



SPIRENT
OnDEMAND
ON SITE TESTING

SPIRENT

ON SITE TESTING SOLUTIONS

OnDEMAND

ENTERPRISE EDITION

OnDEMAND Enterprise Packaged Test Services

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OnDEMAND Performance Testing

ENTERPRISE EDITION

Performance problems in data centers, operational network systems and software applications are costly both in terms of business disruption and remedial work. These issues often go undetected prior to launch due to the difficulty of conducting realistic performance testing. Quantifiable consequences of undetected performance problems include: revenue loss, customer base erosion, and brand damage. All of these issues call into question any business's long-term viability.



Spirent OnDEMAND Performance Testing is a suite of test services designed to detect and mitigate these problems before you launch new infrastructure and applications. Through the use of proven, advanced techniques, a structured testing approach, and full benefit of Spirent's broad array of test equipment, we eliminate risks of poor performance for new or enhanced data centers, converged networks, multi-play solutions and applications.

Spirent has developed and organized the OnDEMAND on site package test services into TWO categories:

1

Data Center Testing Solutions

2

IT Initiative Testing Solutions

Test Results On Time, On Budget

Testing is instrumental in planning, deploying and maintaining a reliable and scalable IP services network. Unproven test practices and ineffective test methodologies fail to deliver within the project window. When projects are behind, a test window may be minimized or eliminated to ensure on-time delivery. Protect your projects with OnDEMAND testing.

Since the advent of network testing, Spirent test engineers have helped hundreds of clients save thousands of hours in their testing, bringing products and services to market faster and with higher quality. Leverage industry-certified test experts, packaged test plans, and a world-class service delivery process designed to deliver reliable test results on time, on budget.

Independent research confirms testing strategic IT initiatives is critical

"...Without proper testing, such strategic initiatives can fail, with serious unforeseen consequences, including significant hard-dollar and opportunity costs.... Gains may be minimized or erased if a lack of testing results in problems when the initiative goes live."

—Source: Nemertes Research

The Cost of Failure???

The average cost of a single hour of network downtime is about \$42,000.

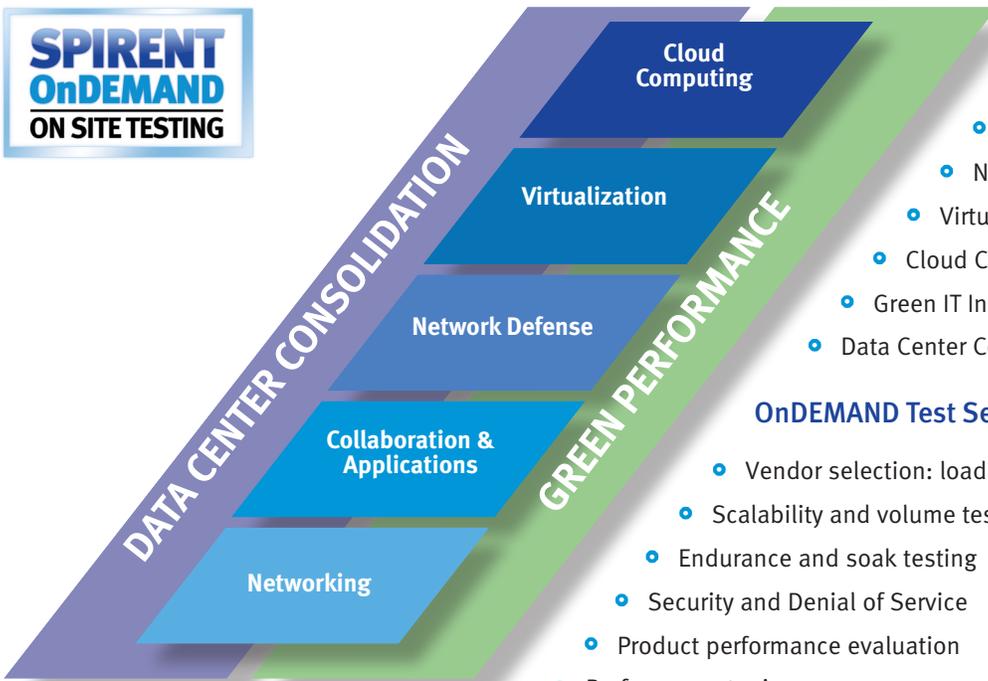
—Source: Gartner Group

Mission Critical application downtime can cost millions of dollars each minute.

—Source: Standish Group

Data Center OnDEMAND Performance Test Packages

In response to evolving technologies and growing demand for new solutions in the data center, Spirent Professional Services has developed a suite of on site packaged test services specifically addressing the challenges whose solutions includes utilizing the power of the award-winning Spirent TestCenter.



OnDEMAND On Site Testing for Data Centers:

- Data Center Networking
- Collaboration & Applications
- Network Defense - Security
- Virtualization
- Cloud Computing
- Green IT Initiatives
- Data Center Consolidation

OnDEMAND Test Services:

- Vendor selection: load and stress testing
- Scalability and volume testing
- Endurance and soak testing
- Security and Denial of Service
- Product performance evaluation
- Performance tuning



Test & Measurement World



“When we cut over, we had every confidence that it would run perfectly—and it did.”

—Michael Smith, Chief Technology Officer, Forbes.com

Data Center Networking – OnDEMAND Testing

PROBLEM

Enterprises and service providers must upgrade their data centers for maximum performance and high availability to keep pace with customer growth. Financial institutions differentiate themselves with latency mitigation and high availability. In all cases, end user experience is critical to maintaining a growing customer base. Failure to test an IT initiative properly may result in unplanned downtime, brand damage, loss of productivity and revenue.

SOLUTION

Spirent's broad testing capabilities address these issues with a cost-effective packaged testing service. This service is designed to identify the critical issues you need to know about in the shortest time possible to assure your deployment stays on schedule and performs exactly as you planned.

BENEFITS & VALUE

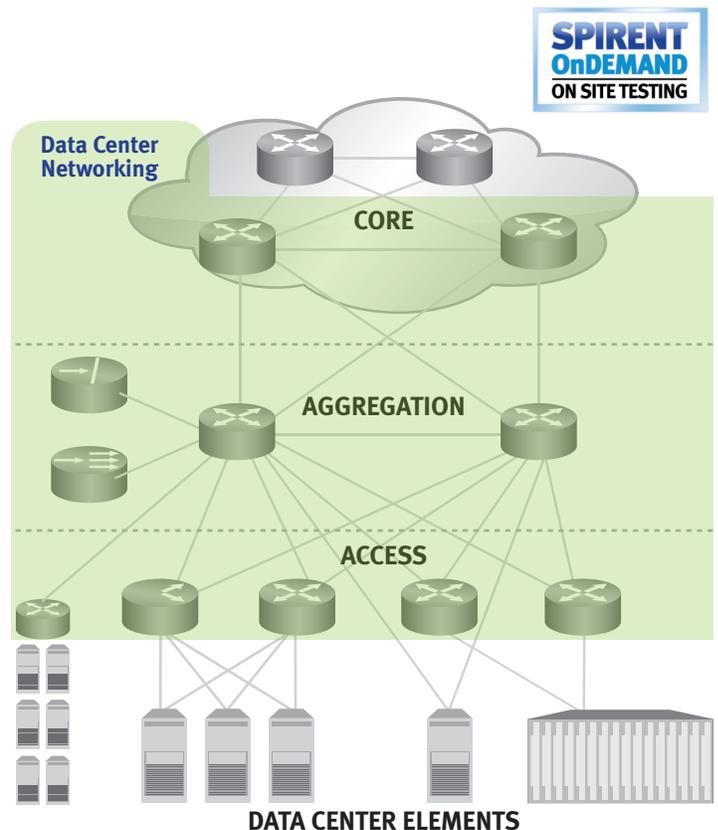
- Discover and correct network deficiencies
- Assure performance
- Insure service availability

