

Changing the game

New gaming landscape creates both challenges and opportunities.

In many ways, 2013 is a landmark year for both visual effects companies and game developers. It is the year that saw Rhythm and Hues win an Oscar while simultaneously filing for bankruptcy; and the year that both SONY and Microsoft introduced powerful new gaming consoles. While not directly related, both events shine a spotlight on the challenges media and entertainment companies face in profitably creating digital content for consumers today. This article looks at the impact these types of events have on the gaming industry and examines what might lie ahead. It also takes a look at the ancillary, but fast-evolving, field of mobile gaming.

The rise of cinematic gaming

The top game developers share one thing in common with top filmmakers. Both want to create rich experiences that no-one has seen before; and today that means creating digital visuals of astounding complexity, including photo-real environments and believable CG characters: characters like Joel and Ellie in *The Last of Us*™ or Jodie from *BEYOND: Two Souls*™. And, as game characters become more near realistic and less stylized, game developers are faced with the same challenges that have long plagued visual effects studios.

These challenges are very real given the goals of game developers. As Habib Zargarpour, Creative Director at Microsoft Studios recently explained, the goal of the new consoles is to deliver in-game experiences that are indistinguishable from the cinematics, while “beating the film guys” in terms of cinematic quality. Chris Evans of Crytek articulated this goal as the ability to “play the cut scene,” something Crytek is working to accomplish with their Xbox® One title, *Ryse*®: *Son of Rome*. To illustrate the scope of the challenge, all of *Ryse*’s characters, from Marius to the NPCs (non-player characters), will feature an incredible level of in-game detail: 150,000 polygons, 770 joints, and over 200 corrective facial blend shapes. Enough detail to “see the whites of their eyes.” And this is just the debut of the next generation of console gaming.

This “cinematizing” of the game-playing experience raises questions about the economics of game design. How do game developers avoid the cost burdens of creating such sophistication that have plagued the visual effects industry? Fortunately for most game developers, they have much more



BEYOND: Two Souls™, image courtesy of Quantic Dream.

direct control of the entire production process including budgeting, creative review and approvals. Still, hitting the goal of “playing the cut scene” can involve production teams of several thousand staff including outsourced providers which requires diligent production management if the game is to be profitable.

World building without breaking the bank

These challenges will create new ecosystems. For AAA titles, more outsourcing will occur—requiring greater collaboration between different production sites. At the same time, initiatives from SONY and Microsoft will enable indie developers to create more powerful games than ever before. SONY, for example, is offering to help indie developers not only with access to dev kits, but with capital and production services needed to fund and build their games. And while the march of technology continues to make it easier than ever before to create great content, it also continues to raise the bar in terms of requirements. New tools like Autodesk® Maya® LT 2014 software, together with new rental plan options, help make it easier for game developers to budget for and scale production based on their needs. Today there are more tools, more choices, and more payment options than ever before, providing increased flexibility to game developers to find (and fund) what they need.

From the real world to digital prop

New cloud-based technologies such as Autodesk® Recap™ software enable artists to quickly create highly detailed models of real-world objects simply by taking a series of photographs. These photographs are then processed to create a highly-detailed 3D mesh that can be loaded directly into

Autodesk® Mudbox® software for clean-up, retopology work, and the creation of high-quality normal, displacement, and certain other maps. Using Autodesk® FBX® asset exchange technology, these assets can be sent to Autodesk® 3ds Max®, Autodesk® Maya®, or Autodesk® Softimage® software for animation, and then directly loaded into the game engine—helping to enable the efficient transfer of detailed real-world objects directly into a game.

Breathing life into characters

Game developers have been using motion capture to create animated sequences for characters for years. However, recent technological advances have not only dramatically reduced the costs of motion capture, but also increased its quality. Advances in tools like Autodesk® MotionBuilder® software, developed to handle the challenge of movies like James



The Last of Us™, image courtesy of Naughty Dog.

