# Cisco Configuration Assurance Solution Reference
# Master Glossary

Software Release 11.0

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*Cisco Configuration Assurance Solution*
*Reference*
*Master Glossary*

# Copyright

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# Documentation Conventions

OPNET documentation uses specific formatting and typographic conventions to present the following types of information:

- Objects, examples, and system I/O
- Object hierarchies, notes, and warnings
- Computer commands
- Lists and procedures

## Objects, Examples, and System I/O

- Directory paths and file names are in plain Courier typeface:

  `opnet\release\models\std\ip`

- Function names in body text are in italics:

  *op_dist_outcome()*

- The names of functions of interest in example code are in bolded Courier typeface:

```
/* determine the object ID of packet's creation module */
src_mod_objid = op_pk_creation_mod_get (pkptr);
```

- Variables are enclosed in angle brackets (< >):

  `<opnet_user_home>/op_admin/err_log`

## Object Hierarchies, Notes, and Warnings

Menu hierarchies are indicated by right angle brackets (>); for example:

Open File > Print Setup > Properties...

Attribute hierarchies are represented by angled arrows (◢) that indicate that you must drill down to a lower level of the hierarchy:

Attribute level 1 ➘ Attribute level 2 ➘ Attribute level 3

**Note—**Notes are indicated by text with the word Note at the beginning of the paragraph. Notes advise you of important supplementary information.

**WARNING—**Warnings are indicated by text with the word WARNING at the beginning of the paragraph. Warnings advise you of vital information about an operation or system behavior.

## Computer Commands

These conventions apply to Windows systems and navigation methods that use the standard graphical-user-interface (GUI) terminology such as click, drag, and dialog box.

- Key combinations appear in the form "press **<button>+x**"; this means press the **<button>** and **x** keys *at the same time* to do the operation.
- The mouse operations *left-click* (or *click*) and *right-click* indicate that you should press the left mouse button or right mouse button, respectively.

## Lists and Procedures

Information is often itemized in bulleted (unordered) or numbered (ordered) lists:

- In bulleted lists, the sequence of items is not important.
- In numbered lists, the sequence of items is important.

Procedures are contained within procedure headings and footings that indicate the start and end of the procedure. Each step of a procedure is numbered to indicate the sequence in which you should do the steps. A step may be followed by a description of the results of that step; such descriptions are preceded by an arrow.

**Procedure FM-1 Sample Procedure Format**

**1** Procedure step.

➥ Result of the procedure step.

**2** Procedure step.

**End of Procedure FM-1**

For more information about using and maintaining OPNET documentation, see the OPNET IT Sentinel Documentation Guide.

# Master Glossary

## #

**3D model mapping file** A file used by the 3D Network Visualizer to map entities and aggregates to 3D models.

**3D Logger** An add-on module for the 3D Animation Viewer that enables users to record and play back three-dimensional animations.

**3D Network Visualizer** Add-on product module for viewing three-dimensional animations of network models and simulation results.

## *A*

**abscissa** The x value of a data set for a graph entry. *Compare* ordinate.

**abscissa axis** The horizontal or x axis of a graph. *Compare* ordinate axis.

**ACE Decode Module** An add-on module that enables ACE to decode over 400 types of applications and perform transaction analysis.

**administration directory** A directory (<*HOME*>/op_admin) that contains configuration information and files specific to an individual Guru user.

**advanced model** A fundamental node or link model that has not been derived from any other model. *Compare* derived model.

**aggregate** A set of entities that appears as one object in the 3D Animation Viewer. *See also* entity.

**analysis configuration** A collection of analysis panels saved as a group.

**analysis panel** A panel created to display simulation results. An analysis panel contains one or more graphs in which statistics are drawn.

**animation flow** The sequence of animation data generated by a simulation run.

**animation history file** A file that stores an animation flow.

**animation request** The smallest unit of animation data. An animation request is associated with a single simulation time, a single simulation event, and a single source (such as a single process) within the simulation.

