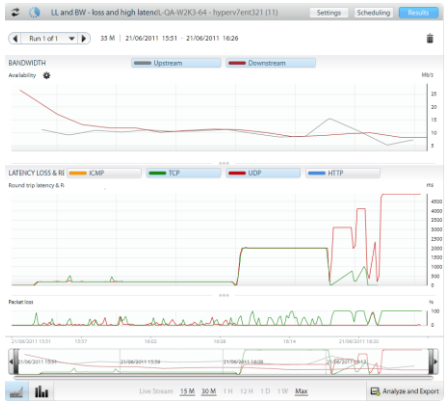
NetworkCatcher v7.0

Shunra's NetworkCatcher records actual network conditions, enabling the import of the data into a virtual network model to recreate production conditions. This data is used to accurately assess and analyze the performance of distributed applications using Shunra's technology. NetworkCatcher:

- Records conditions to and from multiple locations simultaneously for WAN, Web, Mobile and Cloud networks for up to one month.
- Includes pre-recorded network profiles for emulating typical mobile and broadband network conditions between major global cities.
- Measures network conditions such as latency, packet loss, bandwidth availability across any given network topology.
- Isolates best, worst and average conditions over a given time period and exports the results to one of Shunra's emulation products.
- Secure communication can be used for any peerless or peer-based measurement to a reachable Agent.



For complete instructions refer to the NetworkCatcher Manual.

Installing NetworkCatcher Server

Prerequisites:

- Internet Information Services (IIS); for IIS 7.0, ensure that IIS 6.0 Metabase Compatibility is enabled
- Windows Process Activation Service

Refer to the Microsoft Knowledgebase for instructions
http://msdn.microsoft.com/en-us/library/aa967729.aspx
Ensure that the following are selected (may vary according to the operating system):

- ASP.NET and HTTP support

The following components will be installed as part of the installation if they are not already installed on your machine:

- MySQL 5.1
- Microsoft .NET Framework 4.0 Full Microsoft Visual C++ 2005 SP1 Redistributable Package
- WinPcap 4.1.2
- Dynamic IIS Content Compression

System Requirements

The minimum requirements for the Network Catcher Server (includes Web Server and Agent components):

Processor: 1.3 GHz (32 bit or 64 bit)
Memory: 2 GB RAM
Free Hard Disk Space: 100 GB of free disk space (includes space for recordings)
Network Adapter: Ethernet, Network Interface Card, Wi-Fi, Cellular Cards, Virtual NICs
Browser (higher versions supported)**:** Internet Explorer 7.0 (32-bit) /Chrome 11/ Firefox 4/ Safari 5
Operating Systems MS Windows (English versions only):

- Server 2003 SP2 (32/64 bit)
- Server 2003 R2 SP2 (32/64 bit)
- Server 2008 SP2 (32/ 64 bit)/ Server 2008 R2 (64-bit)
- Supported screen resolution is 1280x800 and higher with a zoom level of 100%.

Firewall: Open for TCP port 80 and/or 443 (or custom)

To install the NetworkCatcher Server:

- As Administrator, run NC.Server.Setup.exe and follow the instructions in the wizard.

Installing NetworkCatcher Agent

The NetworkCatcher Agent is installed as part of the NetworkCatcher Server, and must be installed on machines that are configured as Source Agents. For peer-based recording, also install the NetworkCatcher Agent on the Target machine.

Prerequisites:

The following components will be installed as part of the installation if they are not already installed on your machine:

- Microsoft .NET Framework 4.0 Full
- Microsoft Visual C++ 2005 SP1 Redistributable package
- WinPcap 4.1.2

System Requirements

The minimum requirements for the Network Catcher Agent are also highly dependent on usage, refer to the Network Catcher Manual before installing:
Processor (light usage only): 1.3 GHz (32 bit or 64 bit)
Memory (light usage only): 1 GB RAM
Free Hard Disk Space: 1 GB of free disk
Network Adapter: Ethernet, Network Interface Card, Wi-Fi, Cellular Cards, Virtual NICs
Operating Systems: MS Windows (English versions only):

- Server 2003 SP2 (32/64 bit), 2003 R2 SP2 (32/64 bit)
- Server 2008 SP2 (32/ 64 bit), Server 2008 R2 (64-bit)
- XP Professional SP3 (32 bit) SP2 (64 bit)
- Windows 7 (32/64 bit)

Firewall: Open for TCP port 80 and/or 443 (for additional settings refer to the NetworkCatcher Manual)

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To install the NetworkCatcher Agent:

- As Administrator, run NC.Agent.Setup.exe file and follow the instructions in the wizard. For instructions regarding Remote Agent Deployment and other installation issues, refer to the NetworkCatcher Manual.

