GOOD MONEY
GONE BAD

Digital Thieves and the Hijacking of the Online Ad Business

A Report on the Profitability of
Ad-Supported Content Theft

February 2014

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ABOUT THIS REPORT

In the early days of the Internet, content theft – also known as online piracy – was often shrugged off. While it significantly impacted the creative community – musicians, artists, movie studios and record producers who lost income for their creative works – it was typically viewed as the isolated activity of high school or college students who wanted to listen to music or watch movies for free. But as the Internet has become an increasingly pervasive force in the economy, the harm caused by content theft now extends well beyond the music and movie industries. It robs designers who rely on the Internet to sell their creations, hurts brands that find themselves associated with illegal and inappropriate sexual and violent content, funds online criminals and provides seed money for other illegal activities.

The future of the Internet depends on all users being able to trust that it will serve their interests.

When well-known premium brands, as well as other legitimate secondary brands, appear on content theft sites due to the "blind" sales channels through which most Internet advertising is sold, they involuntarily lend those sites an appearance of legitimacy that potentially deceives consumers. When those brands see their ads placed next to illegal content and bottom-feeder ads for sex trafficking or illegal drugs it makes these brands think twice about the Internet as a vehicle to reach their target audience. That, in turn, hurts consumers who benefit from an abundance of free-to-the-user – and legitimate – ad-supported content on the Internet. When designers and creators have their works stolen by unscrupulous operators, it makes them think twice about the Internet as a platform to launch or expand their business. And that hurts consumers who want online commerce to be robust, pervasive and trustworthy.

In short, ad-supported content theft has become a big business that harms a wide range of players in the digital economy and threatens the future of a free and open Internet. It cannot be dismissed as a benign act or victimless crime. It undermines our basic trust in the integrity of the platforms that make up the Internet.

As a society we need to protect the Internet from those who want to bleed it for their own profit while making it less attractive for generations to come. It is for this reason that Digital Citizens Alliance set out to understand how content thieves operate and profit from the works of others. To understand the problem fully, we have to follow the profits. In commissioning this study we seek to understand how bad actors make money through *advertising*, and how much they make.

It is important to note that the advertising *profits* garnered by content thieves do not equate with the *losses* incurred by the owners of the content. These losses are unquestionably greater by many orders of magnitude, because content thieves are

responsible for illicitly distributing millions of copies of highly valuable works that cost billions to create, depriving their owners and creators of billions of dollars in rightful income. There is no question that the victims in this equation include a wide range of workers in the creative industries, from ordinary craft guild members, who rely on the revenues from creative productions to fund their health and retirement benefits, to independent creators.

But that economic harm is *not* the focus of this study, which instead seeks to estimate the advertising profits that content thieves reap for themselves from illicit distribution.

To determine how much money these bad actors are making through advertising, Digital Citizens commissioned MediaLink LLC – an advisory firm that provides critical counsel and strategic direction to the media, advertising, entertainment and technology industries and to companies and institutional investors that interact with those sectors – to undertake a research project focused on the ecosystem's revenues and profitability. By gaining insight into the ad-supported content theft ecosystem, we can as a society strive to find answers to protect the long-term future of the Internet.

Through this research, we have a snapshot of how much money content thieves make through advertising. We hope that this insight encourages the Internet and advertising industries, consumers, public-interest groups and responsible government officials to strive to make the Internet a stronger, more reliable and open platform for everyone.

EXECUTIVE SUMMARY

Ad-supported content theft is a real and growing threat not only to the content creators whose business it undermines, but also to the credibility of the digital advertising ecosystem that has developed over the last two decades. This research project analyzed advertising-supported web sites that dealt primarily in pirated content, and found that advertising yielded enormous profits.

The web sites MediaLink examined accounted for an estimated **$227 million in annual ad revenue, which is a huge figure, but nowhere close to the harm done to the creative economy and creative workers.** The 30 largest sites studied that are supported only by ads average $4.4 million annually, with the largest BitTorrent portal sites topping $6 million. Even small sites can make more than $100,000 a year from advertising.

Because their business model relies entirely on illicitly distributing millions of stolen copies of highly valuable works that cost others billions to create, their profit margins range from 80% to 94%, underscoring that crime can pay when you steal other people's content.

MediaLink's analysis of the profitability of ad-supported pirate sites provides additional insights into other aspects of the content theft ecosystem, including the prevalence of premium and secondary brand ads, and connections among sites. Below are other highlights of this study:
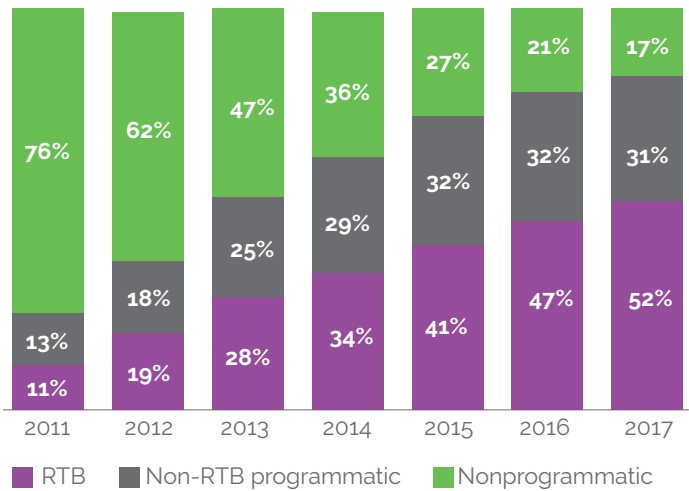
- **Premium, Secondary Brand Advertisers at Risk:** Weaknesses in the digital advertising ecosystem threaten the value of legitimate brands by allowing ads to be served on offending sites, often alongside offensive ads and links to malware.

    - **Nearly 30 percent of large sites in the sample carried ads for blue-chip premium brands –** highly recognizable household names.

    - In addition, ads for secondary brands - **legitimate gaming, gambling and content aggregation sites - appeared on up to 40 percent** of all the sites studied.

- **Low barriers to entry:** Stealing rights-protected content and setting up a site can be achieved with minimal technical expertise or cost and then can be iterated to avoid detection and policing, especially among the largest segments of sites.

- **Traffic generation:** Attracting a user base requires little effort or investment, as millions of users seek free content for download or streaming and as the Internet population grows.

The profitability and ease of execution, complemented by consumers' desire for free movie, TV, and other content, are the primary drivers of ad-supported content theft. Efforts to deter or degrade these activities through legal, technical, or industry initiatives continue to face a challenge. Nonetheless, the urgency to do so has never been greater in light of advertising trends, technology advances, and a growing intent among individual and organized global bad actors to capitalize on these profitable opportunities.

THREE KEY RELEVANT GROWTH TRENDS

Absent action by stakeholders, ad-supported content theft is likely to continue, supported by three key trends: increased programmatic digital advertising; growth of the global Internet population; and a swelling demand for video content by users who are willing to steal it rather than pay for it.

US Display Ad Spending Share, by Type, 2011–2017
% of total

Year	RTB	Non-RTB programmatic	Nonprogrammatic
2011	11%	13%	76%
2012	19%	18%	62%
2013	28%	25%	47%
2014	34%	29%	36%
2015	41%	32%	27%
2016	47%	32%	21%
2017	52%	31%	17%

■ RTB ■ Non-RTB programmatic ■ Nonprogrammatic

Note: read as 28% of display-related spending was through RTB in 2013; numbers may not add up to 100% due to rounding.
Source: MAGNA GLOBAL as cited in press release, Oct. 14, 2013

Figure 1: Growth in Programmatic

Trend #1: Programmatic buying and selling of digital advertising: The digital advertising supply chain has many points of vulnerability. As more ad placement is done through automated systems, it becomes easier for bad actors to funnel ads to their sites, and to generate fraudulent clicks via bots and human operations.

An estimated 53% of US online display ad placement was automated in 2013, according to Magna Global, which projects that volume to increase to 83% by 2017. As buying and selling ads programmatically continues to grow, the opportunity to manipulate technology for further advertising gain only increases.

Trend #2: More Infringing Users and Bandwidth: The universe of consumers who view stolen content, and the bandwidth that they use in doing so, are on the rise, according to NetNames' September 2013 report, *Digital Piracy: Sizing the Piracy Universe*. NetNames reported that the number of infringing users in North America, Europe and the Asia-Pacific region rose nearly 10% from 297.6 million in November 2011 to 327 million in January 2013. Meanwhile, bandwidth used to access infringing content jumped dramatically, by nearly 160%, from 2010 to 2012 in the same regions.