**AppDoctor** An ACE utility that you can use to pinpoint bottlenecks in your application, view statistics about network and application performance, and see the relative components of application and network delay in the total response time.

**application** A software product (such as e-mail, FTP and HTTP) that is used to do a task.

**application architecture** The structure used to implement an application. For example, an FTP application may be implemented according to a client-server architecture, where the client requests a file and the server responds with the file.

**application capture agent** See capture agent.

**Application Capture Manager** The ACE window for capturing application traffic on a network.

**application message** An application-layer message sent from one tier to another. A message might be transmitted in one or more network packets.

**Application Message Chart** A Data Exchange Chart that filters out network information and shows a task from a application-layer perspective.

**application task characterization** The primary ACE file type, which contains the high-level information about an application transaction. Also called *ACE task*, *application task* or *task*. An application task describes a single application transaction.

**application transaction** In the context of ACE, an “application transaction” is the entire set of application traffic exchanged to complete a user-level task. Thus an FTP download transaction consists of all traffic from the transmission of the first GET message to the arrival of the ACK message for the last data packet.

In some cases an application transaction can contain smaller transactions. For example, a web page download over HTTP might include the download of several image files. In this case, each separate file download could be considered a component transaction of the web page download.

**attribute** A data item that informs users about the characteristics of an object. The user may then modify these characteristics for specific applications.

**attribute promotion** The process of passing an object attribute upward in the modeling hierarchy. Promotion allows you to assign a value to an attribute at a higher level in the model (for example, at simulation run time rather than during network specification).

**attribute property** The restrictions or options of possible values for an attribute. Attribute properties include the default value, units, data type, symbol maps, and descriptive comments for the attribute.

**attribute template** A custom set of object types, attributes, column headings, and so on that is used to generate tables of attribute values for a network. These tables can be used to edit attribute values, create custom reports, or view attribute values in real time.

## *B*

**bar** A draw style that displays a trace by plotting each entry as a filled rectangle extending vertically from the horizontal axis to the vertical value and horizontally from the horizontal value of the entry to that of the next entry.

**bar-chart** A draw style that displays a trace by plotting a vertical bar from the horizontal axis to the vertical value.

**base name** The name of a file, not including the path name or file type suffix.

**BER** *See* bit error rate.

**bit error rate** The probability of a bit being received incorrectly. For example, with a bit error rate of 0.01, an average 100-bit packet will experience 1 bit error.

**black box** A system in which the inputs and outputs are known, but the internal processes are not.

**built-in attribute** An attribute that is intrinsic to a Guru object's core definition and is considered fundamental for that type of object.

**bulk data size** The base size value assigned to a packet by the user. This value is added to the sizes of all the packet's fields to determine the overall packet size.

**bus link** An object representing one or more shared communication channels connecting a limited set of nodes to one another. Each channel is shared by one or more transmitters or receivers (or both). Bus links typically represent local area networks, computer buses, and other types of links.

**bus tap** A network element used to connect fixed nodes to bus links. Usually bus taps are set to allow packets to flow in both directions between the bus and the node.

# C

**capture agent** A process or daemon for capturing traffic data on a local or a remote host. Also known as a *sniffer* or *protocol analyzer*.

**capture file** A traffic data file created by a capture agent. A capture file contains the raw traffic data. This file is imported into ACE to create the application task characterization (.atc.m) file, and is also used to show the detailed protocol decodes in ACE. Also known as a *packet trace file* or an *application capture file*.

**child** An object contained within another or based upon another. For example, a node is the child of the subnetwork that encompasses it and a derived model is the child of the model it is derived from. *Compare* parent.

**client workstation** A workstation used to execute Guru programs. Each client workstation must have access to the OPNET directory, either on its local disk, on a server disk, or via the Network Filesystem (NFS).

**cluster** A logical subdivision of a wireless domain. Nodes within a cluster are assumed to have identical characteristics—such as path loss—with respect to nodes in other clusters of the domain.

