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The Role of Portable Flash in the Home Entertainment Ecosystem (and what it means for retailers)

A white paper by Screen Digest

Executive Summary

New innovations in digital distribution, and the changing habits of home entertainment audiences since the arrival of broadband, are already posing serious long-term questions over businesses vested in the distribution of media via traditional methods. As content owners respond to the threats and opportunities posed by the internet through their digital strategies, traditional distribution is becoming increasingly augmented and out-competed by digital – which is one of the few areas of home media distribution that is growing in terms of consumption and revenue.

At present, retailers are facing tough choices. Changing consumer demand has meant there is now a pressing need to diversify – whether seeking to augment an existing business distributing physical formats, or use technological innovation to enter media distribution for the first time. Retailers must not only decide which technologies to bet on, but how a digital service can drive their core business or add incremental revenues through a meaningful consumer proposition. All of this while operating in a changing music, film and TV consumer entertainment market that is becoming increasingly fragmented, both in and out of home.

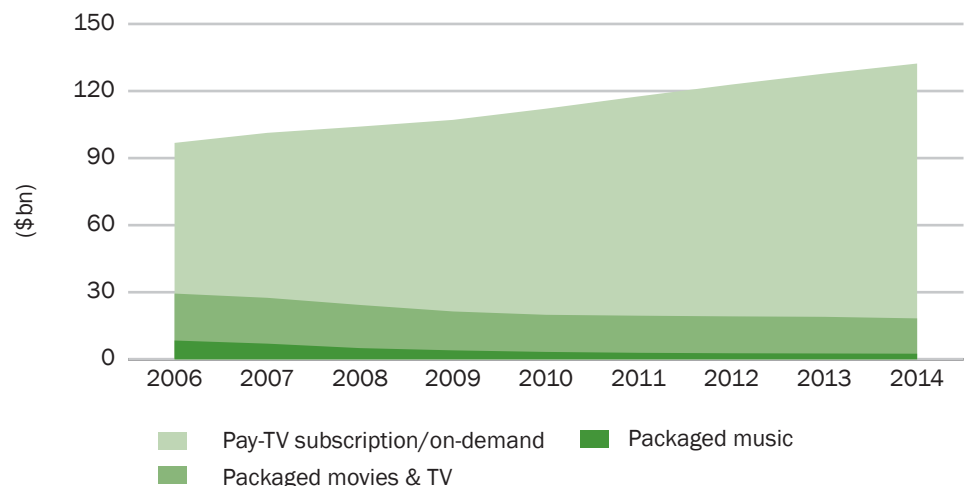
This paper provides a thorough analysis of the role flash memory will play in the home entertainment ecosystem, and its potential for providing retailers a cost-effective opportunity to enter the digital media business. It also outlines the digital kiosk proposition, highlighting the importance of a coherent strategy that promotes and adds value to the retailer's core services as an important component of launching any successful in-store and in-home digital business.

1. The evolving home entertainment landscape

In one short decade, the distribution landscape for music, film and TV has changed beyond all recognition. Developing broadband internet connectivity, both wireless and wireline, together with continued advances in connected devices, has created an entertainment consumer whose time and money is now tapped by an ever-increasing choice of options, faced with a paradox of often competing choices. The result is an increasingly fragmented consumer entertainment experience, both in and out of home. This array of choices can be broadly categorized into two categories: traditional and digital. Traditional forms of distribution, chiefly the business of packaged media products and television, are characterized by the exploitation of inefficiencies and controls over consumer access to content in order to build business models around when, where, how and for how much, we consume particular forms of entertainment.

Selling DVD and Blu-ray Discs through retail outlets, and distribution via cable systems, both linear and on-demand, are two major examples of this. These sizeable markets are still very much the core source of revenues and profits for the film and TV industry. The leading consumer-facing companies in these markets, such as retail giant Walmart and multi-system operators (MSOs) such as Comcast, remain by far the dominant content sales and distribution channels today. For example, annual consumer spending on packaged music, movie and TV together with operators' subscription and on-demand pay-TV services, totaled \$107.0bn in 2009. We forecast this to rise to \$112.1bn in 2010 and reach \$132.3bn over five years. Pay-TV services continue to take the lion's share of the total, with physical goods retailers falling behind in terms of their value to big media. In 2009, US pay-TV platforms generated \$85.7bn in consumer spend, forecast to climb to \$114bn in 2014 – six times the size of the combined packaged movies, TV and music businesses. Indeed, the change has already started to occur, with revenues from many major media companies shifting towards their cable television interests, rather than revenues from their studios' packaged media output.

