ipfinity™
COMMUNICATE WITHOUT BORDERS

VRX Series Nightingale™ Traffic-Shaping QoS Appliances

Installation Guide

Models: VRX-1000, VRX-7601e

v 4.2.2 2021-11

Overview

The VRX family of Nightingale™ Traffic Shapers are transparent bridge-mode network devices that provide real-time traffic management to optimize voice and video quality of service (QoS). The VRX family of Nightingales feature 1-WAN, x 3-LAN and 1xMAN (management) ports.

The traffic-shaping properties of the Nightingale are engineered to ensure a high quality of service for real-time sensitive voice traffic to and from IPFINITY's CloudVoice™ infrastructure, with minimal impact on other data passing through.

By operating in transparent bridge mode, the VRX family of Nightingales greatly simplify network installation in any network, large or small.

All VRX devices are shipped with universal power supplies (110-240VAC). *VRX devices are not shipped with network cables.*

ipfinity™

Architecture

The VRX family of Nightingale Traffic Shapers are internally organized as two separate devices.

A layer-2 device exists between the WAN and LAN ports: effectively behaving like an Ethernet switch for devices on either side. All ethernet frames are switched, unmolested, between these ports; however, traffic shaping/prioritization is only applied to IP traffic transiting between the WAN and LAN ports. *No traffic shaping is applied to non-IP traffic.*

The MAN (management) port is the means by which the Nightingale accesses IPFINITY's provisioning service to obtain software and configuration updates and to report diagnostics. The LAN-WAN ports and the MAN port are physically isolated for security. Therefore if the MAN port is disconnected the Nightingale will continue to function with its existing configuration but will not be able to receive any configuration or software updates. For this reason, we recommend leaving the MAN port connected to your LAN.

1. Analyze

1. While your network is quiescent, connect a PC to the most upstream point in your network and perform five consecutive Internet speed tests (speedtest.net). Discard the first two results and report the last three sets of results to the IPFINITY provisioning team at support@ipfinity.com.
2. Provide the IPFINITY provisioning team with a network diagram.
3. The above information will be used by the IPFINITY provisioning team to configure your Nightingale.

2. Connect

Refer to the connection diagram on page 7

1. Connect the Nightingale into your network as far upstream (i.e. towards the Internet) as you can, while the network traffic still remains IP (e.g., not PPPoE). Connect the WAN port of the Nightingale to the next upstream (i.e. WAN-facing) device. For security or convenience you may install the Nightingale downstream of your firewall device.
2. Connect your LAN (e.g. root switch) to a LAN port of the Nightingale.
3. Connect the MAN port to your LAN so it can access a DHCP server and connect to the Internet.
4. This is key: For the Nightingale to perform optimally, *all network traffic must pass through* the Nightingale. Therefore, ensure that there are no bypass routes around the Nightingale, such as a WiFi access point that is installed further upstream than the Nightingale.

