

Re: ARP packets usage

Source: <http://linux.derkeiler.com/Newsgroups/comp.os.linux.networking/2007-10/msg00337.html>

- *From:* ibuprofin@xxxxxxxxxxxxxxxxxxxxxxxxxxxx (Moe Trin)
 - *Date:* Fri, 26 Oct 2007 14:47:50 -0500
-

On Fri, 26 Oct 2007, in the Usenet newsgroup comp.os.linux.networking, in article <4721c67f\$0\$29248\$ba620e4c@xxxxxxxxxxxxxxxx>, goarilla wrote:

Moe Trin wrote:

The "routers" normally found in the home behave differently, because they are not routers in the classic sense. In many cases, they are doing port/IP translating, such that you have a non-routable (RFC1918) address on your side, and can have multiple systems that appear on the Internet as one. In other cases, they are behaving more like Ethernet switches, separating traffic (collision domains) between the ISP side and your system[s]. On Monday, you asked this question in the thread "Do MAC addresses go to internet?", and in my response (Message-Id: <slrnfhpug6.uho.ibuprofin@xxxxxxxxxxxxxxxxxxxxxxxx>) I suggested trying to use a packet sniffer to see what's on your wires. Did this not work?

i did not found any MAC adresses belonging to machines other than the ones that should be on the LAN so i guess i'm safe.

From that particular problem – yes. I have three connections in my house, and all have "routers" with the manufacturers labels covered by a label from the telephone company – they sorta look like Speedstream Bridge/Modems from 'Efficient Networks', but I can't be sure. I most definitely see MAC addresses from other hardware.

but seriously i shouldn't have to take into account that some routers DON'T act like routers. Routers should be routers and conform to every letter in the rfc's

Re: ARP packets usage

Tell that to the marketing departments – both of the manufacturers such as Alcatel, Efficient Networks, Westell (and others), and to the ISP. Remember, we don't want to confuse the customers with big words such as 'bridge' and 'switch' which have meanings normally associated with them from completely different venues.

ARP packets are not forwarded by such routers, because the Ethernet concept doesn't need the "end" MAC address, but it DOES need the MAC address of the "next hop". As far as ARP is concerned, the only time an ARP request is forwarded is in Proxy-ARP where the "router" is attempting to make it appear that a system on a separate interface but using the same IP range is on the local network wire.

i've seen this behaviour (eg MAC next hop) in packets but i've never had somebody explain the reason for this so short and beautifully thanks :D

People tend to forget that Ethernet links can carry a large number of protocols besides IP, or even that there are different types of Ethernet frames to begin with. ALL packets on Ethernet links are using MAC addresses for source and destination. Look at the two octet 'Type' field (counting from zero, octets 12 and 13 in RFC0894 frames, 20 and 21 in RFC1042 frames). While this allows for 65536 types, only roughly 180 are defined (<http://www.iana.org/assignments/ethernet-numbers>). This basically rules out moving packets over Ethernet by any other means. The protocol at this level is only concerned with moving packets between "directly" connected (I quote the word because the media between the hosts is not important – this could be wire, fiber, wireless of some form, or wet string) hosts. Hosts not "directly" connected are handled by higher levels in the networking stack, no matter if they packet contains an IP datagram, some form of Appletalk, Novell IPX, or some ancient thing like Banyan Vines, or Xerox XNS (all of which are routable, given appropriately configured routers).

Old guy

.