



Electronic Arts is a global leader in digital interactive entertainment, providing blockbuster video games, content and online services for game consoles, PCs and mobile devices.

Nuxeo is more mission critical to the success of EA than ever. Nuxeo is the best application development option to securely distribute our game builds to our developers working around the world.

Steve Scivally
Technical Director
Release & Preservation
Management

Project Highlights

- 600-800 unique users / day
- 80,000 requests for game builds / year
- Deployed for 26 physical and virtual sites

CASE STUDY: ELECTRONIC ARTS

Tracking Video Game Builds with a Content Management Application

and

Electronic Arts is a global leader in digital interactive entertainment, providing blockbuster video games, content and online services for game consoles, PCs and mobile devices. To satisfy the constant demand for new games from over 300 million registered players around the world, EA developers must work around the clock. At any given moment, about 70 different global teams are hard at work on multiple game builds in various stages of the development lifecycle.

Game builds are clearly EA's single most critical asset, which must be readily accessible to those who should be working with them - and no one else. This critical - and complex - responsibility belongs to EA's RPM (Release and Preservation Management) team, led by Steve Scivally, RPM Director.

"With the latest generation of game consoles, our games are have become much more complex, and so have our challenges of providing secure, reliable access to game builds," says Scivally. "An average game build is now 18GB - more than double the previous size. A team working on a single game will now generate 3.5TB worth of builds in a year."

EA's custom-built internal application for secure game build delivery had become outdated and was unable to scale any further. "We reviewed a wide variety of replacement options, ranging from MS SharePoint and Oracle to open source and self-programming options," Scivally says.

"Our review led us to select the Nuxeo Platform as the best application development option to securely and effectively distribute our game builds around the world."

Solution: Nuxeo-Powered applications for agile tracking of video game builds

The RPM team concluded that the Nuxeo Platform went above and beyond other evaluated solutions to provide some critical benefits, including:

- **Support for an agile development and release model**, capable of keeping up with EA's fast-moving development activities.

- **Accelerating development while reducing required time and resources.** With Nuxeo, Scivally and his team do not have to build basic components. Nuxeo Studio, part of Nuxeo Online Services, maximizes application configuration while minimizing the need for custom coding, greatly reducing time and resource requirements.
- **Freely defining “content” to match the business context.** Document management tools typically have rigidly-defined electronic “documents (files),” “folders” and “cabinets.” In contrast, the Nuxeo Platform provides a schema-flexible content model that allows developers to define virtually limitless content objects, with flexible metadata and complex fields, to match the organization’s needs.

The RPM group’s first Nuxeo-powered application, *Shift*, was named after its goal to simplify the shifting of content around EA.

“The Nuxeo Platform enabled us to build our application to manage video game builds in seven months versus an estimated 12-13 months for a solution developed in-house,” said Scivally. “We accelerated our time to deployment by nearly 50%.”

Results: A “Shift” to maximized game security and efficient time-to-market

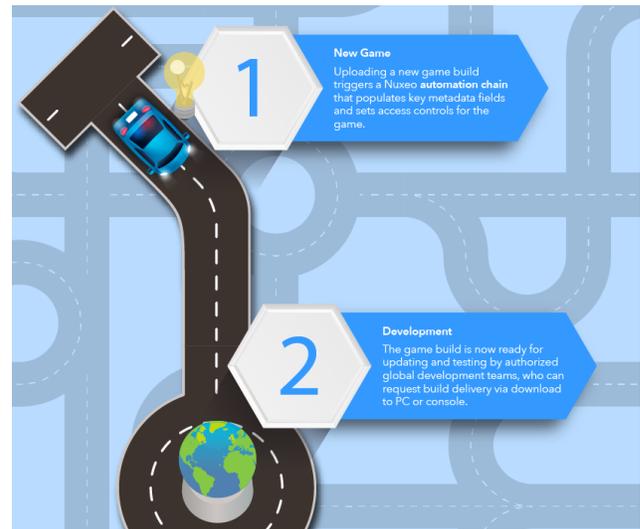
Shift is currently in production and actively used by 600 to 800 unique users per day, from EA’s development, certification and release management, QA and testing teams around the world.

By integrating with EA’s existing game builds servers, Shift offers a highly efficient, scalable solution that provides secure and reliable game build access and delivery throughout the entire game lifecycle.

A Star is Born: Creating a New Game Build and Access Controls

When a new game build is done it is submitted automatically into Shift using an automation tool.

For example, when EA’s Stockholm location creates a new build for Battlefield, custom metadata fields are automatically populated in Shift, including information relating to access controls and the locations of the build content: source code, artwork and audio assets.



