



SANGFOR

Sangfor IAG 13.0.47

Bandwidth Management



5. Link Load Balancing



SANGFOR
深信服科技

Link Load Balancing - Introduction

Background: With the continuous growth and development of enterprises, an enterprise has more than one Internet line, and the bandwidth of each line is very limited. How to set up a more reasonable use of line bandwidth, improve the speed of access to the public network

Solution: IAG offers 3 technologies: Specific line, Link Load Balancing and VPN as backup.

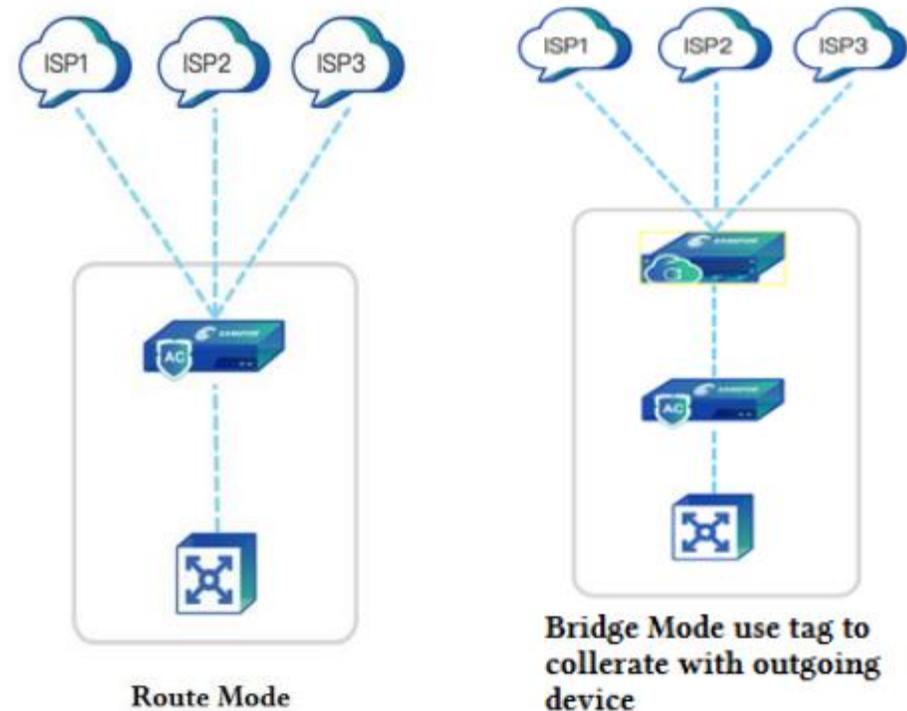
Policy-Based Routing: Forward traffics to different ISP according to source/destination IP and Protocol.

1.Link Load Balancing: Forward traffics to different lines base on bandwidth remaining, weighted round robin, even load assignment and prefer link at top settings.

2.Make VPN Tunnel as Standby Link: Customer has two ISP lines, Line1 is using for VPN Tunnel to branch, Line2 is lease line to branch. By default, all the traffics to branch by using lease line, when lease line is faulty, the traffics is forward via VPN tunnel.

Link Load Balancing - Introduction

Starting from IAG 12.0.41 version, the link load balancing support in Route mode and bridge mode, bridge mode required collerate with the ADC to achieve the load balancing by using the tag.



Link Load Balancing - Introduction

1. Deploy device in route mode and bridge mode, configure IP address, DNS and Gateway for each WAN interface correctly.
2. Configure access control policy in IAG, allow all internal network segments to access Internet by using all WAN interfaces.

The configuration steps above are skipped, please refer to PPT slides: [IAG_Deployment](#), [IAG_Access_control](#) and [IAG_Firewall](#)

Link Load Balancing - Introduction

3. Configure Link State Detection

The screenshot displays the 'Link Load Balancing' configuration page. A table titled 'Link State Detection' shows the status of two lines:

Status	Line	Interface	Detection Method
Normal	Line1	eth2	dns:www.google.com
Failed	Line2	eth3	dns:www.google.com

A 'Link State Detection' dialog box is open, showing the following settings:

- Enable auto detection
- Detection Method:
 - DNS lookup (Resolve Domain: www.google.com)
 - PING (Dst IP:)
- Checked Parameter:
 - Interval (sec): 2
 - Max Attempts: 3

