



Sun Fire™ B10n Content Load Balancing Blade Version 1.1 and 1.2 Product Notes

Sun Microsystems, Inc.
www.sun.com

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Declaration of Conformity

Compliance Model Number: BP-4
Product Family Name: Sun Fire B10n Content Load Balancing Blade

EMC

USA—FCC Class A

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

As Telecommunication Network Equipment (TNE) in Both Telecom Centers and Other Than Telecom Centers per (as applicable):

EN300-386 V.1.3.1 (09-2001) Required Limits:

| | |
|-----------------|--|
| EN55022/CISPR22 | Class A |
| EN61000-3-2 | Pass |
| EN61000-3-3 | Pass |
| EN61000-4-2 | 6 kV (Direct), 8 kV (Air) |
| EN61000-4-3 | 3 V/m 80-1000MHz, 10 V/m 800-960 MHz, and 1400-2000 MHz |
| EN61000-4-4 | 1 kV AC and DC Power Lines, 0.5 kV Signal Lines |
| EN61000-4-5 | 2 kV AC Line-Gnd, 1 kV AC Line-Line and Outdoor Signal Lines, 0.5 kV Indoor signal Lines > 10m |
| EN61000-4-6 | 3 V |
| EN61000-4-11 | Pass |

As Information Technology Equipment (ITE) Class A per (as applicable):

EN55022:1998/CISPR22:1997 Class A

EN55024:1998 Required Limits:

| | |
|--------------|---|
| EN61000-4-2 | 4 kV (Direct), 8 kV (Air) |
| EN61000-4-3 | 3 V/m |
| EN61000-4-4 | 1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines |
| EN61000-4-5 | 1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines |
| EN61000-4-6 | 3 V |
| EN61000-4-8 | 1 A/m |
| EN61000-4-11 | Pass |

EN61000-3-2:1995 + A1, A2, A14 Pass

EN61000-3-3:1995 Pass

Safety: This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

EN60950:2000, 3rd Edition TÜV Rheinland Certificate No. xxxxxxxxxxxxxx

IEC 60950:2000, 3rd Edition CB Scheme Certificate No. xxxxxxxxxxxxxx

Evaluated to all CB Countries

UL 60950, 3rd Edition, CSA C22.2 No. 60950-00 File: Vol. Sec.

UL 60950, 3rd Edition, CSA C22.2 No. 950-00 File: Vol. Sec.

FDA DHHS Accession Number (Monitors Only)

Supplementary Information: This product was tested and complies with all the requirements for the CE Mark.

/S/

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Sun Fire B10n Content Load Balancing Blade Version 1.1 and 1.2 Product Notes

This document contains important information about the Sun Fire™ B10n Content Load Balancing Blade Version 1.2 software. This version includes all the features from Version 1.1 and supplements the *Sun Fire B10n Content Load Balancing Blade 1.1 Administration Guide* (Part Number 817-4326-11)

Note – The current Sun Fire B10n content load balancing blades are shipped with the Version 1.1 software. This document explains how to upgrade your software to the latest version.

Viewing the Latest Product Notes

Additional issues may arise after the publication of this version of the product notes. For the latest information, refer to the latest version of this document available at:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_Blade_Platform/Sun_Fire_b100s/index.html

Open Issues

Refer to the most recent version of this document located at the previous URL for the latest known bugs.

Software Release Features

Features Supported in Version 1.1.x

The Sun Fire B10n content load balancing blade application software release 1.1 adds high availability pair blade failover and path failover as well as support for the Sun Fire B10p SSL Proxy Blade.

Features Supported in Version 1.2.x

The rule build performance has been improved. The performance increase is up to five times faster than previous versions.

Supports no VLAN mode for Red Hat Enterprise Linux AS 2.1.

Software release 1.2.x includes support for the following Linux operating systems listed in TABLE 1.

