Union VFX burst into the cloud with ngenea

It was the biggest single shot Union VFX had ever created and it posed a big challenge: How would it find the extra storage and processing power required to create this ambitious and intricately detailed rocket take-off scene whilst running other projects concurrently?

Union was commissioned to create a complex scene for the "epic season finale" which closed out the first series of For All Mankind, a dystopian drama for Sony Pictures Television which premiered on Apple TV+. The show was created by Ronald D Moore, a screenwriter and television producer famed for his work on Star Trek and Battlestar Galactica, and is set in an alternative version of the 1960s USA where Russia won the space race and beat America to land the first man on the moon.

The studio needed to scale their hardware quickly but carefully, and worked with pixitmedia to build a high-performance pipeline capable of

Lucy Cooper - Managing Director, Union VFX

bursting to the AWS Cloud supported by ngenea.

"We were under time pressure and working with quite a few variables," says Lucy Cooper, Managing Director of Union VFX.

"When it came to building the pipeline, we had to move fast! The sheer volume of data necessitated the solution we chose."

"We worked closely with pixitmedia, to refine our studio workflow. ngenea gave us a safe and secure way of getting the data into the cloud, and back again in an intelligent way that would keep transfer costs as low as possible."

The final episode of For All Mankind's first season concludes with the launch of a Sea Dragon rocket: an immense spacecraft designed to be launched at sea. This behemoth was dreamed up by Robert Truax for Aerojet in 1962, standing 150 metres (490ft) tall with a diameter of 223 metres (75ft). Though never constructed, Sea Dragon is the biggest rocket ever conceived by humanity.

The team started work in August 2019 on the 4K single shot of the rocket launch consisting of 2,544 frames. The rocket was modelled and textured using SideFX Houdini, but because it launched from under the ocean, artists also had to create simulations for the

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Images courtesy of Union © Apple TV+

surrounding water, foam, fire and smoke that was generated as the craft blasted skyward.

The whole shot was built in Nuke and featured many other CG elements including helicopters, buoys, pyro thrusters, and the engine's plume. Each of these had to be generated with multiple separate simulations and renders due to the length of the shot, requiring complex interactions between the elements over time. Artists then used digital matte painting techniques to create the sky and the USS Enterprise battleship, which was shown in the deep background of the composite.

"All studios have data battles now," Lucy says. "No matter how much on-prem storage you have, it gets filled up. At the rate hardware is developing at the moment, it doesn't make sense for us to buy hardware over and over again. Although we have hardware on-prem, the model of flexing and expanding capacity when it's needed is very attractive. It makes us more agile and flexible."

Building a pipeline can be a big challenge – particularly when working under time and cost.

Lucy has this advice for anyone looking to ramp up their system and build a powerful new workflow: "Try to ring fence time to plan and work through the whole process of building a pipeline. Then look at the balance of what you can do in-house and what makes sense to do in the cloud."

Marc Brewster - Head of Technology, Union VFX

"For us, it makes most sense to do predictable work in the cloud so on-prem capacity can be used to cope with the more unpredictable, experimental stuff. This approach allows you to predict the price of cloud rendering reliably which is essential."

The collaboration between pixitmedia and Union demonstrates how studios can quickly upgrade their systems to deal with demanding projects. Barry Evans, pixitmedia CIO and co-founder, adds: "When studios land new commissions, they often have many other projects running at the same time – and find they need to ramp up their storage and rendering infrastructure very quickly.

Images courtesy of Union © Apple TV+

"The partnership between pixitmedia and Union gave the studio the ability to overcome a shortfall in storage and render power, and helped them successfully deliver this data-hungry, epic project on top of their existing workload."

Images courtesy of Union © Apple TV+

About pixitmedia.

pixitmedia delivers seamless collaboration to enable the power of ideas.

Our purpose-built, software-defined storage and data solutions simplify the flow of data to connect an increasingly complex world.

Our aim is to deliver beyond expectations throughout all areas of our operation. We devise solutions that give customers both choice and freedom, our restless innovation constantly pushes boundaries and the unrivalled care and knowledge of our team ensure optimum performance and value. Customer success is at the heart of our business.

We have a dedicated in-house lab facility to guarantee the effectiveness of our solutions.

pixitmedia is privately-owned and headquartered in the UK, with offices in the USA and Germany.

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