

Government Agency

This agency has dramatically increased the performance and reliability of its site, made its site response competitive, halted the erosion of its customer base, and launched new applications that have generated increased traffic to and use of its site.

Impact Highlights:

- This agency needed to pinpoint the performance bottlenecks and improve its system performance dramatically, while still protecting site security.
- Keynote testing services demonstrated conclusively that the Web site, as currently designed and implemented, could not handle the anticipated loads while maintaining acceptable page response times and availability.

Government Agency uses Keynote LoadPro™ to Balance Security and Performance

The Challenge: Improve customer service without sacrificing security

Online security is essential where financial transactions are involved, but the price in exchange for site performance may also drive customers away. That was the problem faced by this government agency. Its tight online security impaired its site performance to the degree that it was losing its B2B customers, who were seeking online alternatives. The Internet offers dramatic efficiencies and cost reductions in transaction processing fees, but these advantages quickly disappear when poor performance creates an inefficient site. To improve customer service and regain frustrated customers, the agency needed to pinpoint the performance bottlenecks and improve its system performance dramatically, while still protecting site security. Also, as part of its planning process looking forward, it needed to certify that new Web-enabled applications would scale and meet performance objectives

as traffic increased. It could not afford continued poor performance and failure, particularly as it expected to soon support in excess of 100,000 sessions/hour for complex transactions, with tight security mechanisms involving multiple proxy layers and authorization of client-side certificates.

The Solution: Keynote LoadPro

Unlike legacy testing tools, Keynote Systems' outsourced service, LoadPro, realistically simulates the unconstrained, unpredictable nature of e-business by using true visitor arrival and abandonment rates and user, data, and path variation. This realistic testing approach accurately reflects real user loads on the site, with realistic results that avoid launch problems and provide a solid basis for ongoing planning and operations. The agency felt that other tools could not deliver the realistic results upon which its site's continued operations depended.

The initial LoadPro engagement tested the agency's hosting infrastructure by testing the logon and authentication process at the front end, initially for 50,000

“With the application launch fast approaching and no inhouse expertise or resources to perform load testing, the company quickly realized that outsourcing the project to load testing experts would be the best course of action.”

sessions/hour. The number of sessions would increase with the rollout of additional new applications. Since this initial test, the agency now requires that all new applications be tested prior to launch.

Keynote created a load test script that simulated the actual behavior of users to the site, including the rate of abandonment, arrival rate and service distribution, pages accessed and path through the site, etc. It is this uncontrolled behavior unique to the Web that stresses servers in a way that traditional client/server tools do not capture, since they typically test concurrent users at a constant load in a controlled environment. Keynote exercises the servers in the way that real user loads do.

The LoadPro test implemented the realistic load script by exerting an actual traffic load generated from Keynote’s worldwide, distributed performance management and testing network (with locations currently in the U.S. and Europe for testing purposes). The test increases the load at planned stages to determine the impact on performance and identify the site’s breaking point.

The Result: LoadPro helps the agency cut their response times

Keynote’s LoadPro test demonstrated conclusively that the Web site, as currently designed and implemented, could not handle the anticipated loads while maintaining acceptable page response times and availability. The test showed that the application scaled to only 25% of expected load. Keynote identified the primary bottleneck as the SSL servers, whose performance began to deteriorate at 43,200 pages per hour and completely deteriorated at 57,600

pages per hour.

To fix this problem, Keynote recommended upgrading the SSL server and decreasing the session time out period from 2 hours to 10 minutes. In addition, Keynote proposed that the agency reconfigure the firewall to permit more simultaneous sessions and upgrade the application to support multithreading modifications that helped to improve performance without compromising security. By following Keynote’s recommendations on the initial test, the agency was able to cut response times from 54 seconds at 43,200 sessions per hour to less than 9 seconds, a 600% improvement.

The agency has continued to use LoadPro as a standardized testing procedure for all new Web applications. Since the initial test engagement, the agency has been able to scale up considerably without performance loss by fine tuning its infrastructure and upgrading hardware, and currently supports over 100,000 sessions/hour with a response time of about 10 seconds — more than double the initial load while still maintaining the performance threshold. Because it is so easy to use and requires little training, the agency is also planning to use Keynote’s Test Perspective® for testing through more of the Web application lifecycle, for development and pre-deployment testing. As a result, by using Keynote LoadPro to locate the performance bottlenecks and make improvements to its site, this agency has dramatically increased the performance and reliability of its site, made its site response-competitive, halted the erosion of its customer base, and launched new applications that have generated increased traffic to and use of its site.

About Keynote

Keynote Systems (NASDAQ "KEYN") is the global test and measurement company for mobile communications and online business performance.

As an independent and trusted third-party, Keynote provides IT and marketing executives with an unbiased view into their Internet services from around the world. For over a decade, we have been providing measurement data and testing capabilities that allow companies to understand and improve their customer's online and mobile experience.

Keynote Systems, Inc.
777 Mariners Island Blvd.
San Mateo, CA 94404

www.keynote.com



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