Spirent's OnDEMAND Data Center Networking Test Package includes:

- **Assessment:** Throughput/QoS validation, Convergence, High Availability FCoE
- **Vendor selection:** Core, Aggregation and Closet Switches, Routers
- End-to-End performance, Interoperability

SOLUTION COMPONENTS – TESTS

- **Throughput:** Data Center capacity benchmark measurement
- **Layer 2/3 Latency:** Does it conform to Service Level Agreements (SLAs)?
- **QoS Validation:** Do different traffic classes conform to the priority requirements of the IT initiative?
- **High Availability:** Reliability and failover/convergence time established



Collaboration & Applications – OnDEMAND Testing

PROBLEM

Testing and deploying a broad array of high-value applications and evolving technologies are exacting challenges – ones you do not want to face alone. The IP edge network is increasingly stressed with complex applications which impose heavy bandwidth and latency requirements. Failure to deliver on promised SLAs due to untested network complexities and mis-matched network solutions can represent a severe threat to your business that you cannot afford to risk.

SOLUTION

Spirent's broad testing capabilities help you address these issues and avoid the risks so that your IT team can focus on your core business objectives. Spirent's testing solutions validate the design of the edge network to deliver applications reliably, with video and data models tailored to your customer base. Thorough testing mitigates the risk of new application deployment by discovering issues early on. With empirical data on hand, you will know the limits and capabilities of the target network infrastructure.

BENEFITS & VALUE

- Reduce time to market, increase cost savings and assure a quality deployment
- Shorten costly and time-consuming pilots
- Mitigate roadblocks such as incompatible infrastructure and network bottlenecks
- Gain a smooth process from first office deployment to each subsequent site

Spirent's OnDEMAND Collaboration & Applications Test Package includes:

- **Assessment:** Benchmark, Convergence, High Availability
- **Vendor selection:** Servers, Load Balancers, Firewalls, WAN Optimizer, Video
- End-to-End performance, Interoperability

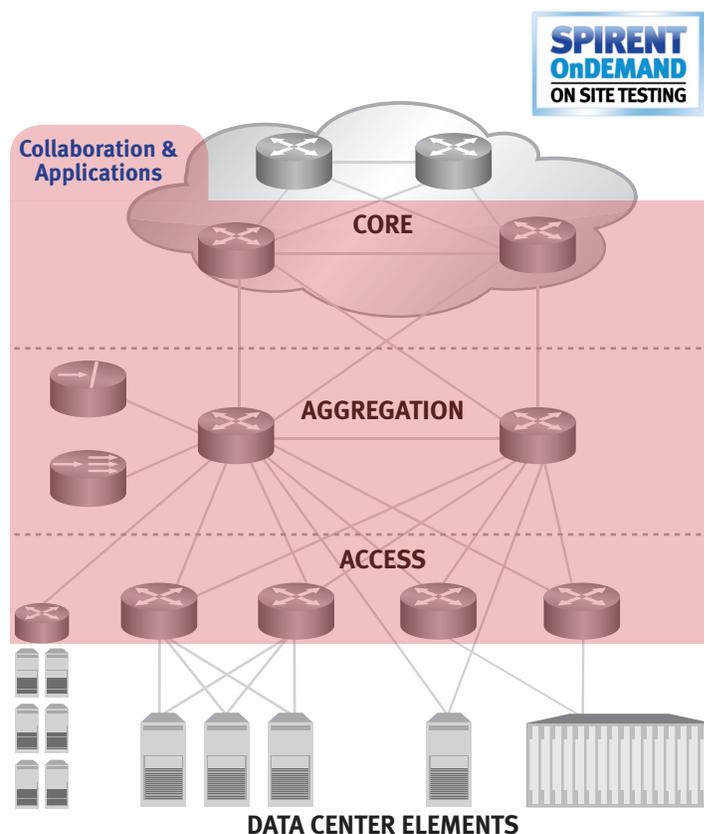
SOLUTION COMPONENTS – TESTS

Stateful Network Performance

- Connections per Second
- Concurrent Connections
- Bandwidth
- Failover/High Availability

App-aware Performance

- Latest Apps like Skype, Facebook, YouTube and Twitter
- 3000+ App Repository
- Multiple App Tested Simultaneously



Network Defense: Security – OnDEMAND Testing

PROBLEM

Security continues to be a top concern for enterprises. Research presented at a recent SANS conference revealed that companies who fail to get their online financial operations back up within 72 hours of a service failure may never recover as a business. The steady stream of headlines publicizing the latest security breach confirms that many organizations are still not responding effectively to the challenge.

SOLUTION

Spirent's expert test engineers work with you to validate the performance and reliability of your network security infrastructure. Offering a packaged test solution, we also customize and employ specialized methodologies, along with our award-winning Avalanche and ThreatEx test systems, to assess your firewall/SLB and give you peace of mind.

BENEFITS & VALUE

- Acquire critical data on your security infrastructure
- Obtain accurate evaluation of the points of failure as well as reliability, performance and scalability issues of your firewall or IDS/IPS
- Receive invaluable data on unexpected vulnerabilities by DoS and signature-based attacks
- Assure firewall reliability

Spirent's OnDEMAND Network Defense, Security Test Packages include:

- **Assessment:** Firewall, SLB, IPS/IDS, Proxy, NAC, Threat Vulnerability with real malware
- **Vendor selection:** Firewall, SLB, IPS/IDS, Proxy

SOLUTION COMPONENTS – TESTS

Package 1 – Security

- Attack Detection; Evasion
- Denial of Service (DoS) Scenario
- Worm Outbreak
- Performance while under attack

Package 2 – Security & Application Performance

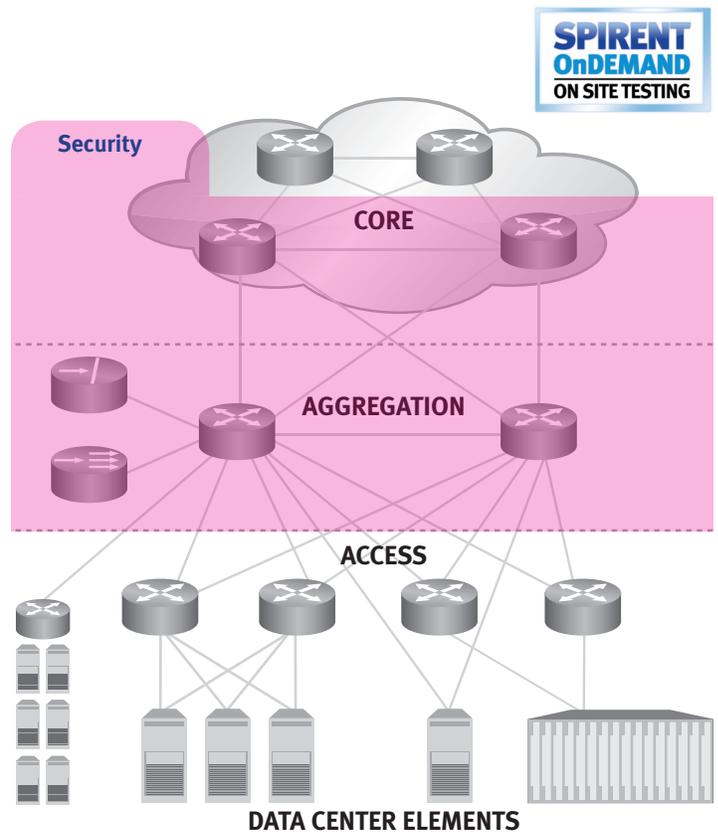
- Security Testing (Package 1)
- Connections per Second
- Concurrent Connections
- Bandwidth
- Failover/High Availability