**CML** *See* custom model list.

**collision** A conflict that causes loss of data. A collision occurs on a bus link if two or more packets arrive at the same bus receiver on the same channel at the same time.

**communication channel** An individual information path between a transmitter in one node and a receiver in another. One or more communication channels between the same nodes compose a link.

**compound attribute** An attribute that contains hierarchical data composed of an array of one or more objects, as specified by the attribute's count.

**compound attribute object** The value of a compound attribute.

**connection** A demand object used to represent logical connectivity or a reservation of resources in the network. *See also* demand.

**consistent link** A point-to-point link or a bus tap whose physical transmitting and receiving characteristics match those of the nodes or modules they are connecting. Consistency is determined by examining the **`data rate`** and **`packet format`** attributes of both the links and the nodes.

**contributed model** A model that an OPNET user provides to the user community at no charge. These models are not maintained by OPNET Technologies, Inc. but can be downloaded from or uploaded to the Support Center website.

**custom model list** A user-defined list of models to be displayed in the object palette.

## *D*

**daemon process** A process that is continually running on the server, even when all users are logged out. A daemon process is called a “service” under Windows.

**Data Exchange Chart** An ACE window that shows the flow of traffic between tiers from the start to the end of the application task. See also Application Message Chart and Network Packet Chart.

**default directory** A specific directory in the file system, one of those listed in the mod_dirs preference. OPNET checks the default directory first when it tries to locate a model and uses it to store newly created models. Until changed by the user, the default directory is the first directory listed in the mod_dirs preference.

**delay** The communication delay over different types of links, due to distance. For point-to-point links, the delay is usually a constant, while the delay for bus links is measured per unit-distance.

**demand** Generic term for an OPNET object most often used to specify a demand for network resources. Demands come in two general types: connections and flows. *See* connection and flow.

**dependency** In ACE, a visual representation of the delay time and causal relationship between two sequential messages at the same tier. In the Application Message Chart, a dependency appears as two lines that connect the arrival of the first message and the transmission of the second message.

**dependent variable** A variable whose value depends on that of another variable. Dependent variables are generally plotted against the ordinate (y) axis of a graph. *Compare* independent variable.

**derived model** A model created by modifying the attributes of an existing node or link model (which can be either an advanced or another derived model).

**destination node** The node which receives data.

**discrete** A draw style that displays a statistic by plotting each entry as a discrete point.

**discrete traffic** See explicit traffic.

**division** A view property that specifies the number of units between each grid line in the Project Editor workspace.

**draw style** The method used to display a statistic in its graph. Statistics can use one of five draw styles: linear, discrete, bar, bar-chart, sample-hold, and square-wave.

**duplex link** A link in which information travels in both directions, from transmitters in each node or subnetwork to receivers in the other. *Compare* simplex link.

**dynamic environment attribute** A global preference that Sentinel can access as needed during program execution, and which can be updated during a single Sentinel session. Compare standard model.

## *E*

**editor** An environment that supports a particular group of related operations.

**editor environment** The area within a program window. The primary components of an editor environment are the editor windows (workspace), the menu and button bars, and the information displays.

**editor window** A window in which editor-specific operations are performed.

**Encapsulated PostScript Interchange** A graphics format used for some bitmap files in Guru. Files in this format receive the file name suffix ".eps" and are spooled automatically. *See also* pop-up menu.

**end-of-trace entry** A "place-holder" entry added at the end of a trace when the final vertical value does not correspond to the final (end-of-simulation) horizontal value.

**end-to-end delay** The total delay time of a packet, as defined by the model developer. Usually end-to-end delay is the period between when a packet is sent from the source node and received by the destination node.

**entity** A 3DNV animation element that represents a network object (such as a plane, ship, or truck). Every entity is based on a node in the corresponding OPNET scenario.

**entry** A data point of a statistic comprising two real numbers.

**environment attribute.** *See* preference.

**environment database** A text file that serves as a “preference file” for Guru programs. Environment attributes can be saved in the environment database to be applied automatically when a program is started.

