What can Apple TV™ teach us about Digital Signage?

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Executive Summary

As a savvy communicator, you could be increasing revenue by building dynamic media channels into every one of your business locations via digital signage, yet something is holding you back. The cost and complexity associated with such technology is still too high for the average business owner to tackle. *Or is it?* Some of the traditional vendors in the digital signage industry make the task of connecting and controlling a few screens out to be a momentous challenge, a task for high paid experts. On the other hand, a new class of technologies has arrived in the home entertainment world that strips the exercise down to basics. And it's surging in popularity.

Apple TV™, and other similar streaming Internet devices, have managed to successfully eliminate the need for complicated hardware and complex installation processes to allow average non-technical homeowners to bring the Internet to their television screens. This trend in consumer entertainment offers insights we can adapt to the commercial world, lessons for digital signage vendors and their customers, which lead towards to simpler, more cost-effective, more user-friendly, and more scalable solutions. This article explores some of the following lessons in detail:

- Simple appliances outperform PCs and Macs as digital media players
- Sourcing and mounting a TV is not the critical challenge
- In order to scale, digital signage networks must be designed for average non-technical users to operate
- Creating an epic viewing experience isn't as important as enabling a large and diverse network
- Simplicity and cost-effectiveness go hand in hand

By making it easier to connect and control screens, tomorrow's digital signage solutions will help more businesses to reap the benefits of place-based media. Digital signage networks will be able to scale more cost-effectively, and businesses of all kinds will be able to participate.

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Problem

The impact that Apple TV™, and similar device-oriented Internet technologies, have had on the way we consume media at home is well documented. A mass abandonment of cable television is underway. It's been dubbed the *cord cutting revolution*, and it is led by millennials who grew up in the Internet age and expect their entertainment to be delivered on their terms.

Digital Media Players ("DMPs") arrived on the market only a few short years ago and yet they have already penetrated millions of homes. Digital signage, on the other hand, which has been around for decades, has yet to achieve such mainstream acceptance. Where consumers are rushing to connect and control their screens to the Internet so they can become masters of their own media universe, business owners seem to be lagging.

Surely the profit motive of most companies should encourage store owners, or anyone who has an interest in selling at retail, to invest in digital signage. Owning the screens inside retail locations can help marketers to boost sales through intelligent promotional messaging and drive additional revenue opportunities through third-party advertising services. Furthermore, it seems reasonable to expect that most businesses have a means and an organizational prowess for marshalling the resources necessary to put up a screen that exceeds that of the average homeowner. So why, when so many homeowners are quickly moving to Apple TV™ to connect their screens to the Internet, are average businesses not moving at an even faster pace to put screens to work inside their places of business?

In a word, *complexity* is to blame. For a variety of reasons, digital signage systems have become notorious for their complexity—both in their initial set-up procedure and in their ongoing management functions. For the most part, digital signage systems were designed to be used strictly by professionals who possessed the specialized knowledge to make all the technical gears work. The management controls they built didn't have to be intuitive or simple, necessarily. Normal business people, the domain experts, were expected never to see them. The businesses that requisitioned digital signage solutions in the early days were told they needed specialists to work "behind the curtain" to make the system work and to execute every promotional campaign in a professional manner. The same was true for setting up a digital signage network in the first place. The on-premise challenges of installing a digital sign and

keeping it working over its life time was considered the task of professional engineers. This approach to building and managing a digital signage network allowed systems to evolve without much emphasis on ease-of-use, ease-of-deployment, without thinking of end users *as operators*.

Operating a digital signage network in the 2000s had echoes of the mainframe computer days when using computers meant working through technicians who were the only ones expected to know how to operate them. The mainframe computing era, however, gave way to mini computers and then personal computers, before moving towards mobile computers, and, now, wearables. Throughout this evolutionary process, while computing power within the machines increased, so too did the ease and intuitiveness with which people could operate them. A paradigm shift began that would allow average non-technical people to participate and apply business logic as its key users. The systems became easier to work with, more democratic in nature, and more pervasive in business and society.

In many ways, we are still at the beginning of this same evolutionary process with digital signage. The problems we have with the digital signage systems today are the same ones we've been struggling with for years. The equipment is too difficult to install. The systems are too difficult to operate, manage, and scale in a cost-effective way by non-technical users.

Internet TV seems to have figured something out. Apple TV™, and other DMPs, have managed to simplify the technology and bring Internet-based video entertainment (and more) to television screens *en masse*.

