The LTE eNodeB Emulator is a part of the family of LTE Network Equipment Emulators from Polaris Networks. The LTE Network Equipment Emulators together allow testing in a variety of network topologies, allowing the user to utilize lab equipment effectively and reduce capital expenditure and ongoing support costs associated with a test lab. The eNodeB Emulator provides a lower-cost solution and greater control as compared to a real eNodeB for testing the functionality, scalability and performance of LTE Network Equipment, including MME, S-GW and P-GW.

The eNodeB Emulator includes all the network interfaces and implements all the communication protocols required for an eNodeB to operate in an LTE/SAE network. In addition, the eNodeB Emulator provides a scripting interface (using the TCL programming language) to configure and control its functions and obtain performance statistics and test results. The eNodeB Emulator also supports the ability to emulate multiple eNodeBs for the purpose of scalability testing.

APPLICATIONS

- **LTE Network Equipment Manufacturers** can use the eNodeB Emulator both for Unit Testing during product development and for System QA and Regression Testing. The Emulators can test the functionality and scalability and measure the performance of various network elements, by simulating procedures such as UE Attach, Detach, Dedicated Bearer creation and end-to-end Data Transfer.

- **LTE Network Operators** can use the eNodeB Emulator in a pre-deployment test bed to validate the Key Performance Indicators provided by equipment vendors, such as busy hour call attempts and the number of simultaneous active bearers.

- **The eNodeB Emulator** can be used to simulate failure scenarios during Session Setup, Subscriber Authentication and Bearer Setup and to simulate error scenarios such as incomplete signaling.

FEATURES

The eNodeB Emulator includes

- The S1AP and SCTP protocols required to communicate with an MME. It can communicate with multiple MMEs and it can emulate multiple eNodeBs at the same time for testing Handover scenarios.

- The GTP-u protocol required to communicate with a S-GW.

- A UE Simulator so that the eNodeB Emulator can be used to test an MME, eNodeB or S-GW without requiring a real UE. The UE Simulator can be used to simulate UE Attach, Detach and Handover scenarios and generate User Traffic towards the S-GW

- A Graphical User Interface (GUI) that can be run on any Windows or Linux computer. The GUI allows the user to manage a cluster of Polaris Networks LTE Network Device Emulators from a single console. It provides an easy-to-use method to configure and control the functions of the Emulators and to display device and connection status and performance statistics.

- A scripting interface using the TCL programming language to configure and control its functions and obtain performance statistics and test results. This automation of control allows the user to run many test cases simultaneously or serially and to create real-world scenarios for heavy load and long-duration stability tests.

TECHNICAL SPECIFICATIONS

**System Requirements**

- eNodeB Emulator runs on a PC with x86 or x86-64 CPU, Linux OS and minimum 2GB RAM.

**System Interfaces**

- 10/100/1000 Ethernet for connecting to MME and S-GW over S1-MME and S1-U Interfaces respectively.
**TEST SCENARIOS**

- Send Cell Traffic Trace received when Trace procedure is activated
- Send a Location Report for a UE when requested by the MME
- Send a Warning Message Request when requested by the MME

**ORDERING INFORMATION**

For further information, call a Polaris Networks sales representative at the phone numbers listed below, or email us at: sales@polarisnetworks.net

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**Supported Network Protocols and Standards**

- 3GPP TS 24.301 Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS)
- 3GPP TS 29.281 General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U)
- 3GPP TS 36.413 Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)
- 3GPP TS 36.423 Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 Application Protocol (X2AP)
- IETF RFC 4960 Stream Control Transmission Protocol