

Dean Jansen

Participatory Culture Foundation

Miro is a free, open-source platform for Internet TV. Ideal for high-definition video, it features an open content guide with over 5,000 channels that can be freely subscribed to. The application boasts nearly 500,000 users and has been downloaded more than three million times in the last year.

Miro has been compared to Tivo, Firefox and iTunes; it functions as both a video library and a very intuitive system for subscribing to and watching internet video channels. Additionally, Miro can search and save videos from video-sharing sites, such as YouTube and Daily Motion.

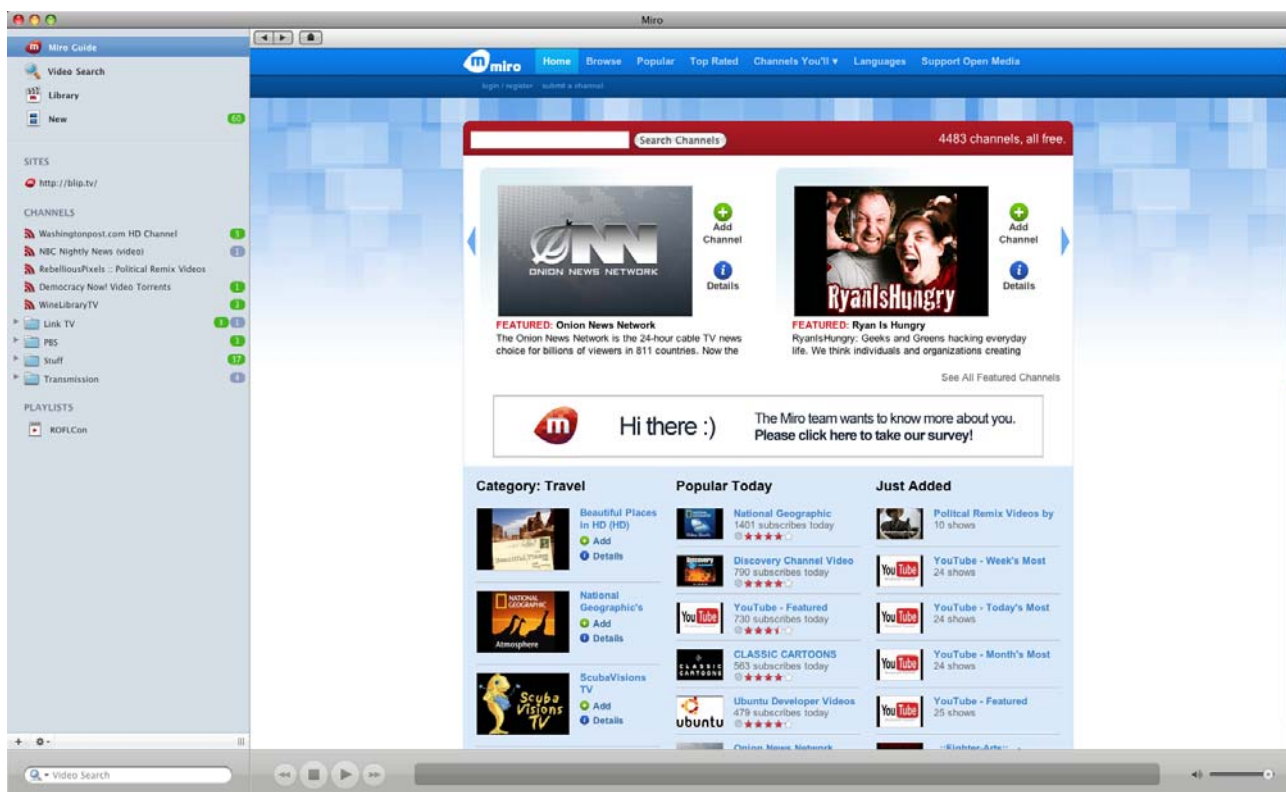
For public broadcasters, Miro (<http://getmiro.com>) offers a distribution platform that is perfect for moving high-quality, long-form video to a large, non-technical audience. The user-friendly integration of *BitTorrent* in Miro lets publishers leverage the scalability and low cost of P2P distribution without confusing non-technical users. Public broadcasters can create custom versions of Miro that feature their own content and their own brand. Furthermore, Miro is open source and cross-platform, leaving broadcasters and their audience independent of any proprietary software (Adobe Flash, Apple iTunes) or operating system (Miro can run on Mac, Windows and Linux).