Comparing Apple TV™ with Digital Signage

Enjoying media at home is certainly quite different than consuming media at a workplace. Television viewers are mainly concerned with entertaining themselves, based on their own tastes and preferences, while businesses are concerned with engaging their customers. Consumers are more or less in charge of their own viewing experience, using a remote control, while patrons of a business are usually subject to whatever content the establishment chooses to expose to their guests. Store owners, and the industry partners they represent, choose their

programming based on a combination of factors. Usually this means entertaining audiences and conveying a promotional message at the same time.

Consumers enjoy their entertainment in a casual, relaxed environment, and it's not the end of the world if they encounter a technical glitch. Business owners work in demanding conditions where time is money. They have no time for technical problems that might distract them from their job. Sometimes the workplace itself is simply a difficult environment to deploy expensive equipment that might fail under adverse operating conditions.

Although there are differences, there are also *striking* similarities. When you compare the new methods of bringing digital media entertainment into households with the central components of digital signage, you see that the technical building blocks are basically the same. You have a television and a media player on premise. You have an Internet

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connection. And you have software – the cloud services used, in one way or another, to move content to the screen. While there are plenty of different applications for digital media inside a place of business that call for special (or additional) technical components (video walls, interactive kiosks, and so on - see sidebar), for *basic* installations, it doesn't have to be so complicated.

Apple TV™ is a consumer-grade device that uses software designed for channel surfing, not creating and managing a digital signage network. Apple TV™ itself isn't a good choice of media player if you are serious about mounting your own digital signage project. But, on the other hand, the device, and others in its category, have been tremendously successful in solving the tricky last mile issues associated with getting a screen connected. Given that the two processes, home entertainment and commercial digital signage, share common technical building blocks, it seems obvious that we should examine digital media player systems like Apple TV™ and look for lessons we can borrow and then adapt to digital signage. Perhaps Apple TV™ has

something to tell us about how a professional grade digital signage media player ought to be designed?

What can we borrow from Apple TV™?

Televisions, both in the home and in the workplace, are rather late in being connected to the Internet. The surge in Netflix's subscriber base in recent years tells an interesting story of how a critical last mile problem was at least partially responsible for this delay. Netflix started in 1997 as a DVD mail order company. By 2007, its subscriber base was a little over six million. While that may sound like a lot, it actually pales in comparison to their numbers today. As of the fourth quarter of 2015, Netflix had acquired more than 75 million streaming subscribers[1]. It was during this stretch of time that DMP systems like Apple TV™ and Roku™ began to arrive on the market. These devices made it *much* easier to get your TV at home connected to the Internet.

The rush of Internet users to buy these devices, and then to use services such as Netflix to control their media world proved a point. By solving its last mile problem, DMP systems showed Netflix that technical challenges in its distribution model were largely to blame for holding back what turned out eventually to be explosive user growth. It wasn't shortcomings in its service. Consumers didn't lack interest in the catalog of movies it had to offer. Demand was there; they just couldn't access it. It was the on-premise challenges of getting the screen connected that was blocking the way.

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[1] http://variety.com/2016/digital/news/netflix-hits-75-million-streaming-subscribers-stock-jumps-1201683114/

What kind of digital signage are you talking about?

Digital signage **is a huge tent** — not one technology, specifically, but a category—much like the umbrella term *information technology*, so it's unwise to think that all digital signage solutions fall under the same description.

If you are exploring the idea of installing a video wall, or interactive kiosk, or some kind of advanced custom solution you should first consult a professional. The comparisons of Apple TV to digital signage devices and applications does not hold for all kinds of projects and the more complex your requirements, the more the comparison break down.

Having said that, it seems as though a disproportionate amount of the cost, and the pitfalls of digital signage, arise from complexity. Moreover the greater share of the opportunity in digital signage is actually in the more basic projects, which seek simply to connect a standard large format display. For these simple installations the comparisons to Apple TV are particularly striking.

Apple TV™ solved Netflix's distribution problems in a way that personal computers could not. PCs and Macs were already very popular, but average customers were not prepared to use them to connect their TVs. While technically possible, connecting TVs with personal computers took time to figure out and effort to manage. It took the introduction of a new class of simple and cost-effective appliances to break through the last mile barriers—thus opening up the distribution channel to tens of millions of American households.

What's the lesson here for digital signage? If most consumers want to connect and control their television to the Internet, as long as it's easy, isn't the same thing true for most businesses? Given the strategic position retailers hold in the marketing process, and the valuable opportunities screens offer inside a retail establishment to influence buying, it sure seems likely.

Sourcing and mounting a TV is not the critical challenge

Digital signage, as a class of solutions, is broad and diverse. At the same time a *basic* installation isn't so different than getting a screen connected at home. It follows then, in most cases, that simply getting a screen on the wall is not necessarily the hard part. While some in the digital signage industry would like to tell you otherwise, TVs are not particularly difficult to source or to install – not for a simple digital signage project.

