

Converged Networks Testing Solution

Enterprise Solution

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Large financial institution achieves successful converged network migration

As one of the world's largest financial institutions implemented a converged network infrastructure, it was essential to ensure that the new systems offered optimal network capacity, reliability, and performance. By using the Spirent Abacus 5000 test system they were able to ensure optimal performance from their new VoIP equipment, and be certain of full interoperability between existing PSTN systems and the packet-based voice solutions.

After thorough acceptance testing, the company was able to ensure that performance thresholds stated by the equipment vendors had been reached, and that throughput, voice quality, and overall QoS were at acceptable levels. The reward? A smooth rollout, a cost-effective deployment, and the avoidance of costly downtime.

Why test VoIP in the enterprise.

The demands placed on converged enterprise networks supporting both data and low-latency, packet-based traffic streams are unique and significant. Voice and video services can be impacted by quality of service (QoS) issues such as delay, jitter, and dropped packets, making it essential to ensure the network is capable of supplying the necessary capacity and performance thresholds.

In order to be certain that these requirements are met, enterprises need an independent method of verifying system performance and interoperability claims from the equipment vendors. Spirent test products address the four key issues essential to a converged network infrastructure: 1) network planning; 2) network validation; 3) voice quality; and 4) voice over IP (VoIP) security. To fully assess the demands these considerations will place on your network, you need to ask yourself the following questions:

- Does my existing network infrastructure provide the performance required to support low-latency, packet-based traffic?
- Are there interoperability issues between devices on the network supporting data transfer, multimedia, and voice over IP?
- Will my security infrastructure impact the quality of voice transmissions over the network?
- Will software upgrades or new hardware installations impact system performance?
- Will my new equipment deliver the performance that matches vendor claims?
- Am I buying the right equipment at the right time—not buying either too much or too little?

questions is simple: you test. However, it is not enough to apply conventional tests that measure the performance of voice, video, and data transmissions as separate entities. By using the award-winning Architecture for Converged Network Testing (ACT) developed by Spirent Communications, IT managers and engineers can benefit from analyzing the interaction between voice, video, and data traffic. With ACT, testing is conducted before the network goes live to mitigate the risks of system incompatibilities and costly downtime.

Realistic testing solutions for converged networks.

It's no longer enough to test the interdependent systems of the enterprise network as individual component solutions. Managers of converged environments need clear visibility into the interlinked behavior of bursty data traffic and low-latency streaming voice and video transmissions. The breakthrough capabilities of the Abacus 5000 deliver sophisticated, yet flexible testing tools that enable IT engineers to create realistic failover situations. Identifying the point at which systems will overload helps establish reliability thresholds, ensuring network availability in mission-critical situations.

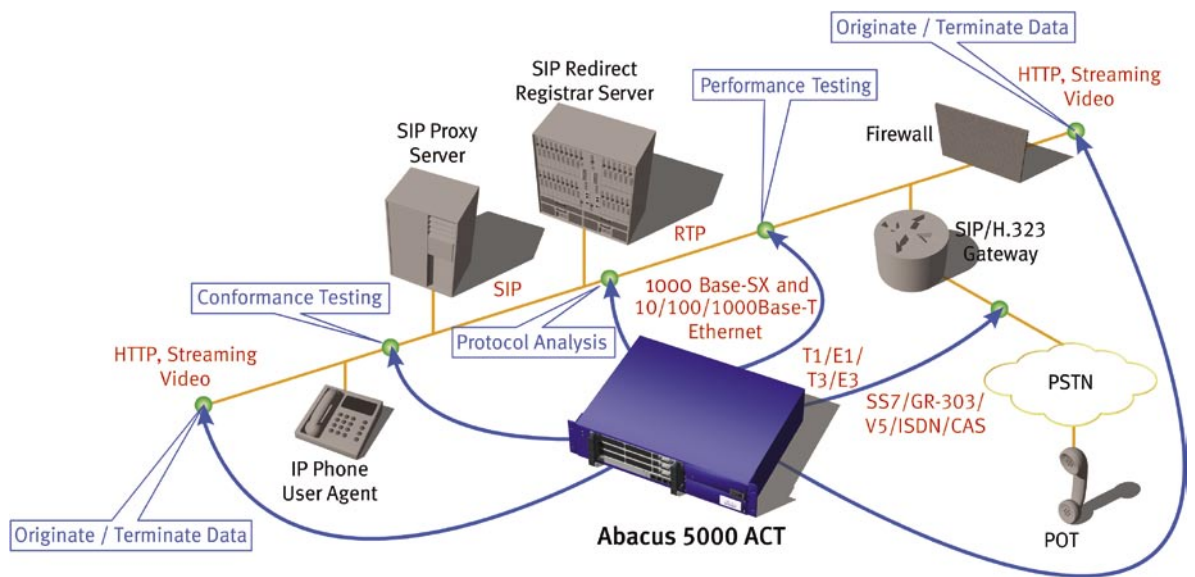
The Abacus 5000 is a modular, chassis-based solution designed to test converged enterprise networks supporting data traffic along with analog, PSTN, and VoIP telephony environments. The system provides objective voice quality measurements for a wide variety of protocols, and is a key solution for achieving enhanced network reliability and network element interoperability.

