The Impact of High Risk Advertising on Thai Social Values: The Role of Piracy Websites

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Executive Summary

Recent research indicates that users of piracy websites face significant risks, since much of the advertising has the potential to cause harm to users. This type of advertising is called "high risk", and includes ads from the sex industry, gambling, malware and scams. Some studies have focused on naming and shaming mainstream advertisers on piracy sites (Taplin, 2013) – there remain significant numbers of these advertisers in Asia, placing ads through ad networks that focus on local language and local content. A number of studies have recently investigated the role played by mainstream internet advertising in supporting the revenue of piracy websites. Such advertising by household names – including multinational corporations, governments and charities - generates enormous profit margins for operators of these websites.

However, the advertisements which have the potential to cause the greatest harm are also those which may be contrary to Thai values. While vigilance against these harms is often promoted within the physical environment in Thailand – such as The Gaming Act (B.E. 2478) and The Prevention and Suppression of Prostitution Act (B.E. 2539) - policing the online environment to protect Thai citizens from these activities may be more challenging.

A first step in understanding the risk to users is to measure the prevalence of such material. Recent studies have measured the scale of the problem in the Asia-Pacific region, including Singapore, Malaysia, Hong Kong, Taiwan, Canada, Indonesia, Australia and New Zealand. Generally speaking, the pattern seems to be that high risk advertisers tend to target those sites which are promoting Hollywood and/or other international content in English, whereas mainstream advertisers tend to promote their goods and services on local language sites, with local content.

The goal of this study was to measure the problem in Thailand. A sample of 430 webpages from the most popular piracy websites in Thailand was downloaded and analysed, to reveal the prevalence of both mainstream and high-risk advertising. The sample was derived from the use of a snowball technique to generate a list of sites using vocabulary terms linked to illegal downloading. Snowball sampling replicates the path taken by users as they search for infringing content by using search engines. It also acts as a proxy measure for popularity, since the most "relevant" search terms are always returned by ranking.

Analysis of the data reveals that 6.26% of the ads found on the most popular piracy websites in Thailand were mainstream, and 93.74% were high-risk, of which a substantially high percentage (62.22%) were sex industry ads, and 16.05% were for gambling. The results are discussed in the context of policing the online environment with regard to Thai social policy.

Keywords

Definitions

Internet Advertising. Ads are typically placed as "banners" on a website, which direct a user to another site when clicked. The contents of the ad are similar to a highway billboard, except that they can incorporate interactive elements such as animation. Ads on the same page are often rotated through a predetermined or random sequence, depending on the advertising plan that an advertiser has subscribed to. While some sites host and manage their own banners, most often, these are managed by a third-party advertising network. These ad networks act as an intermediary between an advertiser and many hundreds, thousands or millions of sites, allowing an advertiser to increase their reach to potential consumers while only dealing with a single agency. Advertisers typically operate either a "pay per impression" or "pay per click" model, billing an advertiser every time a user views or clicks on a banner ad respectively.

Mainstream Advertising. Mainstream ads are those placed by legitimate businesses that operate within the formal economy. Such businesses operate through a corporate structure and offer goods or services which fall outside the black market, grey market or underground economy.

High-Risk Advertising. High-Risk ads are those promoting goods or services which fall outside the legitimate economy or white market, may be illegal or restricted within certain jurisdictions but not others, or may be fake or counterfeit. Examples include the sex industry, gambling and suspicious software/malware, such as anti-virus software which actually installs a Trojan Horse on a user's system. Many of the ads are likely to fall into scam categories described by Stabek et al (2009).

Advertising Network. Ad networks facilitate the placement of an advertiser's ads on numerous websites according to a specific revenue model. Ad networks specialise in anticipating consumer's needs and wants by building up profiles of users who click most frequently on certain ad categories on certain page themes, which can lead to more targeted, personalised, and relevant advertising. For the purposes of this paper, sites that host advertising on behalf of external / third-party advertisers are also grouped under this category, even if they only provide banners on sites within their own domain. For example, isohunt.com provides their own ad network exclusively for their own site, and not to other sites; they also host banners from other ad networks.

Internet Advertiser. A business, government, association or individual that desires to sell goods or services, or provide information to, a target group of consumers. Internet advertising competes with traditional advertising for marketing budgets. Thailand's online user base was 17.4m in 2010[1], the approximate portion of advertising annual spend on digital was around only 2.3%[2]. The market is growing at a rate of 55.1% per quarter, according to the Emarketer report.

Piracy Site. A website which provides an index and search capability for torrents of infringing content, a "file locker" site which provides hosting for such material, or a "link site" which provides direct links to content on third party sites. The primary motivation for users visiting these websites is to access infringing content. These sites can all use advertising as either primary or secondary sources of income.

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[1] http://www.internetworldstats.com/asia/th.htm
[2] http://www.emarketer.com/Article/Digital-Takes-Minimal-Share-of-Ad-Spend-Thailand/1010012

Digital Millennium Copyright Act (DMCA). The DMCA provides US ISPs with indemnity against liability for copyright infringement, provided that they agree to co-operate in "takedowns" of material which is alleged to be infringing, typically after being notified by a rightsholders. Google provides a report of requests that they have received and actioned on behalf of rightsholders in order to provide transparency to their users.

Introduction

Online advertising has a 20 year long history (Medoff, 2000), progressing from simple ad banners displayed on a fixed rotation schedule, through to personalised, behavioural advertising networks, which use profiles of individual users to present the most "relevant" advertisements (McStay, 2011). Such technologies make extensive use of "tracking cookies" (Watters, 2012) and the linkages between advertising networks and cookies have recently been monitored and explored for the most popular websites in Australia (Herps et al, 2014). The most interesting result from this study was that the number of cookies stored on a user's computer from any of the Top 50 most-visited sites for Australians ranged between 0 and 86. The sophistication and the extent to which user behaviour is tracked and experiences customised is only going to increase over time, as is the overall volume of advertising. Indeed, in 2012, online advertising spending in the US reached US$39.6b, exceeding the amount spent on traditional print advertising for the first time (eMarketer, 2012), and predicted to reach $44.74b for 2013 and $51.01b in 2014.

