Divergence of devices, convergence of function

Are apps becoming the new content? As we are seeing with the explosion of apps and app stores, the invasion of apps onto 'non-traditional' devices such as TV's, and several of the recent offerings from the movies studios, the answer is looking more and more like this is certainly how it's playing out, says SETH HALLEN, CEO of Testronic Labs.

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 one being the tablets.

As function converges (meaning you can watch TV, surf the web, purchase products, video chat, etc. on any device) 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 must 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 come across 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 like Disney's Keychest and the D.E.C.E's Ultraviolet are solving the problem of rights management, other companies are creating technology to create a seamless consumer experience.

With the Netflix app, a consumer who is streaming a feature on her TV can pause the feature, head out to her favorite coffee shop, pick up her tablet with the same app, and resume the movie where she left off. If the tablet runs out of power, she can pick it up again on her phone. Imagine the integration of these two technologies, where even if she were to switch to an entirely different delivery mechanism, for example, the VOD in a hotel room, she could still pick up where she 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 them. I'm sure I'm preaching to the choir when I say that this is an enormous challenge. Even more, apps are now available that interact amongst various devices simultaneously. You are able to load a movie on your Blu-ray player and use your tablet to bring up special 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 (testing throughout the development process) approach will yield superior results to a quality control (testing at the end of the process) approach, across a wide range of design disciplines.

Disc-based content

There is a notion that digital files will supplant physical disc, like the mammals replaced the dinosaurs. I would 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 appearing which 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 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.

Website

Website development and testing is a perfect training ground for mobile app development because 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 blown away by the sophistication of the development of web applications and the number of services necessary to support our industry. I was especially fascinated 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 platform, it hardly needs to be explained how critical game development and testing experience play into mobile app development. Games already require a great deal of cross-functional expertise in the development process. The challenge, of course, is the smaller footprint required for apps while still creating a compelling video game experience, which 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. It is not enough to test, for example, 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, DVDs 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 while increasing functionality, ubiquity and interoperability are watchwords of our industry. In order to achieve the goal of seamless access to content across all 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.

Of course, we must never forget that consumer experience is still king. As we all know, the consumers will ultimately be the force who decides which of the many recent and yet-to-arrive approaches is the optimal content delivery system.

BIOGRAPHY

SETH HALLEN oversees global operations and brings his 20 years of leadership experience to the execution of Testronic Lab's strategy in emerging markets. Prior to joining Testronic, he was VP of North American Operations at Lightworks, the developer and supplier of high-end editing solutions for film and TV, and oversaw the business development of Digital Media Services and DVD Authoring for Lightning Media in Hollywood, CA. Contact: www.testroniclabs.com