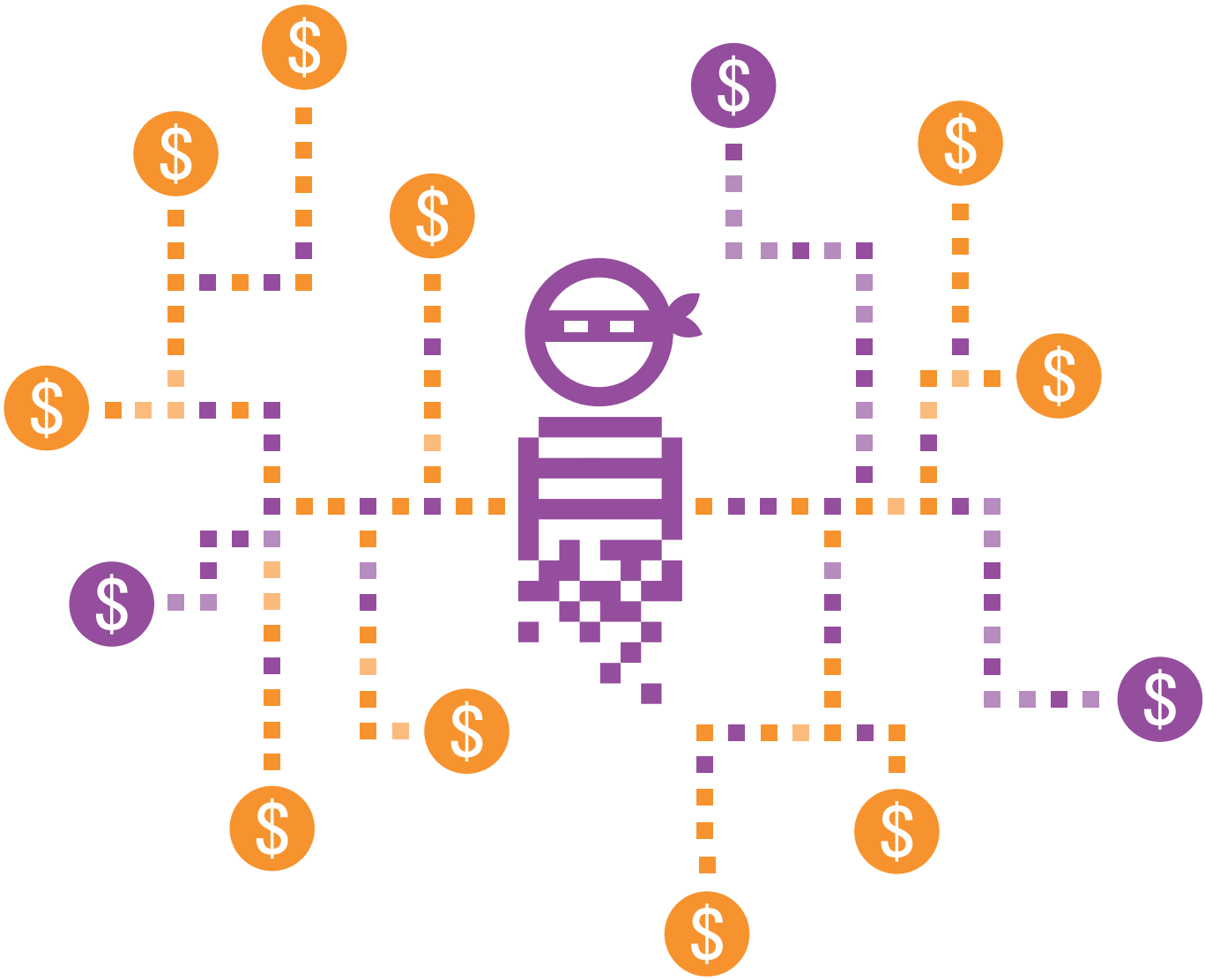
GOOD MONEY STILL GOING BAD:

DIGITAL THIEVES AND THE HIJACKING OF THE ONLINE AD BUSINESS

A FOLLOW-UP TO THE 2014 REPORT ON THE PROFITABILITY OF AD-SUPPORTED CONTENT THEFT



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ABOUT THIS REPORT

The first *Good Money Gone Bad* report found that the top sites serving up stolen content generate hundreds of millions of dollars a year in advertising revenue. In the year since Digital Citizens Alliance and MediaLink LLC first investigated the big business of content theft—also known as online piracy—there were some major changes in this "industry." One of the biggest is the way stolen content is delivered.

As streaming has become the preferred means of consuming content through legitimate sites, content thieves have adapted to chase the audience—and ad dollars. MediaLink—an advisory firm that provides critical counsel and strategic direction to the media, advertising, entertainment, and technology industries—found streaming sites becoming much more important to the content theft universe. This allows content thieves to take advantage of higher video advertising rates. The upshot is that even smaller sites can make more money, and it is becoming even harder for authorities to pursue them.

Consumer adoption of streaming video technology also raises new challenges for content owners, as illustrated by the May 2015 Floyd Mayweather-Manny Pacquiao fight. Some users of Meerkat and Periscope, both legitimate apps, used the apps to stream the live fight coverage, siphoning thousands of would-be viewers away from Showtime and HBO, which were charging for fight access. CNN reported that one feed of the fight had 10,000 viewers. Live streaming with apps could mark the beginning of even greater challenges for law enforcement pursuing content thieves.

But one thing has not changed: content theft remains a multi-hundred million dollar business.

Ad revenue is the oxygen that allows content theft to breathe. We know from new research by the online rights protection firm Incopro that 88% of the most popular content theft sites in Europe rely on advertising for some, if not all, revenues. Incopro called advertising the "predominant revenue source" for the top 250 unauthorized sites.

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. This study focuses not on that economic harm, but rather seeks to estimate the advertising profits content thieves reap.

Separate Digital Citizens research also reveals another dark side to content theft: the risk of malware and other viruses that unwitting consumers are exposed to by simply watching or listening to a "free" movie or song. This development poses troubling new concerns for consumer safety.

Both the public and private sector worldwide have launched initiatives to address these issues. We commend those efforts and hope these additional insights encourage even more activity aimed at making the Internet a stronger, more reliable, and open platform that works for everyone.

One noteworthy new initiative is the Trustworthy Accountability Group, or TAG (https://tagtoday.net), a joint effort by the Association of National Advertisers (ANA), the American Association of Advertising Agencies (4A's), and the Interactive Advertising Bureau (IAB). In February 2015, TAG announced the launch of a Brand Integrity Program Against Piracy designed to help advertisers and their agencies keep their ads off websites that promote or distribute counterfeit goods or pirated content. Companies that offer tools to block or limit those ad placements can have their technologies validated, and earn certification from TAG as Digital Advertising Assurance Providers. This is a smart effort designed to scale back the corrupt inventory we see in the marketplace and protect the brands that are damaged by being linked to content thieves. This research shows again just how important it is for such industry-led initiatives in the ongoing fight against rogue operators harming legitimate brands as they steal millions from American companies.

EXECUTIVE SUMMARY

Based on a second look, there is no doubt: ad-supported content theft is a big business, producing hundreds of millions of dollars in revenues.

Using the same selection standards as in the first *Good Money Gone Bad* report, MediaLink found nearly the same revenues for 2014 as in the previous year, despite massive turnover in the industry that included the shuttering or degrading of some of the largest sites researchers examined in 2013. **The 589 sites in the 2014 snapshot generated an estimated $209 million in aggregate annual revenue from advertising alone.** The content theft industry's low barriers to entry and the ability of operators to switch domains quickly make it easy for new sites to fill the void left by those that do get shut down, and to evade enforcement. Others simply spawn copies, growing back to flourish like the mythical Hydra that grew two new heads for each one cut off. As a result, content owners and authorities working to stem the problem are faced with an ever-changing cast of characters. More than 40% of the 2013 sample of 596 sites had closed or dropped below the threshold for tracking a year later—yet the same selection criteria yielded a sample of virtually the same size.

MediaLink's analysis of these ad-supported pirate sites provides additional insights into other aspects of the content theft ecosystem, including the continuing presence of premium brand ads, the danger to users who are exposed to malware, and the prevalence of ad fraud. Below are other highlights of this study:

→ **Premium Brand Advertisers Still at Risk:** Despite increased industry awareness of the problem, the reputation and value of legitimate brands continues to be threatened as their ads show up in increasing numbers on offending sites, often alongside offensive ads. There were 132 premium brands observed by MediaLink researchers on the sites, up from 89 the previous year.

→ **Malware Threatens Consumers:** One-third of the sites included links with the potential to infect users' computers with viruses and other malware. In most cases the links are hidden behind *Download* or *Play* buttons, but in many cases, it is not even necessary to click on a link to spawn the unwanted download. These downloads earn site owners millions in annual revenue.

→ **Fraud:** Ad fraud has been in the spotlight over the past year as the advertising industry has tried to come to terms with the problem. This is a significant challenge for the industry as a whole, but is particularly virulent in the content theft business—not surprising for an industry that at its core is based on theft and fraud.

→ **Video Streaming a Growing Model:** As consumer appetites have shifted from downloading to streaming, content theft sites have followed suit. The number of video streaming sites in 2014 was up 40% from the original report, and revenue grew significantly due to video CPMs that are far higher than those for display ads.

The profitability and ease of execution are the primary drivers of ad-supported content theft. The best chance to deter or degrade these activities is through legal, technical, or industry initiatives, which have made headway.

GOOD MONEY STILL GOING BAD

If you tried today to visit the 596 sites studied in 2013's *Good Money Gone Bad* research, you might think that ad-supported content theft was in decline. Forty-four percent of the sites were gone or so much smaller that they didn't make the cut for the 2014 sample. But when researchers used the original process to see what sites operating in Q3 2014 would fit the criteria, there were as many new sites as those that had gone away.

Meanwhile, the number of recognizable brands whose ads appeared on sites in the sample *increased* from 89 in 2013 to 131 in 2014, despite industry efforts and increased public visibility. Premium brands appeared on 32.3% of large sites vs. 28.9% the year before, and on about 15% of sites overall, further underscoring the need to protect brands' reputations and value.

Premium brands are those easily recognizable companies familiar to most consumers, and whose reputations are damaged when their ads appear on content theft sites and alongside malware links.

Ad-supported content theft remains extremely lucrative, especially for large BitTorrent and Linking sites, and increasingly for those that stream video content.

The estimated aggregate annual ad revenue for the 2014 sample of 589 sites was $209 million, even after the loss of seven large BitTorrent sites that generated a combined $44.3 million in ad revenue in 2013. The fall of those sites was offset by growth among small and medium sites, and in the Video Streaming segment. Estimated average profit margins for sites supported only by advertising were 89.3%, and ranged from 86% to as high as 93%.

