Hewlett Packard Enterprise

DreamWorks Animation uses composability to put dreams on the big screen

HPE Synergy plays a starring role in revitalizing top animator's IT landscape

Objective
Provide new compute platform to increase operational efficiency of the data center and time to deliver new services and environments

Approach
DreamWorks Animation worked closely with long standing partner HPE to explain the studio's challenges and use cases to arrive at a solution: HPE Synergy

IT Matters
• Quicker time-to-iteration enabling automated processes and greater flexibility

• Optimization of existing infrastructure capabilities

• Increase efficiency through creation of fluid digital resource pools using composability

Business Matters
• Time taken to set up a new movie reduced from months to days

• Seamless reallocation of resources from one production to another with speed and minimal human intervention

• Increased management efficiency due to API-based configuration and a unified control plane

• Improved overall consistency of image quality

• Cost savings and time management due to quicker provisioning and faster rendering times

IT transfers imagination to the big screen. Transforming inspirational and innovative ideas into animated films relies on complex technology, so studios must ensure that their infrastructures are leading-edge. To refresh its existing environment and improve utilization and efficiencies, DreamWorks Animation turned to its trusted partner, Hewlett Packard Enterprise, for the solution. The answer was HPE Synergy.

Challenge

Need for cutting edge technology
Thanks to films such as Shrek, Kung Fu Panda, Madagascar and How to Train Your Dragon, to name a few, DreamWorks Animation is one of the most admired family entertainment brands in the world.

The studio is home to some of the most talented filmmakers, storytellers and artists on the planet. Their minds are full of inspirational and innovative ideas, but highly complex technology is required to bring those ideas to life. Every eyelash, speck of dust and drop of rain are all generated on computers. Each blade of grass or leaf on a tree is geometrically modeled, shaded, textured and composited, so it's no surprise that making just one film can involve crafting more than half a billion digital files involving about 80,000,000 compute hours and 350TB of data.

Case study
DreamWorks
Animation

Industry
Animated film
production

Page 2

"Each DreamWorks Animation film has more than half a billion digital files. We're immersed in data, so everything we do is focused on computing that data and getting real-time imagery back to our artists as quickly as possible. When we look at solutions like HPE Synergy, it really tells us that HPE understands how our business works."

– Kate Swanborg, Senior Vice President of Technology Communications and Strategic Alliances, DreamWorks Animation

"We want to ensure that our technology is on the cutting edge so that anything our storytellers are imagining can be realized on screen," Kate Swanborg, Senior Vice President of Technology Communications and Strategic Alliances at DreamWorks Animation says. "Whether it's in animation or a different type of effect, all of those can be brought to life in a better and more interesting way, because we're at the forefront. Technology allows our creativity to flourish."

To support its hundreds of artists, DreamWorks Animation needs an IT landscape that is as agile and scalable as it can possibly be, capable of handling the compute and storage needs of the entire enterprise. The ability to react to changes of workflow, allocate more storage, bandwidth or compute presented a worthy challenge.

DreamWorks Animation has a blade infrastructure with room to improve operational efficiency, so the studio determined it was time to refresh these systems. The biggest challenge concerned its render farm. With up to 10 films in production at any given time, the render farm runs an average of four million jobs a week on which the studio captures about 20 million data points used for analytics.

However, while the render farm has the performance it needs during peak production hours, thousands of cores are underutilized during the rest of the day. The studio wants to ensure that the data center is maximizing its operational capabilities and wants to apply public cloud economics and manageability to on-premise solutions.

Solution

Composable computing
DreamWorks Animation and Hewlett Packard Enterprise have collaborated for more than 15 years, not just on innovating the leading technology required for filmmaking, but also on the animation studio's future strategic initiatives. So, DreamWorks Animation turned to its trusted partner for a solution, and the answer was HPE Synergy. The company currently has four Synergy frames and that will be increased by an additional 25 which will augment the number of cores available for rendering from 12,000 to 23,000.

HPE Synergy brings compute, network and storage infrastructures together as a single platform with integrated management of these fluid resource pools through APIs. HPE Synergy is software-defined from the bottom up and allows users to program infrastructure as code.

Case study
DreamWorks
Animation

Industry
Animated film
production

Page 3

"HPE Synergy really is a breakthrough technology. We've never actually had access to systems that allow us to compose our infrastructure through code and do it in an 'out-of-box' sort of fashion," Justin G. Decker, Vice President of Platforms and Infrastructure at DreamWorks Animation says. Justin has been overseeing the modernization of the studio's IT platform. "Usually, you have to set up very complex ecosystems of third-party products and create your own platform, so to speak, in order to have this type of functionality. HPE Synergy actually delivers that to us in a way that requires very little integration."

