EPC (Evolved Packet Core) Platform: HSS single SDB 9860 including equipment for continuous energy supply

In order to maintain a competitive advantage in the field of the future communication networks, EPC system was developed, being dedicated to services based on high speed mobile data packages and providing the following benefits:

- Structuring network architecture in packages: the exclusively IP-based network contains only PS. Voice services are complementarily provided by PS and IP multimedia subsystem (IMS), enhancing network efficiency and performance;
- Simplified network architecture, allowing networks to be more easily implemented, the data transmission delays being significantly reduced;
- Support for multiple access technologies. EPC system supports interoperability with the existing 3GPP system. Additionally, it supports the access of users from non-3GPP networks, and it provides roaming and takeover between 3GPP and non-3GPP networks for users;
- High data transmission rate. The maximum rate of downlink traffic reaches 100 Mbit/s, and the maximum rate of uplink traffic reaches 50Mbit/s;
- Optimized architecture which allows LTE basic stations to directly connect to the basic EPS network;
- Restructured PS domain;
- Convergence of the network with other non-3GPP networks, like CDMA2000 (HRPD), which provides interoperability for various radio access technologies, according to the image below:
In reply to the developments made at network architecture level in the field of telecommunications, Huawei LTE/EPC solution supports a wide range of network elements, like MME, S-GW and P-GW. The image below describes the network environment within Huawei LTE/EPC solution.
EPC platform includes components like:

- **USN9810**, which uses ATCA (Advanced Telecom Computing Architecture)-based platform, which provides high capacity and enhanced level of integration, easy operation and maintenance, reliability and flexibility. USN9810 uses a high speed processor in order to direct data towards the user plane, improving system integration and processing efficiency. The Serving GPRS support node, which serves the platform, configure for 2.5G GPRS, supports data directing at a maximum speed of 3.84 Gbit/s. SGSN configured for UMTS 3G system subscribers supports data directing at a maximum speed of 48 Gbit/s. USN9810 includes a hardware platform based on OSTA 2.0 standard, with high reliability and scalability. High speed serial data link and switched structure is used. Thus, the band width for data exchange, intra-subrack, can reach 2.5 Tbit/second. All the panels and subpanels are hot swappable. Moreover, redundancy is implemented for all key components, the system availability reaching 99.999%. USN9810 allows adding interfaces to ATCA panel and cascade between sub-racks. The integrated software platform is of carrier grade (CGP) type with interoperability and easy maintenance features and integration by different types of hardware. USN9810
- **CG9812**, a high capacity loading gateway, which ensures localization between SGSN9810/GGSN9811/UGW and BS and the interfaces for offline loading. CG9812 receives and stores CDRs generated by SGSN9810/GGSN9811/UGW, converts CDR format in order to generate the final CDRs necessary to BS, and it finally sends the final CDRs to BS. CG9812 uses the same OSTA 2.0 hardware platform and Huawei software platform. It supports multiple access and interacts with multiple NEs, like SGSN9810, GGSN9811 and UGW. It provides multiple CDR processing features in order to meet the requirements of the telecommunication operators for CDR formats. These functions include CDR receipt and sorting, CDR unification, conversion of CDR formats and CDR file storing. CG9812 uses high capacity disks and optimized performance processors in order to provide high CDR storage capacity and high CDR processing performance. In its standard configuration, CG9812 can ensure for each pair of panels/boards to process 4000 CDR per second.

CG9812 can occupy a separate rack or it can share a rack and a sub-rack with SGSN9810\MME.

The above image describes the typical network operation.
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