TABLE 1: Q3 AGGREGATE ANNUAL AD REVENUE, MARGIN FOR AD-SUPPORTED SITES

SEGMENT	2014 REVENUE	2013 REVENUE	2014 MARGIN	2013 MARGIN
BITTORRENT AND OTHER P2P PORTALS				
SMALL	$8,837,813	$8,317,337	86.6%	85.9%
MEDIUM	$22,436,923	$12,908,635	90.3%	84.5%
LARGE	$48,435,312	$92,725,008	93.3%	94.1%
LINKING SITES				
SMALL	$23,168,330	$14,763,659	89.2%	79.9%
MEDIUM	$25,831,850	$33,405,782	87.0%	89.8%
LARGE	$16,619,720	$17,993,378	90.0%	87.5%
VIDEO STREAMING HOST SITES				
SMALL	$9,261,702	$2,117,922		79.9%
MEDIUM	$13,265,567	$6,725,908		
LARGE	$23,707,625	$18,646,142	91.9%	
DIRECT DOWNLOAD (DDL) HOST SITES				
SMALL	$1,465,216	$1,604,348		
MEDIUM	$5,394,263	$5,125,377		
LARGE	$10,117,644	$12,336,493		

BITTORRENT AND OTHER P2P PORTALS

These sites offer peer-to-peer (P2P) sharing of files that are stored on many users' computers across the Internet, most commonly using BitTorrent software. Despite the loss of the seven large sites, BitTorrent portals still generated more ad revenue overall than any of the other segments, and the largest sites have the highest average operating margins, about 92%. These sites provide links that enable file sharing using BitTorrent technology, the most common method for content infringement.

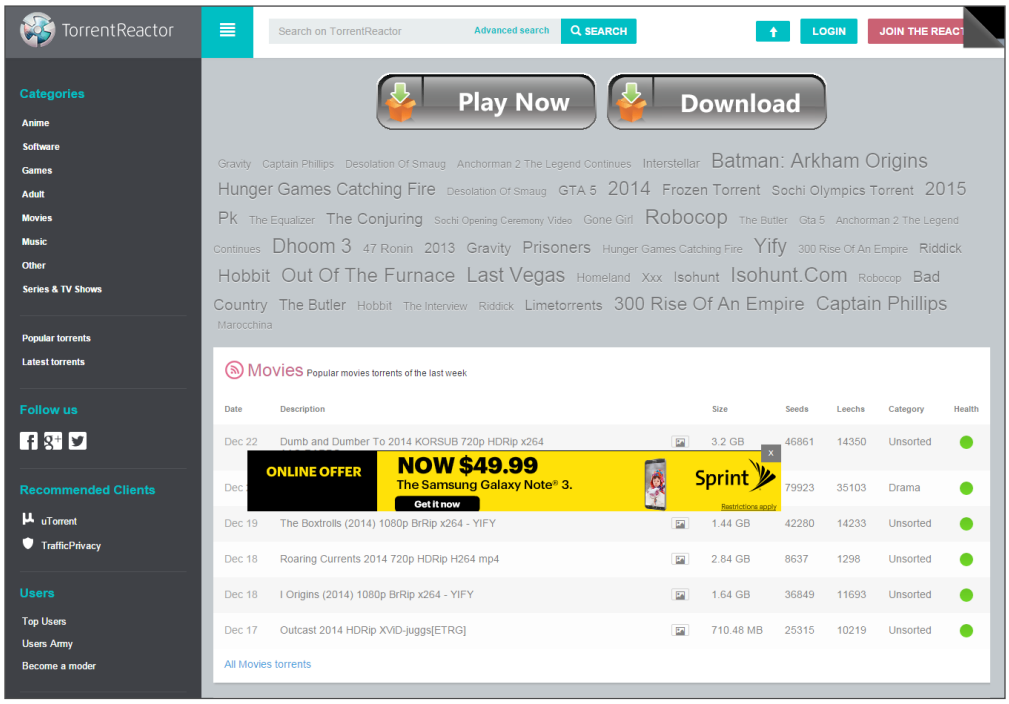
The 136 BitTorrent portals comprised 23.1% of the 589 sample sites in 2014 and accounted for 38.2% of the advertising revenue, or $79.7 million. That was down from 24.2% of the sample and 50.3% of the $114 million revenue in 2013. Large BitTorrent portals represented 23.2% of the aggregate sample revenue vs. 40.9% in 2013.

Despite BitTorrent portals' continued notoriety as sources of stolen content, premium brand ads appeared at virtually the same levels in 2014 (9.6% of the sites) as 2013 (9.7%). By size, premium brands appeared on 9.8% of small (vs. 7.5%), 8.3% of medium (13.9%) and 12.5% of large (13.3%) sites.

TABLE 2: TORRENT PORTAL AVERAGE/AGGREGATE RESULTS

SEGMENT	2014 REVENUE	2013 REVENUE	2014 MARGIN	2013 MARGIN
AVERAGE QUARTERLY RESULTS				
SMALL	$24,016	$22,358	86.6%	85.9%
MEDIUM	$155,812	$89,643	90.3%	84.5%
LARGE	$1,513,604	$1,545,417	93.3%	94.1%
AGGREGATE QUARTERLY RESULTS				
SMALL	$2,209,453	$2,079,334		
MEDIUM	$5,609,231	$3,227,159		
LARGE	$12,108,828	$23,181,252		

FIGURE 1: EXAMPLE BITTORRENT PORTAL (TORRENTREACTOR.COM)



LINKING SITES

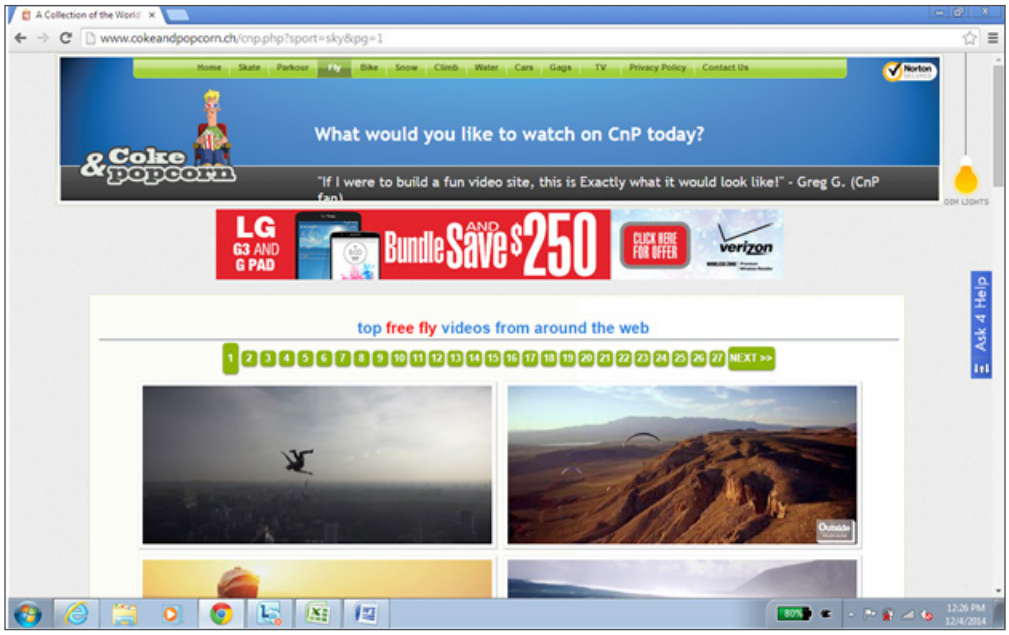
The number of Linking Sites dropped 15% year-to-year, but this still was the largest segment overall, with the 241 sites accounting for 40.9% of the total sample. Linking Sites are directories of files that are hosted elsewhere on the Internet. Users click on links to download the files. Despite the decline, aggregate revenue held fairly steady at $66 million, as average revenue for small sites nearly doubled and for large sites grew by 30%.

Premium brands appeared on 15.4% of Linking Sites in 2014, compared with 11.7% the previous year. By size, premium brands appeared on 14.3% of small (vs. 10.2%), 20.0% of medium (17.1%) and 20.0% of large (28.6%) sites.

TABLE 3: LINKING SITES AVERAGE, AGGREGATE RESULTS

SEGMENT	2014 REVENUE	2013 REVENUE	2014 MARGIN	2013 MARGIN
AVERAGE QUARTERLY RESULTS				
SMALL	$29,551	$15,706	89.2%	79.9%
MEDIUM	$161,449	$203,694	87.0%	89.8%
LARGE	$830,986	$642,621	90.0%	87.5%
AGGREGATE QUARTERLY RESULTS				
SMALL	$5,792,083	$3,690,915		
MEDIUM	$6,457,963	$8,351,446		
LARGE	$4,154,930	$4,498,344		

FIGURE 2: EXAMPLE LINKING SITE (COKEANDPOPCORN.CH)



VIDEO STREAMING HOST SITES

As noted previously, both the number of streaming sites and the revenue they generated increased significantly from 2013—the only segment that showed ad revenue growth. These also are directories of available content, however they play the content within pages instead of requiring users to download it. They represented 17.8% of the sample (vs. 12.6% in the previous year's study), and accounted for 22.2% of the aggregate annual revenue, or $46.2 million (vs. 12.1% and $27.5 million).

The growth in segment revenue for 2014 reflects an 85.3% increase in the number of small sites and a 34.6% increase in medium sites, attributable in part to low barriers to entry, as well as higher CPMs for video ads. Average quarterly income was up for all sizes of sites in the segment.

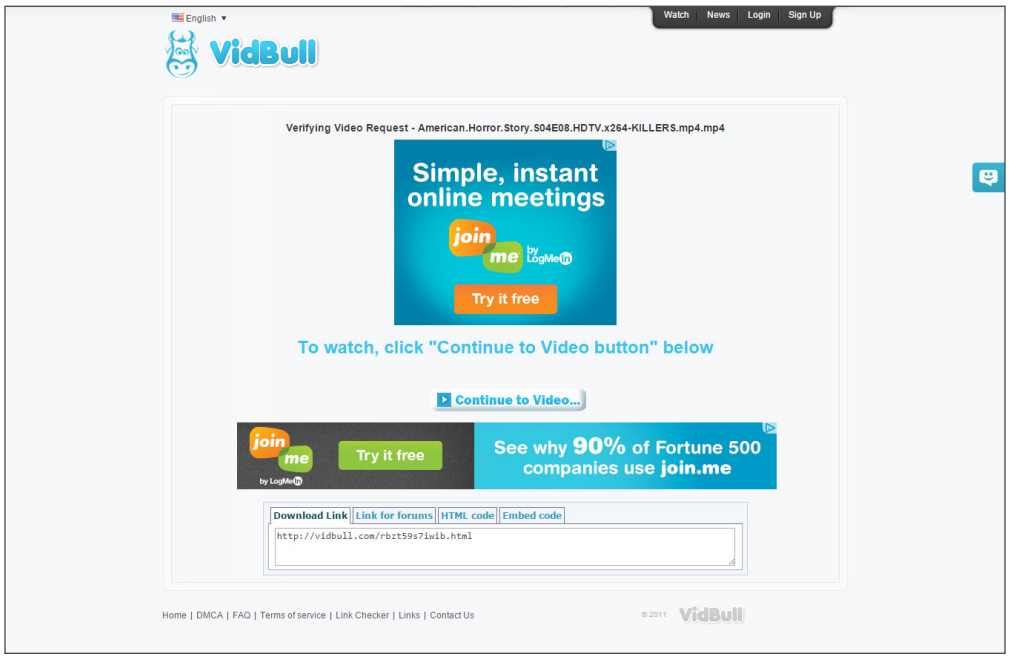
Premium brands appeared on 28.6% of large, 11.4% of medium, and 6.3% of small Video Streaming Hosts, compared with 33.3% of large, 15.4% of medium and 8.8% of small sites in 2013.