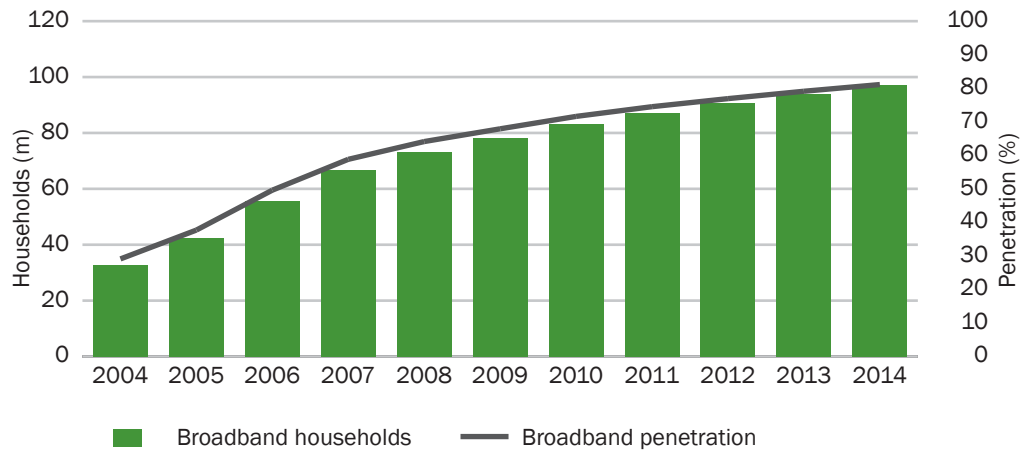
USA: Annual consumer spending through traditional channels (\$bn)



Source: Screen Digest

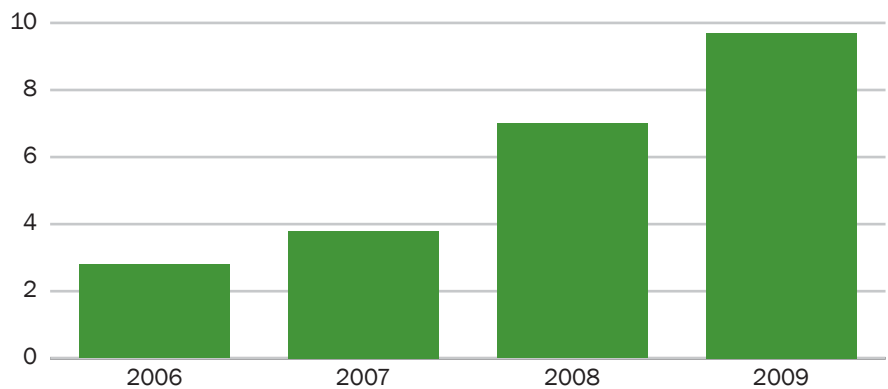
Meanwhile, digital technologies, the internet, and connected devices, have caused unprecedented challenges to the entire value chain of entertainment distribution. In 2010, there will be an estimated 83m broadband-connected households in the US. Broadband speeds continue to increase, with the average advertised speed reaching 9.7Mbit/s in 2009, up from 7Mbit/s the previous year (though it should be noted that actual consumer speeds often fall short of advertised speeds - the FCC put the average actual speed in the US at 4.1Mbit/s in 2009). Nevertheless, major telcos and cable operators are competing to deploy next-generation broadband access networks capable of delivering 50Mbit/s and beyond to users. Verizon already claims 3.4m FiOS fibre-to-the-home broadband subscribers and AT&T 2.1m U-Verse fibre-to-the-curb subscribers; Comcast has upgraded over 90% of its footprint (46m homes) to the DOCSIS 3.0 standard - delivering comparable speeds and more.

USA: Broadband households and penetration



Source: Screen Digest

USA: Average advertised broadband speed (Mbit/s)



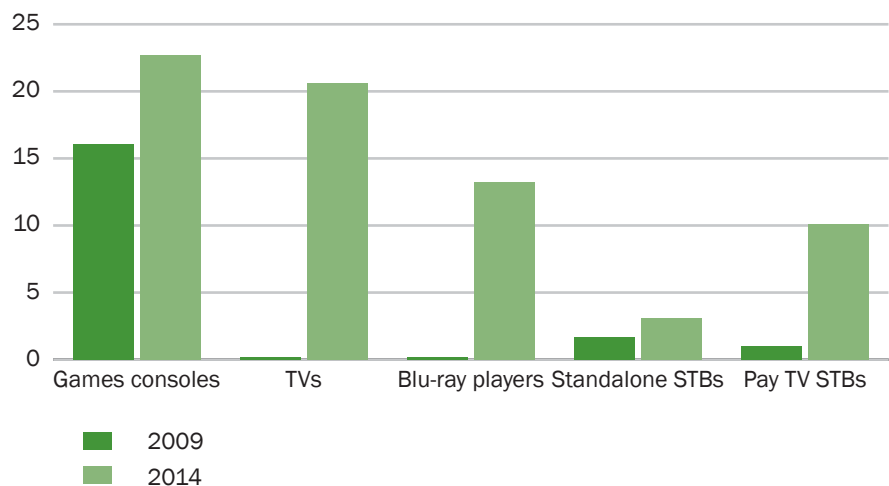
Source: Screen Digest

At the same time, the adoption of consumer devices has also been exploding – evolving from portable media players to smartphones and now tablet computing. By the end of 2009, there were 109m portable media player users in the US, 80.3m of which were accounted for by the iPod. The portable device was an important driver of paid-for online content sales. The portability, convenience and consumer freedom enabled by the close integration of portable devices with an online store featured prominently in the growth of digital music, and also the early acceptance of paid TV show and movie downloads as a viable, legitimate business model. Today these portable media players have been increasingly superseded by smartphones, able to download and stream internet content directly via both WiFi and over-the-air cellular connections such as 3G, as well as sideloading capabilities onto integrated storage or portable flash memory cards.