Link State Detection has 2 detection methods: DNS lookup and Ping

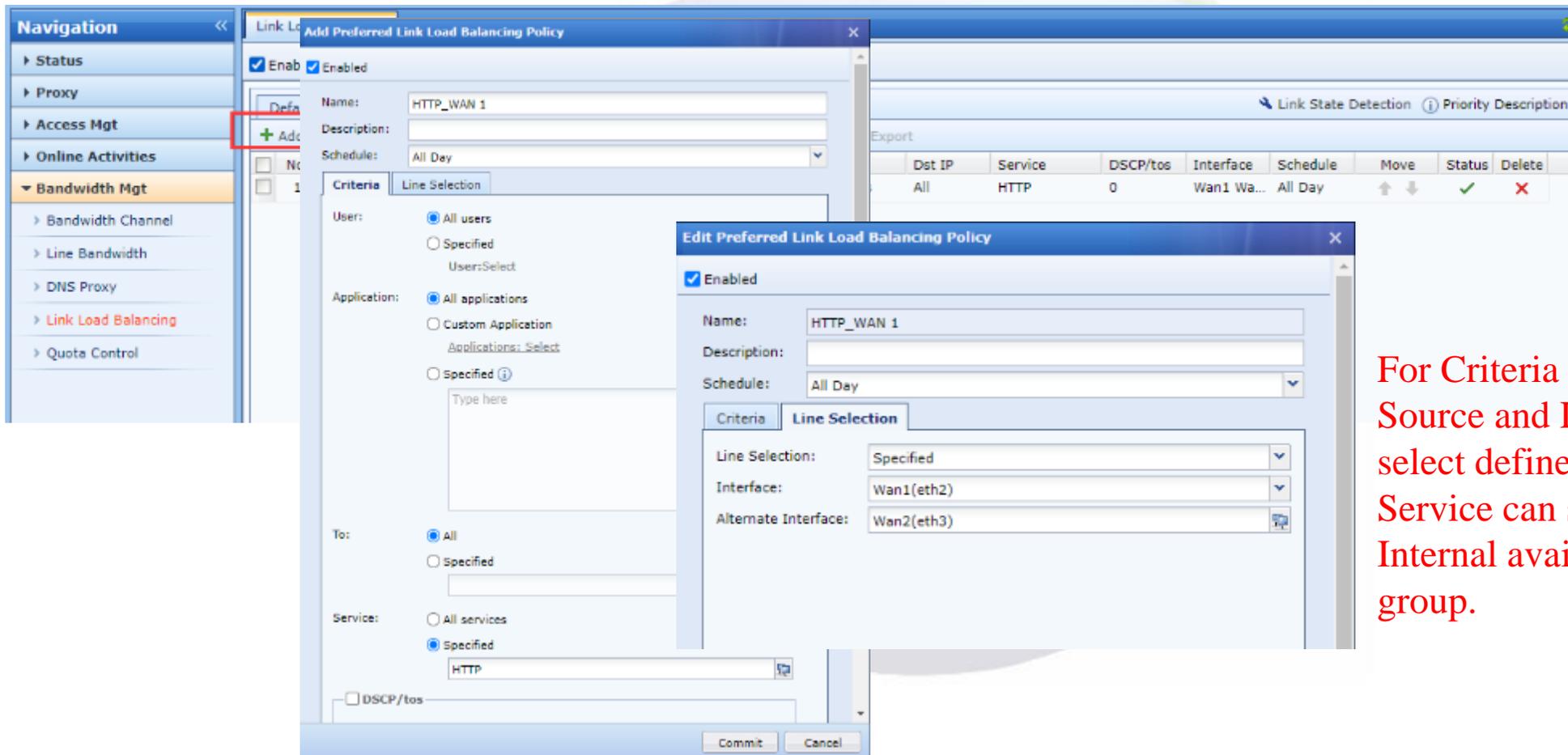
Configure link state for second line as well

(1) Any detection method: Ping and DNS lookup failed, the line is consider down

(2) DNS lookup and Ping support multiple IP address/domain, the line is consider normal if any IP/domain accessible

Link Load Balancing - Introduction

4. Configure Policy-Based Routing



The screenshot displays the Sangfor firewall configuration interface. The left sidebar shows the navigation menu with 'Bandwidth Mgt' expanded. The main area shows the 'Add Preferred Link Load Balancing Policy' dialog box. The 'Criteria' tab is selected, and the 'Line Selection' sub-tab is active. The configuration includes:

- Name: HTTP_WAN 1
- Description: (empty)
- Schedule: All Day
- User: All users
- Application: All applications
- To: All
- Service: Specified (HTTP)
- DSCP/tos: (unchecked)

The 'Edit Preferred Link Load Balancing Policy' dialog box is also visible, showing the 'Line Selection' sub-tab with the following settings:

- Line Selection: Specified
- Interface: Wan1(eth2)
- Alternate Interface: Wan2(eth3)