TABLE 1 Supported Operating Systems

| Operating System | Version | Hardware | VLAN Support |
|--------------------------|------------|-----------------|-----------------|
| Solaris | 8 HW 12/02 | SF B100s /SPARC | VLAN Support |
| Solaris | 8 HW 5/03 | SF B100s /SPARC | VLAN Support |
| Solaris | 8 HW 7/03 | SF B100s /SPARC | VLAN Support |
| Solaris | 9 8/03 | SF B100s /SPARC | VLAN Support |
| Solaris | 9 12/03 | SF B100s /SPARC | VLAN Support |
| Red Hat Enterprise Linux | AS 2.1 | SF B100x /x86 | NO VLAN Support |

VLANs Optional for SSL Proxy Blades

The use of VLANs within the Sun Fire B1600 blade system is preferred when using the Sun Fire B10p SSL proxy blade. VLANs are configured at the SSC switches to create logical groups of endpoints that can communicate as if they were on the same LAN. VLANs also prevent or restrict traffic between endpoints on separate VLANs. However, some environments might not support VLANs. To disable VLAN operation for the Sun Fire B10p SSL proxy blade, use the `set vlan filter disable` command from the CLI interface.

If you choose to use VLANs, refer to the *Sun Fire B10n Content Load Balancing Blade 1.1 Administration Guide* for detailed information.

Hardware and Software Requirements

Before using the Sun Fire B10n content load balancing blade, make sure your system meets the hardware and software requirements listed in TABLE 2.

TABLE 2 Hardware and Software Requirements

| Hardware and Software | Requirements |
|-----------------------|---|
| Hardware | <ul style="list-style-type: none"> • Sun Fire™ B10n content load balancing blade • Sun Fire B10p SSL proxy blade (optional) • Sun Fire B1600 blade system chassis and other horizontally scaled Sun platforms • Sun Fire B100s blade server for SPARC or Sun Fire B100x blade server for x86 |
| Software | <ul style="list-style-type: none"> • Sun Fire B10n content load balancing blade application software 1.2 or subsequent compatible version • Sun Fire B10n content load balancing blade BSC (blade support control) firmware v5.1.4* or subsequent compatible version • Sun Fire B100s blade server Solaris Operating System versions: Solaris 8 HW 12/02 Solaris 8 HW 5/03 Solaris 8 HW 7/03 Solaris 9 8/03 Solaris 9 12/03 Red Hat Enterprise Linux AS 2.1 • Sun Fire B1600 SC (system controller) 1.2 or subsequent compatible system controller firmware • B10n Solaris server blade module version 1.55 or B10n Linux server blade module version 1.36 for Red Hat Enterprise Linux AS 2.1 • Sun GigaSwift Ethernet Adapter Patch ID 111883-18 or subsequent compatible patch for supported versions of the Solaris 8 operating environment. Sun GigaSwift Ethernet Adapter Patch ID 112817-10 or subsequent compatible patch for supported versions of the Solaris 9 operating environment.** • Sun Ethernet VLAN Patch ID 112119-04 or subsequent compatible patch for supported versions of the Solaris 8 operating environment. Sun Ethernet VLAN Patch ID 114600-02 or subsequent compatible patch supported versions of the Solaris 9 operating environment.** |

* The version number displayed from the `showsc -v` command from the Sun Fire B1600 SC CLI printout refers to the BSC firmware version. The application software version is observed using the console `show version` command.

**The patch currently installed can be displayed by entering `/usr/ccs/bin/mcs -p /platform/sun4u/kernel/drv/ce`. You can download patches from sunsolve.sun.com

Updating the B1600 System Controller

You can download the latest version of the `sc` firmware from the following web site:

<http://www.sun.com/software/download/network.html>

You need to set up a TFTP boot server to update the `sc` firmware. See the “Setting up a TFTP Server” section of the *Sun Fire B10n Content Load Balancing Blade Version 1.1 Administration Guide*.

