

# FREQUENTIS

## Using Large Scale Metropolitan CCTV systems in Control rooms

**Reinard van Loo**

Usability Engineer

Corporate Research

FREQUENTIS AG, Vienna, Austria

E-Mail:

[reinard.vanloo@frequentis.com](mailto:reinard.vanloo@frequentis.com)

Web:

[www.frequentis.com](http://www.frequentis.com)

**FREQUENTIS**

FOR A SAFER WORLD



# Agenda

- An Overview of a Large Scale Metropolitan CCTV System...
- How CCTV is used
- Implementing CCTV System
- Benefits and non-benefits
- Current and Future Developments



# Crime Statistics London

→ Monthly there are:

Approx 15,000 violent attacks

Approx 15,000 vehicle crimes

Approx 10,000 burglary and robbery offences

Plus over 200 serious crimes, including gun crime and homicide

Over 4,500 major events per year

Over 2.5 million emergency calls per year

Over 10 million non-emergency calls per year



NEW  
SCOTLAND  
YARD



# The Stats....

→ Operational Since February 2006

→ Tasks:

- Incident Management 24/7; Planed Events & Major Incidents (SOR)

→ 3 New Command Centres

- 2 newly build, 1 refurbished
- >23,000 sq m Floor, >1340 sq m Equipment Rooms >800km data cabling

→ 3 Main Sites + Special Locations

- City of London Police, 15 London Sporting Venues, 2 Motorway Control rooms, Royal Parks, City of London Police, Heathrow, 17 additional MPS Sites, Parliament, Diplomatic Protection Group

→ 533 ICCS Positions (after Olympics: 630+)

- 437 CCTV Equiped and 96 remote positions
- Special Operations Room: 111 in Centre 1, 54 in Centre 2
- Digital Radio: Motorola Dimetra Tetra (560 CCI Ports + SDS Proxys + MCADIs)







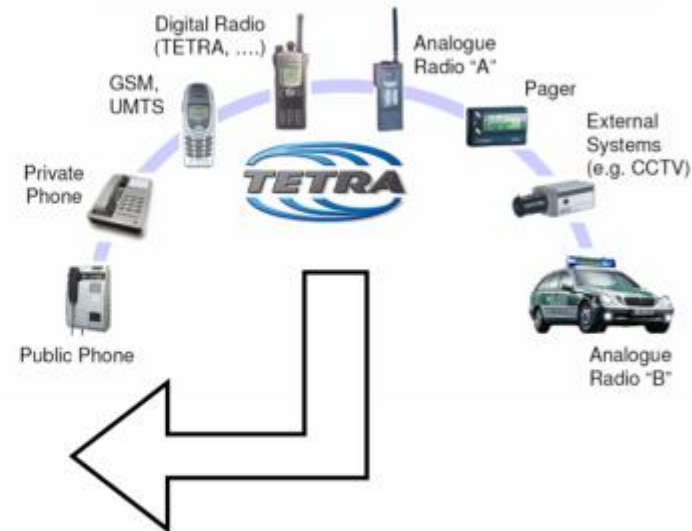
# (Quick one: What's and ICCS?)

## → Integrated **C**ommunications **C**ontrol **S**ystem

- Provides resilient, integrated access to a multitude of communication and data systems
- Unified presentation to Operator, Unified call routing (ACD)

## → Benefits:

- Technologies used transparent to the user
- Interoperability between communication channels
- Scalability (Free Seating, Role System)



