

'Building a **SMART** Interception Solution'

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Key challenges facing Operators and Gov't

Today's Telecom business is subject to:

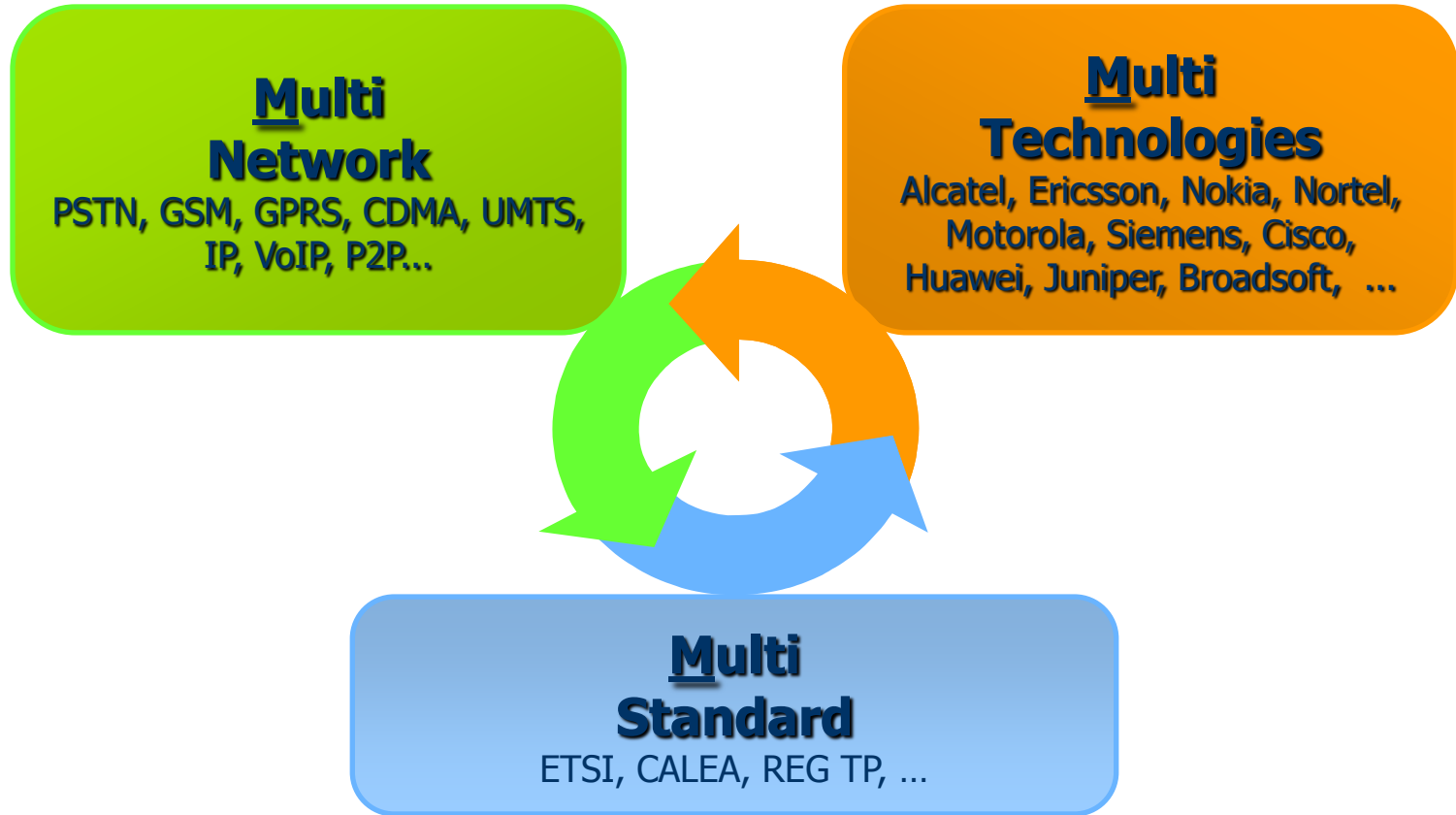
- Fast changing markets.
- Wide Range of Network Solutions
- Network Architecture changing with market/technology evolution.
- Varying technologies
 - Many proprietary approaches.
- Increasing National Security and Law Enforcement demands.

1. These facts are not going to change!

2. A comprehensive Development strategy needs to 'manage' these facts.

Complex Technical Environment

“Triple M” Concept



Target: *‘An Effective Lawful Interception and Data Retention Capability’*

Given the Key challenges, both the CSPs and LEAs NEED:

- A Cost Effective Solution that:**
- **Meets Required Functionality**
 - **Responds to Market Changes**
 - **Evolves with the Business**

*Requirements for a **Smart** Solution*

The Solution must have a number of key attributes:

- It must be Secure!

Security and Assurance

A holistic approach to information security and assurance, from both a networking and operational point of view, is of paramount importance in lawful interception for a number of reasons.

Among these are:

- The integrity of an investigation **must not be compromised**. If information on the use of electronic surveillance is leaked, it can affect the investigation's outcome or alter plans for criminal and terrorist acts;
- National laws treat privacy of individuals very seriously, including the privacy of the Target.