You can access all the Sun Fire B1600 documentation from the following web site:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_b100s/index.html

▼ To Update the System Controller Firmware

1. At the `sc` prompt, enter the following command:

```
sc> flashupdate -s install server -f path SSCn/SC.
```

In the following example, 10.4.128.25 is the IP address for your TFTP boot server and `stiletto.1.1/c8/SunFireB1600-sc-v1.1.6.flashSSC0/SC` is the path to the file:

```
sc> flashupdate -s 10.4.128.25 -f stiletto.1.1/c8/SunFireB1600-sc-v1.1.6.flash
SSC0/SC
Warning: Are you sure you want to flashupdate the SSC0/SC flash image (y/n)? y
SSC0/SC: Preparing to flashupdate.
flashupdate: erasing segment 36 programming address ffedffff
SSC0/SC: flashupdate complete.
```

2. Reset the system using `resetsc` to load the new image.

Updating B10n Application Software and BSC Firmware

It is important to verify that you have the latest software for the Sun Fire B10n content load balancing blade. Check the following web site for the latest software and documentation:

<http://www.sun.com/software/download/network.html>

You need to set up a TFTP boot server to update the `sc` firmware. See the “Setting up a TFTP Server” section of the *Sun Fire B10n Content Load Balancing Blade Version 1.1 Administration Guide*.

You also need to configure the management IP address and default gateway address. Refer to the “Configuring the Networking” section of the *Sun Fire B10n Content Load Balancing Blade Version 1.1 Administration Guide*.

Note – If you are updating both the B10n application software and BSC firmware, be sure to update the B10n application software *first*.

▼ To Update the B10n Application Software

With the B10n blade in the booted and running state perform the following steps:

1. **Access the Sun Fire B10n console. At the Sun Fire B1600 SC console `sc>` type:**

```
sc> console $n
```

Where *n* is the slot number of the B10n blade

2. **Login to the B10n console.**

```
Login: admin  
passwd: admin
```

3. Verify the boot image and versions:

```
puma{admin}# show system
```

```
Boot Options:
```

```
=====
Config Type   Config File   Boot Image   Diag Level   Verbose Mode
-----
running       2             1 (1.2.3)    0             0
next          2             1 (1.2.3)    0             0
0=====
```

```
Image Information Table:
```

```
=====
Image Blade  Image Type   Version      Build Date:Time  Size
-----
1           B10n        Load Balancer 1.2.3         12/05/03 : 14:53  4046868
2           B10n        Load Balancer 1.2.2         11/26/03 : 12:15  4045472
diag       B10n        Diagnostics  1.1.9         10/16/03 : 15:36  2410733
=====
```

```
Flash FS /RFA0 free space = 13,033,472 bytes
```

```
puma{admin}#
```

The B10n software can be loaded with three different images and booted. The three images are image 1, image 2, and diag. These images denote software versions.

To load to image location 1, the blade expects image *filename* to be available in the TFTP server. Where *filename* is *sunfire_b10n.1.2.3*

4. Determine which image to update (image 1 or 2), and update the empty or oldest image.
5. Update the B10n application software

```
puma{admin}# update image
```

You can upgrade the software either interactively or noninteractively.

▼ To Update the Software Noninteractively

- As admin, type the following command:

```
puma{admin}# update image tftp server file image_name image location
```

The following image uses the tftp server with the IP address of 192.50.50.201, the image name of sunfire_b10n.1.2.3, and the image at location 1.

```
puma{admin}# update image 192.50.50.201 file sunfire_b10n.1.2.3
image 1
```

The system returns the following output, verifying the parameters entered:

```
file exist! will overwrite /RFA0/BOOTIMAGE/boot_image_1
Start downloading sunfire_b10n.1.2.3... using TFTP
Transferring and writing to file /RFA0/BOOTIMAGE/boot_image_1...
please wait.

puma{admin}#
```

The following image uses the tftp server with the IP address of 192.50.50.201, the image name of sunfire_b10n.1.2.3, and the image at location diag.

```
puma{admin}# update image 192.50.50.201 file sunfire_b10n.1.2.3
image diag
```

The system returns the following output, verifying the parameters entered:

```
file exist! will overwrite /RFA0/BOOTIMAGE/boot_image_diag
Start downloading sunfire_b10n.1.2.2_diag... using TFTP
Transferring and writing to file /RFA0/BOOTIMAGE/boot_image_diag
.....
please wait.

puma{admin}#
```

See the “To Update the Software Interactively” section of the *Sun Fire B10n Content Load Balancing Blade Version 1.1 Administration Guide*.