Device innovation hasn't just been in the portable space. The mass market for movie and TV consumption has never really been about portable device screens at all – but about how portability fits in and around the heart of the home entertainment experience, the living room TV. Major manufacturers in computing, games consoles and consumer electronics have been converging on the living room with a growing array of internet-connected TVs and devices that add value to their hardware while driving new entertainment service propositions.

Early leaders in this space are the games consoles manufacturers, with 16.1m active connected devices in the US in 2009, forecast to grow to 22.7m in 2014. But connected Blu-ray players and TVs will continue to gain penetration too – Screen Digest predicts that there will be almost 35m active connected Blu-ray players and TVs installed in the US by 2014, up from less than 0.5m in 2009. These 'over-the-top' (OTT) devices are posing a significant challenge to the closed network cable TV business, and provide an opportunity for service providers seeking to tap the living room audience, with an ever increasing choice of internet distributed content (ironically frequently utilizing the broadband connection provided by the pay TV operator itself).

USA: Active connected devices (m)



Source: Screen Digest

This proliferation of connected screens, both in and out of home, has fragmented the consumer entertainment experience. The prospect of an always on, fully connected audience who can switch between sources of entertainment at any given moment in all hours of the day, across free and paid, transactional and subscription, legal and illegal, is a daunting prospect.

The ability for consumers to not only consume with this level of efficiency and freedom, but also potentially rip, copy and share online, has precipitated the decline of the CD business in music, and resulted in severe damage to the home video entertainment business in many international markets, with South Korea and Spain being the most notable examples. That the domestic US market has yet to experience anything on this scale for film and TV, given the continued ubiquity of film and TV content through illegitimate or second-hand channels, has been a testament to the recognition by the media industry that there is consumer demand for digital entertainment that must be met through legal means.

So far the general approach from studios, networks and their distribution partners has been to provide retailers and service providers the necessary rights to offer a mixture of products and services that use digital as a value-add to traditional propositions and other core business propositions.

The initiatives, which have grown organically over time, have taken many different forms, but can largely be categorized into three buckets:

Packaged: in the retail space, the addition of BD-Live interactive functionality to Blu-ray movies, and the complementary bundling of a Digital Copy with both DVD and Blu-ray products have been growing features of the physical media business. Meanwhile, some studios have ventured to bundle movies on a title-by-title basis with USB and portable flash memory sold at retail, explored further below. In physical rental, there has also been the licensing of subscription streaming rights to Netflix as a no-fee value-add to the online DVD rental service.

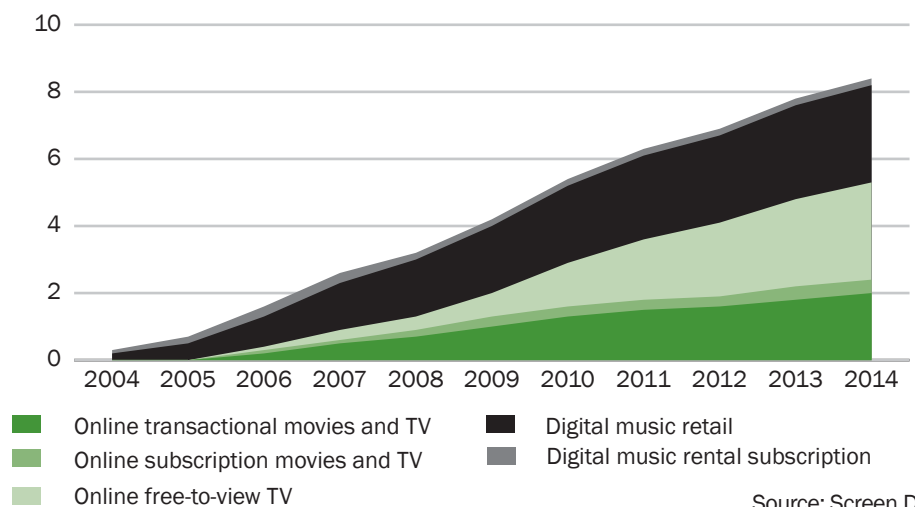
Subscription television: digital rights exploitation in the TV business has been chiefly about licensing for services operating on a subscription and/or ad-supported model. In the subscription arena, basic and premium cable networks have tied up new media rights to content shown on their linear channels, and are now either marketing them to existing subscribers at no extra cost as part of the MSOs' TV Everywhere on-demand online proposition, or, as in the case of Starz and Epix, seeking to exploit them independently.