Taken together, the two sets of data point to consumers' desire to access content, especially video content, enabled by the ability to discover and access the pirated content through peer-to-peer networks and search.

Trend #3: Global Internet Population Growth: Given the increase in infringing users, the anticipated global explosion in Internet use generally suggests that ever more consumers are likely to want movie, TV, and other digital content, especially as delivery systems increase in speed and decline in cost.

Today's 2.7 billion global Internet users represent only about 40% of the world's population, according to the International Telecommunications Union, and new users are coming online steadily. Just 31% of the population is online in the developing world, compared with 77% in the developed world, according to ITU, so there is ample potential for continued rapid growth.

Implications: The convergence of these growth trends suggests that the market size for ad-supported content theft is on the rise and will continue unless concerted diligence by all stakeholders in the digital media value chain is intensified and coordinated. Only through these kinds of efforts can the highly attractive profitability of ad-supported content theft be slowed and degraded.

METHODOLOGY

Sites Studied

In selecting sites for this research, MediaLink focused on the third quarter of 2013 to provide a recent

point in time on which to base calculations. As the basis for finding sites engaged in content theft, it started with Digital Millennium Copyright Act (DMCA) removal request data from the Google Transparency Report.

There are thousands of sites around the world that offer infringing material and are supported by advertising. To allow a deeper dive we focused on a subset, including the largest and most successful. As a result the findings, while significant, reflect only a part of the aggregate profitability of such sites.

The baseline was sites with 25 or more DMCA takedown requests in Q3, that Veri-Site determined were live in the quarter, and for which unique visitor and page view data were available from comScore. The comScore data were used to calculate advertising revenue and to segment the sample by size, as described below. MediaLink validated the sample further using Integral Ad Science ratings on sites determined to be at high risk for content infringement, and its analysts visited and reported on hundreds of sites to further qualify them, and removing from consideration:

- Porn and hate sites;
- Sites where most content appeared to be user-generated, personal in nature or highly localized, e.g., Tamil-language programs or movies unlikely to be interesting to a broader pirating audience; or
- Sites where available content was not primarily movies and TV shows.

Thus, the only sites kept in the sample were those at least partially ad-supported sites where infringing content appeared to be a significant portion of the site.

Because content infringement sites can appear and disappear quickly, a small number of the sites had shut down while subsequent research was conducted in Q4 of 2013, in some cases as a result of civil or police action. Those sites were kept in the sample, as they represented ad-supported content theft within the time frame for this study.

The result was a sample of 596 sites.

Sample Segmentation

The sample sites were categorized into four functional segments, based on technology and business model, before being further segmented by size.
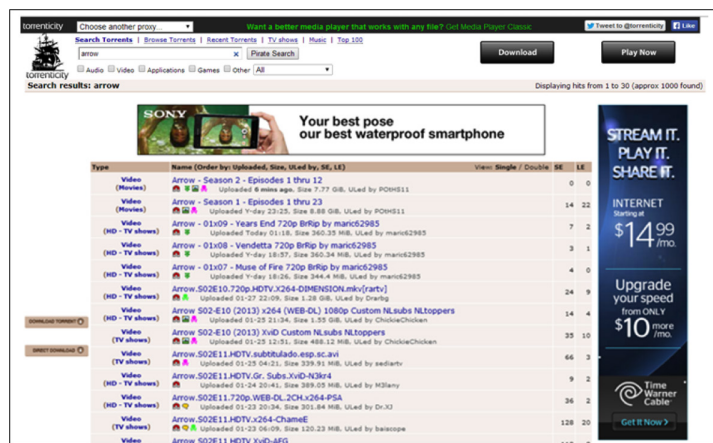
Functional Segments

Figure 2: Example BitTorrent Portal (piratereverse.info)

BitTorrent and Other P2P Portals

BitTorrent is the most popular peer-to-peer (P2P) file distribution system worldwide, and sites based on it have become synonymous with content theft. It is the largest method of content infringement, according to NetNames, which reported that 96.2% of unique visitors to such sites accessed infringing content at least once in January 2013. MediaLink also found BitTorrent sites to be predominant in ad-supported content theft.

These portals let users browse or search for files available on peer-to-peer distribution systems. Users following the links can access media files stored on multiple computers across the P2P network and download the content to their own computers for use at no charge. There were 144 sites in this segment, 24.2% of the sample. Figure 2 shows a typical BitTorrent site.

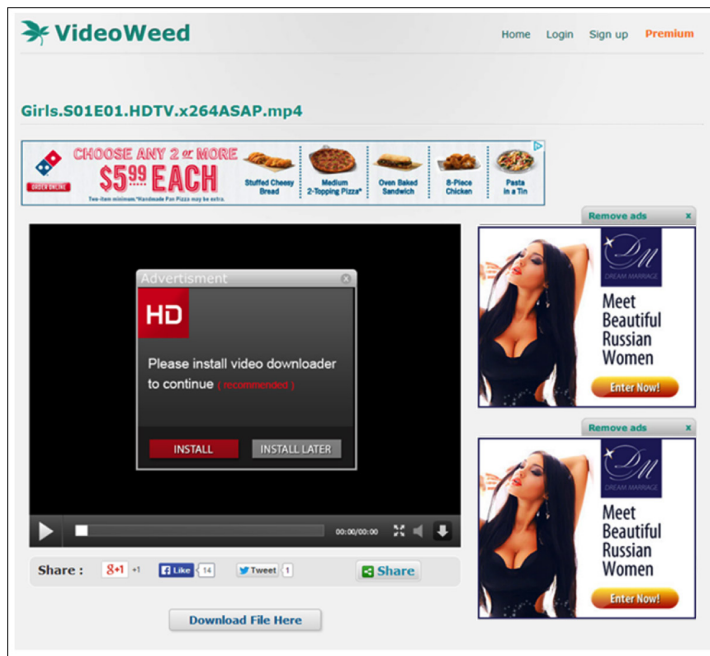*Figure 3: Example Linking Site (free-tv-video-online-me)*

Figure 4: Example Video Streaming Host (videoweed.es)

Figure 5: Example DDL Host (albafile.com)

Linking Sites

These portals aggregate and index links to media content hosted on Direct Download (DDL) Hosts (described below) or other sites. Some allow search within the Linking Site itself to facilitate access to content. They do not host content themselves. Users browse or search for the content they want, all the while exposed to ads. The users then click a link and download the content from the site where it is hosted, at no charge. Many Linking Sites have business affiliations with specific DDLs, promoting their hosted content. There were 283 Linking Sites in the sample or 47.5% of the base. Figure 3 shows a typical Linking site.

Video Streaming Host Sites

This segment includes both the ad-supported portal and a subscription-based storage model. One-third of large, two-thirds of medium and all of the small sites are strictly ad-supported portals with embedded players that allow users to stream videos hosted elsewhere. The remaining sites both stream and host content, offering subscriptions to users who want to store video content and then allow users to stream videos. The sample included 75 Video Streaming Host Sites or 12.6% of the base. Figure 4 shows a typical Video Streaming Host Site.

Direct Download (DDL) Host Sites

Direct Download (DDL) Host Sites allow users to upload media files to cloud-based storage. Users can generate links to be used by themselves or others to download the content for free. DDLs have dual revenue streams: a free, advertising-supported model, and a premium version that lets users pay subscription fees to avoid ads and for faster downloads, and that accounts for the bulk of their total revenue. Ads are typically shown on download pages. DDL Hosts are fundamental to the content theft ecosystem, providing the content to which Linking Sites point. Many of the DDLs offer their users bounty payments for downloads of the users' popular uploaded files, encouraging users to post links widely across the Internet. There are 94 DDL Host Sites in the sample, comprising 15.8% of the 596 total sites. Only DDLs that displayed advertising were included in the sample. Figure 5 shows a typical DDL site.

