

Oracle Communications Automated Test Tools and Scripts (ATS)

The rapid transformation of legacy telecom networks requires a faster rollout of new services. Consequently, telecom operators are faced with an array of challenges when it comes to deploying and testing new functionalities and network elements. Oracle Communications ATS helps communications service providers to automate the complete testing lifecycle of 5G network functions. Thereby significantly reducing OpEx, and the timeframe required to successfully launch new competitive offers.

NEED FOR AUTOMATED TESTING IN A 5G WORLD

The highly dynamic and agile 5G architecture allows operators to launch a wide range of use cases ranging from Enhanced Mobile Broadband, Ultra-Reliable and Low Latency Communication, and Massive IoT. This will require a highly flexible and agile core that allows for the rapid introduction of new features without impacting the other services. The new 5G core services-based architecture (SBA) allows for the adoption of web-scale technologies and software into telecom networks to bring in significant automation and to also prepare the network for the massive wave of traffic and use cases that 5G will need to support.

Today, operators are required to quickly roll out new services, to remain competitive, and to ensure a steady flow of the return on their investment. Many of the tier 1 operators are looking into a DevOps model of software delivery wherein development and operation teams are tightly integrated to enable rapid deployment of the new release in the production environment and to leverage the benefits of continuous integration and continuous delivery (CI/CD). We have seen that this new DevOps model has increased the number of software releases delivered per year from 2 to 6. With so many builds every year, manual testing is a considerable challenge. Also, It is

Automation is the need of hour...

In a recent survey conducted by STL Partners* about Covid-19's impact on telecoms priorities, "automation" ranked as the technology most likely to be prioritized within telcos during COVID-19.

important to note that while DevOps enables CI/CD, you cannot have continuous delivery without continuous testing.

With organizations shifting testing to left hence closer to development, it is critical to incorporate a robust and flexible automated testing framework to realize the true benefits of DevOps in telecom.

Oracle Communications Automated Test Tools and Scripts (ATS) helps the operators to automate the complete testing lifecycle of 5G NFs while leveraging the benefits of DevOps and significantly boosting the innovation and agility that comes with the 5G core.

Operators can leverage Oracle ATS to perform the following functions:

- Verify newer versions of software more efficiently,
- Rollout new platforms faster,
- Apply configuration changes more easily,
- Expand and grow the network according to business requirements,
- Ensure more resiliency in the core network,
- Perform accurate benchmarking and capacity planning, and
- Adopt a testing framework that can deliver services faster, simpler, and more cost-effectively.

ORACLE COMMUNICATIONS AUTOMATED TEST TOOLS AND SCRIPTS (ATS)

Oracle Communications ATS is a robust and reliable solution for the DevOps delivery model. Using the intuitive GUI of Oracle Communications ATS, operators can perform functionality, regression, and performance testing of 5G network functions (NFs) in just a few clicks, thereby enabling a more agile and robust deployment of 5G NFs in their production environment. Oracle Communications ATS “automates” the end to end testing lifecycle of 5G NFs, with the option to schedule runs of specific and failed test cases, generate historical test report and get email notifications of such reports.

Oracle Communications ATS features

Oracle Communications ATS leverages Oracle’s reliable testing framework, used internally for years. With more than 900 test cases pre-packaged for 5G NFs, Oracle Communications ATS is built to address the complexities and requirements of the 5G core NF testing. Operators can test either a single NF or multiple NFs independently in the same environment. Oracle Communications ATS is highly flexible and can be seamlessly combined with any other CI pipeline with minimal changes. It also takes care of documentation and uses Doxygen to generate documentation automatically out of the code comments. Built on Behave framework, Oracle Communications ATS uses Jenkins for GUI and Python library to write complex codes.

Table 1: Oracle Communications ATS solution highlights

Features	Description
Multi-Scenario	4G/5G scenarios Interworking test cases NFs emulation
Multi-Platform Solution	Subscriber/subscription lifecycle
Multi-Environment Architecture	Bare metal/VNF/CNF deployments Master/Agent architecture

Oracle Communications ATS is built on Behave framework:

- Behave is a behavior-driven development framework
- Uses tests written in a natural language style, backed up by Python code
- The rich standard library of Python makes it easy to write complex code to test network applications

Oracle communications ATS helps operators to launch new features or fix an existing bug more quickly and effortlessly by reducing the time required for:

Test -> Validate -> Deploy

From 4 weeks** months to 10 hours*

**This time may increase as more test cases get added*

***Approximation based on Oracle derived benchmark*

Oracle Communications ATS leverages Jenkins framework for:

- CI/CD
- Plugins
- Extensible
- Distributed (Master-Agent)

Oracle Communications ATS differentiation

- Intuitive GUI interface for the end user
- Tests written in a natural language style backed up by Python code
- 900+ Pre-packaged Test Cases for 5G NFs
- Maintains historical test data/ execution results
- Allows test cases customizations
- Executes the complete suite or selective tests to reduce time
- Integrates with CI/CD and can automatically trigger test cases with each new build

Cloud Native Environment (CNE) Seamless Integration	CNE tools integration NFs lifecycle management CD Pipelines for NFs and CNE
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Figure 1. Oracle Communication ATS User Journey

AUTOMATED TESTING WITH ORACLE COMMUNICATIONS

Oracle Communications has been designing and implementing robust testing solutions for more than a decade. With the reliable and easy to use behave framework at the core, Oracle Communication ATS significantly reduces time and complexity to test cloud-native 5G core network functions. The service-based architecture of 5G brings the added advantage of IT service mesh, DevOps, and CI/CD with much faster deployment of new releases, which makes manual testing a struggle for most operators. Oracle Communications ATS design principles are centered around automation, quality, and security, to help operators differentiate their core network. Oracle Communications is on the journey of reimagining communications to connect the world by leveraging its cloud and security DNA and telecom heritage, to be the most trusted partner for its services provider and enterprise customers.

*COVID-19: Impact on telco priorities, Findings from industry research, STL Partners, May 2020

Why Oracle Communications

- 40+ years of heritage in network experience meets cloud innovation to deliver highly secure, robust, and flexible cloud-native 4G/5G core network solutions
- Dominance in 4G control plane category inventor for Session Border Controller & Diameter Signaling Router
- Cloud native environment based on Oracle's Cloud leadership and expertise
- Continued innovation in cloud native 5G Core control plane network functions
- Trusted partner ecosystem for best in class 5G Core solution

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