Furthermore, some companies are in a unique position to know "everything" about their customers. Google, for example, has the capacity to monitor almost all of the world's information, including personal emails, YouTube movies, Android phones, news services, images, shopping, blogs and so on (Cleland, 2013). Through its acquisition of Doubleclick, Google controlled an estimated 69% of the online advertising market (Browser Media, 2008), however, the rise of social media advertising (especially through Facebook) has seen this reduce to 56% (Womack, 2013). Clearly, there is a potential confluence of capability and opportunity to maximise the number of "eyeballs" exposed to online ads.

What are the implications of this massive rise in advertising expenditure, which coincides with an increased ability for online advertising networks to be able to best "place" ads to suit specific customers? One particular type of website – those associated with file sharing of infringing content – appears to have wholeheartedly embraced advertising. Indeed, advertising revenues provide the commercial motivation for criminal syndicates to operate such 'piracy' web sites. While the connection between film and television piracy and organised crime has been explored elsewhere, in terms of direct revenues (Treverton et al, 2009), there has been far less publicity about the advertising revenues generated from sites that appear to offer infringing content for free, or at least, offer torrents that enable users to download such material. Certainly, the links between the underground economy and the internet have been criticised for facilitating sexual exploitation and human trafficking through organised crime – in the classic paper in this field, Hughes (2000) highlighted how global advertising and marketing of prostitution have led to increases in volume globally. Furthermore, Hughes identified that a *lack of regulation of internet advertising* was the key policy failure in preventing harm to women and children.

The Pirate Bay is one of the most popular sites for providing torrents to infringing content, and has been the subject of criminal proceedings against its operators in Sweden. In the 2009 trial of its operators, their expenses were estimated to be US$110,000 p.a (Olsson, 2006; Kuprianko, 2009), with advertising revenues in the order of US$1.4m p.a. (Sundberg, 2009) – in other words, an extremely profitable business with gross margins of 1272%! A recent study (Detica, 2012) indicated that there are six different business models operating within the pirate site marketplace, ranging from advertisement and donation funding, through to subscriptions and freemium sites, where subscribers can gain faster access to illicit content by paying a subscription fee. 83% of the sites in that study operated using a central website. Selling advertising on file locker and torrent search sites is the major source of revenue for such sites. The Pirate Bay, for example, regularly features in the Top 50 sites (as computed by alexa.com) , and so it is a potentially attractive space for advertisers and ad networks, since the number of potential "eyeballs" is very high. Other piracy sites with high global Alexa rankings include Kickass torrents (rank 103) and Torrentz (rank 153)[3]. SimilarWeb ranks kickass.so in the Top 50 sites for Thailand[4].

Maximising "eyeballs" leads to clicking, which drives revenue for the ad networks (if they operate a Pay Per Click revenue model), and sales for the advertisers. A key question for advertisers and ad networks is the extent to which they wish to be associated with this type of activity; indeed, due to the complex algorithms which decide which ads to display to which users, advertisers may not be aware of every site that their ads are being displayed on.

Being able to quantify the scale of advertising on these sites is important, since informing and making advertisers aware of the integrity of the sites on which their ads are being displayed can then be undertaken. Advertisers will thus be able to make more informed choices about their use of online advertising networks (the companies who provide aggregation of space on web sites) who are supporting piracy by selling ad space on torrent and file locker sites. A recent set of best practice guidelines for ad networks to address piracy and counterfeiting have recently been released[5], and early indications are that most of the world's major web companies will participate[6].

There have been few systematic studies investigating the relationship between piracy and advertising, and most have been concerned with the impact of interventions to reduce piracy. For example, Sheehan et al (submitted) identified that increasing the perception of legal risk for college students was most likely to influence downloading behaviour, while Gopal et al (2009) weighed up the ethical predispositions of downloaders and their beliefs in justice and law to the money potentially saved by downloading infringing content. Indeed, it is this appeal to justice as the primary virtue of social behaviour (Rawls, 1999) that may concern ethical advertisers if their advertising expenditure was being used to fund illicit activities.

Recent studies have indicated users were much more likely to be exposed to "high risk" advertising on such sites, relative to mainstream ads. Australia (Watters, 2014a), Singapore (Watters, 2013a), Canada (Watters, 2013b), and New Zealand (Watters, 2014c) all had mainstream prevalence

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[3] http://au.ibtimes.com/articles/533033/20140106/pirate-bay-popular-torrent-site-top-10.htm#.Uvk8g_mSw3I
[4] http://www.similarweb.com/country/thailand
[5] http://2013ippractices.com/bestpracticesguidelinesforadnetworkstoaddresspiracyandcounterfeiting.html
[6] http://torrentfreak.com/tech-giants-sign-deal-to-ban-advertising-on-pirate-websites-130715/

rates of 1-10%, while high risk ads had prevalence rates of 90-99%. High risk ads are those which have the potential to cause harm to users, and include pornography, gambling, malware and scams.

These studies all investigated web pages that were sampled from Google's ad transparency report for movies and TV shows or music downloads, having been verified as being in breach of the Digital Millennium Copyright Act (DMCA). However, the Google report is heavily biased towards Hollywood TV/movies and music in English, so another study (Watters, 2014d) investigated Hollywood content in Taiwan, where the sites were presented in Chinese. It was found that mainstream advertising was much more prevalent for locally-developed sites with Hollywood and other international content, compared to viewing Hollywood content sites in the other countries examined. 61% of ads were Mainstream, while 39% were High Risk for local content. The results for ads for viewing Hollywood content from other studies are summarised in Figure 1.

A follow-up study in Hong Kong (Watters, 2014e) investigated whether Mainstream advertising would also be more prevalent not just for sites written in the local language, but also promoting local content (eg, a Chinese language website providing links to Chinese language titles. For local content, 61.36% of movie and TV ads were Mainstream, while 38.64% were High Risk. In contrast, 3.84% of Hollywood ads were Mainstream, while 96.16% were High Risk.