**epilogue handler** The epilogue handler allows NetDoctor rule developers to run Python code after all the rules have finished executing.

**EPSI** *See* Encapsulated PostScript Interchange.

**error correction** The act of correcting bit errors in packets so that packets which would have been dropped due to bit errors are accepted.

**ETE** End to end, as in end-to-end delay.

**event** A discrete point in a simulation at which the state of the model can change.

**example model** A standard Guru model that is specific to a particular application area and can be used as a guide for developing new models.

**execution permit.** The right to use a licensed application on one workstation at any given time. Each execution permit is identified by three attributes: a license number, a program name, and a status.

**explicit traffic** Packet-by-packet traffic, in which a discrete event simulation models each packet-related event (packet created, packet queued, packet transmitted, etc.) that occurs during the simulation. Also called *discrete traffic*.

**extended attribute** An attribute that can be appended to an already existing model attribute list.

**extent** The area on a grid map encompassed by a subnetwork. The extent specifies the location and size of a subnetwork and contains a coordinate system for locating the objects composing the subnetwork.

## *F*

**filter handler** During the NetDoctor run, the filter handler creates a list of all objects in the network that match the object type of the NetDoctor rule. The filter function passes each object. The filter evaluates whether the object should be considered by the rule test handler.

**fixed node** The basic node object used to build network models. Fixed nodes may be assigned any location, but during simulation their position may not change.

**fixed subnetwork** A subnetwork that cannot change its geographical position during a simulation.

**flow** Demand object most often used to represent a flow of traffic. *See also* traffic flowand demand.

**formatted objects** Formatted objects are used for NetDoctor reporting. Examples of formatted objects are the report entries created by the verification rules and the results displayed by the summary rules

## *G*

**GDF** *See* general data file.

**geocentric coordinate system** A three-dimensional Cartesian coordinate system where the origin is at the center of the earth.

**geographic positioning mode** A view option which specifies that the Project Editor shows all network objects according to their geographic position. *Compare* nongeographic positioning mode.

**general data file** An ASCII text file typically used to store user-input simulation information such as routing tables, address translation tables, and time-ordered scenarios. GDFs are stored in the model directories with a ".gdf" file name suffix.

**GIF** *See* Graphics Interchange Format.

**global coordinate system** A coordinate system in which an object's position is described by latitude, longitude, and altitude.

**global ETE Delay** The end-to-end delay of data packets received at all nodes of a particular type in the network. Global ETE Delay is measured from the time a packet is sent from the source node to the time it is received by the destination node.

**global offered load** The average rate of traffic submitted by all source nodes of a particular type. The global offered load is calculated by taking the total bits submitted by all the source nodes and dividing by the current simulation time.

**global state** NetDoctor maintains a persistent Python dictionary that can be accessed from all rule handlers. It serves as a global data exchange for the rule handlers.

**global statistic** A statistic that can be shared across the system model.

**global subnetwork** The highest level subnetwork in the network hierarchy. This subnetwork does not have a parent object, and other subnetworks may be created or interconnected within this top level or within other subnetworks.

**global throughput** The average rate of traffic received by all destination nodes of a particular type. The global throughput is calculated by adding the total bits received by all the destination nodes and dividing by the current simulation time.

**graph** An area in an analysis panel that contains one or more traces. All graphs in an analysis panel share the same horizontal axis, but can have different vertical axes.

**Graphics Interchange Format** A graphics format used for some bitmap files in Guru. Files in this format receive the file name suffix ".gif".

**group handler** During the NetDoctor run, the group handler classifies network objects into groups based on rule criteria. The group handler creates a unique name to identify each group and it creates a list for each group of objects. It places each list into the Python dictionary with the unique name serving as the key. The group handler evaluates whether the group should be considered by the rule test handler.