Size Segments

To account for differences in scale across the sample, the functional segments were further divided by size into small, medium and large sub-segments, based on 3-month average unique visitors. The segments were:

- **Small:** Fewer than 1 million monthly unique visitors
- **Medium:** 1 million to 5 million monthly unique visitors
- **Large:** Greater than 5 million monthly unique visitors

This segmentation allowed for analysis of the traffic and economic realities of the industry leaders separately from myriad small sites. The result was 12 functional/size segments: three sizes for each of the four functional segments. The number of sites per functional and size segment is shown in Figure 6.
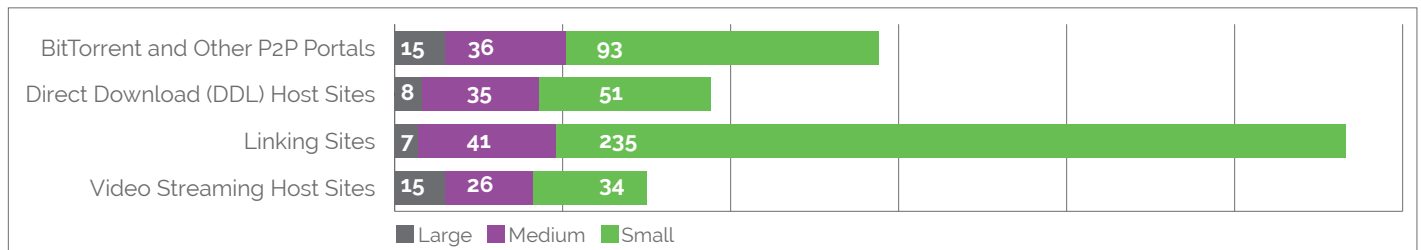

Figure 6: Sites by Functional and Size Segments

P&L Model

To create the financial model for the analysis of ad-supported content theft profitability, MediaLink considered numerous possible drivers of revenue and cost. Through its industry experience and by interviewing advertising and web site hosting experts, combing webmaster forums and blogs, reviewing US Justice Department filings, and studying the sample sites, MediaLink chose 20 data points that paint a picture of the profitability.

Traffic			Revenue													Direct Costs	Indirect Costs		
Unique Visitrs	Page Views		Ads					Ad Metrics								Hosting	Personnel (FTE Cost)		Overhead
UVs/Mo. (mm)	PVs/ Mo. (mm)	% PVs w/ Ads	# of Ad Positions Per Page	Fraud Multiplier %	% of PVs Generating PopUps	Pop-Up Multiplier	% Premium Ads	CTR	CPC	Non-Prem CPM	Prem CPM	% Using CPA	# CPA Links	CTA Rate	CPA	Server Cost/ Month	Head Count	Est. Salary	% of Revenue

Figure 7: Financial Model Data Points

The Key Drivers of Ad Revenue:

- Page views
- Number of ad positions per page
- Amount paid per thousand impressions, per click on a banner or text link, and per completion of an action.

MediaLink based these values on rates for similarly sized legitimate sites, discounted because rates for campaigns on infringement sites would be lower, while still generating significant revenue.

Variables included potential click and impression fraud as well as common click-through and conversion rates.

The Key Drivers of Costs:

- Hosting fees
- Human resources.

With cloud-based hosting becoming a commodity, infrastructure costs are low for all but the DDL segment of the ecosystem, which requires more processing and storage capacity than other segments. Because the focus of this research was on ad-supported content theft, subscription revenue, cost and margins are not reported for sites that were not wholly supported by advertising.

The data points are shown in Figure 7 above. See **Appendix A: P&L Detail** for detailed explanation.

PROFITABILITY ANALYSIS AND KEY FINDINGS

Segment	Ad Revenue	Margin
BitTorrent and Other P2P Portals		
Small	$2,079,334	85.9%
Medium	$3,227,159	84.5%
Large	$23,181,252	94.1%
Linking Sites		
Small	$3,690,915	79.9%
Medium	$8,351,446	89.8%
Large	$4,498,344	87.5%
Video Streaming Hosts		
Small	$529,480	79.9%
Medium	$1,681,477	
Large	$4,661,535	
Direct Download (DDL) Host Sites		
Small	$401,087	
Medium	$1,281,344	
Large	$3,084,123	

Table 1: Q3 Aggregate Ad Revenue, Margin for Ad-Supported Sites

Torrent, Linking Sites Drive Most Ad Revenue

BitTorrent and Linking sites, the segments with the lowest barriers to entry, together accounted for 80% of the aggregate ad revenue, with BitTorrent sites alone generating more than half the total despite making up less than a quarter of the sample. Revenue by segment detail can be seen in Figure 9.

Highly Lucrative, Profitable

The aggregate ad revenue for the sample of 596 sites was an estimated $56.7 million for Q3 of 2013, projecting out to $226.7 million dollars annually, with average profit margins of 83%, ranging from 80% to as high as 94%.

All Sizes Profit

The 45 largest sites, 7.6% of the entire sample, accounted for 62.5% of the total aggregate ad revenue. The average large site makes an estimated $3 million in ad revenue a year – $4.4 million for those that are supported solely by advertising – while even small sites can net $100,000. Small sites comprised 69.3% of the sample but only accounted for 11.8% of aggregate ad revenue. Revenue by size detail can be seen in Figure 8.
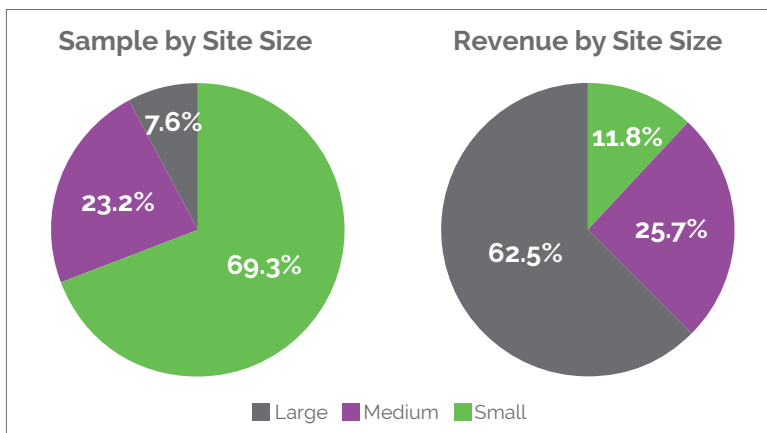

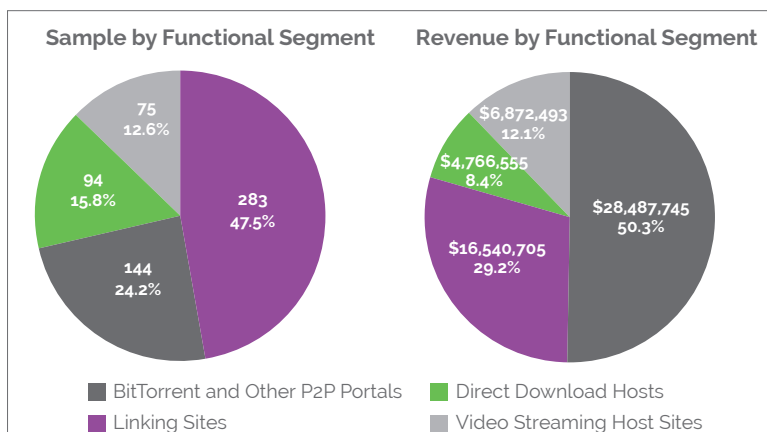*Figure 8: Sample Breakdown (l.), Revenue (r.) by Size*

Figure 9: Sample Breakdown (l.), Revenue (r.) by Segment

Problem for Premium and Secondary Brands

Premium brand ads appeared on nearly 30% of large sites, highlighting the ineffectiveness of current approaches to protecting the brands' reputation and value.

Premium brands are those easily recognizable companies familiar to most consumers, and which suffer reputational damage when their ads appear on content theft site, often alongside ads for illicit sites and services.

Premium brands listed in Appendix D are only those whose ads were observed by MediaLink analysts visiting the sites in the sample. MediaLink found that:

- Ads for premium brands appeared on 28.9% of large sites, 17.4% of medium and 13.1% of small sites.

- They appeared on 33.3% of DDL Hosts, 16.4% of Video Streaming Hosts, 11.7% of Linking Sites, and 9.7% of BitTorrent portals.

Advertising is often targeted by geography and by user interests as captured in browser cookies, so MediaLink's US-based analysts would have seen different ads and brands than users in, say, Ukraine.

Many players in the advertising ecosystem profit from placement of ads on content theft sites, whether for premium brands or others. Programmatic placement may involve exchanges, networks, publishers and agencies, and each link in the chain offers weaknesses that can be exploited. While some have taken action in an attempt to prevent premium ads from appearing on infringing sites, clearly more needs to be done, and alternative approaches need to be explored to reduce this contribution by good companies to bad activities.

