BODi rS™

More Bandwidth. More Reliability. More Survivability

Intelligent Load Balancing: Weighted Balance

Application Note

Understanding Outbound Balance Routing

- BODi delivers a simple, cost effective way to manage Multi WAN network environments through intelligent Load Balancing Algorithms and advanced VPN bonding technology.

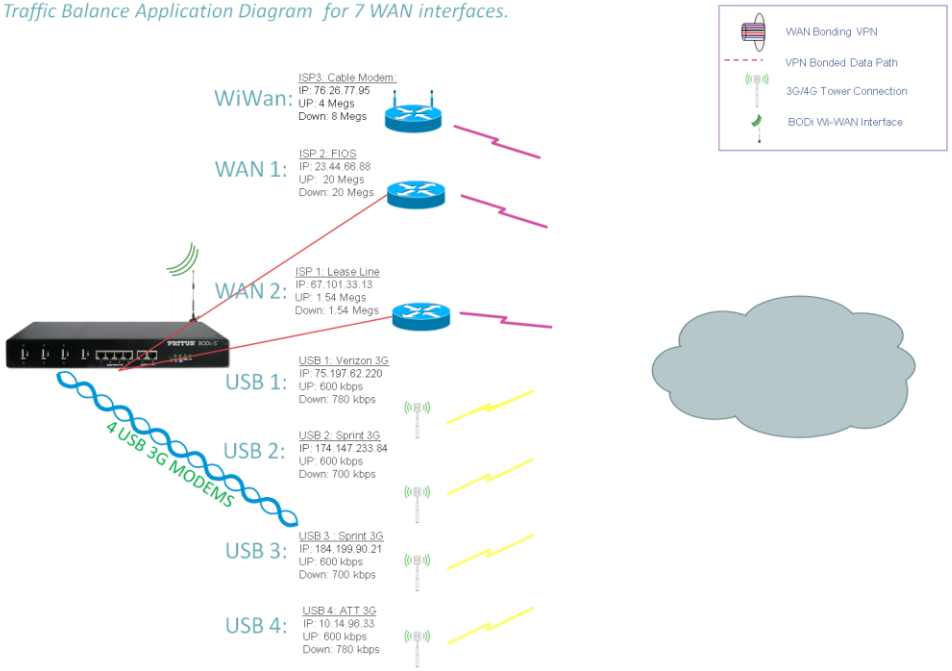
- BODi delivers in-box solutions to help migrate away from expensive lease line WAN providers in favor of less expensive WAN deliveries, such as cable providers, fiber, and dsl providers, while providing or maintaining business or mission critical reliability and survivability to your network.

- This application note will focus on the Weighted Balance Algorithm and how to easily setup and configure your BODi rS for your network needs.

Load sharing across multiple WAN connections

- **Balance up to 7 WAN interfaces using preconfigured balancing algorithms**
  - **Weighted Balance**: Assign more traffic to a faster links or less traffic to a connection with a costly bandwidth caps.
  - **Priority:** Route traffic to your preferred link as long as it's available.
  - **Overflow Balance:** Prevent traffic flow from slowing down when the connection runs out of available bandwidth.
  - **Least Used:** Help you choose the better connection with more free bandwidth.
  - **Enforced:** Restrict outbound traffic to a particular connection.
  - **Lowest Latency:** Give you the fastest response time when using applications like online gaming.
  - **Persistence:** Eliminate session termination issue for HTTPS, E-banking, and other secure websites.

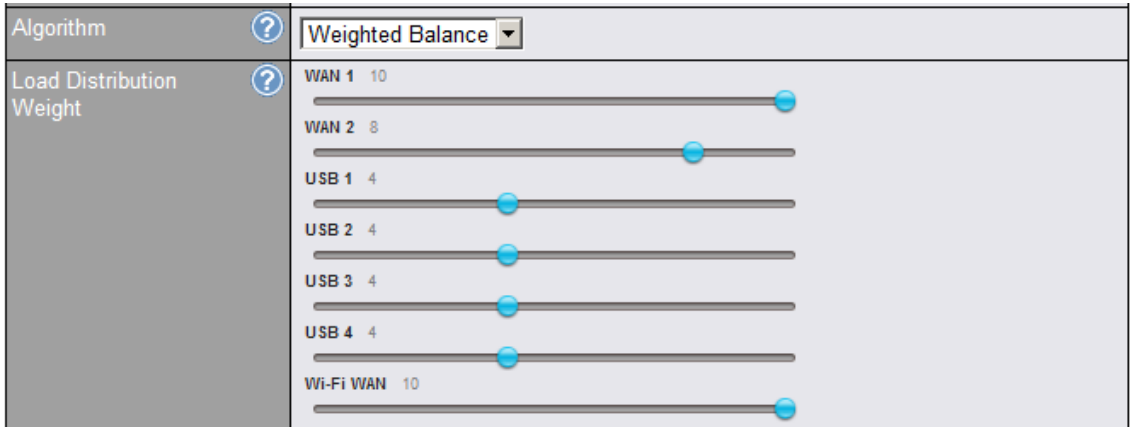
Traffic Balance Application Diagram for 7 WAN interfaces.