A subsequent study directly measured prevalence rates for High Risk versus Mainstream ads for local versus Hollywood content for movies/TV in Malaysia (Watters, 2014e). A sample of expert-identified piracy sites hosting local content was identified, and all ad banners comprising part of the sample were downloaded and identified, along with the ad network serving each banner. A comparable sample was taken from Google's ad transparency report. It was found that for local Malay content, 72.1% of movie and TV ads were Mainstream, while 27.9% were High Risk. In contrast, 8.24% of Hollywood ads were Mainstream, while 91.76% were High Risk. Like Hong Kong and Taiwan, this suggests that Mainstream advertisers in Asia are being drawn to local language sites, whereas Mainstream advertising rates for Hollywood titles are similar to other countries. These results are summarised in Figure 2.

Different countries also tend to show quite localised differences in the type of High Risk ads shown: in some countries, gambling is the most frequent category, in others, it is malware downloads, or the sex industry. A breakdown by country is shown in Figure 3.

Australia

1%

High Risk
Mainstream

99%

Canada

11%

89%

Hong Kong

4%

96%

Malaysia

8%

92%

New Zealand

4%

96%

Singapore

10%

90%

Figure 1. High Risk versus Mainstream ads when viewing Hollywood TV/Movie piracy sites
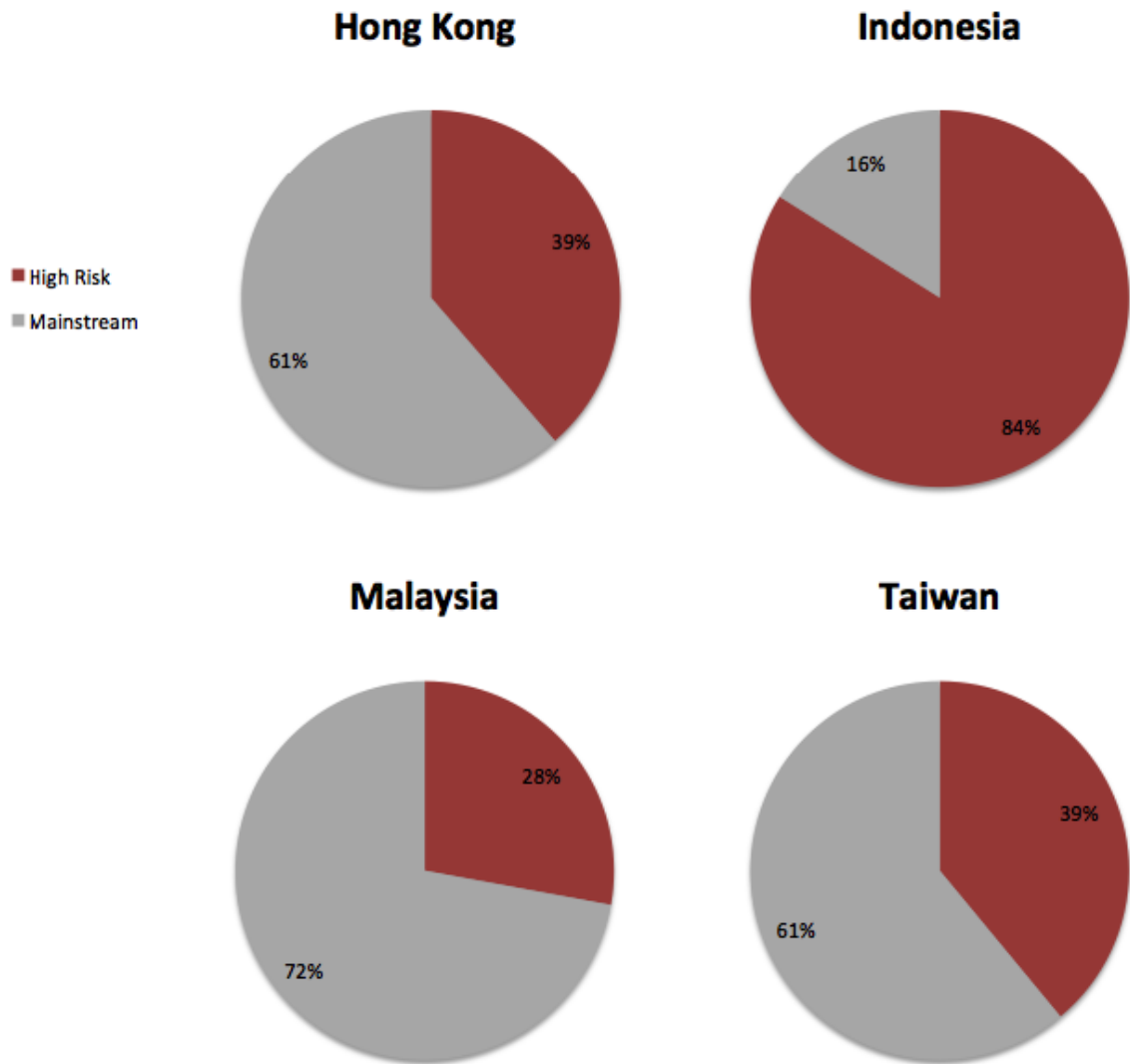
Figure 2. High Risk versus Mainstream ads when viewing local content piracy sites
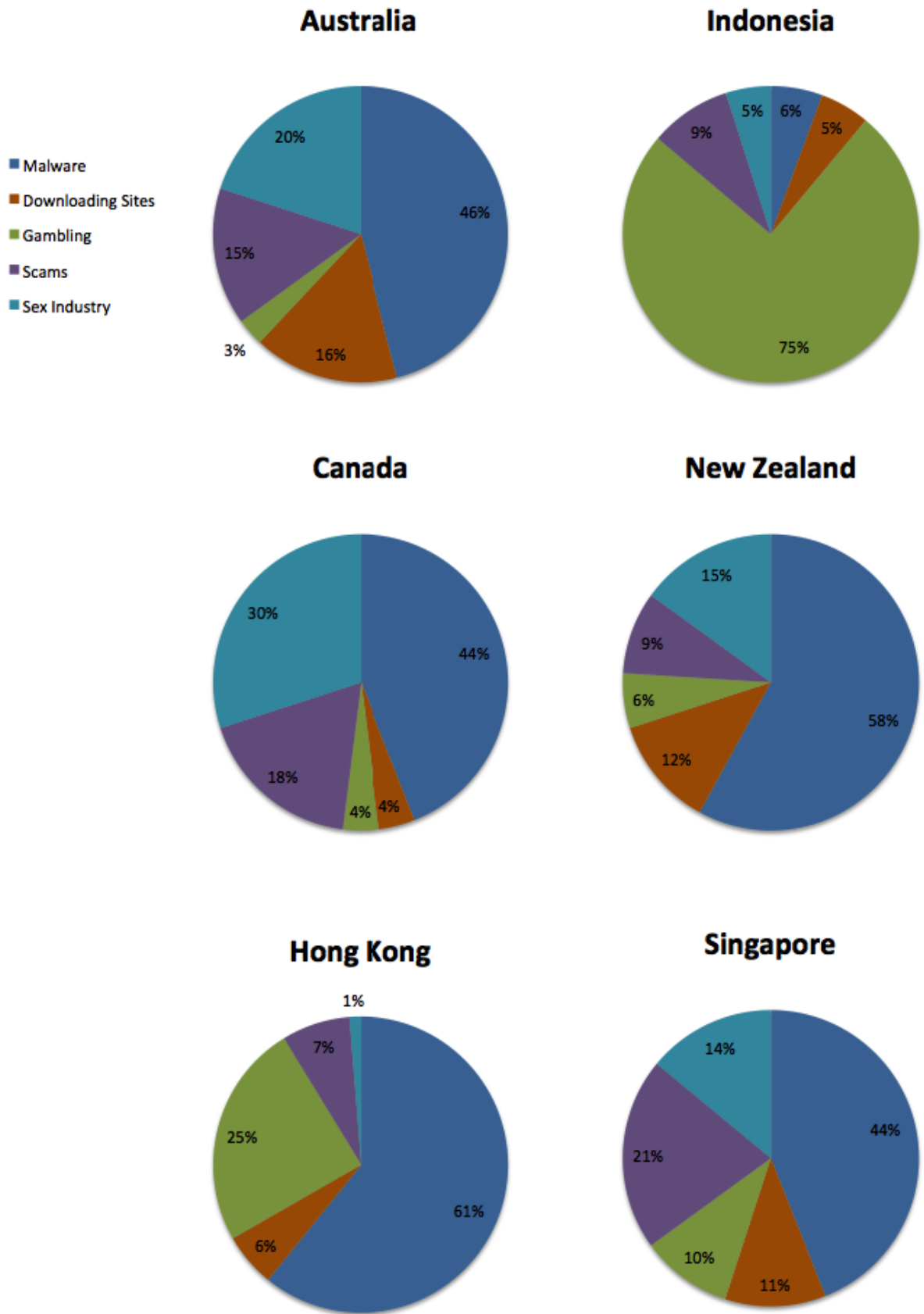
Australia