Secondary Brands and other Advertising

In addition to those blue-chip companies, legitimate "secondary" brands also can find their ads served into content theft sites through the complex and increasingly computer-driven ecosystem of ad networks and exchanges . Categories that MediaLink identified were:

- **Casual Gaming:** These are a range of online single- and multi-player warfare, fantasy and other games that typically require users to create accounts or download software. Game ads appeared on some 40% of the large sites reviewed.

- **Online Gambling:** Ads for online gambling and betting services, many of which may be regulated by consumer protection or other agencies, appeared on 10% of the large sites reviewed.

- **Content Aggregator Sites:** This broad category, which appeared on just over 20% of large sites, included links to non-premium aggregators of news and information, with varying degrees of legitimacy.

The remaining ads studied came from illicit sites and services, often placed next to premium or secondary brands. Categories that MediaLink identified were:
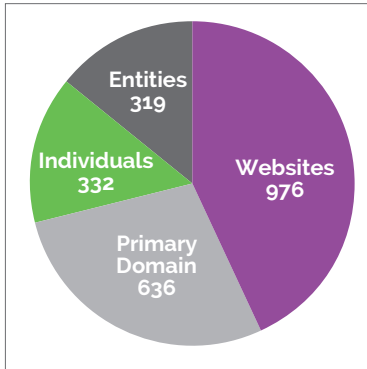
- **Software/Malware Downloads:** These are often hidden behind download buttons, or are presented via links or popups promoting a plug-in the user supposedly needs to view content, or as an update to legitimate software. The actual downloads often contain malware. These ads were extremely common, appearing on 60% of the large sites.

- **Adult Content:** This category includes ads for escort and other sexual services, porn and body part and sexual performance enhancements. Banners frequently display scantily clad or naked women. Adult content ads appeared on just over 20% of the large sites.

- **Easy Money:** This category includes business opportunities and get-rich-quick offers that encourage users to pay to receive the secrets to financial success or to participate in the advertiser's scheme for wealth generation. These ads appeared on roughly 15% of the large sites reviewed.

Note that the categories add up to more than 100% of the sites because these sites typically display more than one of the identified ad types.

Site Affiliations and Bad Actors

Cross-ownership and affiliations between sites help some operators evade enforcement and maximize profits, establishing networks of sites distributing the same stolen content. If one site is shut down by authorities, others may keep running. In addition, some site operators are linked to nefarious activities beyond content theft.

MediaLink asked Veri-Site, a web site risk assessment firm, to analyze the 596 sites in the sample. Veri-Site found *linkages* from 32 of the primary domains. Veri-Site defines these linkages as connections among individuals, businesses and other web sites. It found 976 linkages to other web sites both within and outside the sample, as well as ownership or business affiliations among those 32 sample sites and 319 individuals and 332 entities, typically companies. This data suggests that while individuals may be operating many of the sites, some individuals and enterprises are operating multiple sites for additional revenue and to hedge their bets against enforcement.

Figure 10: Site Linkage Types (Veri-Site)

The sites with the three largest networks were **thepiratebay.se** and **bitsnoop.com**, both large BitTorrent portals, and **ufox.com**, a small DDL Host Site. Altogether they had 223 connections: 137 for thepiratebay.se, 52 for **ufox.com** and 34 for **bitsnoop.com**. These networks of sites highlight a strategy to conceal relationships with the parent, according to Veri-Site. With so many layers to the sites' functioning, the risk is distributed, and their ability to evade various laws is enhanced. The sites also operate from various geographies, making it easier to evade legal action. For example, a total of 122 legal actions have been taken against these sites, yet they remained active during Q3 2013.

ThePirateBay.se: This is the most notorious BitTorrent portal currently operating. Veri-Site found 16 entities and 31 individuals with connections to this site. The individuals were identified as domain registrants, co-founders, lawyers and associates. Several of the co-founders have been convicted of copyright infringement and fined millions of dollars. In addition, Veri-Site identified 90 web sites linked to thepiratebay.se, many of them simply with different country-specific domains but also other BitTorrent portals and mirrors. Between April and December 2013, The Pirate Bay switched to domains of six different countries to evade authorities. Several of its co-founders have been convicted of hacking, fraud and copyright infringement.

Ultramegabit.com: Less well known, perhaps, is this medium-sized DDL that has linkages to 16 sites, entities and individuals. Its owner was convicted of consumer fraud and fined $400,000. His associates through a web of other sites include two companies that violated consumer protection laws while marketing PC registry-cleaning software. The owner of one was fined $400,000 and the other's president was fined $75,000.

Bitsnoop.com: Two registrants are connected to bitsnoop.com through 32 sites that include torrentcrazy. com, a medium BitTorrent portal, and torrentreactor.net, a large BitTorrent portal, both of which are in the MediaLink sample. There also are linkages to zooqle.com, a BitTorrent site outside the sample, and to a number of mirror sites that contain copies of the content found on bitsnoop.com and other BitTorrent portals. Eight of the linked web sites are mirrors of thepiratebay.se.

Ufox.com: Two entities connect 50 web sites to ufox.com. Unlike the other two top sites, however, none of the linked sites in this example are content theft sites; almost all are either porn or unsavory content.

Other examples include:

- **Torrentzap.com**, a small BitTorrent portal, is linked by a common postal address to fileindexer.com, a small Linking site also in the sample, and to fulldls.com, a small BitTorrent portal outside the sample.
- **Desitorrents.com**, a small BitTorrent portal, is linked by address and registrant to rutor.org, a large BitTorrent portal, and to argentinawarez.com, a medium Linking site. All three are in the MediaLink sample.

Veri-Site analysts research linkages among sites using open source and public domain information, as well as government agencies, news sources, domain registrations and payment registries. The company also includes in its research information from intellectual property holders attesting to infringement, governing bodies and law enforcement bulletins. Its analysts also visit and report on sites to capture data.

Segment Analysis

BitTorrent and Other P2P Portals

BitTorrent portals generate more ad revenue than any of the other segments, and the largest sites have the highest average operating margins, about 94%.

	Ad Revenue	Cost	Margin
Average Quarterly Results			
Small	$22,358	$3,147	85.9%
Medium	$89,643	$13,877	84.5%
Large	$1,545,417	$91,724	94.1%
Aggregate Quarterly Results			
Small	$2,079,334	$292,691	
Medium	$3,227,159	$499,556	
Large	$23,181,252	$1,375,863	

Table 2: Torrent Portal Average/Aggregate Results

The portals represented 23.5% of the sample sites but accounted for 50.3% of advertising revenue, accounting for $28.5 million in the quarter, or $114 million annually. Large BitTorrent portals represented just 10.4% of the 144 sites in the segment but accounted for 81.3% of the aggregate segment ad revenue and 40.9% of the aggregate ad revenue across the entire sample.

Average monthly page views for the segment (52.5 million) are significantly more those of any other, most of them displaying ads, along with the second highest average monthly number of unique visitors (2.7 million) account for the sites' significant revenue. While small BitTorrent sites have the lowest top-line revenue, the average small site can still make nearly $100,000 annually with very little overhead or infrastructure.

Despite BitTorrent portals' notoriety as sources of stolen content, premium brand ads appeared on 13.3% of large, 13.9% of medium and 7.5% of small BitTorrent portals.

Linking Sites

	Ad Revenue	Cost	Margin
Average Quarterly Results			
Small	$15,706	$3,149	79.9%
Medium	$203,694	$20,868	89.8%
Large	$642,621	$80,462	87.5%
Aggregate Quarterly Results			
Small	$3,690,915	$740,069	
Medium	$8,351,446	$855,597	
Large	$4,498,344	$563,233	

Table 3: Linking Sites Average, Aggregate Results

Linking Sites represented 47.5% of the representative sample, reflecting the extremely low barriers to entry in this segment. In fact, the 235 small Linking sites alone represent 39.4% of the entire representative sample; however, they only accounted for 6.5% of overall aggregate ad revenue.

Nonetheless, even small Linking sites, like small BitTorrent sites, can net $100,000 in ad revenue a year, with margins of 80% or more. Large portals, on the other hand, make up just 2.5% of the 283 sites in the segment but account for 27.2% of the aggregate quarterly ad revenue of $16.5 million.

Large Linking sites made up just 1.2% of the entire sample, while accounting for 7.9% of the aggregate quarterly ad revenue.

