

Combating counterfeit Devices and Tampering with unique identifiers - The Indian Experience and Expectations



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Background

- Wireless communication started in August, 1995
- Current subscriber base is 1125 Million (as of 30th April 2018)
- With this subscriber-base, India is the World's second largest mobile market.
- The country is divided into multiple zones, called Telecom circles or Licensed Service Area - LSA (roughly along state boundaries).
- Calls within LSA is local and call across LSA is National Long Distance (NLD) or Subscriber Trunk Dial (STD) calls.
- Roaming applies for inter LSA calls.



How the issues raised

- While tracking miscreants through IMEI and Lawful interception through IMEI, it was found that there are multiple mobile phones with same IMEI.
- Even it was found that there's a large number of mobile phones without IMEI numbers.
- Found huge number of mobile phones with all 0 IMEI numbers.
- Unique number of the mobile device is re-programmed to make it non-traceable and re-sale.
- It was found that Telecom Service Providers are not fully equipped with EIR for checking the IMEI of the mobile handsets.

Preventive measures taken

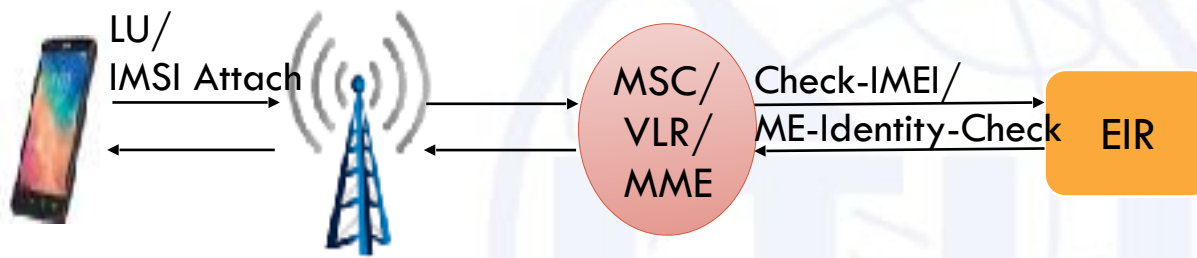
- In 2008, service providers were directed to make provision of EIR in their network so that calls from mobile without IMEI or IMEI with all zero are rejected.
- Subsequent to this directive all Telecom Service Provider across all LSAs implemented EIR in their network.
- Although there were legal provisions to restrict IMEI reprogramming in Indian Telegraph Act -1885 and Information Technology Act -2000, still in 2017 - a new act has been enforced specially to stop mobile unique number tempering by which change of IMEI numbers in any mobile handset is declared unlawful and punishable offence (except by Mobile manufacturers).

Further issues

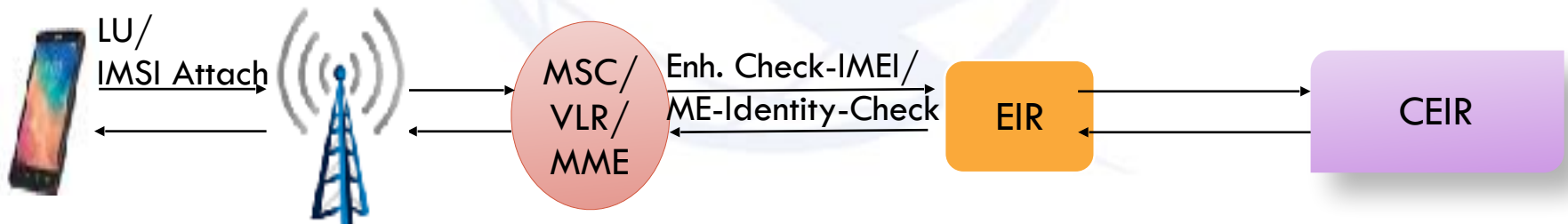
- After EIR implementation by Service providers, mobile IMEI checking, black-listing became possible within same service provider and same LSA.
- Any mobile black-listed in one LSA could be used in other LSA. Again black-listed mobile by one service provider could be used in other service provider network within same LSA.
- So to check IMEI validity and common black-list across the country, Central EIR (CEIR) is required to be implemented.
- CEIR will interface with all Service providers across the country.