Miro's user base and content guide are both expanding rapidly. The application itself is on a tight development curve, releasing major updates and improvements five to seven times per year. Miro is being developed by the Participatory Culture Foundation (PCF), a US-based 501c3 non-profit organization. The PCF's mission is to make television more open and democratic as it moves online.

Thousands of channels ... exciting partnerships

Miro has a content guide that is integrated into the application itself, which is also accessible from the web browser (<http://miroguide.com>). The guide is home to more than 4,500 RSS video channels on every topic from space telescopes, to French food, to sketch comedy. All the channels are free to subscribe to, and many of them are in crisp high-definition. Because the guide is open to nearly all content (pornographic content and unapproved copyrighted material withstanding), it is constantly expanding.

The Miro Guide aggregates content from a massive variety of professional, semi-professional, and amateur video producers. Public broadcasters such as PBS, NRK, NDR and Deutsche Welle sit side-by-side with content from commercial players such as HBO, Discovery Channel, CBS, NBC, ABC and many more. Miro also showcases material from new internet video networks such as



Typical Miro content guide

Revision3 and Next New Networks, which produce original programmes, such as *Dignation* and *Indy Mogul*. Also in the mix are amazing independent creators, such as Democracy Now!, plus countless individual and amateur producers.

Miro helps users find video they like using a star rating system coupled with a channel recommendation system. When users rate channels that they do or don't like, Miro can give recommendations based on how other users have rated similar channels. This helps users find the best channels to subscribe to, in light of having so many to pick from.

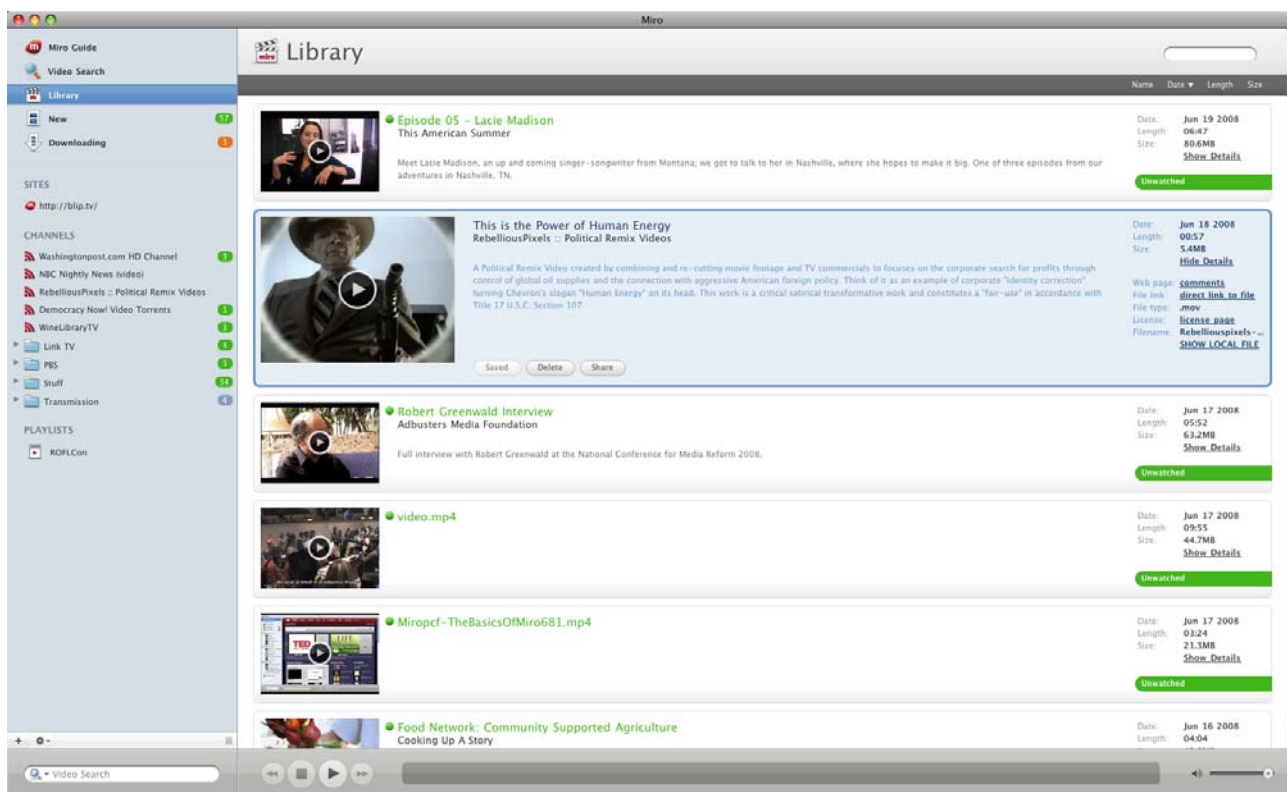
Additionally, Miro is completely open and is very resistant to gatekeeping. Because the RSS channels are an open standard, users can easily bring channels into the application from anywhere on the internet. This also means that a channel that works in Miro will work in any other application that can read standard RSS feeds. Furthermore, new channel guides (which are simply web pages) can easily be added to the Miro interface at any time. Miro is in a unique position to be the most neutral and open space for online video aggregation, which is exactly what viewers and broadcasters need.

