

## Keynote Mobile Device Perspective™

### Improve the end-user experience for your mobile apps

**Keynote Mobile Device Perspective™ (MDP)** is a single platform for monitoring and troubleshooting mobile apps on real smartphones connected to live networks in global locations

#### Mobile Device Perspective Features:

**Interactively test** mobile apps on real smartphones in remote locations and carriers that matter.

**Record and playback** scripts for testing and monitoring mobile apps.

**Monitor the responsiveness** and reliability of mobile apps from popular locations and on popular networks.

**Receive instant alerts** when an application starts failing.

**Troubleshoot and diagnose** issues with mobile apps and reduce customer downtime.

With over hundreds of thousands of mobile apps available to choose from on app stores, the success of your mobile app depends heavily on the end-user experience it delivers. With MDP you can measure that end-user experience by monitoring popular user flows of your app by running scripted transactions around the clock your app on real smartphones from various locations.

Continual monitoring of your app with MDP along with its remote troubleshooting capabilities will help you reduce mean time to resolve issues and improve the overall quality of your service.

#### Technology

**Mobile Device Perspective™** is a product that uses real smartphones to monitor and troubleshoot mobile apps. Real smartphones are electrically integrated at a hardware level by tapping into the keypad or the touchscreen to drive the phone.

The LCD of the mobile device is also electronically tapped to capture the screen output of the device in real time. This integration lets a user control the smartphone remotely to

interact with mobile apps, or the phone can be controlled by a script that monitors a mobile app. MDP also takes a pixel-perfect screenshot in real time to display screen transitions.

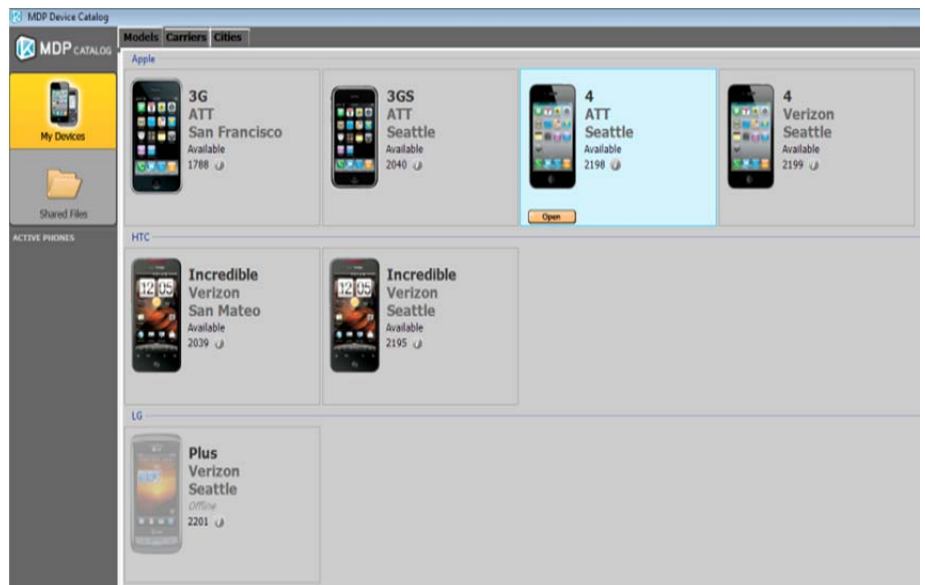
Keynote will deploy a private MDP test and measurement network based on your requirements. And we will build, operate, and manage the entire infrastructure dedicated to you. Your private test and measurement network can be deployed in any location, with any set of devices you choose.

MDP is also available on Keynote's public test and measurement network. Keynote has deployed popular smartphones in strategically important locations with connections to tier 1 mobile network operators. This shared public test and measurement network is available for anyone wanting to monitor their mobile apps.



## Interactive Troubleshooting

With your private MDP test and measurement network you get on-demand desktop access to dedicated smartphones in remote locations. The MDP Catalog application helps you organize your smartphones and check them out at any time for interactive troubleshooting. Any MDP devices can be selected to interact with mobile apps when they start failing.



**Mobile Device Perspective™** is optimized for smartphones and can support devices with high-resolution screens such as WVGA and SVGA. As a result, device interaction gives you instant LCD feedback for data-intensive applications such as videos and games. In addition, MDP also supports all the hardware and UI capabilities of the latest smartphones. You can easily perform multi-finger touchscreen gestures, rotate the device in portrait or landscape mode to trigger the accelerometer, and upload applications by connecting the device to your PC using the remote USB option.