Requirements for a **Smart** Solution

The Solution must have a number of key attributes:

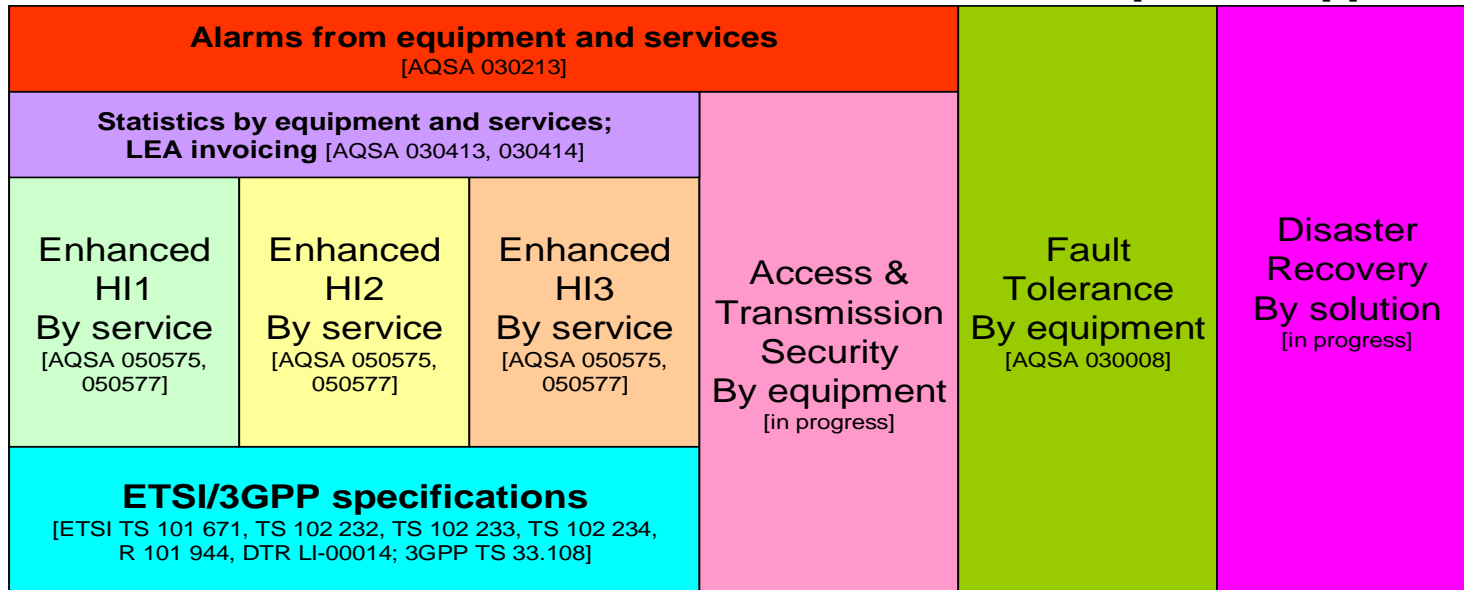
- It must be Secure!
- It must draw from the appropriate Standards!

System Design Must Be Comprehensive

LI / DR Solution must:

- Interoperate with multiple telecommunication services and
 - Support vendor-specific network elements,
- thereby providing a simpler, cost-effective solution that:
- ↪ One solution to serve all Law Enforcement Agency requirement;
 - ↪ Allows for flexibility in upgrades.

Aqsacom approach



→ a secure, reliable, and flexible means of telecommunication surveillance that will improve the operational efficiencies of investigations

Requirements for a **Smart** Solution

The Solution must have a number of key attributes:

- It must be Secure!
- It must draw from the appropriate Standards!
- It must be able to Respond to Change.

Flexibility

Network operators and the LEAs alike must adapt to the deployment of new services in response to the development of:

- new technologies,;
- new network infrastructures; and
- market demands.

Telecommunication surveillance must closely track new services, market uptakes and network infrastructures.

Flexibility is assured through a layered, structured solution with well-defined interoperability interfaces.

Requirements for a **Smart** Solution

The Solution must have a number of key attributes:

- It must be Secure!
- It must draw from the appropriate Standards!
- It must be able to Respond to Change.
- **It must be Reliable**

High Reliability

Failures in network equipment do occur due to incidents such as:

- Power outages,
- Equipment breakdown,
- Network failure, or other encumbrances.

Anticipate:- to ensure overall design minimizes any impact on data loss.

Use effective design and operational tools.



***Challenges for Network Operators
and Law Enforcement
for both LI and DR***

Objective:

Ensure targeted content and intercept related data are effectively and securely captured and available to LEAs.

Needed Capabilities:

- ✓ PSTN, PLMN, IP, VoIP, E-mail, SMS, etc ... Lawful Interception for all Products & Services
- ✓ Intercept Related Information & Content: separate but correlated
- ✓ Real Time
- ✓ End to end integration: Warrant management to IRI/CC delivery
- ✓ Needs the 'SMART' answers

Objective:

Ensure that the LEAs have data available in line with National Requirements.

Needed Capabilities:

Capture data related to:

- ✓ PSTN, PLMN, IP, VoIP, E-mail, SMS etc ... All Products and Services.
- ✓ Capture Data that encompasses information from various sources covering billing, customer information, network data flow etc.
 - Do not capture content (if EU ruling is followed)
- ✓ Provide effective Storage and Data Mining capabilities: consistent with secure operational requirements of LEAs
- ✓ Need the 'Smart' answers.