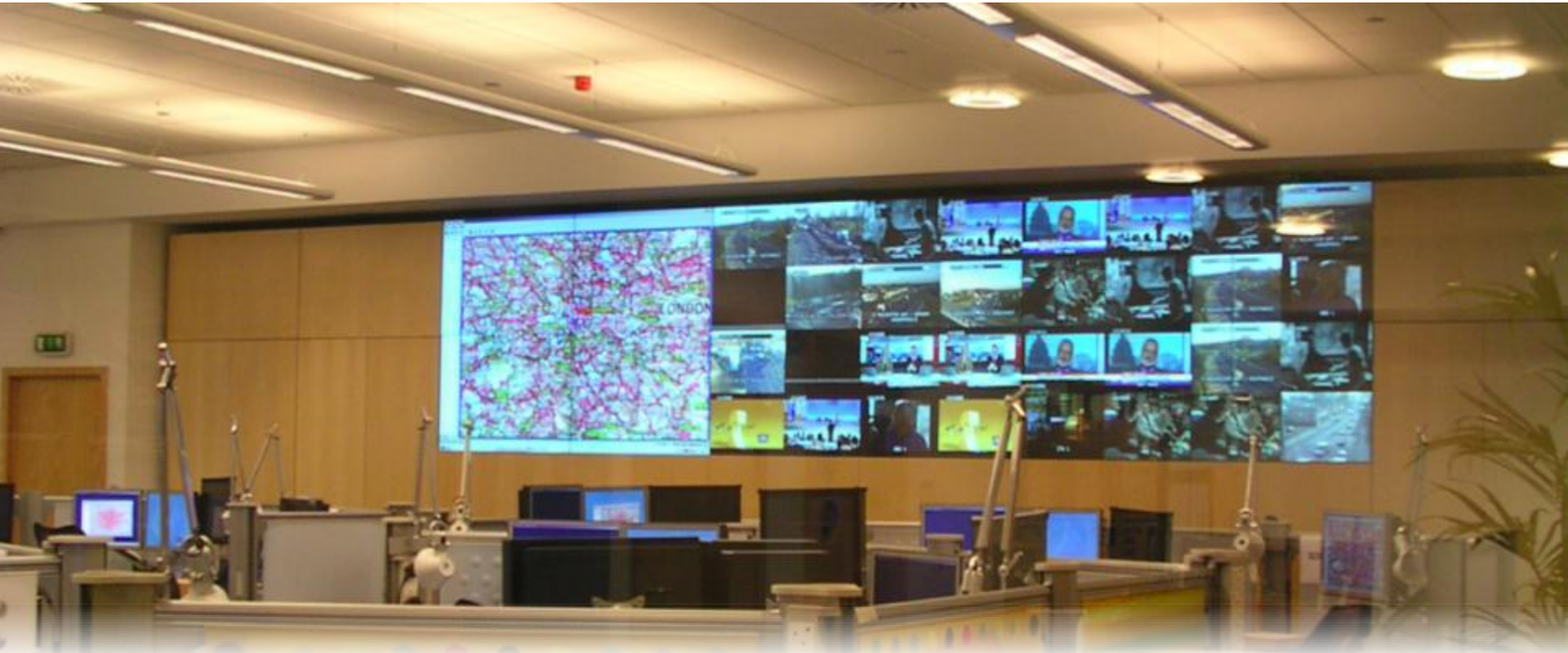


# (Quick one: Also provided...)

→ APLS, Supervisory Tools, Alias Service

The collage illustrates the Alias Service workflow. It features a mobile phone, a map of Lambeth (SE11), a software interface with a tree view, and a 'Quick Link' process diagram. The 'Quick Link' diagram shows a three-step process: 1. Link Alias of (Ex: Location etc.), 2. ... with Airwave Terminal, and 3. Finished. The software interface shows a tree view of aliases, and the map shows the location of Lambeth (SE11).





- Access to >50,000 cameras
- 3 Video Matrices: Centre 1 Biggest matrix with 256 inputs and 1100 outputs
- 10 Video Walls



# CCTV Cameras

→ Access to >50.000 Cameras ('pull' access <8000)

→ Which Cameras?

- Agreement to access Transport for London Cameras
- Mobile 'Special Event' Cameras
- Number of Camera Schemes (local Authority, Public Order and Counter Terrorism, etc.)
- **NOT**: Private CCTV systems (pubs, shops, job agency etc.) Although some have the capability to relay images to the polices

→ Analog or Digital?

- Cameras: Predominantly Analogue
- Camara features: Mostly Static, some have PTZ or ANPR
- CCTV Network: Predominantly Analogue
- Distribution in Control Rooms: Analogue, moving to Digital





# How CCTV is Used

→ All: Access to main broadcast channels

SKY NEWS

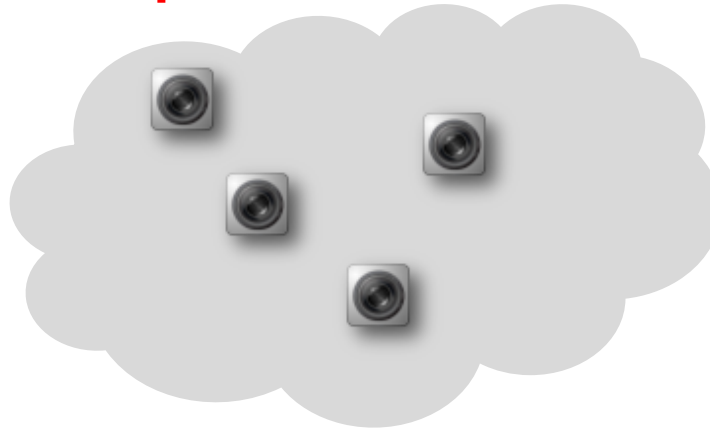
BBC NEWS

itv

CNN

...

