



# PUSHING THE BOUNDARIES

**Sean Cleaver** speaks to Persistent Studios CTO, Maxime Dumas, about how middleware is constantly adapting to serve the increasing demands of graphical improvement.

**A**s we rush towards higher resolutions, higher fidelity and more colourful displays, the technology to create these experiences must also adapt. One of the middleware providers that has been adapting is Persistent Studios and their PopcornFX middleware.

The software has now been used across many different mediums and offers integration in to both Unreal and Unity, which makes it an attractive solution.

We spoke with Maxime Dumas, CTO of Persistent Studios to find out a bit more on how middleware has evolved over time to reflect the demands of the users and the ability of the technology they are using.

"Production needs for the gaming and movie industry pushed the evolution of the technology these last 10 years," says Dumas. "Publishers are making live action & feature films and Directors want more photorealism intermixed with the fantastical in their big productions; live action, animation, TV series [like] *Assassin's Creed* and *Warcraft*. So production pipelines are changing a lot, developing more and more convergence in between gaming, film, and VR tools."

As gaming changes and evolves, new challenges come to middleware

providers. Whilst more is happening and the costs to production can take away from a project's budget, it is the access to the technologies and engines that are helping to grow the audience and the tools.

"Game engine developers continue to push boundaries in terms of realtime rendering," says Dumas. "New rendering technologies like PBR, realtime GI, volumetric rendering or middleware's

development (Unity, Unreal, Lumberyard), accelerating the pace for new versions and the need for accessibility. The community is also a key factor for success."

Staying up to date with your middleware is also key for helping the developers get the best out of the tools they are using. "Taking our Unity and UE4 integrations as example, we

have to remain up to date with new engine features and breaking changes to avoid feature regressions. This happened in the past with Unreal Engine 4.5's major rendering breaking changes which had us refactor a good amount of rendering code."

The community feedback is a very key component for PopcornFX and is a big part of making sure it does exactly what it needs to do for its users, especially in a time where the goalposts are constantly shifting. On approaching future updates, Dumas tells me, "those decisions are mainly based on users suggestions, and we also use a public trello board where

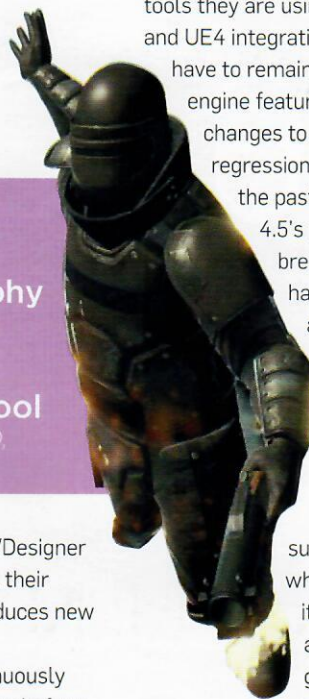


users can vote for features they would like to see the most. We are close to our users, sending a weekly tutorial and Q&A so everyone can give its feedbacks and we can answer their needs regularly. In our philosophy it is not our tool, but the tech and FX communities tool made for their creative projects and productions."

PopcornFX has become a versatile middleware option. Last year, it was used for Kylotonn's *WRC* games, Sony London Studio's *PS Worlds* and survival game *Trove*. "It mainly helped prove that PopcornFX is art direction independent, and can give confidence to users initially unsure about whether our solution can be used to achieve certain types of effects.

"This also gave us opportunities to deeply improve the workflow over different types and shapes of productions, working with talented individuals and teams all over the world." ■

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such as Substance Painter/Designer help game companies fulfil their artistic directions. VR introduces new performance constraints.

"Middleware must continuously adapt, now quicker than ever before: new platforms with mobile gaming are ramping up, bringing new usages with VR, a new audience is appearing with the democratisation of game