

# ngHLR 3000™ Datasheet



The Blueslice ngHLR 3000™ serves as the mission-critical register for subscriber profile management in GSM/GPRS, UMTS and LTE networks. Offering the functionality, telecom-grade performance, and scalability exceeding current market offerings, and with an open, industry-standard platform, the ngHLR 3000™ is changing the HLR paradigm for mobile service providers. Thanks to its multi-profile subscriber database and dynamic association engine, the ngHLR 3000™ is capable of supporting multiple GSM/UMTS/LTE identities and mobile phone numbers for any given subscription.

## Scalable & Flexible ngHLR

- Non-legacy, next-generation, feature-rich HLR/AuC
- Highest subscriber density and scalability; up to 40M subscribers per cabinet & over 100M subscribers per logical HLR
- Innovative feature set: Advanced Low Cost Roaming, HLR/HSS-based Fixed Mobile Convergence, and SIP and XML support for Web 2.0, pre-IMS, and IMS integration
- Distributed layered architecture and geographic redundancy, including split front-end (applications) and back-end (database)
- Easily configurable as backup HLR, to offload legacy HLR inactive subscribers
- Cross-domain subscriber consolidation makes it ideal for WiMAX operators, Quad play, VoIP, GSM/UMTS/LTE and Cablecos

## SIP & XML Interfaces

Redefining the rather inflexible concept that only MAP/SS7 queries can be made to an HLR, the ngHLR 3000™ allows new options for next generation service providers to gain greater subscriber control, by integrating easily with VoIP softswitches, application servers, and other IT systems. Previously, controlling mobile call termination required deploying a complex MAP/SS7 network and purchasing an expensive Gateway MSC. The SIP-HLR interworking feature of the ngHLR 3000™, specifically tailored for next generation mobile service providers, enables low-cost VoIP softswitches to query the HLR directly using SIP (Session Initiation Protocol) methods of XML operations, as would a MAP-enabled G-MSC.

## Advanced Low Cost Roaming

The Blueslice Advanced Low Cost Roaming solutions enable mobile service providers to significantly reduce, even eliminate, roaming charges. These features are integrated into the HLR application and are therefore completely transparent to the other network elements and to the end-user.

The powerful, patented Multi IMSI/MSISDN association engine allows an end-user to have a single subscription in the ngHLR 3000™ containing multiple IMSIs (identities) and MSISDNs (phone numbers) in several countries or area codes. By mapping several identities, roaming subscribers are seen by the network as "local" and can roam across borders on multiple networks without paying current roaming surcharges. The ngHLR 3000™ allows service providers to manage their roaming preferences centrally and steer subscribers onto the optimal networks, thereby taking control over their roaming costs while overriding faulty SIM/handset network selection behaviors. Service providers are also able to offer multiple "virtual numbers" in different area codes or countries, thereby eliminating long-distance charges for mobile-terminating calls.

These features are integrated to the HLR logic and eliminate the signaling bottlenecks created by the standalone roaming gateways. With Blueslice roaming, mobile service providers can offer a larger home network, crossing geographic borders and eliminating mobile subscribers' cautious roaming behaviors, removing the borders for true global mobility.

**Convergence Starts with Your Subscribers**

## The Converged Subscriber Platform

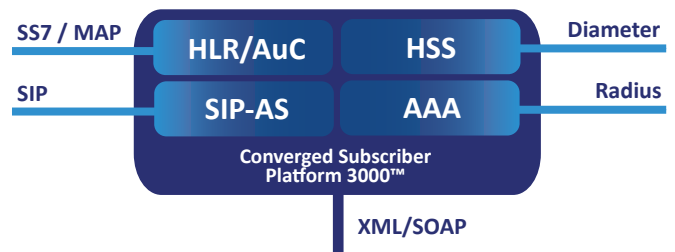
The Blueslice ngHLR 3000™ is built on the Converged Subscriber Platform 3000™, the next generation subscriber data management platform. The Blueslice CSP 3000™ is the integrated platform for multi-profile subscriber management in Mobile, VOIP, Fixed Mobile Convergence (FMC), and Machine to Machine (M2M) networks. The CSP 3000™ hosts the Blueslice Subscriber Data Server (SDS) 3000™, a scalable and flexible subscriber database (back-end), as well as a range of subscriber-centric applications (front-ends), all accessing the converged multi-profile subscriber information via the open APIs of the SDS 3000. Combining an ngHLR/AuC, HSS, SIP Server, and a AAA Server, the CSP 3000™ delivers the convergence of subscriber profiles across 2G (GSM, GPRS, EDGE), 3G (UMTS, HSPA, IMS), 4G (LTE, WiMAX) and VoIP (Wireline, WiFi) domains, and enables centralization of cross-domain subscriber information as a single, logical entity.

