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Future ipv4 unicast extensions

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IPv4's success story was in carrying unicast packets worldwide.

Service sites still need IPv4 addresses for everything, since the majority of Internet client nodes don't yet have IPv6 addresses. IPv4 addresses now cost 15 to 20 dollars apiece (times the size of your network!) and the price is rising.

The IPv4 address space includes hundreds of millions of addresses reserved for obscure (the ranges 0/8, and 127/16), or obsolete (225/8-231/8) reasons, or for "future use" (240/4 - otherwise known as class E). Instead of leaving these IP addresses unused, we have started an effort to make them usable, generally. This work stalled out 10 years ago, because IPv6 was going to be universally deployed by now, and reliance on IPv4 was expected to be much lower than it in fact still is.

We have been reporting bugs and sending patches to various vendors. For Linux, we have patches accepted in the kernel and patches pending for the distributions, routing daemons, and userland tools. Slowly but surely, we are decontaminating these IP addresses so they can be used in the near future.

Many routers already handle many of these addresses, or can easily be configured to do so, and so we are working to expand unicast treatment of these addresses in routers and other OSes. We plan an authorized experiment to route some of these addresses globally, monitor their reachability from different parts of the Internet, and talk to ISPs who are not yet treating them as unicast to update their networks.

Wouldn't it be a better world with a few hundred million more IPv4 addresses in it?

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