

Coseners

True History of the Internet

2nd July 2015

**A True History of the
Internet – to say nothing of
the dog (with apologies to
Connie Willis)**

<http://www.cl.cam.ac.uk/~jac22>

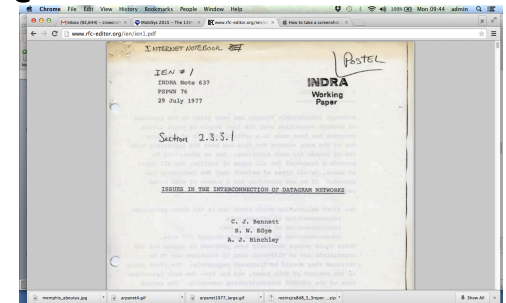
Team Jon

Counter-factual Stuff

- IEN1
- Maps
- They lost the Compiler for the SIMPS
- Who can buy the Peabody?
- Why they really don't use Multicast
- Separation of Control and Data in routers
- Interplanetary Internetworking

IP Addresses & IEN 1

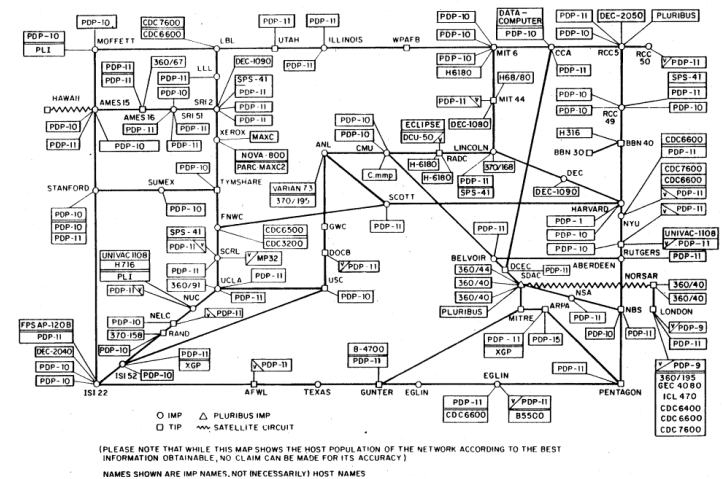
- Before RFCs, there were IENs
 - IEN1 - how internet addresses should look
- <http://www.rfc-editor.org/ien/ien1.pdf>
- Did mobility, multihome, multicast
 - Scale....
 - Not really like IPv4...



Maps

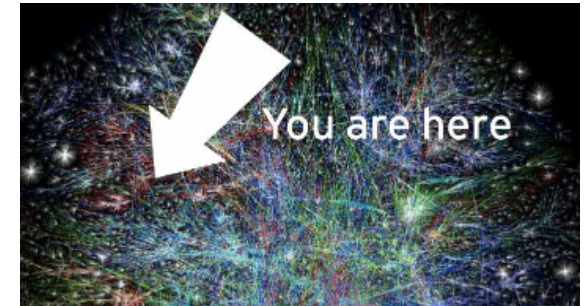
- Maps don't tell the whole story...
- Like when two fibers share same conduit
- Or whole bundles share same tunnel...

ARPANET LOGICAL MAP, MARCH 1977



They lost the compiler

- For Honeywell C30 processor in Satellite IMPs
 - This is bad, as you can't change code
 - E.g. to fix bugs
 - Or upgrade
 - Except...by binary patching...
 - E.g. when switch from CPODA to FTDMA
 - Then they lost last guy who had than knowledge
 - oops



Who can buy this pesky hotel

- Memphis IETF at Peabody
- Cute ducks in the lobby
- Annoying manager tells us to stop sitting on lobby floor with laptops...
- Someone says “can’t we just buy this hotel”
- 5 people say they could...
- This was just for the .com crash, though 😊



Why we actually don't use multicast

- Coz Cisco's code broke unicast 😊
 - Reported in SIGCOMM in Darmstadt
- Later, they recursively broke multicast
 - Reported in Sigcomm at Stanford
- Who would use such a thing?
 - Sprint wrote a paper with a bunch of fictional reasons why not....



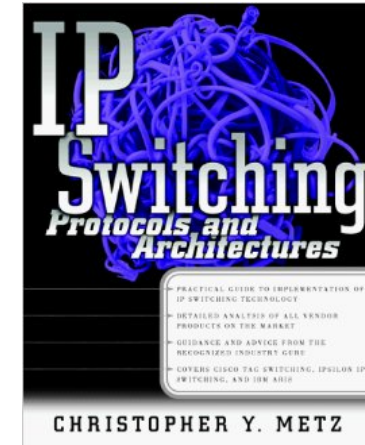
TCP, ECN and AQM

- Why we have bufferbloat (do we)?
 - Coz we can't deploy ECN
- But why not?
- Reason given is broken middle boxes
 - Real reason is no-one really trusts any of the papers on AQM – irreproducible results
 - See also MANETs (The Incredibles!)



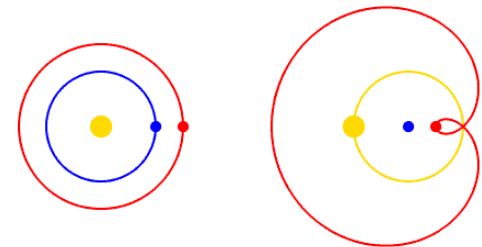
The origin of MPLS (&SDN)

- Ipsilon...came up with IP switching
 - Use cheap, very fast, dumb switches
 - (e.g. Fore Systems)
 - And use a COTS PC to run routing plane
- This upset cisco
- Who made up MPLS, infinitely complex
- To put a stop to this....



Interplanetary internet

- On a restaurant tablecloth in Palo Alto
 - Just before receiving 96 SIGCOMM award
 - Vint drew a pic of the interplanetary internet
- Designed for Nasa's manned mission to Mars
 - As usual, he was a bit ahead of his time
 - And the maps are now out of date
- But....



There are no true histories

- “Every decoding is an encoding” ...
- Humans only do read/modify/write...
- Now we’ll hear about the history of the future
- Which, as the man says “is all around us, just unevenly distributed”.

2065...

- I'll be 107...
 - note I first programmed pdp8 50yrs ago
 - On paper tape in machine code (see story above 😊)
- I expect we won't have a “computer” network
 - New programmable tech e.g. synthetic bio+nano
 - Use entanglement for comms
 - secure freespace quantum
 - Direct neural interface (for free)
 - Edible