

HPE INTEGRATED HSS

For heterogeneous networks including 5G



Insights

- Disruptive technologies provide new opportunities and introduce architectural highlights to the way mobile operators can treat their subscriber data.
- Subscriber data can no longer be considered an in-network repository, as personalization of experience combining personal and environment data using edge will be critical.
- Customers need to have consistent characteristics applied to services in real time regardless of access type, which calls for managing and presenting disparate user data meaningfully.
- 5G requires new ways to deliver, deploy, and operate in a web scale manner.

The mobile network core is changing with the introduction of new technologies, such as 5G and Multi-Access Edge Computing. As a mobile network operator, this means you face inclusion of another network to manage within your environment and a service driven edge data plane deployment. This increased complexity requires mobile network operators to evolve their solution architecture to be able to continue to deliver their services in the quality expected by their customers while keeping costs under control.

Rolling out a next-generation network, like 5G, presents numerous challenges, including:

- Reconciling new services and data with legacy services and data—a seamless and transparent method is the most practical way of evolving operationally, architecturally, and economically
- Single vendor networks that
 - Limit flexibility
 - Introduce integration issues due to lack of openness
 - Create an unviable competitive position versus a fully cloud native environment that brings new service introduction at web speed
- Managing the various access technology networks including the 5G that come with their own operations, administration and maintenance (OA&M)
- Building a solution that allows you to evolve at your own pace, maintaining your existing investments while enabling you to bring disruptive edge services



GET THE ANSWER

The Communication & Media Solution (CMS) group in Hewlett Packard Enterprise has been serving the subscriber data management solution for 30+ years with customers all across the world. CMS offers HPE Integrated Home Subscriber Server (I-HSS)—a standards-based Home Location Register (HLR), Authentication, Authorization and Accounting (AAA), and HSS. It's developed for Evolved Packet System (EPS) and IP Multimedia Subsystem (IMS) environments, with an integrated AAA. HPE I-HSS leads the industry as a mission-critical component for next-generation access with a fully virtualized product, providing integrated subscriber data profile. So, whether you're migrating an existing wireless platform, converging wireless with your wireline, or delivering broadband services, or offering Private LTE, HPE I-HSS gives you a simple, cost-effective and proven solution.

HPE I-HSS standards-compliant interfaces support a multivendor environment; enabling you to introduce new components from diverse vendors into your network. Our openness gives you the ability to choose the right vendor for your network. HPE I-HSS is integrated today with network products provided by many different vendors, validating the ability to drop our solution into new networks with minimum interruption—quickly and affordably, providing a simplified, easy to operate solution.

HPE has an established partner ecosystem with next gen vendors (Affirmed Networks, Metaswitch, Samsung, Openet) who include HPE I-HSS in their solution through OEM or teaming agreements.

LEARN HOW IT WORKS

HPE I-HSS is the core data storage and management element required to extend your 2G/3G Subscriber Data Management (SDM) to IMS, LTE, Wi-Fi, and beyond. It will interwork with 5G UDM at the message level and also at the data level as per the 3GPP defined standards—future proofing your investment. Data level integration is critical for consistency, and provides a better view of the disparate data stored for the device or subscriber; data that can be exploited for personalization of services. The I-HSS and UDM can be bundled together to act like a combined HSS+UDM for ease of deployment and OA&M.

With I-HSS, you can provision and access subscriber data, subscriber access information, IMS/LTE service information, and a rich set of features. HPE I-HSS has a flexible architecture to support use cases from Private LTE, Enterprises, and medium sized Mobile Virtual Network Operator/Enabler-MVNX to large multi-access tier 1 operators and IoT players. HPE I-HSS comes with a rich set of features for the MVNX use cases like multitenancy, international roaming with local number and roaming controls.

HPE I-HSS has been deployed on standard Commercial-Off-The-Shelf (COTS) based HW with multiple Linux® flavors and on AWS cloud as it is abstracted from HW platform—i.e. I-HSS is HW agnostic.



I-HSS as a 4G–5G connection point

3GPP release 16 improvements—3GPP TS23.632

Key functional enhancements

- Standardized interface between I-HSS and UDM
- Allows operators to deploy separate I-HSS and UDM, even from different vendors
- Legacy systems require upgrade and service based Interface connectivity to the 5G
- The 5GS-UDR and the EPC/IMS UDR may be separate or co-located, that is forming a common repository

Supported features

- Single Registration Handover (EPS <-> 5G)
- SMS Interworking
- IMS (T-ADS/LocInfo/UserState)
- Authentication (SeqNumber Sync)

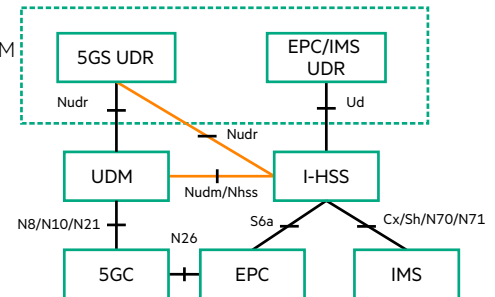


FIGURE 1. High level 4G-5G Interworking Diagram

Extended authentication

HPE I-HSS supports primary IMS authentication procedures using an authentication and key agreement-based, and mutual authentication security architecture, as specified in 3GPP TS 33.102. It supports EAP-AKA, EAP-AKA', and TUAK authentication algorithms which can be shared across different access technologies for ease of provisioning. It also supports HTTP Digest Authentication and Network Access Subsystem (NASS) bundled authentication for next-generation network terminal support. And it can operate as a stand-alone network authentication center (AUC).

