obsolete

- In virtual networks such as vEPC key interfaces are not visible on physical interfaces
- To fully effective monitoring, operators must now be able to monitor not only traffic between physical interfaces, but also logical interfaces
- Current physical probes cannot reach the logical interfaces that use internal VM-to-VM communication between functions hosted on the same server
- Due to the nature of NFV, there will be a loss of visibility between VNFs

A service assurance solution capable of monitoring both physical and virtual interfaces is critical!



Virtual Monitoring Solution – NFV view

CEM NPM **SQM Cloud Layer** EPC Core **DPI Firewall** Virtual Probes (HSS, MME, VNFs etc. etc.) **Virtual Network Functions NFV Infrastructure (NFVI)** Virtual Orchestrator Virtual OVS vSwitch Accelerator Compute Storage NFV Virtual Network **Virtualization Layer** Compute Storage Physical Network Layer (Switches, Routers, etc.) **Hardware Resources**

Virtual Monitoring Solution

- Tapping traffic through vSwitch/OVS and/or Neutron
- vProbe deployed as a VNF (VM or container based)
- Onboarding process
- Session Correlation
- Close Loop Automation
- Inband Telemetry

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In-band Telemetry PoC



 Automatic detection of anomaly through a sudden increase in packet drop rates

- Automatic enablement of In-band Telemetry header insertion in IP backbone
- Automatic detection of IP switch causing the problem





Thank You