

Data Sheet

Home Subscriber Server

The Bridgewater® Home Subscriber Server (HSS) is the master repository that contains subscriber and device profile and state information, and manages subscriber identities, service profiles, authentication, authorization, and quality of service for Long Term Evolution (LTE) and IP Multimedia Subsystems (IMS) networks. It is a key control plane function in the LTE Evolved Packet Core (EPC).

The Bridgewater HSS is fully compliant with the Third Generation Partnership Project (3GPP) Release 8 standards and provides extensive support for LTE interworking with CDMA/EV-DO and WiFi networks. Optimally designed for the demands of mobile broadband, it leverages the rich subscriber data management capabilities of Bridgewater's Subscriber Data Broker™ to support subscriber identity management, service profile management, static/dynamic QoS management, and state and usage tracking.

The Bridgewater HSS features an onboard interworking module - 3GPP AAA - to enable interworking with non-3GPP networks and service portability across networks.

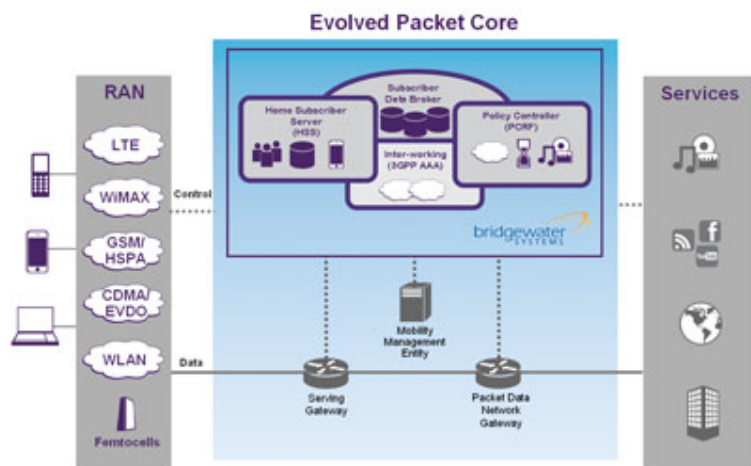
Bridgewater's LTE EPC solutions include the Bridgewater Home Subscriber Server and the Bridgewater® Policy Controller (PCRF), both anchored by Bridgewater's Subscriber Data Broker. Interworking with non-3GPP networks is supported by an Authentication, Authorization, and Accounting (3GPP AAA) module. Together, Bridgewater's LTE EPC solutions provide the cornerstone for managing and delivering a personalized subscriber experience, supporting and introducing new devices and applications, and other important functions such as seamless mobility and service portability across wireless IP networks.

Why Choose the Bridgewater Home Subscriber Server

The Bridgewater HSS is optimized to meet the demands of data-centric 4G applications and services. This includes proven ability to provide a unified subscriber view, support for flexible service bundling of multimedia services, time to market advantage in launching new services, an extensible policy-driven approach, and support for data federation. It features:

- A dynamic policy engine that supports the creation of flexible business rules for dynamic mid-session policy control of the subscriber experience. It also supports static policy controls which are applied at attachment.
- A sophisticated subscriber data management system – Bridgewater's Subscriber Data Broker- that offers rich subscriber and service management capabilities, including onboard modeling of subscribers and services to reduce time-to-market for new service offers.
- An evolutionary approach for existing Bridgewater customers to migrate to LTE while supporting existing revenue-critical 3G services.
- Support for subscribers and devices – allowing service providers to use a common approach to managing authentication and authorization for individuals, groups of subscribers, and devices.
- Data federation from Home Location Registers (HLR) and other data repositories to ensure a smooth evolution path for CDMA/EV-DO and GSM/HSPA service providers. This approach allows service providers to leverage their investments in existing HLRs for voice and SMS services, until they migrate these services to IP.
- Features optional 3GPP AAA module for seamless mobility and interworking.
- Additional value added capabilities include onboard Equipment Identity Register (EIR), integrated Subscription Location Function (SLF), and support for Lawful Intercept.

