

The Stupid Network **What is it, and why should we care?**

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1997

'*The Rise of the Stupid Network* was originally written during a single long weekend in May 1997 by David S. Isenberg while he was an employee of AT&T Labs Research. It was officially released onto the Internet by AT&T in June 1997. It was printed (without permission, with some bad editing, and with the last few hundred words truncated) by **Computer Telephony** in its August 1997 issue.'¹

Thus was launched a discussion that has resonated till the present.

The key takeaway was that the business model of the PSTN was under threat and would be replaced by a much more diverse collection of business models providing voice and video services made possible by the Internet.

Instead of control of voice services by relatively few large Telecommunication Providers, who owned the telecoms infrastructure, and were able to behave in an almost monopolistic manner, the services would be provided by smaller companies providing specialist voice services. This noble idea was predicated on unrestricted access to the Internet as a common, universal service that had no controlling function (later described as 'net neutrality') and served only to "Deliver the Bits, Stupid".²

2012

In 2012 this author described the results of market research into then current state of the telecommunications market in a report 'Rise of the Stupid Network, Review - September 2012'.³

It was found that 'In a business telephony market worth £1.9bn in 2009, delivering calls to non-geographic numbers the PSTN is still going strong. There has not been a large switch to VoIP calls, except for SKYPE, which carried 300 billion minutes of call traffic in 2011, half of it voice.'

Voice over IP (VoIP) was not highly regarded at the time – 'proper, serious, business' telephony was carried on the PSTN. VoIP, including SKYPE, was regarded as an insecure, unreliable voice transport for non-critical traffic only.

The improving bandwidth of Internet connections did enable the first of the 'cloud services', albeit with SIP/PSTN gateways e.g.

- SIP trunks
- IP PBX's – both cloud and on-premises

The potential was beginning to become real, but until user end-points moved to an IP network, the 'Rise of the Stupid Network', would be hampered by the requirement for SIP gateways.

2024

The most recent market research into the VoIP market has found that the market has expanded considerably, more players offering new services⁴.

In the SIP sector there is an expansion of 'cloud' services to business, from small office PBX's to advanced voice services providing AI backed support to inbound callers and call-centre agents. The power of voice services has truly moved from the centre to the edge, with the network 'just delivering the bits'.

New non-SIP VoIP services include WhatsApp, ZOOM, Webex, and Teams being added to SKYPE.

The common characteristic of the non-SIP services is that they are independent services, they don't rely on and can't be routed by any of the general purpose VoIP routing engines.

Major telecommunication companies have moved their core services from the PSTN to an all-IP network and use systems like the Netaxis SRE (Session Routing Engine) to connect callers to their required destination. This level of core switching used to sit at the centre of the PSTN, controlled and owned by the major telecommunication companies.

The Stupid Network – Why we should care

To get an idea of the scope of this change imagine yourself in space (see <https://www.netaxis.be/> front page), and then try to see the bounds of an exchange area (the area reached by copper wire cabling from a telephone exchange), or the area covered by an area-code, or even a country code.

A service provider providing a core routing service can reach anywhere in the world. There are no international call-charges, no interconnect agreements between national carriers.

A registrar service provider provides a path to an IP device (phone, PBX, or monitoring unit), and an ENUM service provider provides the link between a 'phone number' and the termination point details provided by the Registrar. Session Border Controllers around the Registrar can filter and protect the end points.

Who pays for all of this?

Wholesale and retail customers already pay a subscription fee to be connected to the Internet - fixed connection, mobile (cell) connection, or satellite connection. Wholesale and retail VoIP customers will pay a Registrar a subscription fee to maintain and provide their connection details, and the Registrar will also provide a service to update an ENUM service provider. By controlling who may update ENUM NAPTR records an end-user's contact details may be kept secure.

Who pays the ENUM service provider? - the caller, but that requires a call record and billing process. Or should the ENUM service be a public service funded by the taxpayer (like roads that are there for when we need them)? Perhaps the ENUM service provider charges the Registrar for maintaining the NAPTR records (indirectly the VoIP customer pays for the directions to their end-point provided to inbound callers).

Latest:

Consumer Voice and Video on the Stupid Network

Allan Wylie - June 2024 (5)

Further research into consumer voice and video led to a disruptive insight:

If voice and video calls originate and terminate on the Internet, why do we need a telephone number. Any device can be located by IP address, and the IP address of an IP URI can also be determined.

The server supporting the URL, me@server.com can be located and an email message delivered or a SIP call initiated. Most of us have an email address, meaning that most of us can be uniquely located.

The user interface for making a call, land-line or cell, is a numeric one – key-pad or rotary dialler only because that is how the telephone network originated. In telephony's earliest days a caller would ask an operator to connect them to a number, now, with natural language interfaces we can ask our device to initiate a call on our behalf.

It might take a while, but the current business model of charging for call-minutes for land-line and cell-phone could be superseded by a model where subscribers are charged for value-added services only.

References

1. David Isenberg: <https://www.isen.com/>

2. Isenberg, David – Computer Telephony, August 1997, pg 16-26. :

<http://www.isen.com/stupid.html> ,

<https://www.hyperorg.com/misc/stupidnet.html>

3. Wylie, Allan - Rise of the Stupid Network, Review - September 2012:

http://www.manmadeweb.co.uk/sites/default/files/Stupid_Network_Review_Sep_2012_1.pdf

4. Wylie, Allan - Rise of the Stupid Network, Review – May 2024:

http://www.manmadeweb.co.uk/sites/default/files/Stupid_Network_Review_May_2024.pdf

5. Wylie, Allan - Consumer Voice and Video on the Stupid Network - June 2024:

http://www.manmadeweb.co.uk/sites/default/files/Voice_and_Video_on_Stupid_Network.pdf