- Malware 46%
- Downloading Sites 16%
- Gambling 3%
- Scams 15%
- Sex Industry 20%

Indonesia

- Malware 6%
- Downloading Sites 5%
- Gambling 75%
- Scams 9%
- Sex Industry 5%

Canada

- Malware 44%
- Downloading Sites 4%
- Gambling 4%
- Scams 18%
- Sex Industry 30%

New Zealand

- Malware 58%
- Downloading Sites 12%
- Gambling 6%
- Scams 9%
- Sex Industry 15%

Hong Kong

- Malware 61%
- Downloading Sites 6%
- Gambling 25%
- Scams 7%
- Sex Industry 1%

Singapore

- Malware 44%
- Downloading Sites 11%
- Gambling 10%
- Scams 21%
- Sex Industry 14%

Figure 3. High Risk frequencies for different countries
(Malware, downloading sites, gambling, scams and the sex industry)

The first peer reviewed paper in this field was published by Watters (2014a). That study outlined a fully replicable algorithm for sampling piracy sites to provide a much clearer view of advertising network behaviour in different countries, jurisdictions, languages etc. The major difference between this study and the USC study was that it examined all advertisements, not just the Mainstream ones. In doing so, Watters was able to establish the relative proportion and prevalence of Mainstream ads versus High Risk ads.

In summary, local content sites were many times more likely to be displaying mainstream ads when compared to Hollywood content sites. The levels of mainstream advertising were almost identical to Taiwan and Hong Kong for local content, and were similar to Canada, Singapore, Australia and New Zealand for Hollywood content. In this study, local piracy websites in Thailand are the focus, and it is predicted that the prevalence of mainstream and high risk ads for local content will be consistent with the results from Malaysia, Hong Kong and Indonesia.

Methods

A sampling procedure can be used to identify a representative subset of URLs, and the advertisements on each page can be downloaded along with their metadata. In the case of simple banner ads, it is then relatively easy to identify the advertisers concerned; in the case of each distinct advertisement, a rule can be generated using SQL or similar to identify all advertisements with the same metadata. However, some advertising networks use JavaScript obfuscation and a series of redirects to obscure the ultimate destination for the advertising banner; in this case, manual inspection must be performed, in the absence of a general purpose image/logo recognition system. The overall prevalence of a particular advertiser on each network can be then be computed and ordered by frequency.

