

Certification for Console Games

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Introduction

This paper describes the processes used by console manufacturers to ensure the quality of the games produced for their platforms. There are a number of differences between the process of developing games for a PC platform and developing for a console, and the transition from PC to console development presents a number of challenges for the developer [1].

For PC development, the developer has the problem of supporting the many different hardware and software combinations found amongst the player base [1]. No one “owns” the platform so it is possible to release content “without a system of checks and balances”. As a consequence “lots of junk gets released, which hurts the consumer and reflects poorly on the game publisher” [13].

For console development the console manufacturers have two main ways of ensuring the quality of the products developed for their platform. The first way is to control access to the tools needed to do the development work. In order to develop for consoles such as the Xbox360, Playstation3 or Nintendo Wii a developer must first convince the console manufacturer of their credentials. This includes the pedigree of the development staff and the game projects that they have worked on (known as the company’s ‘softography’) [3][4]. Successful developers achieve ‘accredited’ status. They must also pay a significant sum for the platform development kits (a dev kit is a combination of software tools and hardware that mimics the behaviour and performance of the consumer version of the console but allows for work in progress projects to be played and debugged).

The second way is to require games developed for the platform to undergo a final quality assurance process after the developer’s internal testing is complete. The developer presents a ‘release candidate’ disk to the console manufacturer’s Quality Assurance Department for approval. There are many things to assess before a title can be considered fit for release, and considering that a next-generation triple-A exclusive title release is a major event, you had better hope you get it right. Consider Halo 3, an established brand in its own right that was an exclusive release for the X-Box 360. What would have happened if it had not functioned correctly with the final release version of the Xbox hardware? The resulting negative publicity could have severely damaged Microsoft’s reputation.

The exact requirements for any platform are not easily acquired as they are largely covered by NDAs (Non Disclosure Agreements), and are only made available once your company has achieved authorised developer status. The terms used to describe these requirements differ from console to console: TRC (Technical Requirements Checklist) is the Sony term, TCR (Technical Certification Requirements) at Microsoft, and Lotcheck at Nintendo.

In each case, games that fail this final quality procedure are not permitted to be published until all the flaws have been corrected and the product finally passes on resubmission.

Microsoft’s process is split into two stages: ‘Compliance’ and ‘Functional’. During the Compliance stage, the focus is to “maintain consistency and security of the user experience” [2], and during the functional stage the focus is to identify gameplay issues that affect the player experience. Both phases are organized into a series of ‘test cases’ which are tailored to suit the features of the game (so for example the requirements relating to multiplayer features are not used for single player games [2]).

A ‘test case’ is a defined situation in which a specific result is expected. It is written in a ‘binary’ way meaning that a game either passes or fails the test. Test cases are documented in a format that includes a list of steps needed to create the test conditions, plus a description of the expected result (see [9]). During Microsoft’s compliance phase a series of more than a hundred such test cases [5] are used to ensure that the game conforms to platform specific standards.

The number of test cases has increased since the earlier generation of games consoles, with the expansion of online and multiplayer features such as those supported by Xbox live and Playstation network.

The following sections describe some of the features that are tested during this process.

Console branding

Most consoles provide a splash screen and user interface even when a game is not present in the device. Brand continuity is very important as a brand takes time and money to establish. For Nokia's N-Gage platform, for example, the prescribed logos must be present on game startup and the user must not be able to click past them in under two seconds [10].

Usability and continuity of functionality and terminology

Some of the test cases relate to the usability of the game's user interface: its ease of use and conformance to established conventions of genre and platform. There are expectations that certain buttons on particular consoles do very specific things, e.g. the red button on an Xbox controller can be expected to act as a back button [2]. The home button on a Wii remote will take you out of the game to a pause time menu. The game's on-screen text and interface graphics (including foreign language text for localised versions of the game) must fit within the screen-safe viewing area for different types of monitor and television (now including 1080p HDTV models [6]). It is also the case that functions such as saving a game should look and feel consistent with other games for the platform. For example, a 'Saving Content' message is displayed with a warning not to turn off the system or remove the storage media. The names of functions and console features should also adhere to manufacturers' naming conventions.

Robustness and performance

Some test cases relate to the robust functioning of the game under various stress conditions. These may include the removal of peripherals such as controllers or data storage devices, or the performance of a multiplayer game under challenging network conditions (with low bandwidth and increased lag). The game must play reliably without suffering memory related crashes. [1] describes the relative difficulty of achieving this for a console game compared to a PC game. Consoles typically have less memory available than PCs and the certification requirements stipulate the maximum load times allowable for game levels [1].