Digital: there are few businesses than can be called truly digital – in that they generate fresh revenue for content owners as standalone propositions rather than justify increases in licensing payments from existing partners or bolster non-digital products. In the transactional space, the most prominent of these is digital retail (also called electronic sell-thru (EST) for movies and TV), where consumers pay to own rights to a digital version of a piece of content. For video, there is also the transactional digital rental model, which for movies and TV mimics the business of cable VOD, using the open internet as the means of distribution. Both digital retail and digital rental can take place in the home through connected devices, or out of the home via direct downloads to portable handsets or purchase from

digital kiosks. In the free ad-supported arena, there is the Hulu model for video, which has appeared as a result of broadcast networks seeking to deploy their own ad-supported streaming platforms via their own network websites, or through third party platforms. For music, ad-supported streaming and download, such as seen by Pandora and Europe's Spotify, are increasingly gaining traction alongside 'freemium' combined advertising/subscription models.

Whether it is rental, retail, subscription streaming in the home, or digital kiosk downloads outside of it, the current trend for leading digital service providers has been to enhance the consumer appeal of some other core profit center. Apple, for example, operates iTunes at just above breakeven in order to add value to its highly profitable devices business – in a model that has parallels to physical retailers discounting CDs, DVDs and Blu-ray discs in order to drive sales of other core merchandise. Hulu, on the other hand, is a low-revenue land-grab effort by its network equity partners to keep audiences (especially those in the younger demographics) within the channel brand experience at all costs, as they migrate away from linear schedules towards multi-screen on-demand consumption.

USA: Online movies, TV and digital music revenue (\$bn)



Source: Screen Digest

As such, direct revenues and consumer spend from distribution of digital content remains modest in contrast to the traditional business. Annual revenue from all forms of online movie and TV consumption, combining transactional, ad-supported and subscription, reached \$1.93bn in 2009; this is forecast to climb to \$2.86bn in 2010 and \$5.21bn by 2014. Within this breakdown, less than \$1bn in 2009 came from consumer spend on retail and rental, which Screen Digest predicts will rise to \$2bn by 2014 – compared to a free ad-supported online TV streaming business of almost \$2.86bn in 2014. Only in recorded music, where digital has little or no barriers on consumer use and is now maturing as a product, is the digital channel evolving into a meaningful source of industry revenue, with Apple's iTunes emerging as the market leader. According to NPD, iTunes's digital-only business captured 26.7% of all US music sales in 2009, followed by the principally physical Walmart

with 12.5%. It's important to note that since the end of the 1990s, there has been a massive loss in shelf-space for the CD, dislodged in many instances by the arrival of the DVD, and the closure of major record stores such as Tower Records and Virgin (although, in recent years, the decline of CD shelf-space is showing some signs of stabilizing in the big mass merchants).

Bricks-and-mortar retailers have so far only skirted around the digital market – most effectively through bundled ‘digital+physical’ disc propositions that take advantage of their dominance of the packaged software and hardware goods businesses. Unlike other segments of the entertainment distribution market, they have yet to form a direct meaningful relationship with the digital customer. We are still no closer to seeing retailers becoming commercially significant fully-fledged digital service providers in the way the technology companies and TV and cable networks have become, and are therefore no closer to seeing retailers assume a meaningful long-term role in the consumers’ digital lifestyle.

This takes increasing significance in light of the long-term trend that the packaged retail business, the engine of studio home entertainment revenues, will continue to face increasing challenges, not just from digital, but also from new physical models such as \$1-a-night kiosk-based rentals. The future for packaged home video entertainment – mainly the retail model – is long-term decline. Spending on physical media for both music and video continues to fall. Packaged music was a \$4bn market in the US in 2009, forecast to drop to \$2.5bn by 2014. Packaged movies and TV retail spending is expected in the same time period to fall from \$10.9bn to \$8.6bn.

Meanwhile, not only is rental video spending growing, but pay-TV and technology companies continue to strengthen their relationships with the entertainment consumer and secure their control of the living room. Even Netflix, a successful physical disc rentals company, is becoming as much a subscription television business as it is a packaged goods one, with an increasing willingness to spend ever more for subscription VOD rights to bolster the streaming VOD content line up for its growing Netflix Watch Instantly service.

The question for entertainment retailers then is this: what is the clear path from selling discs to selling digital? And what exactly is being sold? Is it a digital file, or a services experience, like iTunes, that promises integration, portability, and therefore a reason for customers to spend and then return to spend again? To date, digital efforts from retailers of all type have been opportunistic and piecemeal, and have failed to adhere to any of the best practices for launching a digital distribution business. Digital content distributed by retailer websites, or via retailer icons on connected devices, simply compete among the clutter, and add no intrinsic value to the core retail business or capture the consumer imagination. This is often in contrast to the crisp merchandising and services experience a major retailer or service provider can deliver in any one of its stores or outlets.

