DreamWorks

DreamWorks Animation + HPE = imagination unleashed

One of the most admired family entertainment brands in the world, DreamWorks Animation has brought us such beloved characters and animated films, including *Shrek*, *Madagascar*, *Kung Fu Panda*, and *How to Train Your Dragon*. Since 2001, DreamWorks Animation has partnered with HPE for the technologies that power their filmmaking process. Recently, DreamWorks Animation turned again to HPE for a new wave of technology advancements to maintain a leading position in the animation industry.

TREND   AT A GLANCE   BUSINESS CHALLENGE   IT CHALLENGE   SOLUTION   RESULT

500M

Digital files per 90-minute movie

130K

Individual frames per film

250B

Pixels per film

CG animation: where artistry meets technology

Making a computer-generated animated feature film means creating a world from scratch. That requires a massive amount of compute power. To succeed, the studio has to operate efficiently as a business while continuously raising the artistic bar on creative output.

A dragon soars through the clouds, racing alongside his hero and best friend. This scene from *How to Train Your Dragon 2* is over in seconds, but the amount of technology-enabled artistry behind it is enormous. Making a computer-generated (CG) animated feature film means creating a world from scratch. Every blade of grass, the bark on a tree, the facial expressions of characters and their actions in space—every detail of shape, color, light, texture, and movement—must be digitally designed and crafted. A 90-minute animated feature film, at 24 frames per second, comprises 130,000 individual frames—approximately 500 million digital files. That requires massive amounts of compute power, storage, and seamless networking to ensure its timely delivery to theaters. So does enabling collaboration among the hundreds of artists and engineers involved in each film. To stand out among competitors worldwide, the studio has to keep raising the bar on its own creative output—making each film surprising, fresh, and visually rich—all in the service of great storytelling.

In addition to being a creative endeavor, CG moviemaking is a business. It has to compete for discretionary consumer dollars with all other forms of family entertainment, and it has to operate cost-efficiently by utilizing both employee brainpower and technology investments.

> **"One of the most interesting challenges our industry faces right now is making it possible for storytellers to realize their vision in the most cost-effective way."**
>
> Kate Swanborg, Senior Vice President of Technology Communications and Strategic Alliances, DreamWorks Animation

How To Train Your Dragon 2 © 2017 DreamWorks Animation LLC

A beloved name in family entertainment

DreamWorks Animation is one of the most recognized family entertainment brands in the world. Since 2001, DreamWorks Animation has partnered with HPE for the technology behind such beloved animated feature films as *Shrek, Madagascar, Kung Fu Panda* and *How to Train Your Dragon.*

DreamWorks Animation is the force behind Academy Award®-winning CG animated feature films, Emmy® award-winning television series and specials, and live entertainment properties for audiences around the world. Based in Glendale, California, the company employs some of the world's best artists, writers, engineers, and production staff.

Since 2001, DreamWorks Animation has leveraged HPE technologies for unsurpassed CG production values as well as business operational efficiencies. In 2016, DreamWorks Animation was acquired by Comcast NBCUniversal, and is now a division of Universal Filmed Entertainment Group. Today, the studio is launching a new wave of technology innovations to further advance their filmmaking process.

"We want to make films that resonate with audiences worldwide, by creating an entertainment experience so powerful it becomes a thread in the fabric of family life."

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

1994
Year founded

35
Feature films released

$13.5B
Global box office accrued

11 Acre

Creative campus in Glendale, California

>$100M

Average cost of producing an animated film

A worthy challenge: eliminate the gap between idea and implementation

To fulfill their mission of great storytelling, DreamWorks Animation must constantly progress artistically while operating efficiently as a business. The studio's current initiative is to eliminate the gap between creative ideas and their implementation by leveraging the latest advances in technology.

The mission of DreamWorks Animation is great storytelling. The studio's greatest challenge is to continually improve itself — to make their animated worlds ever more vibrant, their characters more compellingly expressive, and their storytelling so true to the human experience that it crosses cultural barriers worldwide. To make this possible, DreamWorks Animation engages world-class creative teams, encourages them to imagine what's never been seen before, and empowers them with the resources to make the worlds they imagine come to life on the screen.

DreamWorks Animation starts with the physical environment where their talented artists, engineers, and production staff reside. The studio's sunlit, 11-acre Glendale, California campus is a place of beauty — fountains, trees, koi fish, ducklings — where people like to work outside as much as they do indoors.

But DreamWorks Animation must do more than establish the perfect setting. The nature of its work requires close and constant collaboration. The studio must find ways to ensure its employees can share ideas quickly regardless of where they're working.

To achieve the highest standard of storytelling, DreamWorks Animation must also support creative spontaneity. The studio must equip its employees with the right tools to work at the speed of their artistic vision.

And while DreamWorks Animation must support collaboration and creative spontaneity, it must do so cost-efficiently. The studio can never lose sight of the other side of filmmaking: the economics.

Dynamic provisioning for flexible resource allocation

DreamWorks Animation aimed to make its IT infrastructure flexible, agile, and dynamic, with quick provisioning, easy access to production assets, and ubiquitous campus connectivity.

