

SWEDEN: CIRCUMVENTION AND THE QUEST FOR PRIVACY

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97%

Proportion of Swedes aged 16-54 who have access to the internet

SEK 199

Monthly cost for a true fiber connection (100 Mbit/s or more)

85%

Proportion of Swedish internet users who made online purchases in 2014

14%

Proportion of Swedish internet users who paid for a video streaming service in 2014

'The Nordic countries constitute one of the most advanced markets for new services and technologies, and particularly Sweden...both for its high broadband speeds and its people who tend to be early adopters.' — Reed Hastings, Netflix CEO and co-founder, in 2013*

'We believe that the time is ripe for everyone to start using VPN services' — Jon Karlung, CEO of the Swedish ISP Bahnhof, in 2014

In mid-October 2012, Netflix flew its top three executives, co-founder and CEO Reed Hastings, Chief Product Officer Neil Hunt, and Chief Content Officer Ted Sarandos over to Sweden to have cocktails with a group of journalists at an upscale bar in the heart of Stockholm. Netflix had just launched its streaming service in the small Scandinavian country and, for all intents and purposes, needed the promotional power only their senior staff could provide. The company had announced its plans to launch in Sweden and some of the other Nordic countries only a few months before, on 15 August. Later that day, Time Warner informed the press that it would also launch a subscription-based video streaming service, HBO Nordic, in the same region sometime in the fall of 2012. All of a sudden, Sweden, a country of less than ten million people located in the periphery of Europe, was set to be host to two of the biggest names in streaming video. By the end of the year, both platforms were up and running. As time passed, however, it became clear that neither Netflix nor HBO Nordic were able to dominate online video in Sweden. Both of them launched into

an oversaturated media landscape, with plenty of streaming video options, authorized and unauthorized, already competing for the viewer's attention.

While this overprovision of streaming video services has managed to crush the financial hopes of Netflix and Time Warner executives alike, it has, together with certain socio-technical and legal preconditions, contributed considerably to turning Sweden into something of a streamer's paradise. Yet, as I will show in this chapter, not everything is rosy for Swedish internet users. With the Swedish government trying to negotiate between its political duties within the European Union and its cyberlibertarian national politics that have made the country a haven for internet users, many Swedes have turned to VPN services to circumvent politically motivated data retention practices, and protect their privacy.

Video Streaming Platforms in Sweden

The Swedish media landscape is host to a plethora of local and offshore video streaming platforms. Viewers can choose between video streaming options from public service and commercial broadcasters, pay TV operators, and telecommunications companies alongside subscription-based, transactional, and advertising-supported streaming services, and a growing number of unauthorized alternatives.

Local video streaming platforms are predominantly in the hands of four media companies that dominate the Swedish television market: the public service broadcaster Sveriges Television, as well as its commercial counterparts Modern Times Group, TV4 Group, and SBS Discovery Media. All of these companies provide catch up TV services in addition to their free-to-air offerings, making previously broadcast programs available to stream for a limited time. Most notable here are SVT Play, TV3 Play, TV4 Play, as well as Kanal 5 Play. In addition to these free services, the major commercial networks also offer subscription-based video streaming platforms. These include ad-free versions of certain catch up TV services (TV4 Play Premium or Kanal 5 Play Premium), comprehensive online extensions to traditional pay TV services, such as Viaplay or C More Play, as well as standalone products like the movie and television series streaming platform Filmnet. Furthermore, viewers have the possibility to subscribe to aggregator streaming services such as Magine TV or Telia Play Plus, which package content from a number of public service and commercial broadcasters, as well as pay TV operators. Finally, there are transactional video streaming platforms, such as SF Anytime, Headweb, film2home, or Plejmo, that allow viewers to purchase movies and television shows, or rent them for a limited time (usually 48 hours).

A number of offshore video streaming platforms, predominantly from the United States, join these Swedish providers. The two services dominating the North American video streaming market, Netflix and YouTube, are present in Sweden as well.¹ Both of these services have a very similar look and feel in Sweden compared to their home market. However, the same

1 Todd Spangler, 'Netflix Streaming Eats Up 35% of Downstream Internet Traffic: Study', *Variety*, 20 November 2014, <http://variety.com/2014/digital/news/netflix-streaming-eats-up-35-of-downstream-internet-bandwidth-usage-study-1201360914/>.

cannot be said about their content libraries. YouTube is primarily a platform for user-generated and corporately sponsored content and is able to offer the great majority of content uploaded to its servers also in Sweden. In contrast, Netflix, as a premium subscription service, maintains different content libraries in its home country and the various international markets it operates, subject to varying license agreements. Swedish viewers also have the option to subscribe to Time Warner's HBO Nordic, a standalone video streaming service that offers access to the entire HBO library, including the company's latest television episodes twenty-four hours after they have been broadcast in the United States.