## *H*

**host** The machine that is running Guru.

**hotlink** A hypertext link from an external report to an object in the OPNET workspace (such as a node, demand, or link object). Often used to find and select objects in the workspace that are referenced in web reports or results tables

## *I*

**inconsistent link** A point-to-point link or a bus tap whose physical transmitting and receiving characteristics do not match those of the nodes or modules they are connecting. The Verify Links operation in the Project Editor can be used to determine if there are any inconsistent links in a network.

**independent variable** A variable that is either treated as a system input parameter or is considered to be varied intentionally. Independent variables are generally plotted against the horizontal (x) axis of a graph. *Compare* demand.

**insertion point** A vertical bar cursor used in text edit pads and text entry areas to indicate where typed or pasted text will be placed.

**interarrival time** The time between successive packet arrivals.

## K

**keyword** A word used to describe a model. Keywords allow you to control which models are included in the object palette and in certain lists of models.

## L

**linear** A draw style that displays a trace by plotting line segments connecting each entry to its adjacent entries.

**link** An object representing one or more communication channels between a source node and a destination node. Guru supports two general types of links: point-to-point and bus.

**link consistency** The compatibility of a link with the nodes it connects. Both point-to-point links and bus taps can be checked for consistency in Guru.

## M

**manual merge** The process of merging two or more capture files when ACE cannot merge them automatically. To manually merge two capture files, you must specify the time offset between the two capture start times.

**message display** An area in the lower right corner of the editor environment used to display messages about system errors, operation status, and other program-level information.

**mobile node** A node that can be assigned predefined trajectories that specify their positions as a function of time throughout a simulation run. Mobile nodes are available only with the Wireless module.

**mobile site** A generic term for any object that can move during a simulation: mobile node, mobile subnetwork, satellite node, and satellite subnetwork.

**mobile subnetwork** A subnetwork that can be assigned predefined trajectories that specify their positions as a function of time throughout a simulation run. Mobile subnetworks are available only with the Wireless module.

**model** Specifies the behavior, structure, and interface of an object. Some model formats are implicit and cannot be changed, while others allow extensive customizing via model attributes.

**model directory** A directory that contains Guru model files. If the directory is listed in the mod_dirs environment attribute, then Guru programs will use the models in that directory.

**multi-tier correlation** A procedure for filtering an ACE task of a transaction captured in a production environment. The aim is to filter extraneous traffic from the task, so that only relevant traffic is included. This feature is useful when you want to diagnose your production environment and how it affects your applications.

## *N*

**network** A system described in terms of subnetworks, nodes, links, and geographical context.

**network difference report** A report that compares two network scenarios and reports on the objects and attribute settings that differ between the scenarios.

**Network Packet Chart** A Data Exchange Chart that shows a task from a network-layer perspective.

**network view** A predefined set of visualization settings.

**node** An object representing a physical site or device that can transmit or receive information. Nodes correspond to real-world computing and communication equipment such as routers, bridges, workstations, satellites, and LANs.

**nongeographic positioning mode** A view option that allows network objects to appear anywhere in the Project Editor menu, regardless of their physical location. Compare geographic positioning mode.

## *O*

**object** A representation of an entity that is part of the system of interest. In Guru, objects are generally components of models and have properties and attributes that can be specified by the user.

**object palette** A graphical dialog box that displays a group of node and link models. You can select and drag an icon from the palette to create a new object that is an instance of the corresponding model.

**occluded nodes** Two nodes that cannot transmit or receive radio messages between them because the earth is in the way.

**occurrence histogram** A graph that reflects the distribution of the ordinate values of a trace over evenly spaced intervals of the vertical axis.

**op_admin directory.** *See* administration directory.

**op_install** The C shell script that automates the Guru installation procedure on UNIX systems.

**op_runsim** The Guru program that controls a simulation.

**<opnet_dir>** A symbol representing the path name of the top-level Guru directory.

**ordinate** The y value of a data set for a graph entry. *Compare* abscissa.

**ordinate axis** The vertical or y axis of a graph. *Compare* abscissa axis.

**output scalar** A scalar (that is, individual value) statistic usually representing an average, probability, or peak value derived from a collection of measurements (typically a vector statistic). *Compare* output vector.