WAN Optimization: Let's Explore Weighted Balance

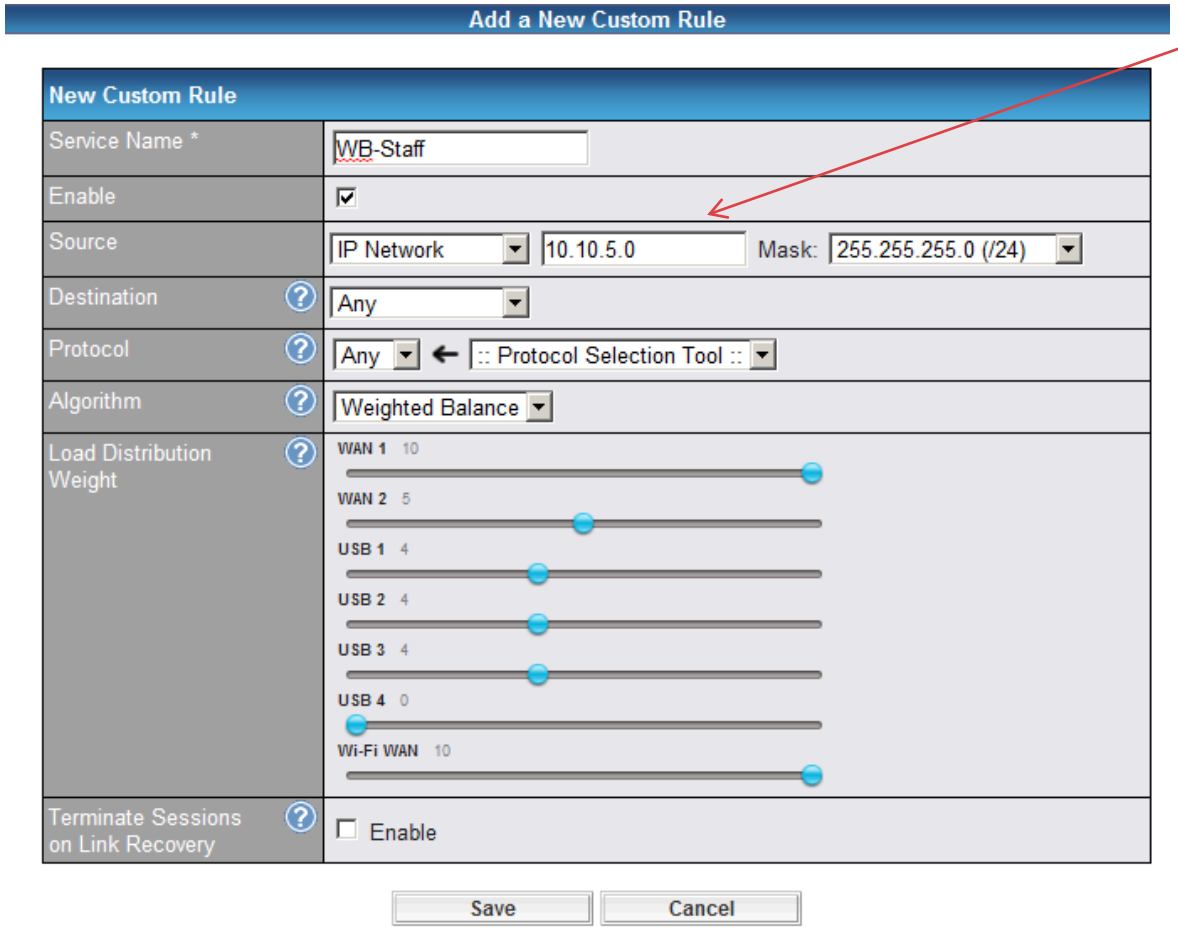
- Configure each WAN interface according to bandwidth
  - Assign more traffic to faster links
  - Assign less traffic to slower links
  - Easily assign a weight to each connection for outgoing traffic
  - Traffic is proportionally assigned according to Load Distribution Weight

This configuration window shows the ratio directly related to outgoing traffic requests over all of the active WAN links