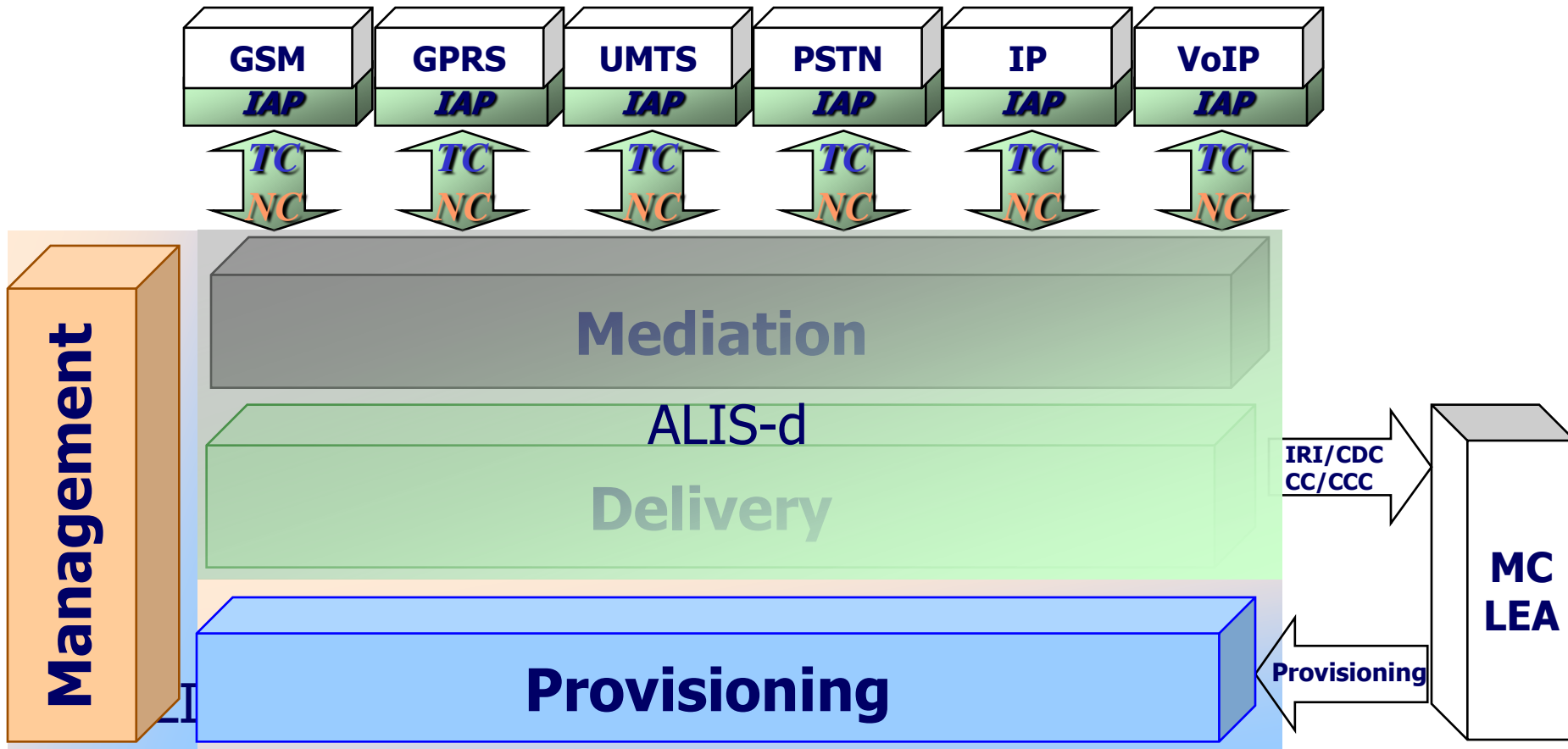
ALIS Architecture

Aqsacom Lawful Interception System (ALIS):

Real Time, Lawful Interception Mediation Solution

- Non Intrusive Solution
- Network Transparent
 - Applies to Voice TDM/Wireless, GPRS, 3G, IP, etc.
- Mediates IRI/CII and CC only
- Convergent Solution → supports newly emerging technologies (e.g., IMS)
- Independent of Underlying Connectivity Technology
- Leverages AQSACOM's Patented Technology

