5G (NSA) RF Performance Workshop (UE Based)

5G_404s | Blended | Custom | Expert
Course Duration: 3 days

This workshop helps RAN and UE engineers analyze 5G NSA based RAN operations using actual UE logs. Students use the post processing tools to analyze LTE and NR messages, parameters, and their impact to user experience. Instructor-led exercise sessions use signaling messages captured from live case studies (where available) to ensure the key learnings of the course material are reinforced. Finally, students present one of their log analysis to reinforce the learning of this workshop.

Intended Audience

This performance troubleshooting workshop is intended for RAN and UE Performance engineers.

Objectives

After completing this course, the student will be able to:

- List the 5G NSA RAN KPIs that impacts network performance
- Identify the factors and events that impact 5G NSA RAN KPIs
- Analyze UE logs to derive performance issues related to Setup, Radio link, Throughput, Handover
- Understand the failure signatures that result into poor performance
- Analyze various scenarios of poor performance and present the findings

Course Prerequisites

- 5G NR Air Interface
- 5G (NSA) RAN Signaling and Operations

Outline

1. RF Performance Essentials
1.1 5G (NSA) RAN KPIs
1.2 Accessibility, Retainability, Integrity, Handovers
1.3 Mapping Call flow events and RAN KPIs
1.4 Split bearer and PDCP Aggregation
Exercise: UE log analysis

2. Accessibility Analysis
2.1 SgNB Cell add success
2.2 RACH success
2.3 Call flow and event triggers
2.4 Impact of coverage of low, mid, high band for 5G
Exercise: Accessibility problem analysis
Exercise: Student Exercises

3. Retainability Analysis
3.1 UE detected radio link failures
3.2 eNB and gNB detected radio link failures
3.3 Call flow and event triggers
3.4 Beam management
Exercise: Retainability problem analysis
Exercise: Student Exercises

4. Throughput and Latency Analysis
4.1 UE and cell throughput and latency analysis
4.2 Role of Dynamic Spectrum Sharing (DSS)
4.3 Split bearer and PDCP Aggregation
4.4 UL on 5G NR
4.5 Call flow and event triggers
Exercise: Throughput problem analysis
Exercise: Student Exercises

5. Handover Analysis
5.1 Intra-CU and Inter-CU Handovers
5.2 Stages of Handover
Exercise: Handover problem analysis
Exercise: Student Exercises

Student Presentations

Final Assessment

Award Solutions