



“101” OVERVIEW
(WITH SOME EXPANDED “201” DETAILS)
NOVEMBER 2013



About this document



- This is a non-confidential “101” overview for DECE Members, UltraViolet licensees, and others who are interested in UltraViolet
- It also includes some additional information with “201” level of detail
- The document focuses on “how it works” from a consumer and, especially, a B2B viewpoint – it does NOT contain information on UV’s roll-out status or future roadmap
- Feedback is encouraged on what else should be included here, and how this can evolve over time toward an increasingly valuable document
- There is a glossary at the end of this document – please reference it as needed while reviewing contents

Simplified summary – see specs and license agreements for definitive view



Contents



- **The Consumer View**
- **The B2B View**
- **Key Points on UV Technology**
- **Quick Guide to Implementation**
- **Top 10 UV Level-Set Points**
- **Glossary**

THE CONSUMER VIEW



Why UltraViolet?



I own it. I should be able to watch when, where, how I want.

I'm afraid I'll lose this movie sooner or later

I want to share it with my family and household members

I don't want to be locked in to one source of content or video apps and devices





UltraViolet: The Fundamental Idea



“Cloud-based”
rights & multi-
point access



Widely-honored
industry standard
(like Blu-ray, DVD)



How does UltraViolet work?



Look for logo on disc packaging, when shopping online or via apps



- UV functions are integrated into retailer websites & apps – *they are mostly invisible to consumers*

As a consumer:

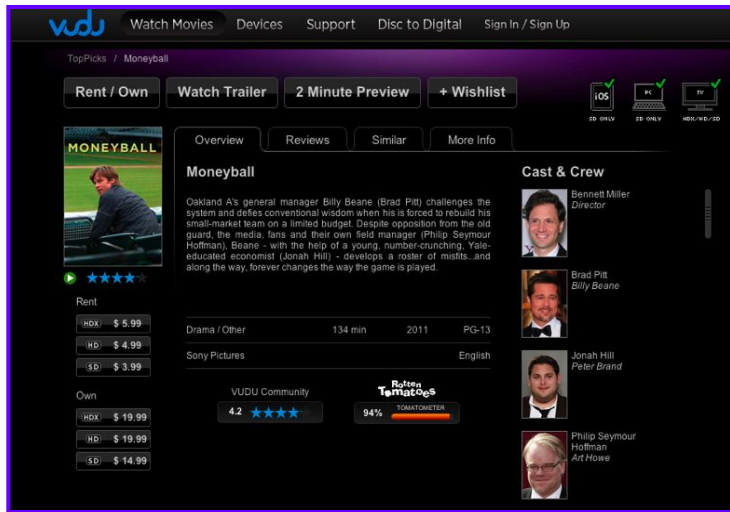
- At the point of purchase, add UV title to your library via participating retailer (*also: create UV account during first transaction, log into account – as required – if you already have one*)
- See your library, download/stream direct from retailer environments (*where you bought your content and via other participating retailers*) – on the devices you already own



3 ways for consumers to buy UV



**BD and DVD with
DIGITAL HD / DIGITAL**



Electronic Sell Through (EST)



Disc to Digital (D2D)



How does UltraViolet work? (201)



Retailers can (+ are expected to) innovate in multiple ways on the basic UV “platform”, e.g. 


- **User Experience** > How consumers see and can filter/manage the view of their UltraViolet Library
 - E.g. view of the Library could potentially be integrated into a broader entertainment/media “dashboard” or “hub” also showing rental and subscription rights, music/books/games, etc.
- **Marketing and merchandising** > What content and promotions are available to a consumer
 - “Locker kick-starting” offers with incentives for creating an account
 - Recommendations (the consumer’s whole UV library can be an input to recommendation algorithms, not just what was bought from that Retailer)
 - Cross-promotion with other related media products (books, music, games) and associated merchandise
 - Loyalty and relationship marketing
- **Integration of UltraViolet with social media**
- **Download and device management** (e.g. proprietary device UV Library access)



