Synergem Technologies
ESRP Essentials

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Intro to Synergem ESRP Essentials

- This presentation was created to cover the basics of how a standard i3 call is processed through Synergem's ASC/SSC and ESRP/PRF.
- There are multiple ways to implement NGCS based on the NENA standard.
- The scenarios shown are how Synergem Core Services are currently or typically deployed.
- Today, we will cover a high-level overview of the ESRP and the associated functions of policy routing and SIP session management.
- Later, we will go back and break it all down one Functional Element at a time as defined by the NENA standard in subsequent presentations.

Definitions

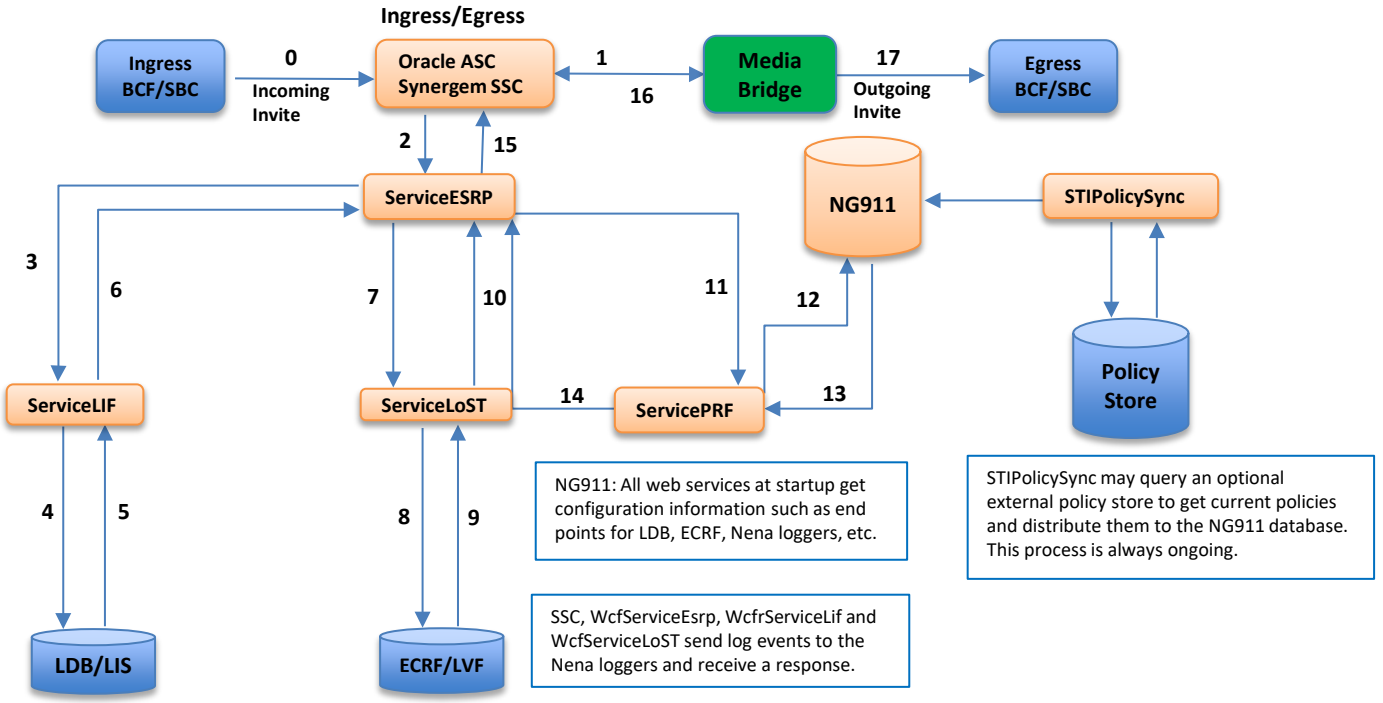
- ASC – Application Session Controller (MD)
- ECRF – Emergency Call Routing Function
- ESRP – Emergency Services Routing Proxy
- FE – Functional Element
- LDB – Location Database
- LIF – Location Integration Function
- LIS – Location Information Server
- LoST – Location-to-Service Translation
- LVF – Location Validation Function
- MB – Media Bridge
- NENA – National Emergency Number Association
- NGCS – Next Generation Core Services
- PIDF-LO – Presence Information Data Format – Location Object
- PRF – Policy Routing Function
- PRR – Policy Routing Rules
- SIP – Session Initiated Protocol
- SR – Selective Router
- SSC – Synergem Session Controller

