



Next Generation HSS & HLR

Summa Networks

www.summanetworks.com

- Founded in 2016
- Joint Venture with Enreach group www.enreach.com
- 24 live customers worldwide, 3 in process of deployment
- Managing a total 10M subs capacity, planned upgrades and prospects up to 14M in 2021
- Based in Madrid, Spain and Almere, The Netherlands
- Founding member of EANGTI <http://www.eangti.org/>

Customers





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- ❑ State-of-the-art software-based HSS / HLR
- ❑ Single suite for 2G / 3G / 4G / 5G...
- ❑ Includes IoT, EIR, DNS/ENUM, VoLTE, VoWiFi enabled
- ❑ Investment protected for future networks (5G and beyond)

Too costly and not future proof

- ❑ Big vendor market with expensive products focused on tier-1 operators
- ❑ Upgrade/migration from HLR to HSS involves high license cost, platform swaps etc.
- ❑ Non-transparent on features, CR's, expansion prices
- ❑ Separate implementations/products for HLR and HSS
- ❑ No flexibility for smaller operators and MVNO's

NextGen HSS Product

NextGen
HSS®



Value Proposition

NextGen
HSS®



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HSS LTE/IMS + HLR
in the same suite

Same DB, Seamless
migration and
upgrades

NextGen
HSS®



Other
functionalities

EIR
DNS/ENUM
VoLTE / VoWiFi enabled...

Single Price for the solution. No
modules or hidden costs.
TCO under control

Go To Market: OEM's, few
strategic direct sales...

- ❑ Overcomes the limitations and barriers of the traditional HSS vendors' products
- ❑ Affordable, designed to be cost-effective also for smaller operators and MVNO's
- ❑ Support for multi IMSIs, multi MSISDN, multi HPLMN/country, multi profile and virtual routing instances
- ❑ High-quality, high-available, scalable HSS solution
- ❑ Convergence of subscriber's registration, authentication and call termination across access domains
- ❑ Single subscription with unlimited number of profiles
- ❑ Software based, supports NFV and cloud deployment
- ❑ Multi-tenant, cost-effective
- ❑ N+1 scalable, high-available, geo-redundant
- ❑ License only related to number of subscribers, independent of instances deployed

- ☐ MVNOs going to full MVNO
- ☐ Multi-IMSI, Multi-SIM... Roaming and SoR
- ☐ MNOs RIP and Replace of legacy or High-Risk Vendors
- ☐ IoT carriers, automotive
- ☐ VoLTE, VoWiFi
- ☐ AAA for Diameter
- ☐ Private LTE Networks Subscribers Management
- ☐ 5G NSA and evolution to SA, interworking
- ☐ 3G roaming outsourcing

NextGen HSS Definition

NextGen
HSS®



1. The Long Term Evolution-Home Subscriber Server (LTE-HSS) serves as the primary database repository of subscriber information within Evolved Packet Core (EPC).
2. Home Subscriber Server function in IP Multimedia Subsystem (IMS-HSS), serves as the central subscriber database for Next Generation IP and GSM networks.
3. The Home Location Register (HLR), serves as the primary database repository of subscriber information within GSM/GPRS networks.

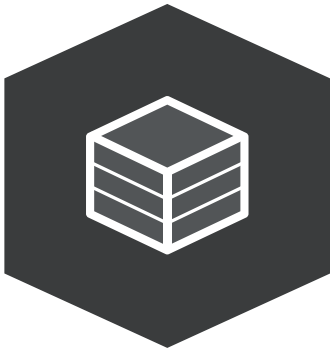


A GLOBAL INITIATIVE

**Fully
compliant
data-model
with 3GPP
Release 15**



NextGen HSS®



Release 15

AuC

Roaming Controls, SOR

EIR

DNS/ENUM

VoLTE

VoWiFi, AAA

Lawful Interception

Full API available

System specifications

Multi-technology:

GSM, UMTS, SIP, Diameter, GSM MAP
V1/2/3, SIGTRAN, SS7 ITU and ANSI

Built on top of Java with proprietary stacks.