Furthermore, it may be of interest to separate out "Mainstream" advertisements as opposed to "High-Risk" advertising, since the Annenberg reports indicate a flight by Mainstream advertising this year from sites that host infringing content. Advertisers who may otherwise be unable to place their ads on a Mainstream site can then take advantage of increasing "eyeballs" by occupying display space. Results are thus reported for the High-Risk and Mainstream categories, with the former including categories such as:

- Sex Industry, which includes adverts for:
    - Penis length extension medication
    - Fake personal/dating sites
    - Pornography of various kinds
    - Dating and "foreign bride" sites
- Online Gambling
- Malware, including
    - Fake software incorporating Trojan horse malware (numerous alerts were raised by anti-virus software during the data collection process due to "drive by downloads" of malware)
    - Fake anti-virus or anti-scamware

- Suspicious software such as fake video codecs or video players that replicate existing functions within Microsoft Windows. The purpose of such downloads is unclear, although it is possible that they could host Trojans or provide backdoor access to systems.
- Scams, as defined by Stabek et al (2010), such as:
    - Premium rate SMS scams
    - Fake competitions where no prizes are offered
    - Investment scams
    - Employment scams

One source of data was used to source piracy sites for this study: a list of sites generated from a snowball sample, used to identify the *most popular* piracy sites matching an initial "seed" term. The goal of snowball sampling is to build a sample that is often hidden or hard to measure directly. In the case of infringing content, there is no central database of sites that is readily available, so instead, we seek to replicate user behaviour in searching for such sites. The role of search engines here is critical – they provide a set of search results that act as a proxy for popularity based on the relevance of those results. Thus, by entering terms into the engine, and building a term list (i.e., those terms relevant to illegal downloading) and a site database (of infringing sites used within Thailand), we can replicate the path that users take in discovering infringing content.

To generate the snowball sample, Google Translate was used to identify "หนัง ดาวน์โหลด" as the best seed (meaning "download film"). This term was entered into the term database, and the top ten sites from Google Search were then identified and added to the site database. Thai terms relating to illegal downloading were then identified from the text of the pages in the site database. This resulted in the terms free download film (ภาพยนตร์ ดาวน์โหลด ฟรี), online (ออนไลน์) and dare (ลองของ) being added to the site database. Further Google searches were performed with these terms, and any piracy sites identified were added to the site database, until 43 sites were registered. A set of screenshots depicting the sequence of activities is shown in Appendix C.

The data was collected as follows:

1. A data collection system is installed physically or logically to attract advertising for a specific geographical/country segment. For this study, Thailand was selected.
2. The sample was generated according to the algorithm described above.
3. For each site in the sample, 10 page impressions were taken, as banner ads often change between refreshes. This gives a total of 430 web pages to be downloaded (the sample) for local content.
4. Each of the 430 web pages in the sample is downloaded, and a screenshot is taken, showing the ads being served. Note that for technical reasons, pop-up ads are not captured.
5. For each web page in the sample, the code blocks that contain advertising are parsed and extracted. This can be achieved by matching against the Easylist[7] (used by Adblock Plus for filtering), for known URL patterns and hostnames of advertisers. Some pages in the sample will have no ads, while others will have multiple ads.

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[7] http://easylist.adblockplus.org/en/

6. For each advertising code block, the domain of the advertising network being used is identified, by stripping extraneous code and links from the code block, and counting the frequency of appearance of each ad network domain. If an ad network has fewer than 5 occurrences, the items are discarded. The rationale for exclusion is that errors in coding, extraneous links etc can result in false positives being included in the list.

7. For each identified advertisement, an attempt is made to identify the actual advertiser, by analysing metadata, following the link and extracting the domain of the actual advertiser, or through visual inspection. A list of all identified advertisers is then generated.

8. The category of the advertisement is then determined by an expert as either being high risk or mainstream.

9. A manual check was also performed to determine whether the identified site met the definition of "piracy site"; two sites were removed from the sample at this stage, as the investigator could not verify whether the sites were wholly concerned with piracy.

Results

Appendix A contains a list of the sites identified in Step 2. From the 430 pages analysed in Step 3, a total of 462 advertising items and 751 visible ads were identified in Step 5[8]. This indicates that many of the advertising elements used in Thailand are not covered by the Easylist. Further developing the Easylist to identify local Thai ad networks will be critical to further understanding the Thai advertising ecosystem.

Postprocessing of the identified domains were performed to ensure that all ad blocks were correctly identified, for example, by removing port numbers that were included as part of a URL by using a regex filter. 15 unique domains for advertising networks were identified, indicating an average 28.66 visible ads per network in the sample. Appendix B contains the complete list of advertising networks detected. Where a domain appears within an ad block, this is a technical definition as per the methodology in Steps 6 and 7, ie, if the site or known ad URL appears in the block, then it will be counted. This could include Facebook social plugins, for example, rather than Facebook ads.

The analysis is presented by reviewing the High Risk ads first, followed by the Mainstream ads.

High-Risk Advertising

Table 1 shows the breakdown of the most common ad categories for High Risk ads across all networks. Each advertisement was downloaded, visually inspected and categorised. The results indicate that gambling, the sex industry, malware, downloading sites or scams (including employment, investment and SMS premium rate) were the most popular distinct advertising types. The categories are summarised in Figure 4.

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[8] Advertising items include any scripts, images, spacers etc being referenced from an Adblock domain, in addition to visible ads

	Sex	Malware	Download	Gambling	Scams
N	438	96	56	113	1
%	62.22%	13.64%	7.95%	16.05%	0.14%

Table 1. Frequency by Ad Category – High Risk Ads

- Malware
- Downloading Sites
- Gambling
- Scams
- Sex Industry
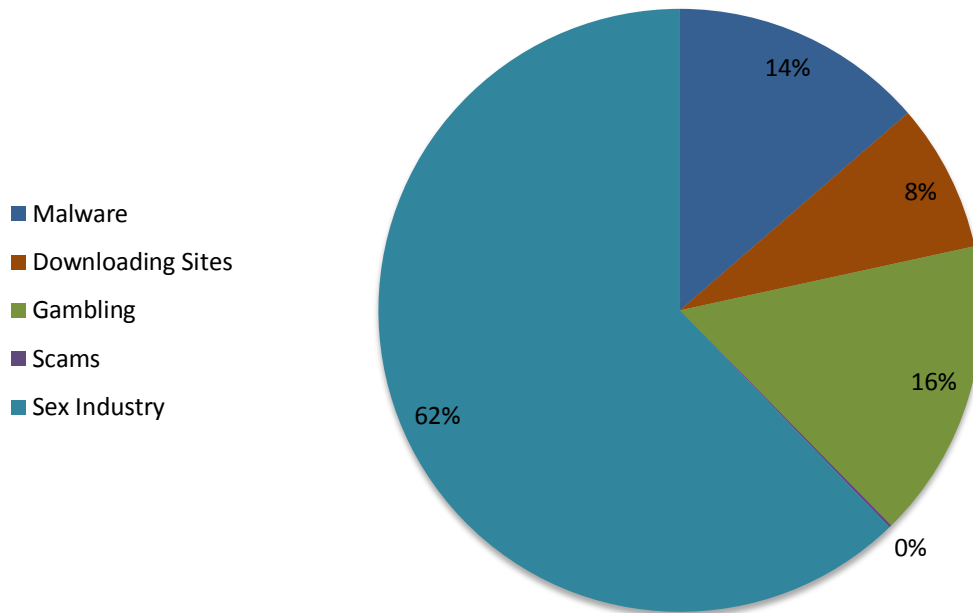
Figure 4. High-Risk advertising

