



Divergence of Device, Convergence of Function

By Seth Hallen, Testronic Laboratories

Today at Blu-Con, we are focused on the content and hardware driving the Blu-ray Disc format. Our industry has positioned Blu-ray as an evolved DVD, but DVD is essentially A/V content wrapped by a bit of programming, whereas Blu-ray is really software, or in recent parlance – an app – wrapped around some A/V content. The challenge is to ensure that regardless of the number of available content delivery mechanisms or apps, Blu-ray retains a place in the content ecosystem as the “app” by which the consumer receives the highest quality content.

In his article for the Fall 2010 M&E Journal, my Testronic Labs colleague posed the question, “are apps becoming the new content?” As we are seeing with the explosion of apps and app stores and the invasion of apps onto “non-traditional” devices, such as TV’s and several of the recent offerings from the Studios, it is looking more and more like this is certainly how it is playing out.

Now that apps have arrived, they are driving a quantum shift in how content is delivered to the consumer. In addition to empowering content delivery, they are also smoothing the way for the creation and adoption of new devices, the most obvious being tablets. It’s definitely going to be an interesting holiday season.

As function converges (meaning on any device you can watch TV, surf the web, purchase products, video chat, etc.) and devices multiply, the key words we are hearing more and more are “ubiquity” and “interoperability,” which in this case are inextricably linked.

Ubiquity

Increasingly, consumers are expecting to be able to access their content and their favorite portal not only just anywhere and everywhere, but also with great ease and elegance. From the computer, to the TV, to the tablet, to the phone, the same content needs to be available, easy to get to, and create a positive experience for the consumer. There are no excuses. If there is a problem with an app, the feedback is swift and ruthless. How often in reviews have we read something like, “this is awesome, but how come it isn’t available on...?”

Taking it to the next level, the experience also needs to be *seamless*. While recent initiatives are solving the problem of rights management, other companies are creating technology to create a seamless consumer experience. With the Netflix app, for example, a consumer who is streaming a feature on their TV can pause the feature, head out to their favorite coffee shop, pick up their tablet with the same app, and resume the movie right where they left off. If the tablet runs out of power, they can pick it up again on their phone. Imagine the integration of these two technologies, where even if they were to switch to an entirely different delivery mechanism, for example the VOD in a hotel room, they could still pick-up where they left off. The possibilities are endless.

Which brings us to...

Interoperability

Java, EBIF, iOS, Android, Blackberry, Symbian, MeeGo, Windows, Windows 7 Mobile, MacOS, and on and on – your app not only has to work *on* all of them, but also work *across* all of them. I'm sure I'm preaching to the choir when I say that this is an enormous challenge. Even more, apps will soon be coming that interact among various devices simultaneously. You will be able to load a movie on your Blu-ray player and use your tablet to bring up all the ancillary content. Cool? Yes. Challenging? Undeniably.

Quantum Shift

What we are seeing here is a paradigm shift from an A/V content-centric home entertainment environment to a connectivity-centric ecosystem of which A/V content is one part. In both development and testing, the delivery mechanism, from user interface to back-end transactional support, must be carefully designed and tested in order to safeguard the consumer experience.

So, how do we make this work? There is still a significant amount of R&D remaining to be performed, but what I do know is that it will require another kind of convergence, a convergence of disciplines, in both engineering/programming and quality assurance. No longer is it possible to sit in a silo, working in just one area. Developers have to embrace a diversity of skill sets to optimize the reach, function, and experience of their product. In addition, in order to meet ever tightening deadlines and work within ever shrinking budgets, a quality assurance approach (testing throughout the development process) will yield superior results to a quality control approach (testing at the end of the process) across a wide range of design disciplines.

Disc-Based Content

There is a notion that digital files will supplant physical discs, like the mammals replaced the dinosaurs. I would again argue that while there are many content delivery mechanisms available, and many more right around the corner, Blu-ray will continue to thrive for a long time simply because it offers the highest quality A/V consumer experience available. As a result, apps are being developed to enhance the Blu-ray consumer experience by connecting

content on the disc with content from external sources. By extension, it is likely that content access will soon become seamless to the consumer. If a consumer wishes to access a particular feature, the interface will simply choose the best source for that feature, whether a Blu-ray disc in a player, local network repository, VOD, or streamed from a website. Perhaps it will even know what discs are in your library and request that you put your choice in a player or click “OK” to find an alternate source.