UltraViolet Consumer Usage Model



- **Stream** via web, apps, devices and set top boxes
 - 1st year (at least) of streaming a given title at no extra charge, from Retailer who sold the title
 - Up to 3 simultaneous streams per account (limit is across all titles owned)
- **Download** for use without Internet connection (requires device to have local storage)
 - “Interoperable *privileges*” for downloads already in operation
 - Phasing in Common File Format (CFF) for cross-brand, cross-platform *technical* interop of downloaded files (up to 12 registered UV Players per account)
 - Consumer gets at least three CFF downloads, at no extra charge, from Retailer who sold the title (if used within the first year after purchase)
- Best of **physical & digital**: BD or DVD, Electronic Sell Through (EST), Disc-to-Digital (D2D)
 - Buy a BD or DVD (or alternative physical media) and get an UltraViolet right that comes with it – typically by redeeming a unique code
Note: inclusion of UV rights with physical media is optional for Content Providers (on a title-by-title basis)
 - Or, buy UV download/streaming electronic rights (either as an outright EST purchase, or via the D2D upgrade of an already owned pre-UV DVD/BD), and in the former scenario have the option to buy a SKU that also includes right to get a single physical (or “discrete”) copy of the title
Note: Content Provider is obligated to offer some form of “with discrete media” SKU to the Retailer, who has option to offer it, or not, to customers
- **Share** among up to 6 account members



This model is agreed to by all Content Providers.



UltraViolet Consumer Usage Model (201)



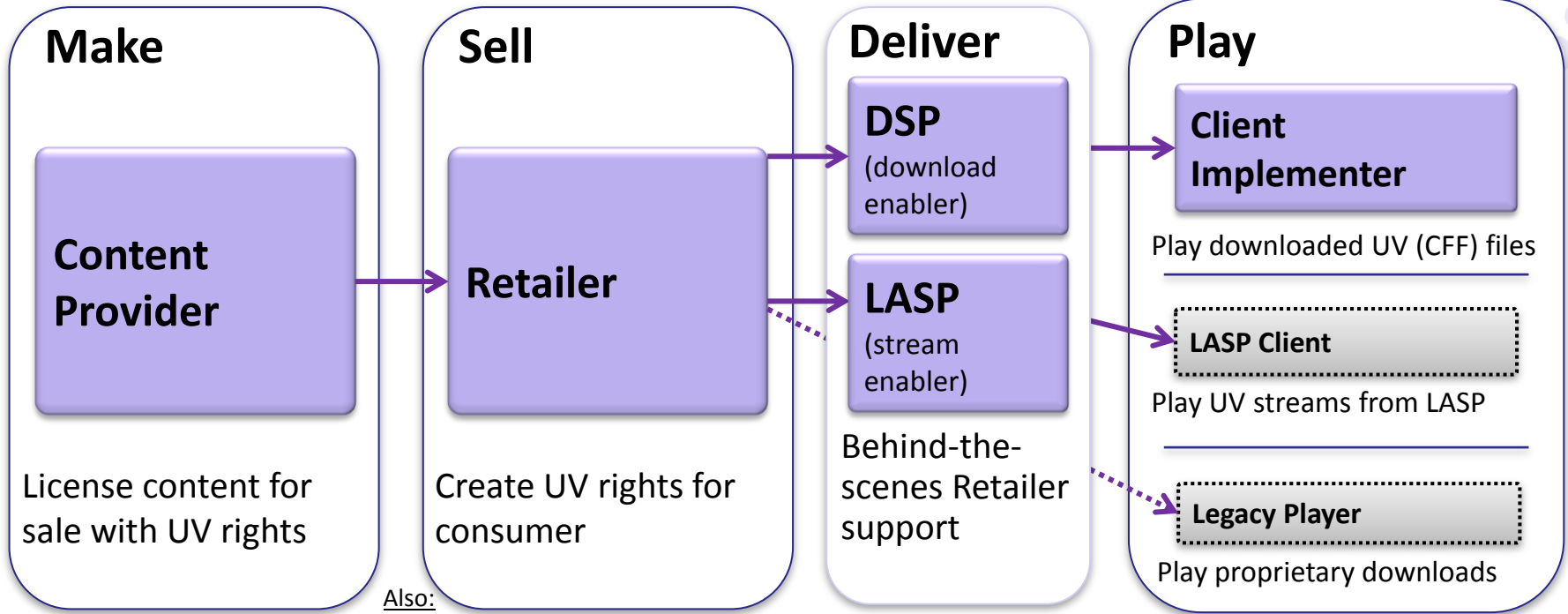
- **Stream** via web, apps, devices and set top boxes
 - To be clear: Retailers are not obligated to stream any title they did not sell (but they may choose to do this and thus *Play All*)
 - If a given Retailer or streaming provider (other than the one who sold the title) can't or chooses not to make streaming available, the consumer will be pointed from the Retailer site (they are regardless required to *Show All*) to UVVU.com where the consumer can initiate a stream from the original Retailer (by being directed to that Retailer's site)
- **Download** for use without Internet connection (requires device to have local storage)
 - Value prop of CFF to the consumer: able to move/copy UV Files directly among UV Players, to...
 - Save time by not having to re-download multiple copies
 - Possibly save money, too, from (a) not being subject to any possible download fees, and/or (b) to having to use ISP network bandwidth for subsequent download (esp. an issue for wireless and also in non-US geo's with capped/tiered ISPs the norm)
 - Also psychology-of-possession benefit: know that you have a file, in your possession, which all UV Players are designed to work with
 - If a given Retailer (other than the one who sold the title) can't or chooses not to make downloads available, then consumer will be pointed to UVVU.com where they can initiate a download from the original Retailer (per above for streaming)
 - If a consumer loses or breaks a registered UV Player, up to twice per year they can remove from their 12-device allotment without penalty (an "unverified leave"). For the third or more occurrence in a year, this effectively decrements the number of usable device slots
- **Share** among up to 6 account users
 - Initial user is created at the same time that the account is established; subsequent users must be set up by an existing user
 - Account users have individual username/password, permission levels, parental controls, linked services, etc.
 - Users can removed from the account if necessary and new users added



