

Oracle Communications EAGLE

An innovative and sturdy common signaling platform that extends signal transfer (STP) and signaling gateway (SGW) assets to long-term evolution (LTE), machine to machine (M2M) and Wi-Fi domains for enhanced efficiency, connectivity and revenue. End to end signaling across 2G, 3G, 4G networks. With EAGLE, operators can seamlessly manage intelligent routing, screening services, mobile number portability (MNP), equipment identity register (EIR), monitoring and analytics, integrated performance and service management from a unified database technology.

OVERVIEW

To save the cost of yield that is due to mass production and to achieve economies of scale, end-to-end signaling across 2G, 3G, 4G networks is needed. Operators are always concerned about managing the changes that occur due to various factors involving norms governing the telecom sector. In doing so, they need to carefully plan and optimize the existing infrastructure without much changes to it. Instead of taking up costly and time-consuming traditional forklift methods, service providers need to adapt and adopt much efficient methods which are a result of “as-needed basis”.

An intelligent evolution to future generation of networks would be to leverage a single unified signaling platform or a common signaling platform. Oracle Communications EAGLE is an intelligent signaling technology that boasts SS7 focused STP and SGW assets that help operators manage intelligent routing, screening services, mobile number portability, equipment identity register. As they start to grow, operators gain seamless connections to PSTN SS7/TDM links. All this and more can be achieved as a preamble to the future of evolving mobile technologies.

Key Business Benefits

Oracle Communications EAGLE supports a wide range of signaling options irrespective of the existing infrastructure.

- Supports key functions in a single platform
- Enables operators to purchase the capacity and connectivity needed to meet existing network needs
- Provides an option for seamless journey to cloud without major changes in the existing infrastructure. This enables protection of operators' original investment
- An option of Virtualizing your current SS7 signaling infrastructure

PRODUCT DESCRIPTION

Oracle Communications EAGLE is a mature signaling solution with breadth and depth that is globally recognized. It has three key elementary stages: Home location register router (HLR), a robust signal transfer point and signaling gateway.

The HLR flexibility allocates numbers across multiple HLR's in a network and overcomes the limitations of traditional range-based routing that ultimately waste HLR capacity. The HLR router provides the mapping between subscriber numbers and HLR's so operators can fill every HLR to 100 percent capacity, eliminating the need to maintain subscriber routing tables in every mobile switching center.

The STP delivers ANSI / International Telecommunication Union (ITU) international gateway functionality in addition to centralized signaling routing and bridges the existing circuit- switch and packet switch networks. It offers advanced routing and screening functions while supporting multiple link interface types and industry standards. This helps in fostering flexible configuration and connection of network devices.

SGW is a complement to STP, it transfers signaling messages relevant to call establishment, billing, location, short messages, address conversion and other services. Operators can migrate to packet switched networks without modifying their existing infrastructure. Without any additional nodes, EAGLE SGW can manage changes in the traffic and can manage signaling in the most complex networks. These three components yield compelling use cases around 3G-VoLTE migration, mobile number portability and equipment identity register:

- **3G VoLTE Migration:** This solution identifies, and routes calls destined for 4G/VoLTE subscribers by managing two critical variables, namely: identifying whether a call is destined for a 4G/VoLTE subscriber and establishing the location of the called 4G/VoLTE subscriber.
- **Number Portability:** This simplifies NP by integrating advanced database management and signaling functions onto a single platform, providing unmatched support with throughput, avoiding link congestion, and bottlenecks in the network.
- **Equipment Identity Register:** This database can blacklist stolen handsets on 2G, 3G, 4G. It also tracks the stolen handsets in accordance with the guidelines of FCC and other regulatory bodies.

By providing the above use cases and solutions, the EAGLE unified platform goes beyond just signaling and offers much more in terms of security, analytics and monitoring. All this and complete peace of mind for the operator at any given point in time. Some applications that EAGLE supports:

- Voice, SMS, Prepaid
- Mobility, Roaming, Authentication
- Number Portability (480MIL), EIR (600MIL), HLR Router Feature
- Reliability, Security, Screening
- Agility, Scalability, Load Sharing
- Interworking functions, Trouble Shooting, Visibility

With these solutions, Oracle Communication EAGLE platform provides a signaling platform or foundation that is well set for any progress to the future cloud generations. Operators looking to traverse the cloud path can easily migrate from the existing platform without any problems involving their initial investment. The EAGLE signaling platform is both robust in terms of performance and secure in terms of reliability.

Key Features

Oracle Communications EAGLE platform is designed with the best industry standards and engineering practices. The features are as follows:

- Common signaling license that offers investment protection
- Network security addressing both stateful and stateless security cases with clear future path
- EAGLE is the most advanced SS7 solution in the market that provides unmatched features and migration path towards cloud
- Scalable solution and range of deployment options
- Unified database feature enabling control and management ease

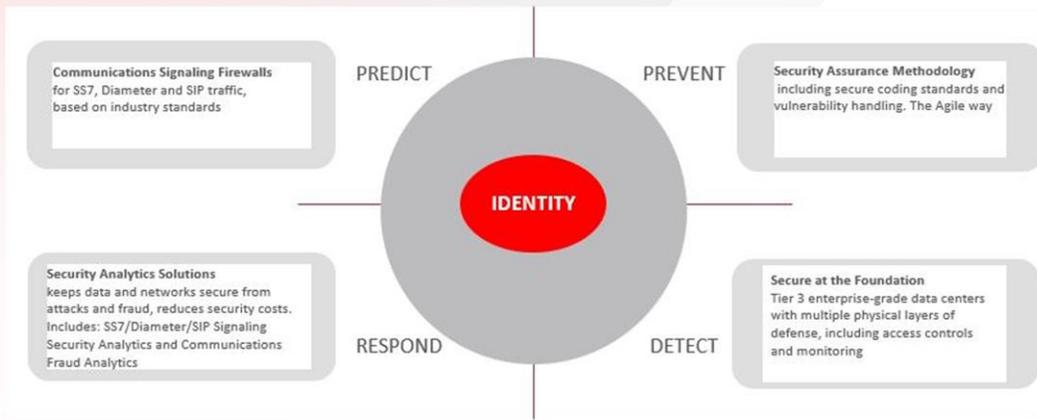


Figure 1. Oracle Communications secure signaling platform

The latest EAGLE now comes with Service and Link Interface cards (SLIC) that eliminates the need for investing in multiple nodes or hardware redundancy. It is a multipurpose module capable of replacing multiple EAGLE modules. Benefits attributed to the SLIC:

- Single slot feature
- Higher capacity and throughput
- Footprint reduction and simplified sparing strategy
- Significantly reduces maintenance costs
- Increased number of supported service modules
- Single source of innovative functionalities

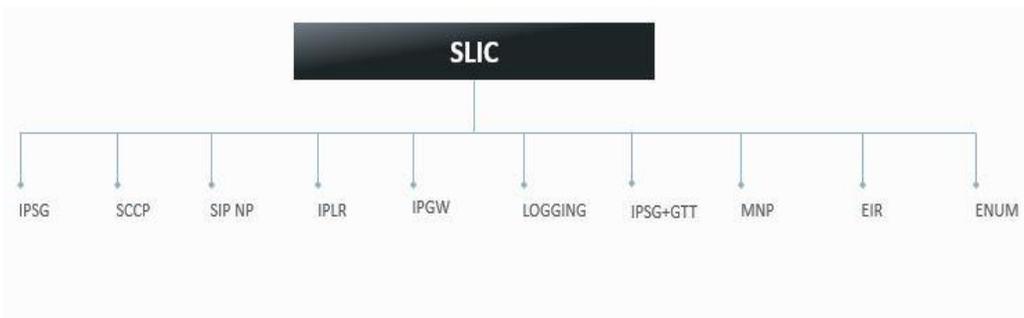


Figure 2. Oracle Communications SLIC functionalities

BENEFITS

Oracle Communications EAGLE platform offerings the following benefits to the customers:

- **Single platform:** Supports key functions such as integrated monitoring, signal transfer, signaling gateway, advanced routing applications, screening, security and NP
- **Scalability:** enables operators to purchase the capacity and connectivity needed to meet existing network needs
- **Reliability:** provides five-nines, field proven reliability in wireless and wireline networks worldwide

Oracle Communications Solutions

- Oracle Communications Policy Management.
- Oracle Communications DSR
- Oracle Communications Policy Control Function (PCF)
- Oracle Communications Common Signaling, Security and Edge Protection Proxy (SEPP)
- Oracle Communications Common Signaling, Network Repository Function (NRF)
- Oracle Communications Common Signaling, Unified Data Repository/ Unstructured Data Storage Function (UDR /UDSF)
- Oracle Communications Common Signaling, Service Communication Proxy (SCP)
- Oracle Communications Common Signaling, Binding Support Function (BSF)
- Oracle Communications Common Signaling, Interworking and Mediation Function (IWF)
- Oracle Communications Common Signaling, Network Exposure Function (NEF)

- Flexibility: supports multiple link interface types and industry standards for flexible configuration and connection of network devices
- Network Security: (FS.11 AND IR.82 compliant) centralizes signaling connectivity to other service providers. Filtering across the entire SS7 layer from MTP to TCAP
- Investment protection: protects initial investment by providing a migration path to future networks that is seamless and secure

STP/Signaling Gateway	Advance Routing	Prepaid Optimization	Signaling Firewall	<ul style="list-style-type: none"> • Security • Screening • Routing • Load sharing • Triggering
HLR/SCP Selection	Number Portability	3G-IMS Migration	SMS Text Router	
Platform/OA&M/OS				

Figure 3. Oracle Communications EAGLE key functionalities

FEATURES

The EAGLE platform involves the following features:

- Reliable, secure, flexible, single platform: Support for 1 million global GTT records and 480 million NP (ITU markets) and HLR manager subscriber records. Performs up to 1 million message signal units (MSUs) per second.
- EAGLE Signaling Firewall: FS.11, FS.19 and IR.82 Compliant. Secure from the foundation to the top layer. Strong layered security support across all junctions within the network. Enables real time tracking, while avoiding/stopping malicious signals.
- EAGLE EIR: Communication Service Providers can enter the International Mobile Equipment Identity of stolen handsets into “Blacklist”. This prevents user equipment’s from registering on the networks. It works with multiple protocols, networks and devices. Operators do not have to traverse multiple nodes to check for an IMEI. It enables inline processing of messages within the same STP.
- EAGLE MNP: Number Portability is made simple and accurate with the EAGLE MNP. It has a single unified database for purposes related to MNP.
- 3G-VoLTE: Efficient routing of 3G and 4G calls that avoids unnecessary lag and enhances the user experience.
- Monitoring and Observability: Oracle’s Performance Intelligence Centre (PIC) provides deep insight into the real time signaling patterns across the intended network. Any threats can be detected at an early stage. With the latest dashboard, it is much easier and efficient for the decision makers to take quick decisions.

These solutions are value added services.

SUMMARY

Oracle Communications solutions enable service providers to both manage and monetize the explosive growth in mobile data traffic and multimedia applications. They help service providers analyze subscribers' quality of service, set policies to improve customer experience and optimize network performance.

Oracle Communications helps billions of people, devices and machines intelligently connect and engage over any network. With proven capabilities, scalable solutions, network security, common intelligent signaling platform, Oracle Communications solutions guarantees high availability and continued support.

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