Overall, Linking Sites had the lowest average number of unique visitors compared with other segments, at less than 1 million, reflecting the large percentage of small sites in the segment. The large sites averaged 8.7 million unique visitors, reflecting the value of scale. Overall, Linking Sites averaged 13.0 million page views, the lowest segment. Note that the average is reduced by the extremely large number of small sites.

Premium brands appeared on nearly a third (28.6%) of large, 17.1% of medium and 10.2% of small Linking sites.

Video Streaming Host Sites

Ad Revenue	
Average Quarterly Results	
Small	$15,573
Medium	$64,672
Large	$310,769
Aggregate Quarterly Results	
Small	$529,480
Medium	$1,681,477
Large	$4,661,535

Table 4: Video Streaming Host Average, Aggregate Ad Revenue

Video Streaming Host Sites represented 12.6% of the sample, and accounted for 12.1%, or $6.9 million, of the aggregate quarterly advertising revenue, or $27.6 million per year. Large sites represented 20% of the 75 sites in the segment and accounted for 67.8% of the aggregate segment ad revenue. Margins are not reported here because a number of the sites in this segment offer subscription access, requiring infrastructure for account management, e-commerce and storage that is not directly related to advertising revenue.

Video Streaming Hosts attracted an average monthly 2.3 million unique visitors and averaged 33.4 million page views for the quarter.

Premium brands appeared on 33.3% of large, 15.4% of medium and 8.8% of small Video Streaming Hosts.

Direct Download (DDL) Host Sites

Ad Revenue	
Average Quarterly Results	
Small	$7,864
Medium	$36,610
Large	$385,515
Aggregate Quarterly Results	
Small	$401,087
Medium	$1,281,344
Large	$3,084,123

Table 5: DDL Host Sites Average, Aggregate Ad Revenue

DDLs generate some ad revenue but are primarily subscription-based. Ads are displayed on upload and download pages, and the sites offer premium accounts for a monthly subscription fee that ranges from $5 to $15 to get rid of ads and for increased download speeds.

DDLs have higher barriers to entry and overall costs than other segments. Because DDLs' infrastructure and operations are scaled to support user management, e-commerce and storage and not directly tied to advertising revenue, their margins are not reported here.

DDLs comprised 15.8% of the sample but accounted for 8.4%, or $4.8 million, of the aggregate quarterly advertising revenue – or $19.2 million per year. Large DDLs represented just 8.5V% of the 94 sites in the segment but accounted for 64.7% of the aggregate segment ad revenue.

DDLs attracted the largest average monthly number of visitors at 2.6 million, and ranked third in average total page views at 29.4 million.

Premium brands appeared on 50% of large, 22.9% of medium and 39.2% of small DDLs.

SUMMARY AND RECOMMENDATIONS

Content theft sites are making millions in revenue, at high margins, from advertising. Creating a content theft site is inexpensive and requires little technological expertise, making ad-supported content theft "easy money" for bad actors. Exacerbating the problem for rights-protected content owners and many unwitting premium and secondary brand advertisers are the concurrent trends of a dramatically growing online global universe hungry for cheap, new content, and the explosion of programmatic buying and selling of advertising.

To date, efforts to degrade the viability of ad-supported theft have had only marginal impact and success, as the perpetrators evade detection with considerable ease.

The presence of ads for legitimate brands on content theft sites should be an incentive for those brand marketers to press agencies, ad networks and exchanges to strengthen current blocking methods and to develop new ones.

Advertisers and ad agencies, networks and exchanges can start by enhancing their voluntary best practice standards. The technology and services to identify and filter out content theft sites are available and should be adopted in the online advertising community. Just as brands do not advertise on porn or hate sites, they can take steps to assure they are not on content theft sites.

The online advertising industry knows this is a problem. As an ad industry insider told MediaLink, "Even one premium brand ad on one of these sites is too many." Another said that having one's brand appear on content theft sites alongside the kinds of ads that are common there "is a bad day at the office for a brand marketer."

DCA is not alone in sounding this call to action.

In an August 2013 op-ed, Bob Liodice, the President and CEO of the Association of National Advertisers wrote about the threat of online piracy: *"The volume and availability of traffic on rogue sites may be tempting. But rest assured, it is in everyone's best interest to demonstrate support for brands by protecting them from compromising situations. Our industry must combat and halt the content pirates hijacking our ads."*

Randall Rothenberg, the President and CEO of the Interactive Advertising Bureau, said at IAB's Annual Leadership Meeting in February 2014: *"Advertising, much of it purchased via automated systems, inadvertently supports web sites that deliberately steal and distribute movies, music, and other copyrighted intellectual property, leading to an untold fortune in losses annually to news and entertainment companies."*

A coordinated effort by all stakeholders in the online advertising ecosystem is urgently required to preserve the value of digital media and help make the Internet a safer marketplace for legitimate commerce.

ACKNOWLEDGEMENT

Digital Citizens Alliance greatly appreciates the effort and care that MediaLink and its partners have put into this project. In addition to MediaLink's own researchers, significant contributions of analysis and data were provided by:

- **Veri-Site**, a global leader in assessing and mitigating risk associated with the rapidly changing online environment. Veri-Site provides risk-relevant intelligence regarding rogue websites, intellectual property theft, cybercrime, web-enabled transnational organized crime, and sanctioned entities operating online. Veri-Site uniquely targets these threats with intelligence to manage operational, regulatory, and reputational risk. More information at **veri-site.com**.

- **Integral Ad Science Inc.**, the leading global provider of actionable advertising intelligence data for buyers and sellers of digital media and the industry's standard for rating media quality. Since launching the industry's first preventative brand safety solution in 2009, powered by constant growth and innovation, Integral has evolved into a global media valuation platform that is essential to the buying and selling of quality media. Integral focuses on a comprehensive solution set that enables advertising to appear in quality environments and receive favorable exposure — while the sell side can monitor and control its quality and performance. Integral's technology drives improved visibility, efficiency, and ROI for players across the digital media landscape. More information at **integralads.com.**

- **DoubleVerify**, the market leader in technology and insights that assure brand performance and effectiveness for the world's largest advertisers online. DV solutions create value for media buyers and sellers by bringing transparency and accountability to the market, ensuring ad viewability, brand safety, fraud protection, accurate impression delivery and audience quality across campaigns to drive performance. Learn more at **doubleverify.com**.

- **comScore Inc.**, a global leader in digital measurement and analytics, delivering insights on web, mobile and TV consumer behavior that enable clients to maximize the value of their digital investments. Through its Audience Analytics, Advertising Analytics, and Digital Enterprise Analytics product suites, comScore provides clients with a variety of on-demand software, real-time analytics and custom solutions to succeed in a multi-platform world. The proprietary comScore Census Network™ leverages a world-class technology infrastructure to capture trillions of digital interactions a month and power big data analytics on a global scale for its more than 2,000 clients. More information at **comscore.com**.

APPENDICES

APPENDIX A: P&L DETAIL

As noted above, sites that offered infringing content with no advertising were excluded from the research.

Ad-Supported: BitTorrent and Other P2P Portals, and Linking Sites examined by MediaLink were exclusively ad-supported. The research found impression-, click-, and action-based models in use. The action-based approach applied to what was sometimes identified as affiliate programs, wherein the sites generated revenue by displaying to users opportunities to sign up for a program or a gaming service, or where they could download software, which often turned out to be loaded with malware.

Ad- and Subscription-Supported: Direct Download (DDL) Hosts and about one-third of Video Streaming Hosts were supported by subscription access as well as advertising. These were typically "freemium" services where users could create a free account, but with throttled download speeds and ads displayed. To eliminate ads and to get full-speed downloads, users have to buy a premium package, typically at one-, three-, six- and 12-month terms with discounts as high as 50% off the monthly rate for longer subscriptions. Direct exploration of the sites, including creating both free and premium accounts and uploading and downloading content, verified the sites' fees and download bounties. Some sites offer users bounties for downloads of the users' content and for subscriptions resulting from downloads.

The goal of this research was to understand the profitability of ad-supported content theft, so the discussion focuses on just the ad-supported aspects of the business, and the costs and margins for subscription-supported sites are not reported here. What follows is an explanation of the data points and assumptions underlying ad-supported content theft sites.

Revenue

Advertising revenue, as noted, has three components: CPM- or impression-based, CPC- or click-based, and CPA- or action-based. Impression revenue derives from a fee per thousand views of an ad; click-based advertising, a la Google AdWords, generates revenue only when users click a banner or link; and CPA pays when a user completes some action, such as downloading and installing software or registering on a site.