THE B2B VIEW



UltraViolet Roles (licensed by DECE)



Also:

- **Access Portal** role for Library view and/or Account management subset of what Retailer can do
- **Partner Developer** role for access to specs and development/test environment only

(LASP can also be a consumer-facing, standalone “streaming access” only service)

No Client Implementer license needed for a Retailer or LASP to stream or provide downloads – though often done within same product as UV Player



UV role / specification matrix



Specifications	Roles					
	Content Provider	Retailer	DSP	LASP	Access Portal	Client Implementer
System	●	●	●	●	●	●
Geographies		●				
Coordinator*	●	●	●	●	●	●
Security Mech.	●	●	●	●	●	●
Content Publishing	●					
Keypset Delivery	●		●	○		
Discrete Media	●	○				
Content Metadata	●	●		●	○	●
CFF (Media)	●					●
Device	○					●

* Coordinator spec only available to DECE Member, UV licensees, or companies under appropriate NDA with DECE; All other specs here are public.

● Required/Critical
○ Relevant/Optional



UV implementer high-level benefits



Content Providers

- Strengthened consumer value proposition for ownership
 - Physical (DVD, BD)
 - Digital (EST)
 - Disc-to-Digital (D2D)
- More efficient licensing and digital supply chain

Pay TV Operators

- Improved EST value proposition
- UV library access opportunities to provide subscriber amenity
- Strategic opportunity to support positioning 'in the living room'
- More efficient licensing, digital ops

Physical Retailers

- Improved disc category value proposition
- Ability to transition store buyers to digital customers
- More efficient licensing, digital ops
- Less cost/risk and improved consumer prop. vs. proprietary offer

CE / Player App Makers

- Increased consumer demand for video-centric devices/apps
- Large-scale standardized addressable market (like DVD/BD)
- Important feature to differentiate vs. (or match) competitors
- Device-linked service opportunities with lower-risk/cost profiles

Digital Distributors

- Opportunity to provide access to UV libraries (many business model options)
- Improved EST value proposition
- Strategic tool to attract/retain users vs. competing platforms
- More efficient licensing, digital ops

Digital Infrastructure Suppliers

- Large-scale standardized addressable market where big implementers need tools, services
- Opportunity for scale- and expertise-based value propositions to help B2B customers implement UltraViolet



“Show All” versus “Play All” (201)



- Context:
 1. A UV Retailer must show all content in a UV user’s Library, and at least link to UVVU.com so that a consumer can always get to their content that was bought elsewhere (**Show All**)
 2. A UV Retailer is not required to play content that was bought elsewhere, but if it chooses to it needs to have licensed content distribution rights from relevant CPs (**Play All**)
- Why **offer** to download/stream content sold by a 3rd party and therefore *Play All* – beyond the consumer expectation already built up by *Show All*:
 - Strategic offense/defense in the “battle for the living room”
 - Retention amenity for high value subscribers/customers
 - Opportunity to use streaming/download as a small (and directly-linkable to performance) marketing investment for growth to acquire customers and increase ARPU through EST
 - Ad-related monetization (not just in-line video ads, but ad inventory associated with library view, use of Retailer’s streaming or download player, etc.)
 - Opportunity to charge for fulfillment on specialized platforms (e.g. cable set-top box, mobile device, hospitality/airplane, etc.)