Local EIR to CEIR interface

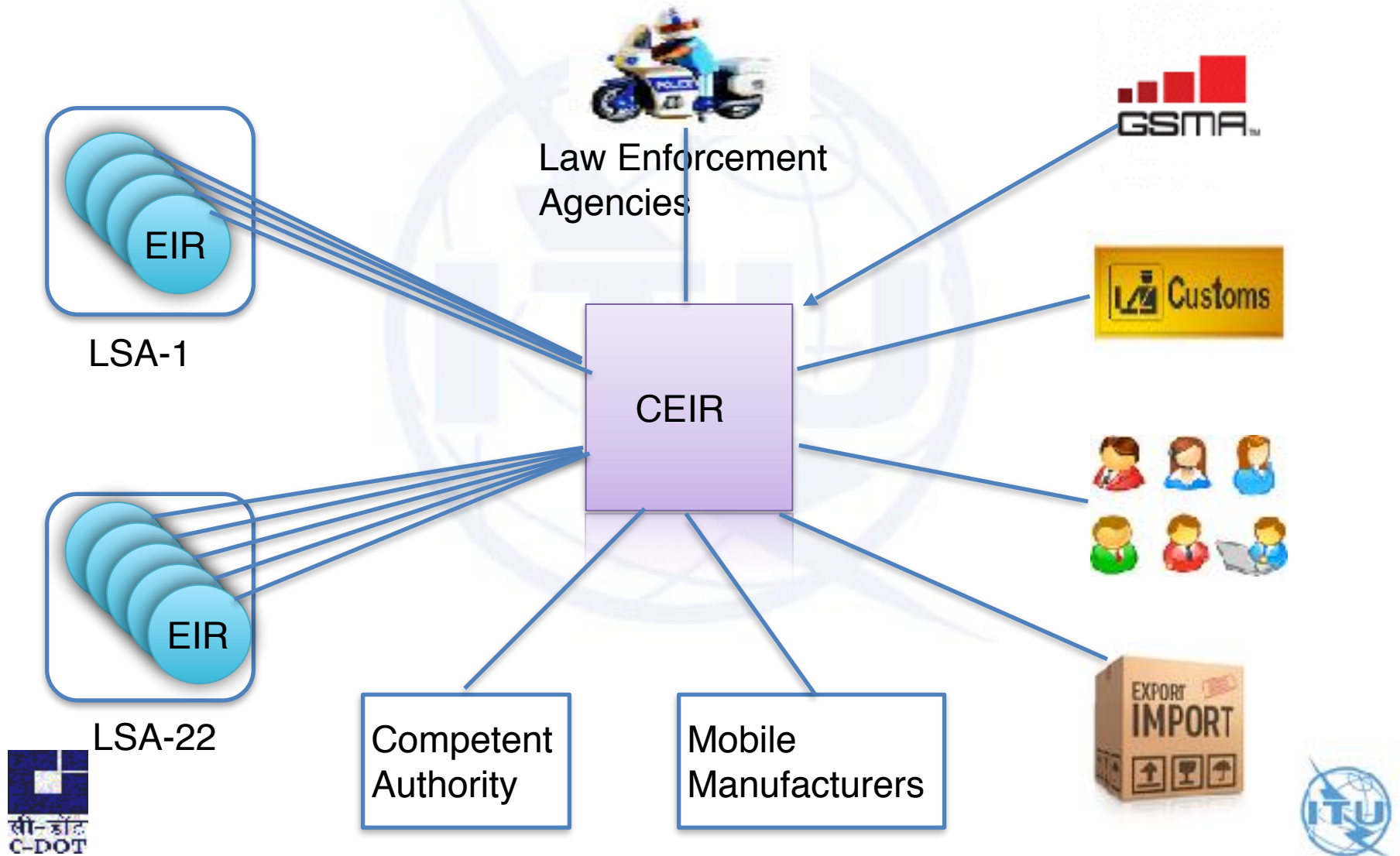
Current Message Flow



Required Message Flow



CEIR Stakeholders



CEIR features

- Detection of fresh cloned/ duplicate mobile and permit the use of existing mobile phones.
- Block stolen/lost mobile devices all over India
- Maintain Device Registry for
 - ❖ Mobile Manufacturers
 - ❖ Imported Devices (Customs and Individual)
 - ❖ Long Term In-roamers.
- Enhance mechanism to report stolen/lost mobiles
- Verification of cloned/duplicate/ blocked mobiles - even before buying handset through Web-portal, Mobile App and SMS.
- Device Pairing with Mobile numbers.
- Cloned/duplicate device authentication by competent authorities.
- Enable IMEI tracking, IMEI based Lawful Interception.

Tampering issue resolution through CEIR

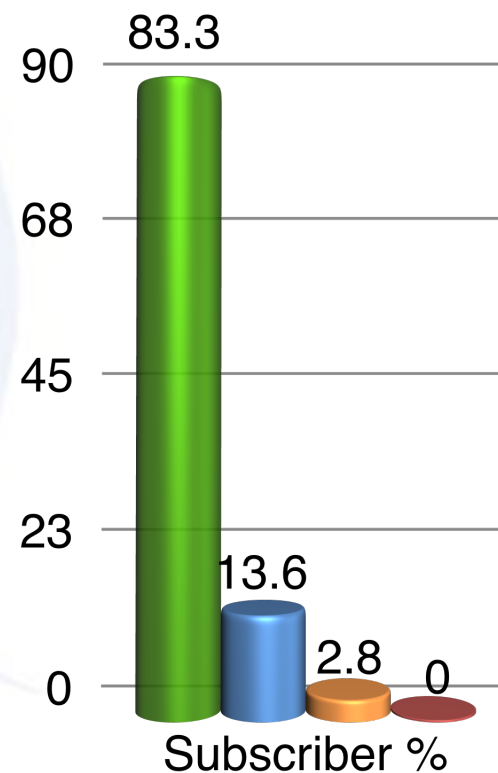
- IMEI tampering could be detected if Re-programmed IMEI is -
 - *invalid.
 - *non-allocated by GSMA.
 - *allocated by GSMA and not used by Manufacturers.
 - *already in use with in country (duplicate).
- This is expected that at- least 90% cases of IMEI tampering will be detected by CEIR.

Implementation plan

- Proof of Concept has been tested with all the service providers in the Maharashtra LSA of India.
- Countrywide CEIR rollout with offline interface is planned for 31st March 2019.
- Rollout of CEIR with real time interface is planned for 31st March 2020.
- Connectivity with GSMA International Black-list.

Observation from MH LSA POC

- Total records captured : 124,821,022
- Good IMEI : 103,922,520
- Duplicate IMEI : 16,981,318 (13.6%)
(used by >1 number)
- Duplicate IMEI : 3,539,955 (2.83%)
(used by >2 numbers)
- Invalid IMEI : 377,229 (0.3%)
- Max. existence of single IMEI: 14,653



Expectation from ITU

- Interface standardisation for EIR - CEIR interface for real time/ online data transfer. Real-time interface will only be useful to restrict service to the cloned/ duplicate handsets completely.
- Standardise procedure for mobile device manufacturers to make IMEI numbers non-editable/ non-reprogrammable.

Thank
you