Package 3 – Malware & Attacks

- 1000s of the Latest Malware & Attacks
- Scenarios mixed with legitimate user data traffic

Package 4 – Fuzzing Testing

- Zero Day Attack Detection Scenarios
- Millions of Variations
- Network Robustness & Resiliency



Virtualization – OnDEMAND Testing

PROBLEM

While virtualized networks and environments promise quantum leaps in efficiency and utilization, too often that promise cannot be delivered on due to lack of feasibility considerations. Even worse, faulty deployment can result in significant revenue, productivity and operation costs which all impact your bottom line. Before any virtualization initiative goes live, proper assessment of end-to-end performance of virtual networks is the best solution to assure you get the most out of your IT investment. Choosing the correct test partners for virtualization is critical to assure your feasibility review covers all the needed bases and to ensure the deployment delivers as promised.

SOLUTION

Spirent delivers extensive testing expertise on emerging and cutting-edge networking technologies to help you face your challenges. Spirent's testing solutions validate the design and performance of your entire virtual network and deliver the exact realistic data you need to understand the limits and capabilities of your virtual network infrastructure.

BENEFITS & VALUE

- Plan and deploy virtualized data centers with confidence
- Provision infrastructure accurately
- Reduce provisioning costs
- Ensure optimal network performance

Spirent's OnDEMAND Virtualization Test Packages include:

- **Assessment:** Virtualized Application Performance, I/O Performance, Server
- Distributed Resource Scheduling (DRS) & VMotion™ performance, virtual port testing; Storage DCE / FCoE testing
- End-to-End performance – from network to virtual machine

SOLUTION COMPONENTS – TESTS

Package 1 – Virtual I/O Performance

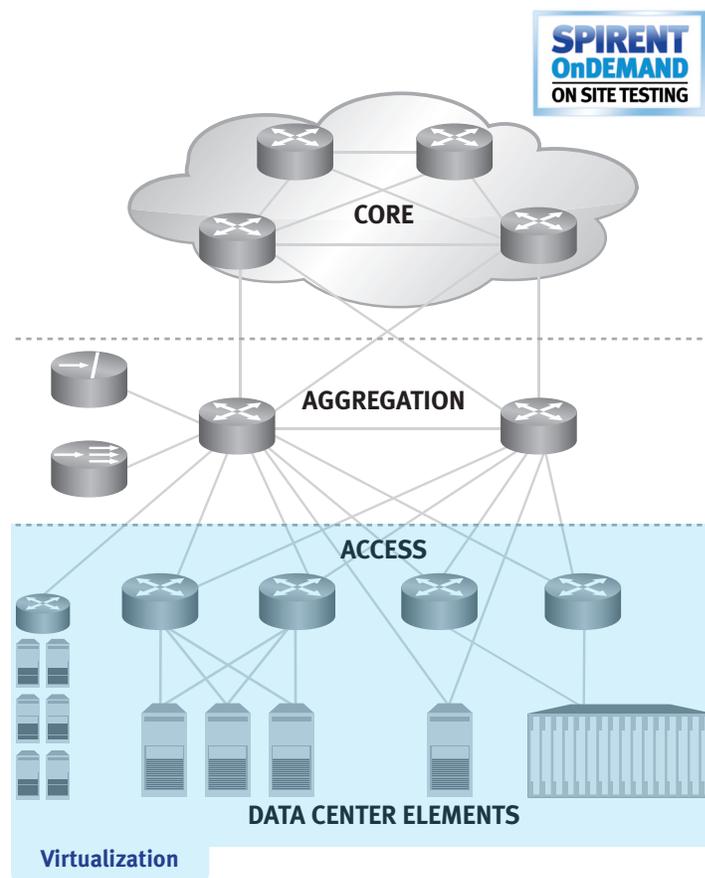
- Virtual Port Throughput
- Layer 2/3 Latency
- Virtual Switch Performance: Delay, jitter and packet loss

Package 2 – Virtual Application Performance

- Connections per Second
- Concurrent Connections
- Bandwidth

Package 3 – Virtual Pre-deployment Validation

- VMotion and DRS Performance
- Storage DCE/FCoE
- End-to-End Performance



Cloud Computing – OnDEMAND Testing

PROBLEM

Awareness and adoption of Cloud Computing advantages, as well as its recognition as the foundation of the next generation of networking, continue to grow. The benefits include: agility, device/location independence, scaling on demand and greatly reduced costs. Behind these perceived advantages, however, are the inherent risks of faulty data center deployment which include data location control, data segregation, encryption at all stages, assurance of complete data recovery, vulnerabilities of data security and exit strategies. In this fast-moving and highly competitive space, failure to correctly implement virtual network deployment damages your ability to provide reliable SLAs and weakens your long-term viability.

SOLUTION

Spirent delivers realistic data you need to understand the limits and capabilities of your virtual network infrastructure based on extensive testing expertise and methodology with virtual networking technologies. Spirent’s testing solutions validate the design and performance of your entire Cloud Computing network to assure reliable performance from one end to the other.

BENEFITS & VALUE

- Plan and deploy virtualized data centers with confidence
- Provision infrastructure accurately
- Reduce provisioning costs
- Ensure optimal network performance

Spirent’s OnDEMAND Cloud Computing Test Package includes:

- **Assessment:** Application/SaaS Performance, Virtual Data Center testing
- WAN modeling/Optimization
- End-to-End Networking, One Arm Testing

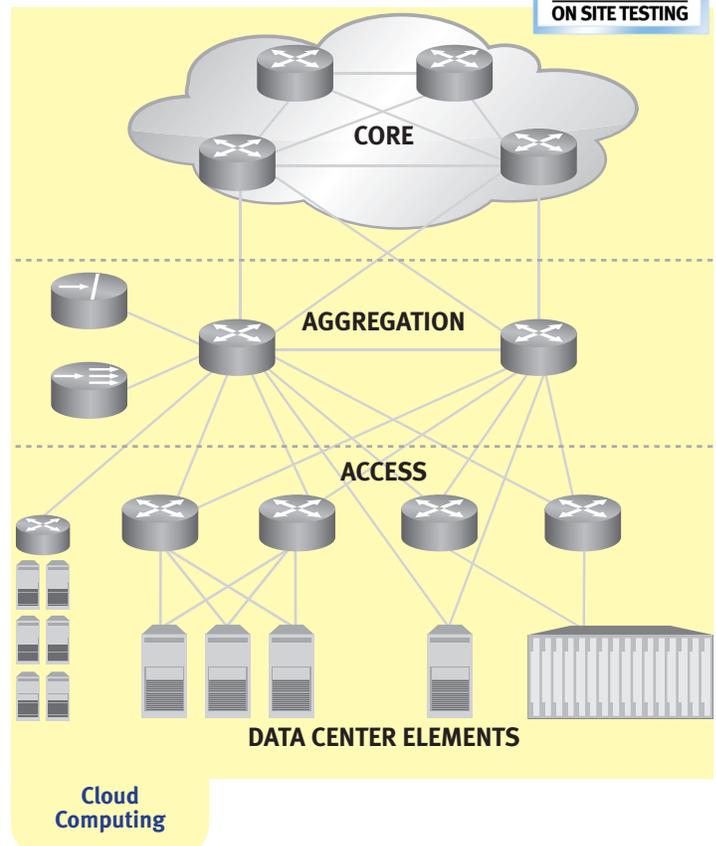
SOLUTION COMPONENTS

Cloud Application Performance

- Connections per Second
- Concurrent Connections
- Bandwidth

Scenarios

- **WAN Simulation:** Various WAN simulator settings (delay, bandwidth, packet loss, etc.)
- **Traffic modeling:** Tests are performed utilizing a combination of protocols to closely map the profile of your network system traffic