KEY POINTS ON UV TECHNOLOGY



1. The Specifications are DONE



- Retail and streaming services have been in operation since October 2011
- Download UV Players are in UAT with an expected CFF sunrise (US) in the first half of 2014
- Specs will be improved and expanded for the foreseeable future, but no reason to delay the start of implementation or the launch of services





2. UV Streaming and Download are different



ULTRA
VIOLET™



Stream

- For **LASP clients** (created by Locker Access Stream Providers)
- Any delivery technology
- Any stream protection technology on the DECE approved list or bilaterally approved by relevant Content Provider
- *Only on platforms supported by LASP and for titles offered by LASP*

Download

- For UltraViolet-logoed **Devices** (created by Client Implementers)
- Common File Format (CFF) with common encryption
- Deployment-approved DRMs (currently 2 of 5 conditionally approved DRMs)
- *Every UltraViolet Device can get and play a file for every title in a Locker*
(Once Content Provider makes file available to Retailer)



2. UV Streaming and Download (201)



- Legacy Downloads

- UV Retailers, with Content Provider permission, are allowed to fulfill rights from a UV library using legacy downloads – regardless of where those rights were acquired
- This does NOT affect the Retailer requirement to support CFF at the time of Sunrise in the Retailer’s territory
- UV Retailers are still required to support CFF file fulfillment and DRM license issuance for all DRMs that have been deployed into the UV ecosystem
- Retailers offering such downloads must limit legacy devices receiving these downloads to 5 or fewer per UV account (and attest to DECE as part of compliance that they are doing so)
- Unlike CFF downloads, legacy downloads...
 - Can use any (Content Provider-approved) protection technology (DRM)
 - Can take advantage of existing players and existing download mechanisms with little or no change
 - Are not interoperable
- Consumer education and carefully-designed user flows / UX will be needed to explain the difference between legacy downloads and CFF downloads and guide users through choosing and using different file types

- Output Controls

- LASPs must implement output protection (encrypted digital outputs, etc.) as specified in the license agreement
- DSPs must create DRM licenses in accordance with settings from the DRM provider that “map the output controls (same for DSPs as LASPs) to DRM-specific rules and policies



3. UV is 'Region Free' and 'Region Friendly'



- Web Portal (uvvu.com) and Coordinator have no geo-filtering
 - Some current Retailers have geo-filtering, some don't
 - Purchase is often restricted; download and streaming are sometimes restricted
 - Users choose a country (and language) for their account, but this affect only policies (Terms of Use, age-related policies, etc.) not playback
- UltraViolet players and files are not region-limited
 - Once you download a file, you can play it anywhere
 - All players support 24/30/60 Hz frame rates; 25/50 Hz is optional
- Files may be worldwide (one SKU) or region-specific (multiple SKUs), by content provider choice
 - Files can have multiple audio/subtitle languages
 - SKUs can have multiple ratings, localized metadata, etc.



4. UltraViolet is NOT a DRM



- UltraViolet uses industry-standard DRMs and makes them interoperable
 - Common encryption means multiple DRMs can be used with a single file, and UltraViolet players can use any approved DRM
 - UltraViolet files (in CFF) can be freely shared, copied, backed up, cloudified, etc. – playback is granted by checking for a right in the UltraViolet locker



This is ground-breaking!



4. UV Common File Format (CFF)



CFF

One file* accessed by multiple DRM systems

One file for multiple delivery systems

including broadcast/multicast, streaming, progressive download, and stored playback on devices and media

One file for multiple screens

including mobile phones, portable media players, PCs, game consoles, Internet TVs, and home networks

Built on industry standards

ISO MPEG4, compatible with MPEG DASH and PIFF
H.264 and AAC, optional Dolby Digital and DTS

SMPTE Timed Text subtitles

*** One file for each of HD and SD**

Retailer Benefits

- **More efficient digital supply chain**
A single CFF standard negates the need for multiple encodes, storage and CDN management
- **Greater device reach**
As CFF becomes widespread, consumers won't have to think about which device can play which file