Mainstream Advertising – All Advertisers

Table 2 contains the results of the step 8 results obtained by visually inspecting every advertisement in the sample to identify whether it contained any Mainstream advertising. Typically, a piracy site will have 3-4 ad panels, and in many cases, the ads were tailored to the local geographic context. In some cases, advertisements were blocked with an image stating the site was "blocked" for offshore users, indicating further evidence of geographic customisation for the advertising content. In some cases, domains associated with file sharing were "parked" and advertising displayed, even if no infringing content was actually displayed – especially where such sites had terms like "warez", "anon" and "rapidshare" in their domain name.

The top advertiser – Durex – is a typical Mainstream advertiser. They are a successful condom manufacturer, owned by Reckitt Benckiser (with a market cap in excess of GBP 40 billion), and operate internationally.

Only 6.26% of the ads sampled consistently showed evidence that Mainstream advertisers are targeting Thai users via piracy sites. Some ads and/or advertisers were only detected once. In a sense, this represents a type of leakage, since the Mainstream ads were a minority of the overall ads displayed (which were overwhelmingly High-Risk). A breakdown by industry category is shown in Figure 5, and the relative composition of Mainstream to High-Risk ads is shown in Figure 6. An example High-Risk ad panel showing sex industry and gambling ads is shown in Figure 7. More disturbing examples are shown in Figures 8-10, where searches for children's movie torrents results in several graphic sex industry ads being displayed. The implications of this co-location are further analysed in the Conclusion.

Advertiser	N	%
Durex	10	11.49%
Pergamon Sport	6	6.90%
FashionMia	6	6.90%
7-11	4	4.60%
Tesco	4	4.60%
Dora Serum	4	4.60%
Bamboo Mouthwash	3	3.45%
Trivago	2	2.30%
Accor Hotels	1	1.15%
davinathailand.com	1	1.15%
Jeunesse	1	1.15%
cherchomonline.com	1	1.15%
La'Eve Herbal Drink	1	1.15%
Symantec	1	1.15%
Clearly	1	1.15%
Film Fanatic	1	1.15%

Table 2. Mainstream Advertisers Detected
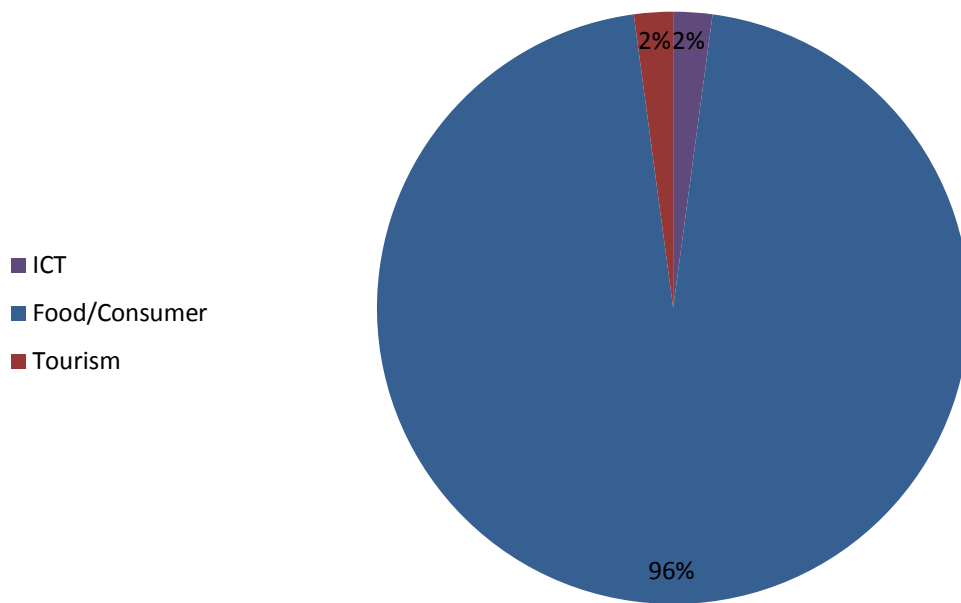
Figure 5. Mainstream advertising
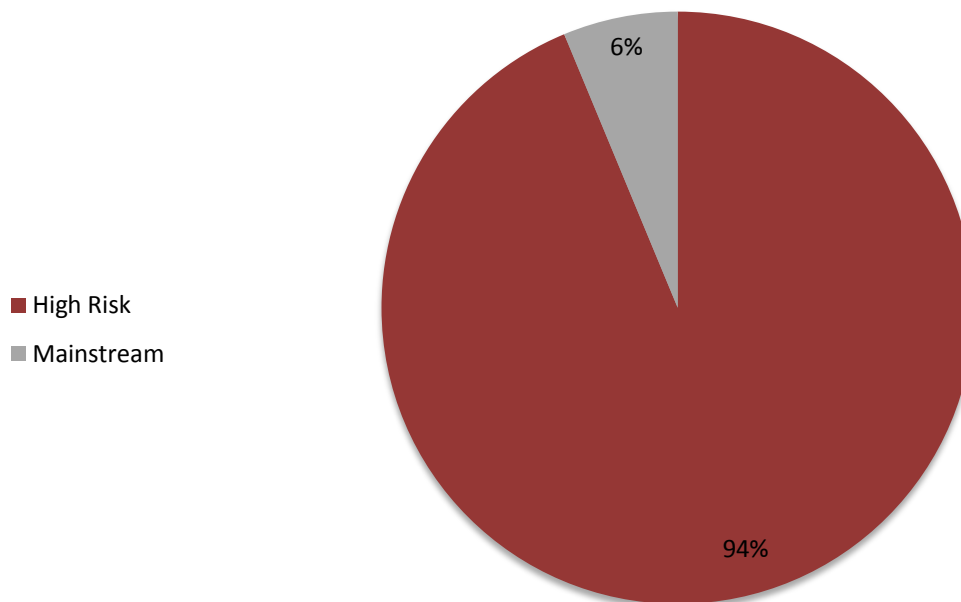
Figure 6. Mainstream versus High-Risk Advertising