Green Performance – OnDEMAND Testing

PROBLEM

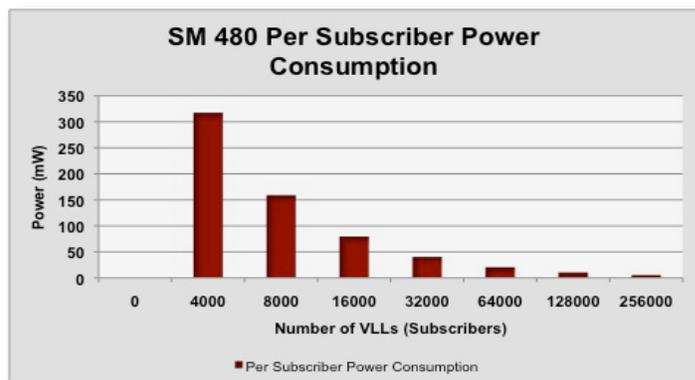
As energy consumption grows by 10% a year, operating costs continue to rise, and the challenge to leverage the most utility and value from devices grows more critical. When making a device choice, weighing the benefits of performance against energy efficiency is no longer ‘nice to have,’ but a growing requirement and a ‘need to know.’ Having the best data resolution in assessing an IT infrastructure initiatives’ overall power consumption, as well as a device’s green properties under various test scenarios, is an important advantage in making the best choice for devices or IT solutions.

SOLUTION COMPONENTS – TESTS

- Total energy/power consumption
- Average energy/power consumption
- Idle energy consumption
- Full functional stat energy consumption
- Carbon emission

BENEFITS & VALUE

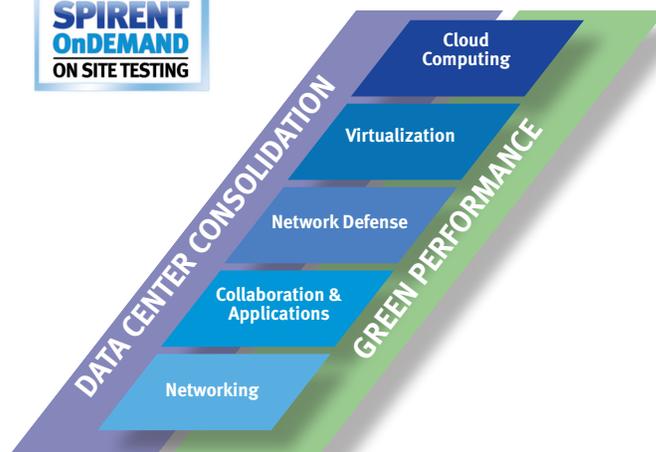
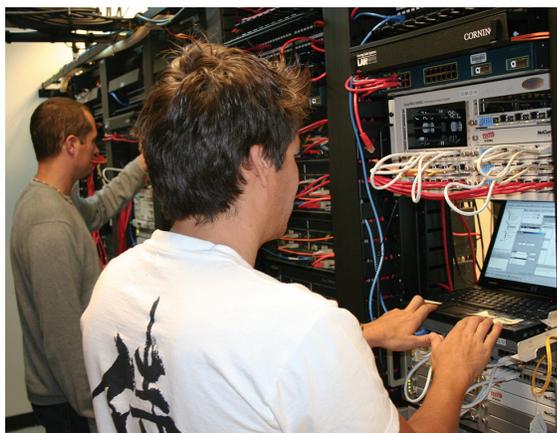
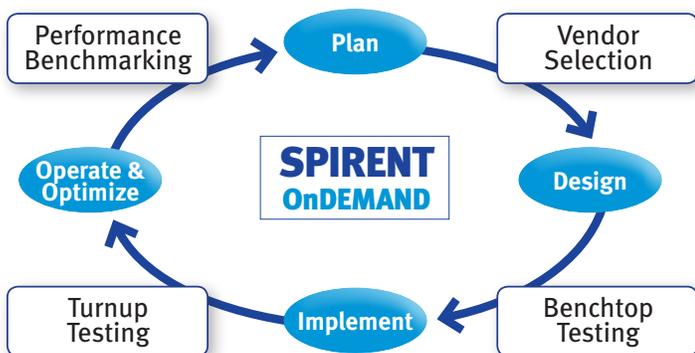
- Ensure vendor devices meet all criteria, from performance to power consumption
- OPEX control and savings
- Ability to implement effective power usage policies
- Reduced power and cooling expenses
- Granular insight into a device’s power consumption under different testing scenarios



Data Center Consolidation – OnDEMAND Testing

The complex variables of next generation data center infrastructure, along with the wide range of customized applications, make reliable Data Center Consolidation a requirement. At each phase of the process, too often companies fail to recognize the need for testing. Choosing a qualified testing partner assures specialized involvement, smooth deployment, and full network-wide utilization of all resources and applications to optimize the solution’s original design.

Spirent has been helping customers face their IT challenges since the dawn of networking. Spirent’s global Professional Services organization has established a widely acclaimed service delivery process, which helps assure your Data Center Consolidation is performed exactly as planned, delivering the results you require.



IT Initiatives OnDEMAND Performance Testing Solutions

A host of additional and critical IT challenges face Enterprises worldwide beyond the Data Center test space. To address those, Spirent Professional Services has developed an inclusive set of test packages designed to address the most common and acute challenges facing customers today.

OnDEMAND Test Packages for IT Initiatives

- VoIP Assessment
- IPTV Performance
- WAN Optimization
- E-Commerce Web Performance
- VPN Scalability and Performance
- DMZ Architecture
- CCTV over IP



“...Nemertes recommends spending between 2%-5% of total project costs (including capital and operational cost for the estimated project lifetime) on testing...”

—Source: Nemertes Research

“We were able to verify the performance and functionality of our environment before it went into production and that helped us tremendously.”

—Tuan Pham, Senior Network Consultant, National City Bank



VoIP Assessment – OnDEMAND Testing

PROBLEM

Rolling out VoIP in a converged network environment has clear benefits. The implementation of this IT initiative, however, is too often fraught with costly and time-consuming complications which undercut, and in many cases neutralize, the anticipated benefits. Problems such as a network infrastructure's inability to support VoIP, unacceptable voice quality, and the discovery that a VoIP solution is not compatible with an existing voice network, have caused too many VoIP adoptees needless pain and budget dollars.

SOLUTION

An OnDEMAND VoIP assessment with Spirent Professional Services provides straightforward answers to these potential problems, with critical data on the functionality of your network, Quality of Service metrics, and detailed connectivity by location. With guesswork eliminated, your VoIP rollout will be implemented based on informed decision making.