Consumer Benefits

- **CFF saves time and could save money**
Consumers can move CFF copies directly between media player apps and devices negating the need for redundant downloads
- **Psychology of possession**
CFF is seen as a valued asset (instead of a disposable one) as it can be owned and transferred



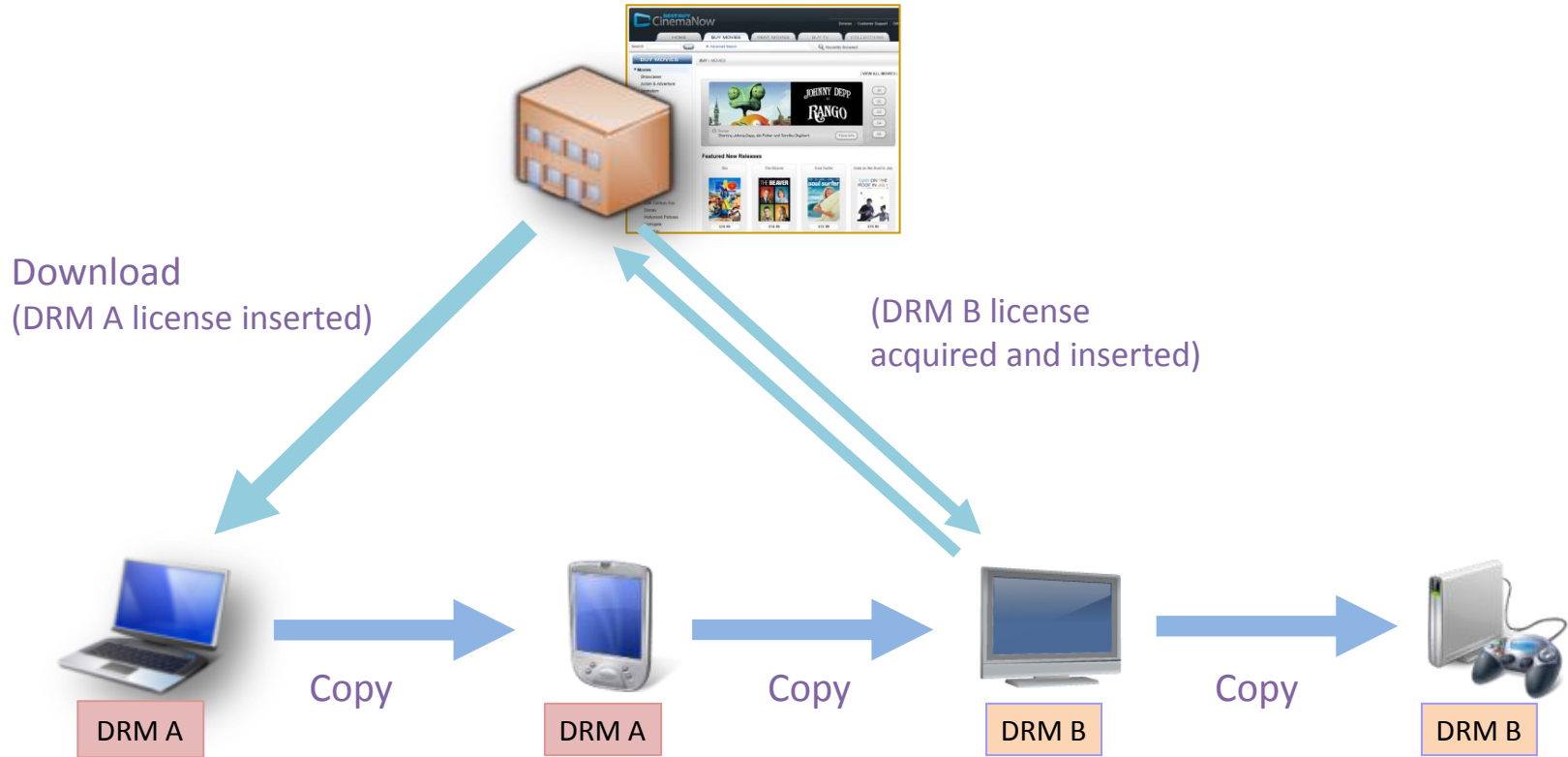
4. Retailer support for CFF (201)