## Hardware features supported by MDP:

- Accelerometer
- Mute
- Power on/off
- Clam shell open/close
- Backlights
- Vibrator
- Volume increase
- Hardware compass
- Camera
- GPS

## Touchscreen gestures supported by MDP:

- Swipe
- Tap
- Multi-tap
- Pinch
- Expand



### ***With MDP you get:***

- Access to smartphones in remote locations where you want to test your mobile apps
- Ability to interact with real smartphones connected to live operator networks
- Real-time feedback from the LCD of the MDP device
- Remote USB to upload applications directly to the smartphone from your Pc
- Touchscreen gestures, accelerometer events, battery in-and-out, etc.
- Video and screenshots for enterprise collaboration

### **Scripting for Monitoring and Troubleshooting**

**Mobile Device Perspective™** lets you record and playback scripts to automate the testing of mobile apps. Scripting on the MDP device is done with point-and-click simplicity. Every action and input can be recorded by the MDP scripting tool. Once recorded, the script can be replayed back to perform the same actions over and over again. MDP can also take a video capture of every script that's replayed. Users can then save those videos or share them with others for collaboration and troubleshooting.

## Features of MDP scripting:

**Point-and-click** recording and playback

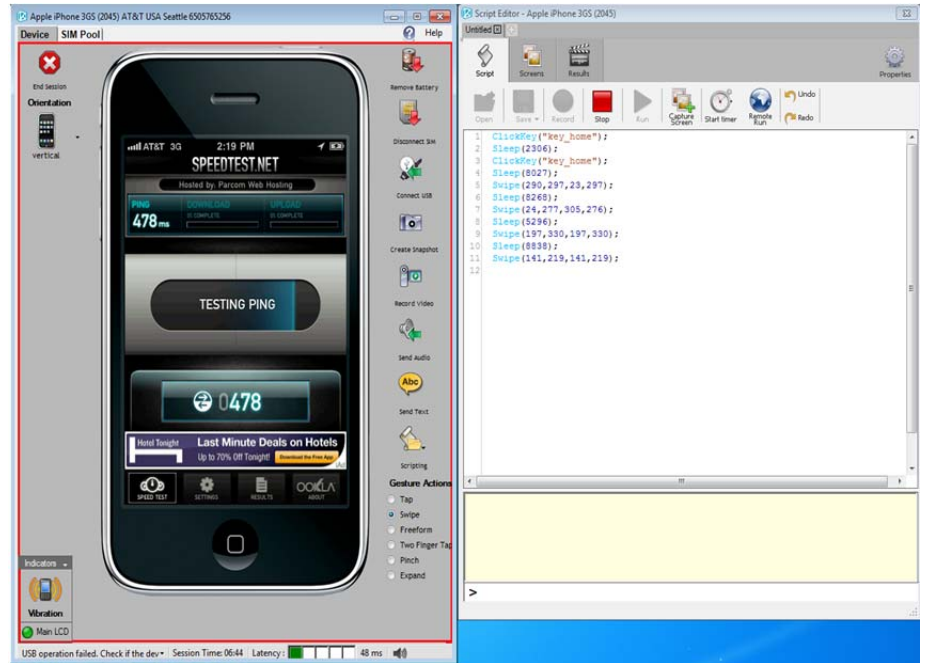
**JavaScript** scripting language

**Advanced scripting** with conditional logic

**Bitmap comparisons** for reference, error, and transition screens

**Remote cloud** repository for scripts

**Video capture** of script playback for enterprise collaboration and troubleshooting



MDP can also record advanced scripts that can be used to monitor mobile apps. The JavaScript based MDP scripting language lets you write conditional logic for mobile app monitoring. The MDP scripts can perform bitmap comparison to check for error and reference and transition states to ensure that the app functions as intended.

All MDP scripts can be saved locally or uploaded to a cloud repository. Any script in the remote cloud repository can be instantly provisioned for 24/7 monitoring on the MDP device.

### On-Device Monitoring

**Mobile Device Perspective™** lets you monitor the responsiveness and availability of mobile apps after they are deployed in production. MDP monitors mobile apps by continuously performing typical user actions from the locations and wireless networks you choose. This helps you track responsiveness and availability of the mobile apps from an end-user perspective. Because monitoring is performed 24/7, MDP provides insights into real-world issues at the instant they start

occurring. Monitoring on real devices gives you the direct feedback you need to understand customer issues.

Once the monitoring scenario is defined, you can script the use case in the MDP console or have Keynote do it for you. The script is then provisioned for monitoring and MDP starts collecting measurements at the frequency you determine. Measurements can be taken from any device in any location. .

Because measurements run on real devices connected to live mobile networks, they provide the most accurate end-user visibility into the quality of service.

