In the Boxing Ring
JULY 2021

Network Box Technical News
from Mark Webb-Johnson
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Welcome to the July 2021 edition of In the **Boxing Ring**

This month, we are talking about the **Network Box SD-WAN** (Software-Defined Wide Area Network)**.** Network Box has been deploying SD-WAN systems for decades now, and it relates to providing connectivity between organizational sites, and connecting remote users into those sites, applications, and data. Fundamentally, it is about decoupling the physical network from the management and operation of the WAN in a flexible, network-agnostic manner. On pages 2 to 3, we highlight the key features of SD-WANs and discuss how Network Box addresses them.

On page 4, we highlight the features and fixes to be released in this quarter's Patch Tuesday for Network Box 5.

Also this month, we highlight the **Network Box Spam Reporter**, available to all Network Box customers. And in this month's media coverage, Network Box was featured in the **SCMP**, **Fridayeveryday**, **Banking Today;** and the latest episode of **HPCC Hackpod Club** is now available.

Mark Webb-Johnson
CTO, Network Box Corporation Ltd.
July 2021

Stay Connected

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

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Network Box
SD-WAN

SD-WAN is an acronym for Software-Defined Networking (SDN) in a Wide Area Network (WAN). It relates to providing connectivity between organizational sites, and connecting remote users into those sites, applications, and data. Fundamentally, it is about decoupling the physical network from the management and operation of the Wide Area Network in a flexible, network agnostic manner.

Typically, SD-WANs exhibit 7 key features:

1. Resilience
Link monitoring and automatic switching between alternative network paths

2. Quality of service
Fair sharing of limited bandwidth, including prioritization of application traffic. This prioritization and sharing typically may be either on a single link or across multiple network paths.

3. Security
Encryption, authentication, and protection against tampering of network traffic.

4. Application optimization
Caching, compression, latency optimization, and other such mechanisms to improve performance.

5. Flexible Deployment options
On-premises, virtual in the cloud, multi-tenanted Software-as-a-Service (SaaS), or hybrid combinations.

6. Administration and troubleshooting
Centralized administration of the SD-WAN, including configuration, link status monitoring, alerting, and reporting.

7. Online traffic engineering
Visibility and dynamic control of the SD-WAN.

Network Box offers SD-WAN services using our on-premises, virtual cloud, and multi-tenanted SaaS services. Let's look at each of these feature requirements in detail and discuss how Network Box addresses them.

Resilience

Whatever the physical network type, Network Box unifies them and provides each a unique network interface. We then provide availability monitoring on either the gateway (monitoring the link and its next hop), or the link path (actively monitoring along the path, including network connectivity to the destination). This allows us to detect both failures of the immediate link itself, as well as a routing or other connectivity issues further out in the network. Network Boxes can group interfaces together and dynamically adjust routing based on gateway and link status. This can be either in failover or load balancing mode, with full symmetric routing support. Thus ensuring return traffic goes back out the link that the original request arrived on.

Quality of Service

Network Box implements Quality of Service at several levels. Firstly, traffic can be classified using our full classification engines (which consider: protocol, port, addresses, or the application itself). Once classified, traffic is routed to an interface (either according to classification or standard source/destination routing rules). Outbound traffic on an interface is shaped according to interface bandwidth policy - limiting bandwidth usage according to traffic classification in a hierarchal arrangement. Finally, the traffic is queued across multiple traffic queues, prioritized to ensure fair access, and bandwidth limited to ensure that upstream gateway router queues are not overloaded. For inbound traffic, where we cannot directly control bandwidth demanded by a remote application, Network Box offers the option of 'traffic policing' - enforcing bandwidth limits to trigger TCP/IP congestion control algorithms and slow down the sender.

Security

As well as application-level SSL support, Network Box offers both industry-standard IPSec and SSL VPN capabilities. All these support authentication, encryption, and tamper protection with the highest levels of security standards. We then build upon the core VPN capabilities by enforcing firewall policy control and general protections such as anti-spoofing. Technologies such as Intrusion Detection and Intrusion Prevention are built into our firewalls, and can be supplemented with application-level content categorization and scanning for viruses, spam, and other such threats.

Application optimization

Network Box offers a compression option on SSL VPNs but primarily concentrates on minimizing latency to optimize application traffic. With many applications not designed to operate over wide area networks, latency is what typically limits performance. Network Box proxies can intercept connections and improve TCP/IP network traffic flows using large network buffers and network stacks optimized for wide area network traffic.

