

The End of End to End

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Font Choices

- Normally I'm a Helvetica bigot, able to spot Arial at twenty paces (my children are trained to say rude things about Arial at school)
- But as we're in Broadcasting House, today Gill Sans is the only possible choice!

What is End to End?

- “whenever possible, communications protocol operations should be defined to occur at the end-points of a communications system, or as close as possible to the resource being controlled.”
- “protocol features are only justified in the lower layers of a system if they are a performance optimization”

Which means...

- IP Networks are dumb, it's the computers at each end that are clever.
- IP Networks should just ship IP and ICMP.
- Everything else is the responsibility of the hosts at each end.

Which Translates As...

- Don't mess with my packets
- Don't interpret my packets
- Don't fragment or re-assemble my packets
- Don't assume that you know the protocol I'm using

That's the way it was

- Theoretically, a router doesn't need to understand TCP.
- Not even telnet/ssh for management: SNMP could be abused to do it all
- And an ISP doesn't need to interpret anything other than the destination address.

And that's what the GPO would do

- For post, the only thing that they pay any attention to is the destination address and the weight/size.
- You can write on any source address.
- And they don't steam it open to check your prose.

But ISPs know better...

- Anti-spoofing
- Protecting customers from the Internet
- Protecting the Internet from their customers
- Selling Advertising
- Ducking Legal Problems

Some Examples

- Transparent proxying of “HTTP” (really anything on port 80)
- Blocking of various perceived Mail problems by proxying/blocking “SMTP” (really anything on ports 25 and 587)

- Blocking fake BGP announcements
- Blocking fake source addresses
- Rate limiting and traffic shaping inbound and outbound

- Spam Filtering inbound
 - The GPO could scan your post and guess at if it's anything you're really interested in
- Spam Filtering outbound
 - The GPO could check the post you send to see if it's interesting enough to be worth shipping
 - May cause prospective authors to have their manuscripts bounced early

- “Adding Value” to recursive DNS lookups
 - The GPO could return letters that were slightly mis-addressed with a helpful guide to other, similar businesses that might be able to help
- “Contextual Advertising”
 - The GPO could open your post and check your interests, to deliver a better class of junk mail

- Informal Dispute Resolution
- DNS companies will pull name resolution because there's a whiff of libel: google for Jenna Delich and feel nostalgia for your days in the student left.

Who knows the law?

- All of this is happening without the slightest whiff of a test-case in legislation which is either new or non-existent.
- There's a tacit assumption of "my wires, my rules".

But this is only home users!

- At the moment, most of this affects only residential customers
- But there may be a business at the other end of a residential TCP connection!
- And it's hard to see how the law is different
- Why treat businesses differently?

Don't mess with my packets

- Sooner or later, an ISP is going to apply some of these tactics to a business with pockets deep enough to make a fuss.
- Who's making the decisions?

And consent is tricky

- The usual argument is that Ts and Cs provide all the cover that's needed
- Ironically, case law places more responsibility on businesses to read and understand contracts than individuals
- Unfair Business Practices Law is new

- Can arbitrary users consent on behalf the contract holder?
- Can anyone consent to retention of personally identifiable data other than the subject themselves?
- Even if Ts and Cs are sufficient, who needs to sign, and how do you check?

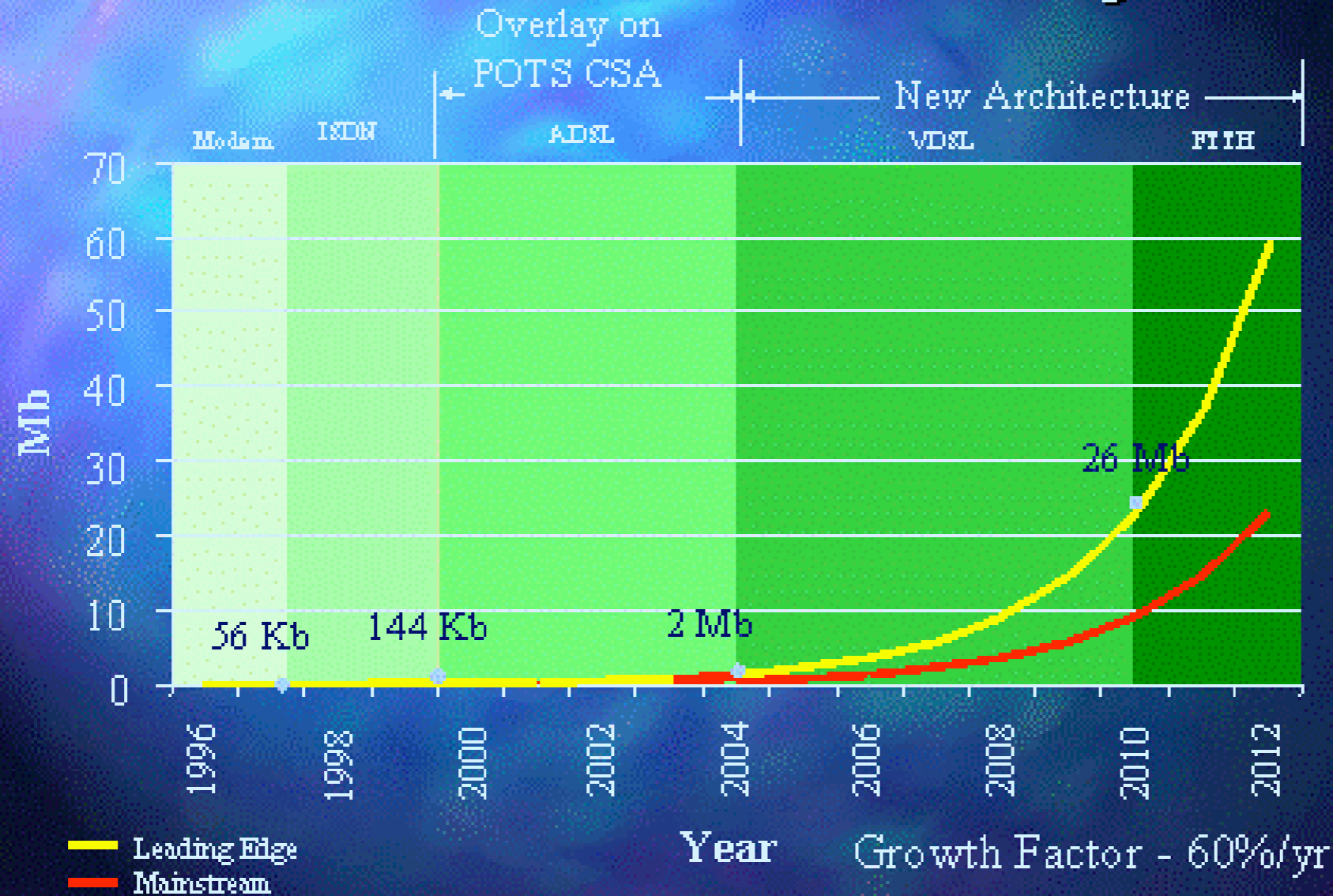
Engineers in Striped Uniforms

- If the interference with packets is sanctioned by directors (real, Companies House ones), that's possibly a defence
- But salesmen? Marketeers? The technical director? A couple of blokes in the NOC?

Do you...

- Have terms and conditions cover for what you do to your customers' packets?
- Have personal cover for what you've configured to happen to customers' packets? When the law break in, how you gonna go?

Residential Bandwidth Projection



On another note...