Deployment Architecture



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Features and Benefits

Interworking (3GPP AAA)

Bridgewater's industry leadership in mobile subscriber data management is backed by over 150 million subscribers on CDMA/EVDO, GSM/HSPA, WiMAX, and WiFi networks. The HSS builds upon this extensive experience and facilitates the introduction of LTE to an existing mobile network with comprehensive interworking and mobility management features. An integrated 3GPP AAA provides seamless mobility and interworking with non-3GPP networks, such as CDMA/EVDO and WiFi.

Dynamic Service Authorization

The Bridgewater HSS goes beyond providing a static service profile. A policy-driven business rules engine modifies service parameters based on device type, subscriber location, and other information in order to enable free or promotional service offers, or provide different Quality of Service depending on the roaming partner.

Flexible Data Schema

Modeling of services and subscriber profiles is very quick and flexible, reducing time-to-market for new services. With the modular and hierarchical approach implemented in Bridgewater's Subscriber Data Broker, additional services can be defined and then customized for specific market segments.

Data Federation

Subscriber data can be retrieved from the HLR via the Gr/D' MAP interfaces, and authentication vectors from the HLR can be retrieved in bulk and cached in the HSS.

Multi-Vendor Interoperability and Standards Support

The Bridgewater HSS is fully compliant with 3GPP Release 8 standards, with interfaces and performance requirements designed and tested for multi-vendor environments. It includes standardized LTE interfaces such as the S6a (to the MME), the S6d (to the SGSN), and the SWx (to the 3GPP AAA). It also includes support for IMS interfaces (Sh, Cx). Bridgewater takes a best-of-breed approach to LTE deployments so that service providers can benefit from best-in-class vendors and innovation across the industry.



Scalability and Reliability

The HSS can be deployed in a load balancing, active/active paired configuration combined with a standby geo-redundant system which offers high availability and reliability. Database level synchronization and replication adds yet another layer of protection to ensure data

integrity.

Lawful Intercept

Compliance with local, national, and regional Lawful Intercept (LI) standards for electronic surveillance is fully supported by the X1/X2 interfaces.

Equipment Identity Register (EIR)

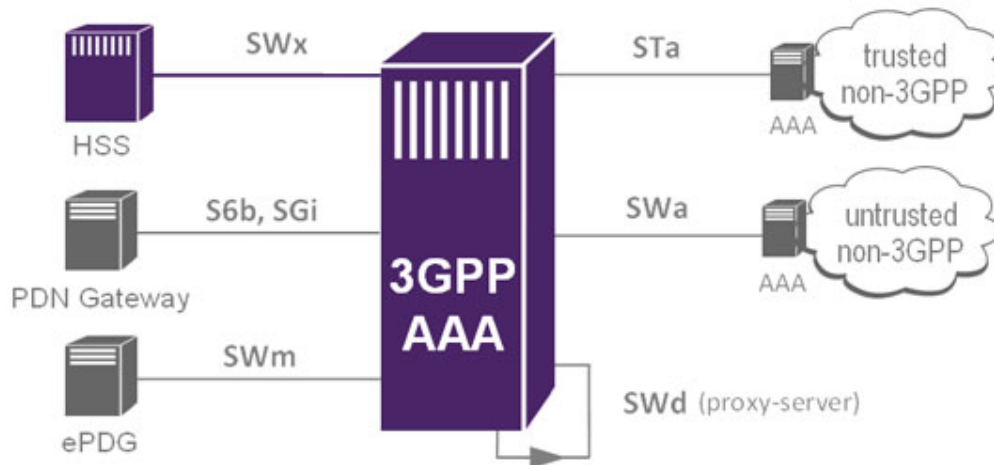
By integrating this function into the HSS, a separate database for blacklisted devices is not required, thus simplifying database management.