▼ To Set the New Image to be the Default Image

1. **Configure the desired Boot Image. At the B10n console type:**

```
puma{admin}# config boot image x
```

Where *x* is the image you just updated

2. **Save the updated image using the `commit` command:**

```
puma{admin}# commit
commit : Are you sure to continue? [yes|no]yes
```

3. **Reboot to activate the new image:**

```
puma{admin} reboot
reboot: Are you sure to continue? [yes|no] yes
```

▼ To Update the BSC Firmware

1. **Escape to the system controller console by typing the pound sign (#) and period (.) in rapid succession:**

```
puma{admin} #.
```

Note – If the two characters are not typed in rapid succession nothing happens.

2. **At the `sc` prompt, check the current version of the BSC firmware:**

```
sc> showsc -v
FRU      Software Version                Software Release Date
-----
S0       v5.1.4-SUNW,B10n,NetBlade1      Aug 12 2003 15:31:48
```

3. At the `sc` prompt, enter the following command:

```
sc> flashupdate -s TFTP_ip-addr -f filename sn
```

Where *TFTP_ip-addr* is the TFTP server IP address, *n* is the slot number, *filename* is the file name of the image

In the following example, 192.50.50.201 is the IP address for your TFTP boot server and `/tftpboot/525-2018-05-t2.a37`:

```
sc> flashupdate -s 192.50.50.201. -f /tftpboot/525-2018-05-t2.a37 s12
```

4. Reset the system using `reset` to load the new image.

Replacing Your B10n Blade

The upgraded B10n blade has the following features:

1. The 1.0 BSC firmware
2. Two B10n boot images - version 1.0.1 and 1.1. The default boot image is 1.1.
3. The B10n bootrom, version 1.1.

▼ To Export the Configuration From the Old Board

1. Go to the `/RFA0` directory

```
puma{admin}# cd /
```

2. Tar the `CONFIG` directory:

```
puma{admin}# tar lbconfig.tar CONFIG
```

3. Export the config tar file:

```
puma{admin}# export file
The FTP server address: <ftp_server_ip>
The source directory path: type [cr] to use current directory:
(null) source path, using current directory
The source file name: lbconfig.tar
The destination directory path: <path_on_ftp_server>
The destination file name: lbconfig.tar
The user name: <user_name_for_ftp_server>
The user password: <user_password_for_ftp_server>
export file succeed!
```

▼ To Import the Configuration to the Upgraded Board

1. Power off the old board and remove it from the chassis.

2. Install the upgraded board.

The board comes up with an empty configuration with the B10n 1.1 application image running.

3. Configure the network interface. Optionally, configure the management VLAN (if applicable).

4. Go to the /RFA0 directory:

```
puma{admin}# cd /
```

5. Import the 1.0 or 1.1 configuration:

```
puma{admin}# import file
  The FTP server address: <ftp_server_ip>
  The source directory path: <path_on_ftp_server>
  The source file name: lbconfig.tar
  The destination directory path:
  (null) path, using current directory...
  The destination file name: lbconfig.tar
  The user name: <user_name_for_ftp_server>
  The user password: <user_password_for_ftp_server>

import file succeed!
```

6. Untar the configuration file.

```
puma{admin}# untar lbconfig.tar
```

7. Reboot the B10n blade to get the imported configuration:

```
puma{admin}# reboot
```

Note – To run traffic with B10n 1.2 application image, the blade server module has to be updated to version 1.2.

