Welcome

Welcome to the December 2011 edition of ‘In the Boxing Ring’. Continuing on from April’s format changes, we have had a new look since June, as we continue the run-up to the release of NBRS-5.0. For the rest of this year, each month we will present one topic on NBRS-5.0 (the upcoming major Network Box firmware release). The monthly hint will go, and is replaced with an entire back page on the updates being released to the existing NBRS-3.0 product. This front page will remain, and summarise what is new and notable.

This month, on pages 2 and 3, we present details on the NBRS-5.0 Quality of Service. Quality of Service in NBRS-5.0 is configured using the console and/or my.network-box.com administrative interfaces. Traffic can be classified using the powerful set of firewall-style matches, Bandwidth is allocated to different classes using a sophisticated but simple rules language, and Priorities are defined and configured.

Network Box Quality of Service includes both monitoring of network bandwidth, as well as effective techniques to maximise the available bandwidth, prioritise particular applications or users, and fairly share the available resources.

Page 4 details the features and fixes to be released in this month’s patch Tuesday for NBRS-3.0. We continue to develop, and will continue to support, NBRS-3.0 for the foreseeable future (several years), and this page will be used to keep you informed as to what is happening with our core product.

You can contact us here at HQ by eMail (nbhq@network-box.com), or drop by our office next time you are in town. You can also keep in touch by several social networks:

Twitter:  http://twitter.com/networkbox
Facebook: http://www.facebook.com/networkbox
          http://www.facebook.com/networkboxresponse
LinkedIn:  http://www.linkedin.com/company/network-box-corporation-limited

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The NBRS-5.0 Quality of Service

For this month's topic on NBRS-5.0, we'll be presenting information on quality of service. In a world of scarce resources, scarcity of network bandwidth is the most insidious. As links become saturated, packet loss and the resulting retransmissions cause a cascade effect - often worsening the situation beyond breaking point. All this with little (if any) notification of the problem to the actual users of the network.

Taking control of your network means taking control of bandwidth. Understanding the limits, the utilisation; both who and what is using it. Network Box Quality of Service includes both monitoring of network bandwidth, as well as effective techniques to maximise the available bandwidth, prioritise particular applications or users, and fairly share the available resources.

Components

Quality of Service is made up of three components:

1. Traffic Prioritisation
2. Traffic Shaping
3. Traffic Policing

Prioritisation involves fairly sharing bandwidth amongst traffic in a particular class, and prioritising the traffic of different classes. As such, it is primarily a transmit facility, although QOS bits (TOS) can be used to reflect the intent to other co-operating equipment.

Traffic Shaping and Policing involve classifying outbound traffic, allocating bandwidth to traffic classes, and defining rules for how bandwidth can be shared. Traffic shaping is used to control outbound traffic, while policing controls inbound.

Configuration

Quality of Service in NBRS-5.0 is configured using the console and/or my.network-box.com administrative interfaces. Traffic can be classified using the powerful set of firewall-style matches, Bandwidth is allocated to different classes using a sophisticated but simple rules language, and Priorities are defined and configured.

Typically, either Shaping or Policing is used to control whether to drop traffic (that exceeds the defined policy), then prioritisation is used to put the traffic into outbound queues according to policy. A multi-queue system is used for stochastic fairness queueing of outbound traffic.

Configuration rules are concerned with bandwidth bps, Mbps, etc. Each interface has a clearly defined transmit and receive bandwidth, so that percentages (of both traffic classes as well as actual utilisation) can be determined. The rules are configured in a hierarchical manner, so that bandwidth at one level can be loaded/borrowed from other levels.
Quality of Service in NBRS-5.0 is implemented by a combination of proxy and raw-network - but, only one configuration is required. The choice of implementation (proxy or network) is automatic and optimised for performance. Technically, the implementation of Traffic Shaping and Policing are very different, but to the user they appear the same.

**Monitoring**

While NBRS-3.0 could implement Quality of Service rules and policy, NBRS-5.0 allows it to be clearly monitored.

A multi-level analytic framework is used:

1. Box

At the box level, the system tracks the overall network usage of the box on a per-minute basis. All network traffic entering and leaving the box, as well as internal traffic, is monitored at this level - which is primarily used for capacity planning and historical trend analysis.

2. Interface classes (e.g. Internet, DMZs, LANs)

When interfaces are defined, they are classified (for example; three Internet links all classed as “Internet”). These classes are then used for reporting on groups of interfaces on a per-minute basis.

3. Interfaces

At the interface level, bandwidth usage is recorded on a per-minute basis. Usage (and percentage utilisation) can then be reported on.

4. Users, Applications

Together, with Interface, the User and Application levels for a utilisation triangle - how busy is the interface, who is using it and for what? The information is stored on a per-minute basis, and used for reporting.

5. Transactional

At the transactional level, detailed information is recorded for each network transaction within each network connection. Examples of this are eMail messages, and URLs visited. Further statistical breakdown (for reporting) is possible, based on transactional data.

**Conclusions**

Quality of Service in NBRS-5.0 concerns taking control of network bandwidth and maintaining a quality of service to the users of the network. Taking control of your network means taking control of bandwidth. Understanding the limits, the utilisation; both who and what is using it.

Network Box Quality of Service includes both monitoring of network bandwidth, as well as effective techniques to maximise the available bandwidth, prioritise particular applications or users, and fairly share the available resources.
December 2011 Features

On Tuesday, 6th December 2011, Network Box will release our patch Tuesday set of enhancements and fixes. The regional NOCs will be conducting the rollouts of the new functionality in a phased manner over the next 7 days. This month, these include:

- Enhancements to various internal NOC systems
- Enhancements to the web policy block page for sites issuing large numbers of policy blocks
- Enhancements to the box statistical reporting system related to Z-Scan zero-day protection
- Support for NBRS-5.0 in Box Office systems
- Various (mostly internal) enhancements to Box Office and support systems

In most cases, the above changes should not impact running services or require a device restart. However, in some cases (depending on configuration), a device restart may be required. Your local NOC will contact you to arrange this if necessary.

Should you need any further information on any of the above, please contact your local NOC. They will be arranging deployment and liaison.

Network Box Wins Multiple International Awards

Network Box won the Asia Pacific Information Communications Technology Alliance (APICTA) Awards 2011, Security Category, for its new Z-Scan, in-the-cloud, zero day anti-malware system. Network Box’s Z-Scan won First Place in the Security Category.

“We won for Z-Scan, our ground breaking Zero Day Anti-Virus system, with its ultra high speed 3 second real-world response to zero day viruses, and subsequently to zero day spam as well. It was a great feeling to win on behalf of our hard working Network Box software engineers,” said Michael Gazeley.

For more information on APICTA, please see www.apicta.org.

In November, BankNews also honoured Network Box for its ground breaking Z-Scan system. “The company was honoured for its Z-Scan anti-malware technology, which reduces the time to stop a new threat from several hours to a few seconds. With Z-Scan, banks are able to focus on their core services / business / customers and not worry about security issues,” said Scott Englert, of BankNews.

Network Box was also named in this year’s MIS Asia | The Strategic 100. Their Editor wrote, “You hold in your hands an issue dedicated to the top 100 information and communication technology (ICT) solutions and service providers as chosen by the region’s most progressive enterprise technology practitioners and experts.”It’s a great honour for Network Box to make the list, for a fourth time.

For more information on MIS Asia | The Strategic 100, please see www.mis-asia.com/strategic100_2011.