BENEFITS & VALUE

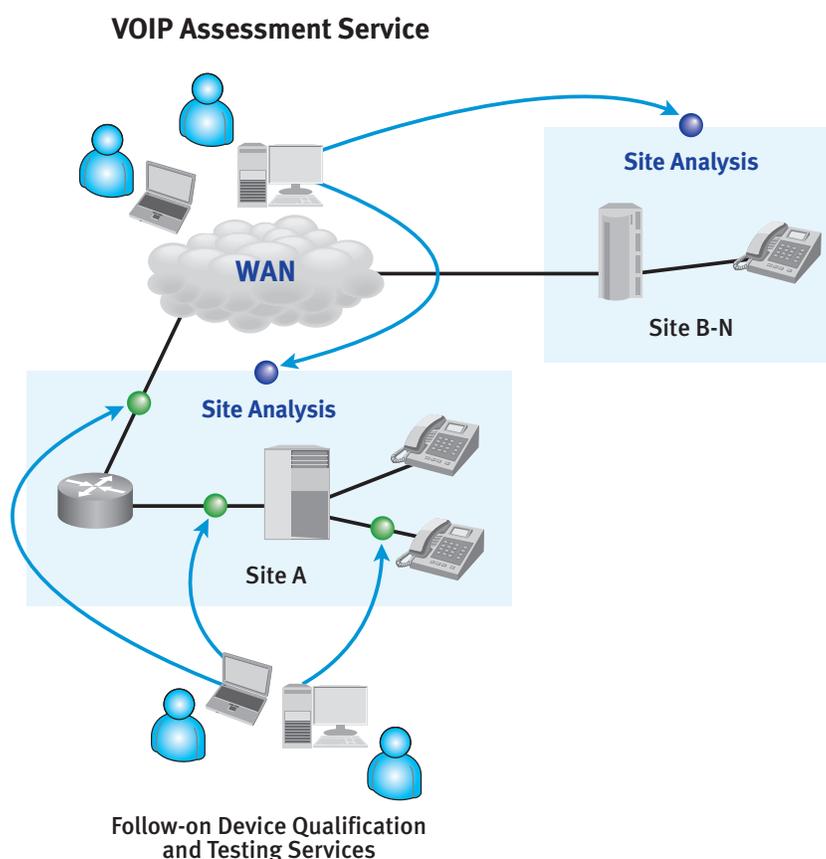
- Attain reliable voice quality on your network
- Shorten costly and time-consuming pilots and internal trials
- Mitigate roadblocks such as incompatible infrastructure and network bottlenecks
- Achieve a smooth deployment process from first office implementation to each subsequent site

Spirent's OnDEMAND VoIP Assessment Test Package includes:

- **Assessment:** Voice quality; Call capacity; Infrastructure compatibility
- **Vendor Selection:** Proxy/Redirect Server; Signaling Gateway; Media Gateway

SOLUTION COMPONENTS – TESTS

- **Voice quality measurements between locations:** MOS, PSQM, PSQM+, PESQ, PESQ-LQ, R-factor, J-MOS
- **Call measurements:** Call Completion Rate, Call Setup Time
- **Transport layer statistics:** Packet Loss, Out of Order Packets, Delay, Jitter, One-way Delay, Round-trip Delay, Echo
- **Supported codes:** G.723, G.726, G.729AB, G.729B, G.11u, G.711A



IPTV Performance – OnDEMAND Testing

PROBLEM

Testing and deploying IPTV technologies is a complex and exacting challenge. The IP edge network is increasingly stressed with triple play services which impose heavy bandwidth requirements for video and latency constraints for voice. IPTV services may be deployed alongside multiple devices and technologies such as: routing, MPLS VPNs, VoIP, multicast, Internet data, resulting in a complex network design. This leads to configuration and interoperability issues, making it tougher to ensure end-to-end QoS. Failure to deliver quality of service directly damages customer satisfaction and your business model.

SOLUTION

Spirent Professional Services provides experienced testing of IPTV performance which delivers the independent results data you need to ensure excellence of triple play services at launch. This information allows you to identify and address issues significantly impacting your IPTV solution, and allows your team to remain focused on your core business objectives.

BENEFITS & VALUE

- Implement new IPTV technologies with confidence
- Choose the exact IPTV configuration you need
- Target and address crippling issues before launch
- Ensure Quality of Service to your customers
- Increase your competitive advantage

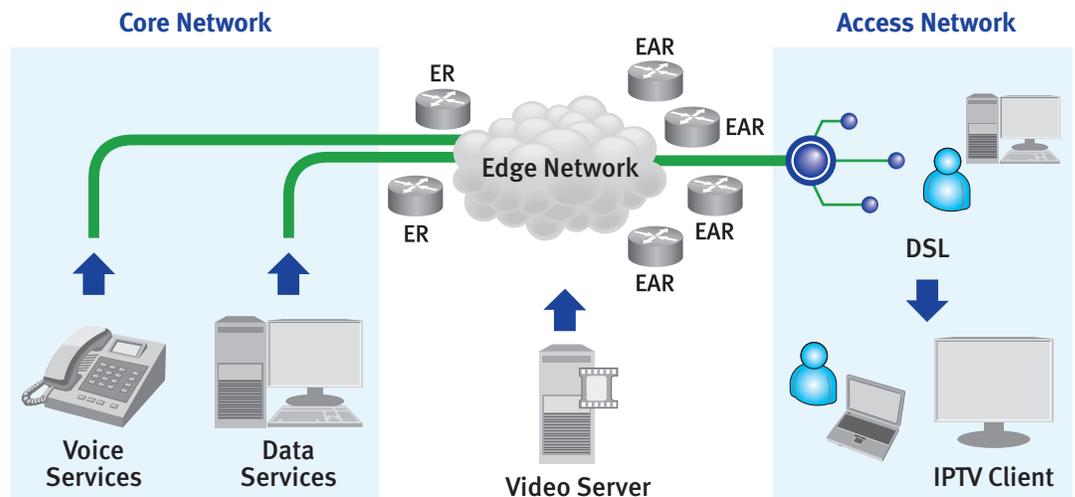
Spirent's OnDEMAND IPTV Performance Test Package includes:

- **Assessment:** IPTV Channel Scalability, Mixed-Class Throughput & Latency, Quality of Service
- **Vendor Selection:** Infrastructure Switches; IPTV Content Server

SOLUTION COMPONENTS – TESTS

- **Bandwidth:** Is the infrastructure able to handle hundreds of channels?
- **Channel Zapping:** How rapidly can Set Top Boxes change channels?
- **Channel Validation:** Is the correct information being received?
- **Join Latency:** Time from when a join is sent until first multicast packet arrives
- **Leave Latency:** Time from when a leave is sent until the last multicast packet arrives
- **Interchannel Latency:** Time it takes to complete an entire channel change

Spirent Professional Services also has custom IPTV test solutions for user experience video quality.



WAN Optimization – OnDEMAND Testing

PROBLEM

As part of an emerging technology, off-the-shelf WAN optimizers cannot be expected to address your custom requirements. The ROI WAN optimizers promise must be weighed against the potential risks of unproven devices. Discrepancies in WAN optimizers, or too many simultaneous users on your production network during peak load, can result in sluggish throughput, irregular backup, or worse: no backup at all. These devices' ability to reduce data redundancy between your remote sites may be crippled from the start. Unless they are tested properly, before deployment, you can never know for sure.