Licensing

The NetworkCatcher comes with a 30 day trial license. To extend or upgrade the license, contact license@shunra.com.

Login

On the first login, use Administrator/Administrator as the user name and password, then change the username and/or password to restrict access.

Creating Endpoints

An Endpoint represents a node in the network, either the Source Endpoint (the location from which you are measuring) or the Target (the destination to which you are measuring). The Source Endpoint must have a NetworkCatcher Agent installed. To conduct peer-based measurements, an agent must be installed on both the Source and Target Endpoints.

To create an Endpoint:

Once an Agent is installed on a machine, it will appear in the UI as an Endpoint; therefore it is recommended not to create an Endpoint before installing the Agent. However, an Administrator can create an Endpoint, refer to the NetworkCatcher Manual.

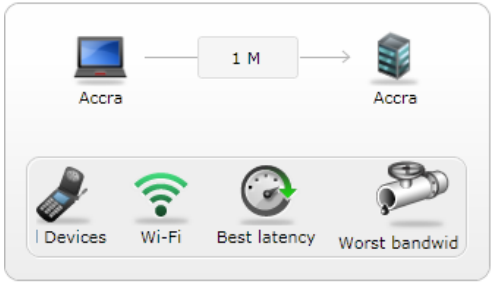
To create a Monitor:

In the Monitors view, click the New Monitor icon, and define the settings. For a description of the metrics refer to the NetworkCatcher Manual. To begin measuring, click the **Run Monitor** button. Up to 25 monitors can run simultaneously (license dependent).

Click **Results** from the Monitors page to display runtime results of the selected monitor; by default the results of the most recent run are shown. You can view data from both current and previous runs.

Using Network Profiles

Network Profiles utilize data from monitors that were recorded by the NetworkCatcher, or from external sources. These recording can be analyzed so that best, worst or typical conditions obtained during the recording period can be isolated. The conditions can be exported in .ntx format to be used in testing emulations, refer to the NetworkCatcher Manual.



Analyzing Data

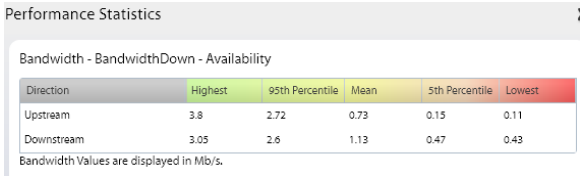
To quickly view specific time periods, select a time period in the Analyze section. For more detailed statistics, select Performance Statistics. By default, the results display Available Bandwidth and Round-trip Latency and Packet Loss. The Mean indicates the geometric mean for the selected period or the entire run; this provides the most representative network conditions. The Highest and Lowest results are also shown, excluding the outermost results (rare occurrences) that can be used to test response time in the best and worst network conditions.

Exporting Data

To conduct a network emulation using your actual network conditions, export recorded data from the NetworkCatcher in an .ntx file. Then, in Shunra's network appliance or desktop applications, import the file and emulate your network conditions with the recording. Refer to the NetworkCatcher Manual for particulars about the export settings.

To export data:

In the Results page, click Analyze and Export below the graphs, and select Export.


Performance Statistics

Bandwidth - BandwidthDown - Availability

Direction	Highest	95th Percentile	Mean	5th Percentile	Lowest
Upstream	3.8	2.72	0.73	0.15	0.11
Downstream	3.05	2.6	1.13	0.47	0.43

Bandwidth Values are displayed in Mb/s.

Setting Schedules

Use the Scheduler to start and end a Monitor's recordings at selected timetables.

To set a Schedule:

1. When defining or editing a Monitor, select the Scheduling button.
2. Define the Start and End Times, Duration and set the recurrence if required.