- **Network Neutrality in Mobile Broadband (NeutMon)**

- Alessio Vecchio, Dip. Ingegneria dell'Informazione, University of Pisa
- Dip. di Ingegneria dell'Informazione:
  - ~80 professors and researchers, ~100 PhD students and ~30 PostDocs.
  - Covered areas: Biomedical Engineering, Electromagnetics, Electronics, Computer Engineering and Communications.
- Collaboration with the Institute of Informatics and Telematics – Italian National Research Council (Enrico Gregori and Valerio Luconi).

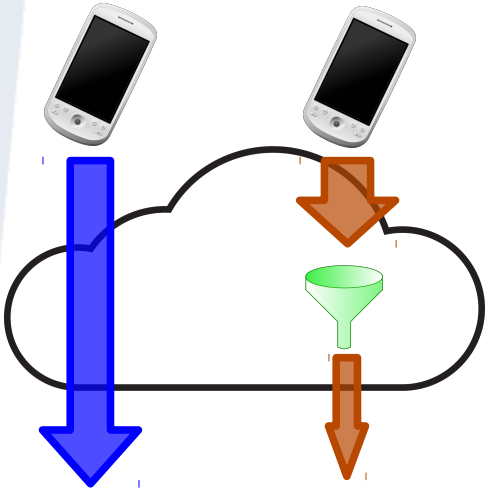
# NeutMon

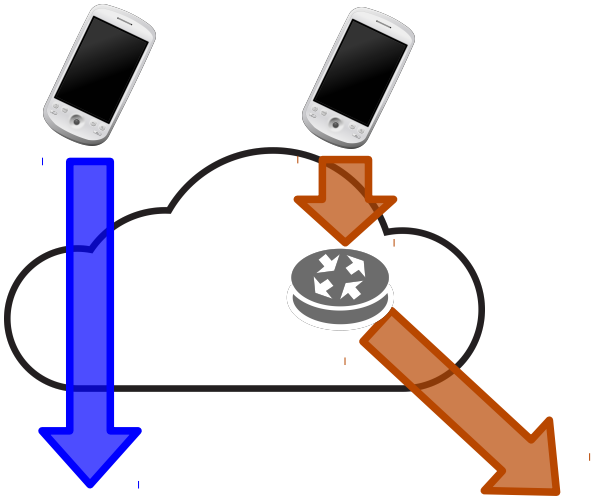
- *Network Neutrality*: packets on the Internet should be processed impartially by ISPs and other operators, without regard to content, destination or source.
- NeutMon aims at
  - Studying the net neutrality problem in a mobile broadband scenario
  - Developing tools useful to detect possible violations
  - Collecting data about the neutrality level of EU mobile broadband providers
  - Analyzing collected data using techniques that take into account the specific characteristics of the considered environment
- Additional problems due to the wireless environment
  - Fluctuations originated by signal strength, retransmissions, number of users, mobility, etc



# NeutMon

- We focus on the detection of
  - throttling/blocking of Bit Torrent (BT) traffic
  - different forwarding rules for the different classes of traffic





- We are developing a tool
  - Two traffic classes: BT and non-BT
    - Variations: clear text BT, encrypted BT
  - Application-level traceroute
    - TTL is varied during transmission
- Measurements: bandwidth intensive, all nodes, low frequency