



## A Tier 1 Mobile Carrier Ensures High Availability and Performance for Advanced Mobile Services with Keynote

### Impact Highlights:

- Proactively monitor performance and availability of advanced mobile services including short message service (SMS), multimedia message service (MMS), as well as mobile video, Internet and email services and online content storefronts.
- Benchmark studies allow the carrier to compare its performance to the competition.
- Determine the source of problems.
- With wireless Internet service still in the early stages of customer adoption, the carrier now has the monitoring tools in place to provide customers with an excellent customer experience as customer demand grows.

### Company

This mobile carrier is a leader in delivering broadband and other wireless communication services to mass market, business, government and wholesale customers.

### Challenge: Ensure High Availability and Performance

With the mobile voice market reaching saturation, this leading mobile carrier, like its competitors, has added a wide range of advanced value-added services to attract and retain customers. These include short message service (SMS), multimedia message service (MMS), as well as the ability to use a mobile device to browse the Internet, send emails, watch videos, and purchase content such as music, ring tones, games, weather, GPS, and more.

Because many of these technologies are relatively new, they are not as reliable as tried-and-true voice offerings. Says an executive with the wireless carrier, "These technologies are getting better. But on days with high levels of traffic, such as Thanksgiving or Christmas, messages were not always getting through. Our market is very competitive and we face a great deal of customer churn. If our services don't work properly, customers will drop them and we'll lose the revenue stream—we may even lose the customer altogether. We needed a way to monitor availability and performance as well as to quickly troubleshoot problems."

While the mobile carrier was able to test its network, it was unable to test the performance of its value-added services from an end user perspective. For example, the

carrier couldn't tell if mobile content rendered correctly on a particular device or if video was slowing down or breaking up in the middle of a television program.

In addition, online storefronts that offer downloadable content are typically provided and managed by third-party partners, who deliver these services over the carrier's network. The carrier did not know if it was taking too long for customers to login to the store or purchase and download a particular game or ringtone. And when customers called in with a problem, the carrier did not know whether it was originating with the storefront application or the carrier's network. The carrier needed a way to monitor availability of its online content applications as well as to quickly troubleshoot the source of any problems.

**Solution: Keynote Mobile Application Perspective® and Mobile Device Perspective®**

The carrier chose Keynote Mobile Application Perspective (MAP) and Mobile Device Perspective (MDP) solutions, said the executive, "Because Keynote allowed us to monitor our 2G and 3G service availability and performance using real and emulated devices over our live network from an end user perspective. Keynote is also a reputable company."

**MAP**

MAP allows the carrier to use virtual handsets to test customers' experience as they use its home deck and wireless access protocol (WAP) content over the live network. MAP tests the carrier's WAP content from ten locations—four in the U.S, one in Canada, and five in Europe. In the future, the carrier has the option of purchasing dedicated measurement servers for

use on an unlimited basis in additional locations. MAP continuously monitors the availability and response time for WAP content as real customers would experience it. MAP measurements are taken by emulating any of the mobile devices profiles from a growing list of 1,000 plus device profiles. Specific measurements include:

- Time to download the base page and time to download images
- Whether the Web site or mobile site has any errors
- DNS lookup time
- Time to download the first byte
- Time to download from first byte to last byte.

The carrier can set performance thresholds for these measurements and MAP alerts the carrier when performance exceeds specified levels or when outages occur.

The carrier also uses MAP for competitive analysis, comparing the availability and performance of services on its own network with that of its major competitors.

**MDP**

The carrier uses MDP to test the quality of its advanced services on real mobile handsets (such as the Motorola Razr V3, Nokia N70, Palm Treo, BlackBerry, and other devices) since problems can crop up on some devices but not on others. The carrier is able to download, install, and interact with applications directly on the handset.

In particular, the carrier uses MDP to ensure that:

- Users are receiving SMS and MMS messages with high performance; specifically, it looks at how long it takes for a device to receive the message after it is sent.

## 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.

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- Users are receiving high quality streaming services without the need for buffering. Specific tests include time to load the media home deck, time to connect to content, and time to buffer a video clip.
- Value-added services are compatible with the particular device and render well.
- Customers that use their laptops or other mobile devices to hook up to the carrier's network are receiving high levels of throughput.

## Results

The primary benefits of using MAP and MDP are that they enable the carrier to proactively monitor the availability and performance of its advanced 2G and 3G mobile services and online storefront applications from the customers' perspective on the full range of devices. The carrier receives alerts automatically when a failure occurs or an SLA is in danger of being violated and can therefore address the issue quickly before it impacts users. Said the executive, "We can monitor our service proactively with Keynote. This enables us to live up to our service level agreements as well as improve customer service, retention—and revenues."

By using Keynote to monitor its online homedeck, the carrier not only knows instantly when service or performance problems occur, it is also able to determine whether the problem is localized or systemic. As a result, it can address problems more quickly. If the online storefront operates through multiple servers in multiple locations, Keynote helps the carrier pinpoint which of these locations is causing the problem. Because Keynote correlates sales with system performance, the carrier has also been able to document that when performance improves, sales improve as well.

When it comes to mobile Internet service, currently only one to two percent of mobile subscribers use the mobile internet. "Keynote allows us to keep ahead of any availability and performance issues so that as adoption increases, our service will continue to provide the high level of service necessary to continue to attract and retain customers," said the executive.

Through the use of the Keynote competitive benchmarking service, regional managers now have the information they need to track how their service is performing relative to other carriers. Said the executive, "Feedback on how we perform relative to our competitors enables us to pinpoint exactly what we have to do to provide a superior customer experience."

