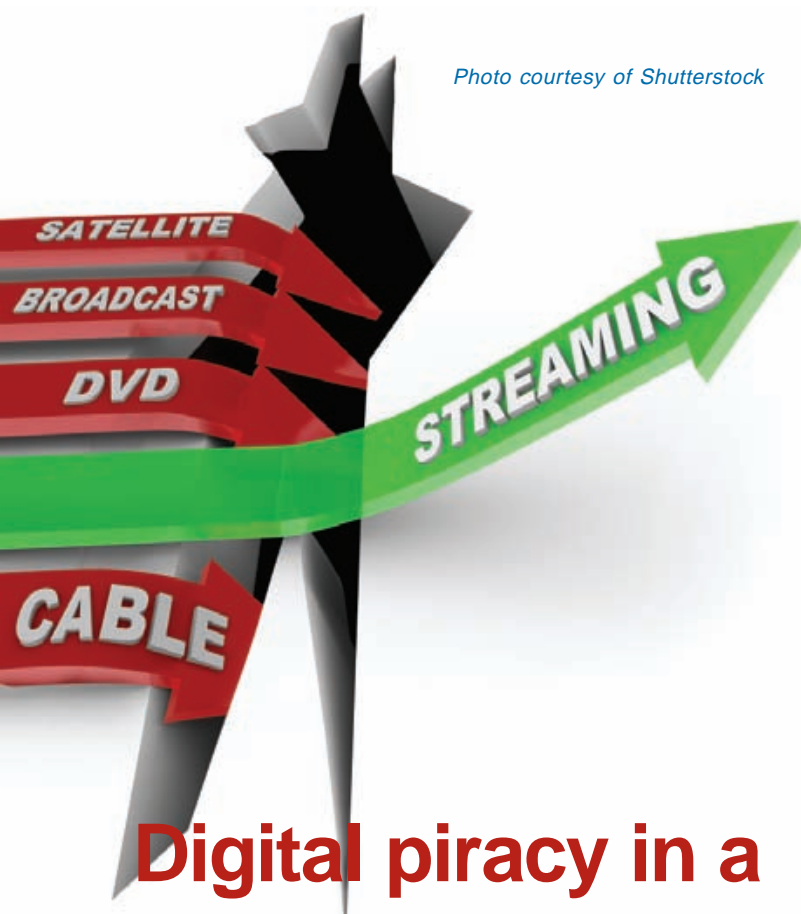


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Digital piracy in a lockdown world

Digital piracy has always been a problem for the broadcast sector, with illegal copies of films, series, music, and sports being shared online with increasing frequency. With the onset of the coronavirus pandemic, instances of piracy have exploded as more people than ever have more free time to fill.

Amy Saunders, Editor, Satellite Evolution Group

The broadcast sector is certainly looking rosy right now!

Often considered a safe mainstay for satellite capacity leasing with steady market revenues, the COVID-19 pandemic of this year has seen a sudden boom in the number of viewers across the globe. With millions of people in Europe, the UK, Asia, and the Americas on lockdown, many unable to work or on furlough, consumers have got a whole heap of time to fill on their hands. Of course, some are getting on with long overdue home improvements, while others are enjoying more time spent on their hobbies. It's inevitable though that many of those people stuck inside will be spending a great deal more time, consuming content.

Even with cinemas, theatres and other venues closed for the foreseeable, there are plenty of options when it comes to content consumption, including traditional linear broadcast TV, DVD/VHS, modern Over The Top (OTT) content providers

such as Hulu and Netflix, as well as Video on Demand (VoD) applications like BBC iPlayer and other catchup services. The latter two options – OTT and VoD – also come with their own inherent flexibility, with viewing possible on a wide range of smartphones, smart TVs, and tablets, at any time or location that suits the viewer. It's not hard to see why OTT and VoD services have skyrocketed in popularity in recent years, or indeed why these services have been hailed as a sanity-saver for many during the current crisis.

Opportunities among crisis

Back in January and before anyone fully realised the true level of threat and the resulting impact across so many business areas worldwide, Research and Markets released a report on OTT services market expectations from 2019-2024.

