

# Location Servers

VON Europe 2001  
Stockholm, Sweden

13 June 2001

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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
- ...

# Location Server for Endpoints

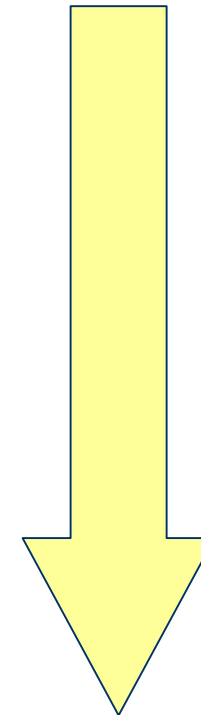
Help routing a call for an endpoint that

- 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.
- ...

# Locations...

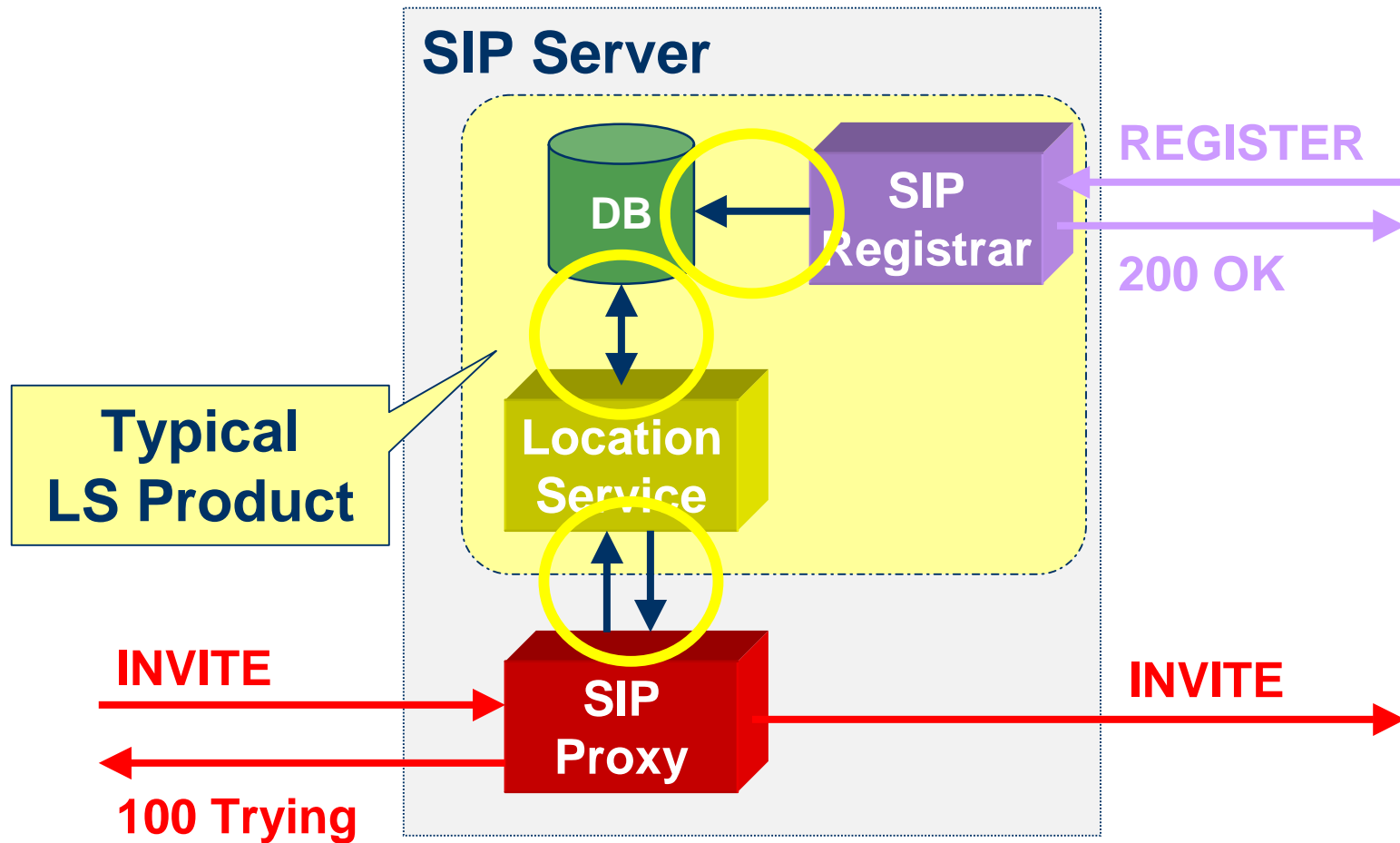
- Device
  - Fixed or wireless phone
  - laptop, palmtop, PC, ...
- Geographical
  - GPS coordinates
  - Country, city, address, site, building, floor, room
    - important e.g. for 911
  - Timezone
  - (Orientation, velocity)
- Frequency of change
- Situation, availability, (privacy)
- Context (private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

