

From: Danny Hillis <[REDACTED]>
To: "jeffrey E." <jeevacation@gmail.com>
Subject: Re:
Date: Sat, 30 Jul 2016 12:33:27 +0000

The two properties that the Internet lacks are guaranteed quality of service (bandwidth and latency) and the ability to know for sure where a packet originated. These two features are fundamentally incompatible with the design of the Internet and they trade off against other features. For instance the second network I have in mind may well be inferior to the Internet in efficiency of utilization of the resources, so it will cost more per bit to send a message. It will probably be worse than the Internet in supporting anonymity. So it is not a replacement for the Internet, but a complement to it.

On Fri, Jul 29, 2016 at 9:58 PM, jeffrey E. <jeevacation@gmail.com> wrote:

----- Forwarded message -----

From: **Jeremy Rubin** <[REDACTED]>
Date: Thu, Jul 28, 2016 at 9:51 AM
Subject: Re:
To: "jeffrey E." <jeevacation@gmail.com>

I've been thinking a lot about this the past few days, some of my thoughts below:

Generally I'm very positive of the notion; there's a lot to be desired from our internet protocols.

On the other hand, I wonder if this is a variant of trumpism, we need to make the internet great again. At what point was it great before? When there were but a select few who were able to access it; and everybody on it knew they would be meddled with a bit. Once it went too mainstream no longer was being a hacker (or even, user) of such systems an at-your-own-risk endeavor, but was something that people depended on.

Similar modern endeavors include Urbit, linked for posterity <https://urbit.org>, which is mostly made incomprehensible for the point of keeping out the un-enlightened. Urbit is supposed to re-imagine computing as fundamentally distributed.

I think it would require very close consideration to figure out why a new internet is actually needed. Traditionally in CS we think of a distributed system as striving to achieve Consistency, Availability, and Partition Tolerance (see Brewer's theorem, <https://www.infoq.com/articles/cap-twelve-years-later-how-the-rules-have-changed>) but unable to get all 3 as they mutually assure each other's impossibility. If we add in a fourth parameter at a second layer of abstraction, let's call it Authenticity, a fifth, Privacy, and a sixth, law enforcement, we cover the gamut of most of what people care about in an internet system. These second three principles form another triangle similar to CAP, they mutually assure the other's impossibility in some way.

I think that thinking in terms of these desirable properties in terms of mutually exclusive groups is probably a useful way to consider the design space. Another well known one is Zooko's triangle: https://en.wikipedia.org/wiki/Zooko%27s_triangle.

In any case, I've gone on a slight tangent. My point is it's one thing to say you want a new internet because of a theoretical (or not so theoretical) button, it's another to have motive enough to actually build such a new network. Besides from the button, what properties seem critical to you?

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[@JeremyRubin](#)

On Mon, Jul 25, 2016 at 7:08 AM, jeffrey E. <jeevacation@gmail.com> wrote:

I liked the idea of internet 2.0 encouraged by the reset switch.

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