Enhanced Observed Time Difference (E-OTD)

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Aerial Communications

About Aerial

- PCS A & B block Licensee
- GSM technology
- License for 28 million pops in 6 MTA's
  - Minneapolis, Columbus, Kansas City, Pittsburgh, Houston & Tampa/Orlando

E-OTD Overview

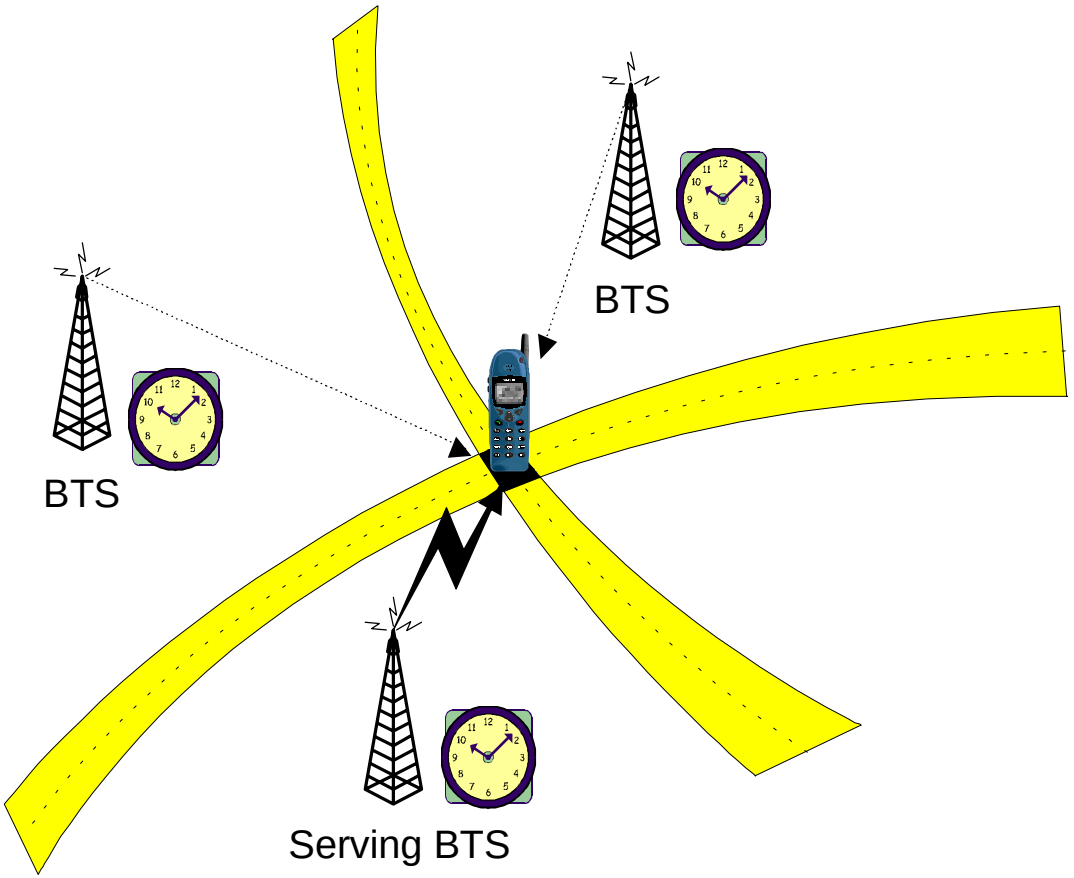
- Triangulation based technique
- Handset based solution
- Does not use GPS in handset
- ALI methodology provided for in GSM
- Enhancement to handset software required