TABLE 4: VIDEO STREAMING HOST AVERAGE, AGGREGATE AD REVENUE

SEGMENT	2014 REVENUE	2013 REVENUE
AVERAGE QUARTERLY RESULTS		
SMALL	$36,753	$15,573
MEDIUM	$94,754	$64,672
LARGE	$846,701	$310,769
AGGREGATE QUARTERLY RESULTS		
SMALL	$2,315,425	$529,480
MEDIUM	$3,316,392	$1,681,477
LARGE	$5,926,906	$4,661,535

Margins are not reported here because a number of the sites offer subscription access, requiring infrastructure for account management, e-commerce and storage that is not directly related to advertising revenue.

FIGURE 3: EXAMPLE VIDEO STREAMING HOST (VIDBULL.COM)



DIRECT DOWNLOAD (DDL) HOST SITES

DDLs generate some ad revenue but are primarily subscription-based. DDLs, also known as cyberlockers, host content that can be downloaded or streamed directly, or via Linking or Video Streaming sites. Ads are displayed on upload and download pages, and the sites offer premium accounts for a monthly subscription fee that generally ranges from $5 to $15 to get rid of ads and increase download speeds.

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 18.1% of the sample and accounted for 8.1% of aggregate annual ad revenue, or $16.9 million per year. In 2013, DDLs were 15.8% of the sample, and 8.4% or $19.2 million in annual advertising revenue.

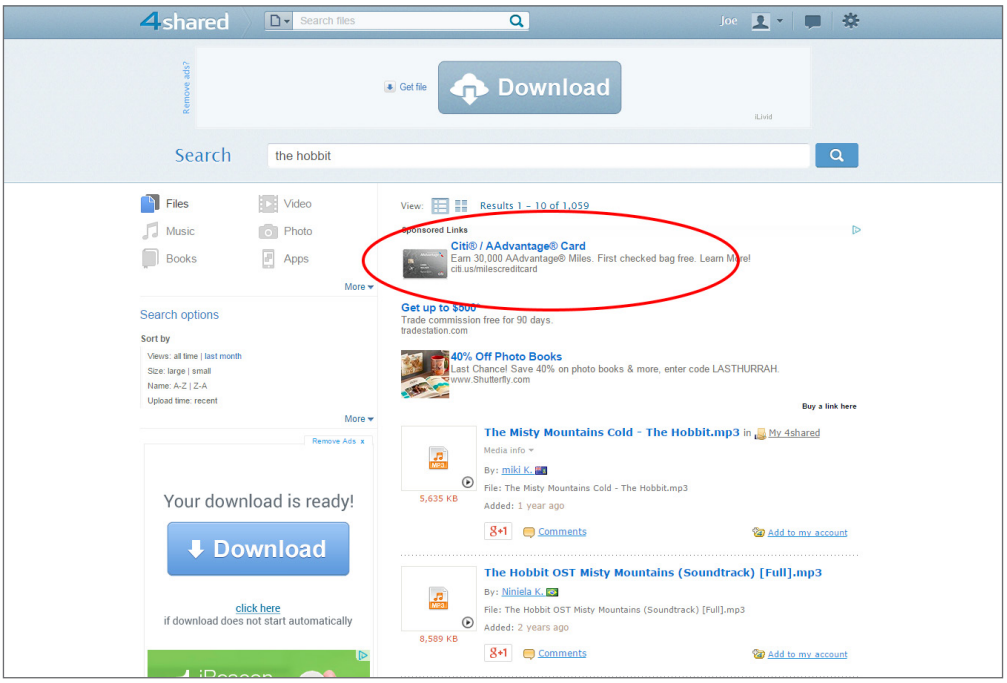
Premium brands appeared on 54.5% of large, 8 percent of medium and 26.8% of small DDLs, compared with 50% of large, 22.9% of medium and 39.2% of small DDLs the year before.

TABLE 5: DDL HOST SITES AVERAGE, AGGREGATE AD REVENUE

SEGMENT	2014 REVENUE	2013 REVENUE
AVERAGE QUARTERLY RESULTS		
SMALL	$5,159	$7,864
MEDIUM	$53,943	$36,610
LARGE	$229,946	$385,515
AGGREGATE QUARTERLY RESULTS		
SMALL	$366,304	$401,087
MEDIUM	$1,348,566	$1,281,344
LARGE	$2,529,411	$3,084,123

Detailed breakdowns of revenue by segment, size and revenue type can be found in Appendix B: Segment Revenue Detail.

FIGURE 4: EXAMPLE DDL HOST (4SHARED.COM)



ANALYSIS OF KEY TRENDS

VIDEO STREAMING FUELS A GROWING REVENUE STREAM—AND THREAT

Video streaming has become a tremendous revenue growth opportunity for content theft sites.

As noted above, the Video Streaming Host Sites segment was the only one in which revenue grew from 2013 to 2014, fueled by higher video CPMs and a 40% increase in the number of sites. Average site revenue more than doubled for sites in the segment, and aggregate revenue was up 68.2% to $46.2 million. BitTorrent and Linking sites continued to have the most visitors, page views, and ad revenue, however the number of sites in both segments declined year-over-year as did their revenue.

This shift mirrors several interconnected, broader trends.

First, the online market for streaming is exploding, both for legitimate services like Netflix, Hulu and others, and for illegal services like those that distribute stolen content. This is driven by users' shift from downloading video to consuming it on demand via tablets, phones, PCs and connected TVs. Americans watched 46.6 billion video streams in March 2014, up 14% from 40.9 billion in May 2013, according to data from comScore Video Metrix.

Meanwhile, advertisers are shifting from traditional banners to video ads, which are more effective online at attracting users' attention—just as they are on television. In that same period, according to comScore data, the number of video ad views grew from 15.8 billion to 28.7 billion, a staggering 82%. And US digital video ad spending grew 41.9% in that time, according to eMarketer, which projected that video ad spending would increase nearly 60% over the next two years (Figure 5).[1]

As with any other commodity, demand drives price, and the amount that advertisers pay per 1,000 views (CPM or cost per *mille*) of a video ad is significantly greater than for digital banners. Average global video CPMs are in the $8-$12 range, vs. $1 or less for display, according to BI Intelligence, citing data from video ad platform Turn.[2] Pre-roll CPMs in Q4 2014 were up 9% from Q3 and 24% year-over-year, according to TubeMogul, which saw the greatest increase in Tier 1 inventory, to $10.08.[3] And the US average is closer to $25, according to eMarketer.

FIGURE 5: US TV VS. DIGITAL VIDEO** AD SPENDING, 2012-2018 (BILLIONS AND % CHANGE)*

	2012	2013	2014	2015	2016	2017	2018
TV*	$64.54	$66.35	$68.35	$70.59	$73.77	$75.98	$78.64
% CHANGE	6.4%	2.8%	3.3%	3.0%	4.5%	3.0%	3.5%
DIGITAL VIDEO**	$2.89	$4.20	$5.96	$7.77	$9.45	$11.12	$12.71
% CHANGE	44.5%	45.3%	41.9%	30.4%	21.7%	17.6%	14.3%

Note: *Includes broadcast TV (network, syndication & spot) & cable TV; **Data through 2013 is derived from IAB/PwC data; includes advertigins that appears on desktop and laptop computers as well as mobile phones and tablets; includes in-banner, in-stream (such as pre-roll and overlays) and in-text (ads delivered when users mouse over relevant words)
Source: eMarketer, June 2014

FIGURE 6: US ONLINE VIDEO AD CPM, BY INVENTORY TIER, 2010-2017

	INDIRECT	MIDTIER	PREMIUM	AVERAGE CPM
2010	$16.10	$25.00	$45.00	$26.90
2011	$16.90	$25.00	$40.50	$26.00
2012	$17.80	$25.00	$36.50	$25.30
2013	$18.60	$25.00	$32.80	$24.60
2014	$19.60	$25.00	$31.20	$24.45
2015	$20.50	$25.00	$31.20	$24.80
2016	$21.60	$25.00	$31.20	$25.30
2017	$22.70	$25.00	$31.20	$25.80

Note: Excludes mobile display ad impressions; average CPM calculated using weighted average for online display ad impression share
Source: Credit Suisse, "Web 2.012," Feb 21, 2012 and eMarketer

So this shift from downloading to streaming, with ads embedded in the video streams, offers content theft site operators a shot at the higher CPMs paid by advertisers seeking more opportunities to reach streaming users.

To further explore the hypothesis of a growth trend, MediaLink examined another snapshot of sites that while still infringing were below the threshold for inclusion in the primary sample. These mostly small sites are poised to become the medium to large sites in a 2015 sample. Of the 239 sites, 111 are Video Streaming sites.

1 US TV Ad Market Still Growing More than Digital Video, eMarketer, June 12, 2014, http://www.emarketer.com/Article/US-TV-Ad-Market-Still-Growing-More-than-Digital-Video/1010923

2 Digital Video Advertising: Aggressive Spending And Increased Ad Availability Are Putting Ads On Every Screen, Bi Intelligence, May 9, 2014, https://intelligence.businessinsider.com/video-ads-everywhere--increased-ad-spending-will-put-video-ads-on-every-screen-2014-

3 TubeMogul Q4 2014 Report, http://more.tubemogul.com/q4_2014_quarterly_report

MALWARE

In addition to the damage that content theft does to legitimate advertisers and to the creative community, the sites that share stolen content also endanger consumers—while generating significant revenue for the sites. This threat comes from unwanted programs and malicious software downloads that can infect users' PCs with viruses, make them part of botnets that perpetrate ad fraud, or steal users' identities.