ALIS: Functional Architecture



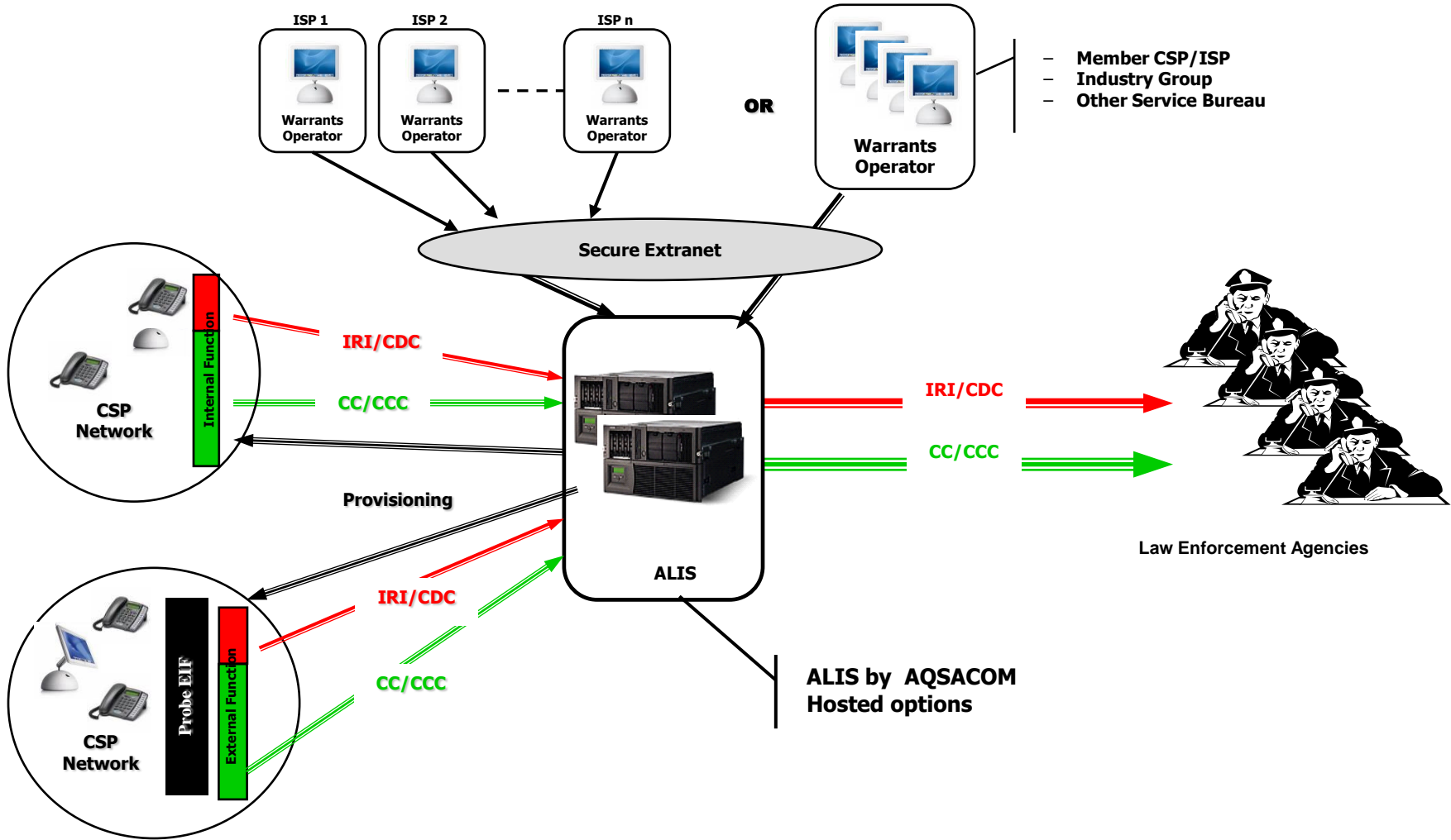
ALIS and reference models

- **ALIS simultaneously supports the following reference models:**
 - ETSI, 3GPP, J-STD-025
- **ALIS' Standards-Based Compliance advantages:**
 - A well defined and consistent interface to
 - Network equipment;
 - Any LEMF that is compliant with the standards.
 - An easy upgrade of ALIS when standards change.