Updating Your Blade Server

You can update your blade server B100s (the Solaris version) or B100x (the Linux version). Use the appropriate instructions for your blade server.

▼ To Update the B100s Blade Server Module to Version 1.2:

1. Download the 1.2 version of the blade server module software from the following site:

<http://www.sun.com/software/download/network.html>

2. Unzip the file:

```
# /usr/bin/unzip SunFire_B10n-1_2-Solaris-ServerModule.zip
```

3. Install the Solaris blade server module software packages:

```
# cd path_to_unzipped_file/Solaris
# pkgadd -d .
```

4. Restart the Solaris blade server module:

```
# /etc/init.d/clbctl stop
# /etc/init.d/clbctl start
```

Configuring a Linux Server Blade

1. At the `sc` prompt, check the blade server module software:

```
sc> console Sn
```

Where *S* indicates a slot and *n* is the slot number.

2. At the Linux prompt, enter the following command:

```
rpm -q sunclb-admin
```

The response indicates the module version. If the module is loaded, type the command:

```
modinfo sun-clb | grep description
```

The following example checks the version on a Linux blade installed in slot 10:

```
sc> console S10
Connected with input enabled on fru S10
Escape Sequence is '#' (#.)
# rpm -q sunclb-admin
sunclb-admin-1.35-1
# modinfo sun-clb | grep description:
description: "CLB (Sun Connection Load Balancing), v. 1.35"
```

▼ To Set Up a B100x Server Blade

1. To download the software appropriate for your system listed at

<http://www.sun.com/software/download/network.html>

2. Unzip the file:

```
# /usr/bin/unzip SunFire_B10n-1_2-AS2.1-2.4.9-e.3.zip
```

3. Install the Linux package:

```
# cd path to Linux unzipped file/Linux
# rpm -i sunclb-admin-1.36-1.i386.rpm
```

Or to upgrade to a newer version of an already installed package:

```
# rpm -U sunclb-admin-1.36-1.i386.rpm
```

4. Find the kernels that are installed on your system:

```
# ls /lib/modules
```

5. For each kernel you will use (for example, 2.4.20-6) find a package with a matching name and install it:

```
# rpm -i sunclb-k2_4_9_e_3-1.36-1.i386.rpm
```

Or to upgrade it:

```
# rpm -U sunclb-k2_4_9_e_3-1.36-1.i386.rpm
```

6. Connect to the configuration directory:

```
# cd /etc/sun-clb
```

7. Check your ethernet interfaces by using `ifconfig`:

```
# /sbin/ifconfig -a
```

If you do not see entries for `eth0` and `eth1`, then edit the file `clb.conf` and change the `vnames0` and `vnames1` parameters so that they contain the appropriate interfaces to use for Switch 0 and Switch 1 of the chassis respectively. If multiple interfaces are connected to a switch, list all as the value for the corresponding `vnames` variable, using a colon (`:`) as a separator. For example:

```
vnames0 = eth0
```

or

```
vnames0 = eth0:eth2
```

On Scimitar 2P systems, even interface numbers use Switch 0 and odd interface numbers use Switch 1. Also, on some Scimitar Linux releases, the names `eth0`, `eth1`, `eth2`, and `eth3` have been replaced with `snet0`, `snet1`, `snet2`, and `snet3` respectively. In this case, the default values must be changed. The `ifconfig -a` command shows which names your system uses:

Set up the `vip.conf` file in `/etc/sun-clb`. For each VIP address, place the address on its own line. One address not in use should have the word `ARP` after it. For example:

```
209.233.20.5
209.233.20.6
209.233.20.253 ARP
```

It is best to use a different ARP address for each server, although this is not required (the main issue is whether a router notices and generates error or warning messages.)