Enhanced data handling and synchronization

Unique, state-of-the-art HPE data-handling technology extends HPE I-HSS capabilities with functions that notify external applications—or services—when data changes are made, reducing the need to request subscriber data updates. And its enhanced interface supports nonlocal data storage on external hardware, enabling simple system recovery to a redundant database—in the unlikely case of failure.

All-IP network compatible Diameter, MAP, and HTTP2 based applications

- **HLR**—C, D, Lh, and Gr interfaces for complete support of 2G/3G access and to support access in areas where LTE coverage is not available.
- **IMS**—Cx, Sh, and Zh interfaces for IMS based services like VoLTE and service authentication.
- **LTE HSS**—S6a, Slh, and S6d interface for authentication and mobility and profile management.
- **AAA**—S6b, Swx, Swa, and Swm for extending coverage to Wi-Fi with the HSS profile characteristics and offering VoWi-Fi service as part of your offering.
- **Equipment Identity Register**—Provides handset fraud detection and authorization for 2G/3G and LTE access.
- **HPE I-HSS interfaces comply with these standards:** 3GPP 29.228, 29.229; 3GPP2 TSG-X X.S0013-0060 v1.0 and TISPAN; ETSI TS183 033 and 3GPP 29.272.

Rapid, efficient, adaptable provisioning

HPE I-HSS uses the proven DPA system to create and implement a rapid, efficient, and adaptable HPE I-HSS provisioning interface through:

- An easy-to-use, web-based GUI
- An efficient command-line interface for bulk processing, reporting and error checking and correction





REVIEW KEY BENEFITS AND FEATURES

Protect your existing investments and leverage them to jump-start your LTE, Wi-Fi, IMS services with cleanest path to 5G. HPE I-HSS SS7-based connectivity enables HPE I-HSS to interoperate with any existing network elements in your existing network as we have done this time and again. It's the new generation virtualized HPE HLR and HSS products—using general-computing platform, management systems, and provisioning architecture.

- **Streamline your transition to LTE or Wi-Fi or 5G**—Transitioning to new network technologies requires a considerable period of co-existence with 2G/3G networks. HPE I-HSS supports session information exchange between legacy and new technologies, letting you reduce the risk of service drop and seamless handoff.
- **Provide high-quality service to all types of use cases scribers with scalability**—Gain a scalable solution, up or down, deployed today supporting MVNx, IoT, Private LTE, Tier 1 Telcos, and Social Media Companies. This experience in providing the smallest deployments for use case like Private LTE, Enterprises like banks or oil companies for connectivity, IoT players supporting manufactures of all sorts and last but not the least pure large MNOs/MVNX of all sizes, is proven with over 700M+ profiles live on HPE I-HSS today.
- **Integrate new elements based on existing and anticipated standards**—Know that the commercially ready HPE I-HSS is based on 3GPP standards, and uses standards-compliant Diameter-based and MAP interfaces.
- **Voice over LTE and Voice over Wi-Fi**—Seamless handoff of voice calls over multiple access domains for better experience and stickiness of the customers.
- **HPE Nimble Storage alternative to large network equipment vendors**—You are a MVNX who would like to switch the MNO based on the commercials often, we have customers doing it. You are an IoT vendor who needs to work worldwide with different MNO but control the profiles to provide value to your customers, we have them. You are an enterprise with multiple locations but would like provide LTE connectivity to all those locations, we have them testing of I-HSS today.
- **700 million subs supported on I-HSS today in various network environments**—More than 700 million subscribers already use HPE I-HSS technology—an important element in many existing 3G and 4G/LTE networks, on which these customers rely for design and technology to support their customers. The breadth of customers extends from Private LTE deployments with less than 100 subs to tier 1 operators with 130 million subscribers and customers in between these ranges.





HPE POINTNEXT SERVICES

A leading telecommunication provider, HPE supplies a breadth of reliable, innovative, and cost-effective telecommunications products to communication and service providers. These products include HPE I-HSS, HPE Universal Identity Repository (UIR), 5G NFs, Service Control Point capabilities, Media Resource Function (MRF), prepaid billing, IP Signaling Transfer Gateway, Diameter, SS7, and instant group communications. We continue to lead the industry with scalable and affordable voice and data communications and multimedia solutions with HPE I-HSS as a core component.

Additionally, HPE Solution Lifecycle Services for the communications and media industry help you realize the full value of your solutions, from planning and assessment through testing, deployment, operation, and nearly continuous improvement. Each service area leverages proven processes and best practices to balance capital expenditures and operating expenses and reduce risk while keeping your projects on time and your operations running smoothly.

- **HPE Solution Implementation Services** offers a low-risk project lifecycle across design, development, customization, and network and system integration.
- **HPE Solutions Management Services** increases the operational efficiency of your existing solutions, including reactive, proactive, operational, and enhancement services.

COMMUNICATIONS AND MEDIA SOLUTIONS, HEWLETT PACKARD ENTERPRISE

HPE Communications and Media Solutions is dedicated to creating vertical solutions for the communications and media industry. With over 30 years of experience in the industry, we have over 50 solutions, over 1500 active contracts, and more than 300 telco customers in 160 countries. We provide software and services that enable your digital transformation, automate your operations, and help you grow your business with innovative cloud-native network solutions and digital, 5G-ready services.

ABOUT HEWLETT PACKARD ENTERPRISE

Hewlett Packard Enterprise is the global edge-to-cloud platform-as-a-service company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way people live and work, HPE delivers unique, open and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance.

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