- Retailer obligation for CFF support is on the “cloud” side – to provide CFF file downloads and DRM licenses to allow playback
 - Retailers are not *required* to make their download-capable apps CFF-compatible (there are multiple reasons why they may *choose* to – efficiency/cost, end-user benefit, end-user control – but they don’t have to)
- The cloud fulfillment/licensing obligation is only for those UV titles that a Retailer has sold to the consumer (possible download fulfillment of titles sold by others is discretionary – i.e. *Play All* vs *Show All*)
- CFF fulfillment spans two use cases:
 1. User has a CFF-compatible device-side “UV Player” registered in their UV account, uses the UV Player to view their Library, then chooses “download” for a specific title
 2. User in a browser-based Library view chooses “download,” for a specific title
 - Library view may be within Retailer’s service, at some other Retailer/LASP/Access Portal service, or at UVVU.com
 - In the “UV Player requests” case, the UV Player uses fulfillment information (URLs) that the original selling Retailer has placed into the Rights Token, to connect with file fulfillment and DRM licensing servers
 - In the “browser requests” case, the browser uses another fulfillment URL placed by the original Retailer to connect with the web page where the file(s) can be downloaded
- Retailers do not need to own/operate file storage and fulfillment, or DRM licensing, functions that are described here – they can engage a UV DSP licensee to do it for them (or multiple such licensees)



4. UV Cross-DRM CFF Playback





5. Retailer support for multiple DRMs (201)



- A Retailer MUST...
 - Engage one or more DSPs to respond to license acquisition requests from DRM Clients
 - Ensure its DSPs together support all fully approved and deployed UltraViolet DRMs (notice of deployment is provided with Retailers having a 120-day period from such notice to have license-serving in place for the newly deployed DRM)
- A Retailer DOES NOT have to ...
 - Encode and store multiple files for each DRM
 - Make/deploy/test/support clients for each DRM
 - Make UltraViolet Players (CFF-download-compatible players)
 - *Note: we believe many/most Retailers will want to have branded and controlled UV Players, so that their customers can play UV titles in a player environment that contains the Retailer's marketing and merchandising, storefront integration, etc.*
- A Content Provider MUST...
 - Encrypt each file and deliver file + keyset to DSPs
- A DSP MUST...
 - Encrypt keyset (from Content Provider) using DRM and send to DRM Client
- A Client Implementer MUST...
 - Pick one DRM and follow its rules
 - Implement UltraViolet join/leave



QUICK GUIDE TO IMPLEMENTATION

UltraViolet can be implemented almost anywhere

Think of UltraViolet as a **feature** to be added to content that is for sale, to existing software, hardware, or services



Implement a Licensed Role or do other supporting activity for Licensees

1. License specs, logo usage and access to UV account system as...
 - Content Provider
 - Retailer
 - Streaming Provider (LASP)
 - Download Service Provider (DSP)
 - Client Implementer (SW-only or HW)
2. Become a licensed Partner Developer (license specs and be able to access test environments)
3. Play supporting role for 1+ of these roles across the value chain (e.g. software/device components, content preparation, CDN, implementation services)

Become a Member of DECE Consortium

- DECE Membership not required to implement UltraViolet
- Members have...
 - “Seat around the table” to steer UltraViolet road map
 - Planning visibility into upcoming milestones
 - Collaboration and road map coordination opportunities with other Members (on bi-lateral basis)



Requirements for all UV role implementers



- Sign a DECE license agreement
 - At least 3 months before planned launch time, so there's time to ...
- Integrate and test with the Coordinator test environment
- Optionally engage in interoperability testing with other licensees
- Complete the Compliance Verification Program (CVP) including both technical and UI/marketing compliance checks



- Enable sales
 - Provision titles into the ecosystem
 - *Use Coordinator API to load metadata*
- Enable downloads
 - Encrypt each UltraViolet file, then deliver file + keyset to DSPs
 - *CFP production tools are now available*
- Enable streams
 - Provide content to LASPs
 - *Usually as mezzanines (same as today)*



- Connect to UltraViolet users
 - Create UV account or UV sign in; link accounts
- Transact with UV users
 - New EST
 - Redemption from disc
 - Purchase history conversion (disc to digital or EST right)
- Provide streams
 - Engage a LASP (branded partner or white label) or be a LASP
- Provide downloads
 - Engage DSPs or be a DSP
- Sign bilateral agreements with content providers so you can sell their UV titles



LASP (Streaming Service)



