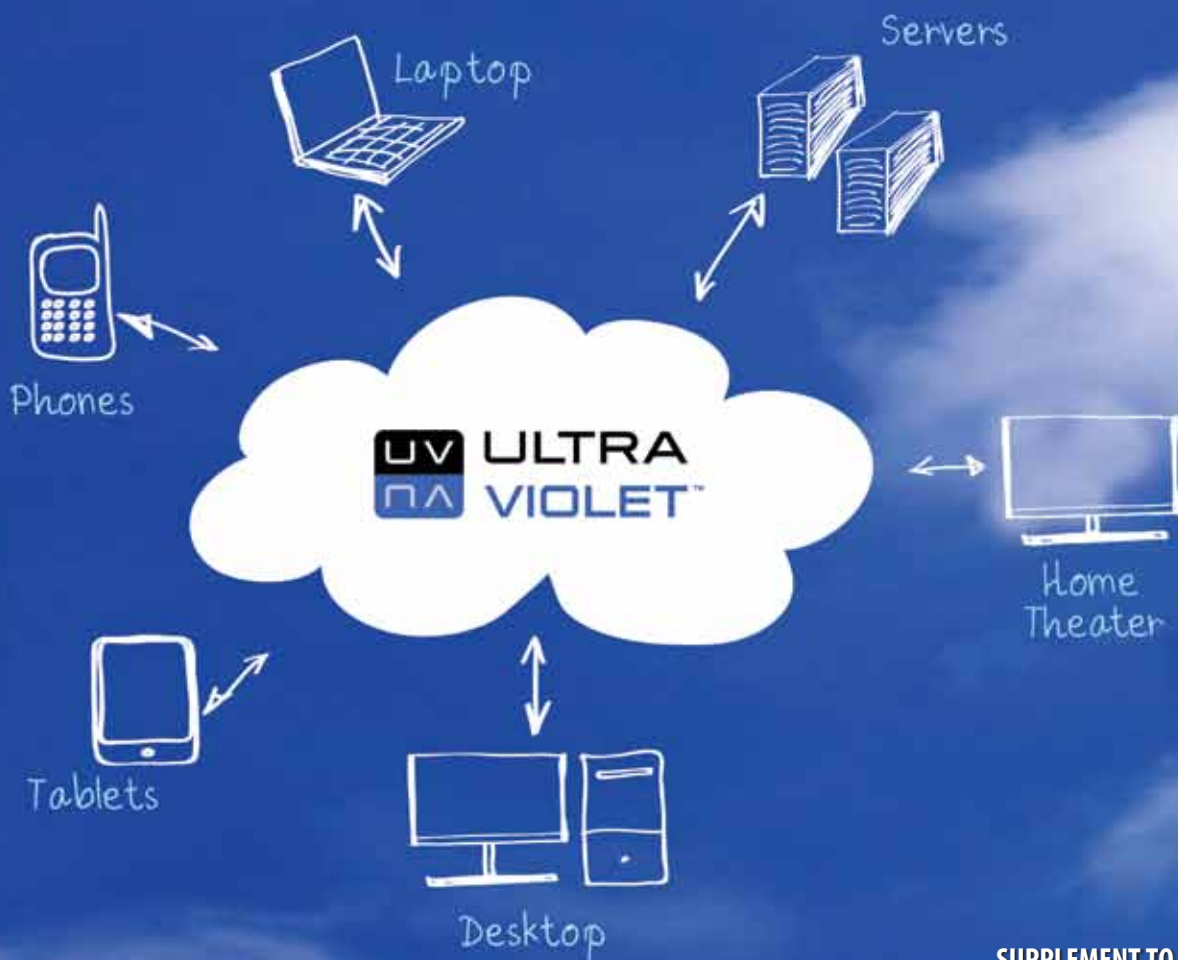


UltraViolet

Consumers' Bridge to the Digital Future



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Warner Home Video

Sony Pictures Home Entertainment

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DEG: The Digital Entertainment Group

Produced by *Home Media Magazine*



ULTRAVIOLET CONSUMERS' BRIDGE TO THE DIGITAL FUTURE

Executive Summary

The fall 2011 launch of UltraViolet, more than one observer has noted, was a “transformational” moment in the history of home entertainment. That’s because the concept is truly revolutionary in that it puts consumers firmly in the driver’s seat when it comes to bringing entertainment into the home — or watching it on the go.

UltraViolet is a new initiative — with solid backing from the major Hollywood studios, key retailers, consumer electronics manufacturers and various other product and service providers — that lets consumers access the rights to movies and other content in a digital locker in the cloud, whenever they choose, on whichever device they choose.

Buy it once, own it forever, and watch it over and over again in perpetuity on the family HDTV, on your computer, on your tablet or even on your smartphone.