Even while non-standard screen technologies are arriving on the market, the vast majority of digital signs today use a conventional large format television, and standard TVs are mass produced like commodities. What's more is that businesses, just l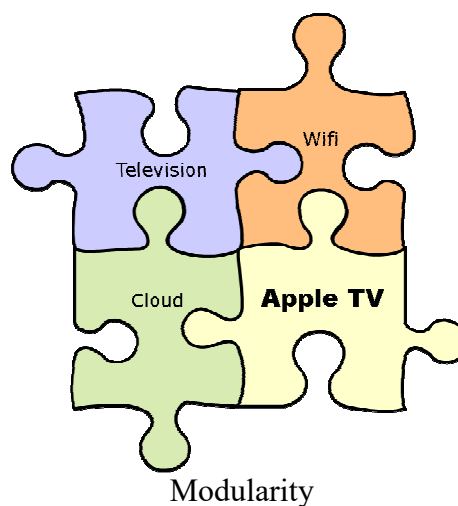ike consumers, have been installing televisions inside their places of business for years without too much difficulty. Be dubious of vendors who insist you need to buy a special kind of proprietary TV. If you already have a screen on the wall, part of the solution is already in place. If not, it's relatively straightforward for just about anyone to get one in place. This is something to consider when starting a digital signage project. Too

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much complexity is one of those things that drive up costs and delay deployments. If project managers can separate the relatively simple and standard task of setting up a TV—which anyone could perform—from the new, domain-specific tasks of getting the digital signage processes in place, it can help them to focus in on the value-added components, and getting them right.

This principle is on clear display in Apple's go-to market strategy with Apple TV™. The product managers at Apple didn't think about bundling their media player with a TV to create a more convenient total solution. That would make the solution substantially more expensive. They didn't work through channel partners in the Audio Visual (A/V) industry, so their customers could get some help installing the equipment. They safely assumed that, in most cases, the consumer could figure this part out for themselves, if the TV wasn't already in place (which it is in many cases). Apple took a modular approach. Their product strategy was designed to fit as a component within the existing A/V landscape in the home. This allowed them to focus on their core value-add—the media-player-to-the-cloud piece— and it made their sales process easy to understand and easy to execute.

Modularity

Simple appliances outperform PCs & Macs as digital media players

Before there was Roku™, Apple TV™, or Google's Chromecast™, there was Blu-ray DVD players, gaming consoles, and, of course, home computers (PCs and Macs). Netflix tried at different times to use these pieces of equipment to equip households with Internet-based technology that would carry their content to the television and solve their last mile problem. While these efforts may have had some limited success, improving on their earlier mail-order DVD distribution model, they didn't lead to the explosive growth that would come later. It wasn't just the fragmentation of having many permutations of these different kinds of technology to navigate that posed a challenge. None of the earlier options were actually *designed* to be used as simple appliances for the purposes of streaming Internet content to a screen.

PCs and Macs, while powerful, are designed as general purpose workstations and connected to a monitor via a VGA cable, not HDMI, and operated using a keyboard, not a television remote. Given their various original purposes, to get this equipment to work for Netflix, they had to be modified, carefully set up and configured, and then maintained. Software updates and virus protection had to be considered. A collection of small technical challenges, while trivial for some techies, presented enough complexity to mainstream users that many of them (as it turned out, *most* of them) stayed away.

Fast forward to 2008, when DMPs began to arrive on the market in earnest. Something was different about this class of device. Roku™, Apple TV™, and Chromecast™ were not designed for some other original purpose. They were designed to do one thing well and that was to connect your screen at home to the Internet. Yes they, too, were just another type of computer, but they were reimagined from the ground up to do the one job that Netflix needed them to do and nothing more. They used HDMI cables to be more user friendly with audio-visual equipment. They used a different kind of operating system—not one designed to manage a workstation but one designed to manage a television viewing experience and a simple 1-2-3 set-up procedure.

To put it simply, they repackaged a computer in a way that turned it into a simple appliance. The result was a new class of device, less expensive than a personal computer, which anyone could plug in to the back of any HDMI-enabled television and get online using Wifi—the same technique used by millions to connect their mobile phone to the Internet. This kind of device had fewer moving parts. It was easy to keep up to date, and overall, it was easier to manage, especially for non-technical users.

