Chapter 1

NARUS Intelligence for Broadband and the NARUS System

This chapter provides an overview of the NARUS IBI Platform and NARUS Intelligence for Broadband (NI for Broadband) system. The NARUS IBI Platform consists of a combination of hardware and software that captures customer usage data either directly from the network, from log files, or from other collection devices. NI for Broadband processes this collected data using intelligence modules in the form of RuleSets to create reports that describe network usage. .

This chapter contains the following sections:

NI for Broadband and the NARUS IBI Platform

To analyze network traffic, NI for Broadband works with the NARUS IBI System, which is comprised of passive network data collection subsystems called Analyzers. The NARUS Analyzers, which include NARUS NMQL Virtual Analyzers, gather and send network information to the NARUS LogicServers that, in turn, filter, aggregate and transform the data into IP detail records (IPDRs).

Once they are loaded into the NI for Broadband application, these IPDRs allow the Broadband application to process queries and produce reports that contain

information, such as web usage statistics on URLs, HTTP status codes, machine usage on storage, and process statistics.

This section describes the NARUS IBI System in more detail:

NARUS IBI System

The NARUS IBI System is comprised of the NARUS Platform and the NARUS applications. The NARUS Platform uses the patented Semantic Traffic Analysis (STA) technology, which provides real-time visibility into network activities. NI for Broadband, operating on top of the NARUS Semantics Platform, produces customizable activity reports using network usage data.

NARUS STA detects all IP data streams and determines the semantics of those data streams: the protocol, the application or use within the protocol, and the end user's pattern of use within each application or the application context.

NARUS Platform and Its Components

NI for Broadband runs on the NARUS Platform, which remotely monitors, analyzes, and captures, without degrading network performance, the semantics of high-speed data streams.

NARUS Virtual Analyzer

The NARUS Virtual Analyzer collects data from log files, SNMP, NetFlow, and other sources. The information is then fed to a NARUS LogicServer, typically via a Messenger.

NARUS Analyzer

An Analyzer collects data from a network using Semantic Traffic Analysis (STA). Generally, a NARUS system deploys multiple Analyzers to diverse locations, in order to gather as much useful data as possible. The Analyzer software listens to the network and transmits traffic information such as the source and target of a network transmission to the messenger. The Analyzer is capable of detecting IP (UDP and TCP) and non-IP (ICMP,ARP,SNA,andIPX,for example) network traffic.

NARUS RuleSet

A RuleSet is a set of rules that determines how the raw transaction data from the Messenger will be analyzed and aggregated. RuleSets are application-specific components (for example, NI for Broadband has one set of RuleSets and NARUS BMS has another). A RuleSet must be bound to a LogicServer to be used. New RuleSets can be created and modified using the NARUS SDK product. For more information, refer to the *NARUS SDK Developer Guide*.

NARUS LogicServer

A LogicServer, using a RuleSet, analyzes and condenses the information coming in from Analyzers and Virtual Analyzers and passes it on to a NARUS application. The NARUS Management Console allows users to configure and control LogicServers remotely.

NARUS DB Loaders

NARUS Data Loaders deliver the data from the LogicServer to the desired consumer. The default NI for Hosting delivery method is to write the data to a flat file in a specific directory. Data Loaders provide an alternate delivery method, such as moving the data into the database.

NARUS Archive

The Archive stores a database containing intelligence data from the LogicServer. The ArchiveLoader data loader transfers the data from the LogicServer to the Archive. User views are available for data stored in the Archive. The fields in the user view for each service are identical to the fields in the output records for that service. The tables in the specific RuleSet chapters give the layout of each output record. It is possible to install and schedule arbitrary queries against the Archive. The Archive Query supports queries for percentile computation for

different RuleSets. It also has a clean-up script to clean the Archive database of old IPDRs. For more information on the NARUS Archive, refer to the *NARUS IBI Platform Installation and Administration Guide Version 2.6*.

