RELEASE NOTES:

User's Guide

Release 5.2

Alteon WebSystems
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Part Number: 050045, Revision C, August 1999

Release Notes

These release notes provide the latest information regarding your WebOS switch software. This supplement covers new features, bug fixes, and known issues for WebOS Release 5.2.0 (and above), and modifies information found in the complete documentation: *WebOS Switch Software User's Guide* for Release 5.2 (Part Number 050044, Revision B). Please keep this information with your Alteon WebSystems manuals.

New Switch Failover Method

Release 5.2 includes Virtual Router Redundancy Protocol (VRRP) for redundancy to routers within a LAN. In addition, Alteon Websystems has extended VRRP to include virtual servers as well, allowing for full active/active redundancy between its Layer 4 switches. This allows for more efficient network resource allocation than the old hot-standby method. It also supports more complex failover topologies.

VRRP Active/Active Replaces Hot-Standby for SLB

With the addition of VRRP, the hot-standby switch failover mode for Server Load Balancing has been removed. During the software upgrade process (see page 5), if the switch is configured with hot-standby failover, the configuration will be converted to active/active failover, and VRRP will be automatically enabled.

VRRP Excludes Filters

The old hot-standby failover required the primary and secondary switches to have identical configurations and port topology. With VRRP and active/active failover, port topology can be different between the switches, and so port filters can also vary. As a result, when switch configuration synchronization (`/oper/slb/sync`) is performed, VRRP and Server Load Balancing settings are sychronized, but Layer 4 filter settings are not.

To accomplish Filtering and Application Redirection redundancy, configure each switch to perform these functions independently, and turn on Spanning-Tree Protocol (STP).

VRRP, STP, and Failover Response Time

VRRP active/active failover is significantly different from the hot-standby failover method in previous releases. One important difference is that VRRP generally requires Spanning-Tree Protocol (STP) to be enabled in order to resolve bridge loops that usually occur in cross-redundant topologies like the one shown below.

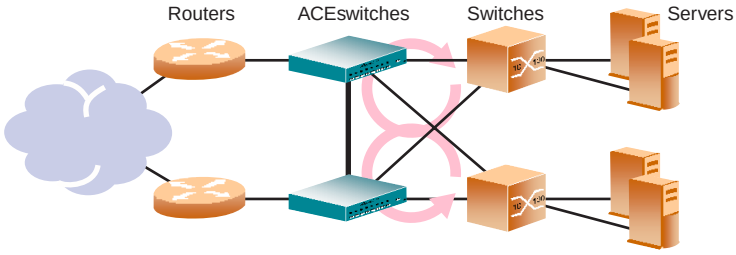

Figure 1 Cross-redundancy creates loops, but STP resolves them

In this example, a number of loops are wired into the topology. STP resolves loops by blocking ports where looping is detected.

One drawback to using STP with VRRP is the failover response time. STP could take as long as 45 seconds to reestablish alternate routes after a switch or link failure.

When using VRRP in WebOS Release 5.2, you can decrease failover response time by using VLANs instead of STP to separate traffic into non-looping broadcast domains. For example:

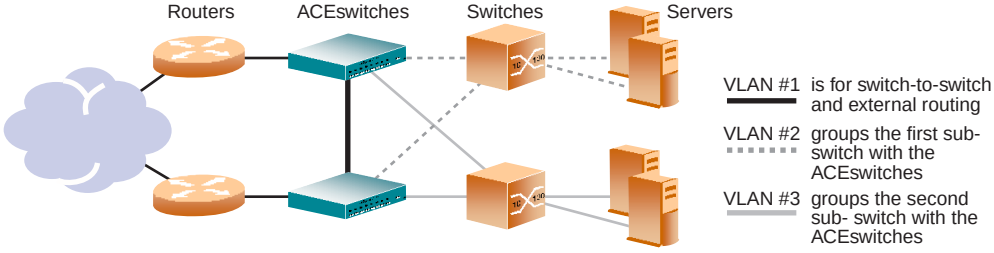

Figure 2 VLANs can be used to create non-looping topologies.

The topology above allows STP to be disabled. On the ACEswitches, IP routing allows traffic to cross VLAN boundaries. The servers use the ACEswitches as default gateways. For port failure, traffic is rerouted to the alternate path within one health-check interval (configurable between 1 and 60 seconds, with a default of 2 seconds).

VRRP Virtual Router ID Numbering

During the software upgrade process (see below), VRRP virtual router IDs will be automatically assigned if failover is enabled on the switch. When configuring VRRP virtual routers at any point after upgrade, virtual router ID numbers (`/cfg/vrrp/vr #/vrid`) must be assigned in accordance with the following restrictions:

- The virtual router ID may be configured as ***any number*** between 1 and 255 when the virtual router IP address is not the same as a virtual server IP address.
- The virtual router ID must be configured an ***odd number*** between 1 and 255 under the following circumstance:
  - The virtual router uses Layer 4 services (its virtual router IP address is the same as a virtual server), *and*...
  - Layer 3 binding is turned on for the virtual server (enabling the `layr3` option on the virtual server menu: `/cfg/slb/virt`)
- The virtual router ID must be configured as an ***even number*** between 2 and 254 under the following circumstance:
  - The virtual router uses Layer 4 services (its virtual router IP address is the same as a virtual server), *and*...
  - Layer 3 binding is turned off for the virtual server (disabling the `layr3` option on the virtual server menu: `/cfg/slb/virt`)

Upgrade Installation Notes

There are two major issues to consider when upgrading to WebOS Release 5.2:

- Before you can upgrade to WebOS Release 5.2, your switch must be running Release 4.0.42 (or above) with boot kernel version 5.0 (or above). The TFTP upgrade procedure below includes special steps for upgrading from older software.
- To prevent forwarding loops during VRRP failover conversion, STP must be enabled on both the active and standby switches. This is also covered in the TFTP procedure below.