Interworking (3GPP AAA)

The Bridgewater HSS features an interworking module - 3GPP AAA to provide seamless mobility and interworking with non-3GPP networks, such as CDMA/EVDO and WLAN. The 3GPP AAA is the interface between the HSS and the AAA server in a non-3GPP IP access network, including CDMA/EVDO and WiFi networks. It is the functional entity that handles authentication, authorization, and mobility management, thus enabling seamless handover and interworking for dual-mode devices (LTE/CDMA or LTE/WiFi).

All standard interfaces and functions are supported, as are interworking scenarios such as non-roaming, roaming via home routed traffic, and roaming via local breakout traffic), for trusted and untrusted network access. The 3GPP AAA supports Mobile IP (MIPv4 and MIPv6), as well as allocation/load balancing of PDN Gateways.

3GPP AAA Interfaces Supported



Deployment Configurations

The Bridgewater Home Subscriber Server is available as a software solution or as a pre-integrated network system. The pre-integrated system reduces deployment costs, accelerates time to market, and comes with Bridgewater certified performance guarantees.

It is available in the following configurations for rapid deployment in a wide range of service provider environments:

| | | |
|---------------------|---|--|
| Bridgewater EPC 500 | A complete, integrated control system comprising Bridgewater Home Subscriber Server, Bridgewater Policy Controller (PCRF), and Bridgewater's Subscriber Data Broker, ideally suited for lab trials and entry-level deployments. | Netra T5120 Server Solaris 10 4-Core 1.2 GHz UltraSPARC T2 Processor 4 MB L2 Cache per Processor 8 GB Low-profile Memory 2 x 146 GB 10000 rpm SAS Disk Drive 1 DVD-RW Drive 2 AC or DC (1+1) Power Supply Units 4 x 10/100/1000 Ethernet Ports |
|---------------------|---|--|

| | | |
|---|---|---|
| | | 2 USB 2.0 Ports 3 PCIe Slots Intergrated Lights Out Manager (ILOM) |
| Bridgewater Home Subscriber Server 1000 | Home Subscriber Server for small- to mid-scale deployments. | Netra T5220 Server Solaris 10 4-Core 1.2 GHz UltraSPARC T2 Processor 4 MB L2 Cache per Procesor 16 GB (8 x 2 GB DIMMs) Low-Profile Memory 2 x 146 GB 10000 rpm SAS Disk Drive 1 DVD-RW Drive 2 AC or DC (1+1) power Supply Units 4 x 10/100/1000 Ethernet Ports 2 USB 2.0 Ports 2 PCI-X Slots 4 PCIe Slots Integrated Lights Out Manager (ILOM) |
| Bridgewater Home Subscriber Server 3000 | Home Subscriber Server for mid- to large-scale deployments. | Netra T5220 Server Solaris 10 8-Core 1.2 GHz UltraSPARC T2 Processor 4 MB Level-2 Cache 64 GB (16 x 4 GB FBDIMMs) Low-Profile Memory 2 x 146 GB 10000 rpm SAS Disk Drive 1 DVD-RW Drive 2 AC or DC (1+1) power Supply Units 4 x 10/100/1000 Ethernet Ports 2 USB 2.0 Ports 2 PCI-X Slots 4 PCIe Slots Integrated Lights Out Manager (ILOM) |

About Bridgewater Systems

Bridgewater Systems, the mobile personalization company, enables service providers to efficiently manage and profit from mobile data services, content and commerce. The company's market leading mobile personalization portfolio provides a real-time, unified view of subscribers including entitlements, devices, networks, billing profiles, preferences and context. Anchored by Bridgewater's Subscriber Data Broker™, the portfolio of carrier-grade and standards-based products includes the Bridgewater® Service Controller (AAA), the Bridgewater® Policy Controller (PCRF) and the Bridgewater® Home Subscriber Server (HSS). More than 150 leading service providers including America Movil, Bell Canada, Clearwire, Cox, Hutchison Telecom, Iusacell, Scartel, SmarTone-Vodafone, Sprint, Tata Teleservices, Tatum, Telmex, Telstra, and Verizon Wireless use Bridgewater's solutions to rapidly deliver innovative mobile services to over 150 million subscribers. For more information, visit us at www.bridgewater.com.

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