Protocol stacks:

SS7: MAP, TCAP, SCCP, MTP

SIGTRAN: M3UA, SUA, SCTP

SIP, TCP/UDP, IP RADIUS, DIAMETER



Protocols supported

- ✓ Supports the primary IMS / LTE authentication procedures
- ✓ Supports the SDM multi-profile subscribers
- ✓ Supports the Cx/Dx and Sh/Dh IMS interfaces
- ✓ Supports the S6a/S6d and S13 interfaces for LTE
- ✓ Support Zh for BSF authentication
- ✓ Supports the primary GSM authentication procedures
- ✓ Supports the SDM multi-profile subscribers
- ✓ Supports the Gr/Gr', Gf, Gc, D/D', C
- ✓ SIP integration (UA)



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Features

HSS Features

MREALM

Support for multi-realm

MTENANCY

Support for multi-tenancy

ROAMING

Support for Roaming Control and Screening

SRVCC

Support for Voice Call Continuity Service

TADS

Supports for The Terminating Access Domain Selection (T-ADS)

ODB

Operator Determined Barring

MMSIDN

Multi MSISDN per Sim

STATS

Stack and HSS services and platform stats

REPORT

Reports on stats over time

MIMSI

Multiple IMSI

CAMEL1/2

Customised Applications for Mobile network Enhanced Logic service Phases 1

CAMEL3

Customised Applications for Mobile network Enhanced Logic service Phase 3

CB-SS

Call Barring Supplementary Services (inc setting from handset with password)

CF-SS

Call Forwarding Supplementary Services

CW/HOLD-SS

Call Waiting and Call Holding Supplementary Service (inc activate/deactivate from handset)

ECT-SS

Explicit Call Transfer Supplementary Service

LI-SS

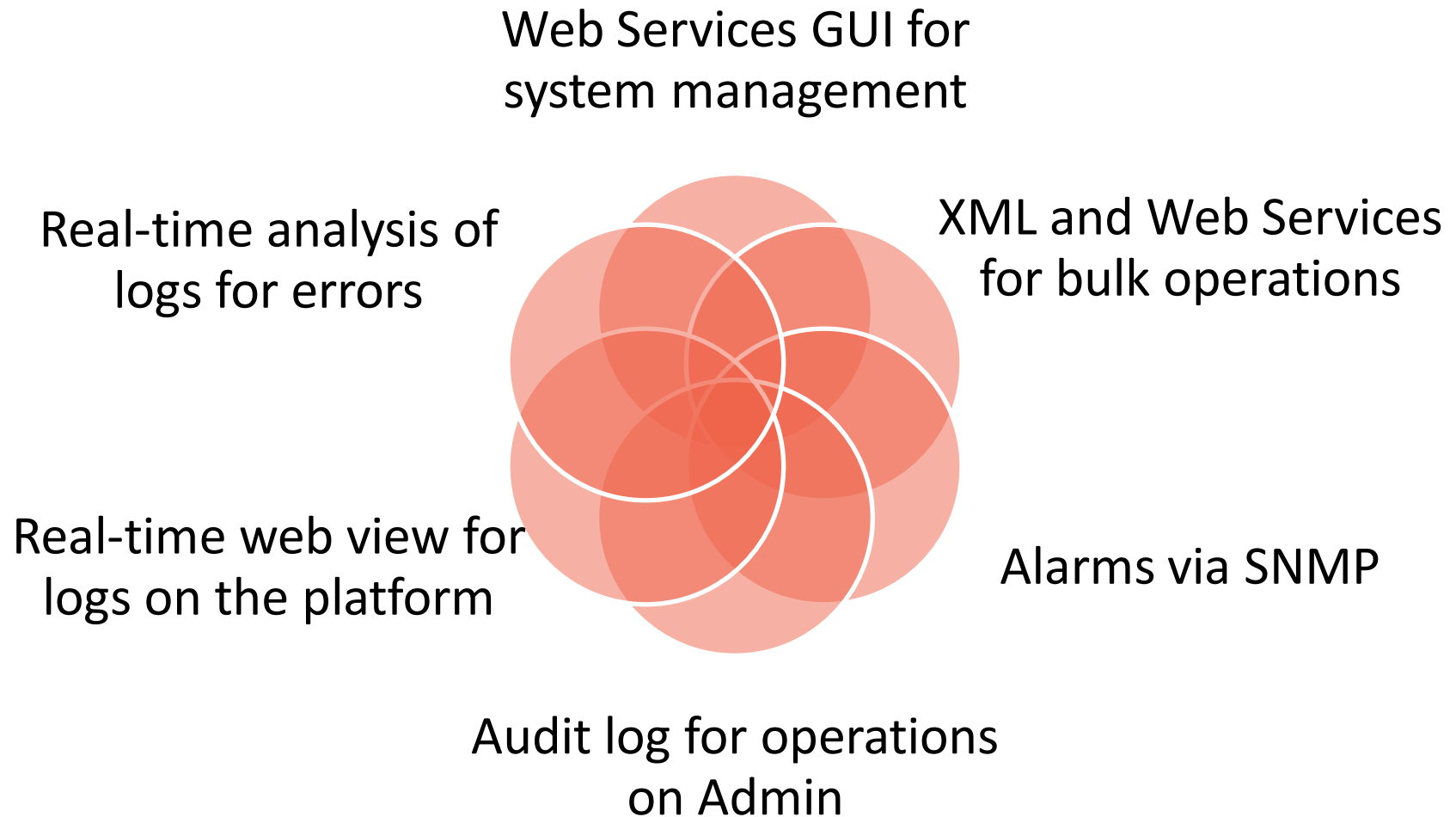
Line Identification Supplementary Services (CLIP/CLR/COLP)

