OpenNMS is the world’s first enterprise-grade network management application developed under the open-source model. It is a free software alternative to commercial products such as Hewlett-Packard’s OpenView, IBM’s Netcool and Tivoli, and CA Unicenter.

Because OpenNMS is open source software, there are no software license costs. Since the software code can be freely modified, OpenNMS can also be changed to fit the way the organization works, instead of having to change processes and procedures to fit the software.

OpenNMS was designed from Day One to be able to monitor tens of thousands of interfaces. The ultimate goal for the software is to become the de facto network management platform.

OpenNMS is focused on four main areas:

- Automated Discovery
- Event Management and Notifications
- Service Level Monitoring
- Performance Data Collection

Automated Discovery

It would be very difficult to configure by hand thousands of devices, thus OpenNMS was designed to automate the process of network discovery. Once the decision is made on how a particular network device should be managed, such as a Cisco switch or a Windows server, each new device that is discovered is automatically configured for monitoring, data collection and notifications with no additional operator input.

In the largest of sites (with 40,000 or more devices) it would be impractical to leave network discovery up to the management tool. Thus OpenNMS contains a provisioner that can take inventory data in an XML format and control how devices and services are monitored based on the end user’s own inventory system. Nodes, interfaces and services are defined within that file, and they can be added, deleted and moved by simply importing the changed file.

Discovery and provisioning run periodically to keep the OpenNMS representation of the network up to date with no operator input.

Event Management and Notifications

OpenNMS is event driven, and the system has the ability to generate internal events, such as a loss of a service, as well as to receive external events, such as SNMP Traps. Each event can be fed into a robust notification system that can send e-mails, pages, text messages, pop-ups and even instant messages via XMPP (Jabber). Notices can be acknowledged, automatically resolved and escalated.

In addition, OpenNMS includes an event translator that can take an event and turn it into another event. Fields in the original event can then be parsed and used to access external databases (such as a customer or inventory system) and a new enriched event created.

For example, a satellite broadcast system may be managed from a single network device, even though it represents many subsystems. Using the Event Translator with the Passive Status Monitor those systems can appear in OpenNMS, as virtual devices, as if the platform was managing them directly.

OpenNMS has an alarms subsystem that can reduce a large number of similar events into a single line with a count of the number of times the event has occurred.

These alarms can be processed by automations that correlate “Up” events with “Down” events, escalate severities, and even determine widespread outages or “flapping” services.
Service Level Monitoring

One of the main features of OpenNMS is the ability to monitor network services.

OpenNMS mimics what a user would do (synthetic transactions). In order to test if a web server is running, it accesses the web page and looks for errors. To see if a DNS server is running, it does a DNS lookup. Even the venerable "ping" is represented by the ICMP service.

The status of the network can be viewed in a variety of ways. Services can be grouped into categories, and there is a surveillance view that can group services by business processes.

Performance Data Collection

OpenNMS has the ability to collect performance data from the network. This information is stored, graphed and can be checked against thresholds.

The process of data collection is highly automated. As new devices are added, no extra configuration is required. Data can be collected via SNMP, JMX and from web pages via HTTP. Service monitors are also instrumented to be able to reflect how long it takes to poll a service.

Community

OpenNMS has a very active community centered around the OpenNMS wiki at www.opennms.org. As project number 4141, on the venerable Sourceforge (sourceforge.net), OpenNMS is one of the most mature open source management tools, yet it still remains one of the most active projects on that site.

The project is maintained by The OpenNMS Group (www.opennms.com), who also provide commercial support, services and training for the product. For more information, e-mail info@opennms.org or call +1 (919) 533-0160.