NIC-Bonding

Über Google gab es einige Vorschläge (Links siehe unten), funktioniert hat es unter Debian 3.1 mit Kernel 2.6.x dann so:

In */etc/modprobe.d/arch/i386* und */etc/modutils/arch/i386* einfügen bzw. ändern:

```
alias bond0 bonding
options bonding mode=0 miimon=100 downdelay=200 updelay=200
```

Mode 0 ist Round-robin policy (Transmit packets in sequential order from the first available slave through the last. This mode provides load balancing and fault tolerance.).

Übersicht der Modi unter LiNUX Horizon - Bonding (Port Trunking):

> You can set up your bond interface according to your needs. Changing one parameters (mode=X) you can have the following bonding types:
>
> **mode=0 (balance-rr)**
> Round-robin policy: Transmit packets in sequential order from the first available slave through the last. This mode provides load balancing and fault tolerance.
>
> **mode=1 (active-backup)**
> Active-backup policy: Only one slave in the bond is active. A different slave becomes active if, and only if, the active slave fails. The bond's MAC address is externally visible on only one port (network adapter) to avoid confusing the switch. This mode provides fault tolerance. The primary option affects the behavior of this mode.
>
> **mode=2 (balance-xor)**
> XOR policy: Transmit based on [(source MAC address XOR'd with destination MAC address) modulo slave count]. This selects the same slave for each destination MAC address. This mode provides load balancing and fault tolerance.
>
> **mode=3 (broadcast)**
> Broadcast policy: transmits everything on all slave interfaces. This mode provides fault tolerance.
>
> **mode=4 (802.3ad)**
> IEEE 802.3ad Dynamic link aggregation. Creates aggregation groups that share the same speed and duplex settings. Utilizes all slaves in the active aggregator according to the 802.3ad specification.
>
> *Pre-requisites:*
> *1. Ethtool support in the base drivers for retrieving the speed and duplex of each slave.*
> *2. A switch that supports IEEE 802.3ad Dynamic link aggregation.*
> *Most switches will require some type of configuration to enable 802.3ad mode.*
>
> **mode=5 (balance-tlb)**
> Adaptive transmit load balancing: channel bonding that does not require any special switch support. The outgoing traffic is distributed according to the current load (computed relative to the

> speed) on each slave. Incoming traffic is received by the current slave. If the receiving slave fails, another slave takes over the MAC address of the failed receiving slave.
>
> *Prerequisite:*
> *Ethtool support in the base drivers for retrieving the speed of each slave.*
>
> **mode=6 (balance-alb)**
> Adaptive load balancing: includes balance-tlb plus receive load balancing (rlb) for IPV4 traffic, and does not require any special switch support. The receive load balancing is achieved by ARP negotiation. The bonding driver intercepts the ARP Replies sent by the local system on their way out and overwrites the source hardware address with the unique hardware address of one of the slaves in the bond such that different peers use different hardware addresses for the server.
>
> The most used are the first four mode types...
>
> Also you can use multiple bond interface but for that you must load the bonding module as many as you need.
> Presuming that you want two bond interface you must configure the /etc/modules.conf as follow:
>
> *alias bond0 bonding*
> *options bond0 -o bond0 mode=0 miimon=100*
> *alias bond1 bonding*
> *options bond1 -o bond1 mode=1 miimon=100*

update-modules ausführen.

In */etc/network/interfaces* die ethx-Einträge auskommentieren und folgendes ergänzen (Beispiel bezieht sich auf 3 Netzwerkkarten):

```
auto bond0
iface bond0 inet static
address x.x.x.x
netmask x.x.x.x
network x.x.x.x
broadcast x.x.x.x
gateway x.x.x.x
up /sbin/ifenslave bond0 eth0
up /sbin/ifenslave bond0 eth1
up /sbin/ifenslave bond0 eth2
```

Danach rebooten. Ein */etc/init./networking restart* ohne Neustart erbrachte hier nur Fehlermeldungen.

Links

LiNUX Horizon - Bonding (Port Trunking)

Howto forge - NIC Bonding/Teaming

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