These downloads are types of what is called "pay per click" (PPC) or "pay per action" (PPA) advertising, where site owners are paid each time a user clicks on links and downloads or installs software. PPC and PPA ads generated an estimated $60 million in annual revenue for the sites in the 2014 sample. Not all PPC and PPA ads involve program downloads, however one-third of the sites carried links that triggered software downloads, and in most cases each site included many multiples of these links. They are often hidden behind download buttons, or are presented via links or popups promoting a plug-in the user is told s/he needs in order to view content, or as an update to legitimate software. In many cases, the pop-ups and downloads don't even require a click to launch, and download automatically. The site operators are paid when users download or install the software, so have a major incentive to fool users into accepting them.

One example was on zumvo.com, where clicking anywhere on the page launched pop-ups warning that the user's browser and other plug-ins needed to be updated. The typical user would find it difficult to navigate to the content without ultimately downloading some unwanted software. For example, clicking the "Install Player" button at the top of the screen in Figure 7 launched a download that has been identified as a Trojan (Figure 8) that creates a back door for other software that could launch denial of service attacks, gather personal data, or execute other computer programs.

These PPA ads for unwanted software were the most common type, appearing on 32% of sites overall. They were observed on 24% of P2P sites, 28% of Video Streaming sites, 36% of Linking sites, and 39% of DDLs.

FIGURE 7: SOFTWARE DOWNLOAD LINK ON ZUMVO.COM

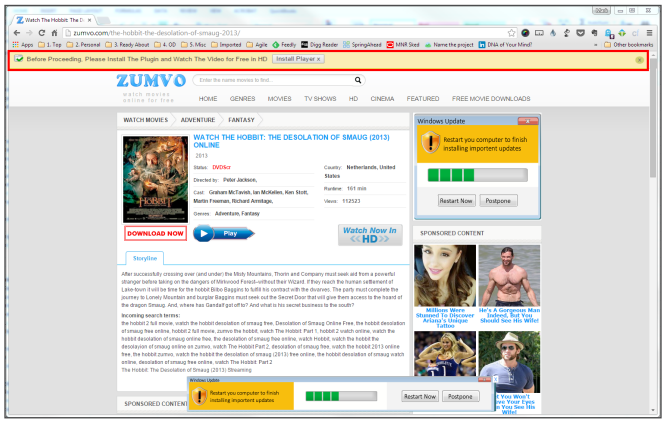
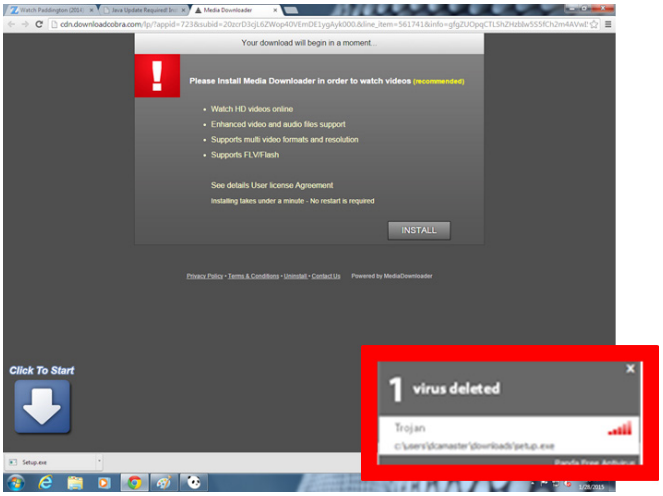


FIGURE 8: VIRUS DETECTED ON ZUMVO.COM



FRAUD AND IMPRESSION LAUNDERING

Legitimate brands take a double hit when their ads appear on content theft sites. Their reputations suffer by association with content theft itself and with the illicit services whose ads also appear on the sites. In addition, they are being defrauded. The money they spent to advertise on legitimate sites is instead fueling content theft, and the impression counts are being boosted by bots and other fraudulent means.

Many players in the advertising ecosystem profit from placement of ads on content theft sites, whether for premium brands or others. Automated placement may involve exchanges, networks, publishers, and agencies, and each link in the chain offers weaknesses that can be exploited. The digital advertising ecosystem is complex and highly automated, creating huge opportunities for fraud.

Ad fraud takes a number of forms. These include the use of software bots that generate millions of impressions, stealing from the marketers who place the ads. They also include schemes to "launder" impressions by making it appear that ads are going to legitimate sites when they actually are on bad sites. Other types of fraud "stack" or otherwise hide ads, generating lots of impressions for ads that are not visible at all.

A number of ad fraud detection companies, as well as trade associations, have estimated that bot traffic accounts for an estimated 30% to 40% of ad impressions. A 2014 study by the Association of National Advertisers and anti-fraud firm White Ops, found that bots caused 11% of display ad impressions in 181 campaigns by 36 ANA members. The ANA/White Ops study said the percentage for video ads was twice as high, at 23%, and in one case bot levels of 62% were observed in video ads from one supply-side platform.

And that's on campaigns for major name-brand companies on legitimate ad networks. For content theft sites, it's even higher.

Advertising effectiveness firm DoubleVerify issued a report in 2013 identifying more than 1,200 copyright infringement web sites that were defrauding advertisers to the tune of $6.8 million a month through impression laundering. Ad impressions were laundered through a series of redirects to make the ads appear to originate on legitimate sites with advertiser-friendly content, DoubleVerify said. Fraudulent ads also used code to hide the ad creative, meaning advertisers pay for impressions that are never seen.

DoubleVerify was asked to provide an assessment of the sites. They examined one month's traffic on 529 of the 589 sites in the 2014 *Good Money Gone Bad* sample and found that 60% of the impressions across the sample were laundered. There was no data available on the remaining 60. At least half of the impressions were laundered on a majority of the 529 sites for which DoubleVerify provided data, and on 15% of the sites, *all* of the impressions were delivered through "front" sites.

WHACK-A-MOLE AND GROWTH CYCLES IN CONTENT THEFT

The content theft industry is marked by a perpetual cycle as sites are shut down, new ones spring up to take their places, and others shift domains from country to country whenever shut down by law enforcement. It is a huge and Hydra-like challenge for content owners and authorities helping them protect their rights and livelihoods.

When MediaLink re-examined the 596 sites from the previous *Good Money Gone Bad* report, 44% had been shut down or dropped below the cutoff point for comScore tracking. Even so, the 2014 sample chosen using the same methodology was almost exactly the same size, demonstrating the rapid turnover in sites and posing a problem for law enforcement, content companies, and advertisers alike.

This challenge is apparent across the range of segments and sizes in the sample. One-third of the large sites (10 of 31), one-third of the medium sites (46 of 136), and nearly half of the small sites (199 of 422) in this year's list were not in the 2013 sample at all, reflecting how quickly sites could grow from startup to significant.

The 422 small sites that comprised 71.6% of the 2014 sample accounted for $42.8 million or 20.5% of aggregate revenue, nearly twice as much as a similar number of sites generated the year before. Medium sites accounted for $66.9 million, or roughly one-third of aggregate revenue in 2014, compared with $58 million, or one-fourth of the revenue, in 2013. The increases reflect segment growth as well as higher video CPMs and ad fraud.

Nevertheless, the largest sites continued to claim the lion's share of revenue. There were 31 large sites in Q3 2014, down from 45 in 2013. The 31 sites, 5.3% of the 2014 sample, accounted for $98.9 million or 47.4% of aggregate ad revenue, down from 7.6% of the sample and 62.5% of $141.7 million in revenue the year before.

Eight of the 45 large sites in the original sample—including some of the most notorious in the business—dropped out of the 2014 list entirely. The eight were the P2P sites bitsnoop.

com, isohunt.com and thepiratebay.sx; the DDL freakshare.net; Linking sites filestube.com and zerx.ru; and Streaming sites nowvideo.eu and sockshare.com.

Of the remaining former large sites, 16 had shrunk to medium and four were now small, including the torrent sites 1337x.org and extratorrent.com. However, both of those had been supplanted by clones with new names, further examples of the significant challenge faced by copyright holders and authorities.

While new sites continue to pop up, it is easy for existing sites—especially big, highly visible, well-established ones—to switch country-level domains. Their traffic and revenue take a brief hit, but sites with big followings can quickly recover.

For instance, extratorrent.com, with 6.3 million average monthly unique visitors in Q3 2013, dropped to almost nothing in November of that year, according to comScore. About that time, extratorrent.cc (the domain for Cocos Islands, an Australian territory) began to grow. It reached 13.5 million unique visitors in January 2014 and averaged almost 10 million per month by the end of the year. It is the 11th largest site in the 2014 *Good Money Gone Bad* list.

Another notable example of this cyclical behavior is the notorious BitTorrent portal The Pirate Bay, which was the largest site in the 2013 *Good Money Gone Bad* report with 62 million unique visitors. It was shut down and its servers seized in mid-2014, but resumed operation in early 2015. The site had hopscotched domains for years before its shutdown, and had even packaged its software and made it available to other would-be content infringement sites. It was not operating in Q3 2014 and is not in this year's sample.

Other examples, both also BitTorrent portals:

→ 1337x.org was the 38th largest site in the *Good Money Gone Bad* report on Q3 2013. It trailed off from nearly 5 million unique visitors in October 2013 to less than 20,000, only to be replaced in May 2014 by 1337x.to (the Tongan domain) at 3 million uniques, making it the 74th site by size in the 2014 sample.

→ isohunt.com was the fourth largest site in the 2013 list but dropped from 24 million unique visitors in Q3 of that year to 13.6 million in October 2013 and to less than a million in mid-2014. It returned as isohunt.to starting in February of that year, and is now a medium site and 40th largest in the sample.

FIGURE 9: EXTRATORRENT.CC, LARGE BITTORRENT PORTAL

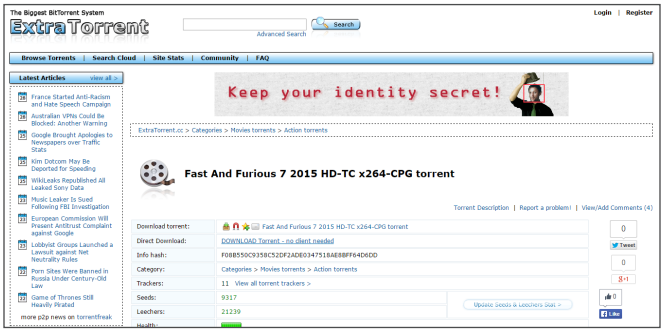
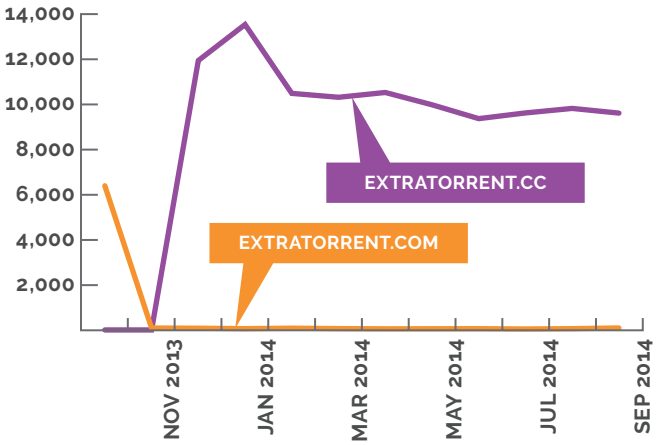


FIGURE 10: EXTRATORRENT.COM TO .CC TREND



PROBLEMS FOR PREMIUM AND SECONDARY BRANDS

Premium, blue-chip companies and other equally legitimate but lower profile companies are all victims of the fraud and reputational damage that come from inclusion on content theft sites. The sites take advantage of the increasing complexity and automation of the advertising infrastructure to illicitly capture ad revenue.