After seeing product demonstrations at HPE Discover and attending an HPE Synergy workshop in Palo Alto, DreamWorks Animation soon appreciated its value proposition, potential use cases and applicability. It also realized the value that HPE Pointnext could bring surrounding reference architecture, implementation and future roadmaps.

HPE has created a Composable Infrastructure Ecosystem which provides interoperation between the HPE OneView Unified API and many third-party tools from ISV partners. These integrations allow developers to continue operating the applications they are familiar with, but use them to access the specific elements of HPE OneView that they need to interact with the underlying hardware.

DreamWorks is using HashiCorp Terraform in this way to drive provisioning and increase self-service, and automation has brought dramatic benefits. The time taken to set up a new film has been reduced from months to around days and a further reduction to less than 30 minutes is anticipated.

"We are excited about HPE's initiative in working with ISVs on these integrations," says Decker. "We've been in a highly strategic and very close relationship with HPE for more than 15 years, and we have never had a better, stronger, tighter alignment in the company's strategy to deliver Hybrid IT and our requirement as a modern content creator to get there."

In addition to providing DreamWorks Animation with bespoke integrations using Terraform, HPE Pointnext is also working with the customer to leverage several other cutting-edge technologies from ecosystem partners Chef, Foreman, Kubernetes and Docker.

These services build business-specific value for the customer while driving down operational cost and staff management along with quick provisioning which shortens time-to-production and increases time-to-iterate.

Benefit

Creation of fluid resource pools

The first phase of DreamWorks Animation's Synergy project was to implement the provisioning of different workflows to access its 23,000-core render farm as a digital pool of resources.

"We're eager about the promise that HPE Synergy holds for us, because now we can start to control infrastructure through composability. It enables us to access our infrastructure in a software-defined fashion and as code, and that will give us a ton of flexibility going forward," Decker says. "HPE Synergy will allow us to utilize our infrastructure much more efficiently."

Case study
DreamWorks
Animation

Industry
Animated film
production

Customer at a glance

Hardware
• HPE Synergy

Software
• HPE OneView

HPE Pointnext services
• HPE Data Center Consulting

Our solution partners

HashiCorp

FOREMAN

kubernetes

docker

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"For example, let's say that How to Train Your Dragon 3 needs X amount of render resource and Trolls 2 needs Y amount of resource at the same time. If that's more than we can provide, HPE Synergy composability enables us to move resources seamlessly from one to another without human intervention, maybe with one working during the day and the other at night.

"That keeps our cost down, but more importantly it keeps things on track in terms of quality. We know that we're not going to break something during those transitions. The ability to compose our infrastructure through code provides the kind of functionality that we need to deliver IT services at the pace and scale that's required by the filmmaking business.

"The idea of a hybrid environment isn't new to us," Swanborg says. "The key is that it's labor intensive and time-consuming. Getting all the right configurations of the networking and the storage and compute to work in a real-time environment for our artists has taken an enormous amount of effort over the years.

"What we're looking for in the HPE Synergy deployment is to reduce those weeks down to days and those days down to hours. Once we're able to do that, our engineers will be able to focus on the technologies that directly impact the artists, and that's where we get the business benefit. The configurability and customizable nature of HPE Synergy to our own environment has brought incredible benefits. Now our IT infrastructure is as dynamic as our creative infrastructure."

HPE Synergy also enables DreamWorks Animation to reduce the 'opportunity costs' of exploring the viability of new creative endeavors.

"HPE Synergy will allow us to provision resources to those new ideas with speed and agility and cost-effectively so that we can quickly determine which creative endeavors are going to work," Swanborg says.

This level of automated flexibility enables optimized resource deployment allowing additional time for creative iterations, a crucial need in the filmmaking process.

HPE OneView is also important to the flexibility equation, because it makes composable infrastructure accessible to a lot of different skill levels whether they be systems administrators or engineers. In tandem with HPE Synergy Image Streamer, HPE OneView also helps reduce costs through improved management efficiencies.

HPE Pointnext has a valued and ongoing relationship with DreamWorks Animation: "Our engineers are hard to impress, but HPE Pointnext has blown them away," Swanborg says. "We could not be doing the installation and strategy work we are conducting on HPE Synergy as quickly and as effectively without the help of HPE Pointnext."

"We have an unbelievably great collaboration with HPE," Wike says. "We've invented some terrific products and in fact, were core-recipients of a Sci-Tech Academy Award® for some of the work that we've done. We've changed visual effects in the animation industry, in collaboration with HPE."

"HPE Synergy future-proofs our environment to work in a dynamic and changing world," Swanborg says. "It's an investment in the studio's future."

Learn more at
hpe.com/synergy