Given this abundance of local and offshore platforms, it is maybe surprising that YouTube and Netflix alone are responsible for more than half of the overall consumption of legal streaming video in Sweden.² In a country of just over 8.7 million internet users YouTube accounts for 1.3 million viewers every day.³ Netflix falls behind with 465,000 daily viewers; however, with this number still has a lead in the Swedish subscription video streaming market, beating local and offshore competitors in this category, including Viaplay (198,000), TV4 Play Premium (60,000), HBO Nordic (34,000), and C More Play (17,000).⁴ In the free catch up TV market, Sveriges Television, which was the first Swedish broadcaster to establish a video streaming service, has a commanding lead over its commercial competitors with 57 percent of all video streams coming through its SVT Play platform.⁵

In addition to the many authorized local and offshore video streaming options, there are an increasing number of unauthorized services competing for the attention of Swedish viewers. Probably the most visible of them is Swefilmer, a website that provides free access to pirated copies of thousands of movies and television shows hosted on a small server farm in Russia.⁶ What makes the platform stand out is its attempt to appeal to a local audience. Besides offering the latest Hollywood content, Swefilmer makes a substantial amount of Swedish productions available to stream. Many of the video files come with Swedish subtitles hard-coded into them, and the website's interface is only available in Swedish. What differentiates the platform even further is the fact that it operates in a legal gray zone. Curiously, watching a video stream is an extralegal activity in Sweden, as the visitor of a website cannot necessarily be certain if the material he/she watches was obtained rightfully or not. For these reasons, Swefilmer has attracted considerable public attention, and copycat websites such as Dreamfilm, Swesub.tv, and Sweflix have imitated its model.⁷ A further unauthorized video streaming alternative is Popcorn Time, a downloadable open source BitTorrent client with integrated media player, whose polished user interface recalls commercial platforms like Netflix or HBO Nordic. As opposed to gray services such as Swefilmer, however, Popcorn Time's reliance on BitTorrent technology means that the viewer is likely to break local law when using the software, as it is illegal to upload copyrighted material in Sweden.

2 Mediavision, *TV-insikt Q3 2014*, Stockholm, 2014.

3 Olle Findahl, *Svenskarna och internet 2014*, Stockholm, 2014.

4 MMS, *Trend och Tema 2014:4*, Stockholm, 2015.

5 MMS, *Årsrapport 2014 för TV och Webb-TV*, Stockholm, 2015.

6 Tobias Brandel, 'Svensk illegal streaming växer snabbt', *Svenska Dagbladet*, 29 April 2013, http://www.svd.se/nyheter/inrikes/svensk-illegal-streaming-vaxer-snabbt_8129082.svd.

7 In 2012, 'swefilmer' was the third-most searched term on google.se, according to Google Trends.

High Speeds/Low Spending

Arguably the most important reason for this overprovision of video streaming services in Sweden is the country's unique internet infrastructure. The internet did not spread particularly fast in Sweden during the 1990s, at least not compared to a country like the United States where it was originally conceived. However, whereas both broadband penetration and speeds have leveled out in many OECD countries, they continue to increase in Sweden. The Scandinavian country ranks third in the World Economic Forum's Network Readiness Index for 2014 with its 'world-class, affordable ICT infrastructure' and 'one of the highest technological and non-technological innovation performances in the world'.⁸ Today, 91 percent of the Swedish population have access to the internet, a number that increases to a staggering 97 percent in the age group 16 to 54.⁹ Broadband is available in 88 percent of Swedish households, with 61 percent of homes and enterprises having access to downstream connections of at least 100 Mbit/s.¹⁰ Yet, despite these numbers, prices for fixed broadband remain comparatively low in Sweden. With true fiber connections costing from SEK 199 per month, the country ranks third cheapest globally for internet connections of 100 Mbit/s or more.¹¹