As one telling sign of that complexity, Veri-Site and MediaLink identified no fewer than 179 different ad networks and exchanges serving the 589 sites in this year's sample. The list included many top ad tech providers who have committed

to anti-content theft efforts. The cyclical nature of the sites discussed above, as well as sites' fraudulent practices, are enormous challenges for even those networks aiming to do the right thing.

Premium brands observed by MediaLink analysts are listed in Appendix E: Premium Brands Appearing on Sample Sites. 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. A list of the ad networks with the most links on the sample sites is in Appendix F: Ad Networks Serving Content Theft Sites.

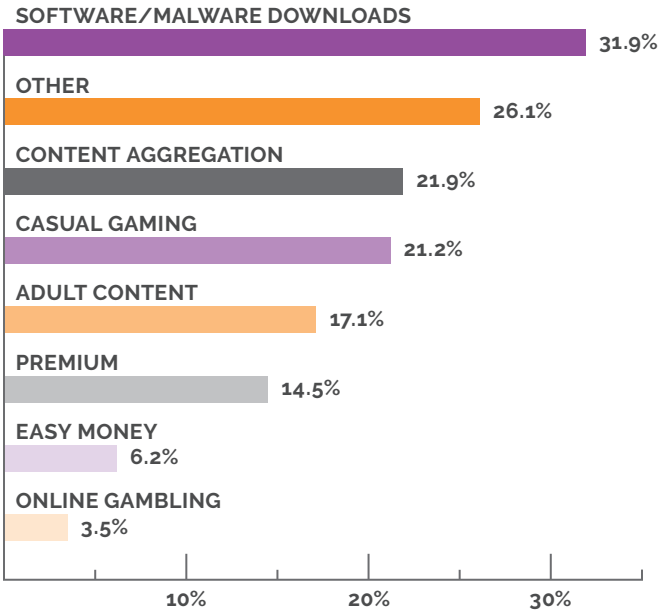
Secondary advertising categories that MediaLink identified were:

→ **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 21% of the sites reviewed, down from 40% the year before.
→ **Online Gambling:** Ads for online gambling and betting services, many of which may be regulated by consumer protection or other agencies, appeared on 3.5% of the sites reviewed, down from 10%.
→ **Content Aggregator Sites:** This broad category, which appeared on just over 20% of sites in both studies, included links to non-premium aggregators of news and information, with varying degrees of legitimacy. Many of those sites may in turn have been part of impression inflation schemes.

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:** While these are not ads for a product or service like more common banners and video ads, it is important to include these because of their prevalence, as discussed above.
→ **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 about 17% of sites in 2014 and just over 20% in 2013.
→ **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 6% of sites in 2014 and 15% in 2013.

FIGURE 11: PERCENT OF SITES DISPLAYING AD TYPES



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.

In addition to the banner and PPC ads described above, sites that stream stolen video content also incorporate video ads into the streams they make available. Video ads were viewed on sites in the sample and links to video ad networks were identified by Veri-Site.

SUMMARY AND RECOMMENDATIONS

Content theft continues to be a flourishing and constantly evolving industry. And make no mistake—this is an industry, built on theft and deception.

It also is a cyclical industry, with new contenders springing up continually, lured by the promise of easy riches and high margins. Established sites shut down by authorities and lawsuits simply reopen at new addresses, one step ahead of the law. Despite the fact that 40% of the 2013 sample had dropped out, the 2014 list of sites—developed using the same criteria—was virtually the same size. Had this study been conducted a few months earlier, or later, the results could as easily have shown greater revenue. The most popular site, The Pirate Bay, for example, came back online in January 2015 and its inclusion would have changed the picture significantly.

That said, players in the private and public sectors have taken laudable steps to disrupt the industry and the flow of advertising dollars that feeds it.

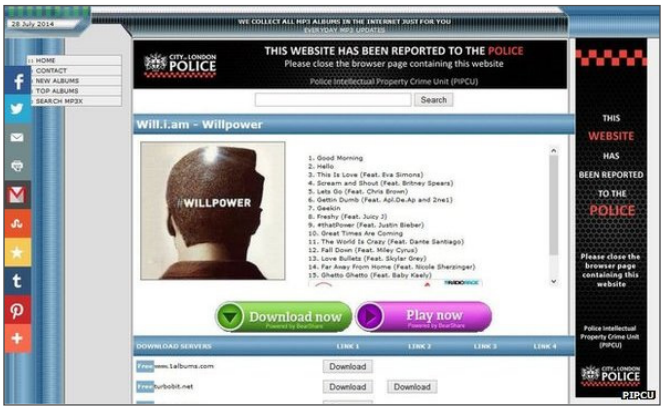
In the advertising industry, marketers, agencies, publishers, and ad tech platforms recognize that the damage content theft does—of epic proportion for the creative industry—also hits advertisers' budgets and reputations, the perception of the ad industry as a whole, and the value of digital media.

The previously mentioned Trustworthy Accountability Group (TAG)'s Brand Integrity Program Against Piracy is one such effort, designed to help advertisers and their ad agencies avoid ad placements on websites that promote counterfeit goods or pirated content without their knowledge.

This research shows TAG's efforts need to be broadly adopted by advertiser and across the ad industry to block the flow of ad dollars to content theft sites.

Another significant ad industry initiative, also launched in February 2015, was an audit of the advertising ecosystem funded by the Interactive Advertising Bureau (IAB). This research will create a comprehensive benchmark of the impact of the corruption that allows content theft sites and others to take advantage of the digital ad supply chain. Among the data sources for the research will be both *Good Money Gone Bad* reports.

FIGURE 12: PIPCU OPERATION CREATIVE REPLACES ADS WITH WARNINGS ON CONTENT THEFT SITES



In the public sector, the City of London Police Intellectual Property Crime Unit (PIPCU) has been one of the most visibly active agencies to address content theft. Its initiatives include maintaining a list of sites, the Infringing Website List, which ad tech companies can use to avoid placing ads on infringing sites. Another novel effort, called Operation Creative, replaced ads with warning messages on infringing sites.

Similar efforts to curtail content theft sites and the revenue that fuels them have since been launched in other countries.

These are all important initiatives that go beyond talk and marketing, and are vital if this problem is to be reduced.

APPENDIX A: METHODOLOGY

SITES STUDIED

In selecting sites for this research, MediaLink focused on the third quarter of 2014, one year after the first *Good Money Gone Bad* report, which was based on Q3 2013.

As the basis for finding sites engaged in content theft, both reports started with Digital Millennium Copyright Act (DMCA) removal request data from the Google Transparency Report. Each month, Google receives requests to remove around 30 million URLs hosted by approximately 60,000 domains. To allow a deeper dive, MediaLink 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 for which unique visitor and page view data were available from comScore Inc. 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 ratings from Integral Ad Science, VeriSite, and Incopro on the degree of the sites' involvement in content infringement. Its analysts then visited and reported on hundreds of sites to further qualify them, and to remove:

- → 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.

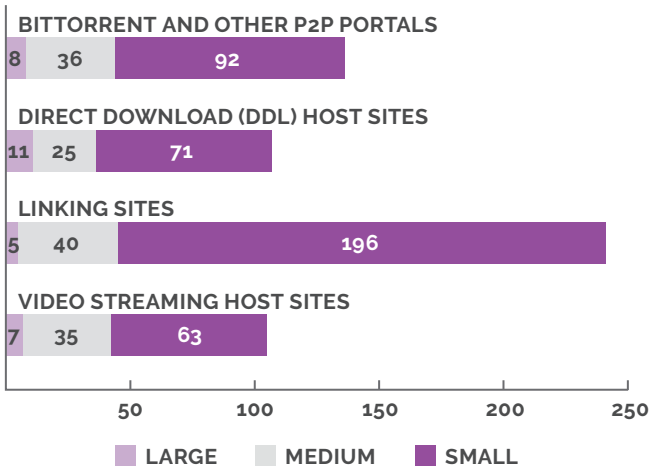
Thus, the only sites studied were those at least partially ad-supported sites where the sites were substantially engaged in hosting or distributing infringing content.

The result was a sample of 589 sites, compared with 596 sites in the 2013 study.

SAMPLE SEGMENTATION

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

FIGURE 13: 2014 SITES BY FUNCTIONAL AND SIZE SEGMENTS



FUNCTIONAL SEGMENTS

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 online content infringement, according to NetNames, which reported that 96.3% of unique visitors to such sites accessed infringing content at least once in January 2013. These portals let users running torrent client software to browse or search for files available on peer-to-peer distribution systems and to download the content to their own computers for use at no charge.

Linking Sites

These portals aggregate and index links to media content hosted on Direct Download (DDL) Hosts. 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 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 the DDLs' hosted content.

Video Streaming Host Sites

This segment includes both the ad-supported portal and subscription-based storage models. Ninety-two percent of the 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 the videos.

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 to download the content. DDLs have dual revenue streams: a free, ad-supported model and a premium subscription version that lets users pay to avoid ads and for faster downloads. DDLs 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 to the content widely across the Internet.

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 13.

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 33 data points that paint a picture of the profitability.

The key drivers of ad revenue are:

- Unique visitors
- Page views
- Number of ad positions per page
- Amount paid per thousand impressions (CPM), or views, of a video or banner ad, per click on a banner or text link, and per completion of an action
- Prevalence of fraud.

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.

MediaLink this year added variables for video ad views and CPMs to the model, with a resulting increase in revenue for the Video Streaming Host Sites segment. These additions were predicated by several factors:

- Growth in the number of Video Streaming sites;
- Video ads seen on a number of sites in the Q3 2014 sample, which were not seen in the first report;
- Video ad networks among the ad networks identified by Veri-Site as serving the sites in the sample.

It is worth noting that because Video Streaming sites provide their content via embedded players, pages viewed is not completely representative of the amount of content consumed. It is, however, part of the revenue calculation. In terms of video ad revenue, analysts could not as a practical matter view enough videos to assess the overall prevalence of video ads. Instead, MediaLink based its revenue calculations on conservative assumptions about the number of videos viewed, the ads inserted, and the CPMs the ads carried. The assumptions are detailed in below.

