
AppDancer/FA

How To: Monitor a Web Server SLA

AppDancer Networks, Inc.
1000 Holcomb Woods Pkwy
Suite 426
Roswell, Georgia 30076

770-643-6800 Voice
770-643-8888 Fax
www.appdancer.com

Mark D. Williams
Director of Network Engineering
AppDancer Networks, Inc.



©2002 by AppDancer Networks, Inc.
PROPRIETARY NOTICE

This document contains proprietary and confidential information of AppDancer Networks, Inc. No further use or disclosure is authorized beyond that expressly allowed by AppDancer Networks, Inc.

OVERVIEW

The purpose of this document is to show how to use the AppDancer/FA Portable Flow Analyzer to monitor SLA agreements for Enterprise and Service Provider application servers. First we define what an SLA is, the types of servers that can be measured, how AppDancer/FA monitors an SLA, and then how to configure the SLA monitor in AppDancer/FA. Finally we include two examples of how you would monitor the SLA of a HTTP web server, and a POP e-mail server.

NOTE: The AppDancer/FA product is designed to complement your existing Network Management System. It is NOT designed to replace your existing Network Management System tools. Since it is a portable tool, it can be deployed on a Network Segment to monitor SLA agreements from that specific network segment too any network server or device.

Q: What is an SLA?

A: SLA stands for Service Level Agreement. Application Service providers and Enterprise IT staffs offer SLA's as an incentive for customers to purchase or use their service. An SLA will often guarantee an end user a certain amount of uptime. Since no provider can absolutely guarantee 100% uptime, providers offer a minimum availability level which if not met will result in the customer getting service fee refunds. Of the major Application Service providers, most are offering an SLA guaranteeing between 99.5% - 99.9% per month of uptime. Some SLA's not only guarantee application availability but also suggest average response times. It is often understood that while Application Service providers are likely to reimburse customers if they fail to meet agreed upon levels but no providers are likely to reimburse customers for lost time, revenue and customer goodwill when business cannot be conducted when there is a failure on the Application Service Provider or Enterprise server infrastructure.

Q: What types of Servers can I monitor with AppDancer/FA?

A: AppDancer/FA will monitor the following application servers.

ISP and Enterprise: DNS, FTP, HTTP, POP, SMTP
Microsoft SQL Server
Microsoft Exchange Server
H.323
SIP

Q: How does AppDancer/FA monitor a Server?

A: AppDancer/FA allows the user to configure a REAL application transaction that requires a REAL response from the application server. This level of SLA verification is beyond the simple ICMP-Echo (PING), or Synthetic Transaction. If the AppDancer/FA Flow Analyzer is unable to receive a valid response for the application type (DNS, FTP, HTTP, POP, SMTP, SQL, Exchange, H.323 or SIP), then that attempt is considered a failure and is included in the computation of that SLA for that particular application.

EXAMPLE: MONITORING A WEB SERVER SLA

In this example we have a business-level customer with a T1 circuit and a Cisco 2600 router that has called the Help Desk of an ISP to complain that it is taking 5 to 10 seconds to get to external web sites on the Internet when it was only taking 2 seconds last week. The customer wants to know what changed in his network capacity, and to put the ISP on notice that they are violating their SLA agreement and are requesting a refund for the current month (\$600/month). Also in the agreement the customer is responsible for the CPE equipment not the ISP.

From the ISP perspective, everything is running smoothly, the connection to the customer does not appear to be congested, they are able to ping the WAN interface on the router at the customer location, all Network Management Platforms are showing green, but this customer is still being impacted. WHY?

This is where the SLA monitor in AppDancer/FA is useful. Since this ISP now has a portable tool that he can take to the customer site to verify the SLA violation, troubleshoot the problem, and take whatever steps are necessary to correct the problem. A Network Engineer is dispatched to the customer location with a laptop using AppDancer/FA and a spare router. The customer is notified that if it turns out to be a customer network problem, that they will be billed for the service call at a rate of \$375/hour for time and materials.

Upon arriving on the site, the customer states that they were able to get to www.yahoo.com (66.218.71.80) in 2 seconds the previous week, and all of a sudden, their response times are over 10+ seconds. The first thing to do is get AppDancer/FA on the same network segment as the client workstation that is accessing www.yahoo.com. Once AppDancer/FA is connected the user issues www.yahoo.com from a browser. Quickly the Network Engineer can see the DNS lookup and the HTTP content of the flow in the Application Monitor. The performance seems a little slow, but is the speed really violating the SLA? The Network Engineer switches to “Nodes” view and adds the Yahoo server (66.218.71.80) to the Home Page and starts the SLA monitor. See the example below:

The screenshot shows the AppDancer/FA SLA monitor interface. At the top, there are tabs for Summary, Alarm Log, Alarm Settings, and SLA. Below the tabs is a yellow header bar with a 'Stop' button on the left and a 'Refresh' button on the right. The main content area is divided into several sections:

- Current Status:** Monitor: ● Good: 0 ● Marginal: 0 ● Failed: 0. Service Level Agreement: ● Critical. Last Active Operation Status: OK.
- Connection:** Server Hostname: 66.218.71.80.
- Action:** Page: /.
- Options:** Timeout: 60 seconds. Interval: 600 seconds.
- Monitor Status:** ● Good if response time is less than or equal to 2 seconds. ● Marginal if response time is less than or equal to 5 seconds. ● Failed if other than above conditions.
- Service Level Agreement:** ● Excellent if more than 90.0 % of the monitor status are good. ● Fair if more than 80.0 % of the monitor status are marginal. ● Critical if other than above conditions.

