Spirent **Elevate**®

Internet of Things: Cellular Connectivity and Packet Capture
Enabling end-to-end connectivity and monitoring for IoT applications

It is projected that billions of Internet of Things (IoT) devices will be coming online over the next few years, connecting via a variety of access technologies including Wi-Fi, Bluetooth, cellular, and unlicensed spectrum solutions.

Among these network options, cellular deployment has several benefits including higher guaranteed service quality, more robust air interface security, and broader coverage availability. However, unlike Wi-Fi, which merely uses a simple access point for deployment testing, using the live cellular network presents several unique challenges. An emulated lab-based cellular environment provides an optimal solution. Spirent Elevate® is a cost-effective platform that is designed specifically to enable required data connectivity with comprehensive test coverage.

Applications

Spirent works with leading IoT ecosystem manufacturers, including module and end-device developers, to understand the challenges they face when bringing their products to market:

- Establishing end-to-end cellular data connectivity for their applications
- Emulating any global market/carrier configuration in the lab

Innovative IoT developers are emerging world-wide, with many of their applications dependent upon communication via a cellular network. When it comes to testing these applications for both functionality and usability, one alternative is to simply test over the live network. However, this option can be severely limited, given that:

- Data traffic is not visible between the IoT device and the cloud server
- Observed issues cannot be isolated between a real device failure and a live network glitch
- There is no ability to control network settings (e.g., power levels, power saving mode), which can have a significant impact on the device KPI to be measured
- An appropriate live network is not always deployed where the development takes place
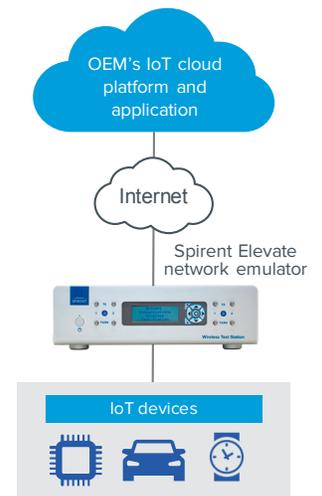
Spirent Elevate® provides a controllable, lab-based testing environment that overcomes the challenges of testing solely on a live cellular network. By integrating Elevate into the Design/Verification/Test (DVT) phase of development, an IoT developer can:

- Log, monitor, and debug all of the data traffic between the IoT device under test and its cloud-based server
- Have a controlled and repeatable environment that does not fluctuate from test run to test run
- Gain 24/7 access to any simulated global cellular network anywhere in the world

Spirent Elevate is a convenient, lightweight solution optimized for IoT developers that sheds all of the complexities and costs associated with traditional *modem-layer* test instruments in favor of a simple presentation of *application-layer* testing. This combination allows IoT developers to easily ensure their applications will function properly wherever in the world they might be deployed.

Spirent Elevate brings any cellular network into a lab environment

Benefits

- **Fast and efficient:** pre-defined global network operator profiles allow Elevate to emulate a particular operator configuration with a single file recall
- **Budget friendly:** cost efficient, small footprint platform for testing IoT devices
- **Multiple engagement models:** structured to address the diverse needs of IoT developers
- **Flexible and robust:** common platform supports a wide range of testing areas applicable to IoT, including security vulnerability assessment, battery life measurement, and end-to-end cloud server connectivity

About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit: www.spirent.com

AMERICAS 1-800-SPIRENT
+1-800-774-7368
sales@spirent.com

US Government & Defense
info@spirentfederal.com
spirentfederal.com

EUROPE AND THE MIDDLE EAST
+44 (0) 1293 767979
emeainfo@spirent.com

ASIA AND THE PACIFIC
+86-10-8518-2539
salesasia@spirent.com

Use Cases

Developer based in Eastern Europe needs to test their application's behavior on a North American cellular provider's network

Challenges:

- Application's host device cannot acquire service in Eastern Europe (mismatched frequencies, technologies)
- Developer cannot travel to North America frequently enough or within budget to accomplish necessary testing

Solution:

The developer leased Spirent Elevate for the duration of their test cycle. The desktop solution is delivered to the developer's office in Eastern Europe. In one click, the developer selects the Elevate configuration file for the North American provider's network and is testing within minutes of unpacking the system. As a result, the application was delivered on time and well within plan.

Per customer request, an OEM needs to determine how long the battery of a specific device will last once deployed

Challenges:

- Live network variations can prevent meaningful measurements
- Several variables can have a large impact on energy consumption
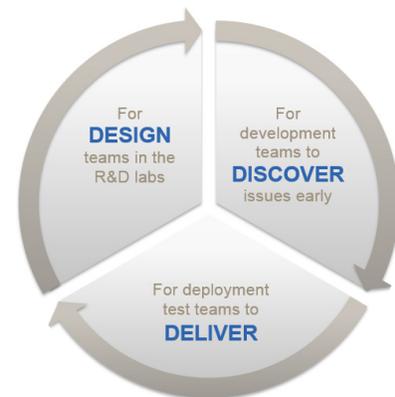
Solution:

The OEM first created a set of profiles corresponding to a number of typical deployment/usage scenarios (e.g., application behavior, network average signal quality, network power saving configurations). The OEM then used Spirent Elevate to systematically configure and step through each network parameter specified in each profile, and made current consumption measurements at every step. As a result, the OEM met their customer request.

Spirent Elevate provides access to an end-to-end network in a compact and flexible solution to support device testing of multiple emerging wireless needs:

- **Audio Quality** for voice services, such as VoLTE and VoWi-Fi
- **Video Quality** for rich media experiences; streaming, chat
- **Battery Life** for testing drain and power consumption
- **Inter-carrier Traffic** to ensure QoE for device interoperability
- **Cellular Off-Load** to ensure QoE for LTE/3G to Wi-Fi mobility
- **Location Services** for testing emergency call scenarios over LTE and Wi-Fi
- **Internet of Things (IoT)**: to address new types of devices with unique challenges and testing needs

Spirent Elevate integrates the Wireless Test Station, ProLab IMS Testing Suite and User Experience measurement systems, along with other key components, to deliver unparalleled device-to-device testing capabilities.

For **DESIGN** teams in the R&D labs

For development teams to **DISCOVER** issues early

For deployment test teams to **DELIVER**

Spirent Elevate provides a comprehensive all-in-one approach throughout the mobile device lifecycle

Spirent™
Promise. Assured.