SOLUTION

OnDEMAND testing with Spirent Professional Services provides the data you need to integrate a WAN solution, with the right device and exact configuration you require for your mission critical environment.

BENEFITS & VALUE

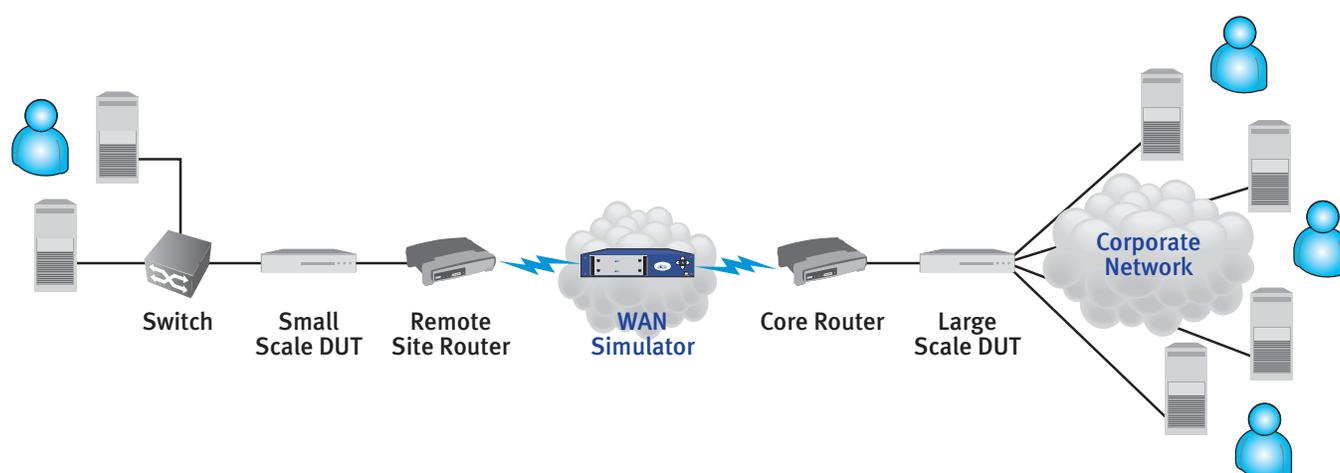
- Identify and address performance issues and discrepancies before deploying in the production network
- Deliver the right reliable performance
- Increase productivity by having the correct devices and configurations to avoid unnecessary and costly delays
- Implement this fundamental change in your network architecture with confidence

Spirent's OnDEMAND WAN Optimization Test Package includes:

- **Assessment:** Performance and Compatibility
- **Vendor Selection:** WAN Optimizer

SOLUTION COMPONENTS – TESTS

- **Layer 4-7 Performance Tests:** Transactions per Second; Concurrent Connections; Maximum Bandwidth; User Test
- **Multiple Impairments with Varied Settings:** Delay; Packet Loss; Bandwidth Constraints



E-Commerce Web Performance – OnDEMAND Testing

PROBLEM

Over a three-year period in the US, E-Commerce sales grew 32% from \$86 billion to \$127 billion. Given the myriad of shopping options, many online retailers have found that more sophisticated online shoppers are intolerant of problems in their shopping experience. A Website crash or even a slow Website can lead to hundreds of thousands of dollars in lost revenue. Today, abandoned orders stand at more than 50 percent for the average E-commerce implementation – many due to unresponsive Web applications. It is imperative that technology infrastructure, including Web servers, firewalls, server load balancers and databases, are stressed to find and fix weak points, before it's too late. Untested scalability, reliability, security or configuration glitches can ruin the prime purchasing cycle during seasonal user spikes.

SOLUTION

Our Professional Services team provides unique testing expertise combined with Spirent Avalanche's unparalleled performance and realism for testing large Web applications. Our solution emulates actual traffic and user behavior on a massive scale – up to millions of transactions per hour – to find weak points and help you resolve them. Spirent delivers objective data for accurately determining E-commerce infrastructure capacity so that you can accommodate 24/7 shopping with the heaviest online traffic.

BENEFITS & VALUE

- Identify infrastructure weak points
- Strengthen revenue stream
- Scale your Website above and beyond your seasonal peaks
- Unparalleled performance with Spirent Avalanche test equipment
- Cost effective performance and functional testing delivered in as little as two weeks

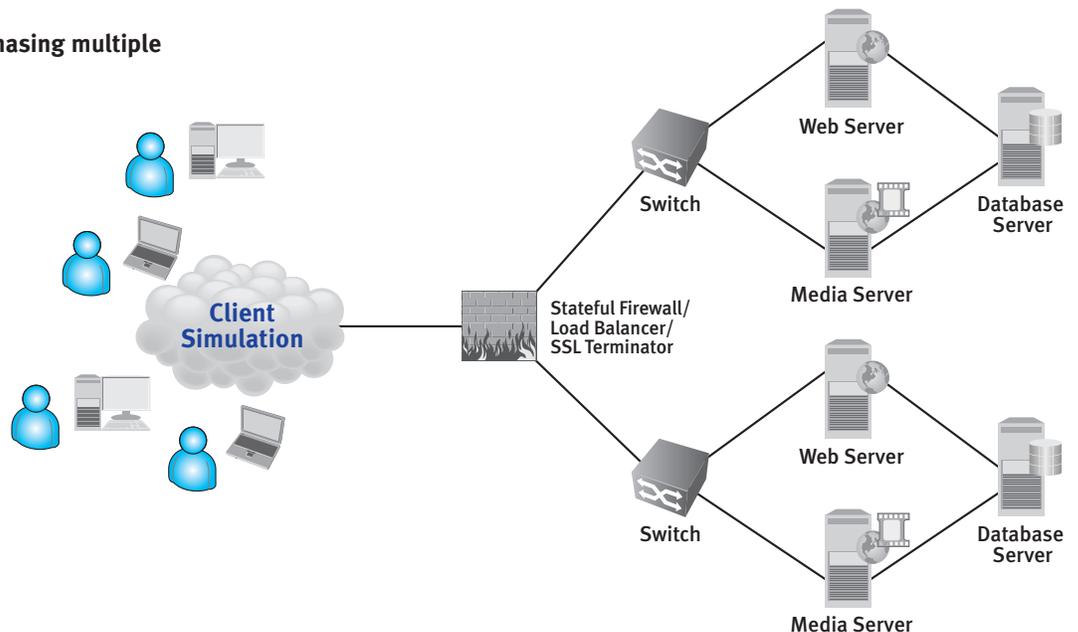
Spirent's OnDEMAND E-Commerce Web Performance Test Package includes:

- **Assessment:** Prototype shopping environments; Customer volume; Website performance

SOLUTION COMPONENTS – TESTS

Test Plan:

- New and existing users purchasing single items in shopping cart
- New and existing users purchasing multiple items in shopping cart
- Customer-specific scripts
- Profiles for future testing



VPN Scalability and Performance – OnDEMAND Testing

PROBLEM

Telecommuting grows as an advantageous method to increase employee productivity and decrease company operating costs. As it does, the dependence on the IT infrastructure which facilitates that work model also increases. Companies who fail to recognize their vulnerabilities and system limitations during periods of severe flu virus threats, inclement weather and general instability learn too late, and suffer serious consequences. Reliable operational capability is a requirement. Un-assessed VPN capacities and unanticipated telecommuter usage spikes amplify outage risks. The result can be data loss, security breaches and loss of employee productivity.