Advertising Networks

Table 3 shows the results of analysing all advertising items – as identified by matching against the Easylist rules – with the most frequent domains identified as advertising networks. A frequency distribution of the raw advertising items is given in Appendix B. A manual check of each advertising item was undertaken, to determine if the domain was primarily a piracy site or an advertising network.

Ad Network	Frequency
exoclick.com	120
yllix.com	80
hulaga.net	40
qadservice.com	40
bumq.com	30
bidvertiser.com	22
innity.net	20
movie2free.com	20
zonemoviedd.com	20
vojkud.com	20

Table 3. Frequency Analysis by Advertising Network – Top 10

Figure 7. Example site showing gambling and sex industry ads alongside film piracy

Figure 8. Example site showing graphic sex industry ads alongside a children's movie torrent

Figure 9. Example site showing graphic sex industry ads alongside a streaming children's movie

Figure 10. Example site showing graphic sex industry ads alongside a streaming children's movie

Conclusion

The results for Thailand showed a different pattern to other studies of local content on piracy sites in Asia (including Taiwan and Malaysia); this study found that the majority of advertising on Thai piracy sites was High Risk in nature. In particular, 62.22% of High Risk ads were for the sex industry and 16.05% were for gambling.

The key findings from the analysis of this first-ever Thai data set are discussed below:

- For local language sites, 6.26% of movie and TV ads were Mainstream, while 93.74% were High Risk.
- Advertising for the gambling industry comprised 16.05% of the high risk ads, and the sex industry, 62.22%. Malware and "download" sites were also common advertisers.
- The top ad networks serving ads to Thai residents for local content – based on the top ten most frequently served ads included exoclick.com, yllix.com and hulaga.net. However, the results indicate that Easylist did not correctly identify local Thai ad networks as readily as those that operate internationally, such as exoclick.com. Further research is needed to build Thai-specific ad network lists.
- A number of household name brands in Thailand, such as Durex, Tesco and 7-11 - are choosing to advertise on sites and their pages which are promoting the distribution of local infringing content. Further investigation is needed to uncover the mechanics of how these ads are selected to appear; are advertisers engaging directly with ad networks, or are ad networks operating at a wholesale level and distributing ads to other networks through a resale programme? Who, eventually, has control over the display of this type of advertising space?
- While the snowball technique is very helpful in searching for illicit content in the same way that a user might, there is a higher chance of encountering false positives, relative to using the Google-verified DMCA complaint lists (as per previous studies).

Analysis of key findings:

- Thai consumers of all ages who access piracy sites have a higher chance of viewing high risk ads compared to mainstream ads. Such ads are disproportionately promoting the sex industry and gambling, both activities which are heavily regulated in Thailand.
- Thai may be filtered, as while the sex industry ads were quite prevalent, they were – in the large - not as explicit as found in other jurisdictions. Figure 4 shows an example of a graphic advertisement, though, found on one site. Thailand should investigate applying further controls that are both text based as well as image based (eg, Ho & Watters, 2004).
- Advertisers need to have better mechanisms to control where their ads are eventually displayed on ad networks. Better systems for operational assurance and detection of misplaced ads need to considered, whether they operate using a whitelist or a blacklist (Ho & Watters, 2005).
- Regulatory approaches need to be considered to control the revenue flowing to piracy websites, and to minimise harm to users, especially children[9]. A proposed code of conduct

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[9] This issue is further discussed by John Carr, leading cyber safety expert in his blog https://johnc1912.wordpress.com/

(Dredge, 2013) would be a first step to isolating piracy websites. Advertisers recently succeeded in pressuring Facebook, for example, to remove offensive ad placements by threatening to remove ads (as a group; Cellan-Jones, 2013).

- Other types of piracy content have been managed effectively by legal sanctions in the past. For example, paid search results for websites selling pharmaceuticals without prescriptions (O'Donnell, 2013) were removed by Google only after they paid a fine of USD$500 million in return for the US Department of Justice dropping a **criminal** investigation against them, with both parties signing a non-prosecution agreement.[10]. However, Google's organic search results continue to display results from piracy drug sellers, ranging from marijuana through to MDMA and ecstasy (Watters & Phair, 2012).

- Since cyber criminals are very effective at exploiting jurisdictional differences, a global, industry wide code may have a greater impact on revenue flows for piracy websites. However, industry codes need to engage with ad networks that are placing ads for High Risk advertisers. At this stage, none of the top advertising networks supporting piracy websites appear to be involved in the proposed codes of conduct[11]. Also, no additional burden should be placed on rightsholders to police the internet for offensive material.

- Policymakers, parents and educators need to be aware that the sex industry and online gambling sites specifically target torrent sites and file locker sites for advertising their services. Prostitution is highly regulated in Thailand, and the fact that sex industry ads are so prevalent on sites promoting local content should be a great concern to everyone. There are absolutely no age warnings on these pages, and no attempt is made by these sites to verify if users are adults. Parents need to be aware that this is the type of content that piracy sites will serve up to their children, even if they are only intending to download torrent for music or less offensive content[12]. The absence of traditional regulatory mechanisms for effectively controlling online content mean that new subcultural norms are rapidly being established online, and these can have profoundly negative consequences; for example, a progression model of rising interest in child exploitation material has been linked to the rise of the online porn culture, particularly where young users are inadvertently exposed to pornography through advertising (Prichard et al, 2013).

