



UiO • **Faculty of Mathematics and Natural Sciences**
University of Oslo



MIR3: breakout group report
"7G should be software! +
Internet access & inclusivity"



... or maybe, just:
"Use of existing Capacity"

7G should be software!

- The claim is: rolling out unnecessary equipment is a sustainability problem
- Regulatory interventions could help
 - Should push phone vendors into longer update cycles
 - Overprovisioning should be limited by a cap: some form of "cost"? Overprovisioning is not accountex
 - Telecom industry should count carbon footprint of routers – if routers are "free" nothing will change
- Overprovisioning is driven by a move towards unicast on-demand video

We could do better with what we have

- E.g., software updates are a good example, a huge amount of data is sent to update millions of phones via unicast
 - Local multicast worked. Multicast isn't easy at large scales
 - Do we have broadcast channels with substantial capacity?
- 5G is a disappointment
 - 6G is defined based on the fact that 5G was a failure
 - 4G use cases are now rewritten for 5G and called a success
 - 5G use case of “Low bandwidth communication with large geographical coverage” hasn't happened
 - 5G originally had global coverage as goal, but silently dropped

Too much focus on the "high end"

- Networks are mostly empty
 - Congestion control wastes does not probe for capacity but wastes time with handshakes
- How much capacity do VR/AR truly need? Hi-res displays may need a lot, but these use cases haven't really materialized
 - Most applications don't need high capacity links
 - How much data can we consume, how much video can we watch?
- IETF has focused too much on maximum capacity
 - 7G software is convincing if every single function can be virtualized and privacy & security can be assured, similar to eSIM cards
 - Also, real problems are: Battery life and Connectivity

Internet access & inclusivity

- The digital divide is provably widening
- Need to develop something towards open information access
- But how to make money on low accessibility?
- Companies need to have competition, to feel the urgency to act

Internet access & inclusivity /2

- IETF should promote technologies for this
 - GAIA was not chartered to push standards. Maybe recharter?
- To provide content via low bandwidth, could use proxies that transcode, simplified webpages via proxy, ...
 - We can download a web page at 8kbit/s, generate web pages on fly for low bandwidth, it's interesting research, but why should we do this?
- Mobile operators did this before universal https: Wireless Access Proxy (WAP), but that had incentive alignment
 - How to incentivize today? It's within UN SDGs. Energy stickers for web pages, or rather: accessibility stickers?
 - Making a web page accessible to more people by making it faster can earn more revenue; need to create awareness about this