It is predominantly because of this promising infrastructural arrangement that major U.S. media companies such as Netflix and Time Warner have expanded into the small Scandinavian country in the first place. In several interviews with the local press, Netflix executives were quick to point out the country's unique socio-technical conditions for the dissemination of digital media. Speaking to a handful of journalists on the eve of Netflix's Swedish launch, CEO Reed Hastings noted that '[t]he Nordic countries constitute one of the most advanced markets for new services and technologies, and particularly Sweden...both for its high broadband speeds and its people who tend to be early adopters.'¹² Chief Product Officer Neil Hunt seemed to agree with the remarks, adding that the company found the country's internet infrastructure to be much better than anywhere else they had previously been. For Time Warner, too, Sweden continues to play a significant role. In 2012 the decision to make HBO's entire library available to stream as a standalone subscription service under the moniker of HBO Nordic raised many eyebrows in Sweden, and abroad.¹³ However, in light of the company's recent announcement to launch its HBO Now video streaming service — essentially a carbon copy of HBO Nordic destined for the U.S. market — it can be argued that the Nordic countries, and Sweden in particular, served as a test market for the media giant, and a convenient way to quietly launch their new flagship video streaming product.

8 World Economic Forum, *The Global Information Technology Report 2014*, Geneva, 2014.

9 Statistiska Centralbyrån, *Privatpersoners användning av datorer och internet 2014*, Stockholm, 2014.

10 Findahl, *Svenskarna och internet 2014*; PTS, *PTS bredbandskartläggning 2014: En geografisk översikt av bredbandstillgången i Sverige*, Stockholm, 2014.

11 PTS, *PTS prisrapport 2014: Prisutvecklingen på mobiltelefoni och bredband*, Stockholm, 2014.

12 Mats Lewan, 'Netflix: Därför valde vi Sverige', *NyTeknik*, 16 October 2012, http://www.nyteknik.se/nyheter/it_telekom/tv/article3560911.ece.

13 In addition to Sweden, HBO Nordic is also available in Norway, Denmark, and Finland.

As promising as this arrangement appears from a corporate perspective, however, it has surprisingly not resulted in any sizable consumer spending on subscription or transaction-based video streaming services. Swedes are generally open towards making their purchases online, with 85 percent of internet users regularly buying and paying for items or services via the internet.¹⁴ Yet, whereas purchases of home electronics or clothes over the internet have surged in recent years, sales of digital media have not contributed nearly as much.¹⁵ The numbers are somewhat improving in the music sector, where the Swedish company Spotify has helped to increase the number of users paying for music online from 15 percent in 2011 to 38 percent in 2014. In the online video sector, however, consumer spending is considerably lower as the great majority of content is still accessed for free. Only 14 percent of all Swedish internet users subscribed to a video streaming service in 2014.¹⁶ The reasons behind this comparatively low spending on online video in Sweden are complex, with unauthorized streaming services such as Swefilmer, or peer-to-peer file sharing facilitated through third-party platforms like Popcorn Time or The Pirate Bay certainly contributing to this phenomenon. Yet, as Patrick Vonderau has demonstrated, pirating alone fails to explain why revenues generated through legal online video platforms remain so low.¹⁷ Rather, we should be looking at the overprovision of free video services in Sweden, including the many free catch up TV services and the immensely popular YouTube, alongside easy-to-access unauthorized platforms like Swefilmer and Popcorn Time, if we want to begin to understand this development.

Privacy Matters

Given Sweden's comparatively strong digital infrastructure and historically laissez-faire approach towards internet use and censorship, it is easy to see why the country is often described as the prototypical cyberlibertarian information economy. It should not come as a surprise, then, that Sweden was always decidedly reluctant about the 2006 EU Data Retention Directive, which required EU member states to store citizens' telecommunications data, for up to two years. In 2010, The European Court of Justice (ECJ) ruled that Sweden had to follow the other member states and implement the directive. However, it was not until the spring of 2012 that the Swedish government gave in and adopted measures transposing the directive into local legislation. Yet, this collection of Swedish call records and internet metadata would only last for two years. In April 2014 the ECJ had a change of heart and declared the Data Retention Directive invalid, describing it as a 'serious interference with the fundamental rights to respect for private life and to the protection of personal data.'¹⁸ Following the ruling, the Swedish Post and Telecom Authority (*Post- och telestyrelsen*) was quick to give Swedish telcos and ISPs the go ahead to stop collecting customer data. All

14 Findahl, *Svenskarna och internet 2014*.

15 PostNord, Svensk Digital Handel, and HUI Research, *E-barometern 2014*, Stockholm, 2014.

16 Findahl, *Svenskarna och internet 2014*.

17 Patrick Vonderau, 'Beyond Piracy: Understanding Digital Markets', in Jennifer Holt and Kevin Sanson (eds) *Connected Viewing: Selling, Streaming, and Sharing Media in the Digital Age*, New York and London: Routledge, 2014, pp. 99-123.

