

# Starter Kit

# Mobile Telephone Evidence

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Part 1

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## TREW MTE

Mobile Telephone Evidence  
Training

# Introduction

It is common to find served in criminal cases data that are acquired from Mobile Telephones, Subscriber Identity Modules (SIM) cards and the mobile network.

Those who are unfamiliar with this topic invariably find they are rather overwhelmed by the vocabulary (terminology) adopted for mobile communications, the origin of data and the evidence itself.

This starter kit has been compiled for the Bar Counsel and Law Society CPD evening presentation to raise observations, thus awareness, about the subject matter.

# Presenter - Gregory Smith

- Principal of Trew & Co - consulting forensic engineers & Chief Training Officer Trew MTE
- Trew & Co operates Trew MTE (Mobile Telephone Evidence) and Mobile Telephone Examination Board (MTEB)
- 18yrs experience of telecom evidence. 17yrs of which handling wireless evidence. 13yrs of which dealing with GSM evidence (thus in at the start of GSM in UK)
- Trains law enforcement and security specialists in mobile telephone examination and evidence
- Independent expert engaged by both prosecution and defence but not on retainer by any party

# Overview of GSM Expert Qualifications

- There are no academic qualifications for mobile telephone evidence, thus reliant upon:
- Knowledge of all the current and historical technology not merely parts of it
- Skill - knowing what to look for and its application to a case
- Experience (the longer the better) as different development generations of GSM technology can be served in evidence

# Mobile Telephone Market

- 55-million subscribers in UK - 2005
- Estimated 140 million handsets/SIM cards in UK (approx 2-3 per person)
- 40,000 Masts in UK - 2005 (could be higher if small masts and indoor coverage added)

# GSM Mobile Telephone Market

- GSM started 1991 (Phase 1 technology rollout) - basic content service - voice, text messages, fax and services call forwarding/barring
- Phase 2 technology introduced 1995 offering enhanced voice capability and new services - Caller Identification (CLI), call waiting & holding and call conferences
- Phase 2+ is in fact a series of Releases (R96, R97, R98, R99 etc) that introduce new and improved network capability and services for use by SIM cards & handsets. Such as localised news, downloads, images, enhanced text messages etc

# GSM Mobile Telephone Market

- Four UK mainland operators - Vodafone, mmO2 (BT Cellnet), Orange & T-Mobile (One-2-One)
- numerous service providers - Carphone Warehouse, Phones4U, The Link etc
- Increasing number of Virtual Mobile Operators (VMOs) - Virgin Mobile, Tesco, Sainsbury's etc