In order to scale, digital signage networks must be designed for average non-technical users to operate

You can trace the roots of the digital signage back to two industries above all others. Namely, Professional A/V (think installing video conferencing equipment) and Broadcasting (think closed-circuit TV networks). The early proponents of digital signage maintained a strong separation

between those that owned and operated the businesses where digital signs were to be placed and the so-called technical experts who, behind the curtain, would deploy and manage the system. In Pro A/V, you let the experts install the technical equipment. In broadcasting, you let the professionals in the broadcast studio create and execute the content. This leaves you, the consumer to subscribe to a cable network and participate in the programming as a passive consumer.

In today's Internet culture there is no longer a strong separation between audiences on the one hand and content creators on the other. The broadcast industry had CNN; the Internet age has Youtube™. We're now living in a rip, mix, and burn culture where just about *everyone* has a video camera in their pocket and everyone can be a creator and publisher. Youtube™, one of the leading apps on Apple TV™, claims its prime time viewership among 18 to 49 year olds is more than that of the top ten TV shows combined[2]. Youtube™ didn't have to invest millions in broadcast towers and cable networks to develop its audience. It didn't rely on a close-knit group of professionals to create or curate the content in order to maintain the highest standards of professionalism. Instead it took advantage of new trends in technology which made it easier for average people to create and publish video, and made an easy to use website for users to discover new content based on their own tastes and preferences. There's a lesson here which we can apply to digital signage.

The early proponents of digital signage built systems that were closer to CNN's approach. The systems were designed without much— if any—consideration for ease of use and inclusiveness. The lesson for those of us in the digital signage industry is this: if you want your system to grow and involve many different kinds of stakeholders it should be designed with average, non-technical people in mind.

We in the digital signage industry should take heed. The way we design our systems will dictate the way they are used and whether they grow or die. As long as we

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[2] http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-you-tube-ad-spending-20160506-snap-story.html

build networks that are considered the exclusive domain of specialized operators pulling gears behind the curtain, we won't truly be able to incorporate local knowledge into our campaigns. As long we build closed systems with no regard for extensibility or modularity, we won't see the kinds of digital signage systems that are truly scalable. And we won't catalyze the distributed build out of an Internet of Screens that holds so much promise as a dynamic retail marketing engine which one day might span the globe.

Creating an epic viewing experience isn't as important as enabling a large scale and diverse network

Sometimes a new technology breaks through because it offers a stunning upgrade to an aesthetic experience. If you fall in love with dazzling new improvements, it quickly seems as though the old standard just won't cut it any more. IMAX improved on the movie screen this way. Surround sound and HDTV improved television, and so on. But this does not describe the breakthrough that Apple TV™ and others made by bringing Internet TV into the home. The actual viewing experience of watching a program on Apple TV™ offers no improvements, aesthetically, over watching shows on cable TV. As an example, Youtube™ is one of the more popular video applications on Apple TV™. Amateur video is welcomed in the Youtube™ community, perhaps even encouraged. Given this downgrade in production values, you could easily argue that the aesthetic experience of Youtube™-style video entertainment has taken a step backwards with Apple TV™. And, yet, viewership of Youtube™ is clearly starting to dwarf even the highest-rated shows on network television.

Apple TV™ is helping to move the viewing experience from computer monitors and cell phones to the home where channel surfers can browse and enjoy their entertainment in their native environment. What Youtube™ is enabling on the supply-side of the entertainment exchange—a place for anyone to create and share videos—is what Apple TV™ is offering on the demand-side—a place where anyone can choose which channels (apps) and which videos they want to consume. Youtube™ may be the giant but it is just one of many of the apps available through Apple TV™. This many-creators-to-many-consumers model has created a large and diverse "long-tail" market for entertainment. It matches individual tastes and preferences with micro-niche communities of content creators in an efficient way that broadcast television, by definition,

never could. This teaches us that, in media, creating an epic viewing experience, while important, isn't always as important as enabling a large and diverse distribution network. Video walls may be ambient and beautiful but, besides being a cost and maintenance burden, they aren't easy to keep fresh and they don't improve on the conventional TV in its ability to bring dynamic marketing channels into your place of business. While quality and professionalism will always be important factors, marketers tend to place even more value on things like reach and scale, localization, and targeting in their promotional campaigns as it allows them to get more personal with their intended audience but on a massive scale.

If, by following Apple TV™'s lead, digital signage technologies can enable a large and diverse network of digital signs, a whole new phase of evolution is made possible. Digital signage has more potential as a marketing medium if we can grow it beyond the large foot traffic locations, like airports and shopping malls, to include smaller places, like golf clubs and health clinics, too. Connecting audiences inside all places of business, large and small, into one virtual audience pool helps to increase the scale while also giving marketers more granularity in their choice of target audience.