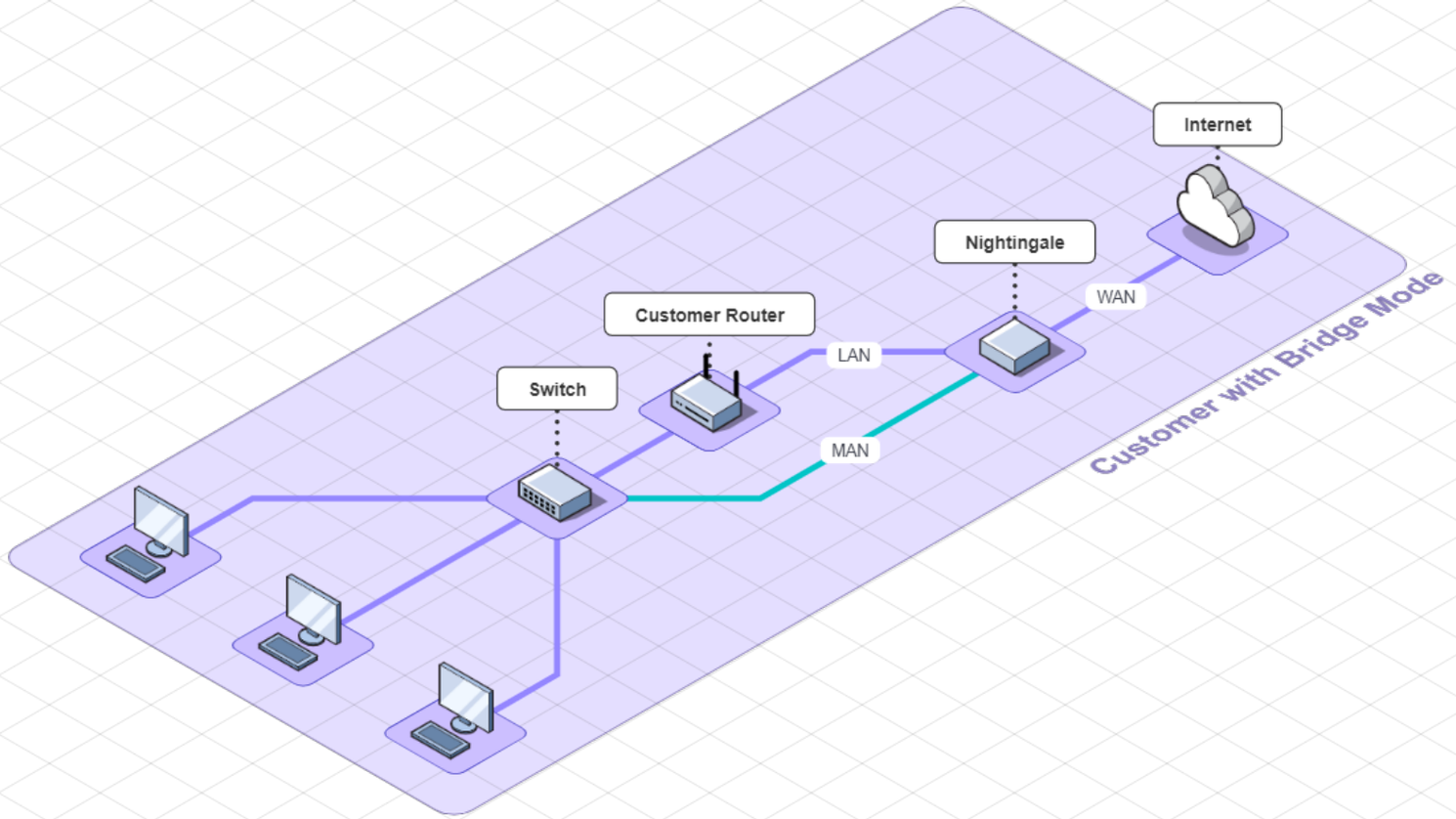
2. Configure

1. Allow the Nightingale to access the Internet by enabling access through your firewall (details in the following table).
2. Forward public ports 7022 and 7443 to Nightingale's MAN port to allow IPFINITY technicians to access the Nightingale via PKI/SSH if needed.
3. Power up. On its first power up, a VRX Nightingale can take up to five minutes to obtain and download its configuration files.