# GSM Mobile Telephone Market

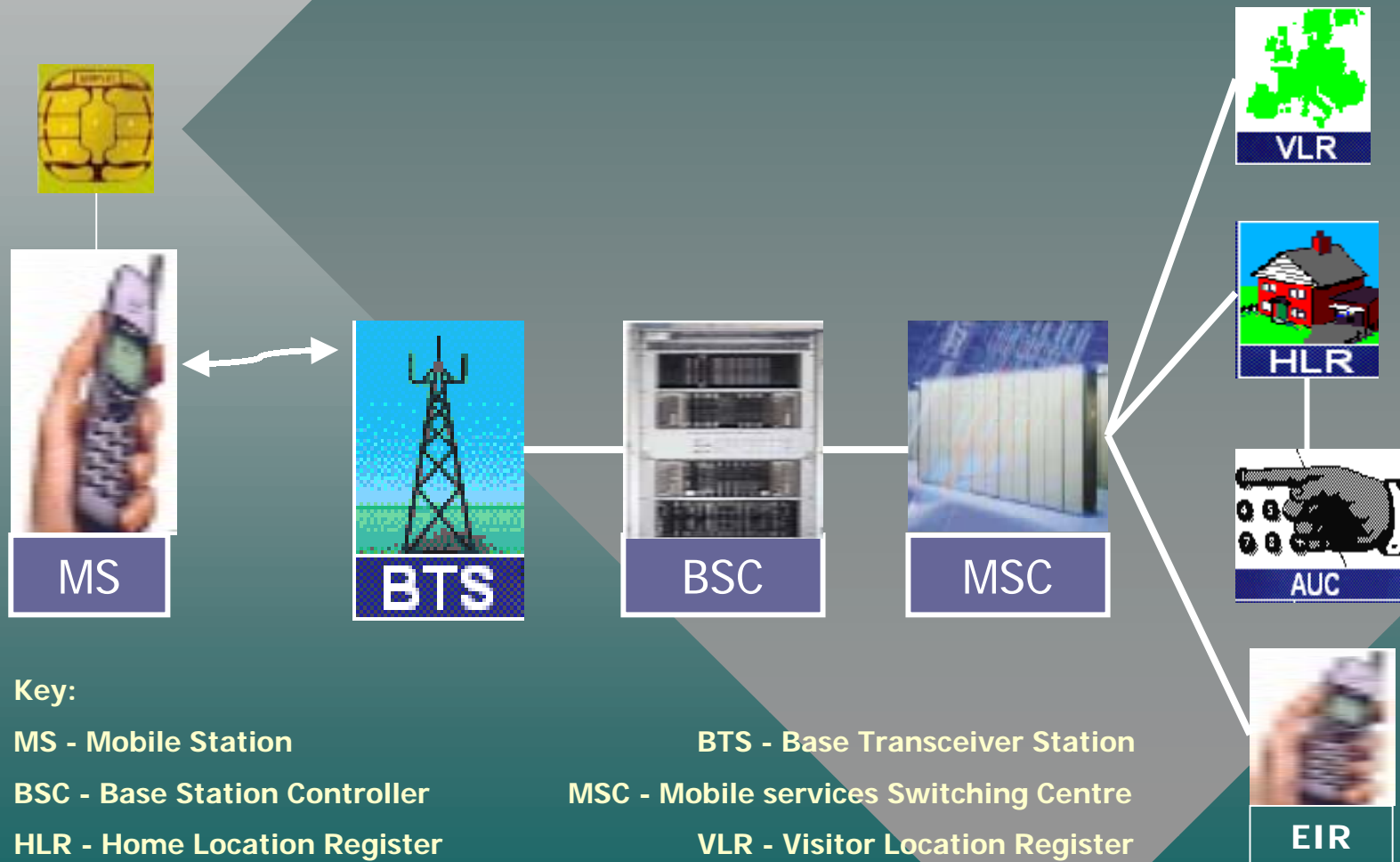
Two types of subscriber

- Monthly Account holder who receives a monthly bill - thus account holder is traceable
- Prepaid Account holder - no requirement to provide identity of user, account user does not receive a monthly bill but adds credit to account as and when

# Overview of component parts involved with mobile telephone evidence

- Mobile Telephone and Subscriber Identity Module (SIM) Card - when combined called Mobile Station
- Content
- Subscriber details/Billing records/Call records
- Cell Site Analysis
  - Cell Site Identification (& network build-out)
  - Radio coverage and radio test measurements
  - Site Survey (environmental study)

# Global System for Mobile (GSM) Communication System component parts



## Key:

MS - Mobile Station

BSC - Base Station Controller

HLR - Home Location Register

AUC - Authentication Centre

BTS - Base Transceiver Station

MSC - Mobile services Switching Centre

VLR - Visitor Location Register

EIR - Equipment Identity Register

# Impact of GSM Mobile Evidence in Criminal Cases

- From 1993 to 1996 approx 30-100 cases per year
- 1997 to 2000 200-300 cases per year
- 2000 to 2004 tens of hundreds of cases per year
- Research Lexus Law Database, Times Law Reports and Internet

# Type of GSM Mobile Evidence in Criminal Cases

- SIM Card - subscriber identity, mobile phone number, phonebook, text messages
- Handset - outgoing/incoming calls, phonebook, text messages, images, voice records etc
- Subscriber details confirming identity of user or mobile phone number and services applicable to the account - tariff, voice & data, services etc

# Type of GSM Mobile Evidence in Criminal Cases

- Billing records - identifying called party duration, date & time and charges etc compiled and billed to subscribers
- Call records - identifying calling and called party, date & time, duration, ringing time, handset serial number and cell site data for outgoing and incoming calls relating to prepaid and monthly subscribers
- Other network records

# GSM Mobile Evidence received in Criminal Cases

- In consequence the defence receives huge bundles of records that can run to '000s of pages
- The evidence is rarely supplied in one single delivery but trickles in over a period of time - sometimes in close proximity to or just before trial
- Essential to defence case where mobile telephone evidence is served that defence lawyers comprehend the need to evaluate its weight vis-à-vis the allegation

# How GSM Mobile Evidence is captured

- Starts with capturing the mobile telephone and SIM card to see what their content reveals. Importantly memory devices can be damaged or data (evidence) corrupted so it is important to know Law Enforcement Policies and Procedures for:-
  - Seizure Policy/Procedures
  - Goods Inwards Policy/Procedures
  - Handling Policy/Procedures
  - Examination Policy/Procedures
  - Preserving Evidence Policy/Procedures
  - Quarantine Policy/Procedures

# GSM Mobile Evidence - Do Remember

Europe - The Committee of Experts on criminal procedural law problems connected with Information Technology in their final report recommended:

- *‘Adequate safeguards must be taken by investigating authorities to guarantee the integrity of data between copying during investigation and its presentation at court proceedings...[C]ourts may demand that the proponent of a digital picture, for example, be ready to establish a complete chain of custody. A hand-to-hand chain from the photographer to the person who produced the printout may, in some circumstances, be the only way to adequately ensure integrity of an exhibit.’*

# How GSM Mobile Evidence is compiled

- Procedures are also in place with regards to obtaining subscriber details, billing/call records and radio network information from an Operator
- Historically, the objective was to provide a clear framework for the efficient working relationship between the United Kingdom Telecommunications Industry and Law Enforcement Agencies for the handling of requests for communications data in connection with crime enquiries that meet the necessary criteria, within the provisions of current legislation upon production of an appropriately authorised application
- **Now REPLACED BY MANUAL OF STANDARDS**

# How GSM Mobile Evidence is compiled

- **Manual Of Standards For Accessing Communications DATA**
- The Law Enforcement Agencies have agreed that direct communication with the 200+ PTO's, that make up the UK's Telecommunications Industry, will be restricted to the Accredited Single Points of Contact within each force or agency.

# How GSM Mobile Evidence is compiled

- So the key points to note are

**Single Points of Contact are Accredited LEA Officers**

## **Accredited Officer Status**

- Qualifies by attending a 5 day course
- Course run by LEA/Industry
- Course covers all aspects of accessing of telecomm services
- Principles of Guidelines apply NOW
- Total enforcement since 1 June 2000
- Register of Accredited Officers are held by NICIS And Industry

# END OF PART 1

- An overview of the GSM Market has been provided.
- The sources where GSM data evidence originates has been highlighted
- The need to understand policies and procedures has discussed
- **In Part 2** a look at the pro's and con's of mobile telephone evidence