LI Network Flow Process with Mediation

Local CSP/ISP Provisioning

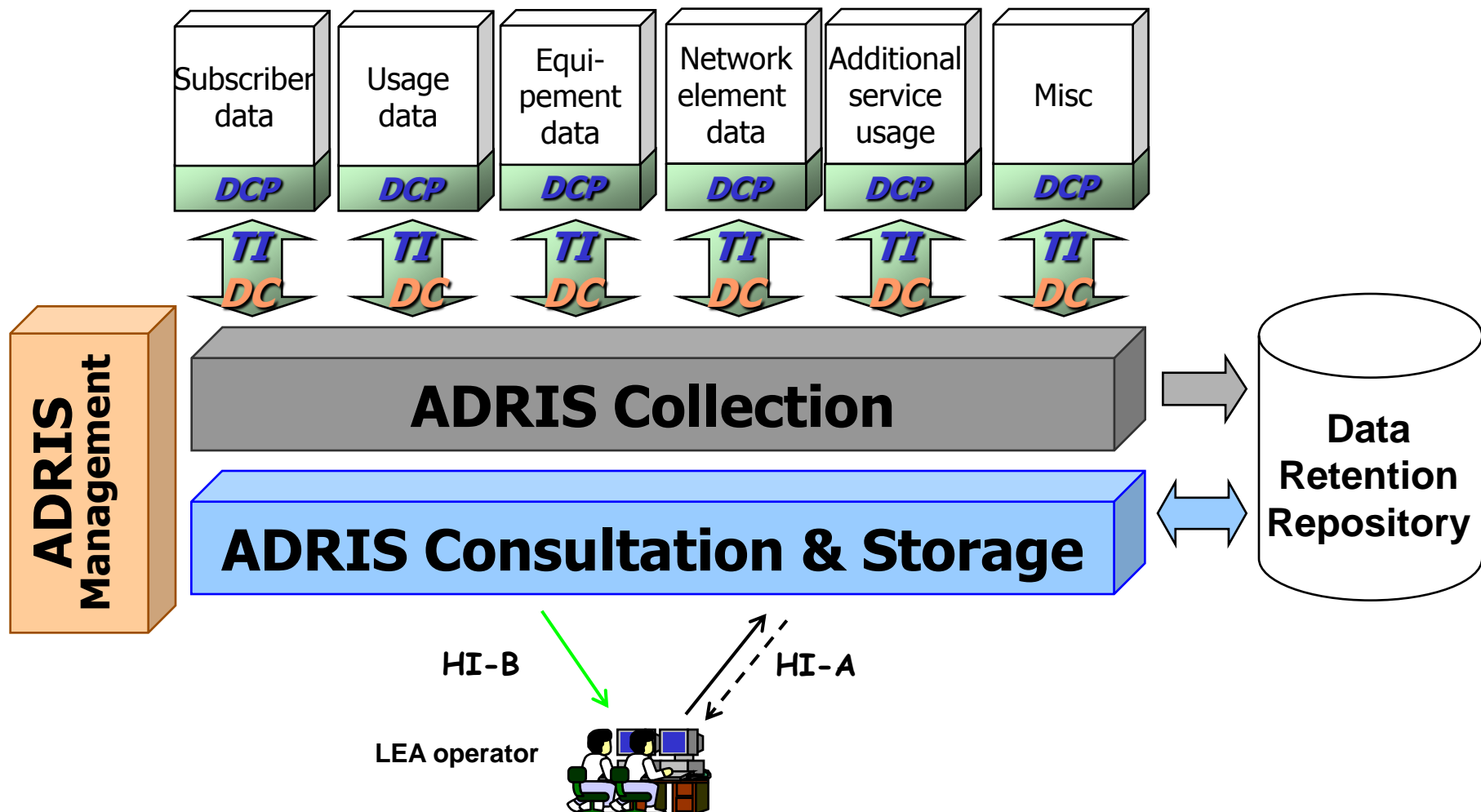
Centralized Provisioning – eg TTP



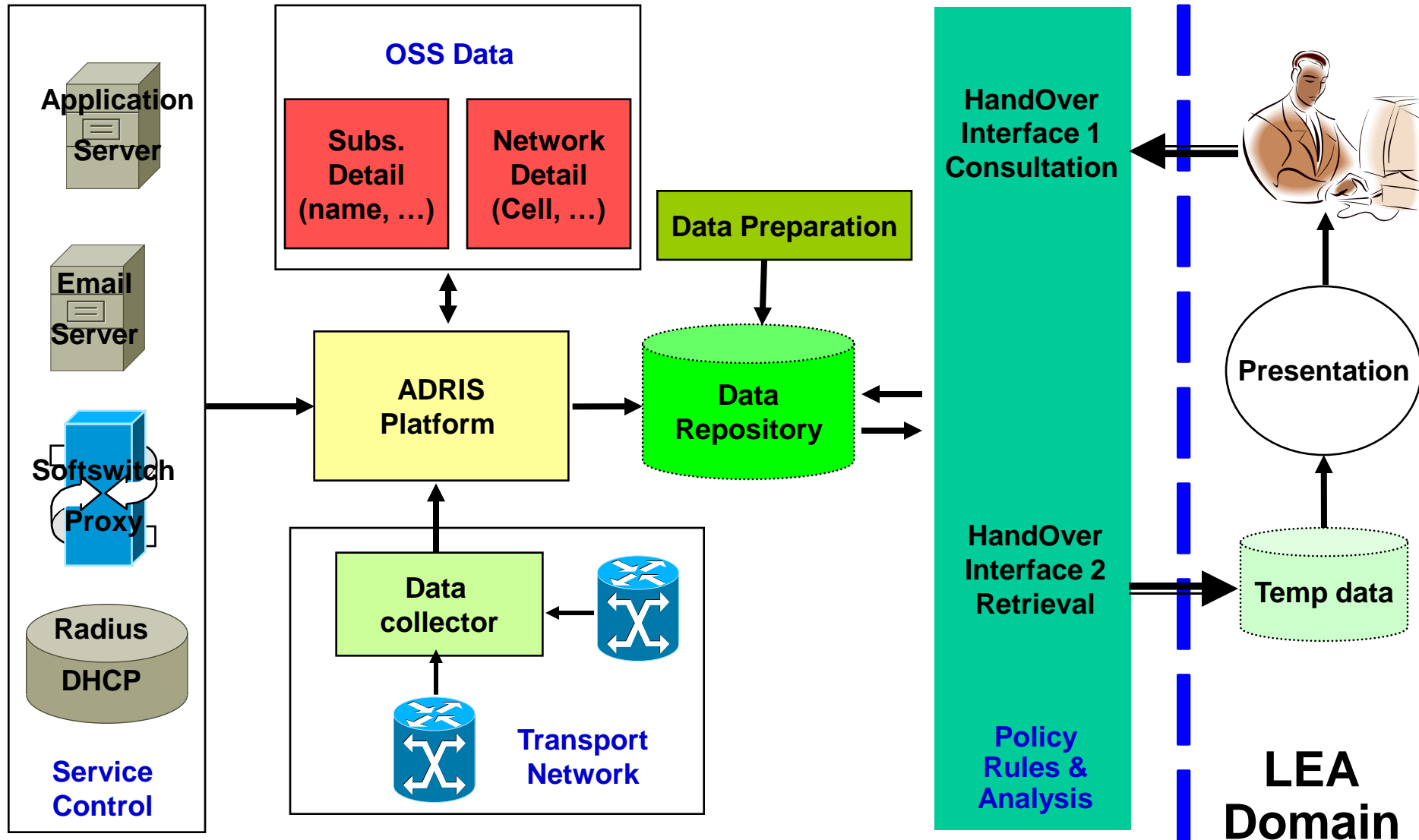
ADRIS

(Aqsacom Data Retention Intelligence System)

