Using Shunra™ vCat to Analyze Applications Running on Mobile Devices

Now is the time for organizations to prepare for the mobile wave.

Shunra provides proven solutions and experience that enable organizations to develop and implement a Mobile Application Performance Engineering methodology. Welcome to Shunra vCat, which analyzes the network usage of applications running on mobile devices such as iPhones, iPads, Android phones and other wireless capable devices.

Using these capabilities, application designers and network architects can check mobile application behavior typical of various network conditions and discover implementation deficiencies before they impact users. These exciting capabilities are based on three new features of the Shunra vCat:

▶ **Mobile library**: to emulate network conditions that are typical to various cellular networks, such as 2.5G, 3G, EVDO, etc.

▶ **Router mode**: Depending on the setup, 'Router mode' can be used to impair traffic between the PC network card that is communicating with the mobile and the network card that is connected to the Internet. It provides the ability to impair network traffic between different network cards on the same machine.

▶ **HTTP Analysis module**: quickly and visually pinpoints problems in the network usage and suggests ways to improve them.

With these features, a user can connect a mobile phone with WiFi capability to an Internet connection passing through a desktop computer and impair the network traffic to the phone, providing an Internet experience similar to a real cellular connection. The Internet packets used by the phone can then be captured and analyzed. For a comprehensive review of the new capabilities with detailed explanations, please visit the Shunra website at www.Shunra.com

Setup for Microsoft® Windows 7

Note: The VCat Hotspot feature can only be enabled on machines running Microsoft® Windows 7 that have WiFi capability. Microsoft® Windows 7 is the only operating system that currently supports hotspots and sharing a wireless Internet connection with other devices. This functionality can be enabled using the Microsoft® Windows wizards.

However, to simplify setup, install a third party tool like Connectify WI-FI Hotspot for Windows, a free-for-use application that only requires about five minutes to install and configure, but shows advertisements. Connectify has implemented an Internet Sharing mechanism which is more relaxed regarding domain polices. In addition, the tool identifies issues such as unsupported network drivers, which can save countless hours of troubleshooting Windows device driver issues. Download the "Connectify WI-FI Hotspot for Windows" from here and follow the instructions in the wizard.

Tips

▶ To allow mobile connections to the Hotspot's network, in the Connectify window, for each mobile that connects to this Hotspot select the checkbox "Treat all future networks that I will connect to as public". Then select a location for the hot spot network (e.g. Public network).

▶ If the PC is unable to connect to the Internet, in Connectify, Settings > Internet, select "Local Area Connection".

▶ Some WiFi network adapters are not compatible with the Connectify third-party utility, further information can be found at www.Connectify.me

Conducting a Test
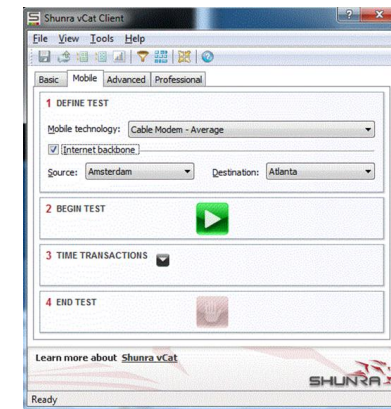
To conduct a test in Mobile Mode:

1. Open the vCat client, select the Mobile tab, and configure the following:
   - **Mobile technology**: select a wireless or broadband access communications protocol
   - **Select Internet backbone** to include this part of the network in the emulation (optional)
   - Select the **Source** and **Destination** location
2. Click **Begin Test**; vCat client begins applying emulation to all traffic entering and leaving the local host.

3. Connect your mobile device to the Internet using the PC network sharing (hotspot) and perform the defined transactions.

4. View statistics which display application performance in the selected network conditions (from the View menu, choose **View Statistics & Reports**).

5. Once testing is completed, click **End Test**; traffic entering and leaving the NIC card is no longer impaired.

Including Transaction Timing

For more in-depth information and analysis, time transactions typical to those made by the application's end-users while the emulation is running:

1. From the Start > Programs > Shunra PerformanceSuite, open the **Shunra Network Editor** and click **New\New Business Process**. Add a few transactions and save the Business process file (*.ves).

2. Close the Network Editor.

3. In the vCat > Define Test area 'Time Transactions' click the arrow to open the Transactions panel. Select the new business process, it will look similar to this:

Note: Enable packet capture.

4. Click the stop watch to start the network emulation.

5. For each transaction in the business process:

    a. Click Start Transaction.

    b. With the mobile device, perform the transaction.

    c. Click Stop Transaction.

Conducting Analysis

These options breakdown the original captured packet list to packet lists (PCAP) files specific for each transaction and then use the new Shunra Analysis capabilities to analyze each transaction. To view the results:

1. Open the Shunra Reporter to see the transaction details that were captured in vCat.

2. For in-depth results, the vCat Analytics must be installed. From the toolbar, click the **Create Analysis** button.

3. In the Analysis Parameters window:

    - In the Analysis Type select **HTTP**

    - Select Deep Analysis

    - Select Export packet lists of individual transactions

4. Click **OK** and wait for the analysis to finish, and then view the results.

5. To view the Deep HTTP Analysis results, wait until the Deep Analysis button is enabled.

6. Click the Deep Analysis button, which opens the results window. The left side displays the list of the transactions. The right side displays detailed analysis of a selected transcation.

Two reports are available:

Waterfall Report

This report shows all HTTP requests and responses that were sent and received by the transaction. For each request, the request, wait and response times are shown.

Select a request and see the request/response headers and the content that was sent. In the request below, the application took nearly a full second to reply. The exact request parameters are provided in the report to be able to easily pinpoint the reason for this delay.
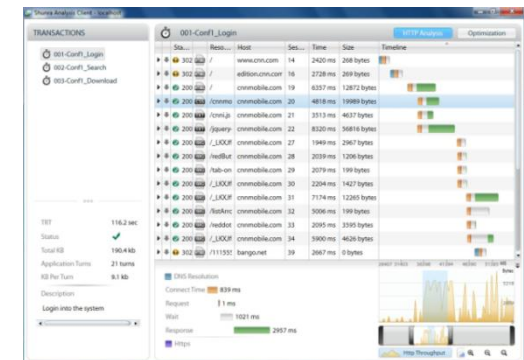
Optimization Report

Provides data about how the transaction compares to best practice rules common in the industry, as well as mobile specific best pratice rules developed by Shunra. Each rule provides a score and an explanation of the rating, and recommendations regarding how to improve the score. Following these optimization guidelines can significantly lower the transaction response time.