Figure 1-1 diagrams the interrelationships of NARUS Platform components and NI for Broadband.

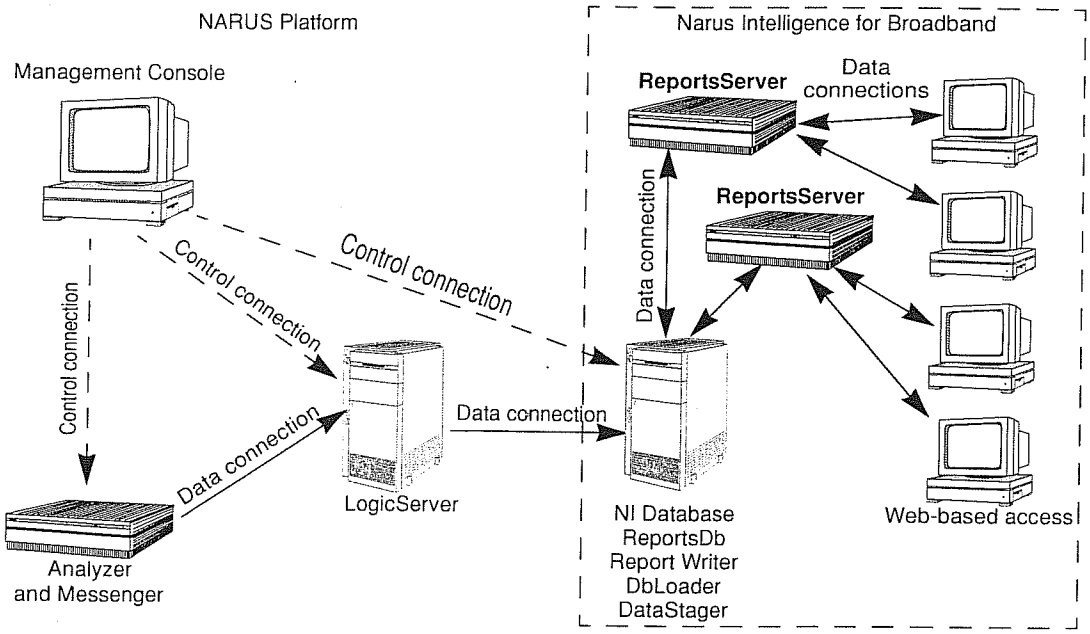

Figure 1-1 NARUS Platform and NI for Broadband

For more information on the NARUS Platform, see the *NARUS Platform Installation and Administration Guide*.

NI Interface

The NI interface is an interactive Web application that allows you to easily choose reports from a tree view or search titles by keyword. Reports are grouped into folders, enabling you to find and view reports easily.

For the Web address to your NARUS Web Interface, consult your NARUS representative or systems administrator. You will also need a user ID to log in.

For more information about the NARUS Reports Web application, consult the NARUS Web Interface Help, accessible from the Help link on the Reports Explorer of the NARUS Reports Web interface, which is explained later in this chapter.The NI interface is an interactive Web application that allows you to easily choose reports from a tree view or search titles by keyword. Reports are grouped into folders so you can quickly find the type of report you want to see.

NI Output

NI retrieves data using reports that examine data service utilization and subscriber behavior. The reports are pre configured queries that generate specific results. NI allows users to refine report results; for example, users can modify a report's reporting period, or view the data from a single Analyzer.

The reports are available in the browser window. NI creates reports in the form of charts, graphs, or tables, which also include text describing their content.

The *Narus Intelligence for Broadband User Guide* contains detailed instructions for running NI reports.

NARUS Management System

The NARUS Management System is designed for managing NI for Broadband and NARUS Platform components. The NARUS Management System configures, maintains, and troubleshoots the NARUS Platform and its applications, and ensures that system components are functional and that system connections are sound. Users can use the NARUS Management System to tailor the system's output by changing the participating components, for example, adding and removing Analyzers.

