

Location Servers

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Overview

- (Location) Server Support for Endpoints
- Types of Locations
- Location Servers in SIP
- Location Servers in TRIP
- Location and Presence
- Sources of Location Information
- Location Services
- Conclusion

First of all...

There is no such thing like *the* Location Server (there is also somewhat confusing terminology...)

Could be anything inquired for call routing.

- Integrated with outbound proxies
- Integrated with inbound proxies
- (Backbone) infrastructure call routing servers
- Stand-alone back end servers
- ...

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Location Server for Endpoints

Help routing a call for an endpoint that

- may not have the means to find the callee
 - Lack of DNS or other protocols
- may not have access to the necessary data
 - Remote site does not reveal internal information
- may not be able to use available information
 - Private IP addresses, firewalls, etc.
- ...

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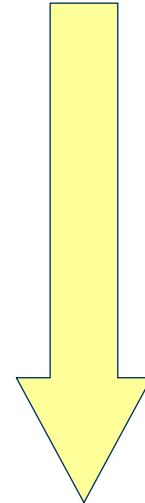
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Locations...

- Device
 - Fixed or wireless phone
 - laptop, palmtop, PC, ...
- Geographical
 - GPS coordinates
 - Country, city, address, site, building, floor, room
 - important e.g. for 911
 - Timezone
 - (Orientation, velocity)
- Frequency of change
- Situation, availability, (privacy)
- Context (private vs. work)

Location



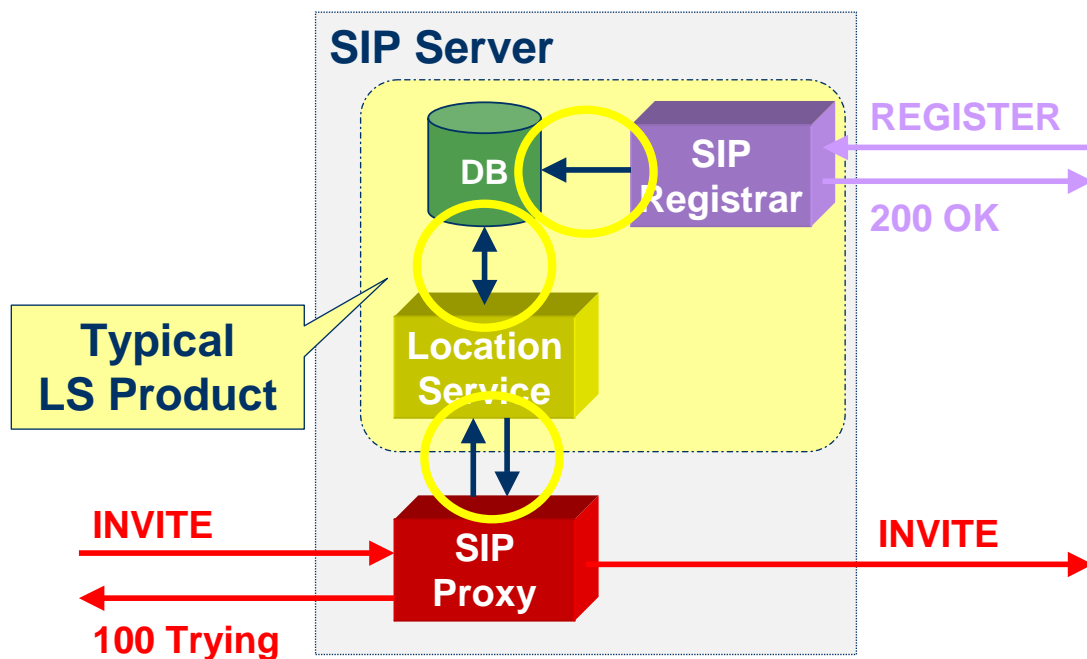
Presence

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Location Server in SIP

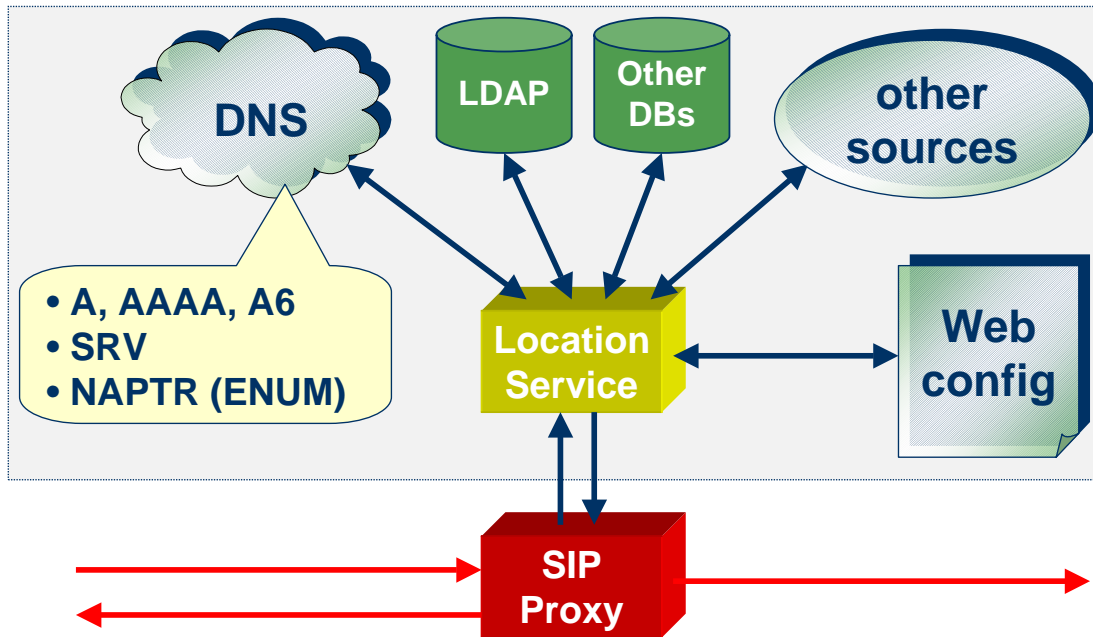


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Location Servers in SIP (ctd.)