- 8. Set up VLANs if needed, using the Linux `vconfig` program.**
- 9. Set the VLAN name type to `DEV_PLUS_VID` if the same VLAN ID is used on two interfaces. Then use the `vconfig` program to add a VLAN to a particular interface (in the example, `vlanID 10` IS on the physical interface `eth0`):**

```
# vconfig set_name_type DEV_PLUS_VID
# vconfig add eth0 10
```


10. Configure a management IP address using `ifconfig`:

```
# ifconfig eth0 inet 209.233.20.1 netmask 255.255.255.0 arp broadcast
# ifconfig eth0 up
```

If you are using VLANs, configure the VLAN as well. For example:

```
# ifconfig eth0.5 inet 209.234.20.2 netmask 255.255.255.0 arp broadcast
# ifconfig eth0.5 up
```

11. Start the service by running the command:

```
# /etc/init.d/sun-clb start
```

12. To check that the service is running, run the following command:

```
# /etc/init.d/sun-clb status
```

13. To list VIP addresses run:

```
# /etc/init.d/sun-clb lsvip
```

The `ifconfig` command shows logical interfaces whose names start with `clb` on the loopback interface, with one entry per VIP address:

```
# ifconfig
...
lo:clb0   Link encap: Local Loopback
...
```

14. To print statistics, run the following command:

```
# /etc/init.d/sun-clb stats
```

Statistics are printed with one entry per line.

- 15. To print the module configuration, run the following command:**

```
# /etc/init.d/sun-clb showconf
```

This will contain the same information in `/etc/sun-clb/clb.conf` unless `/etc/sun-clb/clb.conf` was edited after the `sun-clb` service was started or unless parameters were also provided on the command line when the service was started.

- 16. To start `sun-clb` automatically after booting, use the Linux `chkconfig` command:**

```
# chkconfig --add sun-clb
```

- 17. To stop `sun-clb` from automatically starting after the system boots, use the `chkconfig` command with the `--del` option:**

```
# chkconfig --del sun-clb
```

On-Line Documentation

There are man pages for `clb.conf`, `vip.conf`, and the `sun-clb` script. The two configuration files in `/etc/sun-clb`, `clb.conf`, and `vip.conf` are also self-documented. Blank lines are ignored and anything after a “#” character up to and including the end of line is treated as a comment.

To view the manual pages, use one of the following commands:

```
# man sun-clb
# man clb.conf
# man vip.conf
```

The `sun-clb` script has some additional features not described here, including the ability to provide configuration changes on the command line as the module starts. Other than a change to the `vnames0` and `vnames1` variables, the defaults provided in `clb.conf` should work well.

Difference Between Linux Distributions.

Check the manual pages for `rpm`, `chkconfig`, `vconfig`, and `ifconfig` as the implementations are not identical between distributions. Some versions of the Linux kernel do not support VLANs.

On Redhat systems, you can use the following command:

```
# service sun-clb ...
```

instead of

```
# /etc/init.d/sun-clb ...
```

Most Linux distributions allow Ethernet interfaces to be specified as `eth0`, `eth1`, and so on. Some distributions, however, either do not do this or do not do this by default.

Updates to the *Sun Fire B10n Content Load Balancing Blade 1.1 Administration Guide*

Chapter 1, “Product Overview”

In section “The Role of the Content Load Balancing Blade” on page 8, add the following subsection:

Sun Fire B10n Load Balancing Terms

Load Balancing Service

Defined by the destination 3-tuple, that is, the destination VIP, port, and protocol.

