Important Open Problems

Suggested (open) problems

- How realistic is the mixed-criticality real-time model?
- Certification criteria for mixed-criticality systems
- Dependent tasks
- Benchmarking
- Dynamic criticality
- Embracing optimism

How realistic is the mixed criticality model?

- WMC 2014 conclusion: apples vs. oranges
- RTNS2015 outstanding paper
    http://rtns2015.lifl.fr/files/slides16.pdf
- Academic work is built on top of existing work
- Safety standards are not freely available

Propagation of misconceptions

Certification criteria for MCS

- Certification criteria on concrete implementations rather then properties to fulfill

- Favoritism to some classes of systems

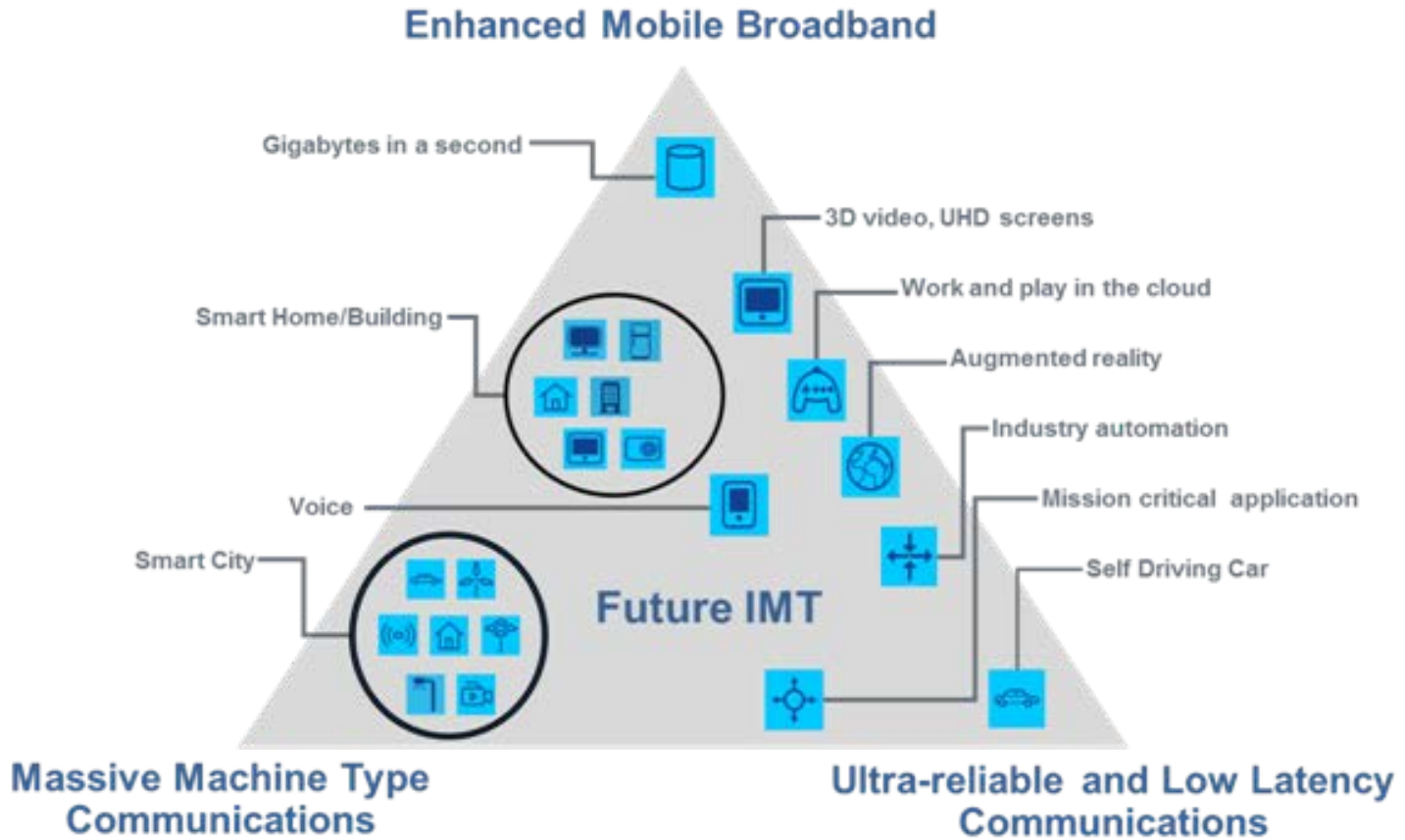- Property oriented certification criteria for MCS

Dependent tasks and MCS

- Can two different criticality tasks experience dependences?

- Can LO-criticality task interact with I/O devices (generating interrupts)

- Are all devices HI-criticality?

Benchmarking and MCS

- Evaluation only on randomly generated task sets

- Other evaluation criteria than schedulability ratio

- Is run-time validation an option?

    Putting together a database (zoo of MCS)

Dynamic criticality

Enhanced Mobile Broadband

Gigabytes in a second

3D video, UHD screens

Work and play in the cloud

Smart Home/Building

Augmented reality

Industry automation

Voice

Mission critical application

Smart City

Self Driving Car

Future IMT

Massive Machine Type Communications

Ultra-reliable and Low Latency Communications

Embracing optimism

- Results hold if the C_i are chosen not to represent WCET

- Embracing optimism