The NARUS Management System performs operations on remote devices. Due to network congestion, sometimes operations might not return a response within a timeout period (such as 30 seconds). In this case, the NARUS Management System times out, leaving the command in a partially completed state. In such an event, apply the command again.

The NARUS Management System components are described in these subsections:

- "NARUS Manager" on page 6
- "NARUS Management Console" on page 7

Note: The NARUS Management System performs operations on remote devices. Due to network congestion, operations, at times, might not return a response within a timeout period (such as 30 seconds). In this case, the NARUS Management System times out, leaving the command in a partially completed state. In such an event, apply the command again.

NARUS Manager

The NARUS Manager stores configuration data that is related to the NARUS Platform and application components including network parameters (port number, IP address, and so on) and the connection relationships between them. In addition, the NARUS Management Console records user requests, alarms, and other system health parameters for the NARUS IBI System.

NARUS Management Console

The NARUS Management Console has two interfaces, a graphical user interface (GUI) and a command line interface. This Console also has another view called the Audit Trail, which is shown in Figure 1-3.

The Management Console GUI has four panes, as shown in Figure 1-2.

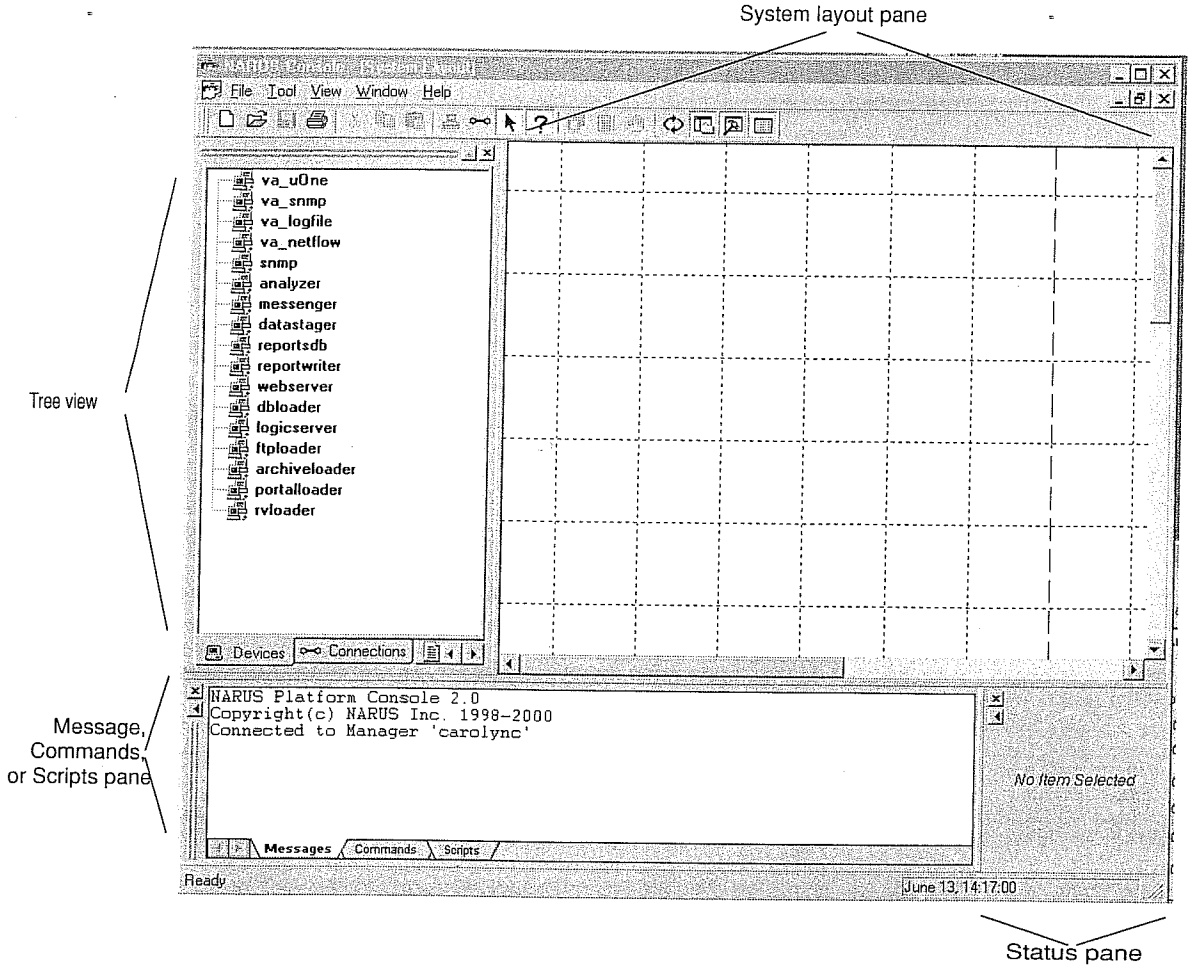

Figure 1-2 NARUS Management Console GUI

The contents of the four panes follows:

- The tree view at the upper left displays NARUS Platform components (for example, Analyzers and LogicServers), and Application components (for example, DataServer and ReportsDb) in folders. To view listed items, simply click on the + sign to expand the folder.
- The system layout pane at the upper right displays relationships and data flows between system components with lines.
- The status pane at the lower right displays device status for the device that is selected in the system layout pane.