Example: 110.10.10.1:80:TCP

- Can be load balanced either at Layers 4 or 7
- Needs to be bound to one of the 2 interfaces on the blade.
- Can be configured to support SSL (if using a configuration with an SSL proxy)
- When created, contains a default load balancing group with no servers or rules.
- Load balancing groups with associated rules and schemes can be added.
- Other attributes:
 - IP persistence
 - Cookie persistence
 - Tracking
 - Additional service access points (multi-homed service)

Load Balancing Group

- Contains a list of active servers (at least one).
- Contains a list of standby servers (optional).
- At least one rule must be specified (except for default group).
- Can add more rules or delete rules at run time.
- Can add more servers or delete servers at run time.
- Must have load balancing scheme specified:
 - Round Robin (RR)
 - Weighted Round Robin
 - Static Load Balancing

Load Balancing Rule

- A rule is associated with a load balancing group in a service.
- Four types of rules:
 - Hypertext Transport Protocol (HTTP) URL rule
Examples: *.html, /subdir/*, /subdir/*.html
 - CGI rule
Example: Server=MACHINE1
 - Cookie rule
Example: L7server=server1
 - IP rule
Example: 129.47.29.0:2333/255.255.255.0:0

Chapter 4, “Command-Line Options”

In “To Configure the Subnet Mask for a VIP” on page 54, the following note should be included:

Note – This command is used to configure the subnet masks for VIPs which have already been created in the system using “config service name”, “config service point” or “config service tracking” commands.

In “Creating a Load Balancing Service,” on page 64. The following notes should be included after the last paragraph:

Note – Currently, the only Layer 7 protocol that can be Layer 7 load balanced is HTTP.

Note – In the absence of an SSL proxy, SSL traffic can be load balanced only on Layer 4.

Glossary

Add the following terms:

Load Balancing

Service

This is defined by the destination 3-tuple consisting of the destination Virtual IP, port and protocol at which a particular service is offered. The service can be configured to load balance at Layer 4 or at Layer 7.

Load Balancing

Group

This is defined by a group of back end servers, a load balancing scheme and an explicit or implicit load balancing rule. Depending on the rule matched by a connection for a load balancing service, the connection is routed to a particular load balancing group within the service and load balanced among the group of servers using the associated load balancing scheme.

Load Balancing Rule

This is associated with a load balancing group. It decides where a connection should be load balanced to. It is a description of a pattern that the connection can be matched up with. The different types of rules supported are - URL, CGI, Cookie and IP rule.

Known Problems With the Software

This section outlines the known problems with the current version of the software and describes workarounds to overcome these problems.

Output From the `show arp` Command

The following example shows a typical output from the `show arp` command:

| LINK LEVEL ARP TABLE | | | | | |
|----------------------|----------------------|-------|--------|-----|-----------|
| destination | gateway | flags | Refcnt | Use | Interface |
| 192.50.50.11 | 00:03:af:26:73:07405 | 0 | 35330 | iq0 | |
| 192.50.50.12 | 00:03:af:26:97:fb405 | 1 | 16653 | iq0 | |

In the ARP table the gateway and flags columns are improperly shown. In the example above, 405 in the first line should be aligned under the flags heading.

Problem: Specific Sequence Required

System may panic if the content load balancing module (`clbmod`) is added to a “down” `ce` interface

Workaround

Be sure the `ce` interface is “up” before you load `clbmod`.

Note – If the B10n software from the Solaris 8 7/03 Software Supplement CD is loaded onto an unsupported platform and the system is rebooted, the following message is displayed: “can’t load module: No such file or directory.”

Problem: VIP Address Conflict (Bug ID 4910001)

If the load balancer VIP address is mistakenly used on another device, the other device broadcasts a gratuitous ARP and forces all of the clients and routers to learn that ARP entry.

Use the `config vip-broadcast VIP-address mask` command to force the load balancer to send a gratuitous ARP and force the clients and routers to relearn the VIP ARP entry as that of the load balancer.

Problem: Configuring VIP Addresses to be the Same as `path failover Target IP Address` (Bug ID 4907833)

This problem indicates a bad network configuration. The VIP address cannot be the same as the `path failover target IP address`. A future release will check for this condition.

Problem: Unknown Filter Edge [b9000010] (Bug ID 4925821)

An unknown filter edge occurs when the `classifier.pm` file in the `config/config_x` directory is corrupted. This should not happen during normal operation.

Workaround

Boot using the alternate configuration and remove the file `config/config_x/classifier.pm` where `x` is the configuration boot up that fails and has a value of 1 or 2.

