

# Interception Domain Architecture for CS and IP Networks

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# Purpose and restrictions of presentation

- Relating to ETSI standards for LI
- Focusing on state of the art legislations
- Less about what is done within the intelligence community
- Some discussion about technical futures

# The traditional way of doing interception

- “Reptile stage” = alligator clips & headphones
- Legal framework = specific phone no
- Paper-bound provisioning
- Results on paper & floppy
- Analysis by reading & listening

# New services – new challenges

- Digital telephony transmission
- Wireless telephony
- Internet communication
- IP-based services (Chat, video etc)
- Information societies (eg Facebook)

# Why use standards for LI?

## Pros:

- Uniform interfacing
- Proven technology
- Interoperability
- Commercially available equipment
- Change control
- Transferable technology
- Managed security

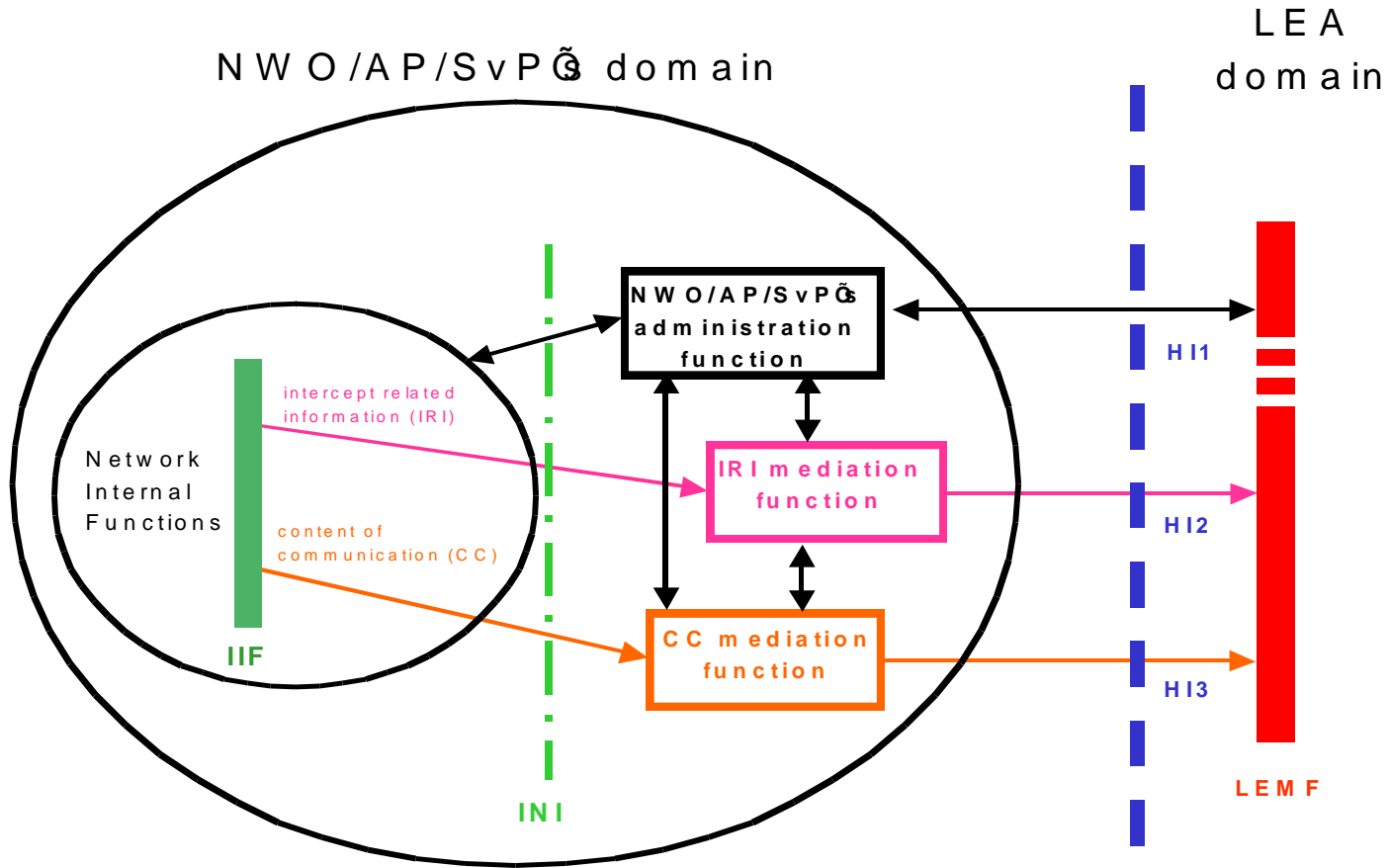
## Cons:

- Tends to lag behind
- Initial investments
- Requires training
- Adaptation costs
- System load

# The issues for Lawful Interception

- Finding a suitable point of interception
- Defining a relevant target id
- Filtering out irrelevant information
- Handling encrypted information
- Dealing with globalization

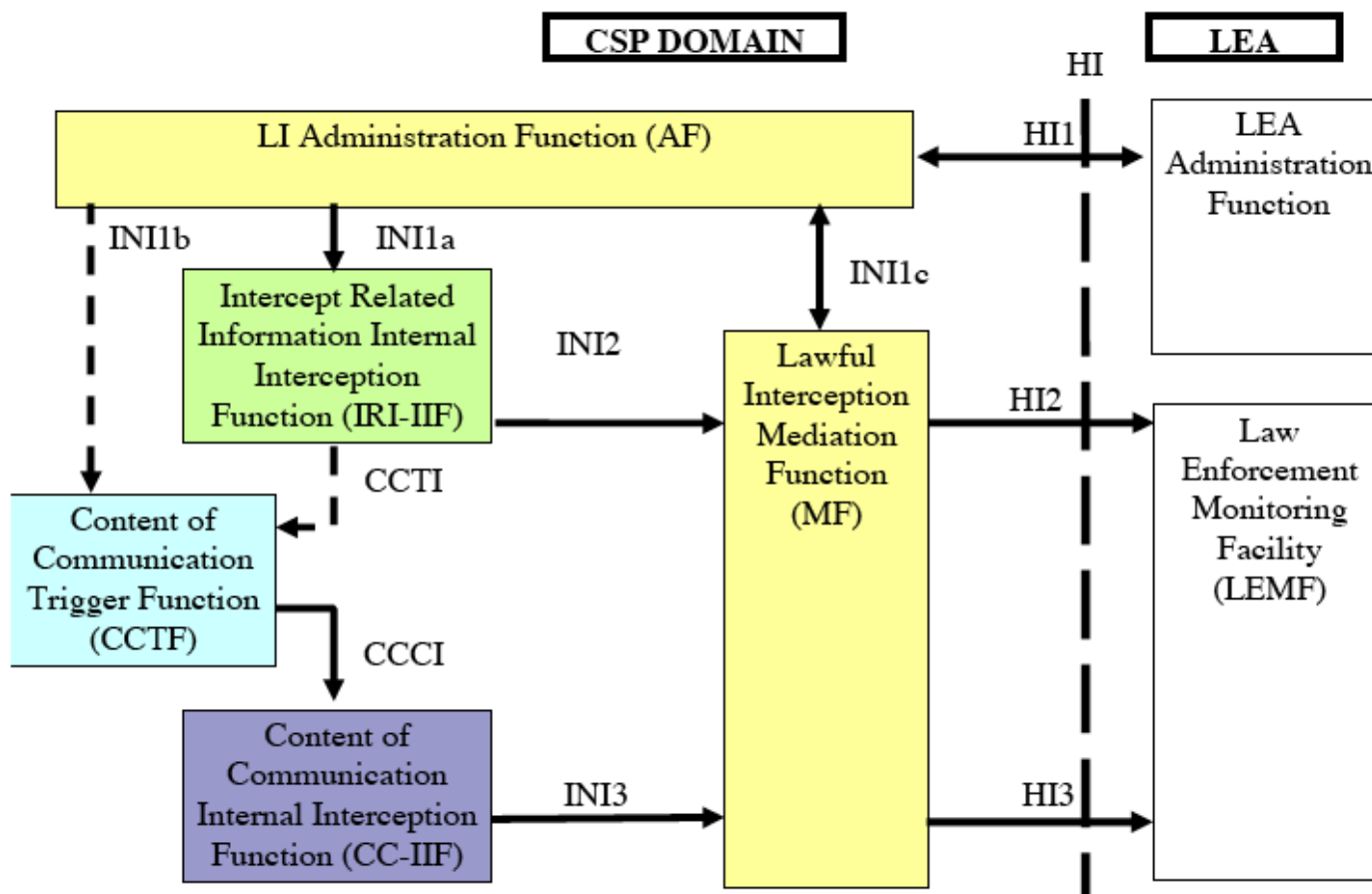
# Intercepting CS telephony



Source: ETSI TS 101671

LI handover interface HI

# Generalized model



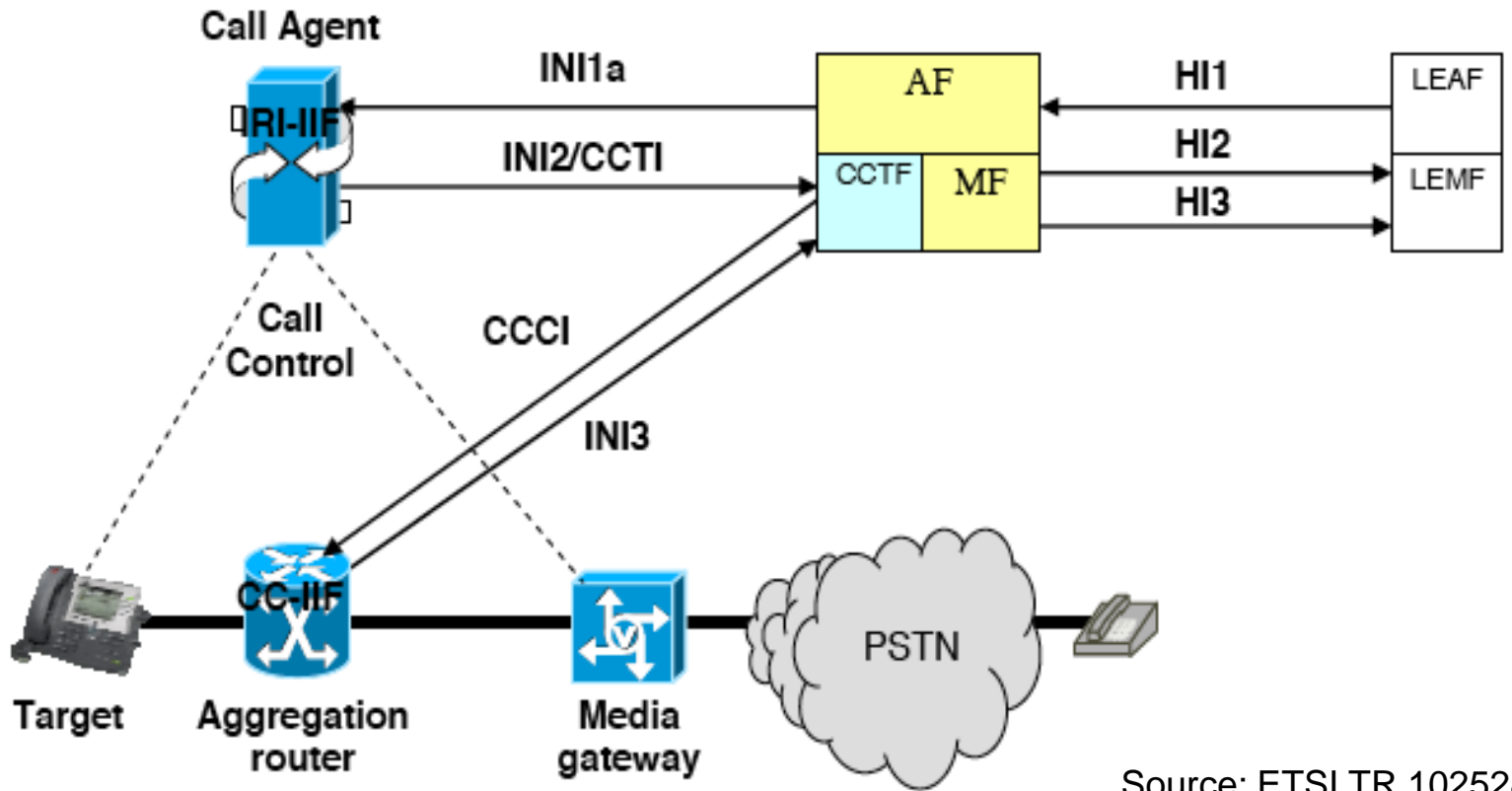
Source: ETSI TR 102528



# Finding targets in CS telephony

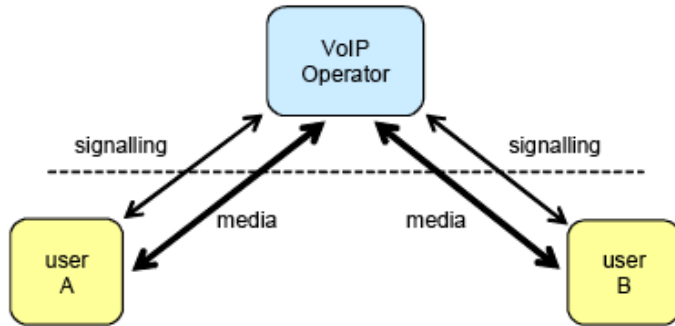
