

Spirent Managed Solutions

Portfolio Overview

Overview

Telco and Cloud networks in constant flux. Operational risk heightens as networks are virtualized and moved to the cloud. Increased complexity of the network, along with velocity and volume of software releases, present serious challenges. As lab validation times expand, inconsistent tools and methodologies hamper efficiencies.

The impact and way forward. As Development and Operations slow, network onboarding and activation multiplies time to identify and resolve faults. Competitive advantage suffers. Spirent's portfolio of Managed Solutions bridge the uncertainty gap to help organizations deliver on the business promise of their innovation with assurance.

Managed Solutions for Telco/Cloud Transformation

Seamless Services Solutions

Leveraging our comprehensive technology portfolio to our customer's best advantage, Spirent's Managed Solutions support the entire lifecycle of a prospective next-gen innovation — **from Lab to Live** — driven by continuous integration / continuous deployment (CI/CD) approaches, with impactful continuous test (CT) strategies covering:

- **Development**—*Lab testing of conformance, performance, function, integration and security, along with the creation of test plans and automation scripts, and vendor certification*
- **Deployment**—*Fulfillment in the field, supporting, commissioning, acceptance and activation of new products and services*
- **Operation**—*Assurance with live monitoring, triage and issue isolation*

Our Managed Solutions are standardized and customizable offerings that speed up innovation and reduce costs for network equipment manufacturers (NEMs) and communication service providers (CSPs). Our solutions automate each stage of the *Telecom Innovation Pipeline* (benefiting from CI/CD and NetDevOps best practices) and provide feedback for continuous improvement. Our goal is to accelerate your time to market and empower continuous innovation to ensure your offerings stay ahead of the competition. Spirent's Managed Solutions perform strategic operational functions including:

- Lab as a Service
- Test as a Service
- Certification as a Service
- Deployment as a Service
- SecurityLabs

Highlights

- Accelerate innovation on top of cloud, such as 5G and SD-WAN, with automated validation for CI/CD
- Ensure full testing and validation coverage for performance, security, certification and deployment
- Deploy commissioning and upgrades seamlessly to provide agility for evolving environments
- Reduce upfront Capex and Opex with flexible commercial models to match your needs
- Facilitate potential lab usage monetization
- Leverage state-of-the-art security testing technology and expertise

Managed Solutions for Telco/Cloud Transformation

Lab as a Service (LaaSS)

The Challenge. Today’s environments are in constant flux with new enhancements and bug fixes from multiple vendors necessitating continuous validation. Multi-layer test cases require time-consuming manual configuration. Limited visibility into resource inventory, utilization, and availability hampers efficiencies, leaving lab resources stranded, despite priority needs of other internal groups or customer organizations. Multiple parties need to use a lab efficiently for common test setup and common test automation.

Development engineering labs need continuous integration / continuous deployment (CI/CD) with dynamic continuous test (CT) strategies to streamline releases.

The Solution. Spirent’s LaaS solution provides state-of-the-art cloud-based test lab optimization and automation to reduce manual errors and accelerate testing. With a single pane of glass visibility and unified reporting, multiple organizations securely access physical and virtual lab resources for comprehensive utilization and management, reducing power consumption.

Business value:

- Faster time to market
- Optimized tool and human resource management, increased productivity
- Reduced upfront Capex and Opex, catering to next-generation technology trials and roll outs
- Potential to monetize lab usage

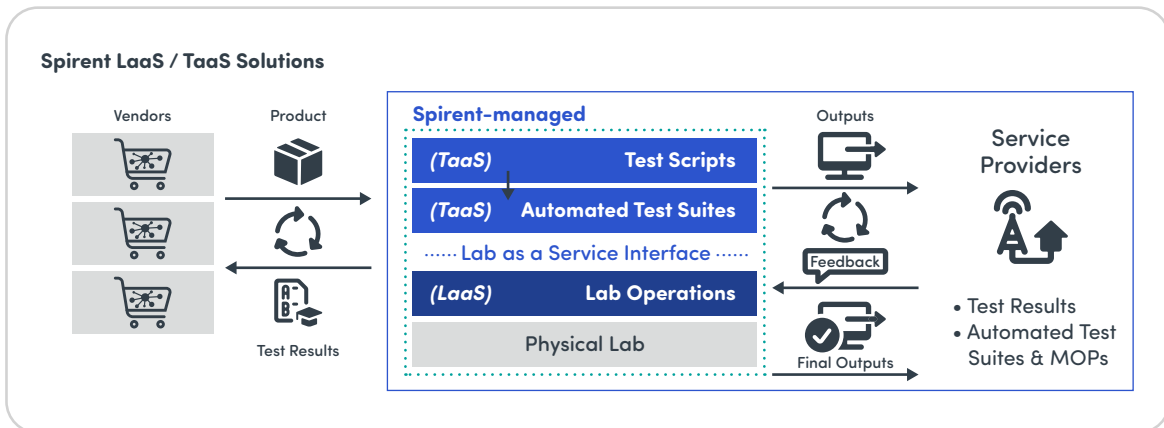
Test as a Service (TaaS)

The Challenge. Organizations need intelligent and environment-aware test case management, execution and analysis, so full-coverage test plans can be easily authored, published, scheduled and shared with anyone, anywhere. A TaaS solution must intelligently deploy continuous test to minimize and streamline test execution time, from lab to production environments, to accelerate quality market releases.