Play anything + HD = happy viewers

Pretty much all video, whether it's on YouTube, blip.tv, or a creator's own website, is accessible using Miro. The two most common ways to interact with video are subscribing to channels (Media RSS feeds) or searching video-sharing sites.

Once an RSS channel has been added from a content guide or an external URL, the user has access to all the media already present in the channel, plus Miro will automatically download new videos, as they are released. After videos are watched, they are marked for automatic deletion and will be erased from the hard drive to free up space for new content, unless the user chooses otherwise.

Video searching is simple and, by default, spans a wide variety of sharing sites and hosting services, such as YouTube, Revver, and blip.tv. A single search will automatically bring in results from all services, and the user is able to choose which videos to download and save. Furthermore, the search query can be saved and added to the Miro sidebar alongside other channels – from then on,



Example of a user's library in Miro

whenever new videos on the search topic become available they will automatically be downloaded to the user's library.

With content coming from all directions, it's vital that Miro can play back nearly every format out there, and it does. So whether it's Flash video, Windows Media, QuickTime or something more esoteric, Miro can probably play it back. This is critically important from a usability standpoint, because no one likes to be told they need to download an extra component to view a video, or worse yet, to be barred from watching at all.

Because Miro downloads the files in advance, it is perfect for the highest definition video out there. High-definition goes hand-in-hand with long-form video – no one likes squinting at a tiny embedded video, but they don't mind leaning back for a nice full-screen HD experience. Miro can make this happen without jitter, over-pixelation or loss in quality (on a reasonably modern machine).

Cutting bandwidth bills while delivering HD video

Serving up high-definition video to hundreds of thousands of users isn't cheap, unless you're using peer-to-peer distribution. BitTorrent is an open protocol that distributes the bandwidth load amongst users, as opposed to having all viewers coming directly to the publisher. This means that massive files can be distributed to very large audiences at shockingly low cost.

BitTorrent has historically been a difficult to use technology, requiring external applications and separate video players. Miro has changed all that, and is quite the simplest way to consume media over BitTorrent. In fact, most users don't even know they're getting video over BitTorrent when they use Miro – the experience is nearly identical to the normal video-watching experience.

NRK's use of Miro and BitTorrent: a mini case-study

Norway's public broadcaster, NRK, saved thousands of dollars when they distributed their full-resolution high-definition series, *Nordkalotten 365* using Miro and BitTorrent. Although their viewers



Example of HD playback in Miro

were able to use alternative clients for downloading the series, NRK recommended Miro as the easiest and simplest way to subscribe to the show. As a result, they drew a massive audience and logged an estimated 90,000 full downloads in a two month period.

The 29-minute episodes were in full resolution HD, thus generating very heavy traffic yet, because they were being served via the BitTorrent protocol, the vast bulk of the bandwidth was shared amongst viewers. NRK's total bandwidth bill for the two-month / 90,000-download period was under \$300 total. Had NRK opted for direct downloads, the bill would have been closer to \$8,000 for the same amount of bandwidth.

Because the distribution was spread across thousands of users, which compounds the upload speed, NRK reported that viewers were getting incredibly short download times for the huge video files. This speed and ease of use, combined with the beautiful HD pictures, made the project a big win for NRK viewers. As a result of the positive experience, NRK has released subsequent series using Miro and BitTorrent. They are currently working to license even more of their content for open distribution over Miro.

Open platforms vs. closed gateways

Many networks and video services are fighting an intense and gritty battle – they all want to attract the largest viewing audience to their content, site or services. Furthermore, many of the players have chosen centralised websites and applications for their online video strategy, which creates the potential for gateways and control over the audience.