Based on a growing body of industry data on ad fraud generally, and on DoubleVerify data for sites in the Q3 2014 sample, MediaLink also increased its assumptions for the fraud multiplier included in the revenue calculations.

The key drivers of costs are hosting fees and human resources.

With cloud-based hosting 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.

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: Almost all Direct Download (DDL) Hosts and a handful 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 accounts and uploading and downloading content, verified the sites' fees and download bounties, as well as the number and types of ads displayed. 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 2014, 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 90% for small and medium and 95% for large sites. About 10% of small and 15% of medium sites have a DDL-like model, which we assume have ads on 50% of page views; the remainder are linking-type sites, which we assume have ads on 95% of page views. Average is roughly 90%. All large sites are like Linking Sites in their model. 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 60%, based on industry reports, data from comScore on impression laundering on these sites, which is only one type of ad fraud.

» **Linking Sites:** Assumed 60%, based on business model equivalence to P2P sites.

» **Video Streaming Host Sites:** Assumed 50%, adjusting the 60% 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 20%, adjusting the 60% 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.

→ **Percent of Video Ads (% Video):** Based on MediaLink expertise and site visits, assumed that video views would occur as a result of 5% of ad-bearing pages, and further that video ads would appear in 10% of those streams, for a video ad rate of 0.05% of pages.

→ **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 $0.30 (30 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.

→ **Video CPM ($ Video):** Based on MediaLink expertise and research with advertising industry members, video ad rates—while typically significantly higher than display ad CPMs—were estimated at $3.00 to provide a conservative estimate in light of the limited transparency into delivered 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)

Video CPM Revenue = $ Video x (Effective Page Views x % Video)

Total CPM Revenue = Premium CPM Revenue + Non-Premium CPM Revenue + Video 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 small and medium 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.

» **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: SEGMENT REVENUE DETAIL

TABLE 6: Q3 2014 AVERAGE SITE PERFORMANCE BY SEGMENT

SEGMENT	CPM REV	CPC REV	CPA REV	TOTAL AD REVENUE	TOTAL COST	MARGIN %
BITTORRENT AND OTHER P2P PORTALS						
SMALL	$11,809	$6,613	$403	$18,826	$3,198	83.0%
MEDIUM	$79,161	$44,330	$4,236	$127,727	$14,841	88.4%
LARGE	$784,205	$439,155	$1,558	$1,224,917	$98,649	91.6%
LINKING SITES						
SMALL	$15,457	$8,656	$196	$24,309	$3,200	86.8%
MEDIUM	$84,413	$47,272	$1,288	$132,973	$20,943	84.3%
LARGE	$425,324	$238,181	$7,168	$670,673	$80,007	88.1%
VIDEO STREAMING HOST SITES						
SMALL	$15,904.51	$8,906.52	$258.10	$25,069		
MEDIUM	$47,006.20	$26,323.47	$1,532.24	$74,862		
LARGE	$305,380.12	$171,012.87	$5,788.98	$482,182		
DIRECT DOWNLOAD (DDL) HOST SITES						
SMALL	$2,634	$1,475	$763	$4,872		
MEDIUM	$30,173	$16,897	$2,745	$49,815		
LARGE	$126,226	$70,686	$16,817	$213,729		

TABLE 7: Q3 2014 AGGREGATE SITE PERFORMANCE BY SEGMENT

SEGMENT	CPM REV	CPC REV	CPA REV	TOTAL AD REVENUE	TOTAL COST	MARGIN %
BITTORRENT AND OTHER P2P PORTALS						
SMALL	$1,086,458	$608,416	$37,111	$1,731,985	$294,242	85.9%
MEDIUM	$2,849,807	$1,595,892	$152,490	$4,598,188	$534,281	84.5%
LARGE	$6,273,638	$3,513,237	$12,464	$9,799,339	$789,193	94.1%
LINKING SITES						
SMALL	$3,029,606	$1,696,580	$38,401	$4,764,588	$627,141	79.9%
MEDIUM	$3,376,539	$1,890,862	$51,539	$5,318,939	$837,736	89.8%
LARGE	$2,126,618	$1,190,906	$35,840	$3,353,364	$400,034	87.5%
VIDEO STREAMING HOST SITES						
SMALL	$1,001,984	$561,111	$16,261	$1,579,356		
MEDIUM	$1,645,217	$921,322	$53,628	$2,620,167		
LARGE	$2,137,661	$1,197,090	$40,523	$3,375,274		
DIRECT DOWNLOAD (DDL) HOST SITES						
SMALL	$186,990	$104,714	$54,184	$345,888		
MEDIUM	$754,330	$422,425	$68,614	$1,245,370		
LARGE	$1,388,482	$777,550	$184,986	$2,351,017		

The following graphics provide high-level views of the size and functional segment breakdown and revenue by size and functional segment for the 2013 and 2014 *Good Money Gone Bad* samples.

FIGURE 14: COMPARISON OF 2013 AND 2014 SAMPLES BY FUNCTIONAL SEGMENT

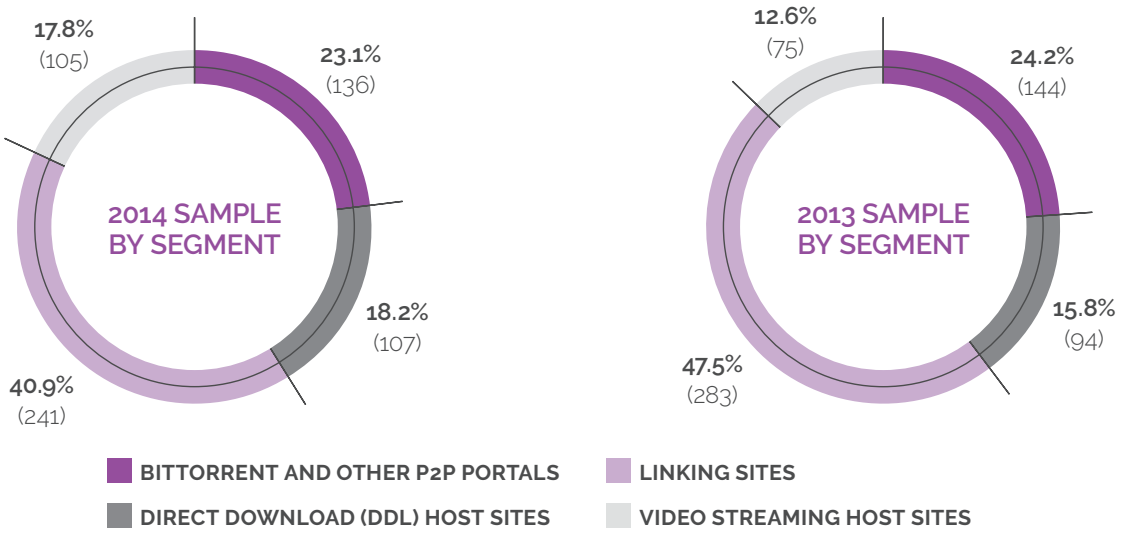


FIGURE 15: COMPARISON OF 2013 AND 2014 SAMPLES BY SIZE SEGMENT

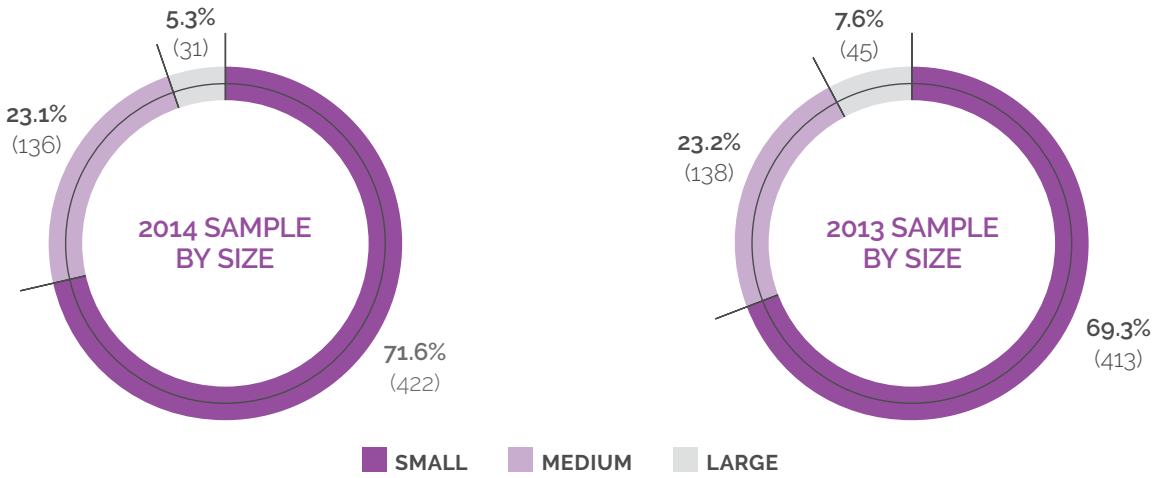


FIGURE 16: COMPARISON OF 2013 AND 2014 REVENUE BY FUNCTIONAL SEGMENT

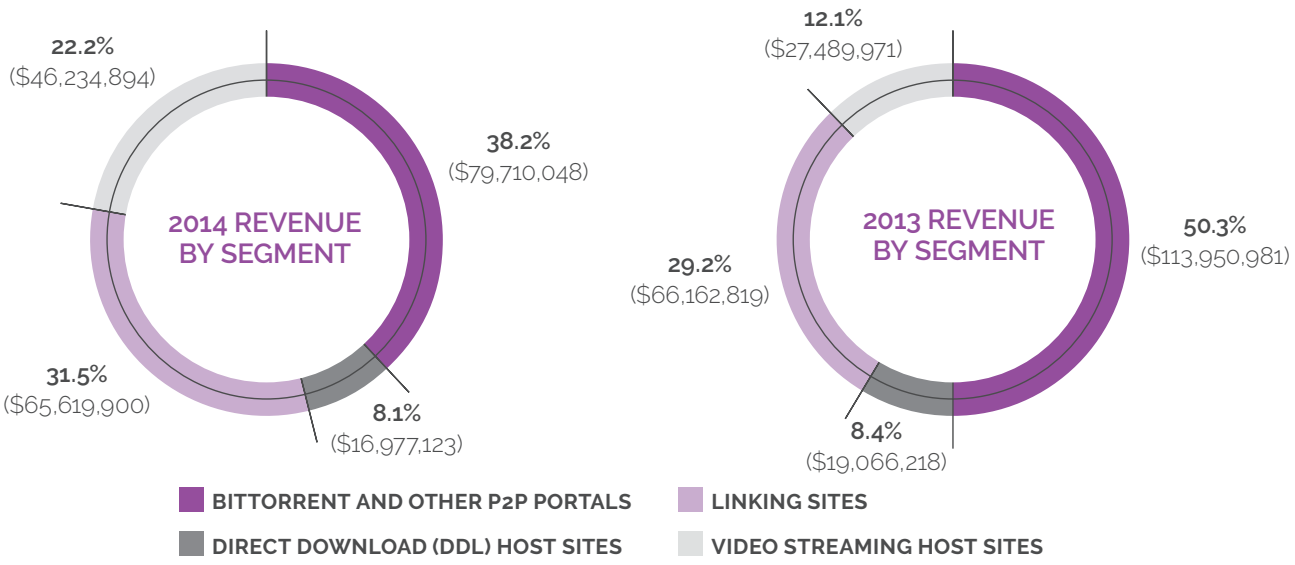
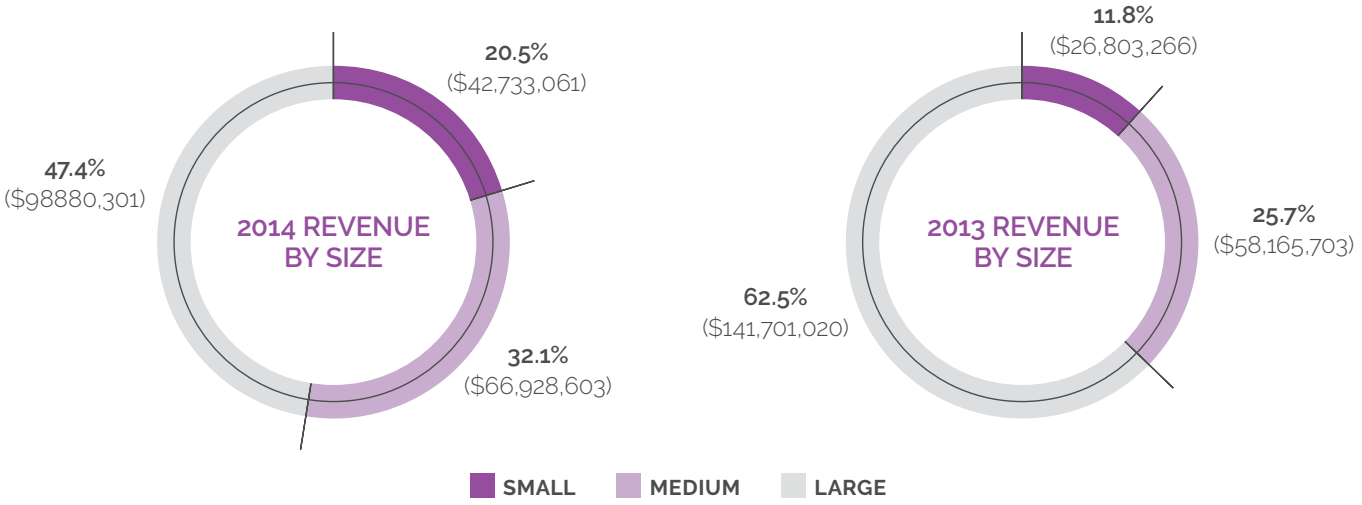


FIGURE 17: COMPARISON OF 2013 AND 2014 REVENUE BY SITE SIZE



APPENDIX C: PAGE VIEWS AND UNIQUE VISITORS

TABLE 8: YEAR-TO-YEAR COMPARISON OF PAGE VIEWS AND UNIQUE VISITORS BY FUNCTIONAL AND SIZE SEGMENT

	MONTHLY AVERAGE UNIQUE VISITORS (000)			MONTHLY AVERAGE PAGE VIEWS (MM)		
	GMGB1	GMGB2	CHANGE	GMGB1	GMGB2	CHANGE
BITTORRENT AND OTHER P2P PORTALS	**2,517.4**	**1,761.4**	**-30.0%**	**52.5**	**31.7**	**-39.7%**
SMALL	296.2	303.7	2.5%	7.7	6.2	-19.1%
MEDIUM	2,450.6	2,265.5	-7.6%	38.2	38.3	0.4%
LARGE	16,449.0	18,742.5	13.9%	364.9	339.3	-7.0%
DIRECT DOWNLOAD (DDL) HOST SITES	**2,604.7**	**1,988.2**	**-23.7%**	**29.4**	**27.0**	**-8.4%**
SMALL	348.5	313.3	-10.1%	3.9	4.0	4.1%
MEDIUM	2,239.9	2,138.1	-4.5%	29.9	38.1	27.4%
LARGE	18,583.5	12,458.2	-33.0%	190.1	149.5	-21.4%
LINKING SITES	**709.3**	**682.1**	**-3.8%**	**13.0**	**12.0**	**-8.0%**
SMALL	210.3	246.3	17.1%	4.2	5.2	24.9%
MEDIUM	2,207.8	1,949.6	-11.7%	36.9	27.8	-24.7%
LARGE	8,686.4	7,623.6	-12.2%	169.2	149.8	-11.5%
VIDEO STREAMING HOST SITES	**2,256.9**	**1,425.6**	**-36.8%**	**33.4**	**22.2**	**-33.7%**
SMALL	399.3	405.9	1.7%	5.6	6.7	17.8%
MEDIUM	2,075.3	2,203.2	6.2%	24.9	22.3	-10.4%
LARGE	6,782.5	6,714.9	-1.0%	111.3	161.1	44.8%

APPENDIX D: SITES STUDIED

Note: Sites marked with an asterisk were no longer active as of January 2014, but were active during Q3 2013. After completing the research for the Digital Citizens Alliance report "Good Money Gone Bad: Digital Thieves and The Hijacking of the Online Ad Business," MediaLink's researchers revisited content theft sites where they found ads from premium and other legitimate brands. The screenshots provide real examples of how the online advertising ecosystem is serving legitimate brands on content theft sites.

BITTORRENT AND OTHER P2P PORTALS

LARGE

extratorrent.cc
fast-torrent.ru
kickass.to
rutor.org
rutracker.org
tfile.me
torrentino.com
torrentz.eu

MEDIUM

1337x.to
elitetorrent.net
h33t.to
ilcorsaronero.info
isohunt.to
jptorrent.org
katproxy.com
katushka.net
kickassunblock.net
kinozal.tv
limetorrents.com
mejortorrent.com
monova.org
nowfilms.ru
omgtorrent.com
online-freebee.ru
rarbg.com
seedpeer.me
t411.me
tnttorrent.info
torrent.cd
torrentbutler.eu
torrentdownloads.me
torrentfunk.com
torrent-games.net
torrenthound.com
torrentino.ru
torrentom.com
torrentor.net
torrentreactor.net
torrents.net
torrentz.pro
vitorrent.org
yify-torrents.com
yourbittorrent.com
yts.re

SMALL

10torrent.net
1337x.org
ahashare.com
baixartorrent.net
bigtorrent.org
bigtracker.org
bit2bit.org
bitnova.info
bitreactor.to
bit-torrent.bz
bt-chat.com
btdigg.org
btmon.com
cztorrent.net
darktorrent.pl
extorrent.net
extradvdrip.com
extratorrent.ee
extratorrent.to
extratorrentlive.com
fileking.pl
firebit.org
free-torrents.org
fulldls.com
goldenshara.com
hdreactor.org
houndmirror.com
jarochos.net
kinokubik.com
kino-zal.tv
lien-torrent.com
limetorrents.net
malaysiabay.org
megashara.com
megatorrents.org
mejorenvo.com
newtorrents.info
nowtorrents.com
opensharing.org
ourrelease.org
picktorrent.com
pirateproxy.nl
polskie-torrenty.pl
pslan.com
psychocydd.co.uk
queentorrent.com
rapidzona.com
rustorka.com
rustorrents.org
rus-torrents.ru
rutracker.ru
sharethefiles.com
silvertorrent.org
simplecd.me
smartorrent.com
sparkmovies.com
streamzone.org
subtorrents.com
tapochek.net
tfile.org
thetorrent.org
torentilo.com
torrent.by
torrent.to
torrentazos.com
torrentdownloadz.com
torrentexpress.net
torrentfilms.net
torrent-finder.info
torrentfrancais.net
torrent-free.ru
torrentkereso.hu
torrentline.net
torrentman.com
torrento.net
torrentproject.com
torrentr.eu
torrentroom.com
torrentsdownload.org
torrent-shara.net
torrentszona.com
torrentz.me
torrentz.to
torrentzap.com
torrindex.info
torrnado.ru
torrtilla.ru
unionpeer.org
utorrents.org
vertor.com
x-torrents.org
zlotracker.org

LINKING SITES

LARGE

bobfilm.net
filmifullizle.com
free-tv-video-online.me
megashare.info
movie4k.to
watchseries.lt

MEDIUM

1kinobig.ru
argentinawarez.com
burning-seri.es
cinetube.es
cokeandpopcorn.ch
come.in
compucalitv.com
couchtuner.eu
cucirca.eu
dardarkom.com
desirulez.net
desitvforum.net
divxonline.info
divxplanet.com
dpstream.net
ekino.tv
eqla3.com
filmix.net
ganool.com
identi.li
kinobar.net
kino-rex.com
kinox.to
kkiste.to
klipzona.net
libertyland.tv
mazika2day.com
myegy.com
opensubtitles.org
peliculasyonkis.com
primewire.ag
seedoff.net
streamiz-filmze.com
tubeplus.me
urgrove.com
video.az
vn-zoom.com
watchfreemovies.ch
watchseries.ag
watchtvseries.to
zmovie.tw

SMALL

1channelmovie.com
1divx.info
300mblinks.com
3dl.tv
3gpfilm.org
3gpmobilemovies.com
5fantastic.pl
720pmkv.com
990.ro
9divx.com
addic7ed.com
adocine.net
alive-ua.com
allcandl.org
allyoulike.com
baixandofacil.com
baixardegraca.com.br
baixeadrenalina.com
baixeturbo.org
bajui.com
binmovie.org
bochinchewarez.com
btarena.org
cinemaindo.net
cinemay.com
cognitivefiles.com
coolmoviezone.com
couchtuner.me
cwer.ws
dacho.co.il
darkmachine.pl
darmowefilmy.eu
dasolo.info
desicorner.net
directoriow.com
direkizlehd.com
divxatope.com
downloadarquivo.com
downtr.co
downtwarez.com
dpstream.pw
dpstreaming.fr
dvdripfilms.com
egybest.com
egyup.com
emule-island.ru
entertainmenthitz.net
epidemz.net
ergor.org
esdvx.com
estrenosgo.com
exclusivitees.eu
excluzive.net
exsite.pl
extreme-down.net
fdmovie.com
fifopartage.tv
filecatch.com
filediva.com
fileflix.biz
filegaga.com
filenewz.com
fileslinx.com
filespart.com
fileszona.com
filetram.com
filmlinks4u.net
filmsenzalimiti.co
filmvf.net
filmy-lektor.pl
free-filmy.ru
freerutor.com
free-telechargement.org
french-movies.net
fullepisode.info
fullmovie-kolkata.com
fullpelis.com
fullsharez.com
fzmovies.net
geektv.ch
gingle.in
gnula.nu
hatemtai.com
hdfilm-online.com
hdkinoklub.ru
hdpicture.ru
hd-world.org
hinditvlinks4u.ch
hnmovies.me
homekino.kz
hotfilesearch.com
ikinokz.net
ilefilms.com
itvmovie.eu
iwatchonline.to
kickassmovies.org
kinobaza.tv
kino-dom.tv
kinodoma.net
kinogidrogen.com
kinohd.net
kinolive.co
kinosik.pl
kinoxa-x.ru
m5zn.com
majaa.net
mamega.com
mamzouka.com
mega-exclue.com
mega-search.me
megashare.ca
mes-ddl.com
micromkv.com
mobilesmovie.in
moova.ru
mopvideo.com
movie2k.tv
movie4u.org
movie8k.to
moviearena.org
movie-blog.org
moviedetector.com
moviesmobile.net
moviesnhacks.com
moviesnow.co
moviz.net
neomaks.ru
newpct.com
newpct1.com
nizaika.ru
obnovi.com
oneclickwatch.org
onlinemix.ru
ourphorum.com

peb.pl
peliculas4.tv
pirat.ca
pordescargadirecta.com
potorentam.com
powerddl.com
proc.com.ua
programasfull.com
ps3iso.com
raidrush.ws
rapid4me.com
rapide-ddl.com
rapidfiledownload.com
rapidmoviez.com
rapidok.com
rlsbb.com
rpds-download.net
ru-admin.net
rus-media.org
serialeonline.pl
serialnet.pl
seriecanal.com
seriesforever.net
shaanig.com
skymovies.in
speedlounge.in
stepashka.com
stream-vostfr.net
subom.net
subs4free.com
tehparadox.com
thedarewall.com
tnt24.info
topanalyse.com
top-film.net
ttmeiju.com
tuserie.com
tvcric.com
tv-release.net
tvshow7.eu
uakino.net
ultra-vid.com
unlimstream.com
usabit.com
usenet-crawler.com
vcdq.com
vidics.ch
vpsite.ru
warcenter.cz
warezturkey.net
watch-free-movie-online.net
watchfullepisode.com
watchmovies.to
watchmoviesonline.mobi
watchonlineseries.eu
watchseries.biz
watchtvseries.ch
wawacity.su
world4ufree.com
worldfree4u.com
worldfree4u.com.co
za-friko.com
zpeliculas.com
zzstream.li

VIDEO STREAMING HOST SITES

LARGE

baskino.com
bigcinema.tv
chomikuj.pl
ex.ua
filmifullizle.com
seasonvar.ru
ziddu.com

MEDIUM

allmyvideos.net
amovies.tv
arabseed.com
dpstream.net
dream-film.net
faststream.in
filmenoi.ru
filmpertutti.eu
flashx.tv
kinobanda.net
kinokrad.net
kinoman.tv
kinomoov.net
kinoprosmotr.net
kinostok.tv
moiserialy.net
movierulz.com
movpod.in
movreel.com
movshare.net
movzap.com
nosvideo.com
peliculaschingonas.org
peliculasmas.com
pelis24.com
played.to
tushkan.net
veoh.com
verseriesynovelas.com
vidbull.com
videobam.com
videoweed.es
watch32.com
zalukaj.tv
zumvo.com

SMALL

1channel.ch
3dplayer.pl
alekino.tv
allserials.tv
cinemavf.net
cinemay.com
dizihdtv.net
dpstream.tv
dpstreaming.org
efilmy.net
fifostream.tv
film4ik.ru
film-en-entier.com
filmix-online.net
filmochki.ru
filmodrom.net
films-online.pl
films-online.su
freezee.ru
gofilm.pl
iitv.info
intv.ru
kino-action.ru
kino-az.net
kinoclips.net
kinohome.net
kinokontakt.ru
kinolot.com
kinolubim.ru
krasview.ru
linecinema.org
lovekino.tv
minizal.net
mopvideo.com
movieberry.com
mytv.kz
nontonmovie.com
novamov.com
nowfilm.net
nzbmovieseeker.com
oko-kino.ru
open-cinema.ru
playtube.pl
pollystreaming.com
purevid.com
seans24.pl
series-cravings.tv
smotri-filmu.ru
smotrim-serial.com
swefilmer.com
the-cinema.ru
tubemotion.com
uploadc.com
vidbux.com
videozal.net
vodly.to
watch-tvseries.net
webteizle.org
yify.tv
zachowajto.pl
zajefajna.com
zalukaj.to
zserial.net

DIRECT DOWNLOAD (DDL) HOST SITES

LARGE

4shared.com
bitshare.com
depositfiles.com
dfiles.ru
letitbit.net
rapidgator.net
sendspace.com
turbobit.net
uploadable.ch
uptobox.com
zippyshare.com

MEDIUM

180upload.com
1fichier.com
billionuploads.com
datafilehost.com
download-genius.com
eyny.com
filefactory.com
filenuke.com
filepost.com
filerio.in
fshare.vn
ge.tt
hugefiles.net
nowvideo.ch
sharebeast.com
share-online.biz
solidfiles.com
thefile.me
tusfiles.net
uloz.to
ulozto.net
uploading.com
videowood.tv
xvidstage.com
yunfile.com

SMALL

4upfiles.com
akafile.com
asfile.com
boxca.com
brupload.net
crocko.com
data.hu
directmirror.com
easydownloadnow.com
euroshare.eu
exoshare.com
expressleech.com
fastshare.cz
file4go.com
filecondo.com
filedropper.com
fileflyer.com
filenuke.net
fileparadox.in
fileplaneta.com
filesflash.com
filevice.com
gigasize.com
hellupload.com
hitfile.net
hostingbulk.com
howfile.com
hulkload.com
jheberg.net
jumbofilebox.com
jumbofiles.org
junocloud.me
keep2share.cc
kingfiles.net
load.to
megashares.com
megavideoz.eu
mirrorupload.net
muchshare.net
multiup.org
novafile.com
nowdownload.ch
nowvideo.co
project-free-upload.com
queenshare.com
rapidfileshare.net
rghost.net
rodfile.com
rosharing.com
sakurafile.com
sanshare.com
sendfile.su
sendmyway.com
sendspace.pl
sharerepo.com
sharingmaster.com
speedshare.eu
speedvideo.net
speedyshare.com
stiahni.si
turo-bit.net
unlimitzone.com
uplea.com
uploadbaz.com
uploadbb.co
uploadboy.com
uploadhero.co
uploadscenter.com
uppit.com
vidplay.net
vip-file.com

APPENDIX E: PREMIUM BRANDS APPEARING ON SAMPLE SITES

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

Ally Bank
Amazon.com
American Heart Association
Anthem Blue Cross
Baidu
Best Buy
Bing
Bitstream
BMW
Booking.com
Bose
Bridgeport University
Brooks Brothers
Canon
Capital One
Chase
Chelsea Row
Citibank
Citrix
Consumer Reports
Crate & Barrel
Crest
DeVry University
Digital Entertainment World
DirecTV
eBay
Eddie Bauer
eFax
Emblem Health
EMC
Estee Lauder
Esurance
Ethan Allen
Facebook
Fairfield University
Fan Duel
Fiat
FilmOn.com
Firstmediahub.com
Ford
Full Sail University.
Geico
GigaOm Research
Glad
Go Daddy
Google
Hartford Courant
Helzberg Diamonds
Honda
Hotel Indigo
HP
Hulu
If/Then (Broadway Musical)
Incapsula
ING Bank
iStockphoto (via Solve Media)
J Brand
Jeep
Join.Me
Jones Sausage
Kaltura
Kia
Kmart
Lego
Lenovo
LG
LifeLock
L.L. Bean
L'Oreal
Macy's
MapQuest
Marie Callender's
Marriott
Martha Stewart Living
Mazda
McCormick
Microsoft
Mini Cooper
MoneyGram
Mountain Dew
Mucinex
Myspace
Nexus 6
Nike
Nissan
Office 365
Office Depot
Optimum Online
Oracle
Orbitz
Overstock.com
P.F.Chang's
Pandora
PayPal
PCMag
Peugeot
Polk
Port Adriana
Publisher's Clearinghouse
Quaker Oats
Quibids
Red Bull
Retail Next
Rite Aid
Roku
Salesforce
Sallie Mae
SAS
Save The Children
Sears
Shakira
SLS Las Vegas Hotel
Snapfish
Solve Media
Spiceworks
Staples
Target
The New York Times
Tide
Time Warner Cable
T-Mobile
Toyota
TruTV
Verizon
Vevo
Volkswagen
Vonage
Webster Bank
Weebly
Zales
Zappos

APPENDIX F: AD NETWORKS SERVING CONTENT THEFT SITES

Working with Veri-Site, MediaLink was able to determine ad networks that supplied content thieves with the advertisements on the sites. This data is based on a Feb. 24, 2015 snapshot of the sites. Researchers identified 179 ad networks and exchanges serving the sites. While many of those networks likely have no qualms about servicing the content theft industry, others include the top ad tech companies in the world. Many of those have committed to battling content theft, a commitment made more difficult by the sites' cyclical nature and fraudulent attempts to conceal their true identities by masquerading as legitimate publishers.

Here are the networks and exchanges that appear on double-digit numbers of sites.

AD NETWORK	SITES
doubleclick.net	109
adcash.com	63
propellerads.com	53
openx.net	43
recreativ.ru	38
directrev.com	36
marketgid.com	34
appnexus.com	34
advmaker.ru	29
adlabs.ru	25
advertising.com	24
pubdirecte.com	22
adap.tv	21
popads.net	21
rightmedia.com	19
epom.com	17
adk2.com	16
exoclick.com	14
xtendmedia.com	13
infolinks.com	12
directadvert.ru	11
revenuehits.com	11
adnxs.com	11
rubiconproject.com	10
matomymedia.com	10
adriver.ru	10
zedo.com	10

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Digital Citizens Alliance greatly appreciates the effort and care that MediaLink and its partners have put into this project. In addition to MediaLink's 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 www.verisiteglobal.com.

→ **DoubleVerify**, the proven market innovator with the 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.

→ **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.

→ **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.

→ **Incopro**, or Intelligent Content Protection, is a London-based consultancy dedicated to anti-piracy services. Incopro's market-leading service is designed to meet the requirements of prestigious IP owners who use Incopro to secure an innovative and intelligent approach to enforcement. Their unique analysis and clustering technology delivers a near real-time view of the infringing environment, ensuring that clients can make informed decisions, take targeted action and shape your ongoing strategy.