ADRIS-Functional Architecture



Data Retention Global Overview

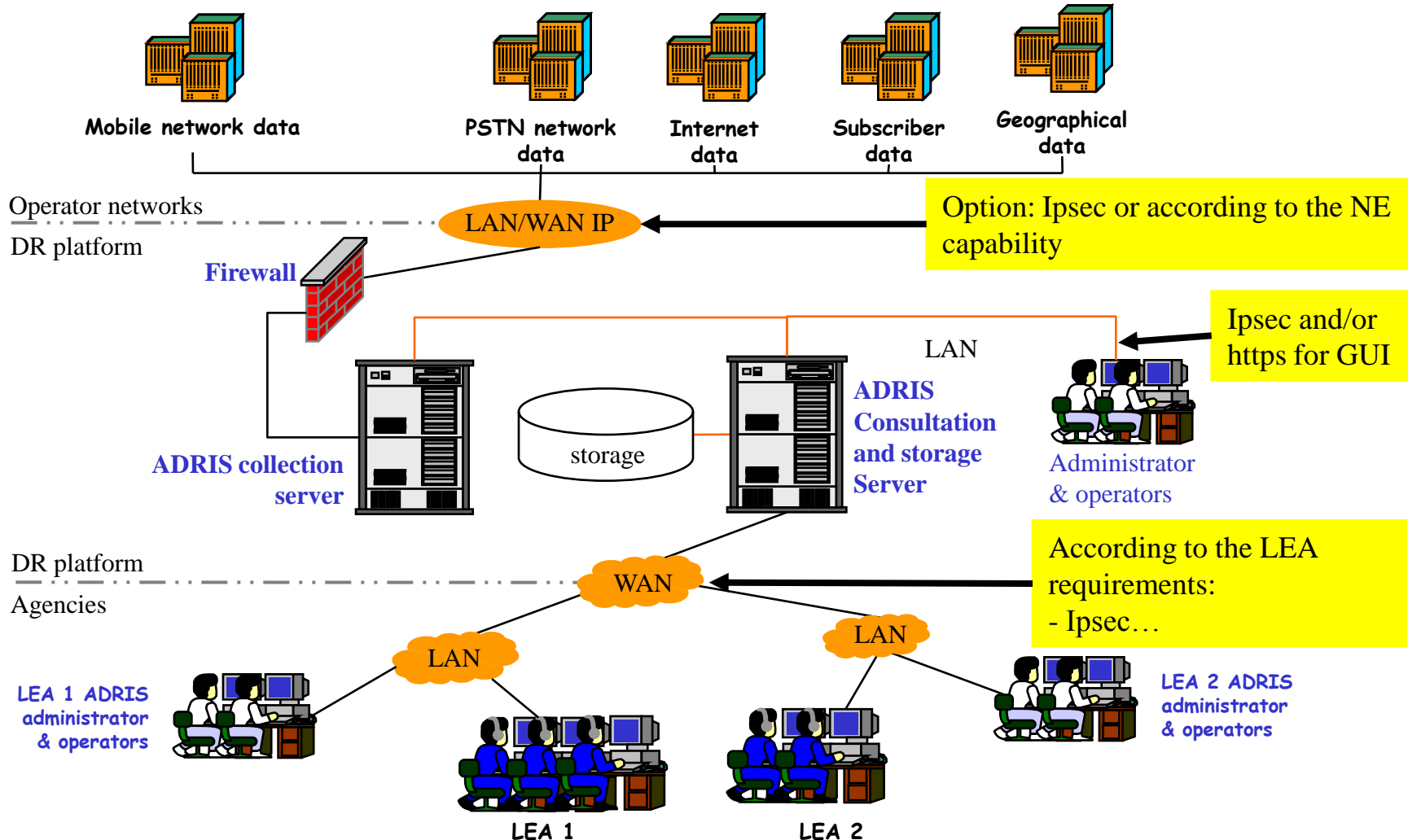


ADRIS-Database content and management

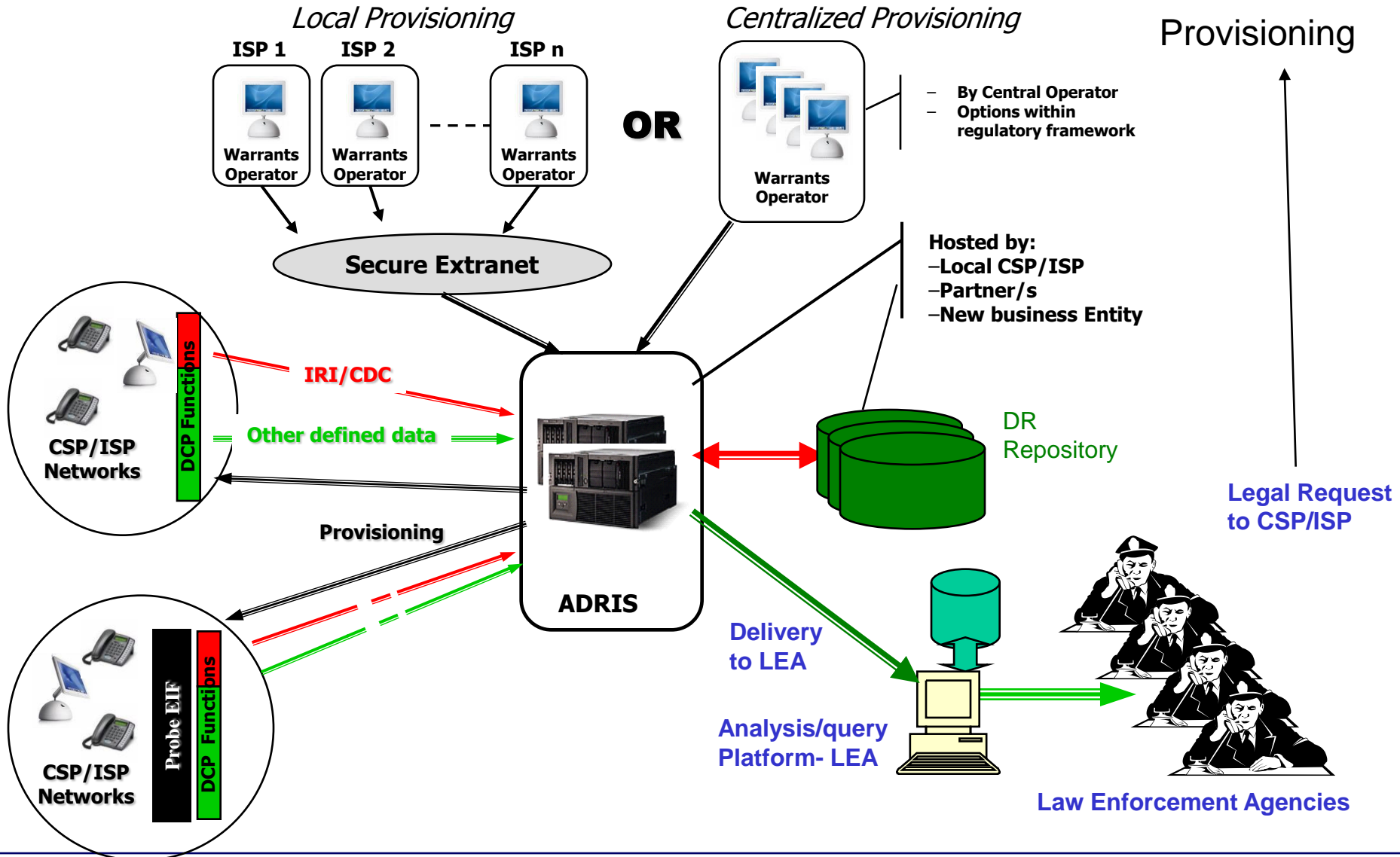
- Information stored and architecture are based on:
 - ✓ The European directive
 - ✓ The on-going ETSI standard
 - ✓ The specific customer laws (Middle East...)
- Database management:
 - ✓ Indexation of the database done according to the set of predefined queries