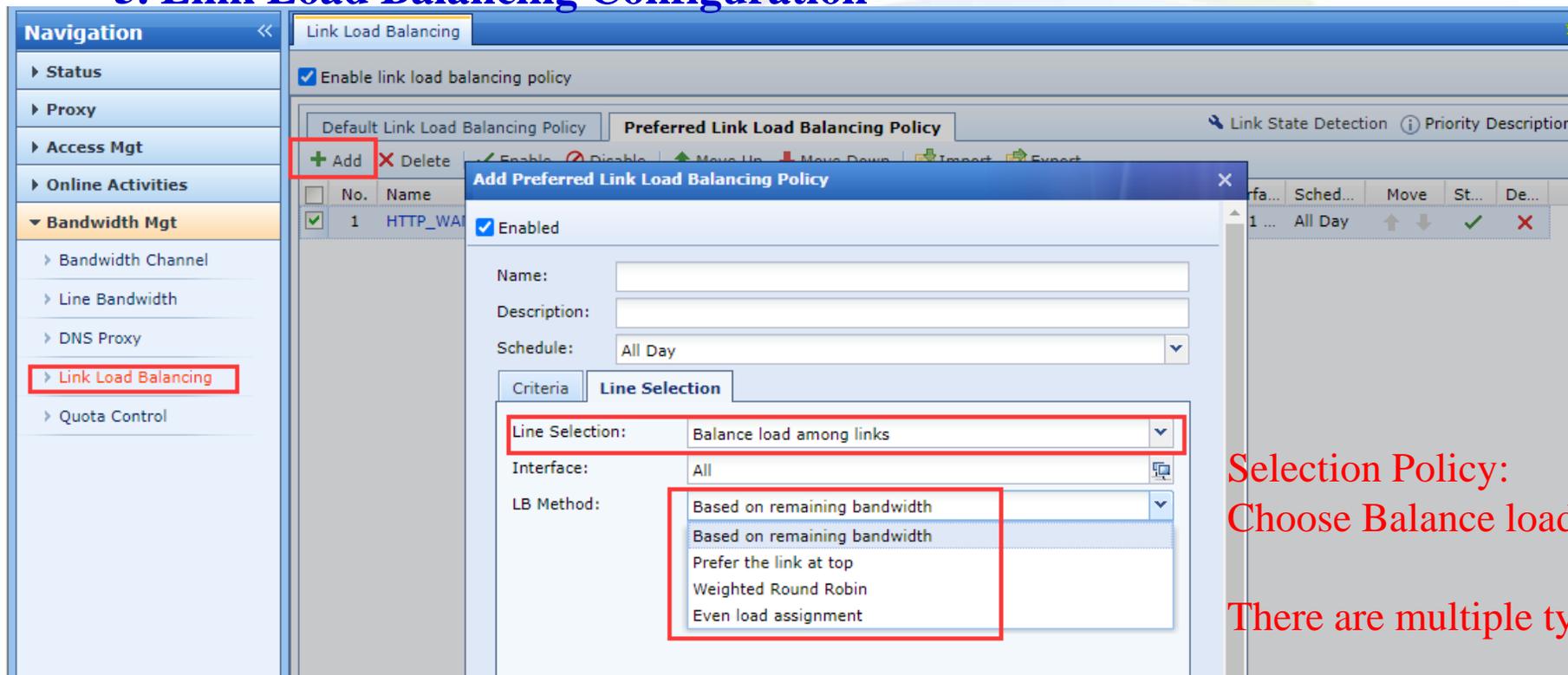
A table at the top right of the main interface shows the 'Link State Detection' configuration:

Export	Dst IP	Service	DSCP/tos	Interface	Schedule	Move	Status	Delete
	All	HTTP	0	Wan1 Wa...	All Day	↑ ↓	✓	✗

For Criteria configuration, Source and Dst Address can select defined IP group, Service can select IAG Internal available service group.

Link Load Balancing - Introduction

5. Link Load Balancing Configuration



The screenshot displays the SANGFOR Link Load Balancing configuration interface. On the left, a navigation pane shows the 'Link Load Balancing' option selected under 'Bandwidth Mgt'. The main area shows the 'Preferred Link Load Balancing Policy' configuration. A dialog box titled 'Add Preferred Link Load Balancing Policy' is open, showing the following settings:

- Enabled
- Name: [Empty field]
- Description: [Empty field]
- Schedule: All Day
- Criteria: Line Selection
- Line Selection: Balance load among links
- Interface: All
- LB Method: [Dropdown menu with options: Based on remaining bandwidth, Prefer the link at top, Weighted Round Robin, Even load assignment]