CPM Revenue

Impression-specific data points are:

- **Page Views (PVs):** The monthly average of page views for July, August and September 2013, from comScore. For the model, this data was used to estimate ad revenue.

- **Percent of Page Views with Ads (% Ads):** These assumptions are part of the ad revenue calculation and are based on MediaLink visits to the sites as well as external research. The percentage assumptions by segment are as follows:

  - **BitTorrent and Other P2P Portals:** These sites generally do not show ads on the home page but do on almost all other pages displayed. Assumption is 80% (a 20% reduction of the comScore average) to be multiplied by CPM (cost per thousand) defined below to arrive at CPM ad revenue.

  - **Linking Sites:** Assumed 95% as virtually all pages on all Linking Sites display ads.

  - **Video Streaming Host Sites:** Assumed 75%. One-third of sites are DDL-model sites, which we assume have ads on 30% of page views; two-thirds are linking-type sites, which we assume have ads on 95% of page views. Average is roughly 75%. Sources are MediaLink site visits and external research.

  - **Direct Download (DDL) Host Sites:** Assumed 50%. Ads only display on upload and download pages, conservatively estimated at half of page views.

- **Number of Ad Positions per Page (# Ads):** This is an average by functional and size segment based on MediaLink researchers' site visits and direct observation.
- **Fraud Multiplier (% Fraud):** Impression fraud is a significant challenge to the advertising ecosystem and is likely to be even more significant in the content theft ecosystem. Fraud includes such benign practices as pop-unders, where ads are launched behind a user's primary browser window, as well as activities such as stacking ads in nested iframes and embedding ad calls in single-pixel images that viewers can never see. The research did not include analysis of log files or data streams, and assumptions for the financial model rely on a combination of third-party sources and direct observation of sites' business models.
    - **BitTorrent and Other P2P Portals:** Assumed 30%, based on industry reports.
    - **Linking Sites:** Assumed 30%, based on business model equivalence to P2P sites.
    - **Video Streaming Host Sites:** Assumed 20%, adjusting the 30% metric for P2P and Linking sites to account for the number of Video Streaming sites with a DDL-like business model.
    - **Direct Download (DDL) Host Sites:** Assumed 10%, adjusting the 30% metric based on site visit observations that DDL sites have by far more functional pages for account management and signup, and don't show ads to premium users, resulting in less apparent opportunity for fraud.
- **Percent of Page Views Generating Pop-ups (% Pop-Ups):** Based on MediaLink site visits, researchers extrapolated that 30% of page views and clicks generated pop-up or pop-under ads.
- **Pop-Up Multiplier (# Pop-Ups):** While visiting sites, MediaLInk researchers counted the number of pop-ups and pop-unders displayed. This data point is an average by functional and size segment.
- **Percent of Premium Brand Ads (% Prem):** MediaLink researchers visited each site and counted the number of premium ads displayed. This data point is an average by functional and size segment.
- **Non-Premium CPM ($ Non-Prem):** Based on MediaLink expertise and research with advertising industry members, ads on content theft sites are likely delivered at low CPMs. This reflects the overwhelmingly low quality of most advertisers, including adult dating and gambling sites, games, get-rich-quick schemes, etc. The assumption was a CPM of $0.50 (50 cents) per thousand ads displayed.
- **Premium CPM ($ Prem):** Based on MediaLink expertise and research with advertising industry members, the assumption is that where premium ads appear they are delivered programmatically by exchanges to fulfill the dregs of campaigns. As such, rates are assumed to be the same for premium and non-premium ads.

Average CPM revenue per site was calculated by functional and size segment, and derived as shown here:

Base Impressions = (PVs x % Ads x # Ads)

Fraudulent Impressions = Base Impressions x % Fraud

Pop-Up Impressions = Base Impressions x % Pop-Ups x # Pop-Ups

Total Ad Impressions = Base Impressions + Fraud Impressions + Pop-Up Impressions

Premium CPM Revenue = $ Prem x (Total Ad Impressions x % Prem)

Non-Premium CPM Revenue = $ Non-Prem x (Total Ad Impressions - % Prem)

Total CPM Revenue = Premium CPM Revenue + Non-Premium CPM Revenue

Cost-Per-Click (CPC) Revenue

The second advertising model involves payment for each user click on a banner or text link. For click-based (CPC) advertising, these additional data fields and calculations apply:

- **Click-Through Rate (CTR):** Based on MediaLink expertise and research with advertising industry

members, assumed a click-through rate of 0.08% (eight one-hundredths of one percent).

- **Cost Per Click (CPC):** Based on MediaLink expertise and research with advertising industry members, assumed a cost-per-click rate of $0.21 (21 cents) per click.

  CPC Revenue = Total Ad Impressions x CTR x CPC

Cost-Per-Action (CPA) Revenue

The final ad model involves paying for users' completion of an action, generally as part of lead generation activities. Based on MediaLink site visits, the participants in this model in the content theft ecosystem are overwhelmingly software (and malware) distributors, as well as gaming and gambling sites.

For action-based (CPA) advertising, these additional data fields and calculations apply:

- **Percent of Sites with Affiliates (% Affils):** Based on MediaLink site visits, this is an average percentage by functional and size segment of those with ads linking off-site to pages where actions were to be completed.

- **Number of Affiliate Links (# Affils):** Based on MediaLink site visits, this is an average number by functional and size segment of CTA links in sites.

- **CTA Action Rate (CTA):** Based on MediaLink expertise and research with advertising industry members, assumed conversion rate of 0.01% (one one-hundredth of one percent).

- **Cost-Per-Action Fee (CPA):** Based on MediaLink expertise and research with advertising industry members, assumed revenue per completed action of $0.75 (75 cents).

  CPA/Affiliate Revenue = (PVs x % Affils x # Affils) x CTA x CPA

Operating Costs

Sites in the content theft ecosystem do not report revenues or operating costs, so assumptions were based on generally accepted practices for similar types of ad- and subscription-supported sites, and used some third-party data. The research considered direct costs for hosting and indirect costs for staff and other overhead.

General Costs

Regardless of business model, web sites have hosting costs and some cost for human resources, whether those are employees or freelancers. The following additional data points and calculations were used for these costs applicable to all sites.

- **Monthly Hosting Costs:** MediaLink used the site MuStat (**www.mustat.com**) for hosting costs. The site compiles data from a number of sources and appears to base its calculations on a combination of unique visitors, page views, bandwidth utilization estimates and location. While more detail about its observations is not available, Mustat provides a consistent and conservative number for the sites.

- **Head Count:** Estimated number of people involved in operating the sites, based on research and general expertise in web site operations. This varies significantly based on the size and type of site. For example, small BitTorrent and Linking sites are likely run by one person, probably with no additional full-time employees. The need for staff likely increases with size as more effort is required to manage additional servers and to deal with affiliate and advertising relationships and compliance with DMCA takedown requests. DDLs and DDL-like Video Streaming sites, on the other hand, are more complicated. They involve e-commerce, subscription and account management, significant content storage infrastructure, and integration with content distribution networks (CDNs), to name a few key functions.

- **BitTorrent and Other P2P Portals:** Assumed 0.25 FTE for small, 1.0 FTE for medium and 5 FTE for large sites. Torrent software is increasingly common and not difficult to operate, and once sites are built ongoing operation would mainly focus on monitoring, indexing and dealing with advertising.

- **Linking Sites:** Assumed 0.25 FTE for small, 1.5 FTE for medium and 5 FTE for large sites.

- **Video Streaming Host Sites:** Assumed 0.25 FTE for small sites, which operate the same as small BitTorrent and Linking sites. The DDL model only exists in the medium and large segments, where the average FTE count was adjusted downward slightly to accommodate the blend of DDL-type and portal-type sites. For medium sites, assumed 2.0 FTEs and 4.0 for large sites.

- **Direct Download (DDL) Host Sites:** Assumed 0.5 FTE for small, 2.5 FTE for medium and 6 FTE for large sites. As noted above, these are more complicated to maintain and there's need for customer service and marketing resource that doesn't apply to torrent and Linking sites.

• **Average Monthly Salary:** Based on published salaries for web and system administrators and developers, assumed an average monthly salary per person of $4,000.