At the bottom of the interface, there is a 'Stop' button.

The Network Engineer will see right away from this screen if the SLA was being violated. After doing some “traceroutes” and device monitoring (see Device Monitoring in the AppDancer/FA Users Guide) with the AppDancer/FA product, it was easy for the Network Engineer to see that the Ethernet side of the Cisco 2600 router was failing and dropping packets. The Network Engineer replaced the Ethernet interface on the Cisco 2600 and verified that the SLA was back to normal levels using the AppDancer/FA SLA monitor. Since the Network Engineer from the ISP was able to prove it was the CPE equipment and not the ISP network backbone causing the delay, the customer received an invoice from the ISP for 1 hour of on-site time and 2 hours of travel for a Network Engineer. Customer received a bill for $\$375/\text{hour} \times 3/\text{hours} = \1125.00 .

The customer went out and promptly bought a copy of AppDancer/FA to do this troubleshooting in the future instead of pointing fingers at the ISP.

CONFIGURING APPDANCER/FA FOR SLA MONITORING

In order to monitor a server using AppDancer/FA, you must first add the server to be monitored to the AppDancer/FA Home Page. In the example below, we will add a Web Server from the Application Monitor to the Home Page.

NOTE: The AppDancer/FA Home Page is a user-constructed custom view of the devices, servers and applications that you want to monitor. For more information the AppDancer/FA Home Page, please consult the AppDancer/FA Users Guide.

In this example, we have AppDancer/FA up and running. We have selected “Application Monitoring->Nodes” and we can see that we have automatically discovered a Web Server at IP address 66.218.71.80. This discovery is based on the data traffic that AppDancer/FA can currently visualize from this segment on the network.

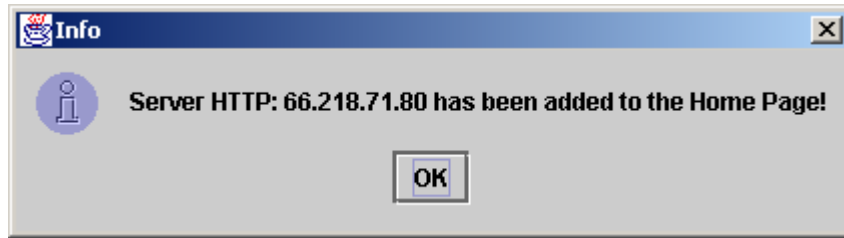
To add the item to your Home Page, perform the following steps:

1. Open the “HTTP – Web” Folder.
2. Select the HTTP server that you want to add to the Home Page from the list of servers. In this case, there is only one server.

The screenshot shows the AppDancer Networks software interface. The main window displays the 'Nodes' tab, where a server named 'HTTP: 66.218.71.80' is selected. The server's status is shown as 'Query failed', 'No response', and 'Server error'. The utilization is 100%. Below the server status, there are two graphs: 'Hits' and 'Pages', both showing 0. The interface also includes a 'Summary' tab with a table of server and HTTP statistics.

Application host		Server statistics		HTTP statistics	
Host name	66.218.71.80	Query failed		0 Get	1
IP address	66.218.71.80	No response		0 Post	0
Port	80	Avg. TCP connection time	0.071053	Hit	1
Type		Min TCP connection time	0.071053	Page	1
Version		Max TCP connection time	0.071053	Internal error	0
Errors	0	Avg. first byte download time	0.169646	Not implemented	0
Utilization	0%	Min first byte download time	0.169646	Bad gateway	0
Frames	38	Max first byte download time	0.169646	Service unavallable	0
Bytes	30260			Gateway timeout	0
				Version not support	0

3. Select the “Home” button on the upper-left hand side of the screen (under the AppDancer/FA logo).
4. You should receive a response similar to the following:

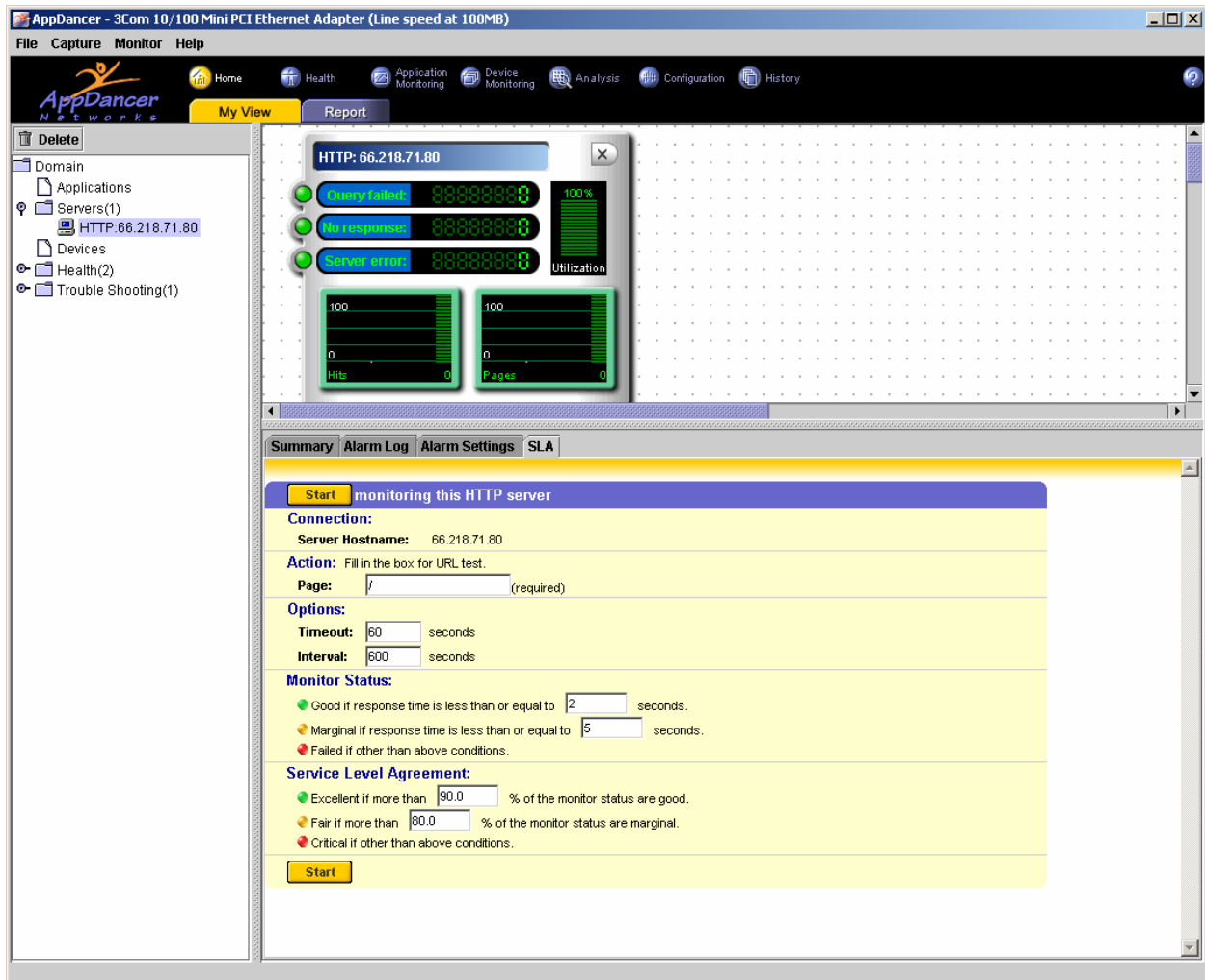


Once a server has been added to the Home Page, select the “Home->My View” from the menu bar at the top of the screen.

1. Open the “Servers” Folder. The server was added in the previous steps should be located in this folder.
2. Select the server from a list of servers. In this case, there should be only one unless you have added other servers.
3. Your view should be similar to the following:

Application host		Server statistics		HTTP statistics	
Host name	66.218.71.80	Query failed	0	Get	1
IP address	66.218.71.80	No response	0	Post	0
Port	80	Avg. TCP connection time	0.071053	Hit	1
Type		Min TCP connection time	0.071053	Page	1
Version		Max TCP connection time	0.071053	Internal error	0
Errors	0	Avg. first byte download time	0.169646	Not implemented	0
Utilization	0%	Min first byte download time	0.169646	Bad gateway	0
Frames	38	Max first byte download time	0.169646	Service unavailable	0
Bytes	30260			Gateway timeout	0
				Version not support	0

4. Notice in the lower-right panel of the screen, there is now an SLA tab. Select this tab.
5. Your screen should now look similar to the following:



In the SLA Window, you should now see the basic SLA monitoring items that are associated with an HTTP application.

NOTE: Look at the “action” section of the SLA monitor. This “action” will be different for each application server that you are running through the SLA monitor.

For example, if you were monitoring a POP server, you would specify a “Username” and a “Password” in the “action” section of the SLA monitor.

The SLA monitor consists of the following fields:

Connection: This is the server name and/or IP address.

Action: The field is where you enter in your application server specific data. Each application protocol has its own “action”.

Options: This is where you specify the timeout and polling interval for the application.

Monitor Status: This is where you decide what response time is considered good, marginal, or failed.

Service Level Agreement (SLA): This is where you decide your percentages that affect the overall of performance or lack of performance of the application and network infrastructures.

Start Button: Start the SLA Monitor – Send alerts if SLA is violated.

Stop Button: Stop the SLA Monitor.

Refresh: Refresh the status of the SLA monitor.

If you want to change the defaults for the SLA monitor, you can adjust these settings in the Configuration section of the AppDancer/FA product.

1. Select “Configuration->Global Settings->Service Level Agreement”.
2. The screen should be similar to the following:

