Case Study

Spirent **CLEAR Mobility**

LTE-UMTS Test Automation (North America)

Customer profile

A leading service provider experienced significant quality assurance challenges related to a nation-wide transition from a mobile infrastructure based on the Universal Mobile Telecommunications System (UMTS) technologies to a mobile infrastructure that included next generation 4G Long Term Evolution (LTE) technologies. The transition required an efficient and comprehensive testing solution to meet SLA requirements with quality, on-time, despite the added requirement of seamless mobile communication handoffs between the co-existing two mobile technology infrastructure generations. The service provider required an end-to-end solution that would maintain test coverage of both technologies while streamlining and accelerating test and reports and delivery without disrupting mobile services or cause schedule delays.

Challenges overview:

- Seamlessly integrate new 4G LTE technologies into the service provider's mobile infrastructure without disrupting existing mobile services

- Deliver comprehensive and efficient end-to-end test coverage for UMTS and 4G LTE infrastructures

- Implement an automated test solution with end-to-end testing of control and data plane functions, as well as high scale and performance testing

Solution delivery criteria

Spirent Professional Services experts created a mobile UE Control system to drive real multiple UE devices with voice and data calls, end-to-end, over both UMTS and 4G LTE mobile infrastructures using message profiles provided by customer.

The test automation solution created by the Spirent team delivered the following capabilities:

- **Products –** The solution included a browser-based user interface, a streamlined test plan, optimization test cases implemented according to best practices; a scalable & stable vendor agnostic mobile test automation framework, platform for expanded test case development; robust Layer 4-7 testing tools, compatibility with a wide range of DUTs and testing devices; and functionality for test report archiving & logging all test results and DUT diagnostic data to the reports database

- **Process –** The implementation included processes to ensure test automation best practices were followed; engineering of LTE and UMTS test case campaigns were designed to test a range of different use case scenarios according to customer requirements; support for test team members of all skill levels; and effective & transparent project reporting

- **People –** Qualified expertise deployed the solution & provided consulting which included training of the service provider staff
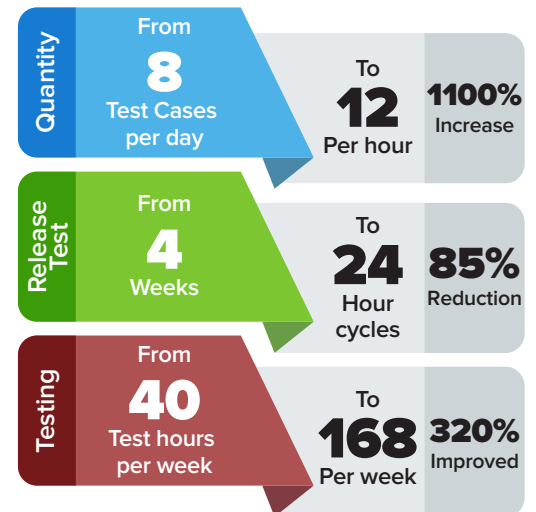
Solution delivery components

- Proof of Concept (PoC) trials and demonstrations

- Professional Services consultation, adoption advocacy and delivery expertise throughout the engagement

- **Spirent iTest** – Software for agnostic automation of various test cases into a cohesive testing strategy, for creating new test cases, executing test suites

- **Spirent Landslide** – Software software enables service providers to test the functionality, performance and scale of their networks and nodes

- **Spirent Nomad** – Software to generate voice calls on a separate UE, through Bluetooth, and measures the quality of the voice signal on the call

- Solution components include:

    · Automation of basic wireless test cases including: Mobile Attach/Detach, Handover and Failover/ Flaps/Hard UE relocation

    · Wireless network emulation – The ability to emulate various components in the Wireless Network

    · Protocol tapping – Tapping into the 3GPP messaging between the various elements of the UMTS/ LTE network

    · UE control – Providing the ability to drive real mobile devices with voice and data calls.

- Streamlined test plan duration

- Future enhancement support as well as training and transfer of solution information and best practices

Solution outcome & benefits

- **Execution of test cases increased 1000%**
  From 8 tests per day to 12 per hour

- **Release tests accelerated**
  From 4 weeks to 24 hour cycles [suggested]

- **Discovered critical bugs more quickly**
  Enabling customer engineering to address issues quickly before they impacted efficiency

- **Expanded testing capability to 24/7 capability**
  From 40 hours per week to 168

With Spirent CLEAR Automation Solutions realize more...

- **Profitability –** Accelerate defect detection, earlier and increase revenue by getting products to market faster

- **Customer satisfaction –** Reduce released defects with expanded test coverage & speed time to market

- **Productivity –** Automate repetitive tasks & reuse of test cases maximizing time and freeing test team for innovation

- **Visibility –** Increase insight into testing progress &identify resource bottlenecks

Quantity	From **8** Test Cases per day	To **12** Per hour	**1100%** Increase
Release Test	From **4** Weeks	To **24** Hour cycles	**85%** Reduction
Testing	From **40** Test hours per week	To **168** Per week	**320%** Improved

"Our successful transition to LTE from UMTS would not have been possible without Spirent's test automation solution."
Wireless Service Provider
Test Lab Director