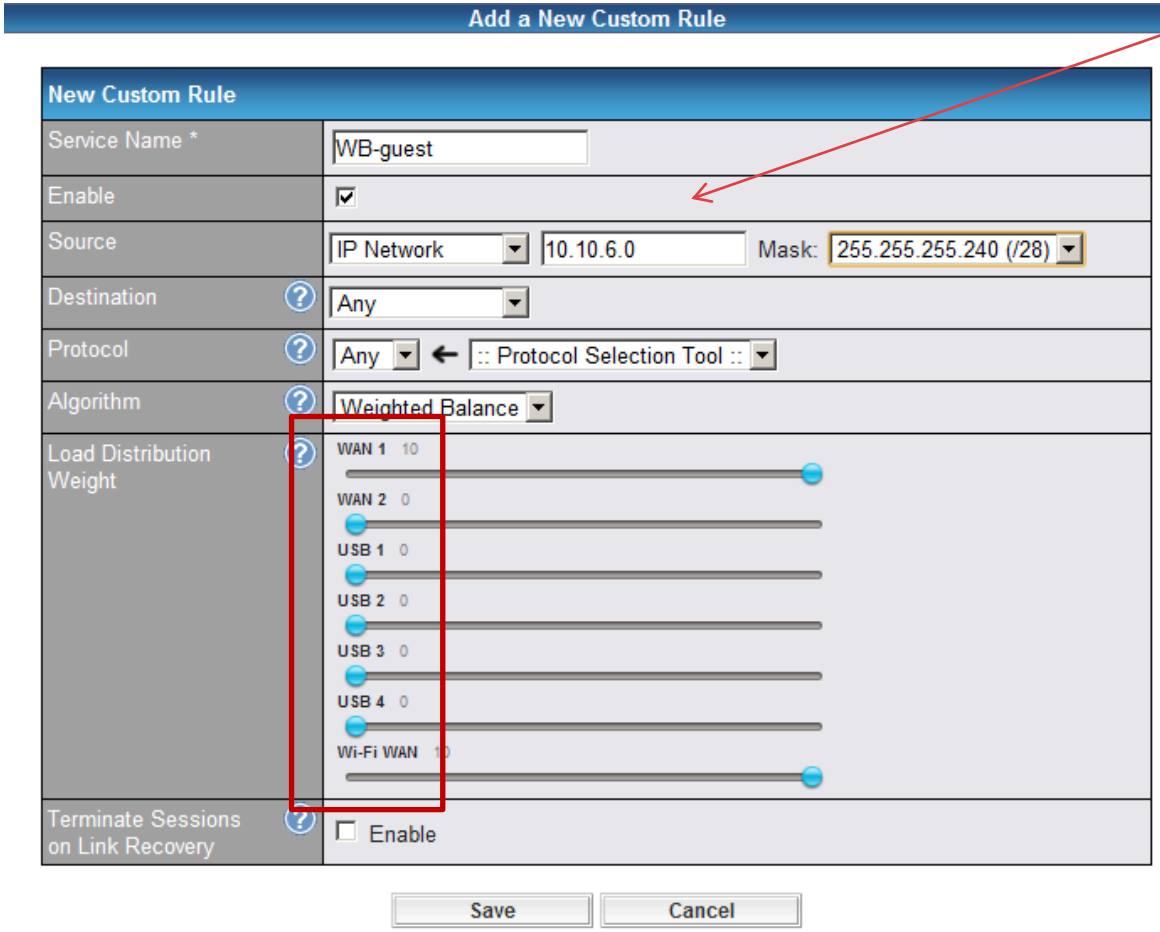
Weighted Balance configuration window

This 1st Balance rule is created for all our staff on the 10.10.5.0/24



Weighted Balance configuration window

This 2nd Balance rule is created for all our guest network on 10.10.6.0/28



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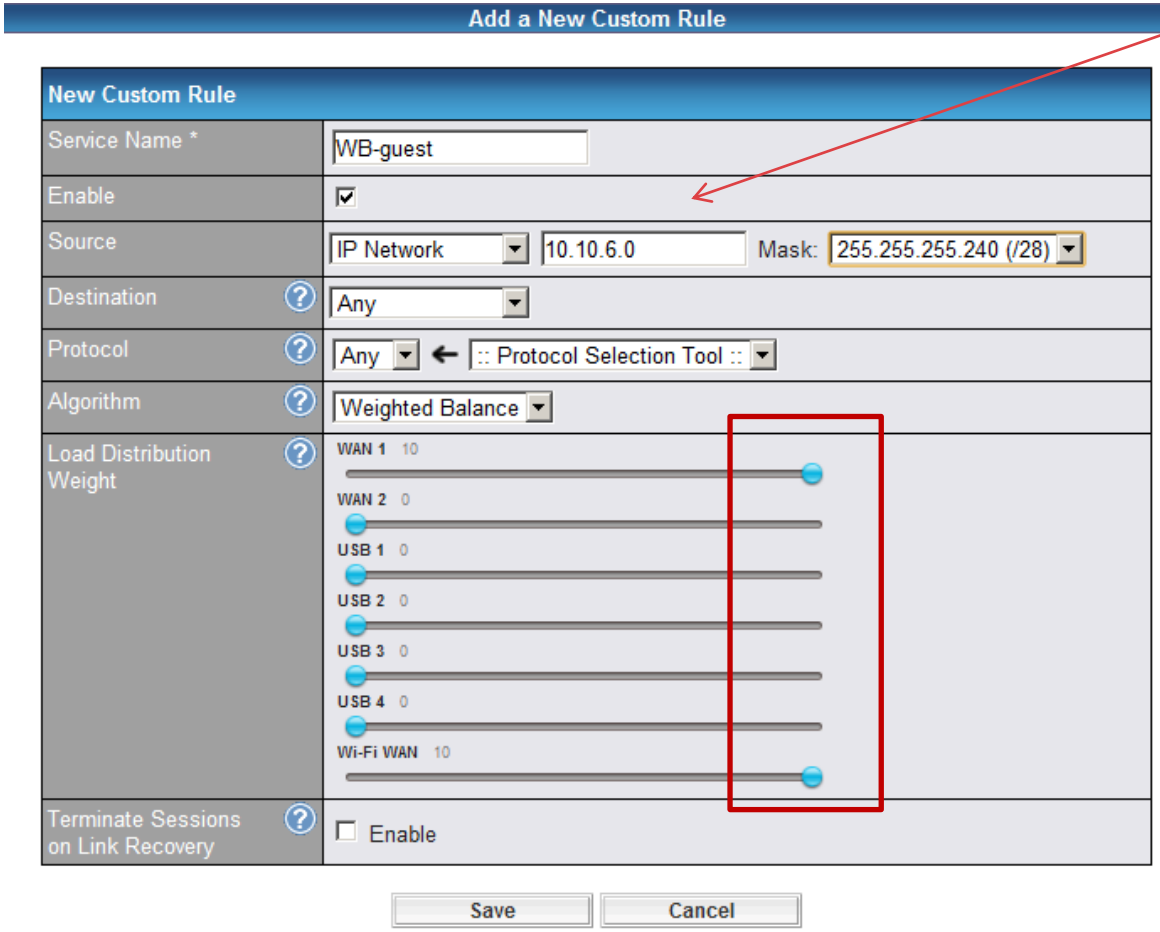
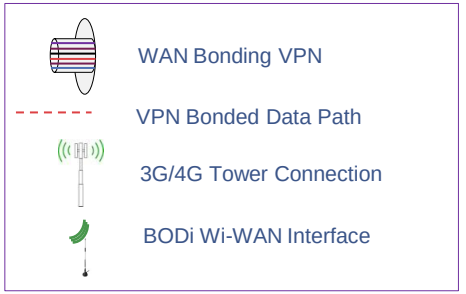


Weighted Outbound Traffic Balance App



WiWan:
ISP3: Cable Modem:
IP: 76.26.77.95
UP: 4 Megs
Down: 8 Megs

WAN 1:
ISP 2: FIOS
IP: 23.44.66.88
UP: 20 Megs
Down: 20 Megs

WAN 2:
ISP 1: Lease Line
IP: 67.101.33.13
UP: 1.54 Megs
Down: 1.54 Megs

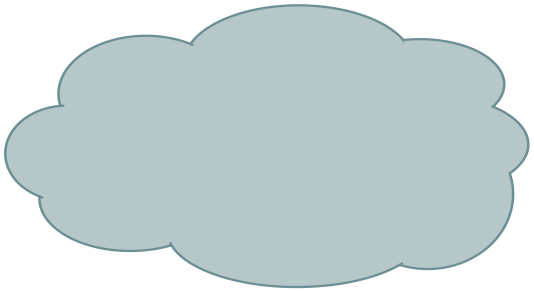
4 USB 3G MODEMS

USB 1:
USB 1: Verizon 4G LTE
IP: 75.197.62.220
UP: 6 Megs
Down: 14 Megs

USB 2:
USB 2: Sprint 3G
IP: 174.147.233.84
UP: 600 kbps
Down: 700 kbps

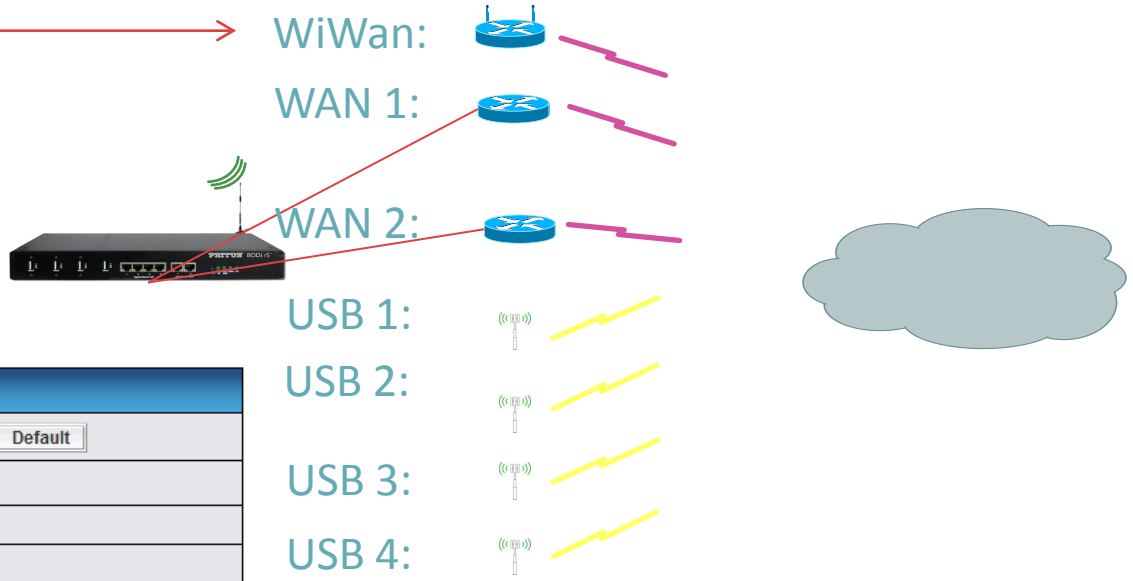
USB 3:
USB 3 : Sprint 3G
IP: 184.199.90.21
UP: 600 kbps
Down: 700 kbps