The Solution. Spirent pioneered a unique approach to comprehensive testing, validation and assurance for increasingly complex and virtualized, next-gen environments. The methodology covers two key dimensions: the end-to-end lifecycle and the stack. The TaaS solution addresses the rich complexities with standard and customized automated test suites, supporting high-frequency release cycles, ensuring quality of all elements in the environment. The solution provides the full scope of testing required for complex deployment challenges including: Cloud, 5G Core validation, SD-WAN, and more. With Spirent TaaS, customers accelerate time to market with confidence, assuring quality, increased productivity, and realizing substantial savings in Opex expenditures.

Business value:

- Faster time to market
- Higher quality due to broader coverage
- Reduced cost due to optimized testing with automation, consistency and repeatability
- Increased agility and scalability



Managed Solutions for Telco/Cloud Transformation (cont'd)

Certification as a Service (CaaS)

The Challenge. The lack of standards and the dynamic nature of ever-evolving virtualized environments presents vendors with serious concerns. For example, the adoption of 'open source' and the rapid growth of the SD-WAN market has produced a proliferation of products with a wide range of function and performance claims, the majority of which remain unverified. Neutral verification of capabilities is needed for accepted industry standards to support realistic interoperability and ensure quality performance.

The Solution. Spirent's CaaS solution provides neutral validation and industry-recognized certification with standards bodies such as: 3GPP, MEF and OPNFV. Spirent collaborates with the standards bodies employing our state-of-the-art LaaS and TaaS capabilities to deliver trusted and industry-recognized certifications.

Business value:

- Drastic reduction in test duplication, with accelerated certification results
- Baseline for interoperability between vendors
- Trusted neutral vendor certification
- Assurance of standardized quality in market releases

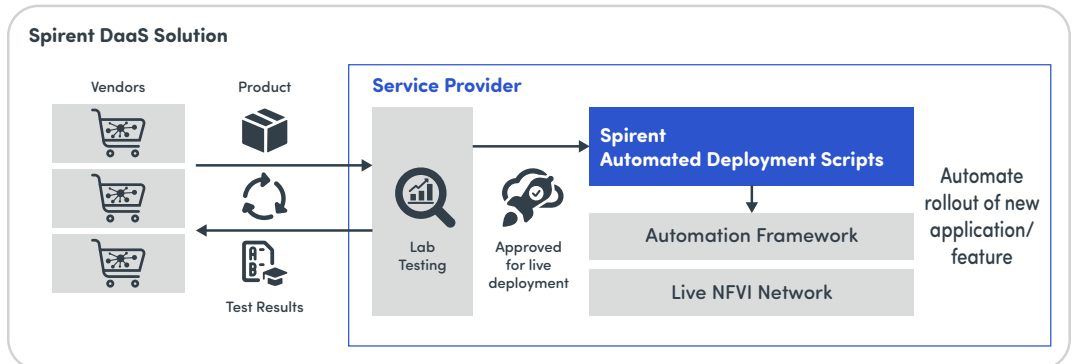
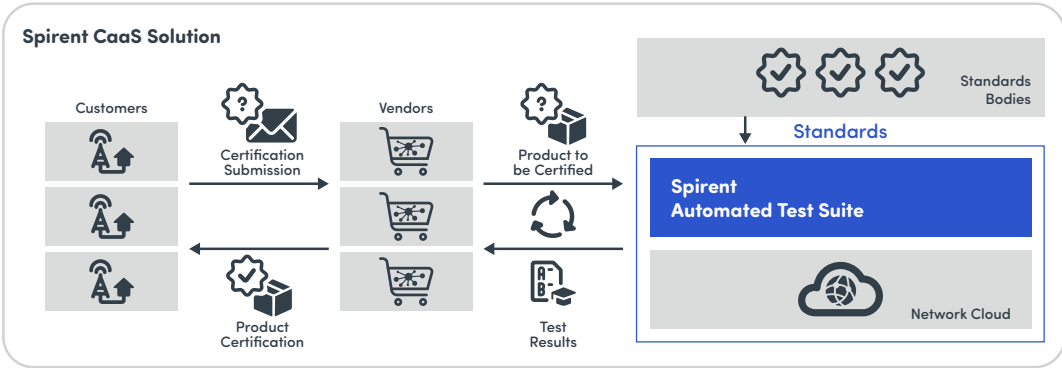
Deployment as a Service

The Challenge. Organizations struggle with new software technology deployment in their live networks. Their challenges include preventing upgrade outages while ensuring rapid network-wide deployment. They must support frequent, continuous changes and upgrades to provide the required agility for their evolving environments, often involving multiple regional sites.

