

AEGIS End-to-End Solution

End-to-End Network Visibility and Optimisation Solution

With AEGIS, network operators can now measure and analyse the E2E (end-to-end) performance of their 3G/4G networks in one integrated platform. By collecting realtime information from a variety of network interface (e.g. X2, S1 MME, S11, S1U, S5, SGi, etc.), AEGIS filters, correlates, assembles and structures the data to provide an accurate picture of your network performance.

Use AEGIS to

- Real time tracing of Subscriber's data
- Monitoring/Analysis/Statistics for Paging induced service
- Analysis/Statistics for main interface of LTE Network
- Statistical analysis for Data service
 - Region - System - Device
- Device OS analysis
 - by OS - by Version
- VoLTE QoE analysis
 - QoS analysis by RTP
 - Monitoring / Statistics for IMS system
 - Real Time data tracing

Benefits

Monitoring

Quality monitoring for each base station

- Prompt response for each base station and equipment
- Predict network capability requirement by data traffic checking to prevent any extensive breakdown of communication

Network Analysis

ALL IMSI Based Processing

- VOC processing
- System error verification/analysis
- Analysis Latency of network element

Application Based Processing

- Analysis data service usage
- Analysis push traffic

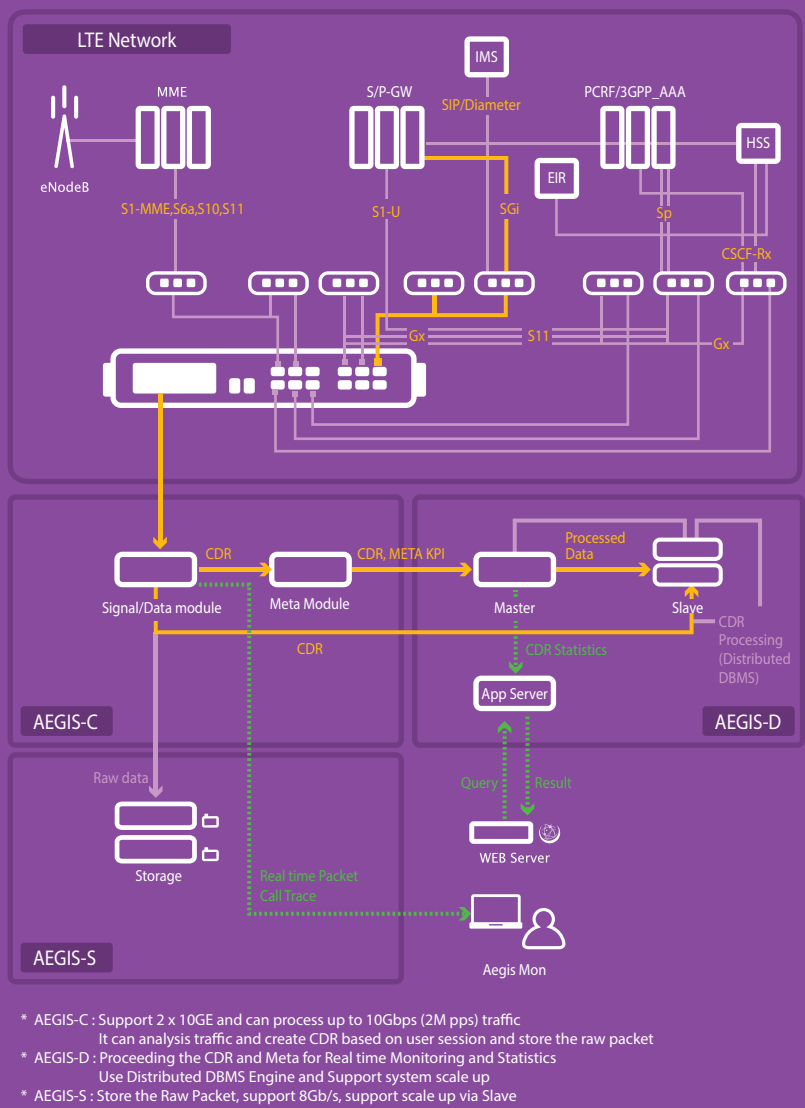
Statistics

Apply to marketing material

Analyze by various conditions based on region/rate plan/device model with customer information