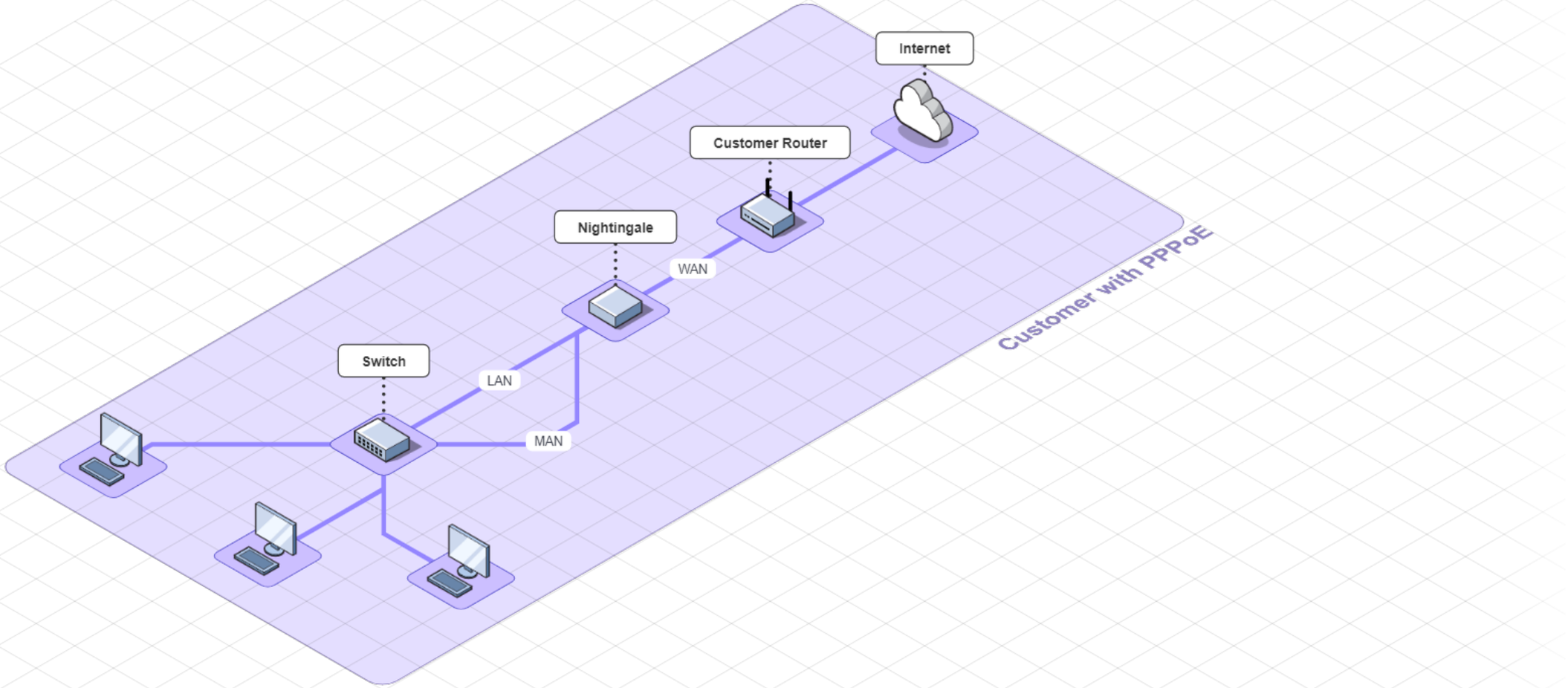
ipfinity

Typical Network Configuration

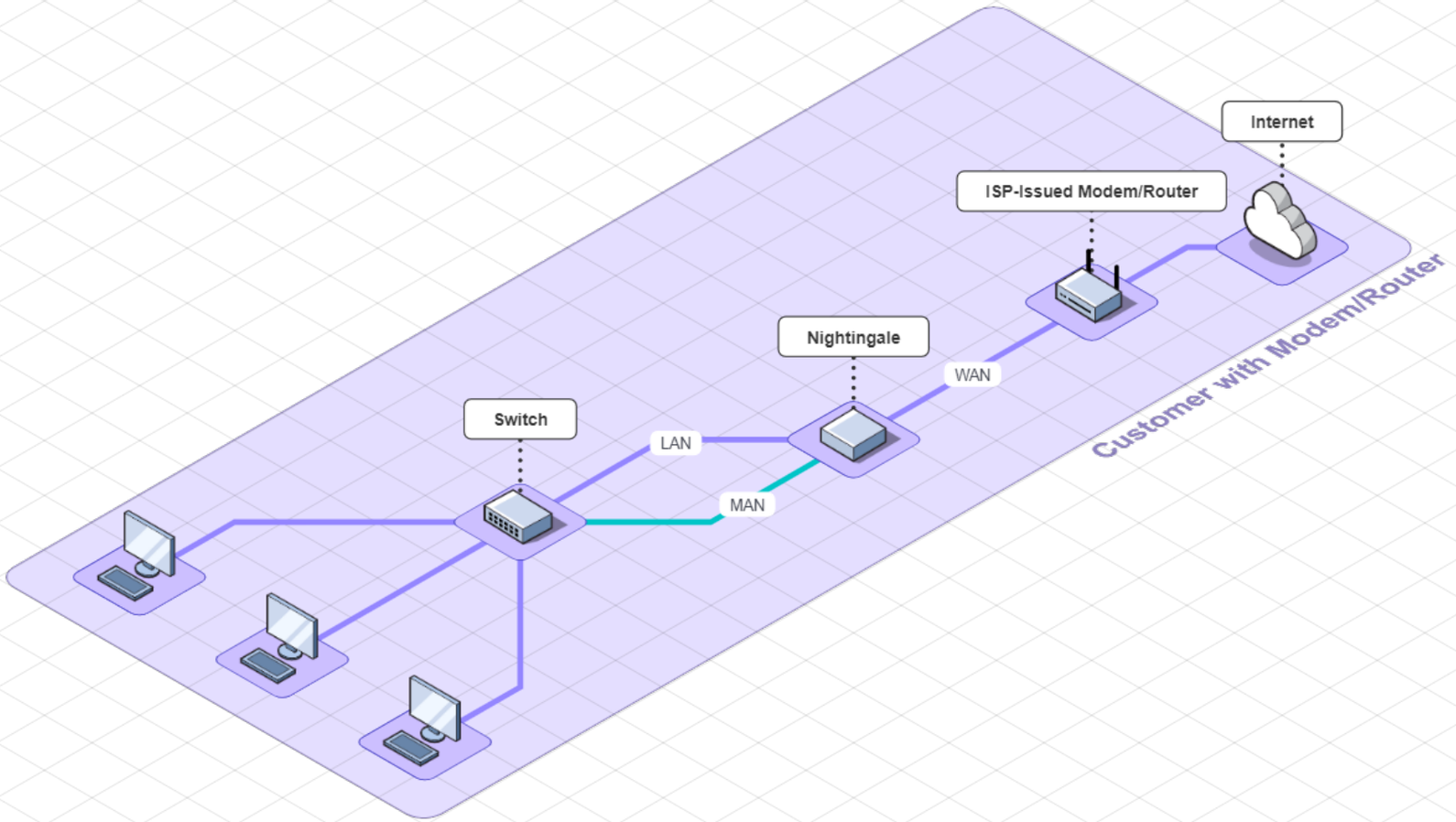
Example Nightingale Installation



Example Nightingale Installation



Example Nightingale Installation



4. Test

1. Verify that your network is functioning correctly.
2. Optional: Stress-test your Internet with the Nightingale installed. The details for this procedure are to be found in IPFINITY's Support Portal here: https://ipfinity.zendesk.com/entries/24891881-How-to-analyze-test-your-Internet-connection

Do's and Don'ts

- VRX series Nightingales are transparent bridge-mode devices. All Ethernet frames (all IP packets, all protocols) are transparently switched between the WAN and LAN interfaces. However, only IP traffic is prioritized between the WAN and LAN interfaces.
- *In order for the Nightingale to function effectively, all network traffic must pass through it.* Therefore do not allow bypass routes around the Nightingale, such as by activating WiFi service in an upstream device.
- VRX series Nightingale devices require Internet access for updating themselves upon power up and periodically thereafter. They request an IP address side from the MAN port (DHCP), and access the Internet for fetching updates and providing status using several IP protocols that are detailed in the following table.

Network Specifications

Parameter	Setting	Notes
Ethernet ports	Gigabit Ethernet	Auto switching 10/100/1000
MAN port	**Protocols used**	**These apply to the MAN port only. Please configure firewall accordingly.**