## HLR/AuC Features

- All 3GPP-specified HLR/AuC MAP basic procedures and supplementary services
- Location management, fault recovery, authentication, call & SMS handling
  - AoCI, AoCC, BAIC-ROAM, BAOC, BOIC, BOIC-exHC
  - CFU, CFB, CFNRy, CFNRc, CFD, HOLD, CW, CLIP, CLIR, COLP, COLR
  - MPTY, CUG, ECT, ODB
  - GPRS, UMTS, HSDPA, HSUPA, LTE
- MAP version negotiation
- Support for supercharged networks
  - Mobile-initiated and network-initiated USSD handling
- AuC algorithms: GSM Milenage, UMTS Milenage, XOR, COMP128-1,2,3
- CAMEL subscription: Phase 2, Phase 3, Phase 4
- Advanced roaming solutions
  - Multi-IMSI low cost roaming with SIM swap
  - Local & international virtual numbers
  - Steering of roaming (Operator-controlled PLMN selection)
  - Operator-controlled IMSI selection
  - Multi-country HLR numbers, multi-PLMN support
  - USSD callback
  - Dynamic MSISDN & IMSI pooling
  - HLR MAP proxy services
- SOAP/XML API to MAP commands
- Customizable subscriber profile toolkit
- MT-SMS redirection
- XML roaming notifications
- MNP-SRF call-related and non call-related features
- Subscriber Signalling Router functionality

## Platform Features

- Open-standard hardware and OS
  - Advanced TCA PICMG3.0+ and IPMIv1.5 compliant Linux RHEL 3.0 and 4.0
- Distributed software architecture: any process (front end and/or back end) can run on any blade
- Fault-tolerant platform achieved through High Availability end-to-end framework:
  - No Single-Point-Of-Failure (hardware and software)
  - Stateful hot-standby via real-time checkpointing and state journaling, database replication and integrity
  - Overload control, fault detection, and automatic switchover
  - Hitless patching and software upgrades, all components hot-swappable
  - Blade configuration in 1+1, n+n, and load sharing
  - Geo-redundancy (active/standby & active/active) and mated pair
- Hardware
  - 19" rack-mountable, 12U NEBS-compliant 14-slot ATCA chassis
  - Dual redundant 16-port GigE ATCA base fabric switches, with on-board IPMI controller
  - Dual AMD single board computer blades (48 processors per chassis)
  - Filtered dual hot swappable 48VDC power entry modules
  - Three front hot-swappable dual-fan trays
  - Dual redundant integrated shelf manager / fan controller boards
- Platform protocol stacks
  - SS7: MAP, TCAP, SCCP, MTP (ANSI & ITU)
  - SIGTRAN: M3UA, SUA, SCTP
  - SIP, DIAMETER, TCP/UDP, IP
  - RADIUS
- User-friendly web craft interface for remote system configuration, monitoring, and subscriber provisioning
- Bulk subscriber provisioning
- Maintenance and provisioning through XML/SOAP and SNMP interfaces
- Small footprint and high density minimizing operating costs
- In-memory relational database allows for rapid data access and supports ACID transactions (Atomicity, Consistency, Isolation, Durability)
- Active/provisioned subscriber management
- Platform segmentation (up to six nodes per chassis)
- Subscriber Data Server allows decoupling of applications and database



The multi-network, multi-protocol Converged Subscriber Platform 3000™

## About Blueslice Networks

Blueslice Networks is the leading provider of subscriber data management solutions for the mobile, VoIP, FMC, and M2M markets. Blueslice solutions allow mobile service providers to control their principal asset, their subscriber base, while delivering innovative and differentiated services and significantly reducing operational costs. Now, end-users can access coherent communication services seamlessly over any type of access with a single subscription and set of preferences.

The carrier-grade, open standard Converged Subscriber Platform 3000™ is the only converged HLR/AuC, HSS, SIP Server, and AAA Server, which, together, enable universal mobility across all access networks. Blueslice delivers solutions to the world's leading mobile service providers including wireless carriers, MVNOs, VoIP providers, and alternate carriers.

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