Deployment options

Network Box has been deploying SD-WAN systems using a combination of on-premises and virtual appliances, both in data centres and in the cloud, for decades now. This allows for the highest performance and most flexible deployment options. We have a selection of appliances of different sizes, capable of scaling from the smallest of branch offices up to large data centres. We have service packages ranging from basic SD-WAN all the way up to our full UTM+ services. Recognizing the trend of pure cloud infrastructures and SaaS architectures, in 2021 Q3 and Q4, Network Box will start offering multi-tenanted cloud SD-WAN solutions. These will operate in either standalone, or in combination with on-premises/virtual devices for a hybrid architecture.
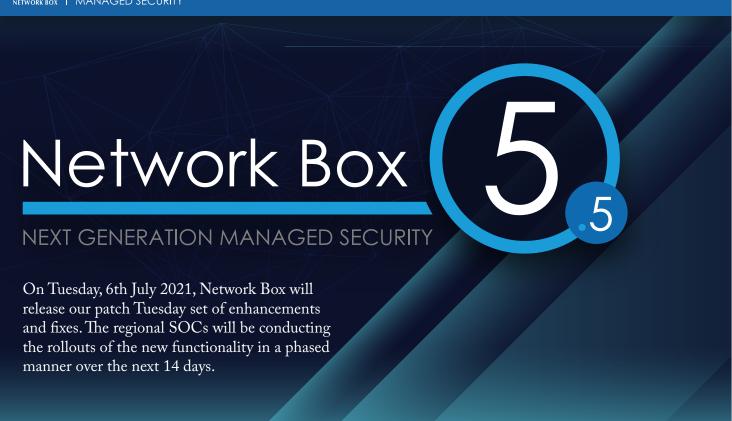
Administration and troubleshooting

As well as on-premises administration, via our Admin Web Portal facility, Network Box now offers NBSIEM+ for centralized event logging, management, and reporting. Coupled with our SOC-based configuration maintenance. Our unique 'System Condition' control system allows pre-defined, pre-tested configurations to be maintained for specific scenarios, enabled with the simple flip of a switch in our administrative console. This allows for quick and simple support for scenarios such as disaster recovery, penetration testing, etc.

Online traffic engineering

Operating network architectures such as hub-and-spoke, or mesh, can be complex and challenging to control over multiple network connections. Network Box uses automatic link monitoring as well as dynamic routing protocols to simplify this. In addition, the Network Box Global Monitoring System integrates with our SD-WAN services, providing centralized reporting and alerting of outages. The available bandwidth of each network interface (both upstream and downstream, to support asymmetric links) is clearly defined at configuration time and integrates to both monitoring and reporting. Network congestion, and resulting packet loss, can be clearly seen and alerted to.

Network Box provides SD-WAN services and operates SD-WAN networks using our award-winning secure platform. With full support for Internet, leased lines, and Multi-Protocol Label Switching (MPLS) circuits, Network Box can build an SD-WAN optimized for each customer's requirements. Our solutions are dynamic and scriptable, supporting complex business logic. By integrating commodity Internet links rather than expensive leased line or MPLS circuits, we can help drive down costs and provide a fast, optimized network experience.

Network Box 5

NEXT GENERATION MANAGED SECURITY

On Tuesday, 6th July 2021, Network Box will release our patch Tuesday set of enhancements and fixes. The regional SOCs will be conducting the rollouts of the new functionality in a phased manner over the next 14 days.

Network Box 5 Features
2021 Q3

This quarter, for Network Box 5, these include:

- Improvements to disk space housekeeping arrangements
- Maintenance update to network link speed test utility
- Improvements to reliability of signature downloads over slow and poor quality Internet links
- Enhancements to VPN status displays and tracking of stale / closed VPN connections
- Support configurable MTU options for packet fragmentation control in SSL VPN connections
- Support configurable connection retry options in SSL VPN connections
- Enhanced support for entity filter option on VPN event detail display
- Introduce support for email distribution groups as entities in Microsoft 365 entity synchronisation
- Improved support for entity synchronisation against large Microsoft 365 directories
- Enhanced support for upcoming cloud services launch

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 SOC will contact you to arrange this if necessary.

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

Network Box
HIGHLIGHTS

NETWORK BOX

Network Box Spam Reporter
for Microsoft Outlook

We all have to use email for work. However, the most irritating thing about email is spam. Even though Network Box currently blocks the majority right out of the box, we all still have to deal with the spam that gets through. So, if you are a Network Box client, where does that leave you? The first thing is to report any spam that manages to arrive in your inbox to us (**spam@network-box.com**). By doing this, we can fine-tune your spam settings. The **Network Box Spam Reporter** makes this submission process smoother by adding a **[*Report Spam*]** button in your Outlook tab.

LINK:
https://network-box.com/sites/default/files/files/NetworkBox-SpamReporter.pdf

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