**output vector** A series of data points stored in an output vector file. The data points represent values of a specific statistic captured during one simulation run. *Compare* output scalar.

## *P*

**packet** A structured message that carries information between network components. Guru lets you define the size, format, and fields of the packets in a system.

**packet format** A template that defines the fields used for formatted packets. The packet format specifies a list of field names, data types, sizes (that is, field lengths specified in bits), and default values. When formatted packets are created, they instantly acquire the fields defined in their format and, when applicable, default values are installed in those fields.

**packet stream** The flow of packets in a model.

**packet trace file** *See* capture file.

**packet tree** A group of packets that are copies of a single, original packet.

**palette** A dialog box used to select an object from an assortment of icons. *See also* object palette.

**panel** A window in which one or more traces can be plotted. *See also* analysis panel, template, *and* graph.

**parent** An object that contains other objects or is the source of others. For example, a subnetwork is the parent of the nodes within it and an advanced model is the parent of the derived models in its hierarchy. *Compare* child.

**path** An OPNET object used to represent a path between two nodes or subnets. You can use path objects to represent routes taken by traffic through the network. A path object specifies, at the very least, two end sites (nodes or subnets); a path object may also define a partial or complete path (that is, an ordered set of connecting sites and links) between these sites.

**PathProbe** An ACE utility that enables you to measure the characteristics of your network using the Application Capture Manager and a PathProbe.

**PDF (1)** *See* probability density function.

**PDF (2)** Portable Document Format. A file format created by Adobe Systems and used by OPNET for its online product documentation. PDF files are viewed using the Adobe Reader program.

**phase** An interval of related activity that is contained within a task in an application model. For example, a task can contain a data transfer phase and a processing phase.

**point-to-point link** An object representing one or more independent communication channels connecting one node or subnetwork to another node or subnetwork. A point-to-point link connects two, and only two, specific network objects.

**pop-up menu** A context-sensitive menu that appears when you right-click on an object.

**positioning mode** The view option that determines whether network objects appear according to their geographical positions. *See also* geographic positioning mode and nongeographic positioning mode.

**PostScript** A page description language used for graphics and text files in Guru. PostScript files receive the file name suffix ".ps" and are spooled automatically. *See also* Encapsulated PostScript Interchange.

**preference** A user-specified setting that controls the behavior of OPNET programs. Preferences can be specified from the GUI (Edit > Preferences) or, when starting OPNET, from the command line. *Also called* environment attribute.

**primary model directory** *See* default directory.

**private attribute property** An attribute property that apples only to the attribute for which it is specified. *Compare* public attribute property.

**probability density function** A mapping of real values of a random variable to their associated probability densities. PDFs are used to assign values to the various distribution attributes of the generator modules.

**probability mass function** A function used to compute the frequency of each ordinate value as a proportion of the number of occurrences of all ordinate values.

**project** A collection of scenarios saved as a group.

**Project Editor** The primary Guru work environment, used to construct, edit, view, simulate, and analyze network models.

**prologue handler** Common tasks that are shared between specified NetDoctor rules can be placed in a prologue.

**promoted attribute** An attribute whose assignment has been deferred to a higher hierarchical level of the overall network model.

**propagation delay** The time required for a bit to travel from a transmitter to a receiver.

**protocol decode** A text translation of the protocol and application data within one or more network or application packets.

**Protocol Decodes Viewer** A window that shows the protocol decodes a set of packets.

**PS** *See* pop-up menu.

**public attribute property** An attribute property that can be assigned to other attributes, eliminating the need to specify the same property each time it is needed. *Compare* private attribute property.

**Python** The programming language used to write NetDoctor rule handlers.

## *Q*

**QuickPredict** An ACE utility that enables you to determine quickly how network variations will affect your application's performance.