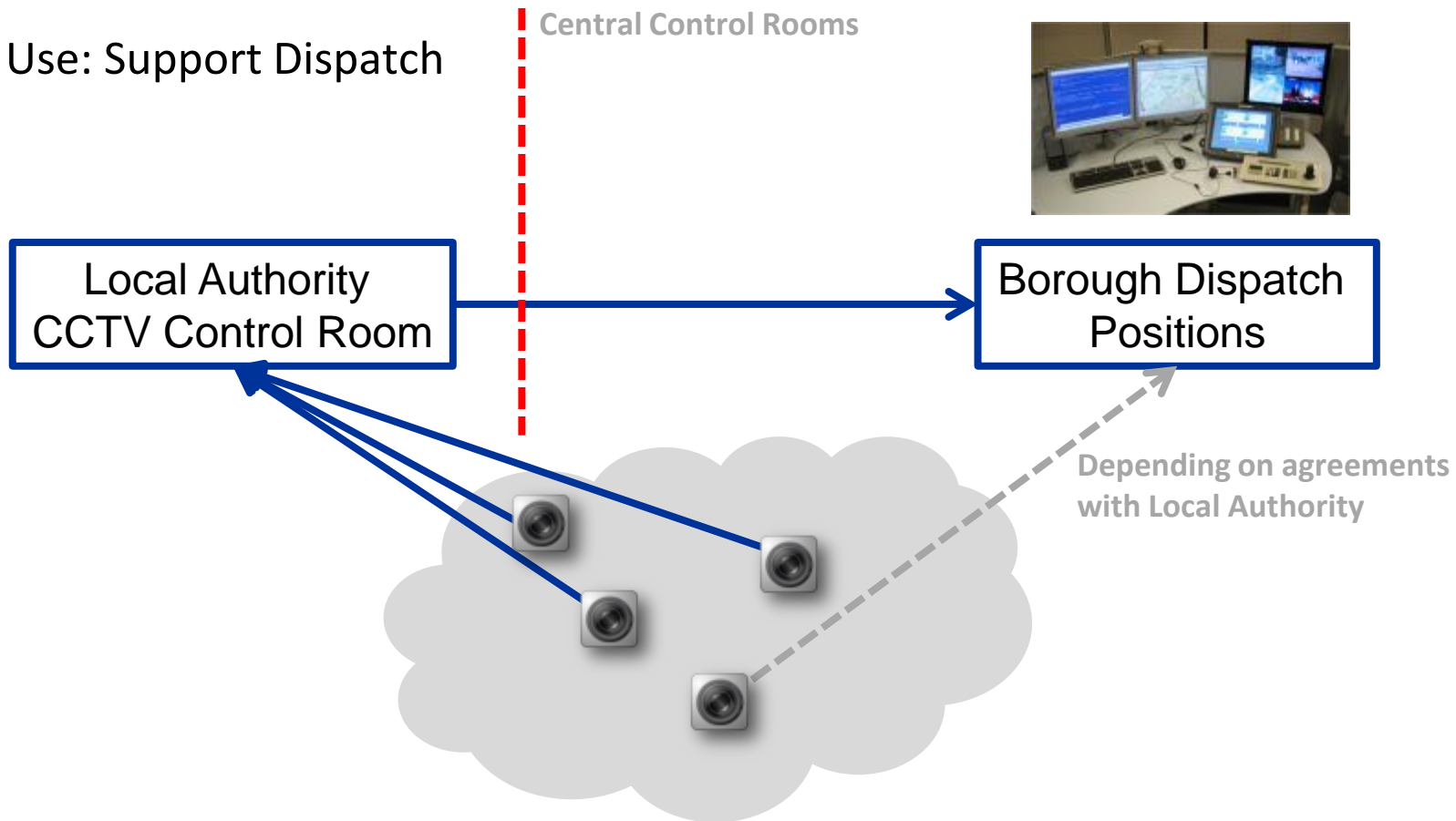
Central Control Rooms





# Images to Operator...

- 24/7 Operations: Push
- Use: Support Dispatch

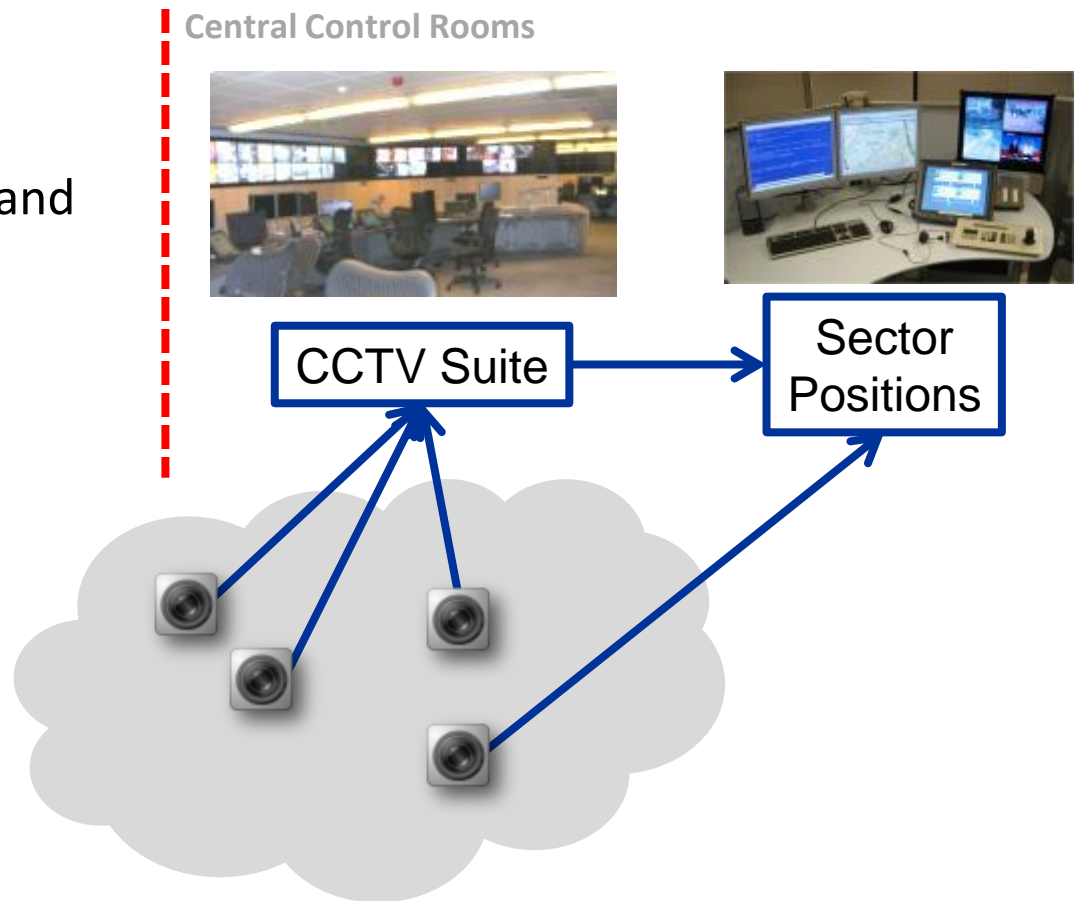




# Images to Operator...

→ Special Operations (planned Events etc.): Pull-Push and Pull

→ Use: Situational Awareness for Gold/Silver command







# Implementing CCTV System

- FREQUENTIS was tasked to provide through the ICCS access to the CCTV system
- Subcontracted Tyco (CCTV Routing) and Meyertech (Analog Video Matrices) for 'back-end' system parts.
- MPS managed arrangements with Local Authorities
- About the requirements...