MPTY-SS

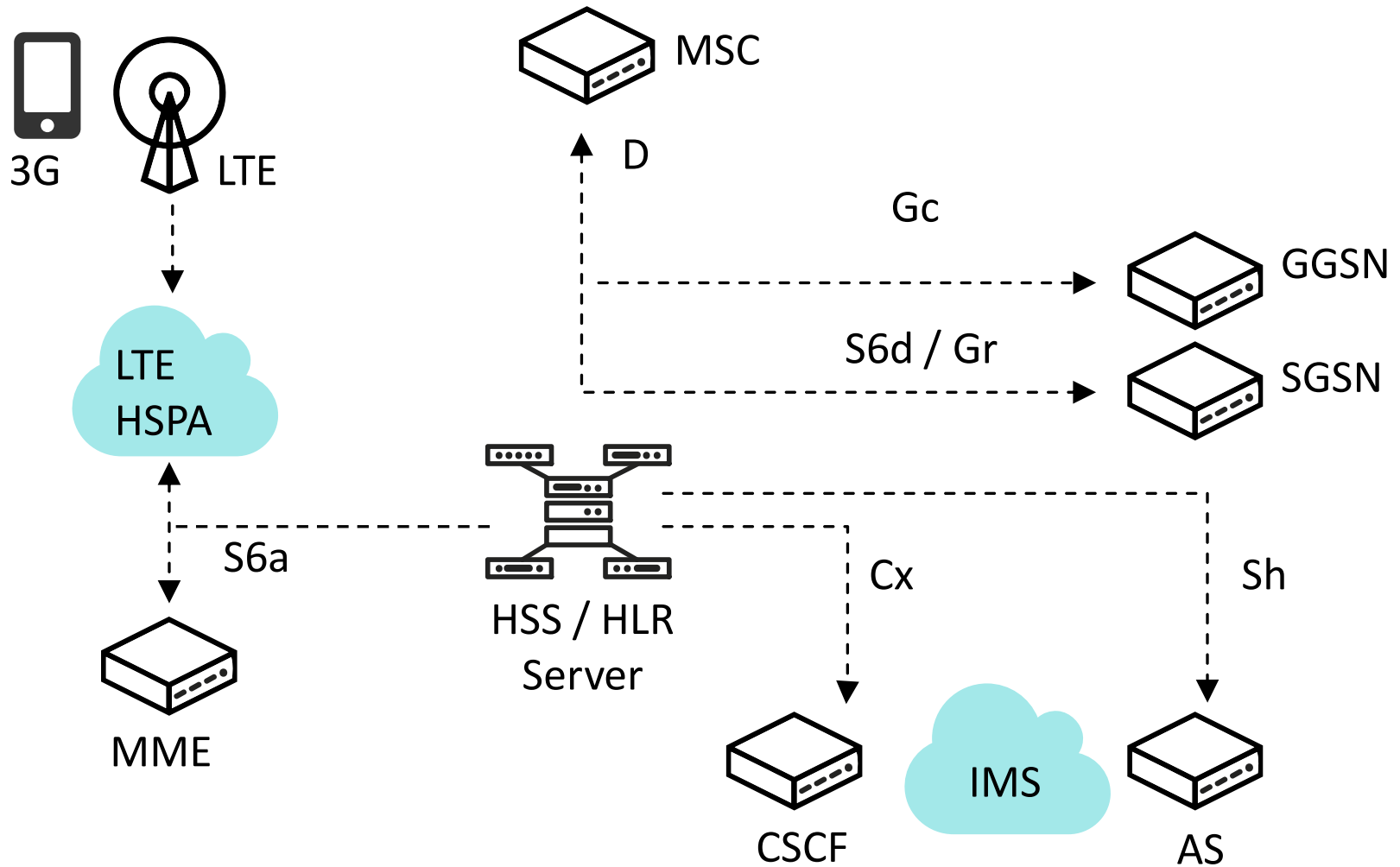
MultiParty Supplementary Service

HLR Features

ODB	Operator Determined Barring
SMS	Short Message Service
USSD	Unstructured Supplementary Service Data service
MMSISDN	Multi MSISDN per Sim includes ATI and PSI
STATS	Stack and HLR services and platform stats
REPORT	Reports on stats over time
BATCH	Batch load of SIM card profiles and SIM cards