USB 4:
USB 4: ATT 3G
IP: 10.14.96.33
UP: 600 kbps
Down: 780 kbps



Weighted Outbound Traffic Balance App

ISP 2: FIOS
IP: 23.44.66.88
UP: 20 Megs
Down: 20 Megs



WAN Port	
WAN Connection Name	WAN 1 Default
Connection Method	Static IP
Routing Mode	NAT
IP Address	67.101.23.10
Subnet Mask	255.255.255.248 (/29)
Default Gateway	67.101.23.9
DNS Servers	Use the following DNS server address(es) DNS Server 1: 8.8.8.8 DNS Server 2: 8.8.8.4
Standby State	Remain connected / Disconnect
Upstream Bandwidth	20 Mbps
Downstream Bandwidth	20 Mbps
Health Check Method	DNS Lookup
Health Check DNS Servers	Host 1: Host 2: Use first two DNS servers as Health Check DNS Servers Include public DNS servers

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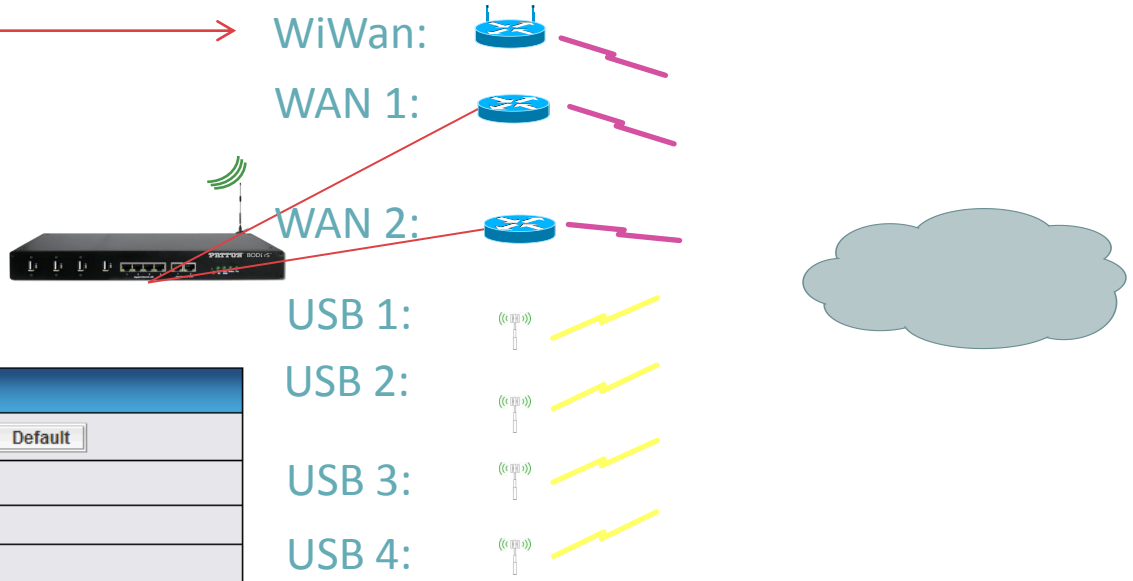

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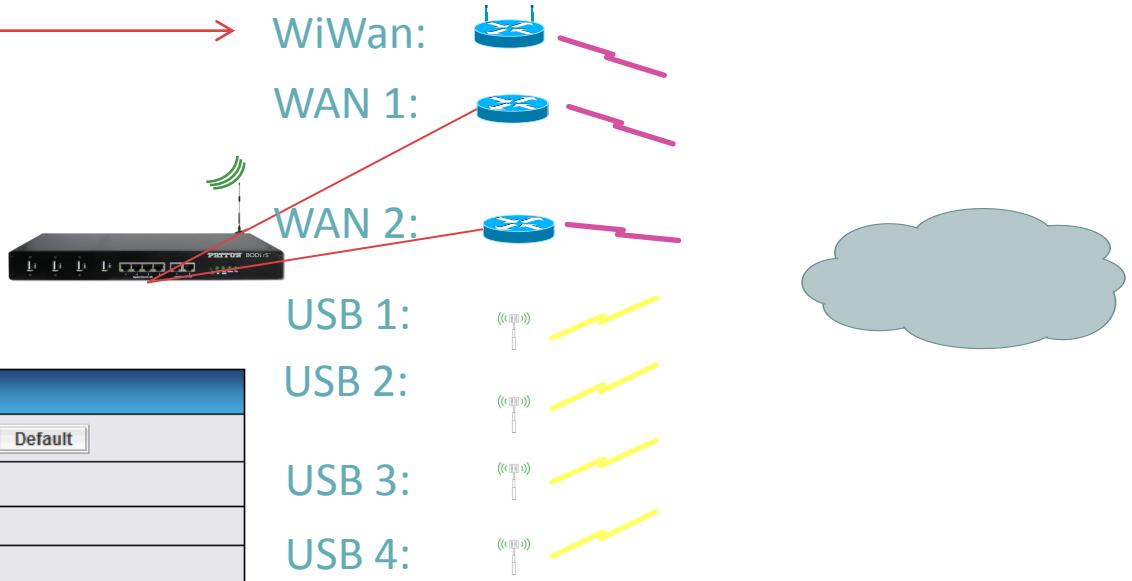
This value is referenced when default weight is chosen for outbound traffic and traffic prioritization. A correct value can result in effective traffic prioritization and efficient use of upstream bandwidth.