What is the ESRP??

- ESRP is the heartbeat of NGCS.
- ESRP replaces the legacy Selective Router (SR) utilized in legacy 9-1-1 call routing with an IP NG9-1-1
- Policy Based Routing through PRF integration
- Policy Rules Enforcement and failover
- Location Based Routing via ECRF/LVF integration
- SIP Session Management with SSC
- NENA Logging

Synergem ESRP Call Flow

- This sequence begins upon receipt of a SIP Invite at the ingress SSC from the BCF.
- In this scenario, all calls are anchored at the media bridge (Conference Aware UA).
- Optional 3rd party Policy Store is shown, but not required.
- ASC/SSC is shown both as Ingress/Egress in single instance.



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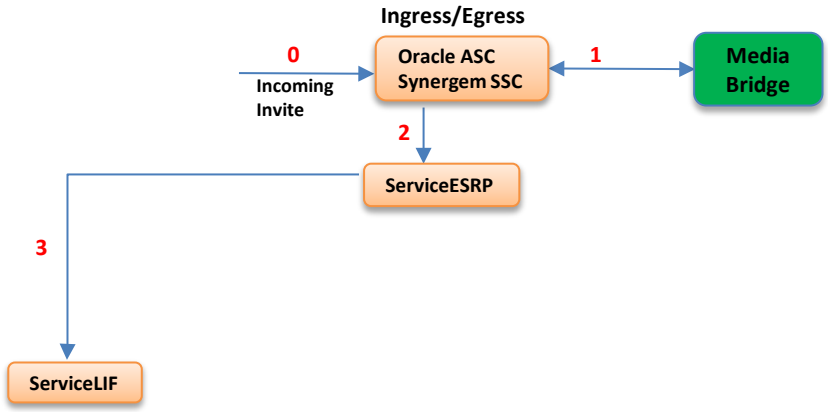
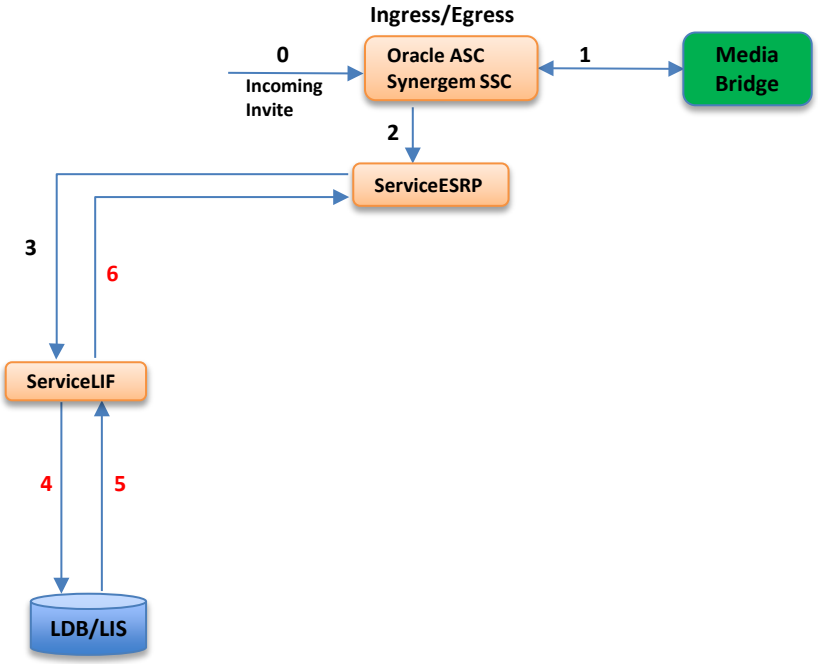
SIP INVITE & Initial Routing