MDP measures response time for every action/step in the scenario being monitored. Key metrics that are calculated for every step include:

**Response Time:** Response time is defined as the total time taken to complete the step of the scenario.

**Availability:** Availability is defined as a percentage of successful scenarios completed over total

## Mobile Apps to Test and Monitor

- Games
- Native applications
- Streaming video and audio
- Mobile TV
- Maps
- Voice calls
- Messaging (SMS/MMS)
- Web browsing

## Key Performance Metrics for mobile apps

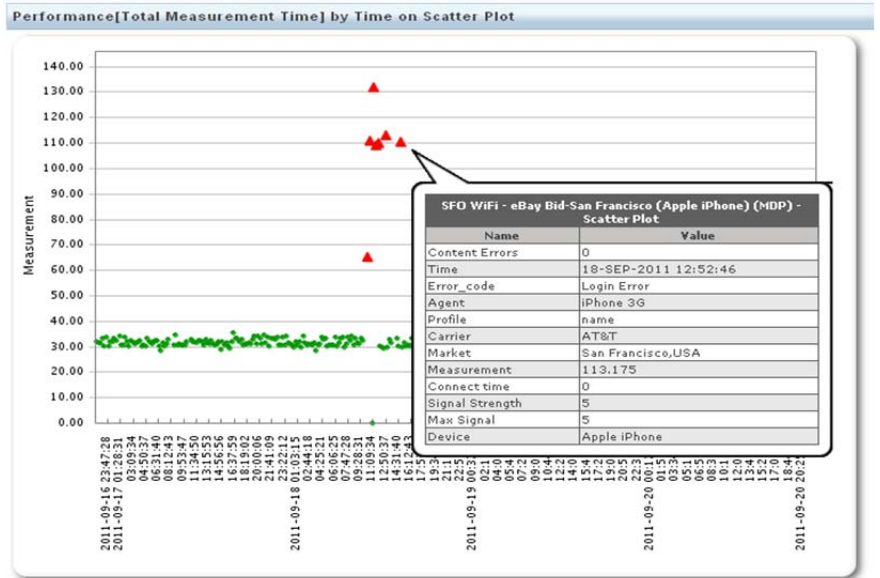
**Native Applications** – Time to download application, time to launch application, time to login, etc.

**Streaming** – Time to buffer, rebuffering

**Email** – Time to send email, time to receive email

**Messaging (SMS/MMS)** – Time to send message, time to receive message, time to download image

**Throughput** – FTP upload/download speed, HTTP upload/download speed



number of scenarios measured for the selected time interval. Every step has a threshold time to complete. If the step takes longer than that threshold time, the measurement is marked as a failure.

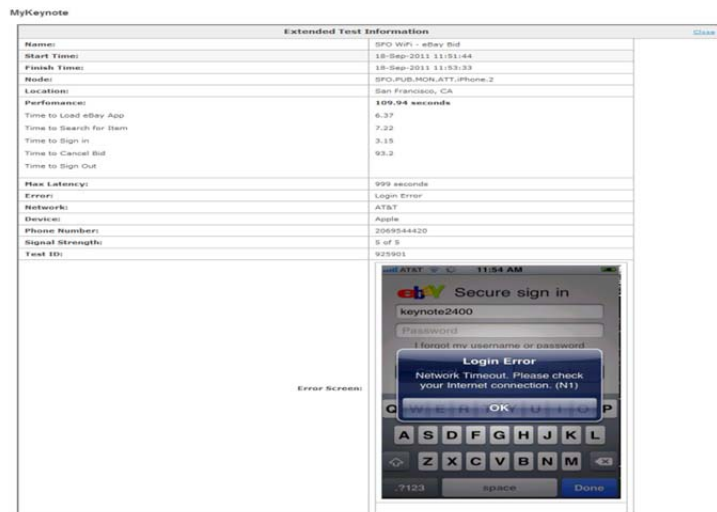
- Manage service upgrades by comparing performance before and after upgrade release.
- Compare performance between locations, carriers, and devices. Manage service-level agreements with service providers.

### On-Device Monitoring with MDP provides actionable insights you need to:

- Track service performance over time with historical reporting of measurement information.
- Improve customer experience by identifying issues quickly with customizable real-time alarms that alert you when service fails.
- Collaborate by sharing error screens and videos among different team members.

### Reporting, Alarming, and Data Services

MDP results are viewable at any time in MyKeynote, a unified Web portal for all Keynote measurements. MyKeynote provides a high-level dashboard view of how your mobile apps are performing, as well as the ability to drill down into more detailed analysis of any individual measurement. MyKeynote graphs let you analyze and trend MDP performance data over time and



break it down by location, mobile carrier, or device. MyKeynote can also be used to create customizable alarms that trigger alerts when defined thresholds are exceeded or errors occur. These alerts can be sent via e-mail, SMS, or SNMP trap.

Keynote also provides data feed services to retrieve raw data on a daily basis and analyze it with your own software analysis tools. The data can be read as a flat text file or imported into a spreadsheet or database.

## 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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