

Applications over Wi-Fi

status report

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- **Many questions to respond, before starting:**
 - **applications**
 - **devices**
 - **protocols**
 - **metrics**
- **Other issues arraised:**
 - **What Wi-Fi standards to use for a testbed?**
 - **Technologies like UMA (Unlicensed Mobile Access)**
 - **Is this our job ? (I mean, TF-mobility alone?)**
- **Not considering these other issues:**
 - **Handover between APs**
 - **Authentication / Reauthentication**

- **Reduced the list to these two:**
 - **VoIP (just audio)**
 - **Videoconference (audio and video)**
- **Excluded for the moment:**
 - **Video (or audio) streaming**
 - **Many forms of video streaming to consider**
 - **Presence and Instant Messaging**
 - **Probably out of scope (minimum requirements, except for recommendations we can provide for (un)filtering certain ports)**
 - **Electronic whiteboards**
 - **Less related with a mobile environment (or maybe not?)**
 - **Collaboration applications (for instance: collaborative edition, desktop sharing, etc...)**
- **Any other you can tell?**
- **My idea is to test only standard (not in the sense of *popular*) applications**

- **A laptop computer...**
 - **More computing power: better codecs are used**
 - **The most common situation right now**
 - **More tools to play with...**
- **wi-fi enabled phones ?**
 - **it depends on the device and OS**
 - **Less computing power and more power consumption**
 - **worse (simpler) codecs are used**
 - **Windows mobile and Symbian being the more popular**
 - **Some applications already there...**
 - **iPhone and Android to be *playing* in a near future**
 - **Not to forget the UMA-enabled phones (further slide)**
- **Excluding:**
 - **"skype phones"**
 - **handhelds and *internet tablets***
 - **other "toys":**
 - **Nintendo DS, PSP, and many more can do wi-fi and even VoIP, but these gadgets are less common, or less people use them...**

- **SIP**
 - **Very common in the academic world, and supported by many vendors**
 - **SIP is commonly used as the signaling protocol for many VoIP applications**
 - **Uses many different codecs**
- **H323:**
 - **Is the other “big one” to consider**
 - **It's not only a protocol but a system specification to other protocols by ITU-T**
 - **Many audio, video codecs**
- **XMPP (aka Jabber):**
 - **To be considered also... many ways to use XMPP for real time communication (not just instant messaging)**
 - **Also quite used for audio/videoconference and supported by several vendors**

- **We can do tests with real applications and provide our subjective impression:**
 - **There are surveys describing the user perception after using different audio and video codecs in different situations**
 - **but... not our business ?**
- **or we can do network metrics:**
 - **Do not reflect the real user perception**
 - **Codecs work in many different ways, although there are experiments with many of the more common standard codecs for VoIP, Video-Conference, and Streaming, not all can be easily measured**
 - **These experiments measure several parameters for a given codec, calculating the amount of bandwidth consumed (see next slide)**
 - **Tools are available only for a number of platforms**
 - **More difficult to make metrics in all the environments**
- **Some applications have nice stats:**
 - **Xmeeting the one I checked so far...**
 - **have to ask my multimedia colleague about more...**

- **For VoIP the requirements are minimal (in theory)**
 - **Example: different audio codecs, bitrates, and bandwidth consumed**

Codec	BR	NEB
G.711	64 Kbps	87.2 Kbps
G.729	8 Kbps	31.2 Kbps
G.723.1	6.4 Kbps	21.9 Kbps
G.723.1	5.3 Kbps	20.8 Kbps
G.726	32 Kbps	55.2 Kbps
G.726	24 Kbps	47.2 Kbps
G.728	16 Kbps	31.5 Kbps
iLBC	15 Kbps	27.7 Kbps

