How a Pseudonym Based Solution to Defeat IMSI-catchers Opens a Vulnerability to DoS

IMSI-catchers
- IMSI-catchers forces a user to give away their identity (IMSI)
- IMSI catchers violates privacy and leads to other serious attacks
- Pseudonym based solutions have been proposed to defeat IMSI-catchers
- Psedonym based solutions are vulnerable to **DoS**

Pseudonym Based Solution
- Temporary identifers known as pseudonyms are used instead of IMSI
- Pseudonyms keep changing according to a agreed protocol

DoS Attack
- We describe a distributed DoS attack mounted by a fake user equipment (FUE) that brings a whole network operator out of service
- In the DoS attack all the users lose synchronization of the pseudonyms with the home network
- We propose solution to fight against the DoS attack
  Our solution still defeats the IMSI catchers

Fig 1: IMSI-catchers

Fig 2: Pseudonym based solution

Fig 3: DoS Attack