MIMSI	Multiple IMSI. Multi-Country HLR numbers. Multi-PLMN Support

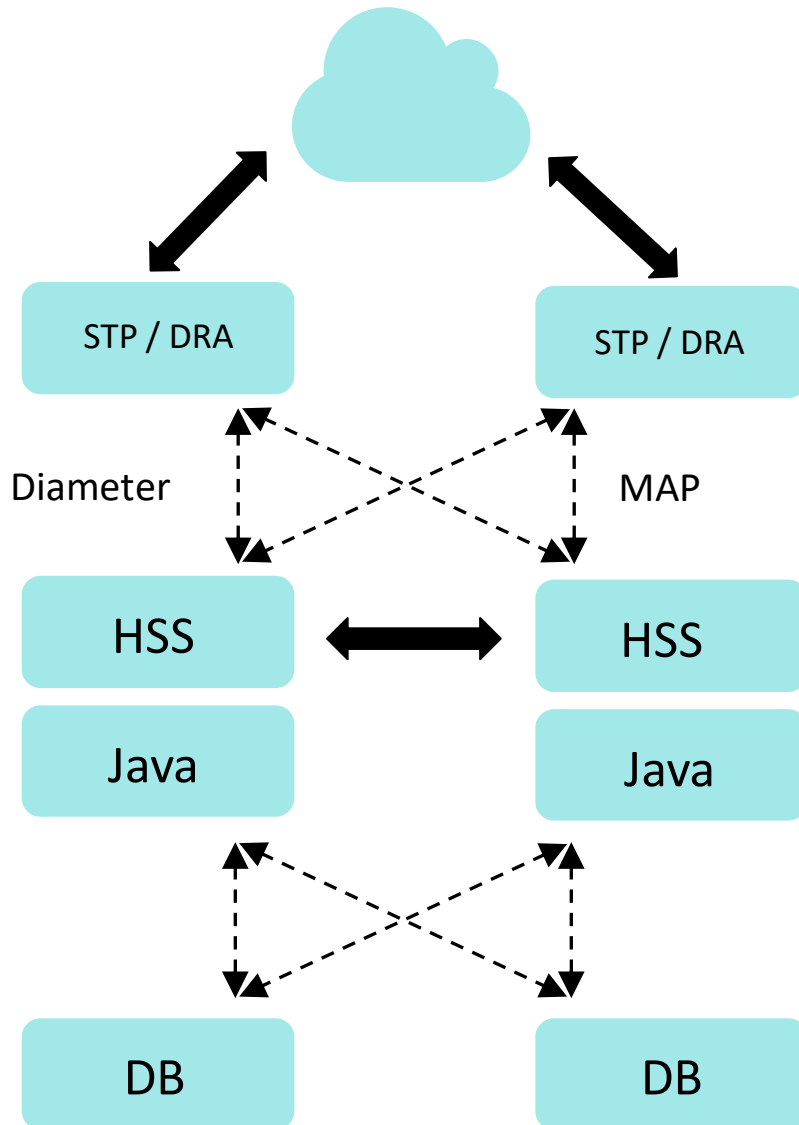


GSM Network architecture



- ❑ HSS /HLR can be deployed on any x86 hardware
- ❑ Support for any hypervisor (Vmware, KVM, etc)
- ❑ Support for all public clouds (AWS, Azure, etc)
- ❑ Incremental scale and performance elasticity by adding HSS nodes
- ❑ Ease of replication, redundancy, expansion and in-service upgrades