The group expected the global OTT services market size to grow at a CAGR of 14 percent from US\$81.6 billion in 2019 to US\$156.9 billion by 2024. Major growth factors highlighted in the report include high-speed Internet proliferation with the penetration of smart devices, which resulted in smartphone and tablet streaming services leading the OTT segment in 2019, as well as increased flexibility and ease-of-use. The VoD segment is expected to grow at the highest CAGR during the 2019-2024 period, largely driven by the flexibility, comfort and personalisation of content. Subscription-based OTT services are envisaged to continue to show strong growth from an already impressive base of more than 158 million paid subscriptions in 190 countries amongst Hulu, Amazon, and Netflix. Regionally, the Asia-Pacific is expected to show the greatest CAGR over 2019-2024 as high-speed broadband and smart devices become ever-more common.

New market entrants Disney Plus and Apple Plus (both launched November 2019) were expected to have a big negative effect on Netflix, however, the OTT giant has proved itself unshakable. In the US alone, Netflix has more than 60 million subscribers compared with 128 million households; and of the US households with OTT subscription services, 87 percent have a Netflix subscription, according to Forbes. While the company's success is often attributed to its global stature (most of the hundreds of OTT providers are regional), in recent months Netflix has positively boomed off the back of increased numbers of bored viewers isolated at home, increasing its subscriber numbers by 16 million in the first three months of the year (it's greatest quarterly growth since launch). Moreover, with cinemas shut down for the foreseeable and all filming halted, production studios such as Paramount have opted to release their new content directly via Netflix, appealing further to new would-be subscribers.

Opportunists

As OTT and VoD consumers have grown drastically in recent months, so too has piracy. In the olden days, content piracy was limited to the blatant copying of physical storage mediums like VHS, DVDs, game discs and CDs. With the widespread roll-out of broadband, piracy became more sophisticated, and anyone with the inclination could download content off the Internet without ever having to handle the physical goods.

Nowadays, the piracy landscape is changing as content consumption shifts away from physical DVDs and storage

devices to streamed content via OTT and VoD. Global revenue loss due to piracy is huge, and content rightsholders are suffering due to illegal use. A constant battle rages on as rights owners wage war to keep their content secure, while pirates find ever more advanced ways of bypassing security measures. According to Network equipment company Sandvine, piracy is a particular problem in the Middle East and North Africa (MENA) region, where 23 percent of Internet users have subscribed to a pirate IPTV services, compared with 5.8 percent in Europe and 6.9 percent in the US.

Since the start of the coronavirus pandemic, demand for pirate content has ballooned to an all-time high. Digital piracy authority MUSO reports that by the last week of March, film piracy had increased month-on-month by 41 percent in the US, 43 percent in the UK, 50 percent in Spain, 62 percent in India, and 66 percent in Italy. Interestingly, when health officials identified the coronavirus on 7 January, demand for thriller movie 'Contagion' had increased to 546 visits; by 30 January, visits had increased to 30,418 for that day alone. Throughout the month of February, a whopping 11.2 billion visits to pirate websites were recorded by MUSO.

Meanwhile, OTT and VoD content distributors are also seeing increasing instances of credential sharing – the sharing of log-in details for subscription services – amongst friends and family in recent months. Indeed, a OnePoll study reported that as of March, 42 percent of adults were sharing account details, up from 28 percent in 2019. Whether such credential sharing counts as piracy in the strictest sense – it probably does, or at least infringes on the user agreement – the ability to log in to OTT sites such as Netflix from anywhere and on any device means that it is incredibly hard to police.

With the financial losses felt widely and deeply throughout the broadcast sector, it should come as no surprise at all that people are desperate to get a handle on it. Potential solutions to tackling piracy include sending takedown notices to third parties which enable piracy; investigating and taking action against pirates; working with ISPs to block access to