## R

**rapid configuration** A Guru feature that allows the user to quickly build a network using pre-defined topologies including star, ring, bus, tree, full mesh, randomized mesh, and unconnected network.

**real time** Time as measured in the real world. *Compare* simulation time.

**receiver** An entity within a node that receives information across a link.

**<reldir>** A symbol representing the path name of the release directory, which contains the complete software and model files for a specific Guru release.

**repository** A saved collection of user-defined components. Repositories are created mainly for dynamic simulations so that the simulations will take less time to begin execution.

**request** A packet sent from a client application to the server. A request receives a single response packet, which is sent from the server to the client.

**response** A packet is sent from the server application to the client after the server receives a request.

**root model** The top model in a model hierarchy. The root model is an advanced model that serves as a parent to the other models in its hierarchy.

**rule** Determines whether the network elements are configured correctly and are following specific network policies. In NetDoctor, there are two types of rules. Verification rules identify misconfigurations and inconsistencies in the network and then report those anomalies as error, warning, or note messages. Summary rules present data for review by the user.

**rules suite** Included with NetDoctor. Arranged according to network protocols, most NetDoctor rules identify possible problems in the configuration of the subject network while some rules display summarized data.

## S

**sample-hold** A draw style that displays a trace by plotting each entry as a horizontal line at the ordinate of the entry and extending from the abscissa value of the entry to that of the next entry.

**satellite node** A node (created with the Wireless module) that can be assigned an orbit to describe its motion.

**satellite subnetwork** A subnetwork (created with the Wireless module) that can be assigned an orbit to describe its motion.

**scalar** A single value that represents a statistic, such as an average value or a maximum value, during a simulation.

**scalar statistic** A statistic obtained either from model attributes or from measurements made during simulation that is stored as an individual real number in an output scalar file. Scalar statistics can be thought of as a summary of some aspect of the system's behavior or performance during one particular simulation run.

**scenario** A single instance of a network model, containing all related information (such as simulation settings and results).

**server workstation** The workstation that stores the OPNET directory on its disk. A server workstation may also be a client workstation. Typically, however, it is a dedicated fileserver shared by a workgroup.

**session** A single conversation between a client and a server. All traffic between application clients and servers is organized into sessions.

**service time** The amount of time required for a server to process an incoming request.

**simplex link** A link on which information travels in only one direction, from a transmitter in one node or subnetwork to a receiver in another. *Compare* duplex link.

**simulation** An activity that provides a way to observe model behavior and obtain performance statistics for analysis.

**simulation attribute** An attribute that can be specified for each simulation set. These attributes control the course of the simulation and determine how the simulation collects its output data.

**Simulation Kernel** The executable code, including all Kernel Procedures, that interacts with model code to manage and execute a simulation.

**simulation sequence** A collection of all simulation sets in a scenario. A simulation sequence can contain simulations using different network or collecting different results, and can send output to different scalar files (one per simulation set).

**simulation set** A simulation object that may comprise one or more simulation runs, depending on the attribute values (or range of values) assigned in the attribute table.

**simulation time** The simulated time scale used to schedule events during a simulation. The simulation time can also describe the current time value of a simulation.

**simulator** A program used to perform a simulation, such as **op_runsim**.

**site** A node or subnet included in a path definition. *See* also path.

**source node** The node from which data originates.

**specialized model** A model that is included in the model library that comes with IT Sentinel, but which requires an additional license for use in a simulation or validation. *See also* standard model.

**square-wave** A draw style that displays a trace by plotting each entry as an unfilled rectangle extending vertically from the abscissa axis to the ordinate value and horizontally from the abscissa value of the entry to that of the next entry.

**standard model** A model that is included in the model library that comes with IT Sentinel. *See also* specialized model.

**static environment attribute** A global preference that Sentinel reads shortly after the program starts, and which cannot be updated during a single Sentinel session. Compare dynamic environment attribute.

