

ABot AI:

Intelligent Root-Cause Analysis & Efficient Operations



Introduction

Troubleshooting modern 5G networks is no longer a linear process. Multi-vendor deployments, cloud-native architectures, and distributed systems generate massive volumes of PCAPs, logs, KPIs, alarms, and traces across domains.

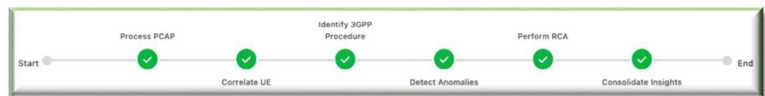
ABot AI is an AI-powered operational intelligence platform designed to simplify reactive troubleshooting and root cause diagnostics. It combines telecom domain expertise, 3GPP knowledge, protocol intelligence, and an agentic AI framework to convert raw network artefacts into actionable insights

By correlating data across UE, RAN, Core, Transport, and Infrastructure layers, ABot AI enables engineers and AI agents to rapidly identify root causes, reduce investigation time, and handle operational complexity at scale.

What ABot-AI Can Do

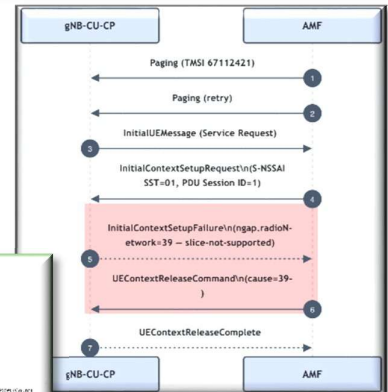
Cross Layer Data Ingestion

Analyse PCAPs, logs, alarms, KPIs, traces, and topology data across multi-vendor environments. Build a unified view of network behaviour across layers.



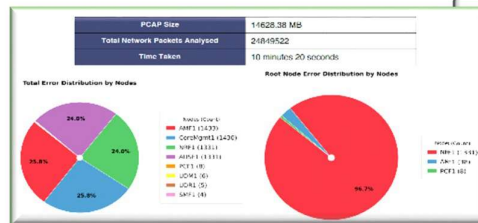
Protocol Aware Session Reconstruction

Reconstruct signalling flows across RRC, NAS, NGAP, GTP, SBI and more to identify failures at the session level.



Agentic Root Cause Analysis

AI agents autonomously investigate incidents across RAN, Core, Transport, and Infrastructure, correlating evidence to identify root causes.



Built-In Telecom Intelligence

Leverage 3GPP procedures, vendor mappings, and domain knowledge to interpret complex behaviours without manual decoding.

Conversational Operations Interface

Ask questions in natural language and receive contextual summaries, RCA, and remediation guidance.

Provide the chronology of events leading to the problem

Two registration attempts for IMSI 311480123456789 sent Authentication Requests with AUTN MAC=0x00000000; the UE returned Authentication Failure (5GMM cause 20) twice and the AMF later sent Registration Reject (5GMM cause 7).

- T+0.000 s - gNB-DU -> gNB-CU-CP: InitialULRRCCMessageTransfer (RRC Setup Request).
- T+0.021 s - gNB-DU -> gNB-CU-CP: RRC Setup Complete; gNB-CU-CP -> AMF: InitialUEMessage (Registration Request).
- T+0.024 s - AMF -> gNB-CU-CP: DownlinkNASTransport (Authentication Request) toward UE.
- T+0.024 s - gNB-CU-CP -> gNB-DU: DLRRCCMessageTransfer carrying Authentication Request with AUTN MAC = 0x00000000.
- T+0.041 s - gNB-DU -> gNB-CU-CP: ULRRCCMessageTransfer (Authentication Failure) with nas-5gs.mm.5gmm_cause = 20.
- T+0.041 s - gNB-CU-CP -> AMF: UplinkNASTransport reporting Authentication Failure (cause 20).
- T+0.043 s - AMF -> gNB-CU-CP: Registration Reject (5GMM cause 7).

System Context

- This is a 5G standalone deployment (5GS) with AMF, gNB-CU-CP and gNB-DU nodes observed.
- The AMF is connected to gNB-CU-CP over the N1/N2 (NGAP) signaling plane using SCTP; the gNB-CU-CP and gNB-DU are connected over the F1 control plane (F1AP).