**Location**

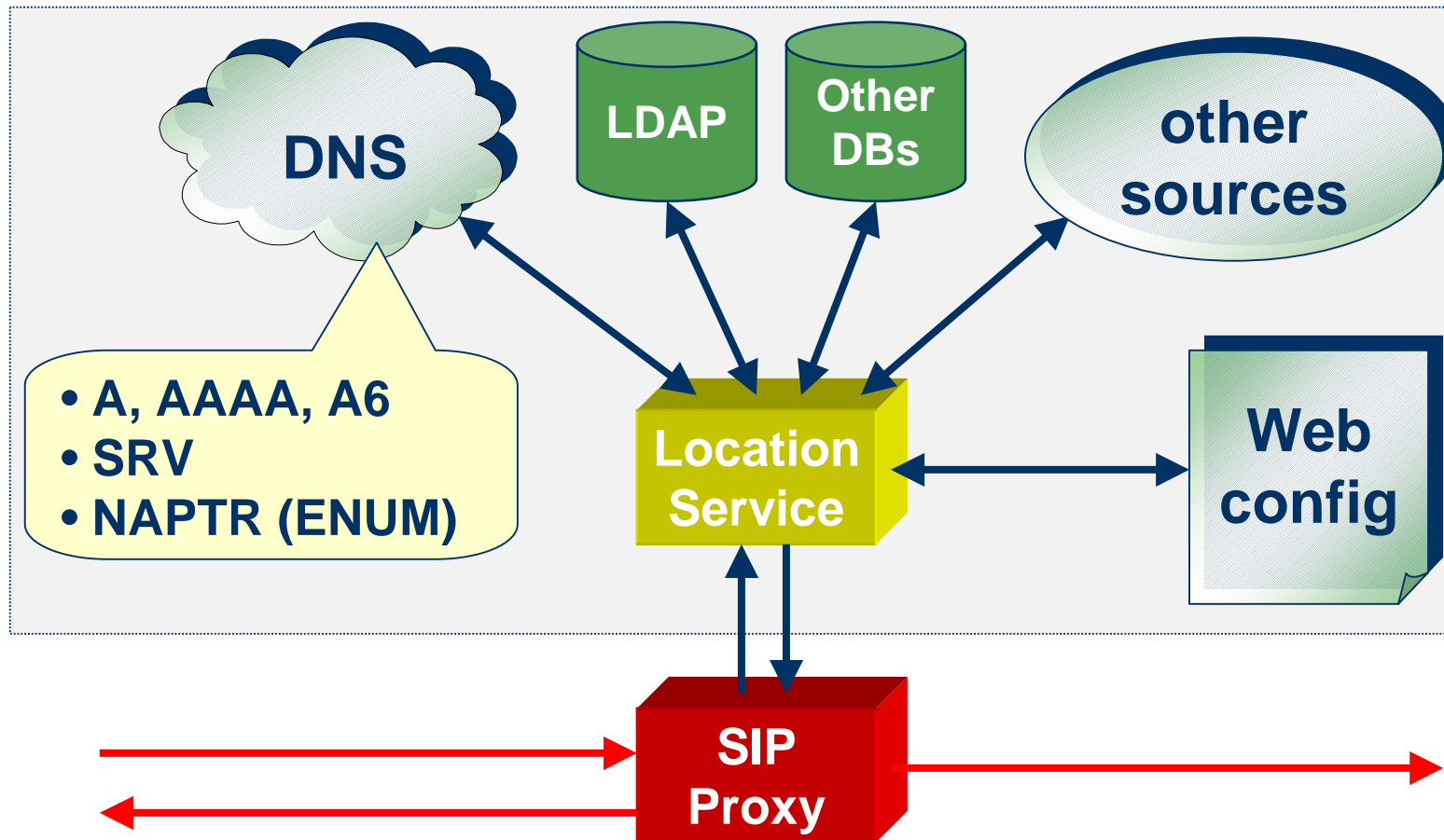


**Presence**

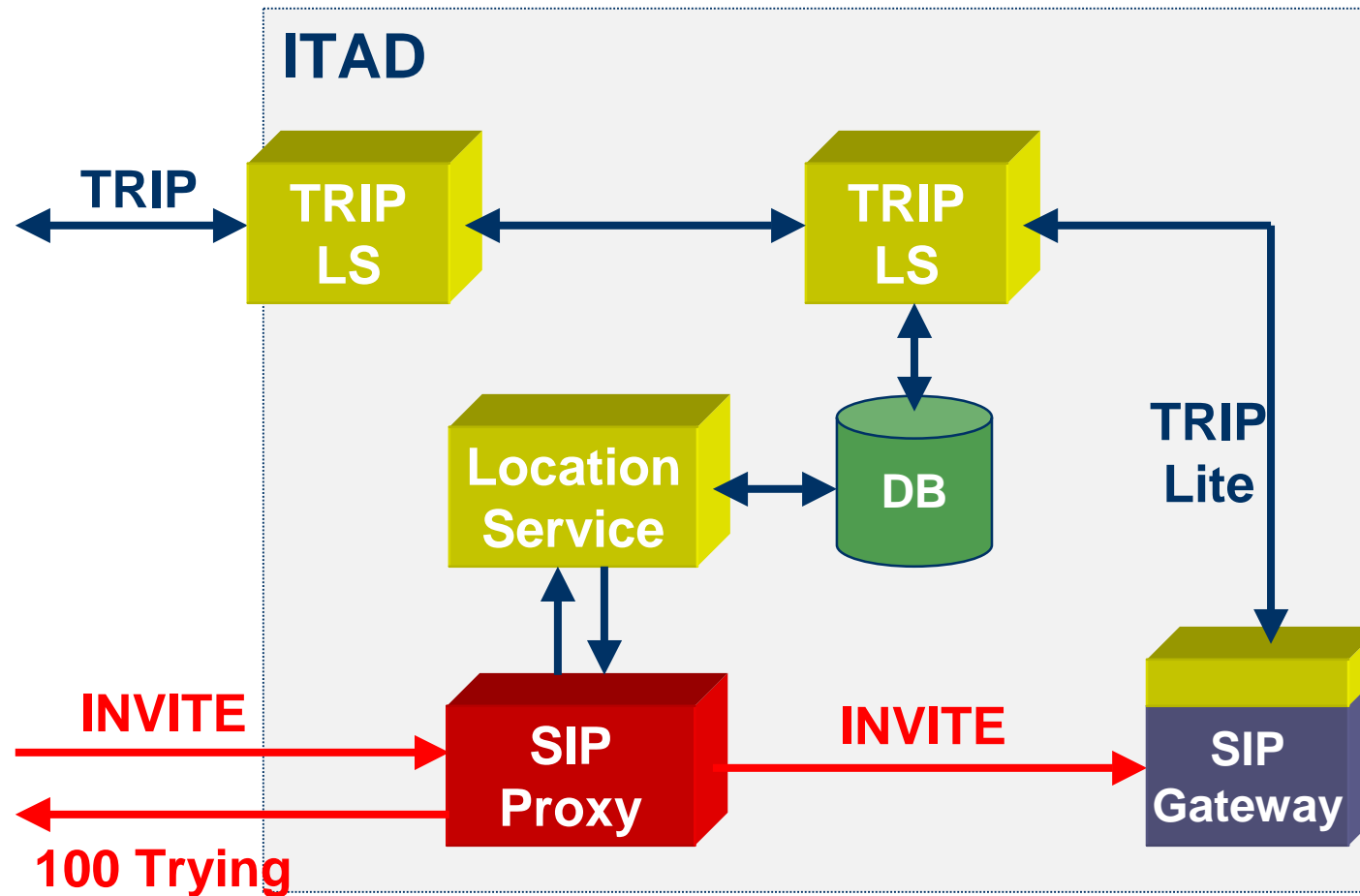
# Location Server in SIP



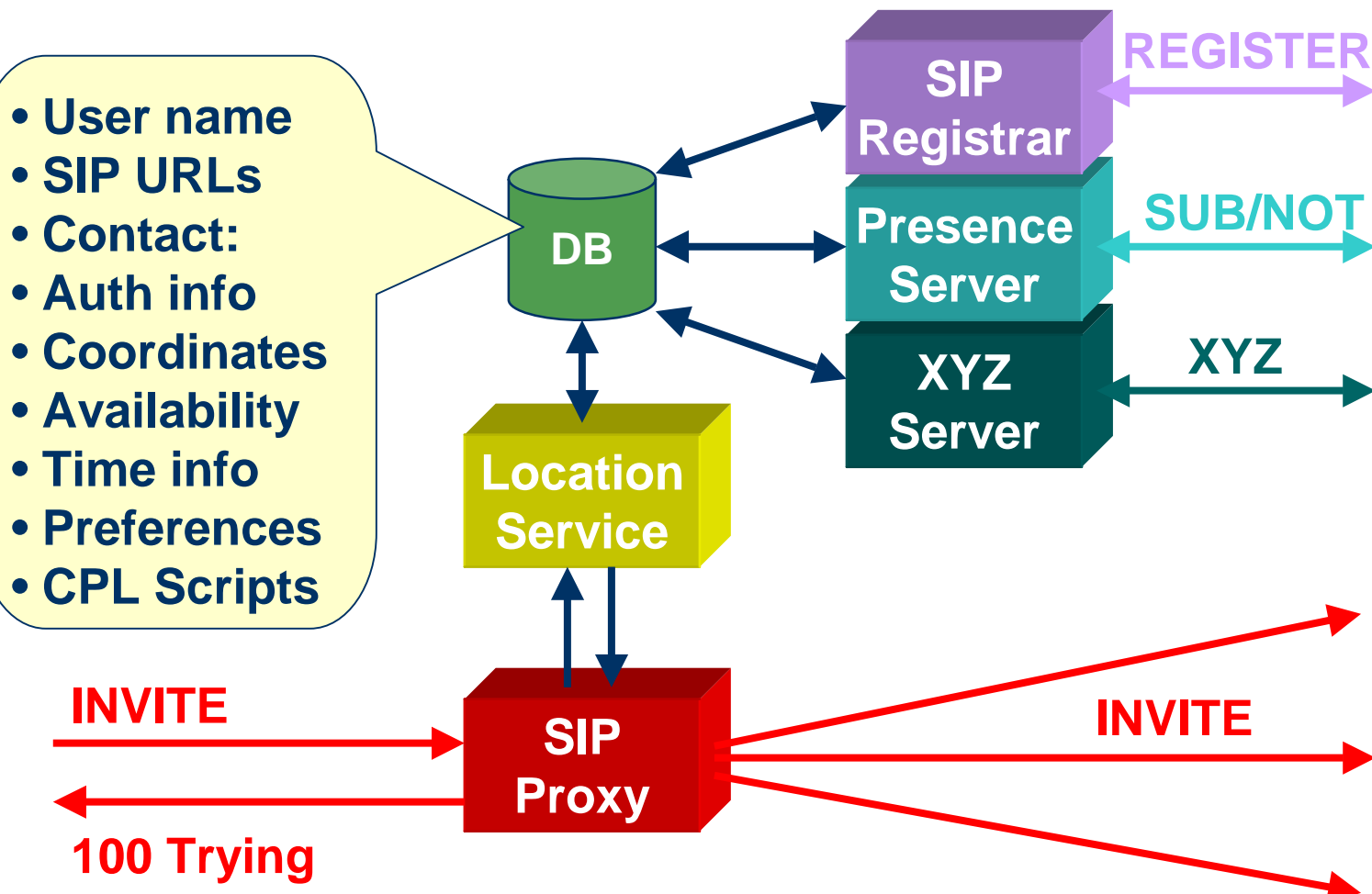
# Location Servers in SIP (ctd.)



# Location Servers in TRIP



# Location and Presence



- User name
- SIP URLs
- Contact:
- Auth info
- Coordinates
- Availability
- Time info
- Preferences
- CPL Scripts

# 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

# Disclaimer...

We don't make Location Servers...

...we make entities that make use of them.

- Thin (*low-cost!*) SIP endpoints.
- HW reference design for a SIP phone.
  - (other signaling protocols available, too.)

**Visit us at booth 627**

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