• **Overhead:** Most sites in the content theft ecosystem are presumed to operate without offices and that the only significant infrastructure beyond hosting and network. That likely changes as the sites grow and especially in regard to DDLs, which as noted have more complex needs. To account for overhead despite the opacity of the business, researchers assumed overhead of 0%-1% of revenue for BitTorrent, Linking and Video Streaming sites and 1% across the board for DDLs.

APPENDIX B: COST & REVENUE DETAIL

Q3 2013 Average Site Performance by Segment						
Segment	CPM Rev	CPC Rev	CPA Revenue	Total Ad Revenue	Total Cost	Margin %
BitTorrent and Other P2P Portals						
Small	$ 14,144	$ 7,920	$ 294	$ 22,358	$ 3,147	85.9%
Medium	$ 56,173	$ 31,457	$ 2,014	$ 89,643	$ 13,877	84.5%
Large	$ 969,597	$ 542,974	$ 32,845	$ 1,545,417	$ 91,724	94.1%
Linking Sites						
Small	$ 9,793	$ 5,484	$ 429	$ 15,706	$ 3,149	79.9%
Medium	$ 129,790	$ 72,683	$ 1,221	$ 203,694	$ 20,868	89.8%
Large	$ 405,959	$ 227,337	$ 9,325	$ 642,621	$ 80,462	87.5%
Video Streaming Host Sites						
Small	$ 9,517	$ 5,330	$ 726	$ 15,573	$ 3,127	79.9%
Medium	$ 39,870	$ 22,327	$ 2,475	$ 64,672		
Large	$ 188,511	$ 105,566	$ 16,691	$ 310,769		
Direct Download (DDL) Host Sites						
Small	$ 4,736	$ 2,652	$ 477	$ 7,864		
Medium	$ 19,417	$ 10,873	$ 6,319	$ 36,610		
Large	$ 205,998	$ 115,359	$ 64,158	$ 385,515		

Q3 2013 Aggregate Site Performance by Segment						
Segment	CPM Rev	CPC Rev	CPA Revenue	Total Ad Revenue	Total Cost	Margin %
BitTorrent and Other P2P Portals						
Small	$ 1,315,359	$ 736,601	$ 27,374	$ 2,079,334	$ 292,691	85.9%
Medium	$ 2,022,214	$ 1,132,440	$ 72,505	$ 3,227,159	$ 499,556	84.5%
Large	$ 14,543,956	$ 8,144,615	$ 492,681	$ 23,181,252	$ 1,375,863	94.1%
Linking Sites						
Small	$ 2,301,393	$ 1,288,780	$ 100,742	$ 3,690,915	$ 740,069	79.9%
Medium	$ 5,321,407	$ 2,979,988	$ 50,050	$ 8,351,446	$ 855,597	89.8%
Large	$ 2,841,712	$ 1,591,359	$ 65,274	$ 4,498,344	$ 563,233	87.5%
Video Streaming Host Sites						
Small	$ 323,594	$ 181,213	$ 24,674	$ 529,480	$ 106,305	79.9%
Medium	$ 1,036,612	$ 580,503	$ 64,362	$ 1,681,477	$ 1,117,063	
Large	$ 2,827,670	$ 1,583,495	$ 250,370	$ 4,661,535	$ 1,575,050	
Direct Download (DDL) Host Sites						
Small	$ 241,524	$ 135,253	$ 24,310	$ 401,087		
Medium	$ 679,593	$ 380,572	$ 221,180	$ 1,281,344		
Large	$ 1,647,986	$ 922,872	$ 513,266	$ 3,084,123		

APPENDIX C: SITES STUDIED

Note: Sites marked with an asterisk were no longer active as of January 2014, but were active during Q3 2013.

BitTorrent and Other P2P Portals

Large

bitsnoop.com
extratorrent.com
fast-torrent.ru
isohunt.com*
rutor.org
rutracker.org
t411.me
tfile.me
thepiratebay.sx
torrentdownloads.me
torrenthound.com
torrentino.com
torrentreactor.net
torrentz.eu

Medium

bigtracker.org
bitlordsearch.com
cpasbien.me
gamestorrents.com
ilcorsaronero.info
jptorrent.org*
katmirror.com
katushka.net
kinozal.tv
limetorrents.com
megashara.com
monova.org
nowfilms.ru
pirateproxy.net
rarbg.com
seedpeer.me
smartorrent.com
tfile.org
tnttorrent.info
torlock.com
torrent.cd
torrentcrazy.com
torrentfunk.com
torrent-games.net
torrentino.ru
torrentline.net
torrentor.net
torrentportal.com
torrentroom.com
torrents.net
torrentszona.com
vertor.com

vitorrent.org
yify-torrents.com
yourbittorrent.com
yyets.com

Small

10torrent.net
5gg.biz
absolutorrent.com
ahashare.com
ba3a.org.ua
bayproxy.org
bigtorrent.org
bit2bit.org
bitcoca.com
bitnova.info
bitreactor.to
bit-torrent.bz
bt-chat.com
btmon.com
byte.to
chhola.com
crazy-torrent.com
cztorrent.net
desitorrents.com
dht-tracker.org
emuleday.com
filesstoreroom.com
firebit.org
freestorrent.com
free-torrents.org
friends-torrent.com
fulldls.com
goldenshara.com
hdreactor.org
helltorrents.com
jarochos.net
kickassunblock.info
kinokubik.com
kino-zal.tv
kinsburg.ru
lanunbay.org
limetorrents.net
megatorrents.kg
megatorrents.org
netz.ru
newtorrents.info
nowtorrents.com
online-freebee.ru

opensharing.org
ourrelease.org
piratebayalternative.me*
pirateby.info
pirateproxy.nl
piratereverse.info
polskie-torrenty.pl
pslan.com
psychocydd.co.uk
publichd.se
rapidzona.com
realtorrentz.com
rustorka.com
rustorrents.org
rus-torrents.ru
silvertorrent.org
sparkmovies.com
streamzone.org
tamiltorrents.net
tapochek.net
titanshare.to
torentilo.com
torrentazos.com*
torrentbar.com
torrentbee.com*
torrentbutler.eu
torrent-cinema.net
torrentdownloadz.com
torrentfilms.net
torrent-films.net
torrent-finder.info
torrent-francais.com
torrent-free.ru
torrentkereso.hu
torrent-loco.com.ar
torrentman.com
torrento.net
torrentom.com
torrents.to
torrent-shara.net
torrent-shara.org
torrents-load.net
torrentv.org
torrentz.me
torrentzap.com
torrtilla.ru
tvboxnow.com
unionpeer.org
utorrents.org
zlotracker.org

Linking Sites

Large
filestube.com
filmix.net
free-tv-video-online.me
kinox.to
myegy.com
watchfreemovies.ch
zerx.ru

Medium
1channelmovie.com
1kinobig.ru
1tvlive.in
argentinawarez.com
bobfilm.net
castordownloads.net
cinetube.es
couchtuner.eu
cwer.ws
desirulez.net
desitvforum.net
divxonline.info
ekino.tv
eqla3.com
filetram.com
filmlinks4u.net
ganool.com
gratispeliculas.org
identi.li
ikinokz.net
kinobar.net
kinopod.ru
letmewatchthis.ru
m5zn.com
masteetv.com
newalbumreleases.net
nnm-club.ru
peb.pl
peliculasyonkis.com
primewire.ag
seedoff.net
stepashka.com
torrentfrancais.com
uakino.net
urgrove.com
video.az
vn-zoom.com
watchseries.lt
watchseries-online.eu
worldfree4u.com
zone-telechargement.com