# User Involvement is...

- Just tick ~~the consult users box~~ and move on
  
- Throughout procurement, system design and delivery a consistent **Integrated Team** composed of:
  - Customer side:
    - Key stakeholders: Operational Lead/Operators/Officers
    - Business Architect
    - Strong project management focused on the goal of project
    - System Maintenance
    - Training
  - Supplier side:
    - Technology experts
    - Usability Engineer/Process Verification
    - Project Management

© MET Police



# Key Success Factors of an Integrated Team

- Have clear objectives and needs
- Stay grounded
- Retaining knowledge and understanding
- Internal Marketing
- Ownership of the solution is shared
- Composition of Team skills/knowledge/dynamics
- Supplier must be brave enough to say Give us an integrated team.
- Be honest about possibilities & limitations

© MET Police





# Benefits and Non-Benefits

→ Controversial Topic

→ Research and Reviews show: Weak on Prevention

- Ineffective in Reducing overall Crime rates
- Presence of Camera has reducing effect on types of Property/Vehicle Crimes
- No or little effect in reducing fear of Crime

→ Practice shows: Strong on Finding, Operational support

- After the fact person searches (missing or criminals)
- ANPR Effective in searching vehicles
- Provide Situational Awareness during Events
- Support Dispatch operations







# Current and Future Developments for Control Rooms

The screenshot displays a control room interface for a security system. At the top, it shows the date and time '25.03.05 11:28', system status 'System OK', and user information 'CCI: OM MD Role: OM MD'. The main area is a map of Putney, London, with several camera locations marked by icons. A blue-bordered pop-up window is centered over the map, listing the following camera locations:

- Bloomsbury Theatre, Putney, 130045
- 15 Blooming Place, Putney, 131023
- 32 Blooming Place, Putney, 130046
- 5 Bloom Grove, Putney, 130178
- 76 Bloom Lane, Putney, 131732

Below the list is a 'Zoom In' button with a plus sign icon. The map interface includes various navigation and control elements: a 'Find' button, a 'Directory' button, a 'My Position' button, an 'Other Users' button, a 'Videowall' button, a 'Recording Status' button, and a 'Presets' button. At the bottom, there are additional controls like 'Dialpad', 'Directory', 'More Fn's', 'Instant Playback', 'Request Assistance', 'Transfer', 'Hold', 'Mute Microphone', and 'Close CCTV Control'. The bottom right corner shows the address 'Reinard van Loo Hasnerstraße 42' and the instruction 'End Prio Icom Call'.



# Digital Distribution

The screenshot displays a software interface for digital distribution, likely for emergency services. It features a central map with a street grid and a highlighted orange route. A small inset window shows a street-level view of a road with trees and buildings. To the right, there are several panels:

- Incidents & Units:** A table listing incidents and units with their status and names.
- Communication:** A panel for managing communications, including a search bar and a list of waiting calls.
- Waiting Calls:** A table showing a queue of calls with their waiting time and information.
- Police, Fire, EMS, Interstate:** A section with buttons for different services and networks.

Incident	Unit	Cal.	Name	Status	Nature
SC1256				New Call	
SC1234				Hold	0243 Ir
PF-F08-14243	P886	5871	Smith, J...	On Scene	0765 E
PF-F08-14243	P882	1827	Doe, Jo...	En Route	0765 E
OF-F08-55888	FSP1	9273	Patrick...	En Route	0765 E
RP-F08-1422	RA34	2673	Banner...	En Route	0123 C
RP-F08-1422	RE55	9253	Kurtzer...	En Route	0123 C
MS-F08-3266	MA1	1253	Zing, Za...	On Sce...	111 St
	MA2	1234	Gun, Hold	Available	
	MA3	0936	Wimth...	Available	
	MC12	6354	Schulze...	Available	
	ME4	3856	Hammit...	Available	
	ME8	4423	Steward...	Available	
	PA81	2334	Zimsky...	Available	
	P889	9985	Zujap, K...	Available	
	PE54	1112	Ball, Lucy	Available	

Queue	Waiting	Info
911	00:05	7018031, John Doe, 23...
911	00:04	70154321, Jane Doe, 2...
Icom	00:12	DSP2





# Airborne Camera Integration

- Select point on Map -> See live feed of that point after acquisition by plane
- Area scanning and showing as ,Satelite Picture' with <30 min latency.





# More intelligent Video Analysis

## → Current Issues:

- Too much video to be recorded,
- not enough people to analyse,
- often poor quality pictures

## → Facial recognition not possible due to low resolution, bad lighting, no clear frontal 'mug shot' etc.

## → Use different techniques:

- Index recordings according to faces (not persons) recognised
- Person recognition based on movements patterns

## → Bottleneck: Work required on how these new real-time analysis events can be integrated into existing or new operational processes



# Integration into C&C: e.g. work from the map

The screenshot shows a map interface with several callouts and a context menu. The callouts are:

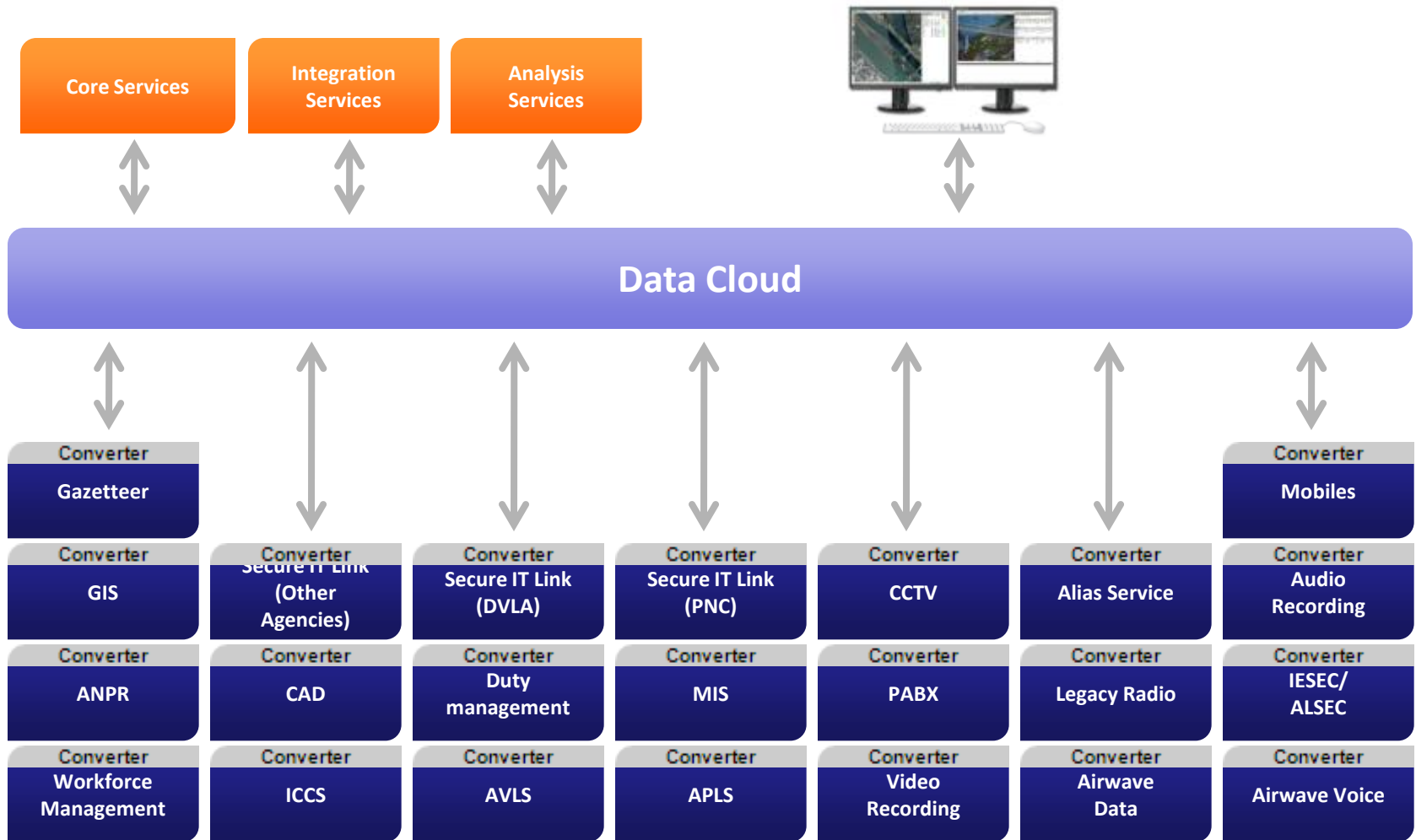
- Reverse Geocoding**: Points to a location information window showing address details for 151 Main ST, Park Forest, IL 60443, USA.
- Waiting Call**: Points to a blue star icon on the map.
- Incident**: Points to a red icon on the map.
- Camera**: Points to a camera icon on the map.
- Unit**: Points to a yellow icon on the map.
- Alarm**: Points to a red and yellow alarm icon on the map.
- Unit Context Menu**: Points to a context menu for a unit, which includes options like 'Change Status' and 'Poll Location'. The 'Change Status' sub-menu is open, showing options such as 'Available (A)', 'Dispatched (D)', 'En Route (E)', 'On Scene (O)', 'Busy (B)', 'T-Stop (T)', 'Follow-Up (F)', 'Busy - Unavailable (BA)', 'Unavailable (U)', 'Staging (S)', 'To Hospital (TO)', and 'At Hospital (AT)'. The 'En Route (E)' option is highlighted.