Finding the answers to these

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Simulating a real network in the lab before deployment: The Spirent Communications Architecture for Converged Network Testing (ACT) delivers clear visibility into the interrelationships of voice, video, and data traffic across the enterprise network.

By performing conformance testing before a new piece of hardware or software is deployed, IT professionals can help avoid performance hits or network downtime. When you isolate performance issues before a new solution is actually deployed, problems can be restricted to the test lab—instead of being inflicted on your users.

Testing Solutions for Converged Networks.

Spirent offers a comprehensive line of products for testing the performance and capacity of converged networks, enabling network administrators to monitor the behavior of low-latency voice and video traffic. By integrating the analysis of how data traffic interacts with multimedia traffic, network administrators can achieve a better understanding of performance issues across the enterprise network. Integrated testing of solutions from Spirent Communications enable enterprises to:

- **Reduce risk:** Significantly reduce the risk of voice and data performance issues and total outages by testing new network devices and software upgrades before deployment.
- **Increase security:** Verify that the security infrastructure enforces policies while not impacting the performance of voice, video, and data applications.
- **Save money:** Exact-size the network infrastructure by measuring the performance and capacity of new and existing network equipment.

Abacus 5000.

The Spirent Abacus 5000 is designed to meet the test requirements of an integrated VoIP and PSTN network. In order to achieve both successful migrations and upgrades to converged networking environments, the Abacus 5000 can be used to generate voice calls and data traffic, and to test the functionality, performance and conformance of network elements. In addition, the system provides protocol monitoring and impairment emulation and can verify the network's quality of service (QoS) configurations.

Abacus 5000 can test a complete range of possible configurations—from terminal devices to carrier-grade softswitches and media gateways—and from POTS to VoIP, VoCable and VoDSL. With over 150,000 test ports shipped, enterprises worldwide are deploying Abacus 5000 to validate the performance, functionality, and interoperability of new voice equipment before deployment, and to ensure that their network configurations will provide the voice quality their users expect.

Product Overview.

Abacus 5000 is a fully integrated IP and PSTN Telephony test system in a single platform that also supports the testing of data transmission across the converged enterprise network. The Abacus 5000 test methodology enables users to measure voice quality objectively under real-world conditions. Other test methodologies include functional testing, capacity, performance, and interoperability.

Features and Benefits.

- Simplifies the testing of converged IP telephony and PSTN networks and services
- Reduces testing costs by eliminating the need for multiple analog, TDM, or IP telephony testing devices
- Supports analog, TDM, T3/E3 and G.747, and IP telephony in a single unit
- Ensures higher network reliability and interoperability of IP telephony network elements
- Abacus ACT generates high volumes of data traffic for testing converged enterprise networks

Scalability and Versatility.