Small
1movie.ru
300mblinks.com
3dl.tv
5fantastic.pl

720pmkv.com
720pmovies.net
990.ro
actorpedia.net
ajo.pl
albumhunt.com
alive-ua.com
allcandl.org
allyoulike.com
astatalk.com
atomload.at
baixardegraca.com.br
baixeturbo.org
bajui.com
bartzmovie.com
bergfiles.com
berglib.com
bochinchewarez.com
btarena.org
burning-seri.es
byhero.com
cinemaaz.com
cinevip.org
cokeandpopcorn.ch
collb9.org
come.in
coolmoviezone.com
copywarez.com
dacho.co.il
dangbuon.com
darkmachine.pl
ddl-search.biz
ddlvalley.eu
derinport.in
descargamela.com
descargarpelicula2.com
desicorner.net
directoriow.com
divxadresi.com
divxatope.com
divxm.com
divxm.net
dl4all.com
dl4v.com
downloadarquivo.com
downloadbox.me
downtr.co
downtwarez.com
dupemonkey.com
egybest.com
enlacewarez.com*
epidemz.net
ergor.org
esdvx.com
estrenosgo.com
estrenosonline.org

exclusivitees.eu
excluzive.net
exsite.pl
fastdown.info
fdmovie.com
filebeta.com
filebox8.com
fileindexer.com
filemirrors.info
filenewz.com
filerapid.pl
files4you.org
fileshut.com
fileslinx.com
filesocean.net
filesresidence.com
filessearcher.com
fileszona.com
film-stream.tv
forum-maximus.net
forumtv.pl
free-filmy.ru
freerutor.com
french-movies.net
freshupnow.com
ftdworld.net*
fullepisode.info
fullmovie-kolkata.com
fullpelis.com
fullseries.net
fzmovies.net
general-search.net
getmediafire.com
golden-ddl.com
gram24.pl
hatemtai.com
hdkinoklub.ru
hd-world.org
hinditvlinks4u.ch
hnmovies.com
hotfilesearch.com
hotshare.pl
identi.info
ineedfile2.com
itvmovie.eu
iwannawatch.ch
iwatchonline.to
kinodoma.net
kinoxa-x.ru
kinoylei.ru
klipzona.net
kohit.net
leecher.to
letitbit-files.net
libertyland.tv
linexdown.net

Linking Sites (continued)

linxdown.me
majaa.net
mamega.com
mayonez.net
mechoddl.com
mechodownload.com
mediafire.li
mediafire.vc
mediafiredownloads.net
mediafirehbo.com
mediafiremoviez.com
mediafiretrends.com
megaparadiz.com*
megauploaders.com
megawarez.eu
mesddl.net
moloto4ka.net
mov1.ru
movie2k.tv
movie2kproxy.com
moviedetector.com
moviesberg.com
moviesdatacenter.com
moviesnhacks.com
movieswamp.com
moviezet.tv
moviz.net
mp4yukle.com
nabolister.com
neomaks.ru
netzor.org
newdivx.net
newpct.com
nizaika.ru
norapidsearch.com
novycinema.ru
onlinemix.ru
onlinemoviesplayer.com
ourphorum.com
peliculaswarez.com

pirat.ca
planetakino.com
plus-soft.ru
pordescargadirecta.com
posteando.com
powerddl.com
precyl.com
proc.com.ua
programaswarez.com
prostokino.net
ps3iso.com
qiq.ru
qkshare.com
raidrush.ws
rapidbizz.com
rapide-ddl.com
rapidfiledownload.com
rapidmoviez.com
rapidog.com
rlsbb.com
rlslog.net
rl-team.net
roomyshare.com
rpds-download.net
rslinks.org
ru-admin.net
saugking.net
scteam.net
sharepirate.com
sharethefiles.com
skatay.com
soft-6.com
soft-best.ws
soft-catalog.net
softvnn.com
speedlounge.in
streaming-ddl.net*
streamxd.com
super-warez.net
takeavailable.com

tehparadox.com
telechargementz.org
telecharger-tout.com
teluga.com
thalathalapathy.com
thedarewall.com
timeparty.com
tinydl.com
tkshare.com
tnt24.info
todotaringa.com
top-hitz.com
tumejortv.com
tvcric.com
tvmuze.com
twilight.ws
ultra-vid.com
vagoslatino.com
vcdq.com
videoanons.ru
vidics.ch
viz4u.net
vostfr-gb.com
vpsite.ru
war4u.sk
warcenter.cz
warez-home.net
warmacher.com
watch-free-movie-online.net
watchonlineseries.eu
watchtvfree.me
watchtvseries.ch
wawacity.su
waz-warez.org
wewatchmoviesfree.net
xitwarez.ru
xmovies8.com
za-friko.com
zonaplus.net

Video Streaming Host Sites

Large

allmyvideos.net
bigcinema.tv
chomikuj.pl
ex.ua
flashx.tv
kinobanda.net
kinostok.tv
movshare.net
novamov.com
nowvideo.eu
played.to
sockshare.com
veoh.com
videoweed.es
vodly.to

Medium

allserials.tv
baskino.com
bestkino.su
faststream.in
films-online.su
kinohome.net
kinomaniak.tv
kinomoov.net
kinoprosmotr.net

minizal.net
moiserialy.net
movierulz.com
movpod.in
movreel.com
movzap.com
nosvideo.com
online-life.ru
playtube.pl
purevid.com
the-cinema.ru
tushkan.net
uploadc.com
vidbull.com
vidbux.com
videobam.com
ziddu.com

Small

2gb-hosting.com
300mbfilms.com
arm-tube.am
delishows.com
dom-filmov.ru
dpstream.tv
esoft.me
fifostream.tv

film4ik.ru
filmodrom.net
glowgaze.com
hddiziizle.com
kino-az.net
kinoclips.net
kinolot.com
kinolubim.ru
kinomatrix.com
kinovam.com
levtor.org
linecinema.org
mytv.kz
mytvline.com
nzbmovieseeker.com
series-cravings.tv
smotri-filmu.ru
smusla.net
tubemotion.com
videobb.com
videonette.com
videoxalyava.ru
vipzal.tv
vreer.com
vzale.tv
zalaa.com

Direct Download (DDL) Host Sites

Large
4shared.com
bitshare.com
depositfiles.com
freakshare.net
rapidgator.net
sendspace.com
turbobit.net
uptobox.com

Medium
180upload.com
1fichier.com
akafile.com
billionuploads.com
cloudzer.net
crocko.com
divxstage.eu
eyny.com
filecloud.io
filepost.com
fshare.vn
ge.tt
hipfile.com
hugefiles.net
junocloud.me
lumfile.com
megafiles.se
megashares.com
novafile.com
queenshare.com
rghost.net
sharebeast.com

share-online.biz
solidfiles.com
tusfiles.net
uloz.to
ulozto.net
ultramegabit.com
uploadbaz.com
uploading.com
vidhog.com
vidup.me
vip-file.com
xvidstage.com
yunfile.com

Small
4upfiles.com
albafile.com
arabloads.com
batshare.com
bayfiles.com
cramit.in
creafile.net
data.hu
dataport.cz
davvas.com
easybytez.com
easyfiles.pl
epicshare.net
euroshare.eu
exoshare.com
expressleech.com
fastshare.cz
fileflyer.com

fileparadox.in
fileplaneta.com
files2upload.net
filesflash.com
filevice.com
gigasize.com
hellupload.com
henchfile.com
hitfile.net
hostingbulk.com
hulkfile.eu
hulkload.com
jheberg.net
jumbofiles.org
load.to
muchshare.net
multiup.org
myuplbox.com
myupload.dk
prefiles.com
project-free-upload.com
rapidfileshare.net
rodfile.com
sanshare.com
sendmyway.com
sendspace.pl
sharefiles.co
sinhro.net
speedshare.eu
swankshare.com
ufox.com
upfile.biz
uploadboy.com

APPENDIX D: PREMIUM BRANDS APPEARING ON SAMPLE SITES

The following premium brands were observed by MediaLink analysts during visits to the sites in the sample.

Aereo
Air Wick
Airborne
Allstate
Ally Bank
Amazon
Amazon (Audible)
American Express
American Girl
Ancestry.com
Angry Birds
Ann Taylor
AT&T
Autonomy
Banana Republic
Benjamin Franklin Paint
Birchbox
Bose
BP
Broadway Theatre
Cablevision
Chevrolet
Chromecast
Citrix
Clarks
Clinton Foundation
Crate & Barrel
Crest
Dell
Delsun

Delsym
Delta
Dish Network
Dominos
Durex
Extended Stay America
Facebook
Fiat
Ford
GE
GEICO
GloboTech
Google
Google Nexus
Grainger
H&M
Hulu Plus
Iceland
istockphoto.com
Jcrew
Keller Graduate School of Management
Keurig
L.L. Bean
Lego
LG
Lime-a-way
McDonalds
Merck & Co.
Microsoft

Microsoft (Bing)
Monster.com
Motorola
NYU Langone
Opel Auto
Petsmart
Progressive
Puffs
Rackspace
RAM
REI
Sapphire
Seattle's Best
Sensodyne
Target
TD Bank
Time Warner Cable
Toyota
Ugg
UNICEF
Verizon
Wall Street Journal
Walmart
Western Union
Whole Foods
Xfinity
Zales
Zappos
zipcar

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