



Netsight[®]

Introduction to Netsight[®]

Revision History

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1 Introduction to Netsight

JANET Netsight is a network information system showing the current and past performance of the JANET network:

- the JANET backbone and its links to the rest of the Internet (the peerings)
- the links into the regional networks
- the links to all JANET customers

The system is available to JANET connected organisations and the operators of regional networks. Indications of the status of some network connections can be viewed by non-logged in users, and as such is publically available.

Netsight is not an operational network management tool, but provides JANET customers with an invaluable window into their network status and performance, as well as supporting JANET(UK)'s own network performance reporting requirements.

Netsight runs ICMP ping tests to various locations and polls routers for traffic data via SNMP. The new Netsight has been designed to allow the addition of new measurement types (measurements other than ping and SNMP traffic data) and the import of datasets from external systems.

1.1 Available Data

1.1.1 General Network Status

The Netsight home page indicates the general status of the JANET network via colour coded displays for several sets of related network connections: the JANET backbone, the backbone's peerings with external networks, the individual regional networks and the entry points from the backbone into those regional networks (the RNEPs – Regional Network Entry Points). The colour coding is based on the number of monitored nodes within each set which are responding to ping tests.

1.1.2 Connection Specific Network Status

From the Netsight home page users can access a list of Traffic Light pages. These show the current status of the individual connections within a related set. There is approximately one Traffic Light page for each set listed on the Home Page. Each connection specific Traffic Light is colour coded based on the percentage ping response (packet loss) of the pings to that connection over the last few minutes. A Traffic Light also gives an indication of how long a connection has been in its present state, e.g. how long a connection has been 'up'.

The above information is publically available, that is, available to non-logged in users. Once logged in, users may see additional connections on the Traffic Light pages. Whether the status of a connection is publically viewable or not is controlled by Netsight's user permissions policy.

1.1.3 Detailed Connection Data

Once logged in, an end user organisation can access graphs of:

- the Round Trip Time from Netsight to its site(s)
- The percentage ping response (revealing any packet loss) from the same
- The traffic levels on its connection(s) in bits per second

Users can set the time axes of graphs themselves, allowing them to go as far back in time as there is data available and look at any length of time period (short or long term). The graphs also support 'click and drag' zooming via the mouse, allowing users to quickly focus in on an area of interest.

Data is kept in the database for up to two years. After that, it is archived into long term storage and can no longer be displayed on graphs.

Logged-in users may also plot aggregations of any datasets they have access to. This may be useful for example, where a JANET customer has more than one connection and would like to see the total bandwidth across both connections. Once created, these aggregated graphs are saved for later use.