Realization of Best Core Network quality

AEGIS System Configuration



AEGIS End-to-End Solution

Features

AEGIS VoLTE

- **Collect VoLTE Session KPI**
- Call procedure analysis based on UE(IMS/MSISDN/IMEISV) and Location(Cell/eNB) and System (MME/SGW/PGW/CSCF/MGW)
- Analysis VoLTE Call type and setup flow Success/Fail and setup time for each event and Failure Reason and determine call drop and it's Cause.
- **Calculate VoLTE QoS KPI in Real time**
- RTP QoS (Packet Loss, Jitter, Delay, R-Factor, MOS) analysis based on UE and Codec
- Detect silent voice
- **Real time packet trace by UE** (IMS/TMSI/MobileIP)
- **Store all raw packet to storage and query it by time and IMSI.**

AEGIS VoLTE + IMS

- **IMS System Transaction KPI**
- Transaction Analysis between IMS system
- Analysis SIP method's success/fail and Retry count and Response Code.
- Analysis Diameter Command's success/fail and Retry Count and Result Code.
- **Support also real time Packet Trace and Query for all raw packet.**

AEGIS Enterprise

- **Signal Analysis**
- Call Procedure and Transaction Analysis based on UE and Location and System.
- Realtime NAS deciphering Analysis S1-MME call like Attach, SRMO, SRMT, TAU, S1HO and determine call success/fail and failure cause and release cause
- Analysis transaction for GTP and Diameter and it's retrans, timeout, fail cause
- **User Traffic Analysis with Signal**
- Provide Several Network QoS based on UE and Location and L7 Service category.
- Support signature over than 2000 L7 service.
- Provide DNS, TCP, HTTP, UDP Sessions's KPI
- **Support also real time Packet Trace and Store all signal packet and limited data packet - HTTP Header and event based raw packet.**

Key Functions

Item	Functions	Note
System	Monitoring eNB, MME, GW Accessibility and Performance by QCI	Monitoring/ Statistics
Subscriber	Call history search of subscriber unit / Real time Raw Data analysis	Monitoring/ Statistics
Service	Monitoring latency and Effective throughput and volumes by L7 service category and/or eNB/MME and/or QCI	Monitoring/ Statistics
Paging	Monitoring Paging Occurred Service and Server IP By each eNB/MME/GW Monitoring Paging fail rate	Monitoring/ Statistics
VoLTE	Monitoring Accessibility and QoS, QoE by each eNB/MME/GW/CSCF/MGW	Monitoring/ Statistics
Data Service	<ul style="list-style-type: none"> • System – eNB/ MME/ SGW/PGW • Data Service- WEB/ Multimedia/ SNS/ Game/ Market/ Mail/ P2P/ ... • Device Statistic - Samsung/ Apple/ LG/ ... • Server Statistic 	Monitoring/ Statistics
Service category	Automatically classify the service based on Destination IP/Port, DNS URL, HTTP Host/Content-type Support over than 3000 service category	Monitoring/ Statistics
Call Search	S1-MME/ Data/ VoLTE/ Streaming/ Paging/ etc...	Analysis/ Statistics
Packet Trace	Raw Data Packet Viewer- Real time	Analysis

AEGIS-C : Support Interface

Classification	Interface	Phase
Signaling	S1-MME	eNB ~ MME
	X2	eNB ~ eNB
	S11	MME ~ SGW
	S10	MME ~ MME
	S5	SGW ~ PGW
	Gn	SGSN ~ PGW
	Gp	SGSN ~ PGW
	S2a	HSGW ~ PGW
User Data	S1-U	eNB ~ SGW
	S8	SGW ~ PGW
DIAMETER	Sgi	PGW ~ PDN
	S6a	MME ~ HSS
	S13	MME ~ EIR
	Gx	PGW ~ PCRF
	Rx	PCRF ~ CSCF
	Sp	PCRF ~ HSS
	SWx	HSS ~ 3GPP AAA Server
	S6b	PGW ~ 3GPP AAA Server
	Sta	HSGW ~ 3GPP AAA Proxy
	SWm	ePDG ~ 3GPP AAA Proxy
IMS	IMS	CSCF/MGCF/AS
VoLTE	Sgi	PGW~ CSCF