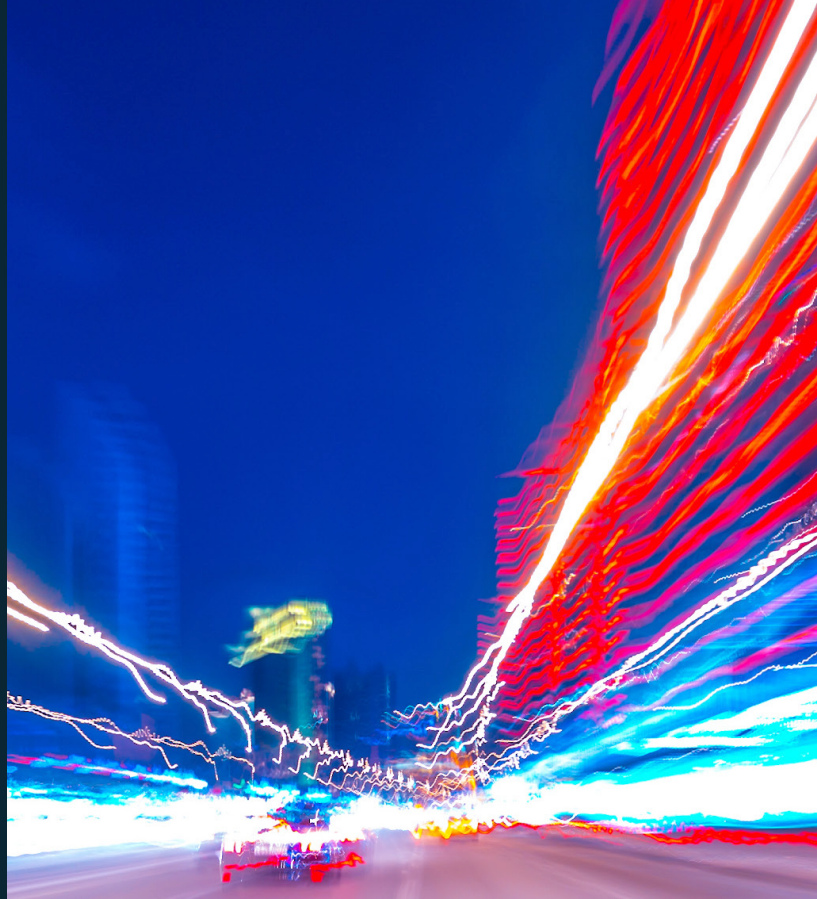# MPIRICAL

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Troubleshooting the E-UTRAN

Course Description

This course will utilize your network service assurance tools to discuss methodical approaches to troubleshooting across the LTE E-UTRAN. Protocol level failures associated with S1AP, X2AP, RRC and NAS will all be examined, with exploration of the key KPIs monitored. In addition, issues related to mobility will also be examined, including both intra and inter RAT scenarios. In each case, examples based on the service provider's own service assurance tools will be explored.

Prerequisites: Analyzing the E-UTRAN, or equivalent knowledge.

2
Days
(LiveOnsite)

12
CPD Learning Credits

Level: 3 (Advanced)

This course will contain the following sections:

1. Principles of Network Performance Monitoring

Topic areas covered include:

• E-UTRAN 3GPP Counters and KPI Definitions.

• KPI Hierarchy.

• Performance Monitoring Reports.

• Example Reports.

Activity: Identifying Key LTE KPIs used for Troubleshooting.

2. S1 Troubleshooting

Topic areas covered include:

• Detailed S1 Procedures.
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• S1AP:

    - KPI and Cause Code Analysis.
    - Root Cause Scenarios.

Activity: Troubleshooting S1 Issues, Investigating Current Network Issues.

3. X2 Troubleshooting

Topic areas covered include:

• Detailed X2 Procedures.

• X2AP:

    - KPI and Cause Code Analysis.
    - Root Cause Scenarios.

Activity: KPIs for x2, Current X2 Issues

4. RRC Troubleshooting

Topic areas covered include:

• Detailed RRC Procedures.

• KPI and Cause Code Analysis.

Activity: Troubleshooting Current Network Issues.

5. LTE NAS Troubleshooting

Topic areas covered include:

• Detailed EMM and ESM Procedures.

• KPI and Cause Code Analysis.

• Root Cause Scenarios.

Activity: Troubleshooting Current Network Issues, e.g. NAS Accessibility.

6. Troubleshooting LTE Mobility

Topic areas covered include:

• Detailed LTE and Inter-RAT Procedures.

• KPI and Cause Code Analysis.

• Root Cause Scenarios.

Activity: Troubleshooting Current Network Issues related to mobility and retainability.

2
Days
(LiveOnsite)

12
CPD Learning Credits

LiveOnsite

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