Step 0: SIP INVITE arrives at ASC/SSC from SBC, BCF, or LNG
Step 1: ASC/SSC sends request to Media Bridge to open conference and anchor the call.
Step 2: ASC/SSC sends an http request to ServiceESRP for the next routing destination.
Step 3: ServiceESRP queries ServiceLIF for location data.



Location Validation via HELD and PIDF-LO

Step 4: ServiceLIF sends HELD query to LDB or LIS.
Step 5: LDB/LIS responds with PIDF-LO location (by value or reference).
(May include Additional Call Data by value or by reference)
Step 6: ServiceLIF returns XML location data to ServiceESRP.



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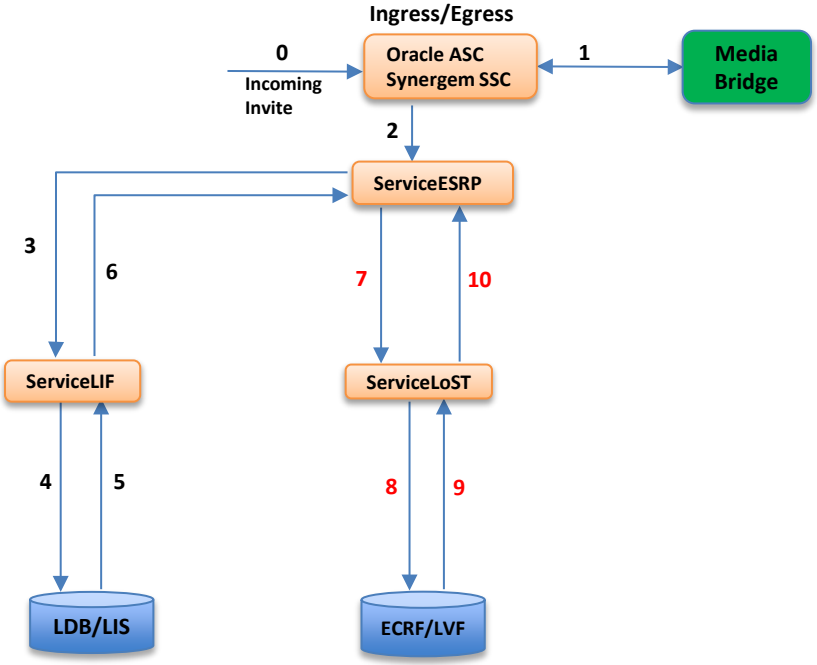
Routing Agency Determination via LoST

Step 7: ServiceESRP sends agency query to ServiceLoST.
Step 8: ServiceLoST queries ECRF/LVF via LoST protocol.
Step 9: ECRF/LVF returns agency info to ServiceLoST.
Step 10: ServiceLoST responds to ServiceESRP.