SOLUTION

OnDEMAND testing your VPN for maximum connections and bandwidth available ensures your capacity is in sync with your needs and requirements. Assure the seamless operation and optimal productivity of your remote employees with Spirent Professional Services.

BENEFITS & VALUE

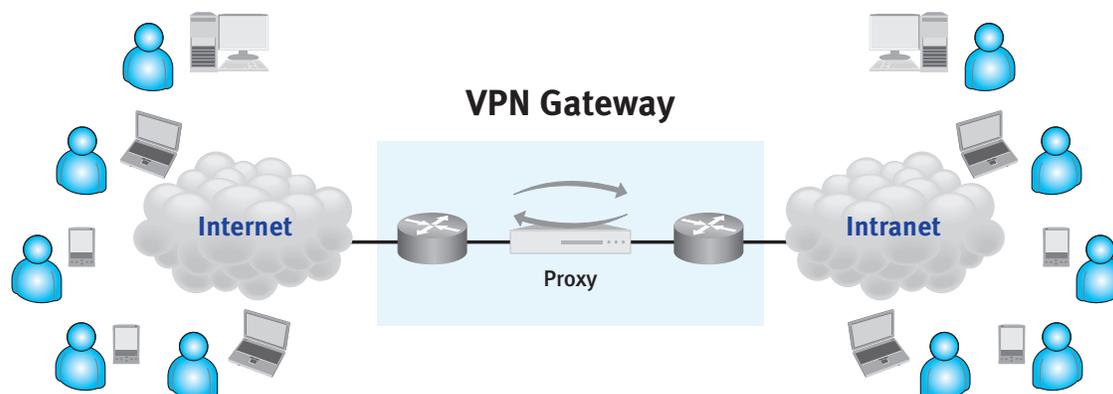
- Ensure 24/7 global access for your remote employees
- Assure service levels and facilitate future planning
- Attain confidence in your initiative before rollout

Spirent's OnDEMAND VPN Scalability and Performance Test Package includes:

- **Assessment:** VPN IPSec Performance and Compatibility
- **Vendor Selection:** VPN Gateway

SOLUTION COMPONENTS – TESTS

- **Maximum VPN Connections:** The maximum concurrent connections shows whether the DUT/SUT has a bottleneck and provides a benchmark for the capacity of your system
- **Maximum Bandwidth (HTTP Transfer Rate):** The maximum bandwidth for the DUT/SUT provides data on the bandwidth the DUT/SUT should handle and shows whether it contains a bottleneck



DMZ Architecture – OnDEMAND Testing

PROBLEM

Customer demand for improved performance, more openness, and better value creation continues to grow. Information Systems have never been more sophisticated and complex: enhanced applications and servers, network infrastructures strengthened for the convergence of Voice/Data/Video, and security solutions added to the IT architecture. DMZ architecture has never been as complex, sensitive and vulnerable to failure. The choice of incompatible IT components within your network can interrupt or derail timely and seamless integration into your architecture. The result can be costly security breaches, data and revenue loss, as well as weakened customer satisfaction. The livelihood of your business is at stake.

SOLUTION

DMZ OnDEMAND testing from Spirent Professional Services offers you a specialized service of performance tests that will allow you to validate the capabilities of specific equipment, based on realistic scenarios which correlate precisely to your network environment.

BENEFITS & VALUE

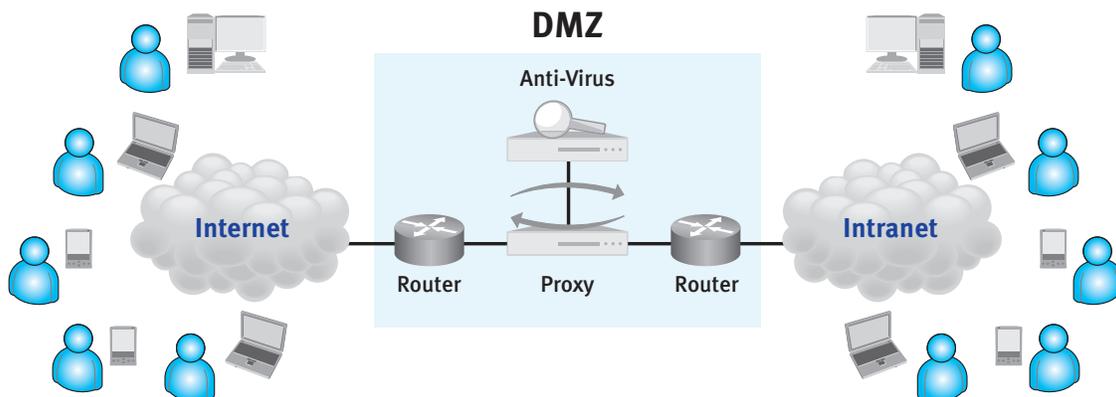
- Validate DMZ components to guarantee their performance
- Increase productivity with optimized performance of your DMZ architecture
- Avoid unexpected service delays
- Achieve assurance of user satisfaction
- Retain a cost-effective turnkey action plan to measure DMZ equipment performance without the purchase of expensive testing equipment

Spirent's OnDEMAND DMZ Architecture Test Package includes:

- **Assessment:** Security, Performance and Compatibility
- **Vendor Selection:** Web FTP Server, Mail Server, DNS Server; as well as, Proxy, Load Balancers, Firewall, IPS/IDS

SOLUTION COMPONENTS – TESTS

- **New Connections per Second**
- **Protocols include:** HTTP, FTP, SMTP, DNS
- **Maximum Simultaneous Connections**
- **Metrics include:** Transactions per Second; Bandwidth



CCTV over IP – OnDEMAND Testing

PROBLEM

The importance of asset, inventory and data protection within facilities has never been greater. Enterprises whose sites require security camera networks face higher requirements for reliability and accuracy. In today's highly-competitive world, even partial temporary failure of a television security network is not an option. The consequences can result in serious loss and require damage control due to security breach at an effected facility. The reality is that some assets or data may never be recovered.

SOLUTION

Spirent Professional Services provides experienced testing of performance, security, reliability and scalability. Test results deliver independent data which establishes the limits, risks and vulnerabilities of the CCTV over IP system that you are considering for your facilities. Testing with Spirent provides the assurance that the system you are integrating will work reliably and on budget.

BENEFITS & VALUE

- Assure total reliability of complete close circuit camera system
- Ensure 24/7 protection of your facilities
- Gain budget savings with correct vendor choice
- Streamline seamless implementation of system

Spirent's OnDEMAND CCTV over IP Test Package includes:

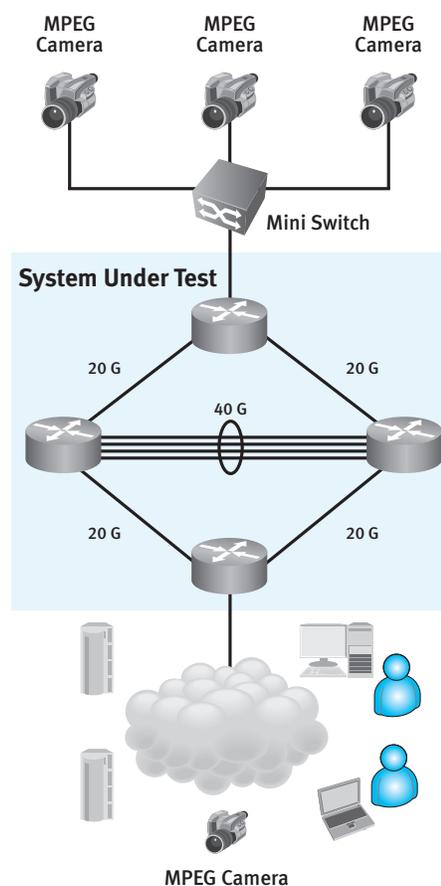
- **Assessment:** Reliability, capabilities and performance

SOLUTION COMPONENTS – TESTS

CCTV over IP System

- **Network Forwarding Tests:** Including Connectivity and Reachability
- **Network Performance Tests:** RFC-2544 Latency, Throughput (including Multicast) and various RFC-3918 test scenarios
- **Failover Tests:** Including various Multicast Failover and Unicast failover tests scenarios

Spirent Professional Services also has custom CCTV over IP test solutions for user experience video quality.