Weighted Outbound Traffic Balance App

ISP 3: Cable Modem
IP: 76.26.77.95
UP: 4 Megs
Down: 8 Megs



WAN Port	
WAN Connection Name	Cable Modem [Default]
Connection Method	Static IP
Routing Mode	NAT
IP Address	76.26.77.95
Subnet Mask	255.255.255.248 (/29)
Default Gateway	76.26.77.65
DNS Servers	Use the following DNS server address(es) DNS Server 1: 8.8.8.8 DNS Server 2: 8.8.8.4
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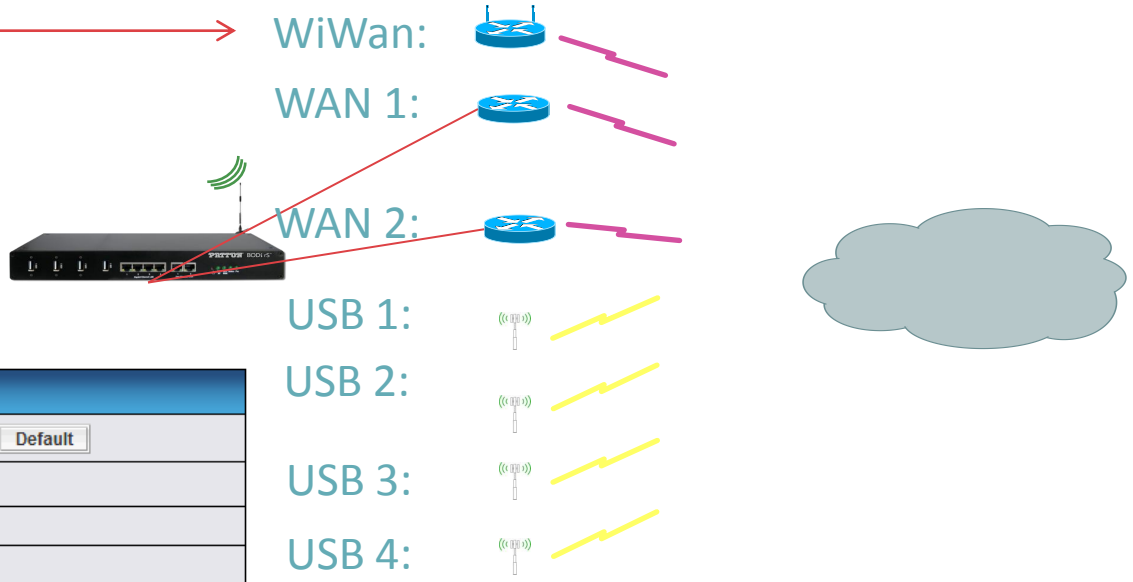

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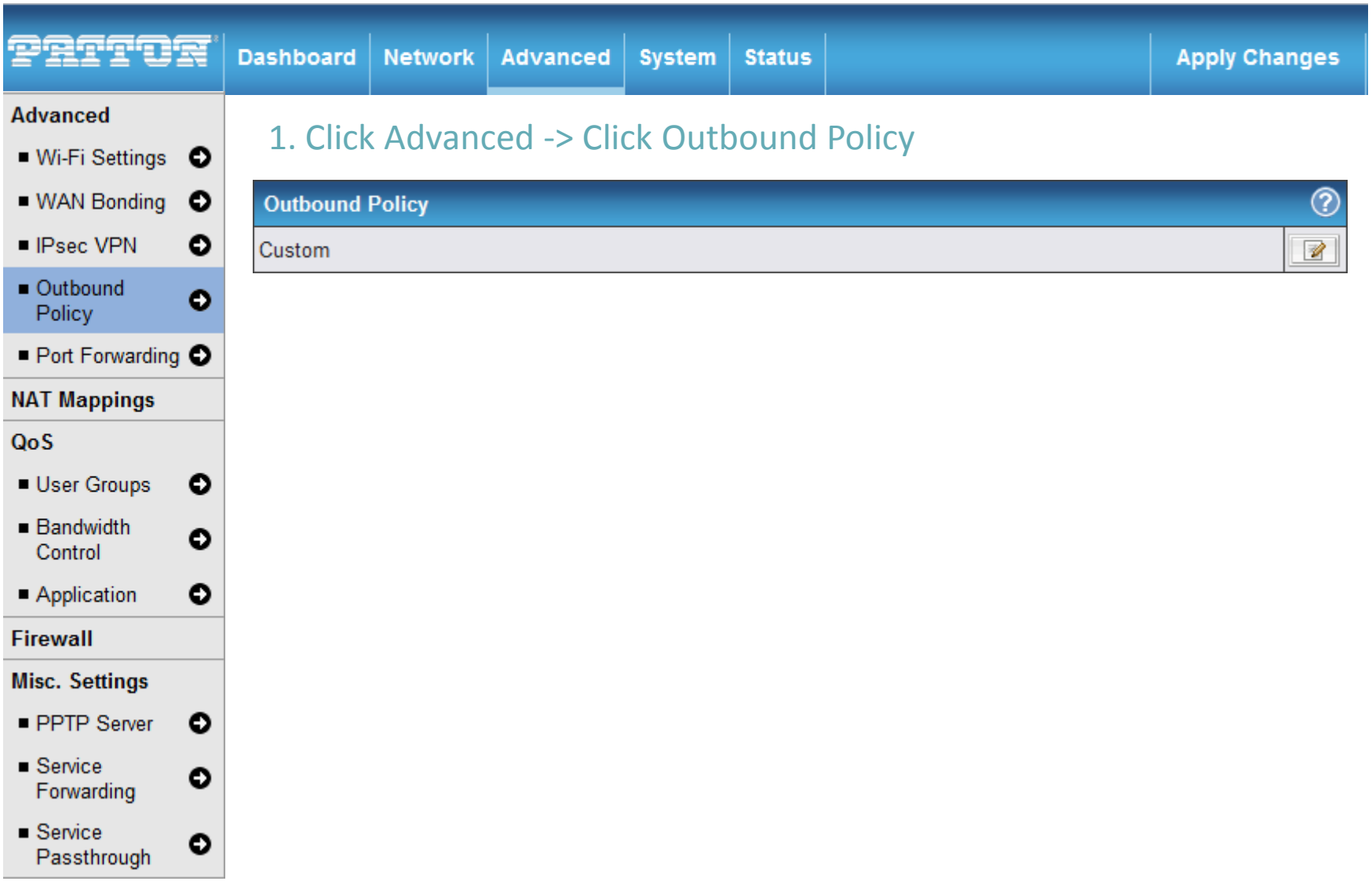
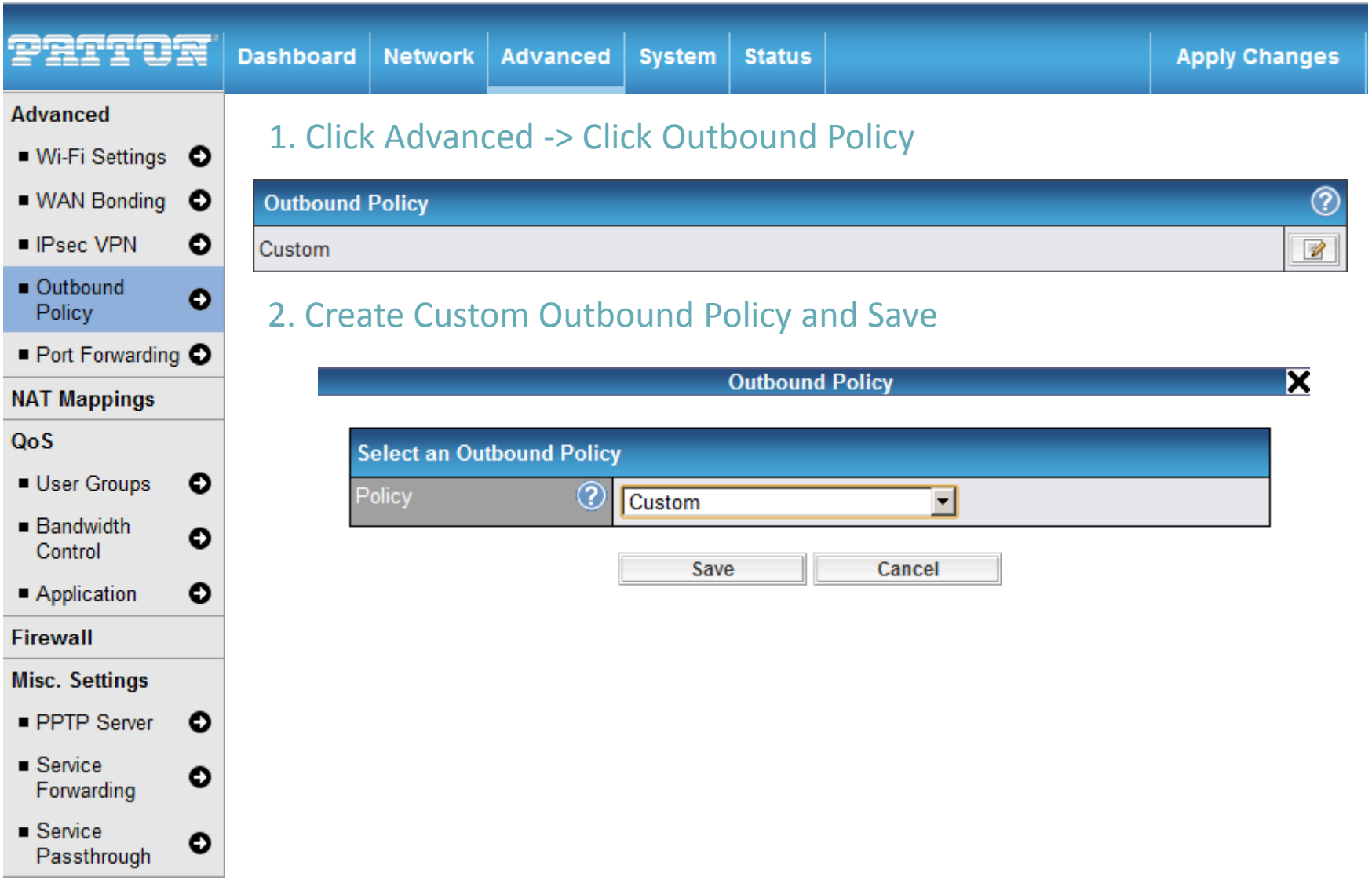
New Custom Rule