There are two ways to upgrade switch software: TFTP software downloads which allow you to retain the switch configuration, or serial downloads which reset the configuration.

TFTP Upgrade

Because TFTP software downloads retain the switch configuration throughout the upgrade process, this method is preferred when upgrading switch software.

NOTE – To avoid problems with configuration conversion during TFTP software download, please follow the procedure below carefully. Since some of the upgrade steps require resetting the switch, be sure to schedule appropriate network downtime for the upgrade process. Also, before upgrading the switch software, be sure to make a backup of the switch configuration.

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1. **If failover is configured, make sure that Spanning-Tree Protocol (STP) is on for both switches.**

   To prevent forwarding loops during failover conversion, STP must be enabled on both the active and standby switches. If failover is not configured, this step is not necessary and you may skip to step 3.

   If you're unsure whether switch failover is configured, use the `/info/slb` command to display failover information. For example:

```
# /info/slb

Failover state:
  primary   10.10.10.1,     up, STANDBY
  secondary 10.10.10.2,     up, ACTIVE (this switch)
...
```

   Above, we see that failover is configured and we must make sure that STP is on for both switches. If you're unsure about the status of STP, use the `/cfg/stp/cur` command to check. For example:

```
# /cfg/stp/cur
------------------------------------------------------------------------
Current operational Spanning Tree settings: globally turned OFF
...
```

Above, we see that STP is globally turned off. Use the following commands to turn STP on, first on the standby switch, and then on the active switch. Both switches must be reset within 45 seconds of each other in order for STP to be properly resolved.

```
# /cfg/stp/on                          (Globally turn Spanning-Tree Protocol on)
>> Spanning Tree# save                 (Save the configuration changes)
>> Spanning Tree# /boot/reset          (Reboot the switch with STP on)
```

NOTE – Turning STP on may increase the time required to reboot the switch. You can minimize the reboot time by setting STP timer parameters to their lowest reasonable values before saving configuration parameters.

2. **If switch failover is configured, upgrade the software on the standby switch first.**

   If you're unsure which switch is in standby mode, use the `/info/slb` command to display failover information. For example:

```
# /info/slb

Failover state:
  primary   10.10.10.1,     up, ACTIVE
  secondary 10.10.10.2,     up, STANDBY (this switch)
...
```

   Here, we see that the secondary (10.10.10.2) switch is in failover standby mode and should be upgraded first. Follow steps 3 through 6 for the standby switch, then repeat the process for the active switch.

3. **If running ACElerate Release 4.0.41 (or below), upgrade to Release 4.0.42.**

   You can check the version level of your switch software by using the `/info/sys` command. If necessary, obtain the Release 4.0.42 software from your service agent and install it using the TFTP software download command (`/boot/tftp`).

4. **If running switch boot kernel 4.x (or below), upgrade to boot kernel 5.0 (or above).**

   The version of your switch boot code is displayed on the console when your switch first boots. If necessary, obtain the boot kernel 5.0 (or above) from your service agent and install it using the TFTP boot download command (`/boot/tftp`).

5. **Perform a TFTP software download of WebOS Release 5.2.x.**

   The TFTP software download process is described in Chapter 9 of your *WebOS Release 5.2 User's Guide*.

6. **Once WebOS Release 5.2.x is loaded on the switch, reboot the switch.**

   To reboot the switch, use the `/boot/reset` command.

   If failover is configured on the switch, the following configuration conversions will be made when the switch reboots:

   - Virtual Router Redundancy Protocol (VRRP) will be enabled.
   - A VRRP virtual router will be configured for each virtual server to provide active/active redundancy. The virtual router IP address will be the same as the virtual server IP address.
   - The failover port will be reconfigured for Layer 4 client and server processing instead.

7. **After upgrading the standby switch of a failover pair, repeat the upgrade process (steps 3 through 6) for the active switch.**

   If failover is not configured on your switch, this step is not necessary.

Direct Serial Upgrade

To upgrade to Release 5.2.x directly from any different image, you can perform a serial download of the new switch software. However, a serial download will reset the switch configuration back to its factory defaults. The serial download procedure can be found in Chapter 18 of your *WebOS Release 5.2 User's Guide*.

Down-versioning to ACElerate Release 5.1.x or Prior

When moving from WebOS Release 5.2.x of the switch software back to Release 5.1.x or prior, the failover configuration will be lost and must be manually reconfigured or restored from a backup configuration dump.

Late-Breaking News and Support

Web access: http://www.alteon.com

Questions? Check the URL for Alteon WebSystems. This website includes product information, software updates, release notes, and white papers. The website also includes access to Alteon WebSystems Customer Support for accounts under warranty or that are covered by a maintenance contract.