



### IP Packet from Dial up client to internet

The Dial up client has 10.0.0.1 as it's default gateway. It has a static route to 10.0.0.1 via the 12.34.56.50 interface.

When the packet reaches the Linux server it is again forwarded to the default gateway 12.34.56.1. The packet could just as well be destined for the local subnet. In either case, the routing is done using the standard routing table.

### IP Packet from Internet to Dial up client

The router 12.34.56.1 will send out an ARP request for the address 12.34.56.50. The machine is not present on the network but the Linux server is configured to do proxy ARP. It answers with it's own MAC address. The router sends the packet to the Linux server. The Linux server then checks it's routing table for 12.34.56.50 and finds that the interface is 10.0.0.1. It forwards the packet and the Dial up client receives it.

The fact that 10.0.0.1 is not valid on the Ethernet network does not matter.

### Legend

-  An IP interface
-  An IP network