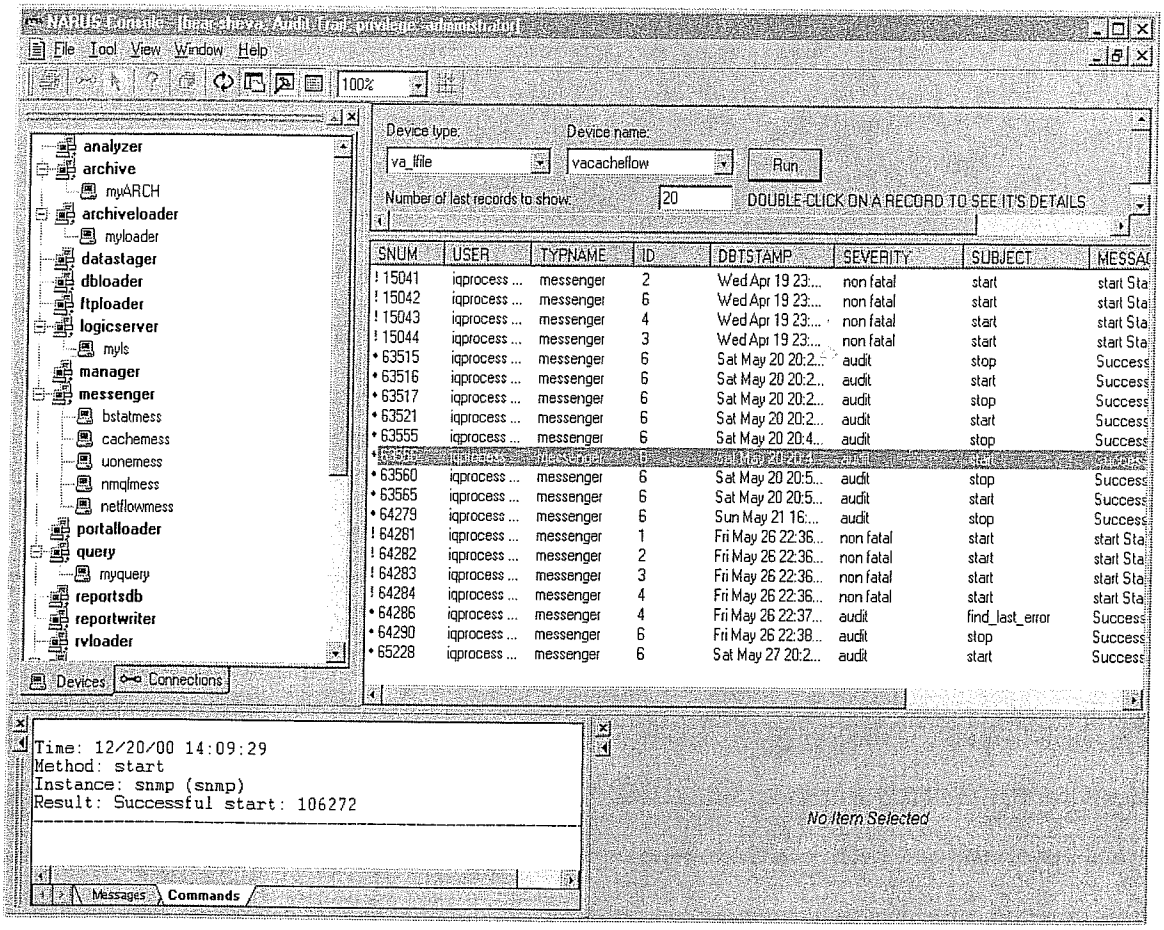

Figure 1-3 View of the Audit Trail in the Management Console

The Audit Trail pane tracks actions performed on any NARUS component by any end user. All events are recorded as Health Monitor errors of differing severity.

The Audit Trail pane allows you to sort and filter events based on:

- Last N entries (up to 500)
- Device type
- Device
- Severity level
- Source (end use, health monitor, or Controller server)

Double clicking on one of the entries in the list pops up a box with additional information about the event.

The Audit Trail pane occupies the same area on the Console as the System Layout pane. Both pane can appear simultaneously or one can fill the entire area. If one fills the entire area, you can display the other by selecting Window>narus: Audit Trail, or Window>narus:System Layout.

The Audit Trail pane only tracks those commands that reach the Manager's backend. For example, a failed attempt at grouping a set of devices is not reflected in the audit trail. Also, if you attempt to execute commands based on FTP (edit_ruleset_config for logicserver) and the FTP client for the console is not configured correctly, that error is not reflected in the audit trail.

For more information on features of this window, see the *NARUS Platform Installation and Administration Guide.*

NI for Broadband Components

NI for Broadband consists of the following components:

- The NI RuleSet, a set of rules that runs on the LogicServer, determines how the raw network data (STA events) from the Analyzer is analyzed and aggregated for NI.
- DbLoader loads the data gathered and processed by the NARUS Platform on to the DataStager for further processing.

DbLoader is represented in the system layout pane of the NARUS Management Console by the icon.

- DataStager (default name NAGG) processes and aggregates data that is then passed on to the ReportsDb.

  The DataStager icon is

- ReportsDb (default name NINT) is the repository for the transformed output.

  The NI ReportsDb icon is

- ReportWriter formats database reports into HTML for Web browsing.

  The ReportWriter icon is

- ReportsServer authenticates end-user logins; its icon is

- Web application is a graphical user interface that displays the formatted reports.

Information on the use of these components is in Chapter 3, "Creating and Configuring Instances of NI for Broadband Components."

Logging In to the NARUS Management Console

After NI is installed, launch the NARUS Management Console and click **Login**. The login dialog box appears, as shown in Figure 1-4.

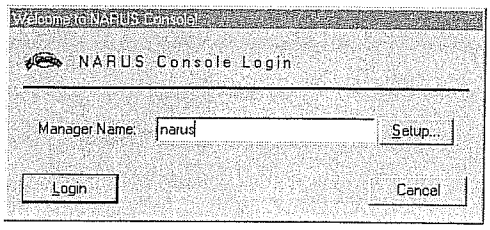

Figure 1-4 NARUS Management Console Login Screen

Enter a valid manager name and click **Login**. The Management Console window appears, as shown in Figure 1-2 in Chapter 1.

For detailed information about using the NARUS Management Console, and its use in managing NARUS Platform components, please consult the *NARUS Platform Installation and Administration Guide*.