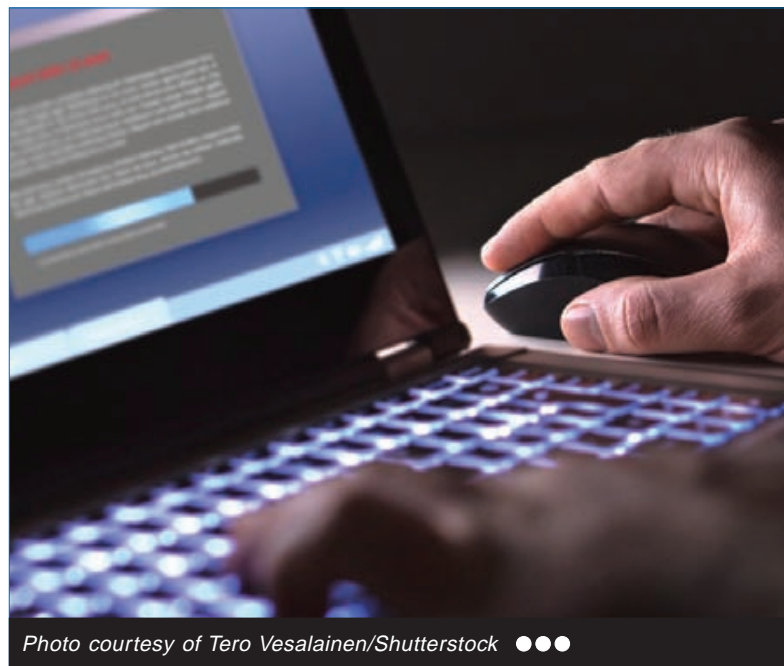


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pirate websites; and using watermarking technologies to find and end subscriptions used by pirates.

Digital watermarking – the solution?

Watermarking is one of the hottest solutions broadcasters and OTT providers are increasingly utilising to keep ahead of the threat of piracy.

The solution sees a digital watermark covertly embedded in a noise-tolerant signal – this might be audio, video, or image data – to identify copyright ownership. This type of watermarking is used to verify the authenticity or integrity of the carrier signal or to show the identity of its owners. One of the applications of digital watermarking is source tracking; a

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watermark is embedded into a digital signal at each point of distribution, and if a copy is found later, then the watermark may be retrieved from the copy and the source of the distribution identified.

The technique is clearly invaluable in the fight against piracy. A whole host of companies now offer digital watermarking solution covering the entire broadcast sector, with new ever more advanced offerings launched frequently.

April saw NAGRA launch NexGuard Streaming, a streaming watermarking solution for OTT services integrated with Akamai, an intelligent edge platform for securing and delivering digital experiences.

The integrated solution leverages Akamai's edge platform to bring a new level of anti-piracy enforcement and revenue protection to rights holders and content owners which enables them to stop pirated video streams of live sports and premium VOD content in real-time and increase the traceability of those premium assets.

NexGuard Streaming enables content owners and pay-TV operators to actively fight commercial piracy, by identifying the source of a content leak within minutes and allowing targeted anti-piracy actions to stop illicit content re-streaming as a result. The solution embeds a session-specific forensic watermark for both premium OTT VOD and OTT live channels. It works with any OTT streaming device and client application,

removing the need for any device-side integration. It scales easily to millions of concurrent sessions with CDNcaching and works with all common streaming formats and DRMs.

In the same month, Verimatrix also announced a partnership with Akamai to offer global enterprise server-side watermarking capabilities. By using Verimatrix server-side Watermarking pre-integrated with Akamai's intelligent edge platform, Akamai customers can take advantage of a highly efficient, powerful approach to ensure that their premium video content stays protected.

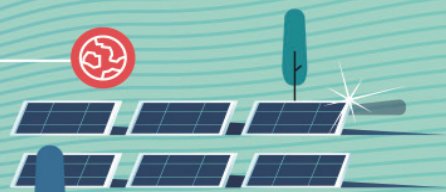
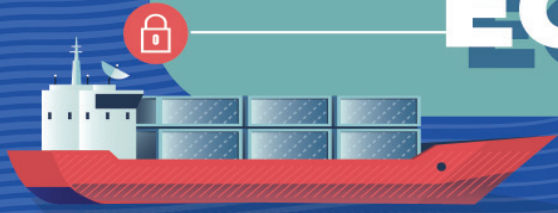
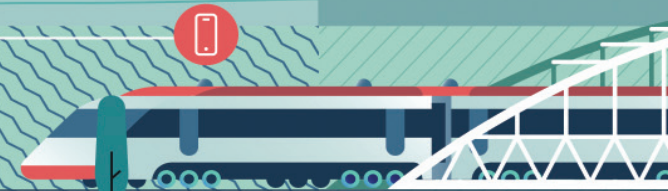
Verimatrix Watermarking consists of session-based, user-specific tracking and source identification, which allows operators to trace sources of pirated content in real time. Robust against various attack types, the solution includes compression, recording/capturing, re-streaming, collision, and geometric manipulation. Akamai customers can enable the StreamMark server-side version of the Verimatrix Watermarking solution to embed robust, secure, and imperceptible watermarks in digital content before delivery to each client device. The solution is pre-integrated with Akamai workflows to protect unicast OTT delivery by uniquely marking individual sessions without requiring client device integration. It protects Akamai customers' valuable content against re-broadcasting threats and subscription fraud in real time.



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