The stakes in “Open vs. Closed” are incredibly high. As we see with YouTube – which has a firm (and increasing) grip on the world's largest video-viewing audience – a single actor can dominate when there is no open foundation for content to live on. YouTube's success is mostly due to the sheer network effect of having millions of users watching and uploading video on a platform that doesn't interoperate particularly well with competing services.

Sites and services can be regarded as “closed platforms” in a variety of ways: from who is able to publish video on it, to how users share and access video – these attributes dictate how open a site is. Openness can be summed up as the degree of standards-based interoperability that a host maintains with external sites, services and players. Additionally, Adobe’s proprietary Flash player (the de-facto standard for viewing web video), further complicates the openness of a given web video solution.

The important point here is that as long as video is closed (read: less interoperable and less standard), viewers will naturally gravitate towards a small number of dominant video websites or services. This, in turn, provides an incentive for content creators to publish to these popular websites, which attracts even more viewers. This cycle is a symptom of having closed or proprietary systems, and these are most vulnerable to gatekeeping.

In a closed world, there are a relatively small number of big winners who control access to the majority of the consumers, something more like traditional television than the internet, as we know it today. As a result, those who don’t happen to have a controlling stake in the winning service(s) must make deals with the winners, in order to access the most substantial audience.

The choices broadcasters are making now, in terms of online content distribution, will have a real impact on the future of mass media. As long as openness prevails, audiences will be more accessible in a democratic and meritocratic fashion. Good content, as opposed to connections with whoever happens to control the winning video service(s), will become the basis for attracting viewing audiences.

Openness promotes variety and attracts viewers

The good news is that consumers love openness, and when given the choice they will flock to it. In the early 90s, consumers chose the open internet in favour of closed alternatives, such as CompuServe, Prodigy and AOL. This was largely because of the decentralisation; the variety and amount of content on the open internet vastly outweighed what the closed networks could offer. This same principle holds true for video, and Miro plays a key role in advancing the state of openness and interoperability of mass media as it moves online.

While gatekeeping won’t be an issue in a more open future, brand recognition and position in the marketplace will be. Being an early mover in the open video ecosystem will confer many benefits, including a head start in market-share, a competitive advantage in brand recognition and a quicker uptake in niche markets. One huge advantage is that open media generally spreads exponentially faster than its closed counterpart. Audiences can be reached more fluidly, and as a result your brand, content and messages can literally go further.

Miro is Open Source and promotes Open Standards

Miro is open source software, which means the underlying code used to build the program is available for anyone to view, use and modify. This is important for interoperability and customisation, because it makes the software much more flexible and viral. For example, if a hardware manufacturer wants to include Miro as software on a set-top box, he doesn’t need to ask for permission or make a bargain – he can just go ahead and make the alterations, improvements or extensions.

Open source software has been around for decades and is very mature; in fact, open source powers most of the servers that make up the internet. Additionally, a number of very successful, high profile projects, such as Firefox and Linux are open source.

In addition to being open source, Miro promotes open standards and interoperability. Every channel you see in Miro has adopted the RSS standard, and the larger Miro grows, the greater will be the pressure on video hosts to add the feature. Because RSS is an open standard, interoperability (without permission) can happen. It is precisely this openness and interoperability that makes the

internet such a vibrant, decentralised and exciting space. Furthermore, when media is enclosed in RSS, it becomes easier to index, search and discover.

The promise of Digital Rights Management

Digital Rights Management (DRM) is a form of digital lock meant to prescribe exactly how each consumer is able to access each file. The actual methods of control can vary greatly, from preventing copying and playing across different machines to automatic deletion after viewing. While DRM may sound like a great way to protect media online, it is actually terrible for the consumer and is ultimately a bad deal for the producer too.

A consumer who purchases media with DRM is getting an inferior product that will only be playable on compatible machines. Think of playable only on an iPod or Zune (Microsoft's iPod competitor), but never both, because the two companies have competing DRM schemes. It is exactly this lock-in with DRM that gets producers and content owners into trouble. When a media owner invests in a particular DRM platform, they become beholden to the owner of the technology (as do their customers). The music industry faced this problem with Apple and iTunes, and after realising the extent of Apple's influence, they began offering DRM-free music at places such as Amazon.com.