- There is also a specific concern in relation to the very high frequency of sex industry ads. In Thai culture, there is a strong disposition against violence, following from the Buddha's teaching of *ahisma*. Many years of scholarly work has sought to link pornography and violence, particularly against women (Donnerstein, 1984) and often being facilitated through the internet (Gillespie, 2000). The high frequency rates of sex advertising in Thailand is therefore doubly offensive.

- Finally, and perhaps most importantly, this study illustrates the key role that search plays in the "illicit value chain" of (a) building up term lists to use to find infringing content, and (b) providing a list of ranked items in order of relevance to allow users to find the infringing content most relevant to their interests. While a small number of users will already know the domain name of the site that they wish to visit to download infringing content, search engines

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[10] http://www.justice.gov/usao/ri/news/2011/august2011/Google%20Agreement.pdf

[11] http://www.bbc.co.uk/news/technology-23325627

[12] http://johnc1912.wordpress.com/2013/09/17/piracy-web-sites-perils-and-profits/

are facilitating the discovery of such sites by other users. Therefore, while domain blocking may be an effective strategy to prevent piracy sites providing infringing downloads, <u>it can only be successful</u> if replacement sites are unable to be "found" through search engines. As Mike Weatherly (IP Advisor to the UK Prime Minister) has recently noted in his discussion paper on search engines and piracy "removing a domain from search results will not solve piracy – although it would be a very important step in the right direction"[13]. Perhaps, as Mr Weatherly suggests, consumers expect search engines to direct them toward legitimate content.

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[13] http://www.mikeweatherleymp.com/2014/05/29/search-engines-and-piracy-a-discussion-paper-by-mike-weatherley-mp/

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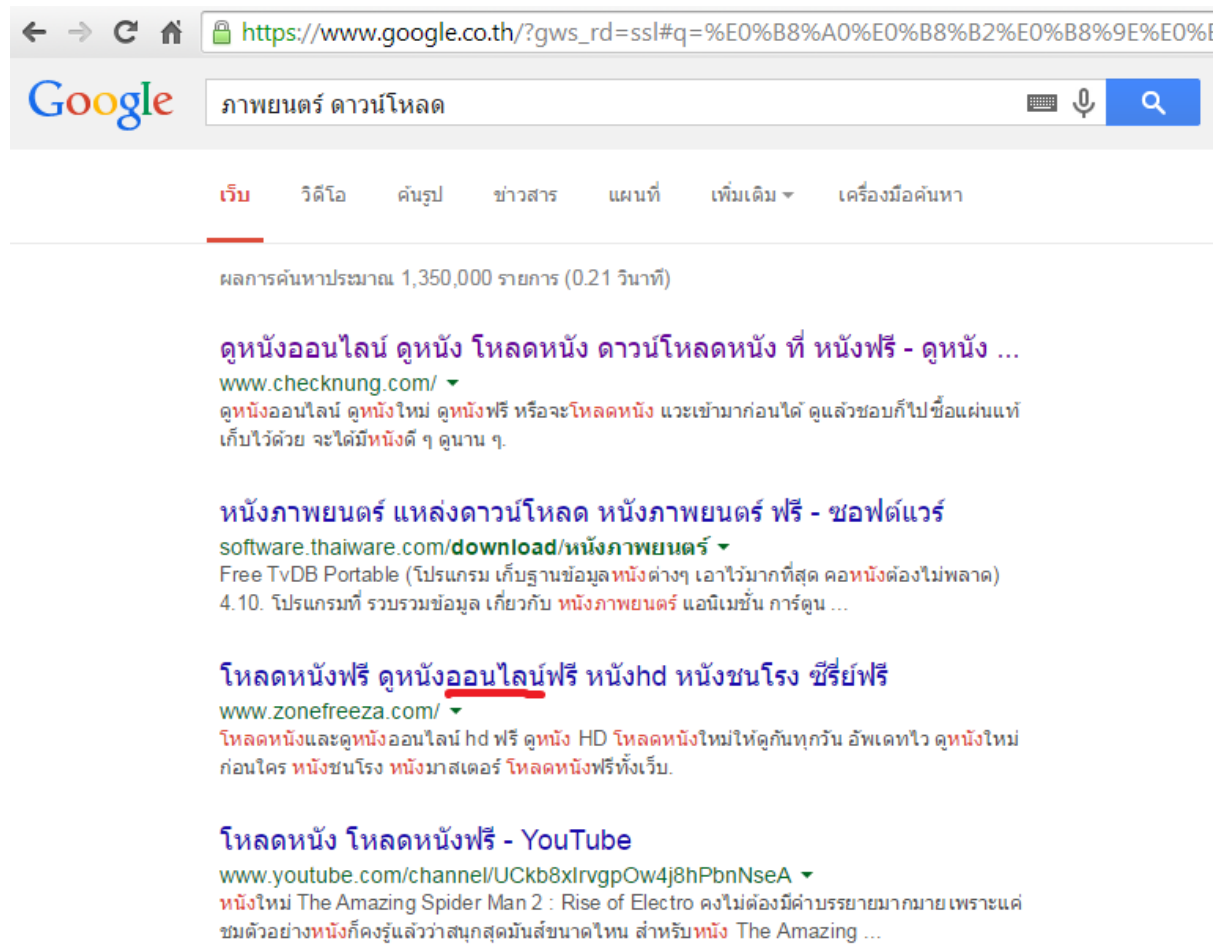
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http://www.land-vdo.com/
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Ad Network	Frequency
exoclick.com	120
yllix.com	80
hulaga.net	40
qadservice.com	40
bumq.com	30
bidvertiser.com	22
innity.net	20
movie2free.com	20
zonemoviedd.com	20
vojkud.com	20
tinyurl.com	10
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