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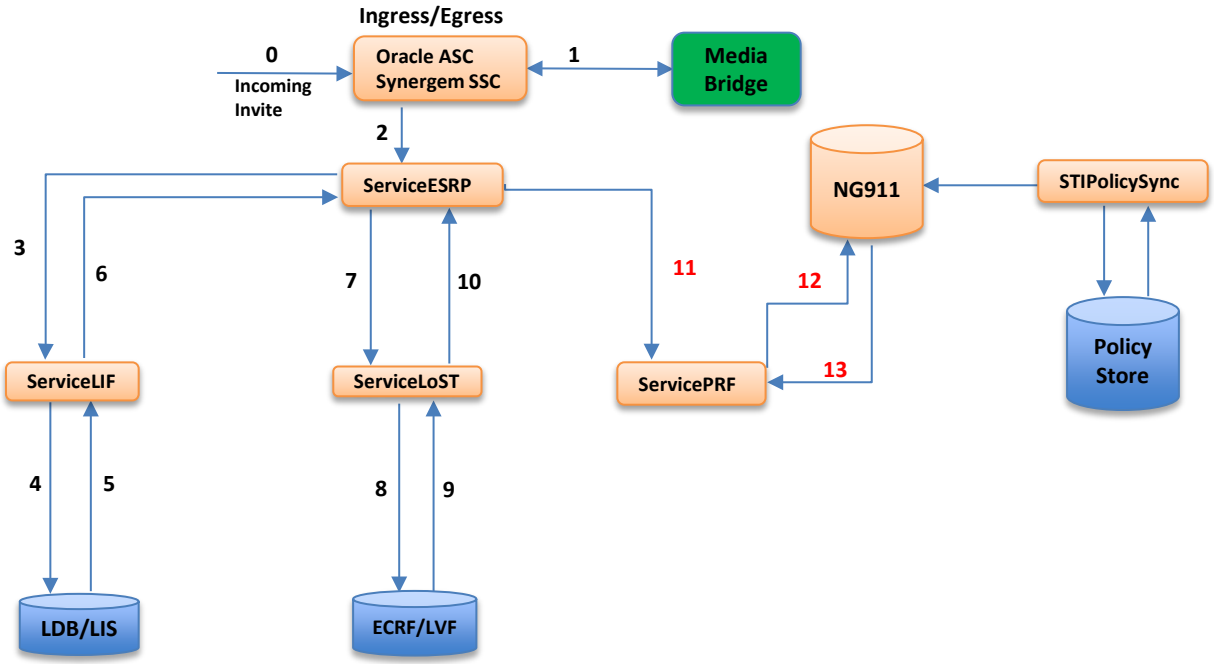
Policy Application via PRF and NG9-1-1 DB

Step 11: ServiceESRP queries ServicePRF with agency info.
Step 12: PRF queries NG9-1-1 database for policy rules. Use of external Policy Store is optional.
Step 13: NG9-1-1 database returns policy rules list to ServicePRF



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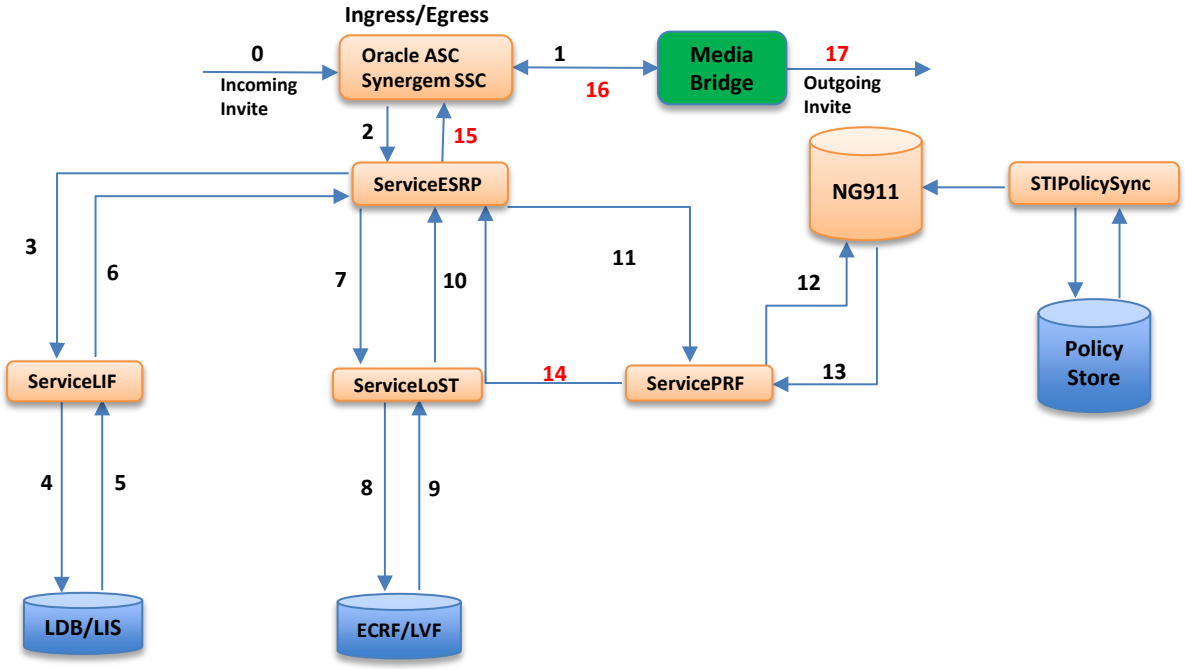
Send Routing Directives to ASC/SSC

