LTE OPTIMIZATION AND
POST-LAUNCH PERFORMANCE

"Since we launched our LTE service and got experience from the network, many questions emerged. The whole team had their questions answered and were taken to a higher level by Widermind's LTE Advanced Features and Performance training"

- Tony Oldén, Manager Radio Network Planning, TeliaSonera Sweden

Course Description

The course "LTE Optimization" covers the important features and parameters that influence LTE performance like throughput, session/service continuity, intra-LTE interference and co-existence with legacy 2G and 3G systems. A number of network scenarios are presented and the optimization alternatives are discussed.

Long Term Evolution, LTE, is being rolled out as the new 4G system. Multiple 4G networks run commercial services, as they have been operational for a couple of years.

The initial design and tuning of these 4G networks was towards proper coverage and single data service implementations. As 4G becomes more dominant in terms of traffic volume and spectrum utilization, the next engineering task is to work out post-launch optimizations.

A number of performance optimizations and re-tuning issues need to be addressed based on operator's strategies when it comes to spectrum re-farming, extended LTE capacity and new feature implementations like carrier aggregation and dual band.

In addition, the arrival of LTE-capable smartphones require additional end user services in LTE. The implementation of operator centric voice services in LTE is inevitable. LTE voice support will require additional network tuning and optimization, which also needs to be addressed.

Optimizing the mobile network for higher performance requires thorough understanding of the features and parameters that influence important KPIs and end to end user experience.

Content

ENHANCEMENTS IN LTE-ADVANCED R10

- The major differences between LTE and UMTS systems
- eNodeB features and the OFDMA principles for capacity management
- Intra-LTE mobility principles for idle and connected mode

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GO FURTHER

Widermind
WITH FOCUS ON FUTURE TECHNOLOGIES

- Radio bearers and the mapping to QoS Classes in LTE and UMTS
- End-to-end Sessions
- Call-set up principles related to EPS and radio bearer setup
- Automatic Neighbor Relation function and basic SON features
- The role of MME for intra- and inter-LTE service support
- Available multi-band LTE scenarios and carrier aggregation support

DATA AND VOICE SERVICES IMPLEMENTATION IN LTE

- Default APN configurations and subscription data for data centric users
- Subscription provisioned quality of service in LTE
- CSFB for voice and SMS service implementation in LTE
- VoLTE service implementation and system parameterizations
- Handover cell selection/reselection for data- and voice centric services
- Scheduling and priority handling between service classes and between users

OPTIMIZATION ASPECTS AND THROUGHPUT CONSIDERATIONS

- Important differences between UMTS and LTE systems
- Initial tuning guides and LTE challenges
- RF requirements and parameter tuning for peak throughput
- Poor RF conditions and antenna/parameter tuning
- Advanced antenna features and configurations
- Transport Network capacity and reporting capabilities
- Router and Ethernet Backhaul provider bottleneck considerations
- Consistency checks on important parameters
- Neighbor list optimization with/without ANR
- Availability of X2 support for inter-cell interference coordination
- Optimizing paging and call-setup delays for voice CSFB
- IRAT parameter tuning for increased throughput
- IRAT session continuity parameter tuning
- Parameters with impact on Service integrity KPIs in LTE
- Accessibility and retainability KPIs with influential LTE parameters
- Parameters influencing handover failure rates and call drop on intra-LTE and IRAT
- Optimization guide summary: important parameters to consider

TOOLS AND TEST CASES TO VALIDATE PERFORMANCE AND QUALITY

- Analyzing UETR and GPEH data
- Control and user plane latency validation
- Service physical location and in-between bottleneck considerations
- Drive test cases for Handover and coverage validation
- UL/DL sector throughput tests with/without UL MU-MIMO
- Validation of DL scheduler efficiency
- Important KPI optimization targets in commercial LTE services

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Target audience

The target audience is LTE Radio Planners, Operations and system engineers.

Pre-requisites

The participants must have working knowledge from network operations, planning or design of UMTS and LTE systems.

Course length

4 days

BRIGHTCOMMS is an independent company specializing in providing solutions in the engineering of radio frequency (RF) with extensive experience and demonstrated reliability, responsibility and commitment to our clients and their goals, also taking priority attention from the needs them immediately.

You are warm welcome to contact our representatives at:

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