

AMD EPYC™ PROCESSORS POWER LEAN, ENERGY-EFFICIENT CLOUD PIPELINE FOR OUTPOST VFX

The powerful AMD server CPUs available in Amazon Web Services EC2 instances help the leading international visual effects studio to reduce costs and associated carbon emissions while expanding its render fleet.



together we advance_

CUSTOMER

outpost

INDUSTRY

Media & Entertainment

CHALLENGES

Expand cloud-based VFX production pipeline by diversifying the range of AWS EC2 instance types used

SOLUTION

Adopt EC2 instances powered by 3rd and 4th Gen AMD EPYC™ processors, increasing the maximum potential number of virtual workstations and render nodes

RESULTS

Outpost found that AMD processor-based EC2 instances deliver lower costs and power consumption than comparable x86-based instances, and generate rendered output of identical visual quality

AMD TECHNOLOGY AT A GLANCE

AMD EPYC™ processors

TECHNOLOGY PARTNER

AWS

Outpost VFX has never followed the herd. Founded outside the established centers of the entertainment industry, Outpost's willingness to embrace new ways of working led to it becoming one of the first visual effects companies to adopt a fully cloud-based workflow, with four worldwide studios operating on a unified Amazon Web Services-based pipeline, including AWS EC2 instances for rendering.

The company is now further expanding its render fleet by adopting EC2 instances powered by power-efficient AMD EPYC™ processors, making it one of the largest VFX companies operating solely in the cloud, while simultaneously cutting the cost and reducing the environmental impact of production.

From a single laptop to a global studio network

When Duncan McWilliam founded Outpost VFX in 2013 “with just a laptop and a Maya license”, he deliberately looked outside the global centers of the international entertainment industry like London and Los Angeles, eventually settling in Bournemouth on the south coast of the UK.

Outpost now operates four studios worldwide, in the UK, Canada and India, employing close to a thousand staff at its peak, and has worked on major movies including Ridley Scott's Napoleon and The Hunger Games: The Ballad of Songbirds and Snakes, and on broadcast projects like Sonic the Hedgehog spin-off Knuckles and The Lord of the Rings: The Rings of Power—one of many award-nominated series the team has worked on.

Since day one, Outpost VFX has maintained an ethos to put people at the center of visual effects and create a working environment built around respect and integrity: for example, including a formal overtime pay policy for artists, even in countries in which this is not a legal requirement.

Committing to the cloud

Both Outpost VFX's geographical location and its concern for the needs of its artists contributed to its willingness to embrace new production workflows.

“When it was founded, Outpost was only a small business and we had to procure some international talent,” said CTO Tim Chauncey. “The best way of doing that was being able to work remotely,”

By the start of the 2020s, Outpost VFX had completed its first project to be produced entirely in the cloud, making the decision to transition to a fully cloud-based pipeline in 2022. After a six-month transition

process, the company decommissioned its remaining on-premises hardware in June 2023.

The company now uses AWS EC2 instances for all of its artist workstations

and render nodes, AWS Thinkbox Deadline for render management, and has built a custom automation platform based around AWS Lambda, using the Amazon CloudWatch service for pipeline monitoring,

“We had a lot of support from AWS,” said Chauncey. “They have some real specialists in the M&E and VFX space, which was invaluable during the transition and continues to be so today.”

A seamless, scalable, environmentally sustainable workflow

For Outpost, a key benefit of its move to the cloud is the ability to take on much bigger projects. The company can now scale up its infrastructure without the need for capital expenditure on hardware, and associated costs like power and cooling.

"We can do bigger projects, more complex sequences, more renders, and more shots," said Chauncey. "Previously, it would've been a case of, 'We could do these shots, but we don't have the capacity to take on the others.' Now we can accommodate anything we want to."

Using a cloud-based pipeline also reduces the environmental impact of Outpost VFX's work. Using AWS's built-in Carbon Footprint Tool, Outpost estimates that rendering the projects it worked on in 2023—a staggering 300 billion render hours—would have generated 413 metric tons of carbon emissions if completed on-premises. Factoring in AWS's investment in renewable energy projects, Outpost VFX estimates that switching to the cloud will reduce the carbon emissions to just 1.89 metric tons.

Adopting efficient AMD processor-based instances

Outpost VFX uses a range of AWS EC2 instance types, scaling from small instances for ad hoc tasks to 96-core CPU instances for simulation. For rendering, the studio is increasingly using EC2 General Purpose, Compute Optimized and Memory Optimized instances based on AMD hardware.

AMD processors, such as the 3rd Gen EPYC™ and 4th Gen EPYC™ server CPUs used in C6a and C7a instances, provide a winning combination of maximum density—both instance types scale to 192 vCPUs and 384 GiB memory—and price-performance: AWS notes that C6a instances deliver 10% lower cost than comparable x86-based EC2 instances.

"We found that on Arnold, AMD is predictable against other hardware, which makes it massively attractive to us."

Tim Chauncey, CTO, Outpost VFX

"We've found that AMD hardware is more cost-effective, and more eco-friendly. If it can deliver that and still maintain performance, why would we not adopt it?"

Tim Chauncey, CTO, Outpost VFX

"Wherever we can, we use AMD, because it's more economical," said Chauncey.

Equally importantly for Outpost, which uses Autodesk's Arnold renderer for production, Outpost found that renders generated in Arnold on instances that use AMD CPUs are visually indistinguishable from those generated on other instance types, making it possible to integrate them seamlessly into its pipeline.

"We found that on Arnold, AMD is predictable against other hardware, which makes it massively attractive to us," said Chauncey.

"We want to diversify our render fleet as much as possible."

AMD and AWS: powering a lean, efficient VFX pipeline

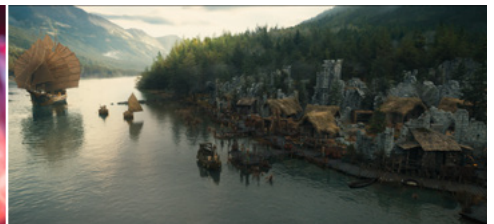
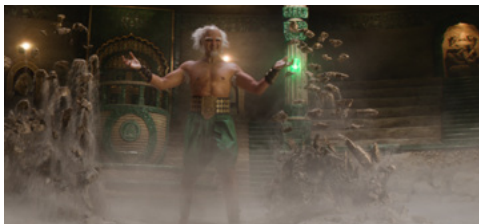
Outpost VFX's willingness to embrace new ways of working has led it to grow, in just 10 years, from one man and a laptop to one of the world's leading visual effects companies. Its recent switch to a fully cloud-based production pipeline, coupled with its adoption of AMD processor-based EC2 instances to expand the size of its render fleet, now make Outpost one of the largest VFX companies operating solely in the cloud.

As well as connecting four studios on three continents, Outpost's cloud pipeline means that the firm can now pitch for even more ambitious jobs, without having to worry about capital expenditure for new workstations and render nodes.

And thanks to AWS's investment in renewable energy sources, coupled with built-in monitoring tools like its carbon footprint calculator, Outpost is also able to show savings in environmental impact alongside the cost savings it has seen through its adoption of AMD EPYC™ processors.

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"If it can deliver that and still maintain performance, why would we not adopt it?"



Images courtesy of Outpost VFX

About Outpost VFX

Outpost VFX was founded in 2013 with a goal to put people at the center of visual effects and create an environment for artists and filmmakers built around respect and integrity. Its teams in the UK, Montreal and Mumbai are made up of friendly and adaptable people with some of the finest pedigrees in visual effects globally and a shared ambition to effect positive change throughout the industry. For more information on Outpost VFX's work, visit the Outpost VFX [website](#).

About AMD

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