Spirent Professional Services Overview

Spirent Professional Services – Comprehensive Guidance

Spirent's Professional Services team represents the best in the network testing business. They deliver unparalleled expertise and draw from extensive real-world testing experience in a wide range of customer engagements.

HOW WE MITIGATE RISK

Our experts quickly identify issues before they become problems. This enables you to plan and respond so you are confident that the product or service you are launching does exactly what it is designed to do.

- **Vendor selection:** We test network equipment against your requirements and specifications for performance and configurations, features delivered, and bugs. Our test data empowers your vendor negotiations.
- **Network Design:** Our testing challenges existing designs. Our specialists offer expert input for new designs. We confirm the exact components to fit your customized needs.
- **Network Implementation:** Our team targets all critical issues before you go live, such as incompatible devices or protocols. We help you work through all your roadblocks prior to launch.
- **Network Security:** Our solutions recognize that 100% effectiveness in security is 100% useless if it uses all your CPU preventing intrusion, slowing throughput in the process.

Spirent Testing Services Include:

- Comprehensive outsourced testing
- Test methodology creation
- Test equipment rental option for short test cycles and tight budgets
- Highly-skilled test engineers for test execution
- Design validation
- Scalability projections
- Security assessment
- Implementation validation
- Data analysis and report creation

SPIRENT
OnDEMAND
ON SITE TESTING



RESULTS



TEST PLANS



EXPERTS



“Spirent’s intensive testing identified performance issues with our network and enabled us to make the corrections needed for a successful deployment. The level of expertise, experience and customer dedication from Spirent’s Professional Services team enabled our successful network deployment.”

—Douwe Visser
Project Manager
Optiver Derivatives Trading

Infrastructure Test Optimization (ITO) Solutions

Using Spirent world-class test tools and platforms, Spirent worldwide engineering and Professional Services teams, along with the best-of-breed technology partners, have developed and delivered a range of infrastructure test optimization and automation solutions. These ITO solutions solve or minimize the impact of complex testing challenges today and into the future.



SOLUTIONS INCLUDE:

- Topology management - authorizing, sharing, scheduling tools
- Physical layer connectivity, eliminating manual patch panels
- Test case authoring tools
- Full-featured network emulation and analysis
- A complete test case authoring environment
- Device configuration
- Implementation of custom test cases in a regression environment
- Centralized management and archiving of test cases
- Organization of test cases into suites and campaigns
- Automated scheduling of test cases and test suites, results management and archiving, as well as automated reporting of test results
- Resident engineer program

Spirent's World Class Service Delivery Process:



- **Discover:** Gather requirements; perform Gap Analysis
- **Define:** Create Statement of Work; present roadmap and resources, illustrate ROI
- **Develop:** Develop test cases; write scripts; develop code
- **Deliver:** Deploy test engineers; manage project; measure and report
- **Debrief:** Ensure customer requirements and expectations have been met

“Spirent Professional Services delivered everything we asked from them, and more. Based on their testing we were able to determine the optimal network design and save significant amounts of money. Most important, we knew that when we rolled out the new network, it would perform exactly as we had planned.”

—Delfine Goujon,
Network Manager
Easynet

Our Customers

Spirent has been a pioneer since the advent of network testing and has provided services to customers across a broad range of global industries. These varied business sectors include telecommunications and wireless service providers, network equipment manufacturers, petroleum, education, the media, financial institutions and stock exchanges, technology enterprises and publishing giants. Spirent also services the US government which includes military and space agency projects.

Spirent Expertise

Spirent provides services expertise for all major communications vendors. Our test methodology and automation experts include IETF engineers and RFC authors who have developed many of the industry's acclaimed benchmarks. They help define standards and performance tests for dozens of industry forums and standards bodies. Such industry expertise optimizes your solution capabilities and ensures you deliver your product or service to market on time.

Case Study: Spirent Professional Services Data Center Testing

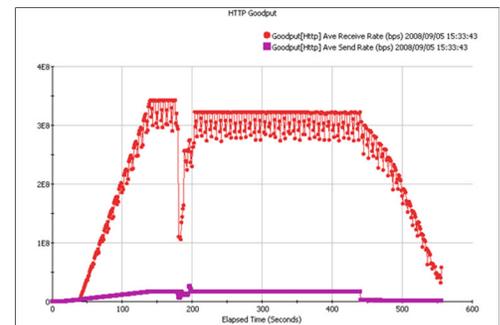
Overview: Costly business disruption and remedial work can be attributed to performance problems in data centers, operational network systems and software applications. These issues often go undetected prior to launch due to the difficulty of conducting realistic performance testing. Quantifiable consequences of undetectable performance problems include revenue loss, customer base erosion and brand damage. All these issues call into question a business's long-term viability.



Since the advent of network testing, Spirent test engineers have helped hundreds of clients save thousands of testing hours, which resulted in bringing products and services to market faster and with higher quality. While Spirent Professional Services offers worldwide coverage, Europe was the setting of the following case study of data center challenges and the solution delivered by Spirent.

Enterprise—Financial Institution

- **Challenge:** A major bank in the United Kingdom—in conjunction with a key global network equipment manufacturer—planned to implement a new data center network infrastructure. Network performance, availability and functionality of other network features needed to be assured before launch. In addition, issues had been observed with ARP performance and traffic distribution under the QoS configuration in the financial institution's live network. How network failure affected live applications running on the network needed to be identified before launch.
- **Solution:** Spirent developed a test plan using Spirent best practices and test methodology and employing Spirent TestCenter. A series of core network tests were executed. These included testing the server farm (both stand alone and virtualized), ARP performance, load balancing module performance and failover tests.
- **Outcome and Benefit:** Spirent testing identified configuration and firmware issues in the pre-production network. It also revealed the strengths and weaknesses of the various configurations tested. This evaluation allowed an objective decision to be made between the virtualized or stand-alone servers. The availability of servers with various hardware and operating systems combinations was successfully evaluated, facilitating deployment of the data center and meeting the launch deadline.



The Quantitative Importance of Qualified Testing

Nemertes Research reports in their issue paper *Strategic IT Initiatives Need Strategic Testing*: “Without proper testing, strategic initiatives can fail, with serious unforeseen consequences, including significant hard-dollar and opportunity costs.” The Nemertes findings also state that gains from strategic initiatives can be minimized or erased if testing is not implemented before an initiative goes live—that testing should be performed throughout the life cycle of a strategic initiative. The customer above clearly recognized the benefits of testing their initiative before launch to assure the quality of their solution.





AMERICAS 1-800-SPIRENT • +1-818-676-2683 • sales@spirent.com

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

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