Step 14: ServicePRF sends agency URL to ServiceESRP using first policy rule from list.
Step 15: ServiceESRP sends http response of directives back to ASC/SSC.
Step 16: ASC/SSC updates SIP INVITE using those directives and routes to Media Bridge.
Step 17: Media Bridge sends INVITE to PSAP or next hop to join the conference.



Thanks and follow up quiz

- What is the primary purpose of the Emergency Services Routing Proxy (ESRP)?
  - A. To provide location validation and address standardization for incoming emergency calls.
  - B. To act as a policy-driven SIP proxy that routes emergency calls to the appropriate next destination within the NG9-1-1 network.
  - C. To record, mix, and manage audio and video streams during emergency call sessions.
  - D. To translate legacy analog 9-1-1 circuits into IP-based signaling messages for NG9-1-1.
- What Functional Element replaces the legacy Selective Router?
  - A. ECRF
  - B. ESRP
  - C. LDB
  - D. PRR
- What is the required format for location information to be shared within the NG9-1-1 architecture?
  - A. Comma-separated value (CSV) file containing civic address fields and GPS coordinates
  - B. Proprietary XML schema defined by each ESInet service provider
  - C. Presence Information Data Format – Location Object (PIDF-LO) standardized by the IETF and adopted in the NENA i3 architecture
  - D. Simple text string passed in the SIP “From” header

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What is the primary purpose of the Emergency Services Routing Proxy (ESRP)?

A. To provide location vali ning emergency calls.

B. To act as a policy-driver e appropriate next destination within the NG

C. To record, mix, and ma ency call sessions.

D. To translate legacy ana sages for NG9-1-1.

❌ Incorrect. Try again.

✅ Correct! ESRP is a policy-driven SIP proxy for routing calls.

❌ Incorrect. Try again.

❌ Incorrect. Try again.

You can click the arrows below to advance or go back.

What Functional Element replaces the legacy Selective Router?

A. ECRF

❌ Incorrect. Try again.

B. ESRP

✅ Correct! ESRP is a policy driven SIP proxy for routing calls.

C. LDB

❌ Incorrect. Try again.

D. PRR

❌ Incorrect. Try again.

You can click the arrows below to advance or go back.

What is the required format for location information to be shared within the NG9-1-1 architecture?

A. Comma-separated ... ds and GPS coordinates

❌ Incorrect. Try again.

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✅ Correct! ESRP is a policy-driven SIP proxy for routing calls.

D. Simple text string

❌ Incorrect. Try again.

You can click the arrows below to advance or go back.

What is a Location Information Function (LIF)?

A. A functional elen … data for accuracy before being used in call r…

❌ Incorrect. Try again.

B. A process that c… … into a fully qualified location object (PIDF-LO) us…

✅ … proxy for routing calls.

C. A database that s… … ation for use during emergency call setu…

❌ Incorrect. Try again.

D. A media compon… … oice or video sessions between ESInets

❌ Incorrect. Try again.

You can click the arrows below to advance or go back.

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