18 Court of Justice of the European Union, Press release 54/14, 8 April 2014, <http://curia.europa.eu/jcms/upload/docs/application/pdf/2014-04/cp140054en.pdf>.

of the major companies obliged without hesitation, with some of them going as far as to delete all old customer records.¹⁹ The pause on data retention in Sweden was to be brief, however, as in another ruling in October 2014, Swedish communications companies were ordered to start collecting customer metadata yet again.²⁰

The drama around data retention in Sweden reflects the country's efforts to negotiate between its political duties within a European context and its libertarian digital politics that have made it a haven for internet users. In recent years, many Swedish internet users have turned to VPN services to protect their privacy and avoid the crossfire between authorities and ISPs. Curiously, in their quest for privacy Swedish internet users are even supported by some of the companies that are supposed to collect data about them. In trying to avoid a fine of 5 million Swedish Kronor for its refusal to comply with local data retention rules, the Swedish ISP Bahnhof decided to offer a free VPN service to all of its customers the day it had to resume storing metadata.²¹ Explaining the somewhat surprising move, Bahnhof CEO Jon Karlung said: 'The European Court of Justice has ruled that it is a human right to not have your internet traffic monitored. We therefore believe that the time is ripe for everyone to start using VPN services.'²² In Sweden, the EU Data Retention Directive was never applied to VPN providers under the local implementation of the law. Therefore, by providing their customers with a free VPN service Bahnhof managed to find a loophole that enables the company to comply with EU and local law, and assure the privacy of their customers at the same time.

Anonine

VPN services make highly effective tools for hiding the identity of internet users. In Sweden, they predominantly act as efficient, and most importantly, legal, vehicles for circumventing politically motivated data retention practices. It is primarily thanks to the legal status of VPN services that Sweden has emerged as a home to a number of local VPN providers. One particularly successful example is Anonine, a Swedish premium VPN provider established in 2009. Anonine started out as a niche service, offering both Point-to-Point Tunneling Protocol (PPTP) and OpenVPN solutions through a handful of servers based in Sweden. In recent years, and certainly influenced by the implementation of the Data Retention Directive in Sweden in early 2012, Anonine's customer base grew so large that the company had to expand its servers considerably. Today, Anonine operates servers in more than a dozen international locations, and ranks as one of the most popular VPN services in Sweden.

19 Liam Tung, 'Four of Sweden's Telcos Stop Storing Customer Data after EU retention Directive Overthrown,' *ZDNet*, 11 April 2014, <http://www.zdnet.com/article/four-of-swedens-telcos-stop-storing-customer-data-after-eu-retention-directive-overthrown/>.

20 Förvaltningsrätten i Stockholm, <http://www.forvaltningsrattenistockholm.domstol.se/Domstolar/lansrattenistockholm/Pressmeddelande/14891-14.pdf>, rättsfall Förvaltningsrätten i Stockholm, in Sweden 1 reason for VPN user other ting customer data, with Bahnhof g customers' Court of Jus

21 Oscar Schwartz, 'LEX Integrity', *5th of July Foundation*, 16 November 2014, <https://5july.org/2014/11/16/lex-integrity/>.

22 Jon Karlung, 'Bahnhof aktiverar "plan B": erbjuder fri anonymisering', *Bahnhof*, 16 November 2014, <https://www.bahnhof.se/press/press-releases/2014/11/16/bahnhof-aktiverar-plan-b-erbjuder-fri-anonymisering>.

Given the uncertainty of many Swedish internet users about the collection of metadata, it is not surprising that privacy concerns turn out to be the main driver for VPN usage in Sweden. On Flashback — the biggest Swedish-speaking internet forum with around one million registered members — the six hundred or so threads dealing with VPN use often revolve around privacy concerns. In the lengthy thread dedicated to Anonine, one user responds to a question about the level of security provided by Anonine's different VPN solutions as follows:

Well, in general PPTP is better than using nothing. However, if you are very serious about your security you should only use an OpenVPN solution with good encryption. I do use PPTP, but only if I want to protect myself from my ISP or the idiots at Wayne's Coffee [a Swedish coffee house chain]. If there is a bigger threat, then I turn to OpenVPN.²³

Here, the use of a VPN service is justified out of fear that someone's internet activity could become uncovered — with anyone, from customers in a coffee shop, to an internet service provider, or even bigger threats (possibly the government?), a potential security risk.