It’s a bridge between the physical world — DVDs and Blu-ray Discs — and the digital world. For studios, it’s a way to revive home video sales by offering movie lovers more flexibility in how and where they access their content. For consumers, it’s a simple, cost-effective and convenient way to enjoy entertainment at home, at work or on the move. It also eliminates confusion caused by so many different distribution formats and platforms. No more losing movies downloaded from iTunes. No Redbox discs accidentally mailed back to Netflix.

Most of the major studios are including UltraViolet on upcoming releases. Consumers buy a title, either digitally or a physical Blu-ray or DVD, then activate a free UltraViolet account online and unlock access to a digital copy from the cloud, which holds it in permanent storage for instant access on a wide range of viewing devices.

Consumers also can apply UltraViolet technology to their existing disc libraries. Walmart, the

nation’s largest retailer, has announced that come April, customers can bring their Blu-ray Discs or DVDs into any of the giant retail chain’s more than 3,500 U.S. stores and an associate will help them gain access to a copy in the cloud for \$2 for an equal conversion for DVDs and Blu-ray Discs or \$5 for an upgrade from DVD to high-definition.

Each week, more than 100 million customers visit a Walmart store, representing nearly one-third the total U.S. population. And once they get a taste of how easy, simple and inexpensive it is to digitize their movie libraries, the thinking goes, they’ll be hooked, prompting them to buy physical media with instant UltraViolet capability in the future, as well as buy online via websites and apps when instant purchase and use is more convenient.

Other large retailers, including Best Buy, are expected to follow suit. Also, on the consumer electronics front, Samsung in March became the first major manufacturer to include this disc-to-digital capability on its new Blu-ray Disc players.

A variety of key industry partners are supporting UltraViolet. As it did with the launches of DVD and Blu-ray Disc, DEG: The Digital Entertainment Group, the industry consortium that promotes home entertainment products, has put its unified industry muscle behind UltraViolet. The DEG believes strongly in promoting UltraViolet as the best way to access, collect and enjoy digital entertainment. The studios collectively have come together under the umbrella of the DEG to work together to promote the promise of UltraViolet.

The DEG throughout the year is developing tools with a consistent consumer message to educate retail partners, inclusive of a comprehensive educational and marketing campaign, in addition to a multimillion-dollar advertising spend later this year.



JUST THE STATS

In the first five months since its launch, **1 million households** have become UltraViolet account holders and users, even with fewer than 100 titles available from only four studios to date. Research has shown that a significant segment of the population will continue to purchase content, especially if the value proposition of ownership takes advantage of what the Internet and today's digital devices can provide, like cross-platform interoperability, while addressing the shortcomings we've seen in the earliest stages of the digital market.

DECE-commissioned research* suggests that UltraViolet will give consumers an incentive to choose buying and owning more often when that they look for movies and "paid for" TV shows to watch at home or on the go. Research found that about 60% of consumers say they'd be likely to buy more often because of UltraViolet. Also, interest in UltraViolet is particularly high among high-value consumer segments: 18- to 34-year-olds, Blu-ray Disc users (buyers as well as renters), households with kids and iTunes users.

*August 2011, with more than 1,570 U.S. respondents

What Is UltraViolet?

UltraViolet is a digital rights authentication and cloud-based licensing system that lets consumers stream and download purchased content to multiple platforms and devices. It embodies the "buy once, play anywhere" approach that lets users store digital proof-of-purchases under one account and then play back that content anywhere, at any time, on any device, regardless of the original format or point of sale.

UltraViolet is backed by the more than 70 members of the Digital Entertainment Content Ecosystem (DECE) consortium, which includes movie studios, retailers, consumer electronics manufacturers, cable companies, ISPs, network hosting vendors, and other Internet systems and security vendors. Apple's iTunes is not integrated with the UltraViolet platform at this time, but Flixster and others support UltraViolet streaming and downloading on both the iPad and the iPhone, in addition to Windows, Mac OS and Android.

Consumers create a free UltraViolet account either through a participating UltraViolet service provider and through the UltraViolet website. Six household members are allowed per account. An UltraViolet account provides access to a digital rights locker where licenses for purchased content are stored and managed regardless of where this content was initially purchased. Account holders will be able to stream UltraViolet-enabled content most places they can connect to the Web. Consumers also will be able to use up to 12 UltraViolet-compatible media player apps or hardware devices and copy UltraViolet download files directly among them. In addition, consumers have the option to obtain a physical copy (disc or secure flash memory stick) when they've made an initial UltraViolet purchase for instant digital delivery.

Content also may be streamed over broadband services. Up to three streams can be simultaneously transmitted. Compatible devices include set-top boxes as well as Internet-enabled devices such as computers, game consoles, Blu-ray Disc

players, Internet TVs, tablets and smartphones.

UltraViolet doesn't actually store files. The *rights* for purchased content are stored in the cloud. UltraViolet coordinates and manages the rights for each account, but not the content itself. Content actually is stored in the cloud by UltraViolet-compatible retailers and streaming providers. By creating a digital-rights locker rather than a digital media storage locker, UltraViolet bypasses the cost of storage and bandwidth used when the media is accessed. In addition, by only managing the rights and licensing of content, UltraViolet insulates itself from future technological advances, allowing users to keep watching content they have purchased.