It is an ambitious goal and requires meticulous planning, development, production, and testing to safeguard the consumer experience. Nothing will inhibit proliferation more than if it doesn't work on a significant number of designated end-user devices.

One thing is certain: Blu-ray will remain a key part of the content ecosystem for years to come.

Website

Website development and testing is a perfect training ground for mobile app development. User interface, performance efficiency, and content management are critical to both disciplines. Not that long ago, I sat down with one of our website testing experts and was once again amazed by the sophistication of the development of web applications and the number of services necessary to support our industry. I was especially struck by the performance analytics that can literally help increase revenues by reducing opportunity cost, which may not be apparent when simply accessing the website. For example, a website may appear to be performing well when accessed at several random times, but perhaps every day at 3pm the site slows to a crawl for 10 minutes. For a retail site, this could mean dozens of lost transactions, not to mention unsatisfied customers who never return. Proper monitoring of website and network performance can reduce these types of problems, thereby increasing revenues.

Games

Since games ordinarily work across multiple platforms, it hardly needs to be explained that game development and testing experience play a critical role in mobile app development. Games already require a great deal of cross-functional expertise in the development process. The challenge, of course, is creating a compelling video game experience while still maintaining the smaller footprint required for apps. This helps explain why social games are the most explosively growing segment of the video game industry, and possibly the app industry in general.

Hardware

As mentioned above, interoperability is key, and therefore hardware compatibility is an essential component of app development. Decisions need to be made on which operating systems, platforms, and devices an app will support. For example, it is not enough to test on one Android device, as implementations of even the same version of Android on different devices can have different results. There is an art to selecting a hardware testing matrix,

whether for Blu-ray Discs, DVD's or mobile devices. As the devices proliferate, it becomes impossible to test on every one, so detailed research into market share, chipsets, and firmware is necessary to determine a configuration which optimizes both coverage and testing cost.

Network

Networking, in the form of the Internet, is the connective tissue of the entire convergence trend. How an application performs under different home networking environments is critical to the consumer experience. Applications need to elegantly handle both poor or variable network environments and sudden problems, such as loss of Internet connection. Proper design and testing are necessary to ensure a positive consumer experience.

Onward...

As apps continue to proliferate on a plethora of devices with increasing functionality, ubiquity and interoperability are watchwords of our Industry. In order to achieve the goal of seamless access to content across all of these platforms, it is necessary for design and quality assurance to involve a broad range of disciplines; including disc-based content, games, website, hardware, and network. As we all know, the consumer will ultimately be the force that decides which of the many recent and yet-to-arrive approaches is the optimal content delivery system. We must never forget that the consumer experience is still king.

Seth Hallen, CEO, Testronic Laboratories Hallen oversees global operations and brings his 20 years of leadership experience to the execution of TL's strategy in emerging markets. Prior to joining TL, he was VP of North American Operations at Lightworks, the developer and supplier of high-end editing solutions for film and television, and oversaw the business development of Digital Media Services and DVD Authoring for Lightning Media in Hollywood, CA. Hallen's production expertise was recognized when he won an Emmy Award in 2005 as Producer of TalkShow.TV, honored as Best Magazine Format Broadcast. Mr. Hallen currently serves as a board member of both the Hollywood Post Alliance (HPA) and the International Digital Media Alliance/DVDA (IDMA), as well as an Advisory Board Member of Media & Entertainment Services Alliance (MESA).

About Testronic Labs Testronic Labs, established in 1998, is the worldwide leading Quality Assurance provider of choice for the software, hardware, digital media and entertainment industries. Services cover DVD, Blu-ray and video game QA along with a range of services for telecommunications, e-learning, interactive software and hardware products as well as a suite of certification standards.

Testronic Labs' skilled team provides testing of any content across any medium to any end device. Based in Burbank, CA, Pinewood Studios and central London UK, Diepenbeek, Belgium and Warsaw, Poland, Testronic Labs is the only global Quality Assurance company operating across the entire digital media industry. For more information, please visit www.TestronicLabs.com.

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