E-OTD - Extension of GSM

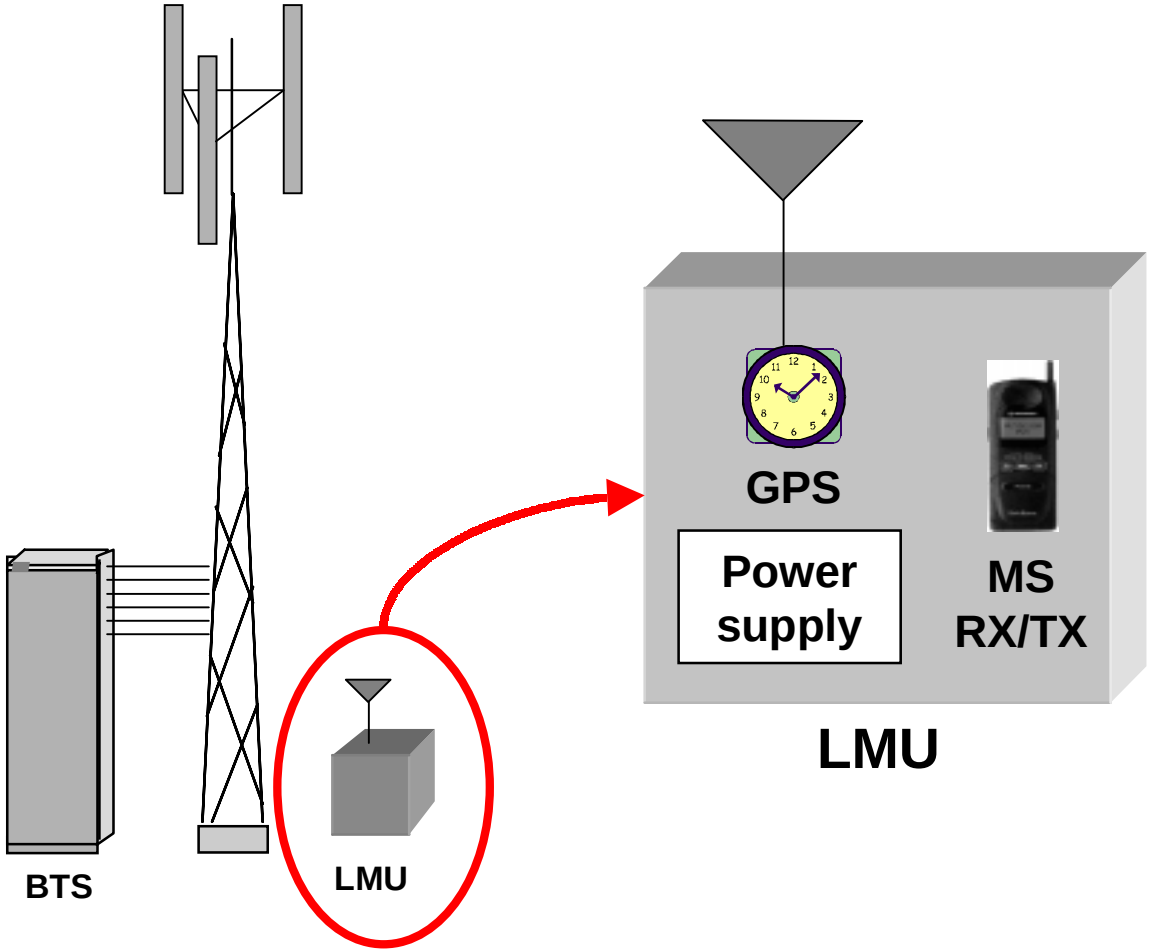
- GSM network is unsynchronized.
- Mobiles must synchronize with each BTS.
- Base stations regularly emit a synchronization burst.
- Mobiles monitor synchronization bursts of serving and all neighbor cells.
- Mobiles “Pre-Synchronize” with all neighbors to be prepared for handover.
- E-OTD builds on and extends this functionality.

E-OTD - How it Works

- Mobile listens to bursts sent from neighboring BTSs
- Mobile records burst arrival times
- Position is triangulated from:
  - Coordinates of BTSs
  - Arrival time of burst from each BTS
  - Timing differences between BTSs



E-OTD - Site Implementation



LMU Must Measure the Transmission Time of the Burst

E-OTD - Handset Implementation

No Change to Existing
Antenna Structure

No Change to Existing
DSP or RF Hardware

Software Modification
Required to Enhance Existing
Measurements Process

Mobile Must Precisely Measure the Arrival Time of Burst

Potential E-OTD Vendors

- Motorola
- Nokia
- Nortel
- Siemens
- Alcatel
- Cambridge Positions Systems (CPS)