DECE members developed a Common File Format for downloads designed to play in all UltraViolet players and work with all DECE-approved DRM. The format is based on existing standards from MPEG, SMPTE and others, and originally was derived from the Microsoft Protected Interoperable File Format specification. Because every downloaded UltraViolet title arrives in this format, it will play on any UltraViolet-compatible media player app or device.

There are two profiles for files and players: standard-definition (SD) and high-definition (HD). An SD player will play only SD files. An HD player will play SD and HD files.

Much of the work done by DECE is being adopted by MPEG in updates to the MPEG-4 container format and as part of the MPEG Dynamic Adaptive Streaming over HTTP (DASH) format. Therefore, the Common File Format can be used in other systems and is expected to become broadly deployed.

UltraViolet files are not required to be encrypted, but they usually are. The files are encrypted using AES keys, which are then protected using each of the required DRM systems, with the DRM-specific information placed in the header. Both ISO scheme (PSSH/CENC) and IPMP frameworks are allowed.

UltraViolet selected five initial DRM



» ULTRAVIOLET DIGITAL LIBRARY

Your online library of movies and TV shows that lets you watch how, where and when you want



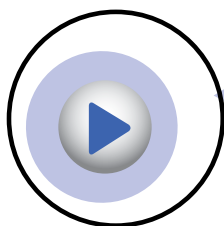
» DISC

Included with select Blu-rays and DVDs; disc copy available as an option with digital purchases



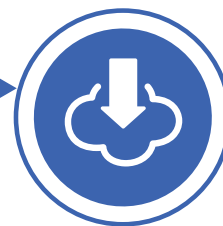
» MULTIPLE ACCOUNT MEMBERS

Up to six family or household members can use a single UltraViolet library



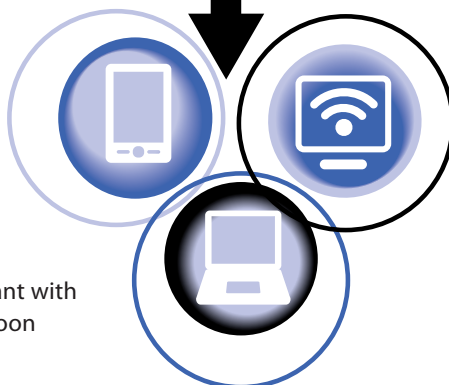
» STREAMING

You can watch your UltraViolet titles over the Internet



» DOWNLOADS

Get copies for your devices so you can watch when there's no Internet



» MULTIPLE DEVICES

Watch on the devices you want with even more choices coming soon

technologies, allowing restrictions management on a broad range of devices: televisions, set-top-boxes, Blu-ray Disc and DVD players, games consoles, PC, tablets and smartphones. These include Google Widevine DRM, chosen for its strong position on set-top boxes; Marlin DRM,

chosen for its compatibility with many connected TVs; OMA CMLA-OMA v2, selected because of its strong position on mobile devices; Microsoft PlayReady, picked because of its wide availability on personal computers and CE devices; and Adobe Flash Access 2.0, chosen for its

wide availability on PCs.

Using the Common Encryption technology, any of these DRMs can be used to play the same file. There is no need to download another version to use a different DRM. The same file works everywhere (for a given screen size).

UltraViolet — How It Works: A Step-by-Step Guide

For starters, you're going to need to sign up for an UltraViolet account via a participating retailer's website or at UVVU.com. Each studio requires you sign up at their sites as well, but once you do, all the sites will link together. Such individual sign-ins will simplify over time as the ecosystem evolves.

Here are the studio sites at which you'll need to register:

» www.Flixster.com (Warner Bros.)

» www.ultraviolet.sonypictures.com (Sony Pictures)

» www.UniversalDigitalCopy.com (Universal Studios)

» www.ParamountMovies.com (Paramount)

Once all the preliminaries are out of the way, accessing your UltraViolet library is a straightforward process.

OPTION 1: Flixster (Warner Bros.)

The easiest way to access UltraViolet content is through Flixster. To redeem UltraViolet titles from Warner Bros., Sony Pictures or Universal, visit the Flixster home page, which has a banner link to a page listing the titles that offer UltraViolet. If you have one of these titles, find the slip of paper containing the special UltraViolet code included within the case. Click on the box art for the title you need, enter the code and you'll be able to watch the movie within seconds. You can see which UltraViolet titles you own by using the Collection tab at the top of the Flixster home page. When you click on a movie in your collection, you will have the option to either watch it via streaming or to download it to your computer.

The streaming mode is advantageous because it doesn't take up extra space on your hard drive or storage device, but it does require an Internet connection.

Paramount titles are not yet redeemable or playable through Flixster, so you'll have to go to the Paramount site to access those titles.