Low level architecture



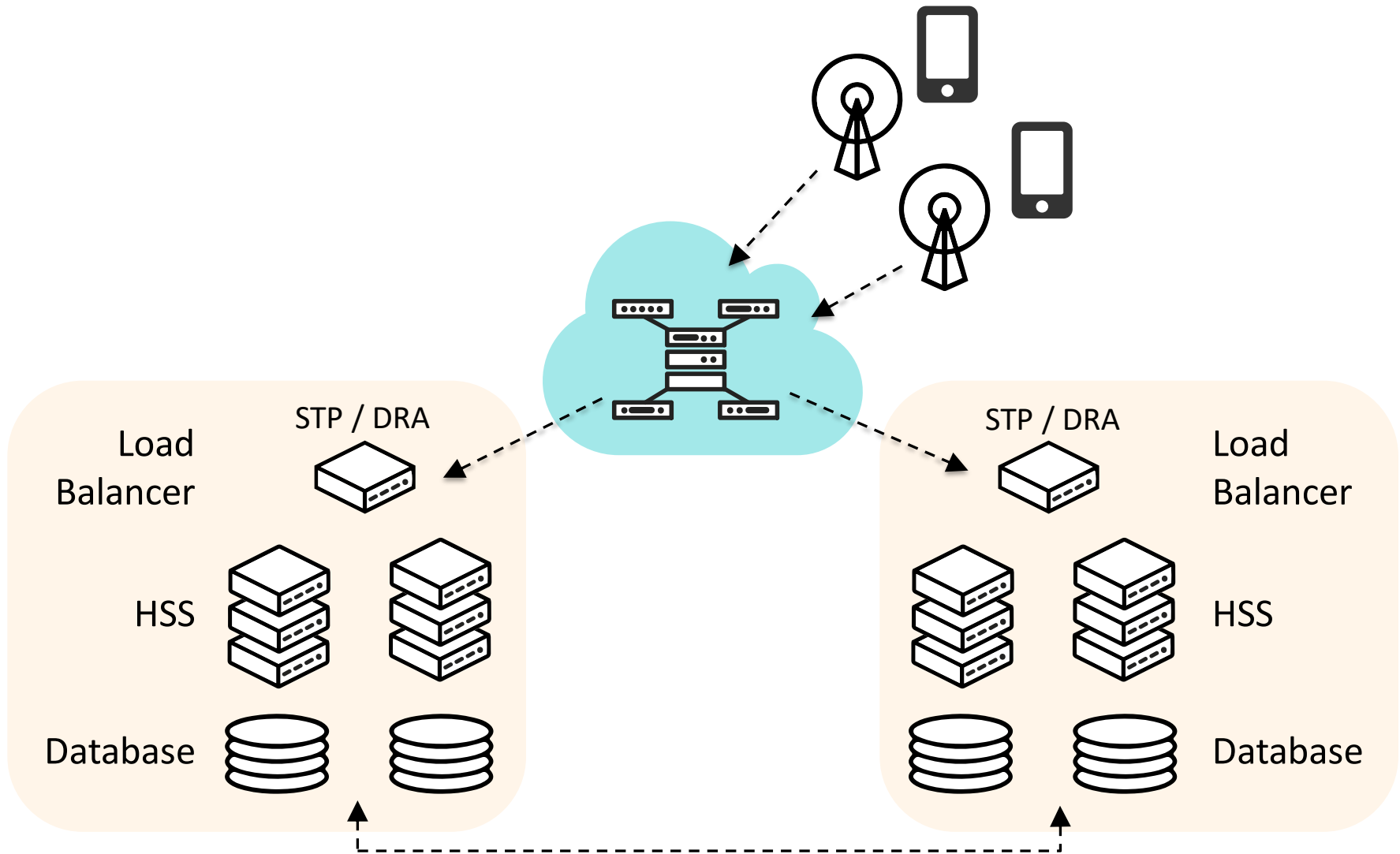
STP and DRA

NextGen HSS / HLR

Java 11, Spring.

MySQL Percona Database

Example deployment model



Deployable in load balancing and active/active paired configuration combined with geo-redundancy, which offers high availability and reliability

Database-level synchronization using real-time replication provides a layer of protection to ensure data integrity. No data corruption and maximum scalability.

State replication from node to node to recover from a server loss. Transaction management to ensure consistency across all nodes in case of failure.

Resellers & Integrators

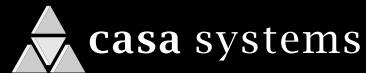


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NETWORKS**



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Infradata



ORACLE

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INQUIRIES FOR OUR
ROADMAP 2021
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Thank you



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