# FREQUENTIS Safety Framework

Service Oriented Architecture based





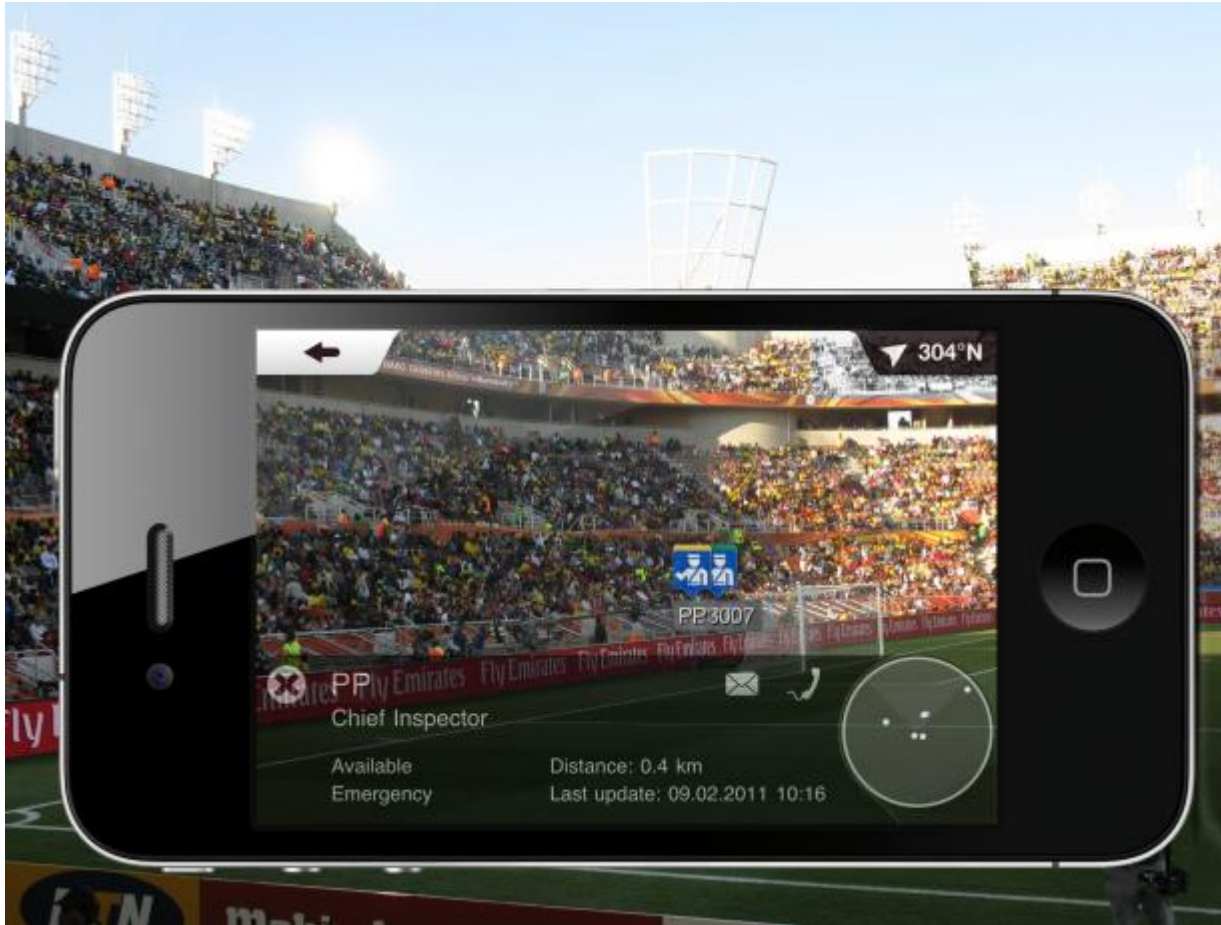
# Modern Architecture...



- Makes it *Easier* to integrate hitherto individual systems/data
- Makes it *Easier* to provide Purpose built clients...
- Makes it *Easier* to focus on operational process



# For instance...



# Innovation for Collaboration and Control Environments

**FREQUENTIS**  
FOR A SAFER WORLD