Flixster will be adding more ways to watch movies in the future.



www.flixster.com



www.UniversalDigitalCopy.com

OPTION 2: Studio Sites (Sony, Universal and Paramount)

You can redeem any UltraViolet code directly at the appropriate studio site by following the instructions on the slip of paper included with the disc. You can play that studio's UltraViolet movies you own at the studio's site as well.

Moreover, Paramount titles are available for purchase electronically without a disc.

OPTION 3: Download

If you expect to find yourself without an Internet connection but still want to access the movies in your library, you can download a copy to your computer. When you visit your library at Flixster or any of the studio sites, the info page for each title will give you the option to watch or download it.

In order to play the download, you will need to have downloaded and installed a separate movie player for each studio. The instructions to do this will appear the first



www.ultraviolet.sonypictures.com



www.ParamountMovies.com

time you attempt to download a movie from the respective studio. (Once DECE introduces the Common File Format during the summer of 2012, this step will not be needed.)

MOBILE DEVICES:

The easiest way to view an UltraViolet movie on a mobile device is through the free Flixster app, which allows you to stream movies over Wi-Fi or 3G and download movies in your collection to your device (again, over Wi-Fi or 3G). To stream or download a full-length movie, simply log into the Flixster app to access your movie collection.

UltraViolet works for iOS devices via the Flixster app found in the App Store. The latest version of the Flixster app (v5.2), available through iTunes, is compatible with iPhone (3G and up), iPod touch (2G and up), iPad 1 and 2, and requires iOS 4.0 or later. Flixster does not work on older-generation iPods due to their inability to download apps.



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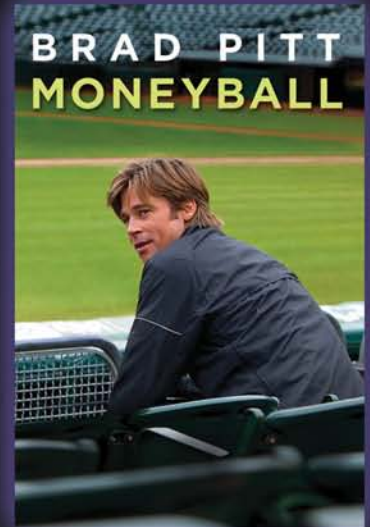
YOUR MOVIES IN THE CLOUD



R



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PG-13



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PG



PG

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COLLECT, ACCESS & ENJOY
YOUR MOVIES AND TV SHOWS

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Paramount UltraViolet titles can be watched on mobile devices by accessing your library through your mobile device's Web browser.

BUILDING YOUR DIGITAL LIBRARY

Starting April 16, movie fans can expand their digital libraries in the UltraViolet cloud by using Walmart's Disc-to-Digital service.

Using the service requires you to create a

free account at Vudu.com.

First, check if the movie you want to convert is on the list of pre-approved Vudu movies from UltraViolet-member studios: Sony, Warner, Universal, Paramount and Fox. If it is, take your discs to a participating Walmart store and visit a clerk at the photo department or behind the counter in the electronics department. If you have any questions about this process, just take the disc to Walmart and a clerk will be able to determine title availability and open a Vudu account for you.

There will be a charge of \$2 to activate digital access to a standard-definition version for each selected DVD or a standard-or-high-definition version for each Blu-ray. DVDs can be upgraded to an HD digital copy for \$5. Once the digital version is activated, users can watch them on compatible computers, set-top boxes or mobile devices by logging into their Vudu accounts.

The conversion fee is charged at the counter. Vudu will link to UltraViolet, just like the studio sites. Movies activated through Vudu will be viewable via Flixster.

UltraViolet — Studio Support

The Hollywood studios are solidly behind UltraViolet, with product either already available or in the pipeline from four of the six majors: **Warner Bros.**, **Sony Pictures**, **Universal Studios** and **Paramount**. **20th Century Fox** and **Lionsgate**, which made headlines with its recent purchase of Summit Entertainment — also are on board. Only Walt Disney Studios is absent, at least for now, as the company pursues its own digital locker strategy.

Warner Home Video began supporting UltraViolet at launch last fall and promises to package UltraViolet digital rights with every disc, both Blu-ray and DVD, for no additional fee.

High-profile releases with the Ultra-

Violet label attached include *Green Lantern*, *Harry Potter and the Deathly Hallows — Part 2*, *Happy Feet Two* and *J. Edgar*. By the end of 2012, Warner expects to have about 26 UltraViolet-compatible theatrical new-release titles in U.S. stores. Warner also was the first major studio to release an UltraViolet-enabled title outside of the United States (*Final Destination 5* in the United Kingdom), with plans to release significantly more throughout the year.

“Our support of UltraViolet has always been about improving the home entertainment experience for the consumer,” said Ron Sanders, president of Warner Home Video. “UltraViolet offers, among many other benefits, the ability to access your movie collection from anywhere and share it with family, even if they’re elsewhere, which is a huge upgrade for the consumer. And now that UltraViolet has the support of Walmart, more and more consumers will be able to find out just how easy it is to get started.”