Service Name *	WBDemo
Enable	☑
Source	IP Network 192.168.51.0 Mask: 255.255.255.224 (/27)
Destination	Any
Protocol	Any ← :: Protocol Selection Tool ::
Algorithm	Weighted Balance
Load Distribution Weight	WAN 1 10 WAN 2 8 USB 1 4 USB 2 4 USB 3 4 USB 4 4 Wi-Fi WAN 10
Terminate Sessions on Link Recovery	Enable

Step-by-Step: Configuration for Weighted Balance Policy



Step-by-Step: Configuration for Weighted Balance Policy



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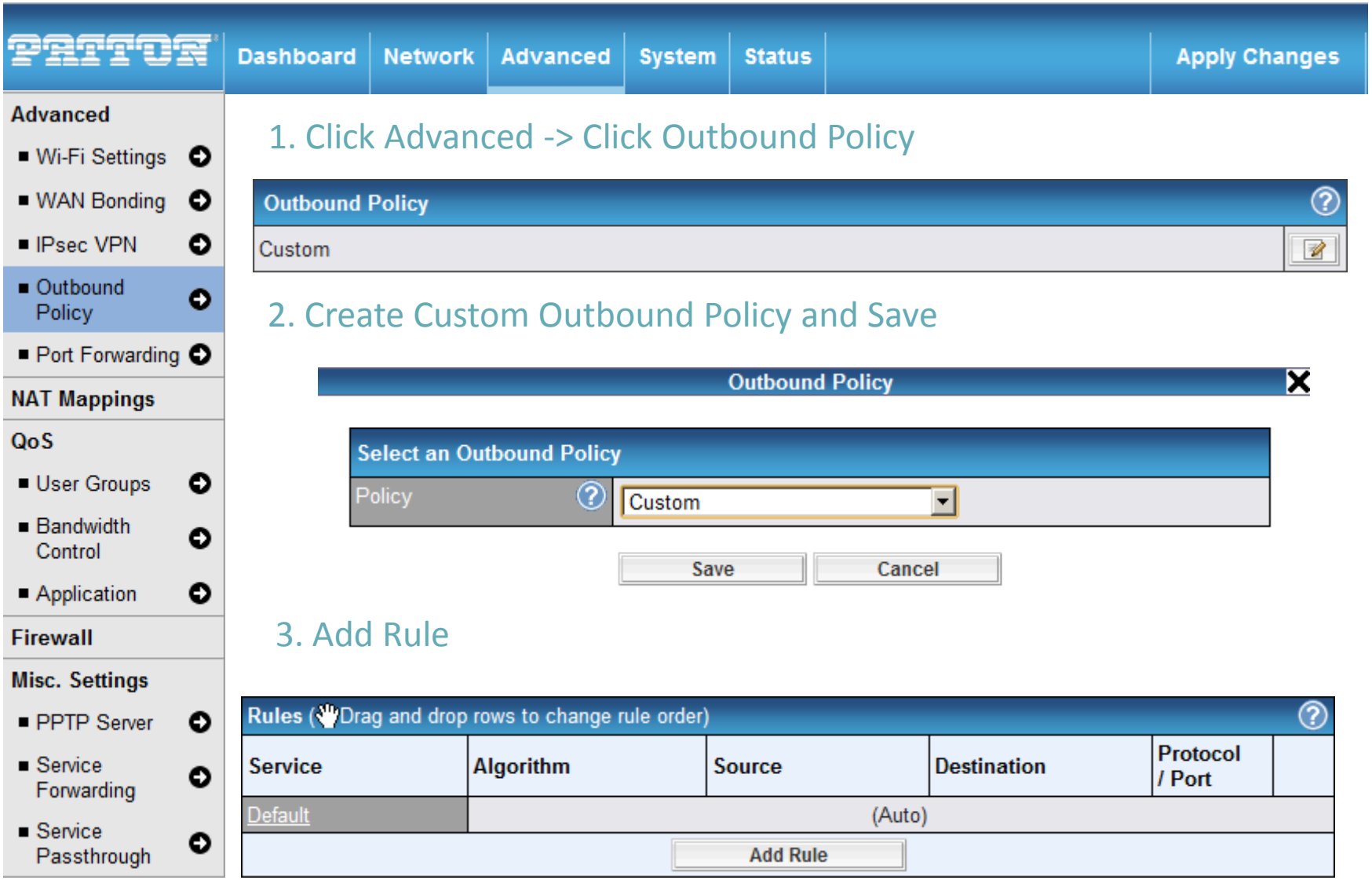