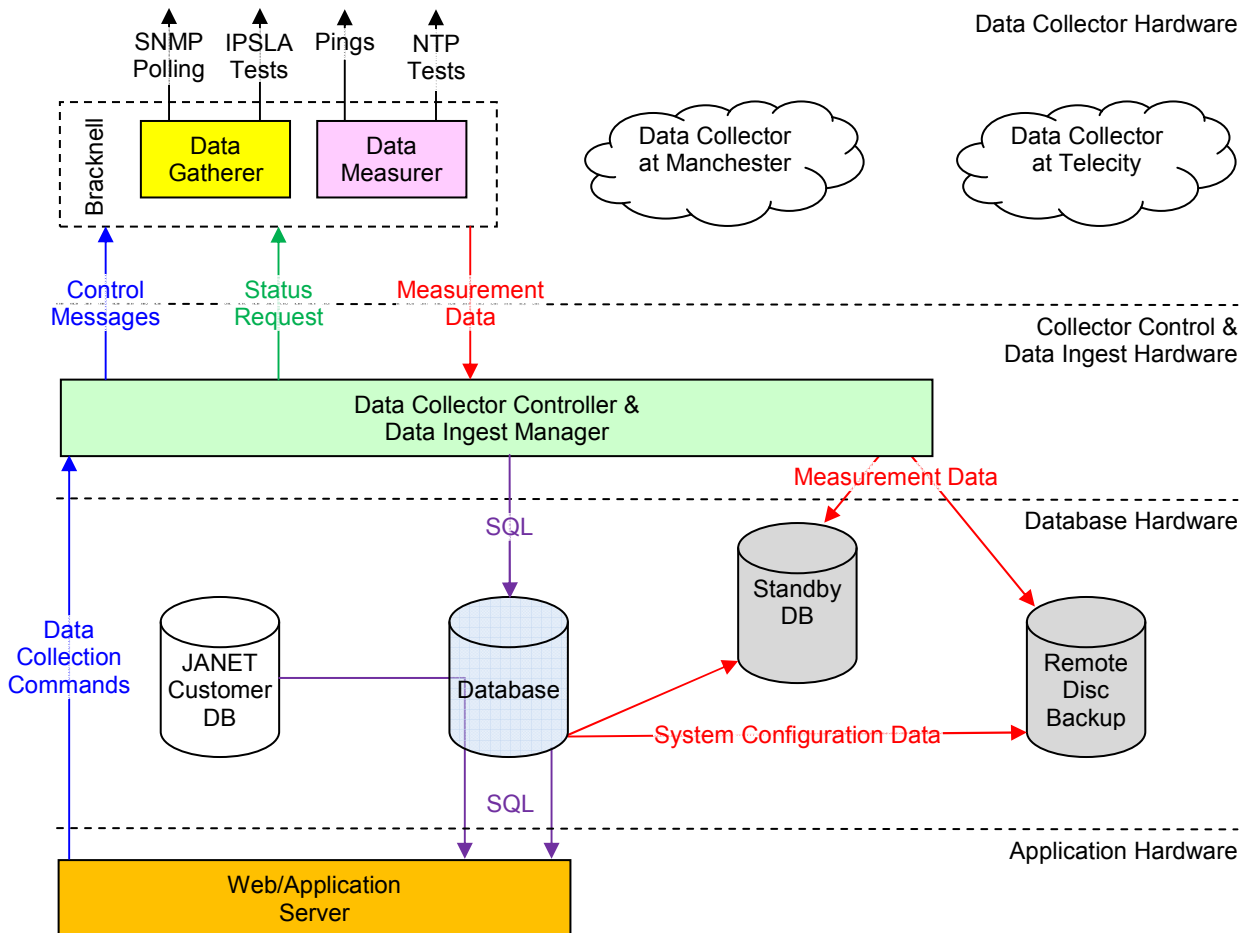
Finally, users can create traffic reports which will show the total amount of traffic (in MebiBytes) passed in both directions by a connection for a specified time period. Typically this is used to show the total traffic to and from a site for a calendar month. Like aggregated graphs, traffic reports can be saved for later use.

The operators of regional networks have visibility of all data within their network, while JANET(UK) can see all data.

1.1.4 System Architecture

Netsight consists of data collectors at three locations close to core routers, with a relational database and application and web servers in similar core locations. The data collectors run ICMP ping tests to target nodes and poll routers via SNMP for data on traffic levels. The collectors are also capable of running IP-SLA and NTP tests. A Data Gatherer, as its name suggests, gathers data from other systems such as network routers. Data Measurers make measurements themselves.

The operations of each data collector are closely coordinated so that failure of one collector will result in its measurement duties being replicated at one of the other two locations. Service continuity is provided by a standby database and a remote disc backup which hold backup copies of measurement data and the system configuration.



Simplified Netsight Architecture

Locating the collectors in the JANET core provides representative ping data, as the pings traverse more of the path taken by packets heading to and from the Internet.

The central, relational database offers:

- support for powerful analysis
- all data available in one place

- the ability to keep all measurement data for up to two years

The system is designed to be extensible, facilitating the addition of extra types of network measurements. This will allow Netsight to underpin several future JANET(UK) measurement and monitoring activities, and respond to the SuperJANET5 project requirement to improve 'visibility' of JANET performance data.

Using a new 'Reporting Path' construct which can point to different datasets for different time periods users see continuity of their data as their connection changes over time. The system supports IPv6, and the data collectors and user interface are resilient.

1.2 Upkeep of Netsight

Netsight must be configured for the monitoring it performs. This configuration is maintained by JANET(UK) and the operators of regional networks.

Netsight is based on 'objects' such as users, network nodes and measurement jobs. The system is configured by creating, editing and deleting these objects. JANET(UK) has produced guidelines for the naming of system objects and procedures for performing common configuration tasks (such as handling upgrades to an end user organisation's connection).

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