Sony Pictures Home Entertainment (SPHE) began supporting UltraViolet in December 2011, with the Blu-ray Disc releases of *The Smurfs* and *Friends With Benefits*. Since then, the studio



The Smurfs

has bundled UltraViolet with 12 of its new-release and catalog Blu-ray titles, including *Moneyball*, *Drive*, *Monty Python and the Holy Grail* and *The Girl With the Dragon Tattoo*.

SPHE will continue including UltraViolet with key new-release and select catalog Blu-ray titles throughout 2012, including *Men in Black 3* and *The Amazing Spider-Man* toward the end of 2012. Additionally, given the strength and growing momentum of the UltraViolet format, SPHE will include UltraViolet with new-release DVDs and as a standalone, electronic sellthrough (EST) offering via online digital retailers in the near future.

“UltraViolet is the ultimate bridge between physical and digital media, making content ownership easier, more appeal-



Harry Potter and the Deathly Hallows — Part 2

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THE WAY PEOPLE BUY AND ENJOY MOVIES.



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ing and a better value for consumers,” said David Bishop, president of Sony Pictures Home Entertainment. “UltraViolet enhances the value of consumers’ current movie and TV collections, and provides confidence that the investments they make in those collections going forward — both physical and digital — are future-proof. This added flexibility allows consumers to purchase movies and TV shows in whichever format they choose with the ability to enjoy them on whatever device they choose.”

Universal Studios Home Entertainment launched its UltraViolet titles in December 2011 with *Cowboys & Aliens*. Other high-profile UltraViolet titles include *Tower Heist*, *Hop* and the upcoming *Con-*

before have home entertainment consumers had the opportunity to add such value to their Blu-ray and DVD collections. With UltraViolet, now mainstream audiences can easily and conveniently store and access their movies through a digital cloud, affording them unprecedented freedom and flexibility to enjoy their favorite films, anytime, anywhere and on virtually any device to best fit their lifestyle.

“We see the introduction of UltraViolet as a truly revolutionary moment in our business,” Kornblau said. “We think that consumers have been waiting a

long time for a simple and convenient way to digitize and store their existing movie collections. Consumers still want to own physical copies of their favorite movies. UltraViolet serves as the perfect complement to movie ownership, enabling consumers to jumpstart their digital libraries and future-proof their film collections.”

Paramount Home Media Distribution in January began offering titles enabled with UltraViolet, including *Transformers: Dark of the Moon*, *Paranormal Activity 3*, *Hugo*, *The Adventures of Tintin* and *Footloose*.

Consumers can redeem the UltraViolet-enabled copy from their DVD or Blu-ray and can access their UltraViolet digital locker through the proprietary ParamountMovies.com website. The site also offers more than 50 films in high-definition or standard-definition for digital download with UltraViolet rights or for video-on-demand. Paramount is the first studio to launch a site that offers a variety of additional films on EST that can be purchased directly and stored via UltraViolet or rented for one-time viewing.

“With the launch of our UV-enabled titles and ParamountMovies.com, we are giving consumers unprecedented freedom



Transformers: Dark of the Moon

and flexibility to enjoy our content how and when they want it,” said Dennis McGuire, president of Worldwide Home Media Distribution for Paramount Pictures. “Whether they prefer a hard copy on the shelf, a digital download, on-demand viewing or a secure file in the cloud, consumers now have an array of options like never before.”

20th Century Fox Home Entertainment has not yet announced its UltraViolet plans. At the January 2012 Consumer Electronics Show (CES) in Las Vegas, division president Mike Dunn said Fox sees UltraViolet as “a component to the digital ecosystem we’re trying to construct and not the digital ecosystem. Our job is to build this digital ecosystem to deliver an exciting and simple customer experience that we hope will lead to mass consumer adoption.”

Lionsgate, too, is a supporter, although plans have not yet been announced.

“Lionsgate has been an aggressive supporter of alternative formats for delivering content to consumers with the choice and convenience that they want,” said Ron Schwartz, EVP and GM. “We were one of the earliest supporters of UltraViolet, and we will release our first titles on the format before the end of the year. Our launch plans for UltraViolet and other digital locker initiatives will be announced soon.”



Cowboys & Aliens

traband, *Safe House* and *Big Miracle*. At the start of 2012, the studio embarked on a strategy to enable with UltraViolet every new theatrical release debuting on Blu-ray Disc, along with “event” catalog titles and select TV releases. Universal also has set up a website with simple instructions and a comprehensive set of frequently asked questions at universalthidef.com/ultraviolet/whatisultraviolet/.