**statistic** A numeric variable representing the behavior of a node or link model or of an entire system (network model). The value of a statistic may change during a simulation run or it may change only from one simulation run to the next.

**statistic report** A set of statistics that Sentinel collects during simulation and prepares for viewing in a web browser, rather than in analysis panels.

**Streamed Data Viewer** An ACE window that shows all data transferred over a particular network layer as a single concatenated stream of data.

**subnetwork** A subset of a larger network's devices that forms a network in its own right.

**subnetwork extent** *See* extent.

**subnetwork-relative coordinate system** The coordinate system within a subnetwork of a larger system.

# T

**Tagged Image File Format** A graphics format used for some bitmap files in Guru. Files in this format receive the file name suffix ".tif" and are not spooled.

**tap** *See* bus tap.

**task** A basic unit of user activity in an application. Reading an e-mail message, making a calendar entry, or obtaining records from a database are all examples of tasks.

**template** A panel, graph, or trace without data, but that retains complete trace and format information. New data can be applied to a template and immediately displayed in a predefined way.

**test handler** After the filter handler and the group handler perform their functions, NetDoctor calls the test handler for (1) object and IP Subnetwork Peer rules and (2) object group rules.

**think time** An interval in an ACE task in which a host is waiting for input from a user.

**tier (1)** A single software process that is responsible for executing some or all of the steps in a task.

**tier (2)** A computer that acts as a source or destination for network traffic.

**Tier Pair Circle** An ACE window that highlights the conversations between individual tiers and shows which tiers are conversing and not conversing.

**TIFF** *See* Tagged Image File Format.

**time-span histogram** A graph that shows the time spent by the trace within defined time intervals.

**title bar** The area across the top of a window or similar object that indicates the window's name and status (active or inactive). Title bars of active windows are normally blue (black on monochrome displays); those of inactive windows normally appear dimmed (white on monochrome displays).

**top-level subnetwork** *See* global subnetwork.

**trace** A series of data points displayed in an analysis panel graph. A trace can be derived from an output vector, output scalar data, or another trace. A graph can contain one or more traces.

**traffic flow** A demand object used to represent an end-to-end flow of traffic. Each traffic flow defines a set of end nodes and contains attributes that define the traffic flow's characteristics. Traffic flows appear most commonly as lines between the end nodes, with arrowheads to indicate the traffic direction. *See also* demand.

**traffic profile** An attribute that uses a set of x-y value pairs to specify a varying rate of traffic over time.

**transaction analysis** The capability to organize a task into individual protocol-specific transactions. The ACE Decode Module provides this capability for certain protocols such as HTTP.

**transceiver** A transmitter and receiver used as a pair, either within the same node or connected by a link between different nodes.

**transmission delay** The time required by a transmitter channel to send a packet.

**transmitter** An entity within a node that sends information across a link.

**Treeview window** The primary ACE window, which shows the ACE task using a treeview, a statistics table, and a time line.

## *U*

**UDP** *See* User Datagram Protocol.

**User Datagram Protocol** The second layer of the IP protocol. UDP is an unreliable, connectionless protocol typically used for applications where quick delivery is more important than reliable delivery, such as speech or video transmission.

**user-defined report** A a set of output tables that list objects and attribute values of interest.

**utility object** An object in a network model that is usually used to configure parameters on a global level. Utility objects do not correspond to actual physical infrastructure in the network.

## *V*

**vector** A series of values or entries where each entry is a time-value pair. Vector data can be used to show how a statistic of interest varies over time.

## W

**wireless domain** A modeling technique used in wireless networks to reduce simulation time by assuming that nodes within the same logical area (cluster) have identical characteristics—such as path loss—with respect to nodes in other clusters of the domain. Using this assumption, wireless domains can save selected results of the radio pipeline calculations and reuse them for future communications between the same clusters.

**workspace** The section of an editor window used for creating and editing models.

## X

**x axis** The horizontal axis of a graph.

## Y

**y axis** The vertical axis of a graph.