- Stream
 - Using any desired format, to any desired software/hardware (as long as stream protection technology is on the published “white list” or approved via bi-lateral deal with the content provider)
 - Check rights and stream limits with Coordinator
 - *Many established streaming solutions can be used with minimal or no change*
 - Sign bilateral agreements with content providers so you can stream their titles based on user UV rights
 - Note: if you are already a UV Retailer licensed by the appropriate content provider to sell a given title, you automatically have rights to stream that title, too



DSP (Download Service)



- Respond to download requests from Players and web browsers
- Respond to DRM license acquisition requests from Players
 - Encrypt keyset (from Content Provider) using DRM and send to DRM Client



Client Implementer (UV Player Maker)



- Pick one DRM and follow its rules
- Implement UltraViolet registration (join/leave)
- Obtain content
 - Download from DSP or load from other source
 - Request DRM license (and put into file)
- Play video/audio/subtitles
 - Provide parental control

TOP 10 UV LEVEL SET POINTS



Top 10 UV 'level set' points



1. Downloads, streaming, and physical media are all part of UltraViolet – “three legs of the stool” for consumers
2. UV is not a destination or standalone system, but accessed where consumers find and use content today
3. Consumers use “remember/link” to be auto-logged into UV when using retailers & streaming providers
4. Retailers who sell UV rights are required to provide at least three downloads, and streaming service, at no extra charge above purchase price for the first year after purchase; they must also fulfill for 5 years
5. Companies are not obligated to provide downloads or streaming for content they did not sell... but multiple business models exist to do so – we see market moving toward relatively widespread “honoring” of UV rights
6. A Retailer/LASP always shows user’s whole library (unless user chooses to filter); for titles that the displaying partner won’t/can’t fulfill, the user is directed back to UUVU.com for access to the original Retailer
7. Common File Format (“CFF”) is for downloads – it lets files behave like an interoperable product that can be used on any UV logoed Player (move or copy files among registered devices, no additional download needed)
8. Many devices can become UV download compatible via software update (e.g., PCs/Macs, game consoles, smart phones and tablets); consumers don’t need to buy a new device to use UV downloads
9. CFF and UV download-compatible Players are not required for streaming access; so existing streaming services can add UV with minimal change (and non-CFF “legacy” downloads are part of the mix, too)
10. Companies do not need to join DECE to license UV and deploy it in the market



GLOSSARY



UltraViolet Glossary



- **Content.** A work (movie, TV show, etc.) made available in the Ecosystem.
- **CFF.** Common File Format. The standard DECE Content download format for video, audio, and other data, packaged using a common encryption scheme so that multiple DRMs can be used with a single file.
- **Fulfill.** In general, to provide Content to a User. “Fulfill” usually means to download the file associated with an Account’s right to specific Content. “Fulfill” may include issuing DRM licenses, streaming, and delivering Discrete Media. “Re-fulfill” means to download again after the initial download.
- **DSP.** Download Service Provider. A “B2B enabler” Role that stores CFF files (usually using a CDN), fulfills downloads to users, and issues DRM licenses to UltraViolet Players so that files can be played back.
- **LASP.** Locker Access Streaming Provider. The Role that can provide streaming to a consumer based on having a UV right. A LASP can either be a “behind the scenes” service provider to help a licensed UV Retailer stream, or a standalone consumer-facing service.
- **License.** Depending on context refers to a) a DRM license (a technical element used by DRMs, not a legal agreement) that makes downloaded Content decryptable and playable by Devices in an UltraViolet Account or b) a bilateral legal agreement between licensees (such as between a Content Provider and a Retailer or between a Client Implementer and a DRM Provider). Contracts between DECE and its licensees are usually called Agreements (or License Agreements).
- **Link.** (Also “bind.”) To connect a User’s UltraViolet Account with the User’s account at a licensee, with consent of the User, so the licensee can provide UltraViolet services without requiring the User to additionally login to their UltraViolet Account.
- **Role.** A class of DECE licensee that performs specific functions in the Ecosystem.
- **UltraViolet Player.** A DECE-licensed hardware or software implementation of the Device Specification, which can decrypt and play UltraViolet CFF files that have been downloaded. Note, software or hardware-based media players can stream UltraViolet content and/or download non-CFF “legacy” file formats as part of a consumer’s UV rights, without being CFF compatible.



[WWW.UVVU.COM](http://www.uvvu.com)

ULTRAVIOLET™