The Solution. Delivering seasoned software-based deployment expertise, Spirent supports: *Deployment process design; Pre-test execution; Cloud setup and testing prior to software deployment; Software deployment; Software configuration; Testing prior to live cutover; Cutover of live traffic; Assessment and cleanup.* As a key partner in lab operations and testing, Spirent's fundamental objective is delivering automated software testing associated with successful deployment activities, with a primary focus on final turn-up testing.

Business value:

- Prevention of time-consuming and costly outages from upgrades
- Provides flexibility for continuous changes and upgrades in network-wide live environments
- Budget reduction through automation
- Vendor neutral deployment partner

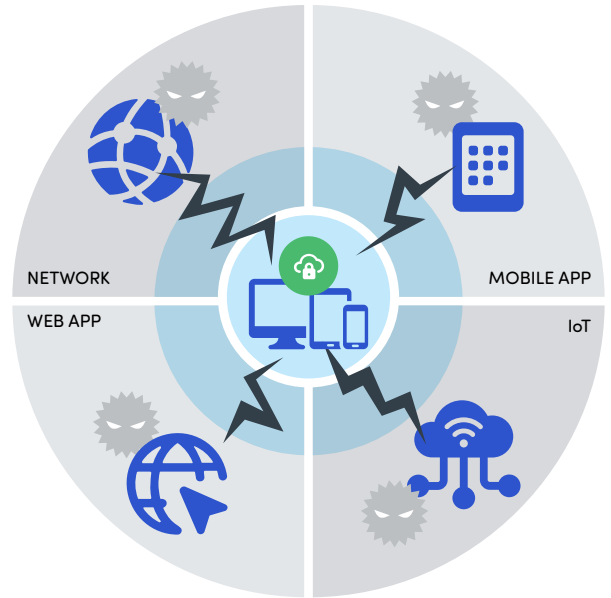


SecurityLabs

The Challenge. Cybersecurity attacks and attackers keep getting smarter. Staying a step ahead requires knowing your security vulnerabilities. The attack surface is growing and becoming highly complex. Organizations are responsible for a range of risk scenarios including those in wireless, web and mobile applications, as well as devices for networking, connected vehicles, and various IoT uses. Comprehensive in-depth and state-of-the-art testing is required to uncover all exploitable vulnerabilities.

The Solution. SecurityLabs experts support in-house testing and offer seasoned expertise for third party security testing, analysis, and compliance. This includes a code review service and source code analysis, as well as a complete range of security services with in-house vulnerability scanning, penetration testing (pentesting) and robust vulnerability research. A pentest is a simulated software, infrastructure, and/or network attack on an organization by a skilled attack team to probe for and identify security weaknesses. Pentests should be performed in addition to vulnerability assessments. A vulnerability assessment identifies and logs vulnerabilities, ranks them, and recommends mitigation actions.

Attack Origin Points



Each type of environment offers unique vulnerabilities to explore

Business value:

- Critical performance and security data on security infrastructure
- Accurate evaluation of reliability, performance, scalability, and points of failure
- Invaluable data on unexpected vulnerabilities
- Firewall reliability assurance

The Global Services Delivery Process



Discover: Gather requirements; perform gap analysis

Define: Identify solutions that scale seamlessly to integrate flexibly with disparate systems; present roadmap; illustrate ROI

Develop: Create next-gen end-to-end solutions driven by our technology and service portfolio

Deliver: Manage projects; ensure outcomes are measurable, tracked by KPIs and improved over time

Debrief: Ensure customer requirements and expectations have been met

Partnered with Experts

Working closely with all its standards bodies for the latest certification requirements, Spirent also collaborates with MEF Certification Committee and contributes to the MEF SD-WAN industry standards. This enabled Spirent to earn the credibility to become the standalone neutral testing authority assisting service providers and vendors along their SD-WAN journey. In doing so, Spirent supports the industry's first SD-WAN services certification standard from MEF (MEF 70).

Standards Bodies



Spirent Managed Solutions Benefits

- Achieve higher quality vendor builds through lab consolidation and amplified test orchestration
- Realize a quantum leap in test lab capabilities
- Maintain lower risk through high frequency release cycles
- Shrink ROI turnaround times
- Ensure standardized quality of releases
- Support of frequent deployment changes and upgrades to provide agility for evolving environments

Spirent Services Portfolio

Spirent Managed Solutions are part of a comprehensive suite of services. Spirent's portfolio of services for an initiative's entire lifecycle – **from Lab to Live** – helps organizations achieve their short-term testing and validation goals, while building a strong framework for future and enduring business success.



Managed Solutions

Performing strategic operational functions for customers:

- Lab as a Service
- Test as a Service
- Certification as a Service
- Deployment as a Service
- SecurityLabs



Professional Services

Providing a broad range of test and validation services enabling Spirent products and solutions that involves:

- Implementation & Integration
- Customer Training
- Resident Engineers



Consulting Services

Supporting custom projects, helping customers with specific strategies and objectives:

- Assessments & strategy
- Planning & design
- Network architecture & engineering
- Test methodologies

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

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