

# Summary:Configure Network interfaces for best utilization

**Source:** <http://unix.derkeiler.com/Mailing-Lists/SunManagers/2003-06/0674.html>

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**From:** Ratliff, Charlotte (*CRatliff\_at\_tmw.com*)

**Date:** 06/26/03

To: "'sunmanagers@sunmanagers.org'" <sunmanagers@sunmanagers.org>

Date: Thu, 26 Jun 2003 08:33:43 -0500

Thank you to everyone who responded... I think almost everyone agreed that I probably will not need to worry about the network. Everyone seemed to give more information that will hopefully allow me to make the best decision.

Thanks again.

## ORIGINAL POST:

**Problem:**

Netbackup Datacenter 4.5 trying to configure network interfaces for best utilization.

**Scenario:**

1-V480 with 4 cpus and 8g ram. I have 2 gigE on board network connections and 2 gigE pci cards (in the 33MHz slots). 2- Qlogic HBAs for Hitachi 9980 SAN connection. (in the 66MHz slots). Running Solaris 9, current with all patches. Connected via scsi to L700e with 11 Lto gen 2 fibre attached drives. These are connected to Brocade switches running 2GB.

**Dilemma:**

I have a frontend and a backend network. I want to setup 2 of the interfaces on the frontend and 2 on the backend network. I would like each network to have one hostname that is known to the other servers.

I'm contemplating IPMP. I've read the documentation, several times and the summary of the blueprints. I'm not yet comfortable that this will work. I read on a previous summary that IPMP only works on outbound traffic for load balancing, which I don't believe would buy me anything. The other option I'm thinking about is Sun trunking. I've looked over the documentation and it states it only load balances on outbound traffic as well, plus I can't seem to find any documentation past Solaris 7.

I would appreciate any insight anyone is willing to share. I have searched the summaries, google, sunsolve, docs.sun.com, bigadmin etc. This issue is starting to drive me crazy or I would not be posting. I will definitely summarize.

## LIST OF RESPONSES:

1. Sunconsultant

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I implemented Netbackup Datacenter 4.5, in a similar environment with 5 V880's, one master, 3 Media Servers, and one backup master, a fibre and gigabit backbone, with about 600 clients..using 6 L700E units. I found no need for trunking, and also have heard of problems using Sun Trunk software with Veritas Netbackup. Three JNI fibre cards were on each server connected to a switch then to the Fibre-enabled L700E's, and 2 Gigabit Ethernet Cards.

You can also do IP over Fibrechannel using the Qlogic HBA's.

Performance was very good, and the bottleneck was usually a network misconfiguration or slow disk on the client side.

Storage unit going down and Host Name resolution the other common problems.

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As such, I dont think trunking would have improved performance any.

We were seeing tape drive throughput of about 20 MB/Sec assuming the client disk drives were fast enough.. IPMP will probably not buy you much. Let me know if u have any questions, as I am very familiar with this implementation =>

Make sure you have multiple backups of your Netbackup DataBase!!!! No point in having a fast backup system if u cant restore...

Good luck!

Ashok

### 2. Joe Fletcher

You might want to take things a little easier. You've got a 4CPU V480. Consider that driving a single gigabit card to anything close to capacity will use approx 1 of those CPUs. In some of our benchtests putting approx 40Mb/s through a fibre gigE card added about 10-15% load on an 8-way 750MHz V880. Assuming your machine is doing something other than just file serving then allow at least 2 CPUs for your apps. One for system work (something has to drive the disks) and one for comms and you've spread the load over the machine quite nicely. Potentially you are asking this thing to drive 6 gigabit adapters plus a whole load of interrupt effort feeding those LTOs.

I'd say anything beyond IPMP might be asking a bit much of the hardware. Two gigabit trunks in a 480 might be a bit optimistic.

### 3. Darren Dunham

- > *I have a frontend and a backend network. I want to setup 2 of the*
- > *interfaces on the frontend and 2 on the backend network. I would like*
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- > *read on a previous summary that IPMP only works on outbound traffic for load*
- > *balancing, which I don't believe would buy me anything.*

If you think about it, the machine only has control over outbound.

What IPMP gets you is 1) failover and 2) limited load sharing. If set up for both interfaces simultaneously, you will have \*2\* public IP addresses on 2 interfaces. Outbound traffic will use both interfaces (with individual TCP connection packets using a single one), while incoming packets will be accepted on any interface. Generally this means you want to configure clients to use both interfaces on the server, or configure some clients to use one interface, and other clients to use the other.

The other option

- > *I'm thinking about is Sun trunking. I've looked over the*
- > *documentation and it states it only load balances on outbound traffic*
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It continues to be available at least through 8, so that's not a concern.

Here you need to verify that your networking partner (usually a switch) supports the protocol. Again, it only supports outbound because that's all it can control. The switch or other device would have policy on the inbound packets. Almost all of them support a MAC address hashing scheme where the address in the packets is used to hash to one of the links. The benefit of this over the IPMP is that a single IP address is published, so the clients don't need to know anything to have packets take both paths.

If you have supported interfaces (qfe and ge only), and you need the bandwidth on all links (not just failover), then the purchase price of SunTrunking might be worth it to you.

4. FROM: Yura Pismerov

Actually, SUN trunking balances both directions.

The problem is, very few NICs are supported.

5. Jay Lessert

On Tue, Jun 24, 2003 at 05:39:14PM -0500, Ratliff, Charlotte wrote:

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> *read on a previous summary that IPMP only works on outbound traffic for load*  
> *balancing,*

That is correct. IPMP is really for redundancy. Load balancing is a fringe benefit for output-heavy applications (web servers, some database servers, some NFS servers).

> *which I don't believe would buy me anything.*

If the application is backup server, I agree.

> *The other option*  
> *I'm thinking about is Sun trunking. I've looked over the*  
> *documentation and it states it only load balances on outbound traffic*  
> *as well,*

You sort of have to read between the lines. By definition, Sun Trunking on the host \*CANNOT\* affect incoming packets (how could it?).

But the trunking software/firmware on the switch \*CAN\* affect incoming packets, so incoming load balancing is a switch trunking configuration issue. Once the switch is configured for trunking, it is usually just doing an "LSB of the MAC address" sort of algorithm, so as long as your backup clients have randomly distributed MAC addresses, you're OK. Or as OK as you can be.

> *plus I can't*  
> *seem to find any documentation past Solaris 7.*

The Sun Trunking 1.2.1 install PDF:

[http://www.sun.com/products-n-solutions/hardware/docs/Network\\_Connectivity/Sun\\_Trunking\\_Software/index.html](http://www.sun.com/products-n-solutions/hardware/docs/Network_Connectivity/Sun_Trunking_Software/index.html)  
<[http://www.sun.com/products-n-solutions/hardware/docs/Network\\_Connectivity/Sun\\_Trunking\\_Software/index.html](http://www.sun.com/products-n-solutions/hardware/docs/Network_Connectivity/Sun_Trunking_Software/index.html)>

calls out up to Solaris 8. Not exactly on the front burner, hmmm?

All that said, some additional dimensions worth exploring:

1: If you're not running jumbo packets on all your gigabit hosts, and switches, converting to that might have more useful effect than Sun Trunking. Keeping 4 gigabit interfaces pegged with 1500 byte packets will take a \*lot\* of CPU.

2: Since you've already gone to the expense of FC-connected tape drives, multiple backup servers might be worth considering. More expense on the the SW side, I know. :-)

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