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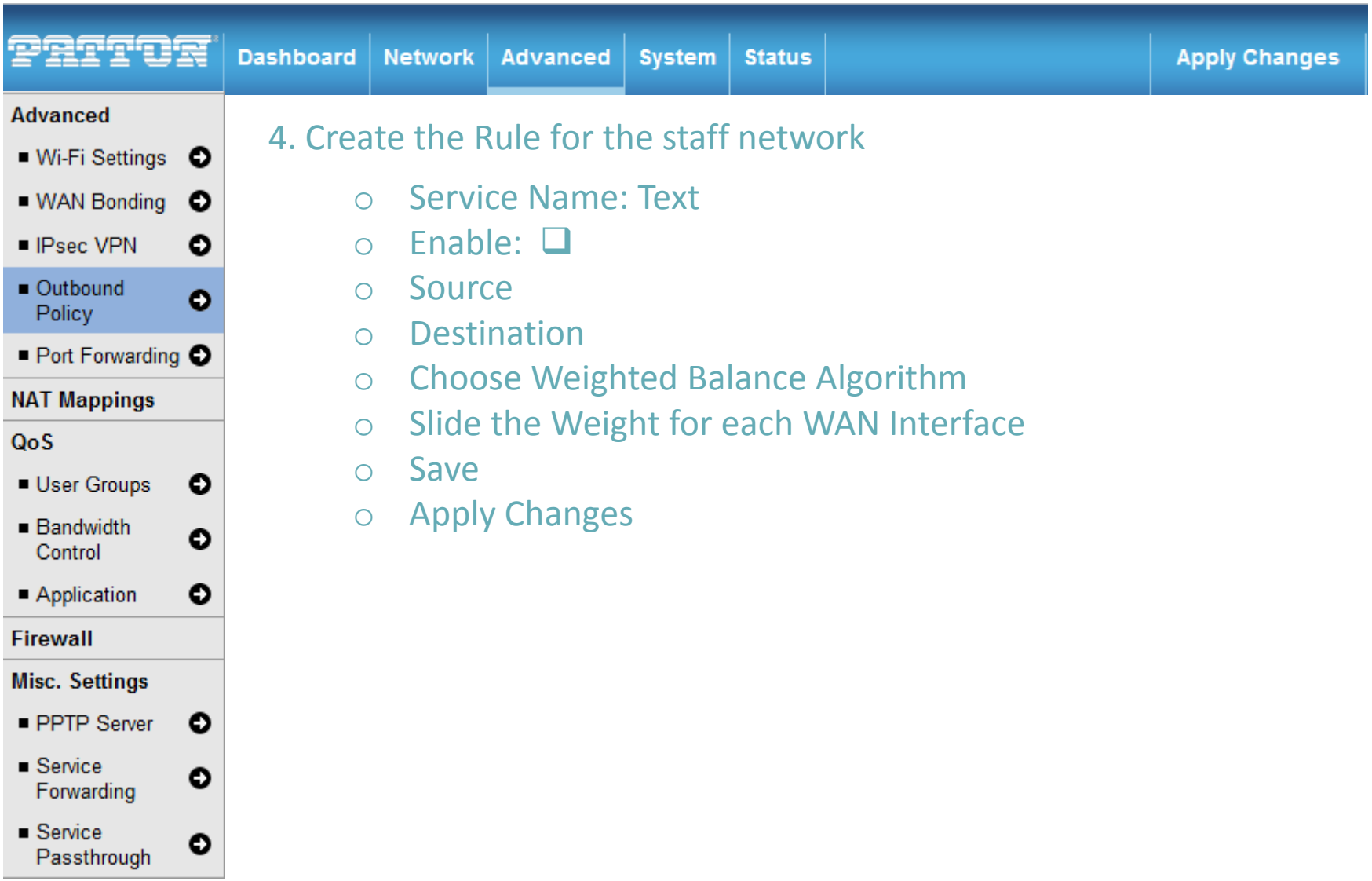

4. Create the Rule for the staff network
   - Service Name: Text
   - Enable: ❑
   - Source
   - Destination
   - Choose Weighted Balance Algorithm
   - Slide the Weight for each WAN Interface
   - Save
   - Apply Changes