“UltraViolet is the groundbreaking catalyst that is swiftly ushering in of the golden era of digital movie ownership,” said Universal Studios Home Entertainment president Craig Kornblau. “Never

Cinematic Experience

Delivers authentic surround sound to consumers

Widespread Adoption

Now in more than 640 million devices

Proven Technology

Used by leading online services, including Netflix®, Vudu™, Best Buy® CinemaNow®, and HBO Go®

**Strong Industry Support**

Supported in a wide range of professional solutions, by DRM providers, and in online delivery frameworks

Multiscreen Solution

Delivers highest-quality experience across all screens, from the living room to smartphones

Consistent and Reliable

Provides a consistent and reliable playback experience across multiple devices

No Compromises

You want one format that can do it all—deliver premium audio across the range of new devices and services, but also remain compatible with existing systems. That's Dolby® Digital Plus. It's the audio format of choice for today's online services, and the only true no-compromise solution. There's no reason to settle for less.

Learn more at dolby.com/streaming.



Retail Support for UltraViolet

The Hollywood-driven UltraViolet initiative received a big shot in the arm in March 2012 when **Walmart**, the country's biggest retailer, announced it would start allowing its customers to access movies in their existing disc collections into the cloud for a nominal fee.

Beginning April 16, customers can bring Blu-ray Discs or DVDs they already own into any of more than 3,500 U.S. Walmart stores and pay \$2 to access digital copies from the cloud. DVDs can be converted to high-definition access for \$5 per title. A \$2 Blu-ray Disc digital transfer will be in high-definition. At a packed press conference at the Hollywood Roosevelt Hotel, the site of the very first Academy Awards, Seong Ohm, SVP and GM for Walmart Entertainment, said the retailer did a volume of research that showed the price point was the "sweet spot" for consumers, adding that some people were willing to pay more.

All digital versions that are recognized through Walmart will be accessed through the chain's Vudu transactional video-on-demand and electronic sellthrough website, Vudu.com. All content accessed through Vudu in addition to copies purchased separately also will be available on UltraViolet.

The move effectively extends UltraViolet to the back end, to existing Blu-ray Disc and DVD libraries.

"This is a monumental step for UltraViolet," Sony Picture's Bishop told the Bloomberg news service. "This is what the promise of UltraViolet was when we started it."

Chris Nagelson, VP of entertainment merchandising for Walmart, told *Home Media Magazine* that the discs that are used to grant UV ac-

cess will be stamped in the middle of the disc to prevent copies from being used for another account. Employees will verify the disc with a barcode. He said "thousands and thousands" of titles will be available at launch, including most top titles from the participating studios: **Warner Bros. Home Entertainment, 20th Century Fox Home Entertainment, Sony Pictures Home Entertainment, Paramount Home Media Distribution and Universal Studios Home Entertainment.**

Consumers must sign up for a Vudu account to receive access, though Walmart employees will do it for them on site, requiring only a phone number and an email address. Consumers then will receive a Vudu membership card.

John Aden, EVP for general merchandising at Walmart, said the service will remain an in-store endeavor at Walmart photo centers.

"Walmart Entertainment's new disc-to-digital service will allow our customers to reconnect with the movies they already own on a variety of new devices, while preserving the investments they've made in disc purchases over the years," he said. "We believe this revolutionary in-store service will unlock new value for already-owned DVDs and will encourage consumers to continue building physical and digital movie libraries in the future."

Paramount's Maguire said the retailer is the perfect place to start the disc-to-digital initiative, pointing to Walmart's reach of more than 100 million consumers per week — equal to one-third of the entire U.S. population.

Other retailers are expected to follow suit, with many observers pointing



to Best Buy, the huge consumer electronics chain, as a likely candidate to roll out a similar service in the coming months. Best Buy is a founding member of the DECE.

Also on board the UltraViolet bandwagon is Amazon.com, the No. 1 online retailer, which in January at CES became the first official retailer to announce its intent to launch UltraViolet in 2012. Little information about Amazon's involvement has been released, although observers expect the company to both aggressively promote Blu-ray Discs with UltraViolet capability and eventually sell UltraViolet-compatible movies without needing to buy a physical disc.

"Companies who have come together to create UltraViolet believe it's a real game-changer, dramatically enhancing the value of content ownership for consumers, and enabling vital efficiency gains via standardization," said Mark Teitell, GM and executive director of DECE. "Having launched UltraViolet into the consumer marketplace just a few months ago, we're pleased and encouraged by industry participation and the rate of consumer adoption, with more than 1 million accounts created to date. Walmart's launch marks an important milestone in the evolution of the ecosystem."

"UltraViolet users will benefit from a broader set of capabilities, including disc-to-digital upgrades for DVDs and Blu-rays, availability of UltraViolet-enabled titles for instant digital purchase via Vudu, and the added convenience of having easy access to UltraViolet-enabled titles from five leading studios in one shopping and viewing environment for the first time."