Anonine is all too aware of the privacy concerns of its customers. The company's website is a gray and somewhat generic looking home page listing some of the key features of the service (Fig. 1). It is not until we look at the top right corner of the page that we notice a bright red button warning us: 'You are not anonymous!' Speaking directly at us, the internet users, the site makes a point of highlighting the danger of our behavior, namely surfing the web carelessly without the security only a VPN service can provide. Upon further inspection of Anonine's web presence, we notice that the first page alone makes mention of the word 'anonymous' five times (not counting the company's name, which is a wordplay on *anonym*, the Swedish version of *anonymous*), in addition to multiple uses of related terms like 'safe' or 'secure.' This, of course, is hardly a coincidence.

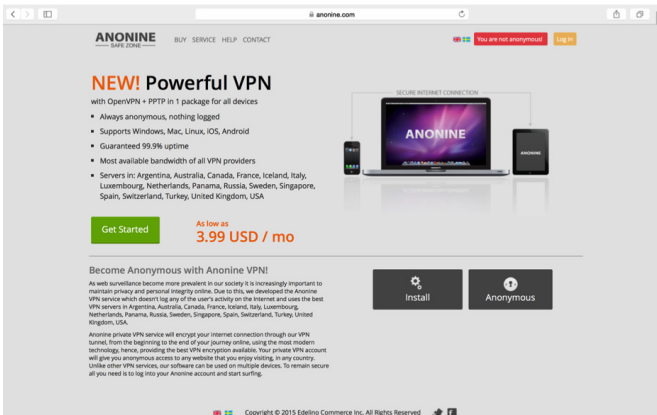


Figure 1. The website of Anonine, a popular Swedish VPN provider

23 BeatriceAsk, 'Den stora frågeträden om VPN-tjänsten Anonine! [Sammanfogad]', *Flashback*, 20 April 2012, <https://www.flashback.org/p36938188#p36938188>.

Another reason for Anonine's popularity among Swedish internet users is the company's "local" brand. Swedes tend to be loyal to homegrown services, as evident by the immense popularity of Spotify and Swefilmer, and Anonine proves that even in the competitive VPN field marketing a product as a local alternative can prove beneficial. Despite being registered in the Seychelles, Anonine very much feels like a local service with a website available in Swedish and English, and customer support provided in both languages. Furthermore, the service offers its clients to use local payment options, such as Payson (a Swedish alternative to PayPal) and Cellsynt (mobile payment via SMS and telephone), in addition to the more conventional credit card options. These might seem like small touches to some, but to a dedicated community of technology-savvy Swedish internet users discussing the ins and outs of different VPN services on an online forum, they can make all the difference.

Conclusion

Sweden is one of the most convenient places to stream online video. The country's media landscape is host to a plethora of streaming platforms, offering viewers a sumptuous mix of local and offshore, free and premium, as well as authorized and unauthorized alternatives. Further, thanks to one of the best ICT infrastructures in the world, high-profile players like Netflix and Time Warner (HBO) have been drawn to the small Scandinavian country, making available a considerable amount of premium content. At the same time, viewers who either do not want or cannot pay for this kind of content have the possibility to use gray video streaming platforms like Swefilmer, which despite providing free access to pirated copies of thousands of movies and television shows can be used legally.

Given this overprovision of local and offshore video streaming alternatives, geoblocking does not impact the online viewing experience in Sweden noticeably. Yet, much like in many of the countries studied in this book, circumvention tools are an important aspect of online culture. VPN services, which in other countries might be used for geoblocking circumvention purposes, are important tools for Swedish internet users to bypass government data retention. There are reports of Sweden being implicated in mass surveillance practices, based on documents provided by the NSA whistleblower Edward Snowden in the summer of 2013.²⁴ Consequently, privacy remains high on the agenda for many internet users who have become accustomed to a country famed for its libertarian digital politics. Companies providing VPN services like Anonine surely will not complain about Swedish internet users' quest for privacy.

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References

BeatriceAsk. 'Den Stora Frågetråden om VPN-tjänsten Anonine! [Sammanfogad]', *Flashback*, 20 April 2012. <https://www.flashback.org/p36938188#p36938188>.