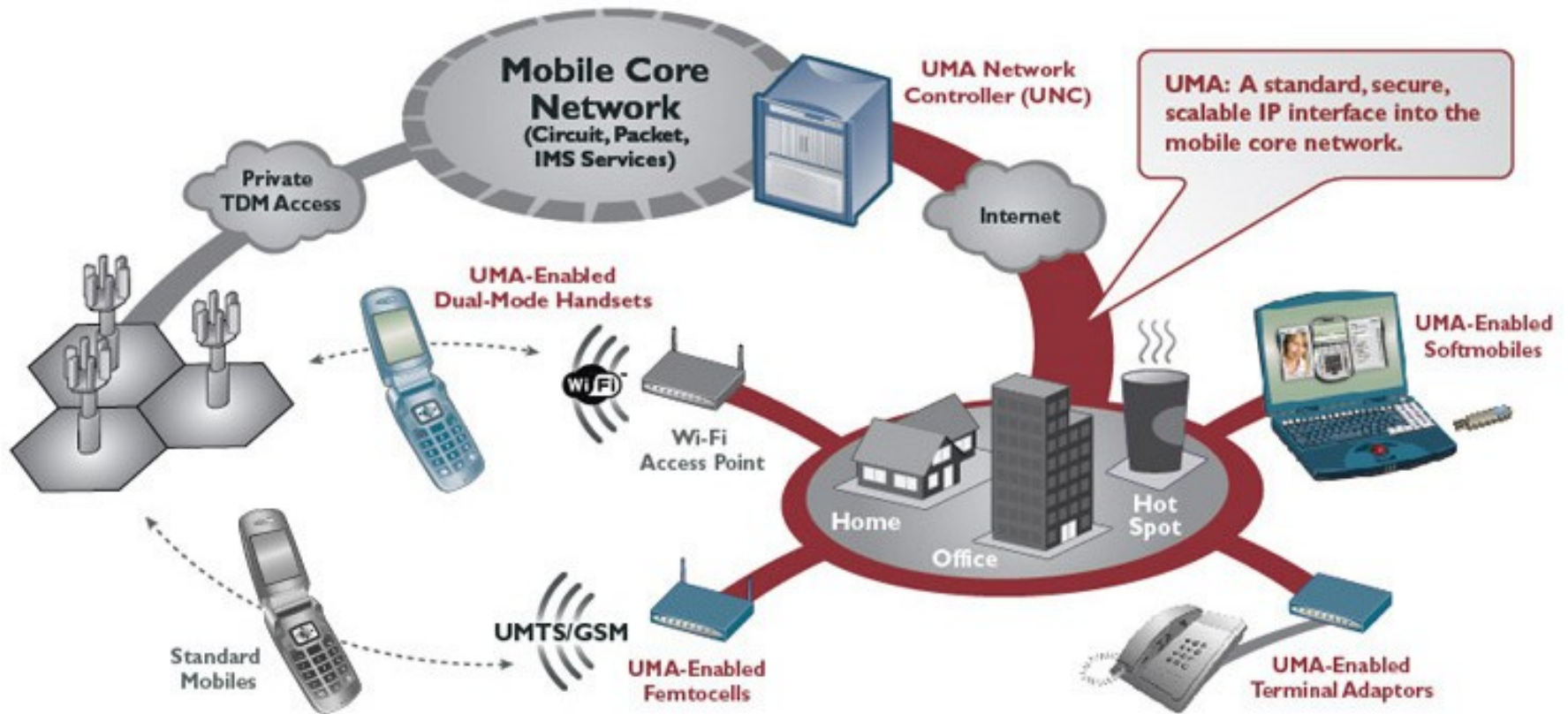
BR = Bit rate

NEB = Nominal Ethernet
Bandwidth (one direction)

Source: voip-info.org

- **My idea is to compare:**
 - **Same applications with several parameters/codecs in wireless and wired environments**
 - **Compare these results with the theoretical bandwidth usage**
- **Also... how do different Wi-Fi standards affect these measurements?**

- a.k.a. Generic Access Network





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