ADRS

Secure physical architecture



Option: Overview of Centralised DR Implementation





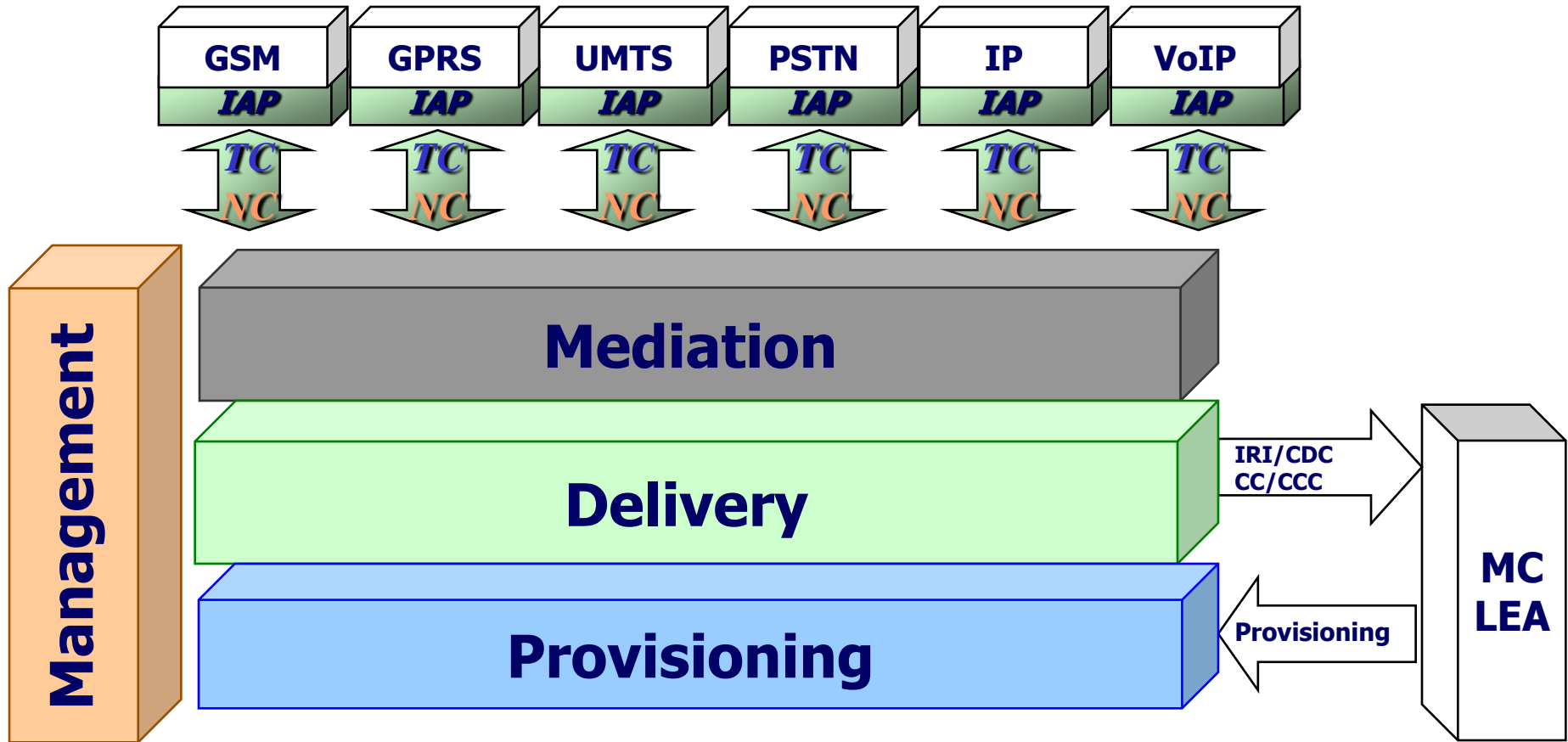
Really 'Smart' Option

Putting Lawful Interception and Data Retention Together

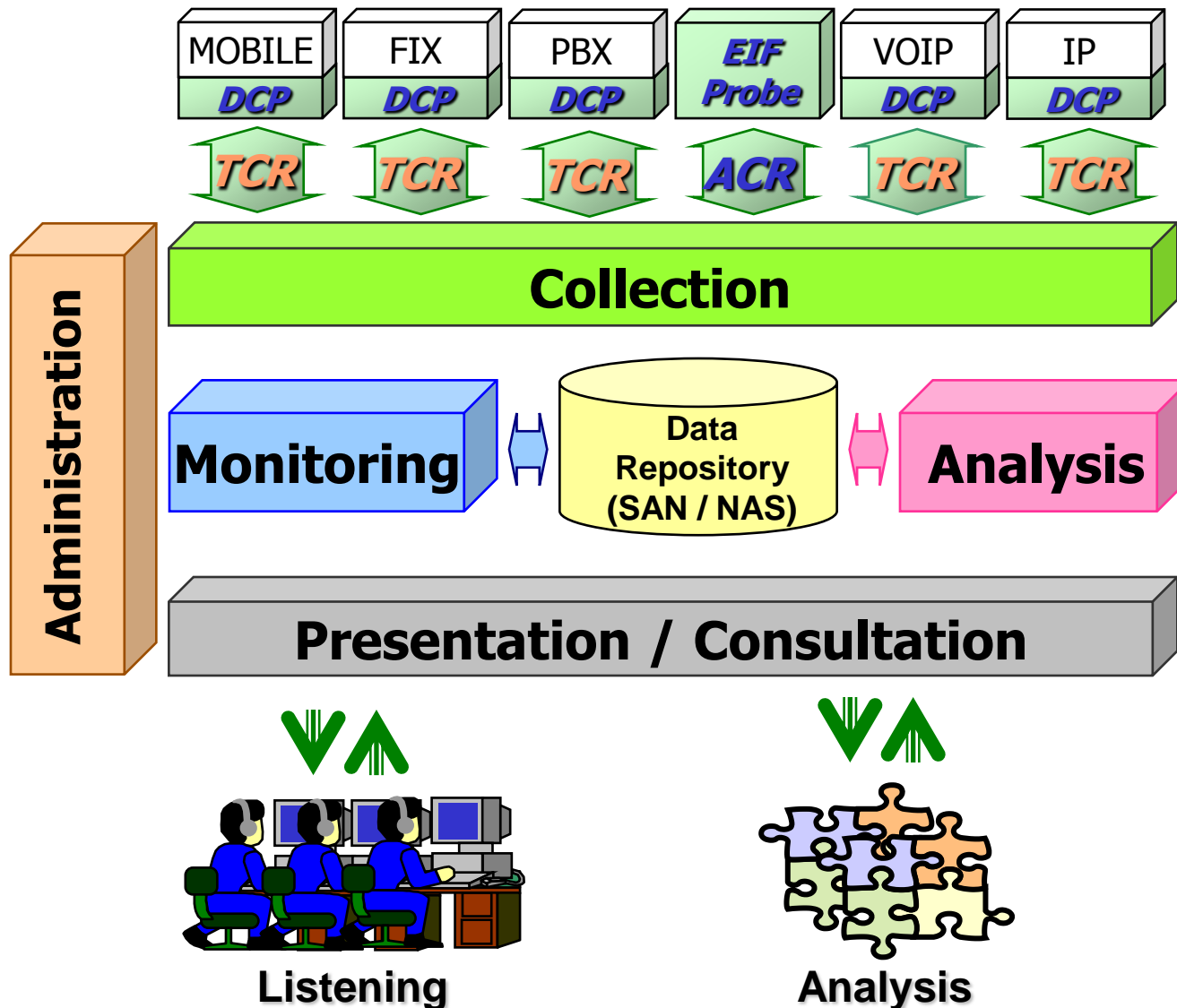
Law Enforcement & National Security Groups Need:

- Solutions that cover new and evolving services.
- A capability to configure and focus data for analysis.
- Tools that allow data to be mixed or repackaged as new information is identified.
- Cost effective solutions.
- Secure Solutions.

ALIS/ADRIS: Functional Architecture



LEA Functions



Considerations:

- Data can be needed 'instantly' for some cases.
- Some data may need to be studied for 'value'.
- Some data may be 'low risk' for possible future use.

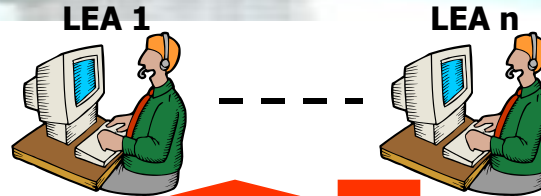
Options:

- Prioritize/tag data in line with known search profiles.
- Store *high priority* data to enable instant and effective mining.
- Store low risk data in a way that balances cost with risk assessment.

Telecommunication Surveillance Solution Architecture

Exploitation by LEA:

- Content consultation and analysis
- Traffic qualification
- Service operation



Interface D

