**Cellular Network Weaknesses**

Using a smartphone with a popular OS on a popular network is just never going to provide security, privacy or anonymity

If there needed to be solution to deanonymise people, a mobile phone and network is the solution you would come up with.

Calls can be recorded

Log of internet data traffic

Read and store SMS messages

Cand send a silent SMS to geographically locate you

Software updates that manipulate phone

Tower dumps of all connected phones over a given time

* Cross correlate people ion an area

Networks know your MAC address

Meta data

* Call duration
* Location
* Receivers
* Times
* Internet usage
* Picture messages

IMSI (International Mobile Subscriber Identity)

* Unique 64-bit number associated with your SIM which is sent by the phone to ID user to network
* TMSI – randomly generated
* Call patterns

Location based services

* More towers, more precise

Providers can exchange data between each other

Data, voice and SMS can be intercepted with weak or no encryption

**IMSI Catchers**

There is no authentication for the phone networks/towers which means that anyone can set up a fake tower (IMSI catcher) and pretend to be a network operator

You can then force the phone that connected to use no call encryption (A5/0 mode) or to use easily breakable encryption (A5/1 or 2)

* Known to be deployed by law enforcement
* (flying) dirtboxes
* Very easy to make an IMSI catcher DIY

Connect this to VOIP that connects to the internet and you effectively have a little mobile network that people will connect to and be able to use normally with no suspicion

**Signalling System No. 7 (SS7)**

Set of protocols to connect networks together and rout calls between sw=itching centres

Enables the passing of information between networks like calls and SMS etc.

Enables billing and roaming from one network to another when your abroad

Terminally insecure – not a closed system

Networks cannot be trusted

* + MAP and CAMEL protocols don’t need authentication
  + **An adversary only needs your number** and access to SS7 in order to read all your texts, listen to calls and geolocate you form anywhere in the worlds
  + As well as DDOS attacks

Lyn phone, apps for providing end to end encryption for calls and texts