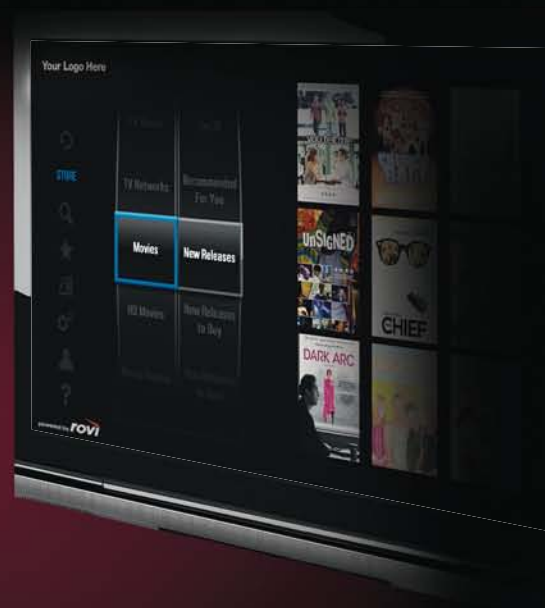


Bringing the video store into the home since 1999.

Twelve years ago, an internet video service was born. Though its name changed a few times, the Rovi Entertainment Store (formerly RoxioNow) has evolved into a brandable storefront that can deliver instant access to premium movies and TV shows.

With the Rovi Entertainment Store, you can offer your customers a large library of Hollywood and independent videos that they can buy once and enjoy anywhere: at home, online, and on the go.

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Rovi is an UltraViolet Alliance member.



roviCorp.com
join the entertainment



Other Support for UltraViolet

It also takes major consumer electronics backing and an army of technology companies to successfully launch something as bold and industry-changing as UltraViolet.

It's there.

Warner's Flixster already is available on tens of millions of devices, and **Panasonic's** 2012 line of Viera Connect devices, including HDTVs and Blu-ray Disc players, will include the Flixster application, allowing UltraViolet users to view their content easily.

Merwan Mereby, Panasonic's VP of interactive content and services, said the move represents a shift toward introducing the connected, digital experience to new consumers.

Samsung made a huge splash at this year's CES, bringing not only Flixster to its 2012 HDTVs and Blu-ray players, but also a disc-to-digital feature to Blu-ray players, allowing UltraViolet users to add their existing disc collections to their digital cloud libraries. Working with an authorized retailer, such as Walmart, users will be able to add an UltraViolet copy for a fee and also can upgrade a standard DVD to high-def.

LG Electronics also is counted among the hardware companies that have signed on with DECE, along with Nokia, Toshiba, Motorola Mobility, Sony and Philips. For Dell, the hope is to bring UltraViolet access to its entire portfolio of consumer products, including tablets, laptops and desktops.

To get all this UltraViolet technology working, dozens of upfront and behind-the-scenes technology companies are at work.

The Samsung service is powered by UltraViolet-backer **Rovi**, which unveiled its Rovi Digital Copy Solution at CES. Rovi Digital Copy Solution integrates into consumer electronics devices and PC applications, allowing them to recognize a movie on physical disc, authenticate its origin and then trigger access to a copy from a cloud-based digital library. Rovi Digital Copy Solution is built on Rovi Cloud Services and integrates with Rovi Entertainment Store and UltraViolet store implementations.



At its 2012 CES booth, Samsung featured a demo of its Disc to Digital feature, which allows consumers to access their disc libraries from the cloud via UltraViolet.

"Rovi Digital Copy Solution can provide CE manufacturers, digital storefronts and movie studios with an opportunity to acquire new customers, generate new revenue, and introduce more consumers to the flexibility and convenience of digitally delivered entertainment," said Corey Ferengul, EVP of product management and strategy for Rovi.

As a member of the DECE and a licensee of UltraViolet, Rovi enables UltraViolet Digital Library support within existing and future customers' storefronts, allowing consumers to buy UltraViolet-enabled content and/or access their entertainment purchases from a broad range of devices. Rovi Entertainment Store is an end-to-end, white-label solution for digital storefronts and is behind more than a dozen digital offerings from major brands, including Best Buy, RIM and Dixons.

There are other players behind the scenes that make UltraViolet work.

Neustar Media has worked with DECE, the cross-industry consortium behind UltraViolet, since its 2008 inception. Consumers may not be familiar with Neustar, but UltraViolet wouldn't work without the

company's technology, which provides the backbone and underlying platform that drives the digital locker. Neustar also is prepping the launch of Catalyst, a white-label turnkey digital storefront that will enable retailers, service providers and content providers to swiftly and easily bring to market their own digital storefront featuring UltraViolet technology and content offerings while seamlessly integrating and managing UltraViolet and non-UltraViolet content within their existing or new digital experience.

"Within four months, UltraViolet had more than 1 million users, which compares extremely well against any other digital media platform rollouts, and even against legacy disc rollouts," said Tim Dodd, Neustar Media GM and VP.

He noted that UltraViolet now is working across almost every device imaginable, a boon for the "buy one, play anywhere" theme of the product.

"From Neustar's point of view, we're very happy with how it's come out so far," Dodd said.

On the sound side, both **Dolby Laboratories** and **DTS** lend their expertise, with

Dolby Digital, Dolby Digital Plus, Dolby TrueHD, DTS, DTS HD, DTS Master Audio and DTS Express all represented. UltraViolet content can be authored with Dolby TrueHD for studio-master quality lossless audio. Dolby also has updated its Dolby Media Generator, a professional software solution for content encoding, to support Ultraviolet's Common File Format.