Bie, Nanok. 'Strömmande Film ökar när Nedladdning Minskar', *SVT Nyheter*, 20 March 2013, <http://>

24 Privacy International, *The Right to Privacy in Sweden. Stakeholder Report: 21st Session, Sweden*, London, 2014.

www.svt.se/nyheter/inrikes/strommande-film-okar-nar-nedladdning-minskar.

Brandel, Tobias. 'Svensk Illegal Streaming Växer Snabbt', *Svenska Dagbladet*, 29 April 2013, http://www.svd.se/nyheter/inrikes/svensk-illegal-streaming-vaxer-snabbt_8129082.svd.

Court of Justice of the European Union. <http://curia.europa.eu/jcms/upload/docs/application/pdf/2014-04/cp140054en.pdf>.

Findahl, Olle. *Svenskarna och Internet 2014*, Stockholm, 2014.

Flashback. <https://www.flashback.org/>.

_____. 'Den Bästa Appen för att Surfa Anonymt Med iPhone? (proxy/VPN)', <https://www.flashback.org/t2516629>.

_____. 'Den Stora Frågetraden om VPN-tjänsten Anonine! [Sammanfogad]', <https://www.flashback.org/t926057>.

_____. 'Hur Anonymt är VPN Över Wifi, När det Kommer till Kritan?', <https://www.flashback.org/t2449802>.

Förvaltningsrätten i Stockholm. <http://www.forvaltningsrattenistockholm.domstol.se/Domstolar/lan-rattenistockholm/Pressmeddelande/14891-14.pdf>.

Google Trends. <https://www.google.com/trends/topcharts#vm=cat&geo=SE&date=2012&cid>.

Karlung, Jon. 'Bahnhof aktiverar "plan B": erbjuder fri anonymisering.' *Bahnhof*. 16 November 2014. <https://www.bahnhof.se/press/press-releases/2014/11/16/bahnhof-aktiverar-plan-b-erbjuder-fri-anonymisering>.

Lewan, Mats. 'Netflix: Därför valde vi Sverige', *NyTeknik*, 16 October 2012, http://www.nyteknik.se/nyheter/it_telekom/tv/article3560911.ece.

Mediavision. *TV-insikt Q3 2014*, Stockholm, 2014.

MMS. Årsrapport 2014 för TV och Webb-TV, Stockholm, 2015.

MMS. *Trend och Tema 2014:4*, Stockholm, 2015.

Muskelknutt. 'Den stora frågetraden om VPN-tjänsten Anonine! [Sammanfogad]', *Flashback*, 13 May 2012, <https://www.flashback.org/p37334359#p37334359>.

PostNord, Svensk Digital Handel, and HUI Research, *E-barometern 2014*, Stockholm, 2014.

Privacy International. The Right to Privacy in Sweden, Stakeholder Report: 21st Session, Sweden, London, 2014.

PTS. PTS bredbandskartläggning 2014: En geografisk översikt av bredbandstillgången i Sverige, Stockholm, 2014.

_____. PTS prisrapport 2014: Prisutvecklingen på mobiltelefoni och bredband, Stockholm, 2014.

Schwartz, Oscar. 'LEX Integrity', *5th of July Foundation*, 16 November 2014, <https://5july.org/2014/11/16/lex-integrity/>.

Spangler, Todd. 'Netflix Streaming Eats Up 35% of Downstream Internet Traffic: Study', *Variety*, 20 November 2014, <http://variety.com/2014/digital/news/netflix-streaming-eats-up-35-of-downstream-internet-bandwidth-usage-study-1201360914/>.

Statiska Centralbyrån. *Privatpersoners användning av datorer och internet 2014*, Stockholm, 2014.

Szalai, Georg. 'HBO Unveils Scandinavian Joint Venture as Netflix Also Plans Nordic Launch', *The Hollywood Reporter*, 15 August 2012, <http://www.hollywoodreporter.com/news/hbo-nordic-joint-venture-netflix-scandinavia-382920>.

Tung, Liam. 'Four of Sweden's Telcos Stop Storing Customer Data after EU Retention Directive Overthrown', *ZDNet*, 11 April 2014, <http://www.zdnet.com/article/four-of-swedens-telcos-stop-storing-customer-data-after-eu-retention-directive-overthrown/>.

Vonderau, Patrick. 'Beyond Piracy: Understanding Digital Markets', in Jennifer Holt and Kevin Sanson (eds.) *Connected Viewing: Selling, Streaming, & Sharing Media in the Digital Age*, New York and London: Routledge, 2014, pp. 99-123.

World Economic Forum. *The Global Information Technology Report 2014*, Geneva, 2014.