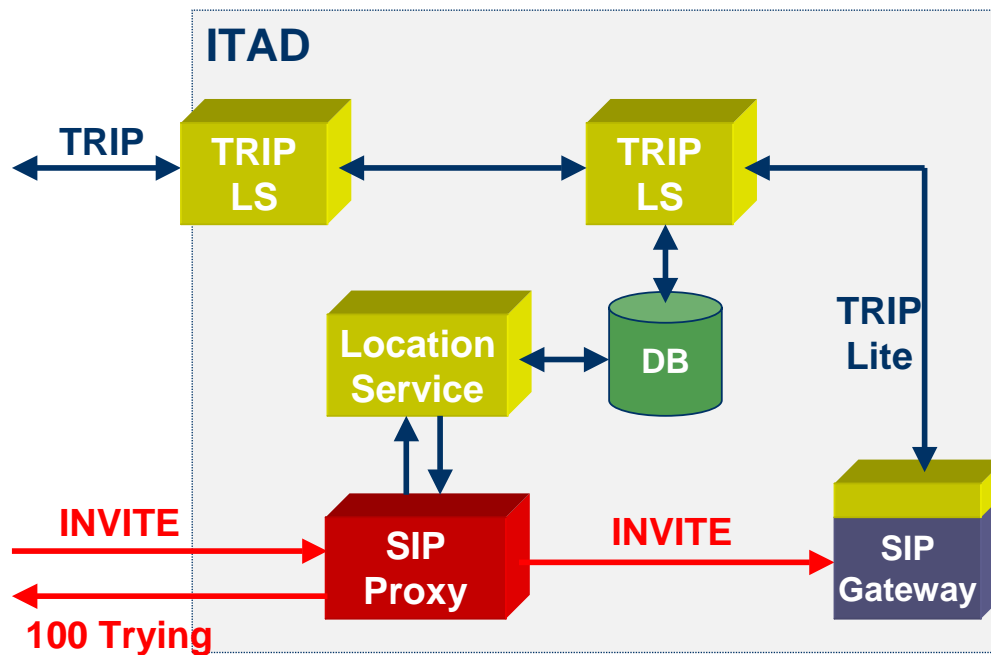


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Location Servers in TRIP

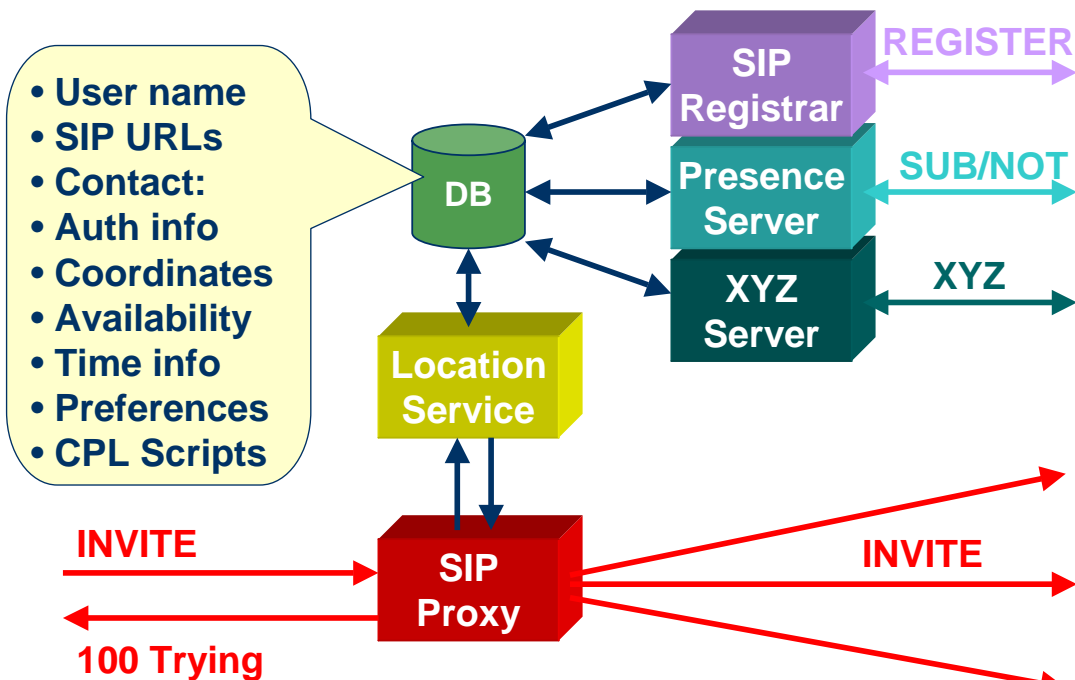


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Location and Presence



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Sources of Location Information

- SIP REGISTER, (SIP NOTIFY)
- TRIP messages
- (L2, L3) Registrations (roaming) from mobile networks
- DNS A, SRV, NAPTR records
- LDAP, local data bases

How to determine where you really are?

- Multicast search, request forking, sequential search

And how to make a good guess to start with?

- just in case you have a dozen possible locations...

The more advanced sources...

(Quite a bit linked to presence though...)

Endless research on virtual communities...

- finger, rwho, whois, ...
- Latest keyboard / mouse input
- Phone busy or not

- (Active) badges
- 802.11: triangulation from base stations
- GPS
- Motion sensors, chair, workstation camera

Location Services

The basic stuff we need...

- Routing outbound calls for endpoints
 - Simpler endpoints
 - Efficiency gains from caching, routing exchanges
- Finding the party for inbound calls
 - Consider caller/callee preferences, presence state
- Terminating calls to legacy networks
- Load balancing, robustness, policies

Location-based Services

MUCH more interesting...

- Passive Services (Pull)
 - Search the environment according to one's needs
 - At this moment, I am looking for
 - an ATM, the closest rest room, the next gas station
 - the other guy I am trying to meet (e.g. at an IETF)
- Active Services (Push)
 - Inform me about what I *might* be interested in
 - This shop has the record you have been looking for.

There is a session Thursday afternoon on this...

Conclusion

Two ways to support endpoints:

- Locate your party when you contact somebody
 - locally, in the backbone, in the remote domain
- Provide your location to enable services from third parties
 - given the environment, context, etc. you are in