Forming the Ice with IP Addresses

The following is an actual problem logged with my company by a customer about 10 years ago.

Forming the Ice with IPv4 Addresses

The following is an actual problem logged with my company by a customer about 10 years ago.

What was said on the phone

“When we ping ten dot one dot one dot seventeen, we get replies from ten dot one dot one dot fifteen. Please come and fix our broken network.”

What we heard and wrote down

“When we ping 10.1.1.17, we get replies from 10.1.1.15.”

What actually happened

“When we ping 10.1.1.017, we get replies from 10.1.1.15.”

Nothing was wrong

10.20.30.40

10.20.30.050

0xA.20.036.0x28

are all the same address

And indeed...

10.20.30.40

10.20.7720

10.1318440

169090600

are the same address too

because

a.b.c.d (8.8.8.8)

a.b.c (8.8.16)

a.b (8.24)

a (32)

Are all legal ways of writing an address. The first form is almost the only one you see though spammers like the fourth one.

Or doing both at once...

10.024.0x30.40

10.0x14.017050

012.1318440

0xA141E28

Yet more ways of writing 10.20.30.40

The real problem

Explaining why we sent an engineer to investigate this. For two days.

Doing it on my machine at home

adam@ubuntu:~$ ping 10.100023

PING 10.100023 (10.1.134.183) 56(84) bytes of data.

adam@ubuntu:~$ ping 10.0100023

PING 10.0100023 (10.0.128.19) 56(84) bytes of data.

adam@ubuntu:~$ ping 10.0x100023

PING 10.0x100023 (10.16.0.35) 56(84) bytes of data.

adam@ubuntu:~$ ping 0x1100023

PING 0x1100023 (1.16.0.35) 56(84) bytes of data.

Why do people do this?

- I've had this about another 4 times in the last 10 years. Most recently on the 13th of November 2012. (Topical!) Always a mistake so far. Usually caused by people wanting to make things line up nicely in tables. Note that two leading zeroes work on my machine but I wouldn't count on that.
- Mess with people's heads by doing this deliberately and correctly! Octal more likely to fail to attract attention than hex. 1-3 component addresses worth a try at the same time.

IPv6

Other than some boring stuff with removing blocks of zeroes, I am not aware of anything similar you can do with IPv6.

Bad enough as it is

2001:470:1f09:341:20f:b0ff:fecb:7fe0 positively trips off the tongue.