Observation

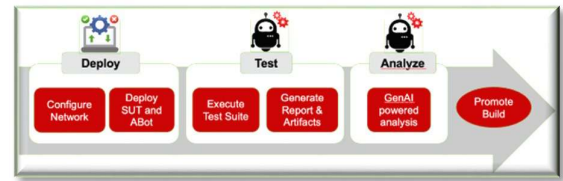
- Critical: 9 SCTP association aborts observed on AMF -> gNB-CU-CP SCTP (src 192.168.21.4:38412 -> dst 192.168.21.73:10.128.1.242:38412). All SCTP_ABORT events (9 occurrences) occurred in a tight window at 2025-12-31 03:52:58-03:53:01 and are flagged CRITICAL in PCAP parsing; these aborts break NGAP SCTP associations and directly disrupt subsequent signaling for the affected CU-CP endpoints.
- High-impact: 5G authentication failures with NAS cause=20 (MAC failure) seen in F1AP and NGAP: two ULRRCCMessageTransfer/F1 messages from gNB-DU->gNB-CU-CP (occurrences=2 at 2025-12-31 03:46:50 and 03:47:00) and corresponding NGAP UplinkNASTransport to AMF. Procedure statistics show 5g_authentication_failure total=2 with pass_count=0, affecting 1 IMSI -- a clear reliability problem for authentication (0% success for observed failures).

Accelerated Reactive Troubleshooting

Automate post-incident analysis and anomaly detection to drastically reduce investigation time.

Operational Workflow Integration

Seamlessly integrate with CI/CD pipelines, OSS/BSS, monitoring tools, MCP servers, and automation workflows.



ABot AI Solves 5G Testing & Operations Pain Points

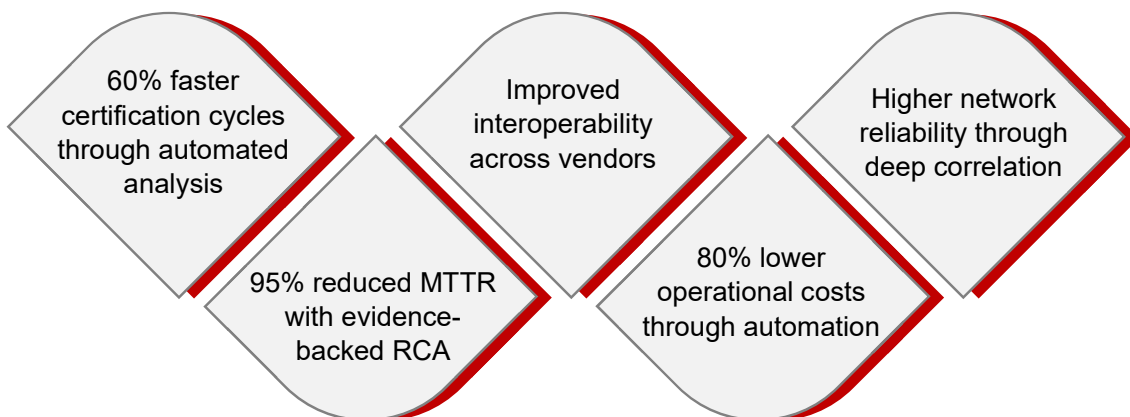
| Challenge | ABot AI Capability | Outcome |
|----------------------------------|---|----------------------------------|
| Massive, fragmented network data | Cross-layer correlation | Faster issue isolation |
| Multi-vendor complexity | Vendor-aware decoding + 3GPP knowledge DB | Consistent troubleshooting |
| Siloed analysis across domains | Agentic RCA | End-to-end visibility |
| Manual log analysis | Automated correlation & summarisation | Reduced expert dependency |
| Hidden signalling failures | Session reconstruction | Higher defect detection accuracy |
| Slow debugging cycles | Conversational diagnostics | Faster validation |
| Lack of deterministic RCA | Multi-agent investigation | Evidence-backed insights |

How ABot AI Differs from Standard LLM based RCA

Unlike generic LLM-based troubleshooting tools that rely primarily on text interpretation, ABot-AI is purpose-built for telecom operations. It combines 3GPP domain intelligence, protocol-aware analysis, multi-vendor correlation, and agentic investigation workflows to analyse real network artefacts such as PCAPs, logs, traces, and KPIs. The result is evidence-backed root-cause analysis that is explainable, telecom-aware, and operationally relevant.

Value Proposition

ABot AI transforms 5G Testing and Operations:



“

Turn every network incident into operational intelligence. Discover how ABot AI can accelerate root cause analysis, simplify multi-vendor troubleshooting, and transform 5G operations.

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