Yet it is still possible for bricks-and-mortar businesses to play a defining role in the digital life of the evolving home entertainment consumer beyond simply marketing packaged goods that carry digital files or selling connected devices. Digital enables portability, taking content out of the home and on the go – an often-overlooked

aspect of digital video consumption. Portable concepts, if deployed and marketed correctly, offer a way retailers and service providers can add value to their core customer experiences – be it bringing a fresh dimension to loyalty programs, adding value to their on-premises experiences, or augmenting their existing services with a new layer of entertainment programming designed to contain churn, improve consumer appeal and support growth in other core profit centers. This would include bricks-and-mortar businesses beyond just the traditional entertainment retailers or convenience stores, and can include fast food businesses, car rental firms, restaurants and hotels to name a few, all of which can use digital entertainment to add value to their customer experiences.

2. Portable Flash: What it is and what it provides

The ability to acquire, transport and consume digital content on the move has been a major feature of the evolving digital content ecosystem, and a vital element in promoting the overall efficiency of digital distribution over and above traditional methods. Much of the credit for small, robust, power efficient digital media devices goes to Flash memory – a type of memory-on-a-chip that is physically more robust and power efficient than traditional hard-disks.

The key options open to a consumer for porting digital content using Flash memory have been:

- **Portable Media Players (and Smartphones):** flash memory embedded into personal entertainment and communication devices has replaced hard disks as the principal medium for storing content
- **USB flash drives:** flash memory storage drives using the widely implemented Universal Serial Bus (USB) connecting port of a device to move content to and from capable devices in a personal data transportation format.

Flash memory is also very widely available in a card format such as Secure Digital (SD) cards and Sony's less widely deployed Memory Stick, but flash memory cards are yet broadly used for moving digital content other than photographs. The SD card is a removable flash memory format developed by Panasonic, SanDisk and Toshiba, able to move content between capable devices that have an SD slot – including many portable devices, smartphones, digital cameras and CE equipment like TV sets and the Nintendo Wii. The SD cards are part of the open SD Association standard. Unlike USB, the SD card format has built-in secure memory, which enables support for encryption systems such as Content Protection for Recordable Media (CPRM). The format also encompasses microSD, a smaller variation for use in devices and implementation where slot space is a premium.

a. Sales of 'packaged' memory

In its crudest form, studios and labels have struck ad hoc deals with memory manufacturers to enable the direct sale of music and video on USB memory and SD cards - marketed at consumers who want to try digital but are not comfortable with downloading by memory manufacturers who are seeking to add value and glamour

to their products. For movies, there has been a recent trend of studios signing package deals on a title-by-title basis to bundle movies on USB memory, such as Paramount and Sony's separate efforts with Kingston Technologies and DivX for Transformers 2, Star Trek and This Is It. These products, typically costing \$20-\$30 depending on the size of the USB memory, are usually marketed as limited edition promotional offerings.

To date, this business has received limited commercial roll out and even less consumer acceptance. Unlike the near universal digital audio format of DRM-free MP3, digital movie files are bound by rights and platform restrictions, meaning that any digital file format delivered via a retail business model – whether as EST or bundled on physical memory – is going to be constrained by usage limitations, more expensive and less convenient than a DVD or Blu-ray. Furthermore, it is doubtful whether a significant demographic seeking to experiment with digital yet uncomfortable with downloading or streaming actually exists at all, or is meaningful enough to base a business model on.

b. In-home and out-of-home portability

Flash memory's role in the digital ecosystem starts to only take shape when viewing it as an enabler of portability for direct digital delivery service, such as the iPod was for iTunes, rather than simply a carrier of pre-packaged digital titles. The role of flash memory in portable media players is well documented – the iPod and other portable media devices untethered digital content from individual PCs and stationary in-home devices, and took digital content on the go, enabling a previously non-existent digital downloads business for music, movies and TV shows to flourish. The position of USB and SD memory cards however, as companion propositions to in-home digital download services, has been less clearly defined or explored. SD memory cards are standardized and licensed by the SD Association, which consists of over 1,300 companies. According to the SD Association, there are an estimated 8,000 CE device models worldwide that feature SD-card compatibility and over 2.5bn SD cards have been sold.

The USB installed base meanwhile is estimated to have hit 10bn units according to the USB Implementers Forum, growing at a rate of 3bn+ units per year; as of March 2010, 50 product models already have the new USB 3.0 certification. In other words, there is an ever-growing installed base of devices both in the home and mobile, capable of supporting either or both solutions. Many of these devices are directly connectable to the internet, with more and more such devices coming into the market from major CE manufacturers, while many more are capable of supporting sideloading of downloads from personal computers. In the absence of effective wireless networking for media distribution within most homes, the immediate portability of USB and SD cards within the digital consumer environment, as a convenient way of moving content between interoperable devices, is an undoubtedly valuable function whose full potential has yet to be fully tapped.