Consolidation by LEA:

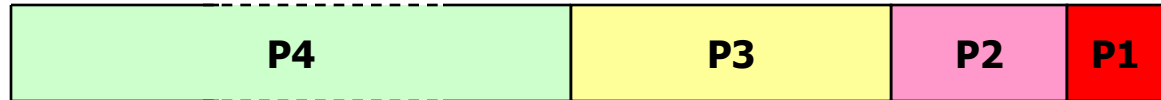
- Profiling communication & subscribers
- Request for qualification of new traffic
- Traffic aggregations

Analysis Tools / Rules Engine / Data Mining

Interface C

Storage by Country:

- Mass storage Device
- SAN architecture
- Database Model



Low Priority
DRI

High Priority
IRI + CC

Interface B

Mediation by Country :

- Gathering of all data
- Pre-filtering process
- Forwarding in a secure and reliable mechanism

ALIS / ADRIS / Roaming Survey / MobileTrack / ...

Interface A

Extraction by Network:

- Communication signalling information
- Communication content



MOBILE



FIX



INTERNET



SATELLITE

An Integrated LI/DR Solution

Summary:

- An integrated LI/DR solution is achievable and provides multiple benefits.
- A well designed system can 'evolve' over time moving from LI into a LI/DR solution.
- LI and DR analysis together has the potential to provide a powerful analysis capability.
- Need an effective end-to-end data capture and store capability.
- Good, flexible Mining capability.
- Effective, flexible Analysis tools.
- Take the 'Smart' Approach

Thank You



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