IP Network parameters	DHCP	The MAN is a DHCP client. At a minimum, IP, netmask and gateway must be provided by the DHCP server.
Domain name service	DNS	The following public name servers may be accessed: 8.8.8.8, 208.67.222.222, 208.67.220.220, 8.8.4.4.
Configuration updates	HTTP(s)	*.ipfinity.com
Network Time	NTP	Various NTP servers are accessed.
Remote management	SSH	We recommend that public ports 7022 and 7443 be forwarded to the IP procured by the MAN port. All access is secured by password-less PKI.
Other network devices	**Settings**	**The following setting must be observed by other network devices**
QoS	Disable in all non-Nightingale devices	Nightingale performs QoS/traffic shaping in tandem with IPFINITY's CloudVoice™ infrastructure. In order to prevent "queue knocking" instability we **strongly recommend** that all QoS features in devices that are in series with the Nightingale, such as firewalls and routers, **be switched OFF**.
SIPALG	Disable	If this setting exists in your router or firewall, it **must be set to OFF**.

Hardware Specifications

Models	VRX-1000, VRX-7601e
Operating mode	Transparent IP bridge mode with real-time traffic shaping (prioritizing)
Ports	1-WAN; 3-LAN; 1-MAN
Ethernet ports	10/100/1000 auto-sensing, auto switching
Data throughput	>600 Mbps under full network load
LEDs	Power, Status, Ethernet
Dimensions (approx.)	110 x 75 x 23 mm*
Power	12VDC, 0.5A,(110-240VAC universal power adapter included)

* 1U rack-mount configurations are available

For questions or help with configuration

1-855-IPFINITY ext 2

support@ipfinity.com