Copy protection remains a core differentiator between the two technologies. As mentioned above, while SD cards have native security, conventional USB flash memory does not. Crudely speaking, in order to protect digital files stored on a normal USB drive, a file must acquire its playback permissions over a network, usually from a service operating as a 'walled garden'. The CPRM compatibility of SD cards enables

a secure way for the keys to travel with the content. In other words, playback does not require a network connection for the player to 'phone home' (as long as the SD slot on the playback device supports CPRM, and the player firmware or software program understands relevant audio/video format and associated DRM rules).

As discussed above, the digital entertainment landscape is developing in a fragmented fashion, with the consumer experience becoming defined by competing and often incompatible device ecosystems and DRMs. For video, while portability is possible, it is limited to specific digital services environments, such as within just the Apple iTunes or Microsoft Zune ecosystems.

But the landscape is different for music. For digital music, DRM is now far less widely used and has all but ceased to exist on the major digital download services, which use the near universal MP3 and AAC formats – both of which are sold without DRM. This gives consumers a far greater level of freedom in digital music than ever before as they can now play purchased content on almost any device without compatibility or loss of access worries. For movies and TV shows however, much of these worries remain, as DRM remains for now a cornerstone of digital strategies.

In truth though, DRM is still widely misunderstood, even by comparatively informed consumers who actually know what DRM is. Typically, the term is still associated with legacy device-based DRM solutions which locked playback to a specific device or small set of devices (e.g. OMA 1). But in truth DRM has come a long way since then. So-called 'domain-based' DRM solutions register devices to users and allow users to consume content on any device within their 'domain'. This goes a long way to making DRM invisible to users. However, in order to enable playback the device still has to 'phone home' to confirm that it is appropriately licensed. At present then there are appreciable limits that this sort of solution places on consumers, including:

1. Lending content to friends and family is not currently supported by any 'in the wild' services
2. Consuming content when the device has not made the relevant connections is impossible (e.g. on a plane)

Both of these are things that consumers have become accustomed to with traditional, physical media and it means that in these important aspects digital content is more limited than physical. There are a number of methods being explored to avoid these issues (e.g. as part of the Digital Entertainment Content Ecosystem (DECE)). Another would be to add a physical tier (based on SD cards, and appropriate playback software) to an existing digital content ecosystem. As discussed above the secure memory space of SD cards provides a way for the keys to travel with the file potentially providing a best of both worlds scenario as consumers will be able to transfer any files they have stored locally onto an SD card along with the keys that govern the playback of that file. Such a solution cannot be offered by a conventional USB memory stick as there is no secure way to transfer keys. Instead users must go through the rigmarole of transferring the file and waiting for the destination playback device to (automatically) check that it has relevant permissions.

Looking ahead, the emphasis for these digital ecosystems will nevertheless shift from content stored locally on devices, where the consumer is encumbered by files and storage responsibilities, to storing it on remote servers ('in the cloud') where a content file can be streamed or (re)downloaded at anytime for a purchase, rental or subscription fee. It is generally understood that implementing a cloud-based service in tandem with portable flash-memory capable devices will be a big feature in unlocking the convenience and freedom required for driving the future digital business models.

For movie distribution, the content owner requirement for DRM and the respective rights deals continue to hinder the development of both interoperability across ecosystems and the deployment of meaningful cloud-based services. Interoperability initiatives such as the DECE and Disney's Keychest, are seeking to provide solutions to this rights management problem, in an effort to use cloud-based services, virtual lockers, common file formats and rights tokens to facilitate portability between competing service propositions, while maintaining content protection.

c. Digital Kiosks

The Digital Kiosk concept marries the flexibility afforded by USB and SD memory cards (as a means of portability) with a digital equivalent of the DVD kiosk.

Put simply, a customer can use a blank, compatible USB, SD card or even portable media player, to download digital content from a broadband-connected kiosk located outside of the home. The kiosk would usually be located on the premises of a merchant or retailer, and the download-to-flash-memory can be fulfilled by either the customer (self-service in-store kiosk model) or merchant (serviced *merchant fulfillment* model), on a variety of business models that can range from consumer-paid to promotional distribution tied into the retailer's core services experience. The reloadable flash memory either being sold, loaned or given away by the retailer (such as part of a customer loyalty program), and the digital media files could then either be bought, rented, or accessed for free as part of a larger services experience.

For entertainment retailers, digital kiosks can provide a conceptual nexus between their physical in-store experiences and digital services, in a proposition that can address the current lack of synergy between digital distribution and traditional bricks & mortar retail. It can enable the retailer to not only grow its available in-store inventory beyond the physical media products on sale, but also afford a fully integrated digital experience with its other digital outlets. This integration of physical, digital, in-store and in-home has the potential to unlock new propositions, such as 'rent now, own later', soundtrack upsells via the platform, and 'gift-and-share' models. These business models become more potent and relevant if the in-store kiosk and in-home connected device services of a provider are tied into the same back-end infrastructure and managed virtual locker services – providing anytime, anywhere functionality for a customer already within the ecosystem.