Problem: Adding an SSL Service With a Duplicate Port (Bug ID 4908515)

When adding an SSL service, using the same VIP address with a different port, but the same SSL port is not allowed. The new SSL service must have a unique port number. For example, if an initial SSL service is running on SSL port 880, you must specify a different SSL port number for each new SSL service such as SSL port 881, 882, and so on.

Problem: Unknown Failover State With No Rules or Services (Bug ID 4925823)

If a blade failover system comes up with an unknown failover state and without any rules or services, one of the following might have caused it:

- You chose to skip the failover synchronization at boot time.
- The failover was stopped or disabled and then the failover configuration was saved to the following failover configuration file before reboot:

```
/RFA0/CONFIG/FAILOVER/config_x/failover/failover_cmd.conf
```

- Invalid information is stored in the following failover state information file:

```
/RFA0/CONFIG/FAILOVER/config_x/failover.state
```

Workaround

Remove the failover configuration from the system with the following commands as admin in config mode:

```
puma(config){admin}# config remove failover
puma(config){admin}# rm /RFA0/config/failover/config_x/failover/
failover_cmd.conf
```

Reboot the system.

If you still want to keep the blade failover configuration after the reboot, please refer to the “Configuring Failover” chapter in the *Sun Fire B10n Content Load Balancing Blade Version 1.1 Administration Guide*.

Note – In all of the references to `config_x`, the 'x' is 1 or 2 depending on whether your load balancing is currently using configuration directory `config_1` or `config_2`.

Skipping the Failover Synchronization at Boot Time

At boot time, you have the option of skipping the blade failover synchronization. During boot the system prints the following message and waits for 5 seconds for you to respond:

```
Press Return key to skip the failover synchronization ...
```

Problem: `config no ip interface 0|1`

If both interfaces of the B10n device are configured in the same subnet and if one of the interfaces is unconfigured, there might be loss of network connectivity from the B10n device. The device might not be able to switch all servers to the alternate interface. This can cause server/SSL devices to be marked down, and they will not be used in the load balancing.

Workaround

After unconfiguring the interface. Do a commit and then reboot the system.

Problem: Full Gallop Runs for Hours

The B10n software provides the following diagnostic tests:

```
PUMA Diagnostic Menu option:
=====

Puma Memory Test(SDRAM)      r
Puma Loopback Test           l
Puma NPU Test                 n
Quit                          q
Specify the Test type :r
Memory Test

List of SDRAM Memory Test to run
=====

Marching Test                 m
Gallop Test                   g
MarchB Test                   b
Quit                          q
Specify the Test type :g
Gallop Test
Valid Test Types BASIC | FULL | SPECIFY: FULL
****Warning: Will Run for Hours.Suggest Running Overnight

Do You Still want to Continue [yes/no]:
```

Workaround

If you must use the Gallop test, be sure to run it at night or on a week end when the system is not in use.

Troubleshooting

You may notice the following behaviors, which might be interpreted as being problems. However, they are normal behaviors.

VIP Is Not Checked

If another system in the subnet is configured with the IP address used in the VIP of a service configured on B10n the networking for that system will not work because the clients and routers will learn one machine's MAC and the other machine will not receive any traffic on that VIP.

Workaround

Because this is normal behavior, the only workaround is to ensure that you do not use duplicate VIP addresses.

`commit` Allowed Though No Changes

The B10n software still allows the `commit` command even though no changes have been made to the configuration.

Workaround

This problem causes no ill effects, so it can be noted and ignored.

Server/SSL Does Not Respond to `ping` Even Though it is Marked as Up.

If both interfaces are configured in the same subnet then in some scenarios it is possible that the default route to a server/SSL device might be down and the devices might be unreachable (`ping` fails) from B10n, but the monitoring shows them as up.

This is not a bug. The monitoring will switch to the alternate interface and try to reach the device. `ping` will only try the one default interface.