Dolby is working closely with studios and DECE ecosystem partners to provide support and tools for the creation, distribution and playback of high-quality multichannel audio for UV titles. Dolby says its Dolby Digital Plus, the audio technology powering surround-sound for Netflix, Vudu, Best Buy CinemaNow, HBO Go and others, is an ideal solution for UltraViolet content.

"High-quality audio is essential to entertainment, and technologies like Dolby Digital Plus play an important role in the UltraViolet standard," said John Couling, VP of Dolby's E-media Business Group. "Dolby Digital Plus delivers high-quality sound for more than 640 million devices today and most of the world's leading over-the-top services. We are extending our leadership to the UltraViolet ecosystem, working with studios and other partners to deliver a true studio-quality playback experience. As a founding member of the DECE consortium, we are proud to help transform the way people enjoy digital entertainment."

Walmart's Vudu has been successfully using Dolby Digital Plus since 2008. Vudu and Walmart are offering consumers an upgrade to HD video and Dolby Digital Plus surround sound through the Disc-to-Digital program (see www.vudu.com/disc_to_digital.html).

Computing technology companies backing UltraViolet include HP, Microsoft, IBM, Intel, NVIDIA and Fujitsu Semiconductor America.

And on the cable and telecommunications side, Comcast, Cox Communications British Sky Broadcasting Ltd., Rogers Communications Inc. and Liberty Global have signed on with DECE, offering the potential of UltraViolet being accessible via their offerings. Nonprofit research and development cable consortium CableLabs

also is a DECE member.

Adobe, a founding member of DECE, was behind the first UltraViolet-enabled titles from Warner Home Video — *Horrible Bosses* and *Green Lantern* — with the titles protected by the company's Flash Access content protection system and playing on Flash-based applications.

Software security and media technology company Irdeto works with other DECE members as a digital service provider, lending its media authorization services.

Akamai Technologies, which offers distribution services to content owners, provides video streaming of UltraViolet titles via its HD Network technology, which streamlines code redemption and account management. Its service is available to both entertainment retailers and content providers.

Over at DECE member Arxan Technologies, the name of the game is security technology, with the company lending its code and key protection software to prevent reverse-engineering of applications and content on computers and mobile devices. DRM technologies involved with protecting UltraViolet include Widevine Technologies Inc., Verimatrix, Microsoft and Verance.

QuickPlay Media lends its technology to provide rights-protected UltraViolet across multiple platforms, including mobile devices.

Empathy Lab helped get the UVVU.com site off the ground and working seamlessly.

Software companies CyberLink, PacketVideo and Elemental Technologies; semiconductor companies AMD and Marvell Semiconductor; Blu-ray testing and quality-control company BluFocus; cloud technology companies Catch Media and CSG; and networking tech company Cisco all have a hand in delivering the world of UltraViolet to the consumer.

DECE also counts multinational networking telecommunications company Huawei Technologies, network infrastructure company VeriSign, digital technology company Zoran, Deluxe Digital, LodgeNet Interactive, Red Bee Media, SeaChange, Testronic Laboratories, Technicolor and NCR Corporation among its member companies.



DECE Members

- » Adobe
- » Akamai Technologies
- » AMD
- » Arxan Technologies
- » BBC Worldwide
- » Best Buy
- » Blockbuster
- » BluFocus
- » British Sky Broadcasting
- » BT
- » CableLabs
- » Catch Media
- » Cineplex Entertainment
- » Cisco
- » Comcast
- » Cox Communications
- » CyberLink
- » CSG
- » Dell
- » Deluxe Digital
- » Deutsche Telekom AG
- » DivX
- » Dolby Laboratories
- » DTS
- » Elemental Technologies
- » Empathy Lab
- » FilmFlex
- » Flixster
- » Hewlett-Packard
- » Huawei Technologies
- » IBM
- » Intel
- » Irdeto
- » LG Electronics
- » Liberty Global
- » Lionsgate
- » LodgeNet Interactive
- » LOVEFiLM
- » Marvell Semiconductor
- » Microsoft
- » MobiTV
- » Motorola Mobility
- » Nagravision
- » NBCUniversal
- » NCR Corporation
- » NDS Group
- » Neustar
- » Nokia
- » NVIDIA
- » PacketVideo
- » Panasonic
- » Paramount Pictures
- » Philips
- » QuickPlay Media
- » RIAA
- » Red Bee Media
- » Roadshow Entertainment
- » Rogers Communications
- » Rovi
- » Saffron Digital
- » Samsung Electronics
- » SeaChange
- » Sonic
- » Sony
- » Sony Pictures Entertainment
- » Technicolor
- » Tesco
- » Testronic Laboratories
- » Toshiba
- » 20th Century Fox Entertainment
- » Verance
- » Verimatrix
- » VeriSign
- » Vudu
- » Warner Bros. Entertainment
- » Widevine Technologies
- » Zoran

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