The Abacus 5000 supports all of your testing needs, including load, functionality, and interoperability testing. Available in three cPCI chassis form factors, the flexible platform enables users to choose the configuration that meets their needs:

- 4-slot portable chassis
- 3-slot rack mountable chassis
- 13-slot rack mountable chassis

Abacus 5000 can be precisely configured to meet user needs by installing any combination of the following daughtercard circuit generators:

- 1000 Base-SX and 10/100/1000Base-T Ethernet subsystem for call generation (ICG3)
- Dual-media gigabit Ethernet
- T3/E3 subsystem for call generation and switching (TCG3)
- Analog FXO subsystem for call generation (ECG3)
- Expanded test methodologies subsystem (CTM)

What You Can Test

Type of Tests

- Functional
- Troubleshooting
- Interoperability
- Conformance
- Scalability
- Voice Quality

Test these DUTs

- IP PBX
- Gateways
- IP Phone
- Firewalls

Payload Types

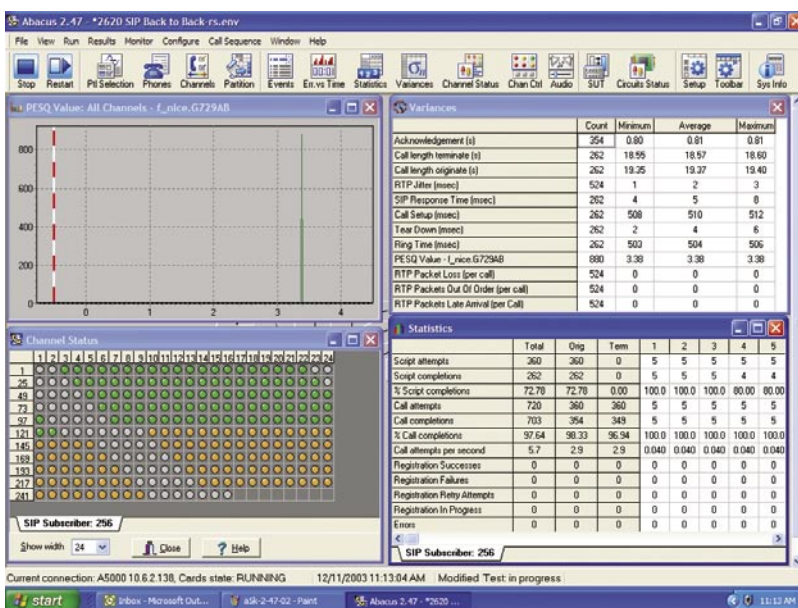
- Voice
- FAX
- Modem
- Tones
- Video

With these Protocols

- SIP
- H.323
- MGCP
- Megaco
- NCS
- CAS
- PRI
- SS7
- NFAS
- V5
- GR303

With these Interfaces

- GigE (new)
- 10/100/1000
- Analog
- T1/E1
- T3/E3



The four-quadrant real-time management window provides: 1) Graphical PSQM, PSQM+, PESQ-LQ, MOS, JMOS, PESQ, PSQM, Rfactor, and voice quality reporting; 2) RTP statistics window displaying latency, delay, and jitter; 3) Graphical channel status monitoring; 4) Call statistics window.

Reporting Capabilities.

Included with the purchase of the Abacus 5000, the feature-rich reporting software delivers a full complement of report generation and report editing capabilities. IT management personnel can select from high-level to intensely-granular views of network behavior.

Extensive support and services.

All products from Spirent Communications, including the Abacus 5000, are backed by a comprehensive warranty and a wide range of maintenance and support packages. A variety of service offerings are also available, from comprehensive training programs to complete on-site testing and support.

About Spirent Communications.

Spirent Communications is a worldwide provider of integrated performance analysis and service assurance systems for next-generation network technologies. The Spirent solutions accelerate the profitable development and deployment of network equipment and services by emulating real-world conditions in the lab and assuring end-to-end performance of large-scale networks.

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10/04