For retailers who are seeking to add media distribution to their services for the first time, the kiosk can provide a cost-effective point of entry, in a way that could have relevance to their in-store customer experience. Car rental firms, pizza delivery

outlets and hotels are among those presented with an opportunity to use portable media to materially add a differentiator to their business proposition.

As with anything in the digital space, much relies on the integration with the core business of the service provider, and the customer business model employed. Successful retailers and the services industry will approach the kiosks from the twin principles of building a successful digital content business – providing a service experience and adding a halo to another core profit center. A top tier customer to a car rental firm could certainly be provided with complementary movie rentals that are paid for as part of their vehicle rental agreement, or pizza delivery services that bring you a free (or subsidized) movie if you spend over a certain amount. The question in digital isn't just about getting customers to pay for movies, music and TV shows, it's much more about using this content to give a retailer's new and loyal customers a compelling reason to spend more and more frequently in the retailer's core business.

A key opportunity here is the economics, convenience and speed of distribution. With fierce competition in the content delivery market driving costs down, the average cost to distribute a standard definition movie online was \$0.05 in 2009 in the US; this is expected to continue falling, predicted by Screen Digest to be as low as \$0.03 by 2014. Meanwhile, the average price of flash memory is on the decline, with a 16GB SD card retailing at \$33 and falling, with the advantage that multiple movies can be stored on a single card and cards are renewable. Even if the cards were given away for free, with each card capable of being re-written over 100,000 times, the digital kiosk model has the potential to be a more economical proposition than the costs of manufacturing, transporting, stocking and distributing physical discs.

Also, the speed of downloads will be considerably faster at a kiosk than using a standard consumer broadband connection. The current generation of USB 2.0 flash drives can take 1-minute to transfer a 1GB movie file, while with USB 3.0 flash, this transfer time can theoretically be reduced to 3.3 seconds (though practical speeds

USA: Time taken to transfer 1GB over different types of connection

Connection	Mins
2Mbit/s	78.1
5Mbit/s	32.0
50Mbit/s	3.2
100Mbit/s	1.6
USB 2.0	0.6
USB 3.0	0.1
SDHC class 6+	0.5
SDXC	0.2

Note: Broadband connection speeds are as advertised - time taken includes a 20% overhead factor but excludes incidental factors (line length, congestion, wiring quality) that can lower actual broadband speed and increase time taken further

Source: Screen Digest

may well be double that). For SD memory, SDHC class 6+ cards can load a movie in less than 30 seconds, while SDXC will reduce this to around 10 seconds (again, theoretical, and subject to variation depending on technological factors). This contrasts with typical waits of over 30 minutes, and often over an hour, for a standard definition download in a consumer's home using an average broadband connection.

In the *in-store kiosk model*, the kiosk would be a customer operated self-service proposition, with customer-facing kiosks requiring retailer management and customer education. In this scenario, the proposition marries the portability of flash memory, with the inherent immediacy and lack of shelf-space restrictions of digital distribution to tap impulse demand in places of transit, retail outlets and other high traffic locations.

In the *merchant fulfillment model*, the digital kiosk in-store hardware is managed behind the counter by the retailer who can fulfill customer orders, or promote consumption of digital content, by assuming control of the process of loading media files onto portable flash memory, and distributing them permanently or temporarily as part of the business' core services experience. These can be on-demand, or pre-loaded according to pre-existing agreements. Almost all of the practical challenges to the in-store kiosk model disappear here – including issues around loading times at kiosks, and management of the customer in-store experience.



MOD Systems: providing a solution for retailers

The MOD Systems Retail Digital Entertainment Platform is an entertainment distribution platform bridging retailers' in-store customer experiences with online and in-home offerings that is able to blend local access, portable solutions and cloud storage in a flexible implementation.

In this model, MOD Systems licenses content from major and independent music, video and games rights holders, and ingests it into its Retail Content Distribution Network (Retail CDN). The company's CDN then delivers licensed content to a secure server at each retail location, with the library being updated and maintained nightly by MOD Systems' Retail CDN. Kiosks are supplied and installed on retailer premises, initially by MOD partner NCR Corporation, and each kiosk is connected to MOD Systems' CDN to provide access to digital content that can be downloaded onto SD memory cards and USB memory via the kiosk.

From the consumer side, third party device manufacturers provide the necessary infrastructure for access and playback of content downloaded to the portable physical memory. These devices can either be purchased at retail by the consumer, or distributed as part of the customer services experience by the retailer. They can be mobile devices, such as personal media players or mobile phones, PCs and laptops, mobile internet devices and tablets, or in-home devices such as optical disc media players and TVs.

Uniquely, MOD Systems offers the "GreenPlay" video format as part of its platform, leveraging the copy protection afforded by CPRM to produce a complete DRM solution and securely deliver movies to SD memory cards for later viewing on GreenPlay-compatible devices. "GreenPlay" uses the secure memory space built into SD cards as a way of securely transporting both content and the keys required to read that content, thus enabling content portability that rivals physical discs like DVD. GreenPlay builds on the 4C Entity's SDS-CPRM specification, with its audio, video, and encryption standards, to produce a highly versatile media format that allows the secure delivery of digital video content to SD memory cards for viewing on compatible devices. Without a common standard the promise of SD-based DRM can never be met.