Cameron's *Avatar*, enable game developers to more effectively capture the nuances of an actor's performance. Bridging the world of film making and gaming in ways like this helps developers create believable character interactions during gameplay, bringing the goal of "playing the cut scene" closer.

What you see is what you get

New console hardware will enable feature-film-quality animation run in real time in game engines. Using Microsoft® DirectX® 11 technology, it is now possible to produce consistent viewing experiences between the DCC package and what can be rendered in the game engine. This consistency between the PC graphics card, the Sony® PS4™ console, and the Xbox One will be a huge facilitator when it comes to taking the guesswork out of creating assets and animation for next-gen games, and is why Autodesk has focused on developing robust DX11 viewport support for Autodesk 3ds Max and Autodesk Maya.

Direct to engine

As games become more cinematic, the need to efficiently transfer highly complex animated CG assets from the DCC package into the game engine becomes critical. Autodesk FBX is a key enabler for such efficient transfer, not only for commercial engines such as Unity® and Unreal® engines but also custom engines, both from Autodesk applications and certain other 3D content creation tools. Free tools* like the Autodesk® FBX® Review standalone application help provide game developers with a powerful, lightweight tool to conduct detailed reviews of 3D models, environments, and character animations—even on mobile devices—streamlining the 3D animation design and review workflow.

The mobile revolution

The ubiquity of smartphones, tablets, and other mobile devices has radically altered the way people access content and play games. Mobile devices bring gaming to millions of people who might seldom—if ever—sit down in front of a TV screen and game console. People now play games while standing in line, sitting on a plane, or relaxing during coffee breaks, and with devices that have more power than second-generation consoles.

Cross-device play that combines consoles and mobile devices will evolve rapidly, as will cloud-based player networks. Greater bandwidth and faster connectivity will raise consumer expectations, challenging designers to create games that deliver high-quality gaming experiences on the mobile platform. Stiff competition for players will push developers to create ever more interesting and visually exciting game experiences. Once again the question becomes: how can designers reap the benefits of the mobile revolution in a way that's both artistically effective and financially profitable?

From small studios to individual teenagers, game design is seeing the return of the independent "indie" producer only in greater numbers than before. Technology has leveled the playing field, making it possible for almost anyone, to create and compete in ways that were not possible before. With this comes a demand for more accessible, user-friendly tools that place high-quality graphics and powerful 3D animation capabilities into the hands of many more people. The focus is clearly expanding to include not only the big studios but these smaller, nimbler, more budget-conscious game developers.

New 3D tools for 2D and 3D mobile gaming

One of the powerhouses driving the indie scene—especially when it comes to 3D gaming—is Unity, who also recently announced the addition of 2D gaming capabilities to their engine. More and more indie developers are using 3D tools to create 2D games, primarily because it's highly efficient and effective. It is generally easier to make changes to a 3D animation and re-render out a new sprite sheet than to redo a set of 2D animations to accommodate changes. Autodesk Maya LT offers a lean and mean solution for the indie mobile game developer to create both 3D game assets and sprite sheets for use with engines like Unity.

According to Maurice Patel, Autodesk's Entertainment Industry Manager, the latest Autodesk tools and services are designed to help both AAA game developers and indie developers manage the challenges of creating compelling content on budget and on schedule. Developers need the flexibility to scale production cost-effectively, as well as the tools and workflows that will help them provide consumers with compelling next-generation gaming experiences. So whether it is through software rental plan offerings or "lite" versions of popular applications, Autodesk is providing game developers with



more ways to access the tools that can help them do just that. As an avid gamer himself, Maurice concludes: "I dream of the day when the games I play have the visuals of *Avatar*, combining completely believable character interaction with lush open worlds, gripping storylines, and of course, awesome game play—the next generation of gaming takes a massive leap forward towards that day, and everyone here at Autodesk is really excited to be a part of it."

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