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Subject: [patch 00/12] net namespace : L3 namespace - introduction

Posted by [Daniel Lezcano](#) on Fri, 19 Jan 2007 15:47:14 GMT

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This patchset provide a network isolation similar at what Linux-Vserver provides. It is based on the L2 namespaces and relies on the mechanisms provided by the namespace. This L3 namespaces does not aim to bring full virtualization for the network, it provides an IP isolation which can be reused for Linux-Vserver, jailed application or application containers.

A L3 namespace are always L2 s' child and they can not create more network namespaces, furthermore, they lose their NET\_ADMIN capability. They share their parent's network resources. From the parent namespace, IP addresses are created and assigned to the different L3 child. From this point, L3 namespaces can use their assigned IP address and all computed broadcast addresses.

Because the L3 namespace relies on the L2 virtualization mechanisms, it is possible to have several L3 namespaces listening on INADDR\_ANY:port without conflict, that's allow to run several server without modifying the network configuration.

The loopback is a shared device between all L3 namespaces. To ensure the 127.0.0.1 address isolation, the sender store its namespace into the packet, so when the packet arrives, the destination namespace is already set, because "source" == "destination". By this way, it is easy to disable the loopback isolation and let the application to talk with application outside of the namespace via the 127.0.0.1 because we consider them trusted (like portmap).

The ifconfig / ip commands will only show IP addresses assigned to the L3 namespace. When a L3 namespace dies, the assigned IP address is released to its parent.

At the IP level, when a packet arrives, the L3 network namespace destination is retrieved from the destination address.

At the bind time, the address is checked against the assigned IP address.

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