How a retailer enables the MOD Systems solution will vary and can depend almost entirely on the service model and retail experience. There are four broad identifiable categories of retailers who will be able to deploy business models using digital kiosk technology:

- **Media retailers** – Media retailers – where the renting and selling of media and CE devices is a core business. These include major consumer electronics retail outlets and super-stores.

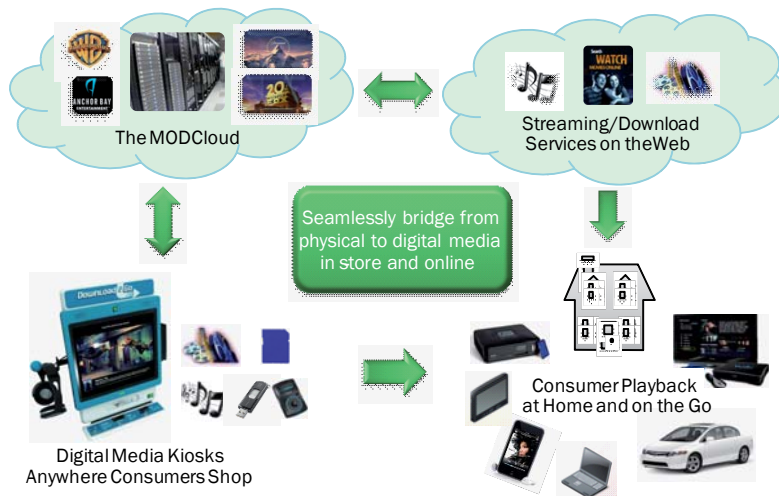
- **Hybrid retailers** – where renting and selling of media is an auxiliary business, such as grocery and convenience stores.
- **Non-media retailers** – where there is no media business, and revenue is derived from other products, such as coffee shops, apparel, and fast food outlets.
- **Services companies** - where there is no media sales, and revenue is chiefly derived from services such as car rental, healthcare, and airlines.

The opportunities for each retailer type will be very different, as will the implementation and integration of the business model to benefit the core distribution.

A media retailer for example, could provide in-store kiosks as part of a brand-integrated in-store/in-home digital platform. This would combine downloads to portable flash memory, a connected living room streaming service, and virtual locker services, all tied together in a singular digital services backend, providing a unified digital customer experience – all enabled by brand-integrated connected devices that can be sold in-store. A digital customer could not only purchase the connected devices and flash memory from the media retailer, but also buy into the paid downloads and streaming content served by the retailer services either in the store or at home.

A services company could add value to the products and services it provides to its preferred customers by distributing entertainment on memory cards loaded by its staff from back-office kiosks. A car rental firm, for example, could loan SD memory playback hardware or simply the SD memory itself to its customers for the duration of a vehicle rental, in the way it currently loans

MOD digital delivery model



Source: **MOD** systems

GPS devices, with movies, TV shows and music being pre-loaded according to customer demand.

Different fees can be charged for equipment and content. Or for the most valued of customers, the most preferable route would be for direct fees for the entertainment equipment and content to be waived and instead written into the rental agreement itself.

In both examples, the underlying models remain relatively similar. The retailer pays a CAPEX for kiosk installation, alongside software and a managed services fee. The third party systems integrator acts as reseller, and MOD assumes the role of content services provider. Importantly, MOD is not a retailer, nor does it participate in the consumer transaction other than distribution, royalty reporting and sales tracking. The company's core business is software licensing and content delivery / application service provider services fees. As the different classes of retailers evolve, so will the consumer proposition, and in time the business models underpinning the services experience are also expected to evolve – such as leasing the entire system, revenue sharing model where appropriate, and also unlocking the potential role of advertising.

MOD Systems Retailer Value Proposition

Retail Digital Content Lifecycle Management, Enabling ...

<p>Grow Video and Music Sales</p>	<ul style="list-style-type: none"> • Popular new releases always in stock so customers don't leave empty-handed • Nearly unlimited catalog broadens selection and makes room for optical top sellers on DVD, Blu-ray, and soon 3D • Bigger basket with GreenPlay accessories – memory cards and playback devices • New revenue opportunities from impulse MP3 purchases and movie rentals
<p>Increase Traffic and Customer Loyalty</p>	<ul style="list-style-type: none"> • New releases attract customers who purchase other higher-margin products • High-profile promotions with low-cost digital fulfillment (hit movies, top-selling artists, ...) • Grow customer loyalty by including content with service offerings
<p>Expand In-store Digital Media Offerings to Online</p>	<ul style="list-style-type: none"> • Add online component to in-store offering – buy at retail, copy in digital locker • Integrate accounts for in-store and online digital media offerings • Kiosk services can be extended to future applications – customer service, online stores, ...

Source: 

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