Real-time voice over wireless IP networks: Quality as a last challenge?

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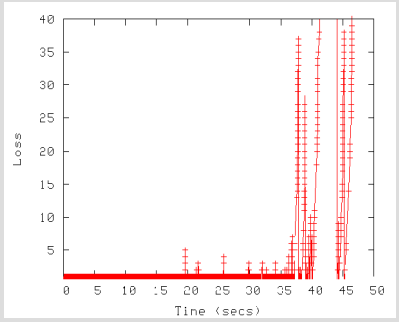
1. Background & challenges

- VoIP needs to become 'wireless' in order to compete with the cellular system
- We propose a measurement-based solution to cope with the diverse usage scenarios
- Also include users opinion of quality through objective speech testing (PESQ)
- *Prediction* of impeding poor quality is important to take preventative actions (e.g. A handover)

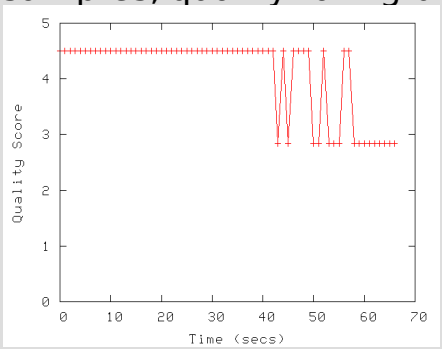
2. Measurement-based scenarios



- Left figure shows environment, right plot shows increasing losses as the distance between a moving mobile node & access point increases

3. Objective testing (PESQ)

- Loss information is input to a psycho-acoustic model that compares 'degraded' speech samples with the original samples, quality rating between 1-4.5 given*



*Joint work with FTW Vienna, Austria.

4. Conclusions & future work

- *Measurements* indicate impending quality reduction (e.g. Decreasing SNRs or lower transmission rates)
- Using the loss information *objective quality* methods can indicate a possible user-quality deterioration
- So far we have identified 3 triggers to inform the system action may be required to continue a VoIP call
- Future work will be the influence of TCP bulk-traffic on VoIP quality and the triggering mechanisms