- Phone number
- IMSI
- IMEI
- Location?
- Link layer analysis (E1 tapping)
- Trojans in customer equipment (?)

# Intercepting IP traffic

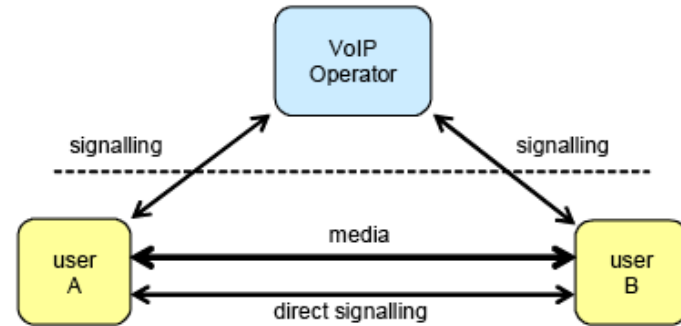


# Intercepting IP telephony

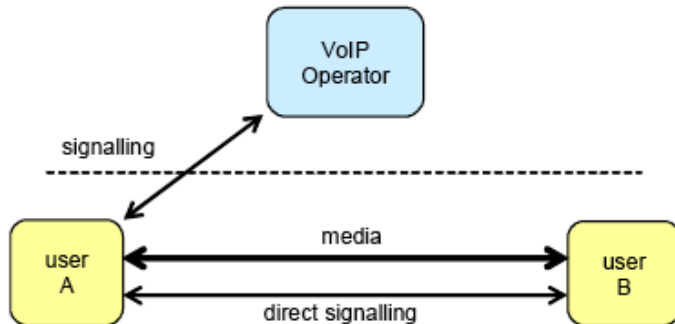
1) IMS or IMS-like Architecture



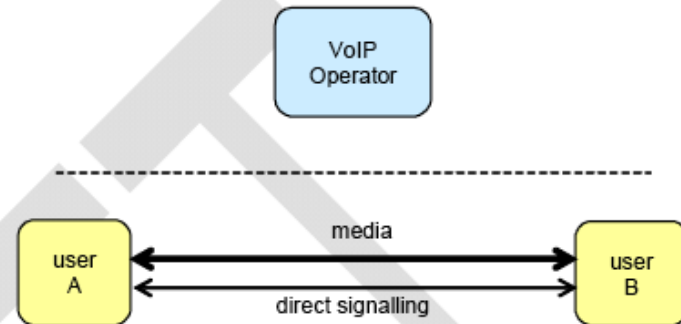
2) SIP Proxy Architecture



3) SIP Re-direct Architecture



4) P2P SIP Architecture



# Finding targets in IP telephony

- Phone number (in Softswitch)
- Phone number (SIP/line tapping)
- IP address (line tapping)
- Delivery of intercept results to LEA:
  - Telephony
  - IP packets

# Intercepting e-mail

- Line tapping
  - IP address
  - TCP port
  - Mail header
- Server interception
  - Mail address
  - Mailbox id
  - Mail folders (webmail/IMAP)

# Intercepting IP multimedia

- Chat
- Video
- Audio
- MMS
- Web browsing
- File transfer

# Finding targets in IP multimedia

- Phone number (GPRS intercept)
- IP address
- User id (server intercept)

# Smart targeting

- Electronic provisioning & delivery
  - Identity profiling
  - Voice recognition
  - Spotting keywords in communication
- What about personal integrity?