SVT on IPv6

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About

→ SVT is a public service broadcast company, focused on television

→ Founded 1979 as TV fork of earlier all-broadcast public service company

→ Largest, most trusted TV company in Sweden.

→ 4 linear channels, OTA, OTT, On-demand.

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IP on SVT

→ Internet is the source / channel of much of our news raw material.

→ IP based technologies quickly surpassing traditional baseband media transport in production domain.

→ Time and frequency is very important and is dependent on IP networking

→ A very large portion of both linear and on-demand view is streamed via Internet and IP networks.

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Origins of in-house streaming

→ Initially, streaming was, like analog and DVB-T broadcast were/are, outsourced.

→ Streaming landscape, excluding triple-play walled gardens, is 100% unicast.

→ DVB-T has very low marginal cost per extra viewer, quite non-linear.

→ Unicast streaming/on-demand is close to linear cost per viewer.

→ Outsourcing was not cost effective.

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Origins of in-house streaming

→ Project to save costs

→ Internal streaming platform developed

→ LIR "goodie bag", upgraded IP transit, IXP connections, PNI, et c.

→ Commercial outsourcer still available for peak offload.

→ Now developing a "pod" concept that can be flexibly deployed

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The Internet is dual stack

IPv4-only is like pea soup without pancakes.

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IPv6 use cases

→ News gathering: RFC 6540 is real, especially for full-service resolvers.

→ Special case for ingest streaming, where e2e transparency is important.

→ Most "New generation IP and claimed-modern" broadcast systems are v4-only, hardly even DNS capable.

→ Our network infrastructure is fully v6 capable.

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Use case: News gathering

→ Basic premise of IP is unique nodes

→ Current IPv4 situation breaks this

→ "no message ever was improved by passing through a gateway" very valid for RTC.

→ Commercial solutions usually mean 2 or more Application Level Gateways in series.

→ Uniquely reachable endpoints very desirable to simplify and improve comms.

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Use case: Streaming / OTT / VOD

→ This is almost 100% unicast HTTPS.

→ Triple-play islands are fed via DVB or dedicated p2p links; we never see their multicast.

→ Modern scalable streaming is front-end LB redirecting to worker node.

→ We know AS location, address, and client platform in the redirect stage.

→ Worker allocation dynamic from this data.

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...streaming

→ Better client separation (No CGN multiplex)

→ More responsive interaction (due to above)

→ Possible to use hard-to-NAT protocols. (Not likely..)

→ Streaming pod deployment easier both technically and commercially:

→ IPv6 addresses are practically free

→ Any prefix routable can house a large streaming pod

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v6 in streaming

→ Current platform is v4-only

→ No major technical problems to migrate; DNS names used, generic hardware in use in all front ends.

→ Dual-stack required for foreseeable future.

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Why do it?

→ Current system works pretty well.

→ If there was a large body of IPv6 capable clients…

→ Also, growth and resiliency planning could improve if we're able to expedite significant traffic via IPv6.

The End

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