Another argument against DRM is that it doesn't work very well; for every protected piece of media, there are thousands of unprotected equivalents. DRM doesn't stop most pirates, who are already planning on downloading the non-DRM files. However, honest and paying customers are punished by DRM. Using the Apple iTunes store example: the buyer can ONLY listen to the music they bought on a very limited number of peripheral devices and computers. Those who download the same music illegally get a superior product that can be played on any type of mp3 player, on any computer, at a friend's house, etc. The iTunes example also holds true for video and other forms of media. DRM, while it may sound good, is really an anti-competitive, backwards technology that hurts content creators and consumers alike.

Miro is yours

When deciding how to distribute video online, certain broadcasters assume they face a build-it, or buy-it proposition. For instance, the BBC, when developing their custom iPlayer software, spent tens of millions of dollars to develop a proprietary player that only functioned on the Windows operating system, thus providing a poor user experience. In the end, the iPlayer flopped and the BBC had to spend even more money to reformulate their online video plan.

Building a website to provide access to a limited selection of content can also be risky, most notably when it doesn't interoperate with popular sites and services. Viewers will always gravitate towards sites and services where they can get more content; thus the potential for interoperability, aggregation and search indexing all become very important.



Dean Jansen is Outreach Director for the Participatory Culture Foundation. His work at PCF is very varied and includes: travelling, speaking, designing, project managing, blogging, advocating and fundraising among many other things.

Along with his work on Miro, Mr Jansen is a leader in the Free Culture movement, which is organized as grassroots chapters at universities across the USA and abroad. The mission of Free Culture is to spread awareness and create discourse around issues affecting our ability to create, repurpose, use and participate in digital culture and information. He is a core contributor and front-end designer for YouTomb.mit.edu, which is an MIT Free Culture project that scans YouTube for videos that have been taken down due to alleged copyright violation or other reasons.

Broadcasters turning to proprietary video distribution systems may find themselves locked into particular vendors who don't provide access to any of the underlying technology. With Miro, there is no possibility for lock-in and the potential flexibility is unlimited, since the code is freely available and modifiable by any person or organization. This open base is a big reason why Miro is so attractive to content owners that prefer to remain independent from big players like Apple, Google and Microsoft.

Miro can be customized

Miro offers simple co-branded versions of the software to broadcasters and other content creators. The custom player gives viewers the great experience of the original, plus it puts a strong focus on the partner's content and brand. A custom Miro player includes all of a partner's channels pre-subscribed, along with a custom channel guide, name and application icon.

Because the custom versions of Miro are built on the same base as the default software, they offer all the usual benefits: access to a huge open ecosystem of content, full-screen and HD playback, the ability to organize and search video from all over the internet, and so on. Additionally, custom versions of Miro will be automatically updated, right along with the vanilla software.

Who is partnered with Miro?

Miro has partnered with a number of players in both the commercial and non-commercial sectors. A large handful of public broadcasters, including PBS (USA), NDR (Germany), NRK (Norway) and Deutsche Welle (Germany), have already released or are currently negotiating co-branded players. Miro teamed up with the Technology, Entertainment and Design (TED) Conference to produce a custom version of the player that was handed out on USB thumb drives at the 2008 TED Conference in Monterey, California. Miro has also worked with Revision3, a new Venture Capital-funded internet TV network that produces fifteen original series, most of which are available in high-definition. The Revision3-branded player includes all of the Revision3 channels, a unique application icon and a totally customized content guide.

The Revision3 Player from Miro



Download the Revision3 Player from **miro**^m

We are happy to introduce the Revision3 Miro player. We've teamed up with our friends at Miro to create a desktop application that will deliver all of Revision3's great shows right to your desktop. Available for both Windows PCs and Mac, the Revision3 Miro Player comes pre-loaded with subscriptions to all of Revision3's shows. All you need to do is download and install and then you're ready to go!

Already have Miro? Subscribe to your favorite Revision3 shows here:

miro + Subscribe



DOWNLOAD
Player for Mac



DOWNLOAD
Player for Windows

Who makes Miro

The application is developed by the Participatory Culture Foundation (PCF), a 501c3 non-profit organization based in Worcester, Massachusetts, USA. The PCF's mission is to create a more decentralized and vibrant ecosystem for television as it moves online. The twelve-employee non-profit foundation is going head-to-head with big players such as Apple, Comcast and Joost. Each commercial player has its own vision for the future of online TV, and all of these competing visions

are far more closed and susceptible to gatekeeping and tolls. Miro takes some of what makes the internet truly democratic and open ... and translates it to easily-accessible online video.