Interaction with other systems

With the advent of online gaming services with defined expectations of support for features like rewards and high score tables, (such as the Sony 'Trophy' feature [7] and the Xbox arcade's leader board [5]) and game platforms that double as communication and multimedia playback devices, many of the

test cases now relate to the way that the game interacts with other features of the platform. For example, N-Gage games must provide the user with the ability to manage the player's friends list [9] and must respond appropriately if an incoming phone call or text message interrupts the game. Xbox 360 games must allow the user to play their MP3 collection in-game [1]. Games for Xbox Live Arcade must allow the game's leader board to be displayed while the game is paused [5].

Ratings and censoring

It is important for a platform holder to maintain a positive public image and avoid any inappropriate content being released on their console with the wrong age rating. Games published for distribution in the UK, for example, are subject to a two-tier classification system [10]. The Pan European Game Information (PEGI) [11] is an EU-wide voluntary system of grading games into four categories for ages 3+, 7+, 12+ and 16+. (There is an additional 18+ category used on the continent.) It also requires packaging to be marked with symbols representing the reasons for a particular categorisation (such as the depiction of violence, bad language or references to drugs). The second tier is managed by the UK based BBFC (British Board of Film Classification) which classifies games according to the same categories used for films and videos (U, PG, 15 and 18). As part of the certification process, console manufacturers such as Microsoft check that the correct age ratings have been signed into the game for the appropriate regional ratings regimes [2].

Game play testing

The testing process aims to "find those gameplay issues that the likes of you or I might encounter during a typical gaming session" [2]. Microsoft, for example, categorises bugs and issues found at this stage into Issues of Note (ION), Standard Reporting Issues (SRI) and Conditions for Resubmission (CFR). Issues in the latter category are the most serious and must be corrected before the game can be approved. Examples include faults that mean a player cannot complete a game or level or cannot save or load game data [2].

Certification in Practice

The process of passing these tests can be highly demanding for the developer. Nutt and Alexander, [6], claim that '46 percent of Xbox 360 games have been rejected at least once [due to having failed the certification test cases] before any [functional] testing happens at all'. Fristrom [5] states that "fixing and passing TCR issues took more than half of our programmer time" on their first Xbox 360 project.

In order to make the process as painless as possible a number of strategies are available. The console manufacturers offer 'pre-submission' testing as an optional (paid) extra, which acts as a rehearsal for the real thing [2] and a 'heads up' about potential issues that could cause problems when the game enters the real submission process.

Some tools are available to help developers check for compliance prior to entering the formal process: Microsoft, for example provide a submission validator which automatically checks for many of the test cases in the TCR [6] and Nokia provide an emulation tool that supports pre-compliance testing [9].

Ruskins, [1], argues that a development team new to console development should appoint a TCR specialist, and should build TCR compliance into their development plans very early in the process, for example building 'achievements' and 'skill points' (an Xbox live arcade requirement) into the game's design from the beginning. It seems likely that game developers will continue to have to deal with certification requirements for the foreseeable future.

Gaining knowledge and Skills for PC and Console Games Development

There are a number of ways that skills and knowledge can be developed to provide people with the requirements to begin a career in the Computer Games Industry. For those wishing to pursue an academic course, there are a number of highly successful computer games design and development courses, delivered at higher education institutes around the country. Each has its own distinctive aspects and interpretation of the skills required. These degrees may be at Foundation Degree, Bachelors Degree or Masters Degree level. The BSc Computer Games Development programme at the University of Bedfordshire aims to provide students with a solid understanding of the theory and principles that underlie computer games development, along with practical skills to ensure they are ready to serve the needs of industry. To ensure that the curriculum is relevant to the needs of the industry, the University of Bedfordshire is pleased to work in collaboration with Train2Game. Train2Game have developed courses that enable successful candidates to meet the needs of industry in computer games development and computer games design. Train2Game courses have been developed by people that are in industry and have significant experience in both PC game development and console game development for major publishers. The courses have been endorsed by Tiga, the National Trade Association for the computer games industry. This endorsement is a testament to the industrial relevance of the courses. For those that do not wish to embark on a full academic programme, the Train2Game courses provide an excellent industry-recognised alternative to an undergraduate programme.

Conclusion

In this article we have discussed the processes used by console manufacturers to ensure the quality of the games produced for their platforms. We have highlighted some of the differences between the process of developing games for a PC platform and developing for a console, and discussed the transition from PC to console development. We have also given details of how skills might be developed for those seeking a career in the industry, including undertaking academic courses or industry accredited training such as that of Train2Game.

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