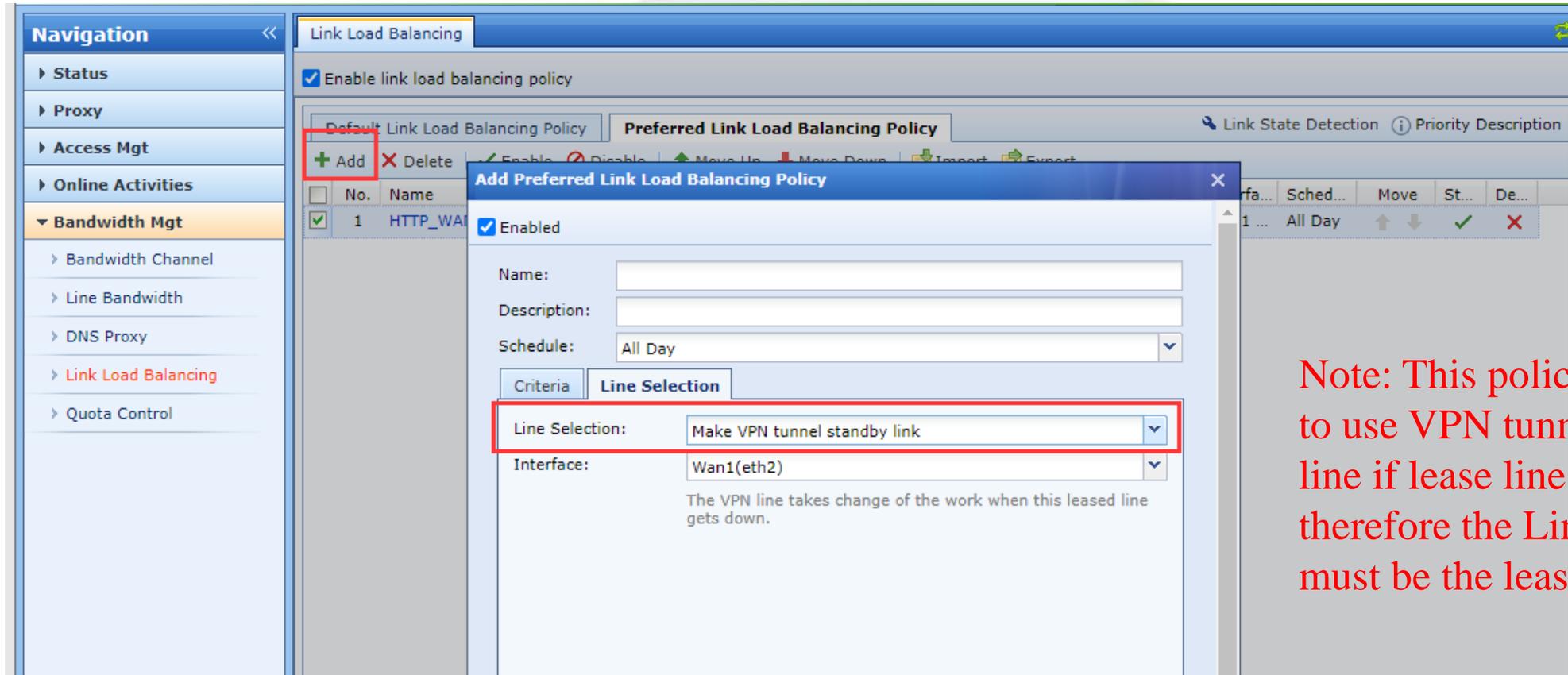
Red boxes highlight the '+ Add' button in the main interface, the 'Line Selection' dropdown, and the 'LB Method' dropdown in the dialog box.

Selection Policy:
Choose Balance load among links.

There are multiple type of LB methods

Link Load Balancing - Introduction

6. Make VPN tunnel standby link



The screenshot shows the SANGFOR Link Load Balancing configuration interface. The main window is titled "Link Load Balancing" and has a sidebar on the left with navigation options: Status, Proxy, Access Mgt, Online Activities, Bandwidth Mgt (selected), Bandwidth Channel, Line Bandwidth, DNS Proxy, Link Load Balancing, and Quota Control. The main area shows the "Preferred Link Load Balancing Policy" configuration. A modal window titled "Add Preferred Link Load Balancing Policy" is open, showing the following fields:

- Enabled
- Name:
- Description:
- Schedule: All Day
- Criteria: Line Selection
- Line Selection: (highlighted with a red box)
- Interface:

Below the Line Selection field, there is a note: "The VPN line takes change of the work when this leased line gets down."

Note: This policy purpose is to use VPN tunnel as backup line if lease line is down, therefore the Line selected must be the lease line



Precaution

1. Link Load Balancing only available for route mode and bridge mode deployment.
2. When there is requirement for multiple WAN lines, make sure the WAN lines license under device license is enough.
3. Link State Detection configuration must be done first because this function will detect and determine whether ISP line is valid. If the line is faulty, IAG will forward the traffics to another line.