Upon validation, Nuxeo retains the information provided in a custom document type (content object) for that build, with a lifecycle status indicating it is available for access. Notifications are then sent to everyone involved in the process.

Builds are categorized by title (e.g., Battlefield), game system platform (PS4, Xbox One, PC), content type and language (such as demo in EU French or full game in NA English).

Tracking Game Build Access Requests to Final Release

The new Battlefield game build from Stockholm is now accessible for updating and testing by other authorized teams, including Baton Rouge, LA (USA), Hyderabad, and Bucharest.

Developers from these approved sites submit a request for the build content which is transferred to the destination and delivered to the requestor, typically via download to a console or PC.

In the event physical media/Blu Ray is specifically requested, the physical media is fingerprinted and then barcode scanned, which triggers a “check-out” audit event.

"We also extended the Nuxeo audit service to also capture all aspects of each event, including custom elements to identify any new values created and what previous values were replaced," says Scivally.

Shift fully utilizes Nuxeo's out-of-the-box access control resources, as well as some custom security policies. For example, explains Scivally, "Only QA teams can update the lifecycle state of a game build from alpha to beta, pre-production and, eventually, final release of the game."

"Nuxeo allows Shift to have fine grained security, by business role, down to the metadata level."

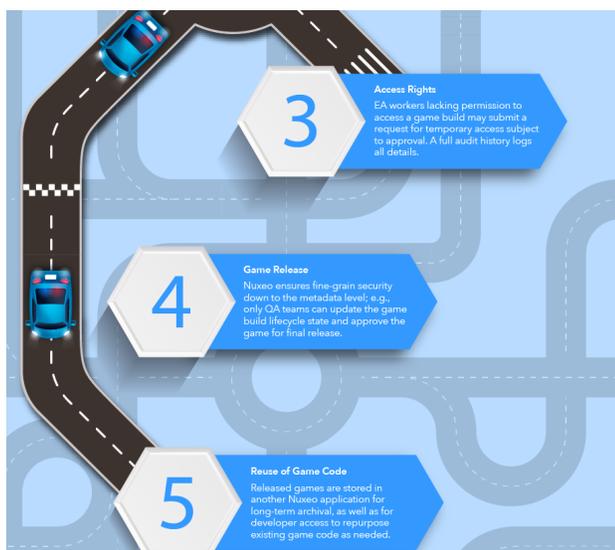
Flexible, Documented Workflows Manage Special Access Requests

Of course, there are always valid exceptions to security policy. Shift utilizes approval workflows to enable workers to submit a request to access a game build not allowed by their access permissions. The submission, including an explanation from the requester, is routed to the content owner to approve or deny the request.

"Shift ensures the approval request process is as efficient and responsive as possible, while fully documenting who approved special access, where and when," says Scivally. "Our Shift application provides fast, reliable and responsive access to game builds with complete security while also expediting our time-to-market for new games."

Further Innovations

Since the Shift application's original launch, EA has since upgraded to the Nuxeo LTS 6.0 release with



Elasticsearch, utilizing more of the full Nuxeo Platform and enabling more robust workflows.

In addition, the development team has built management of the Shift application within the Nuxeo Platform, using another custom document type called *site*, which contains metadata about the technology infrastructure. Now, operators use the same application to manage the infrastructure inventory worldwide. Today, all 26 of EA's key physical and virtual sites are managed worldwide by the Shift application.

A new "Vintage" store to track and repurpose archived games

The EA RPM group recently deployed a second Nuxeo-powered application, *Vintage*, for managing released game titles archived for preservation.

"Vintage is our archive library of finished products," says Scivally. "The Vintage application utilizes the same logic and custom content model used by Shift, to manage long term storage of EA's intellectual property."

"It's important to note that Vintage is actively used by new game development teams to utilize some or all of the existing code from a finished game," Scivally adds. "They might use the code to work on a new sequel to that finished game, create a modified version of a finished game, or help build a brand new game all together."

"Vintage is much more than just cold storage of released games. It could be a key resource to further enable our development teams to reshape existing game code for a quick and efficient head start on new development."

Summing up the benefits the Nuxeo Platform has provided Electronic Arts, Scivally said, "Our Nuxeo-powered applications (Shift and Vintage) are more mission critical to the success of EA than ever. The flexibility of the Nuxeo Platform has kept pace with our increasingly larger and more complex game builds."

"Our selection of the Nuxeo Platform to create applications to quickly and securely deliver our game builds has proven to be a very good decision."