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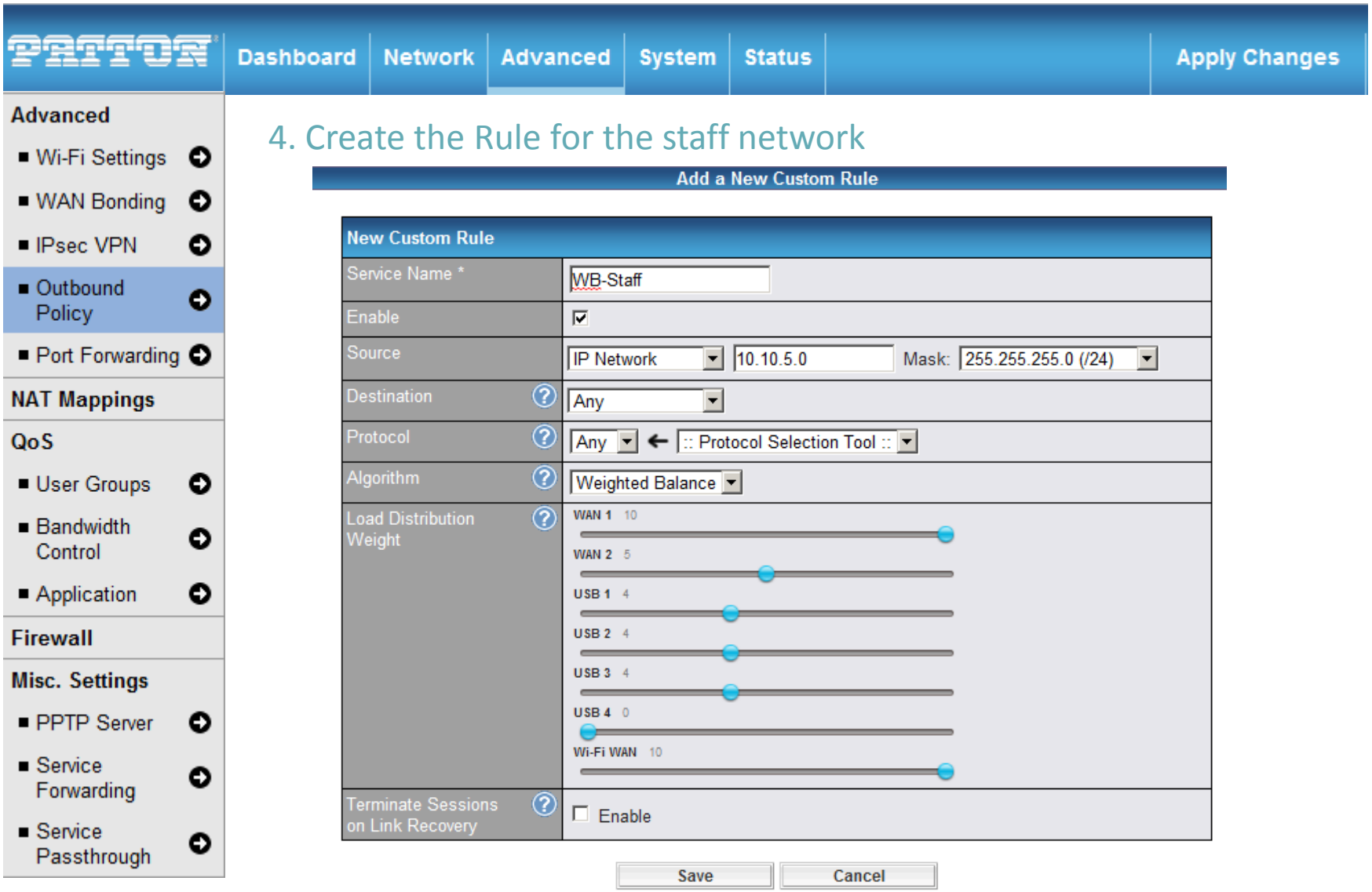

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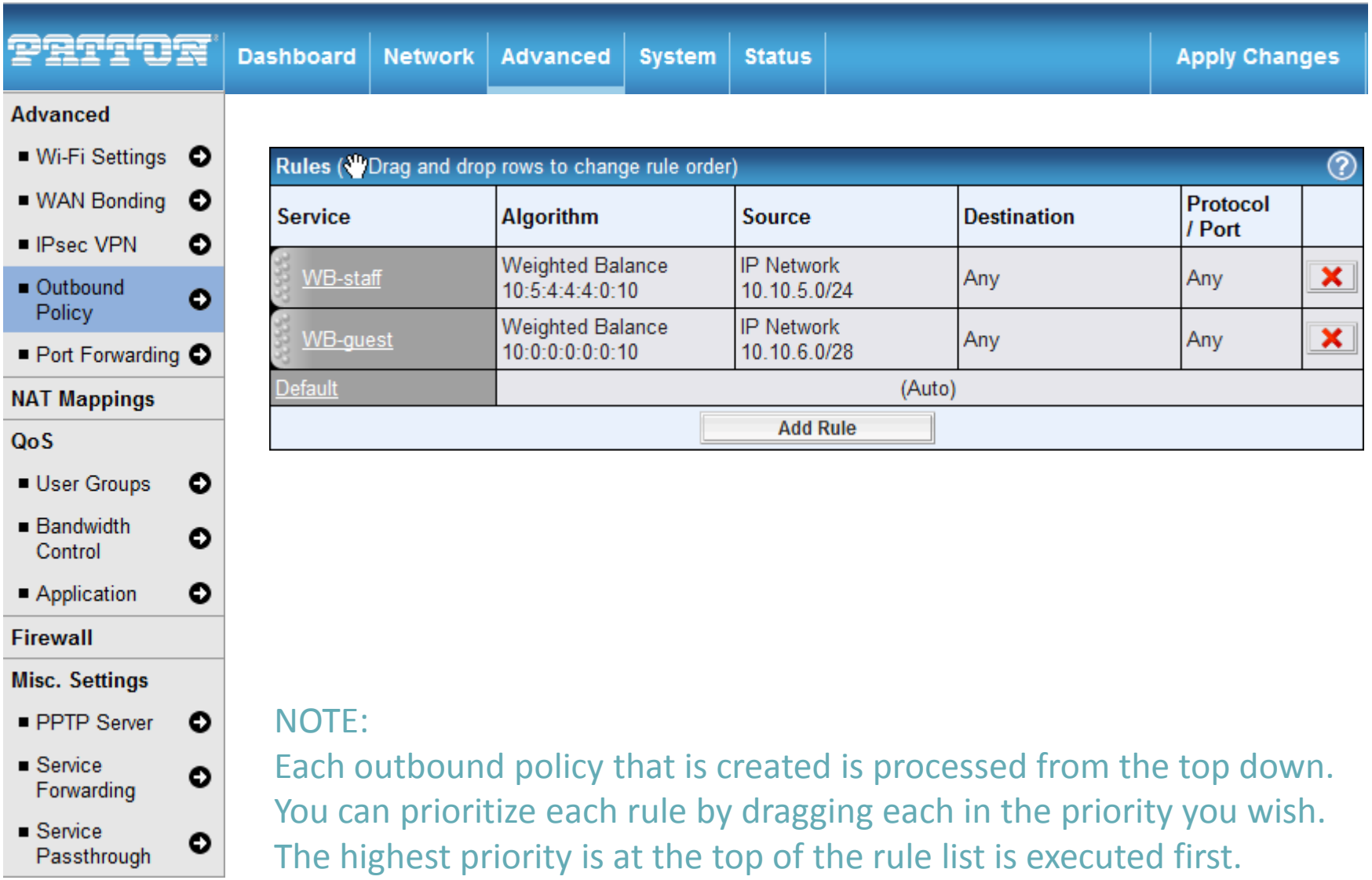

NOTE:
Each outbound policy that is created is processed from the top down. You can prioritize each rule by dragging each in the priority you wish. The highest priority is at the top of the rule list is executed first.

FOR FURTHER INFORMATION

For Further information visit us @ www.patton.com or contact us:

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