Simplicity and cost-effectiveness go hand in hand

Apple is known for bringing a heightened sense of simplicity to everything it designs, and Apple TV™ carries on this legacy. In a way Apple TV™ is just another computer with a CPU, a memory chip, and a hard disk. But it's a computer that has been reimagined and *repackaged* in a new way to align with and serve a singular purpose. The important exercise of repackaging the computer into a compact plug and play device has led directly to both the simplicity and the cost-effectiveness that we've come to expect in this class of device. Understanding that "less is more" was perhaps the first step in adapting a workstation into a simple yet effective media player. Choosing HDMI over VGA simplified the connection to the TV screen. Choosing to support Wifi removes the need for cables, thus simplifying the installation process. Creating software that could be

> "*Understanding that 'less is more' was perhaps the first step in adapting a workstation into a simple yet effective media player*"

operated by remote control and was designed for the narrow requirements (as compared with general purpose computing) of channel surfing, further streamlined the experience. Apple's designers made it simple, and, in doing so, removed the need for additional proprietary equipment, costly cables, and professional installation services. Furthermore, with fewer moving parts, the simplicity of the device has undoubtedly served countless people by making it much easier to troubleshoot a problem when something does go wrong.

Apple's efforts to streamline the device continued beneath its exterior surface, and perhaps by simplifying some of the inner workings of the device (compared to a general workstation), they were also able to keep their costs in check. For example, they chose to use a hard drive that had less storage capacity than the hard drives used in personal computers at the time, saving hundreds of dollars in the process. Apple decided to price Apple TV™ (2nd gen) at $99—not the cheapest in the class, but quite a lot less than the $1099 of an iMac or even the $599 price point of the first iPad. Would Apple TV™ would have been so popular if it was priced at $499? It is hard to say, exactly, what impact the pricing of the Apple TV™, and its major competitive solutions, had on the marketplace and the explosive adoption rates that would follow in the coming years, but it is fair to say that the simplicity of the device contributed to its cost-effectiveness. We might also say that the reverse is also true. The cost-effectiveness of the device might have allowed the device to be more accepted, limitations and all. After all, it was a simple device that was asked do only one thing. What do you expect for $99?

The lesson here for digital signage is that simplicity and cost-effectiveness often go hand-in-hand. Does your media player need all those bells and whistles? Was it designed for your specific purposes? Is it possible that features baked into your digital signage media player are, at times, creating unnecessary complexity, adding costs and causing problems? If your needs are rather simple, it pays to be dubious of those extra moving parts.

Conclusion

A new class of purpose-built digital media players, led by Apple TV™, did something for channel surfers that personal computers before them could not. By offering customers an easy-to-use and cost-effective appliance that fit in well with their existing home entertainment system, Apple TV™ dramatically simplified the task of connecting TVs in the home to the Internet. By solving a

critical "last mile" issue, Apple TV™, and other devices like it, made it easier for millions of households to connect to, and enjoy, new Internet-based content services, such as Netflix and Youtube™.

This story from the realm of consumer entertainment has interesting parallels in the world of business where retail managers seem to struggle with connecting and controlling screens inside their places of business. Apple TV's example offers lessons we can adapt and apply to digital signage where systems were traditionally designed for specialists and, thus far, have been neither simple, nor scalable.

While some digital signage projects are more complicated, the majority are actually quite basic, presenting many of same challenges we have seen homeowners overcome with the help of Apple TV™. To follow the example of today's modern digital media players, digital signage vendors should adapt their technology to make it simpler, more cost-effective, more user-friendly, and designed with scalability in mind.

Screens located inside retail stores represent a special opportunity to influence buying decisions where it matters most. Naturally, marketers have plenty to gain by controlling the screens inside places where their products and services are offered for sale. Apple TV™ helped Internet TV to soar in popularity over the last few years. A plug-and-play appliance built for digital signage has the potential to do the same for the world of business.

About the Author

Mark Hemphill is the Founder and CEO of leading digital signage solutions provider, ScreenScape. ScreenScape makes software that helps businesses connect and control screens over the Internet. Using a simple plug-and-play device, ScreenScape customers can turn any screen into a connected digital sign. Once a screen is connected, it can be updated, monitored and managed over the Internet using ScreenScape.com

ScreenScape Connect

Brand marketers and retail networks use the technology to publish digital signage content on screens inside their stores. Health clinics, university campuses, and other kinds of venues use it to engage and entertain their visitors. It's part of a growing technology arena called place-based media that is rapidly turning TV screens outside the home into location-specific media channels.

For more information

For details and to watch a demo, visit us at http://www.ScreenScape.com Or contact sales@screenscape.com