DreamWorks Animation seeks ever-increasing IT speed, power, flexibility, and automation. To achieve this, the studio must design a technology environment that powers its increasingly dynamic workflows.

The studio needs the ability to provision IT resources in minutes—rather than days or weeks—so it can jump quickly on business and creative opportunities. It also needs to avoid costly overprovisioning to meet peak demand. At night, DreamWorks Animation's data center capacity is devoted to computer-generated imagery (CGI) rendering. Maximizing daytime utilization can prevent having technology sit idle.

DreamWorks Animation also wants to increase data center density without increasing management overhead; give teams immediate storage access to movie assets in production; and enable secure wireless connectivity everywhere on campus. In addition, DreamWorks Animation is interested in finding ways to bring cloud-like economics to its on-premise infrastructure.

"We want our technology to be agile, scalable, and customizable, so that as creative ideas form, resources can be provisioned dynamically to help our storytellers realize their vision without barriers."

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

Dynamic
Resource allocation

Provisioning
In minutes not weeks

24 hour
Capacity utilization

The next leap forward: composable infrastructure

DreamWorks Animation is collaborating with HPE to design and implement a reference architecture for composable infrastructure to enable workload flexibility.

DreamWorks Animation and HPE have a longstanding history of collaboration and co-innovation. Today, the companies are collaborating to create a reference architecture to enable automated provisioning workflows on top of an HPE composable infrastructure, using services from HPE Pointnext and innovative software tools from the HPE partner ecosystem. This will give DreamWorks Animation the ability to allocate fluid pools of server, storage, and networking resources flexibly to different workloads at the push of a button.

For application testing and TV rendering, DreamWorks Animation deployed a new breed of massively parallel, software-defined servers designed specifically for the applications they run.

Storage is an essential part of the studio's production workflows; *Kung Fu Panda 3* alone used 475TB of data. DreamWorks Animation uses HPE all-flash storage to make its Oracle Real Application Clusters (RAC) databases accessible during production, and complementary solutions for medium-term storage and long-term asset preservation.

At any given day on the DreamWorks Animation campus, thousands of devices connect to wired and wireless networks. These vary from company devices, Bring Your Own Device (BYOD), or even visitors' mobile devices. DreamWorks Animation's new Aruba networking solution makes wireless access indoors and outdoors as secure, reliable, and effortless as wired access. It includes campus-wide wireless coverage; role-based access control and policy management; and proactive monitoring of the health and performance of all things connected.

DREAMWORKS ANIMATION TEAMS WITH HPE POINTNEXT TO CREATE DYNAMIC INFRASTRUCTURE

HPE Synergy is the composable infrastructure foundation on which DreamWorks Animation is building automated provisioning workflows. HPE 3PAR provides all-flash storage enabling immediate online access to movie assets in production. Aruba delivers secure wireless access campus-wide. HPE Pointnext delivers strategic collaboration for a new world of dynamic filmmaking.

HPE Hardware	HPE Software
HPE Synergy	**Aruba Edge Switches**
HPE 3PAR StoreServ Storage	
HPE Moonshot	**HPE Pointnext services**
Aruba Access Points	**HPE Data Center Consulting**
Aruba AirWave & Clarity	
Aruba ClearPass Policy Manager	Transformation Solutions
HPE StoreAll Storage	**Enterprise Hybrid Cloud**
HPE BladeSystem Blade Servers	**Enterprise Private Cloud**
	Rapid Provisioning
	Mobile First Campus

"**DreamWorks Animation has a world-class engineering department. For many years, we have been responsible for our own architecture and strategy. Now we also look to HPE — which for so long has been providing our high performance hardware components — to aid us strategically to make our technology as dynamic as our filmmaking.**"

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

Storytelling at the leading edge

Dynamic infrastructure enables artists to achieve their creative vision without barriers.

With the help of HPE technology and services from HPE Pointnext, DreamWorks Animation continually pushes storytelling to the creative edge. Artists can get imagery rendered faster, and therefore can iterate more ideas in the same amount of time.

These benefits deliver from the moment of inspiration. With HPE composable infrastructure, compute resources can be allocated in minutes for any project. That keeps ideas flowing and shortens the time for them to either take flight or give way to new ideas.

HPE also meets DreamWorks Animation's requirements for cost-efficiency. Back in 2008, DreamWorks Animation launched a project to re-architect its production platform and tools. The goal: maximize the way the studio utilizes its HPE compute capacity. By the time DreamWorks Animation released *How to Train Your Dragon 2* in 2014, it had reduced its animation production costs by tens of millions of dollars.

As DreamWorks Animation embraces HPE's latest technology innovations and services, the gains in cost-efficiency and compute flexibility will magnify. These savings allow more time for creative iteration and ultimately, a stronger final product that will amaze and entertain audiences worldwide.

Minutes
To provision compute resources animators need to bring ideas to life

>$10M
Savings in production costs by maximizing utilization of compute capacity
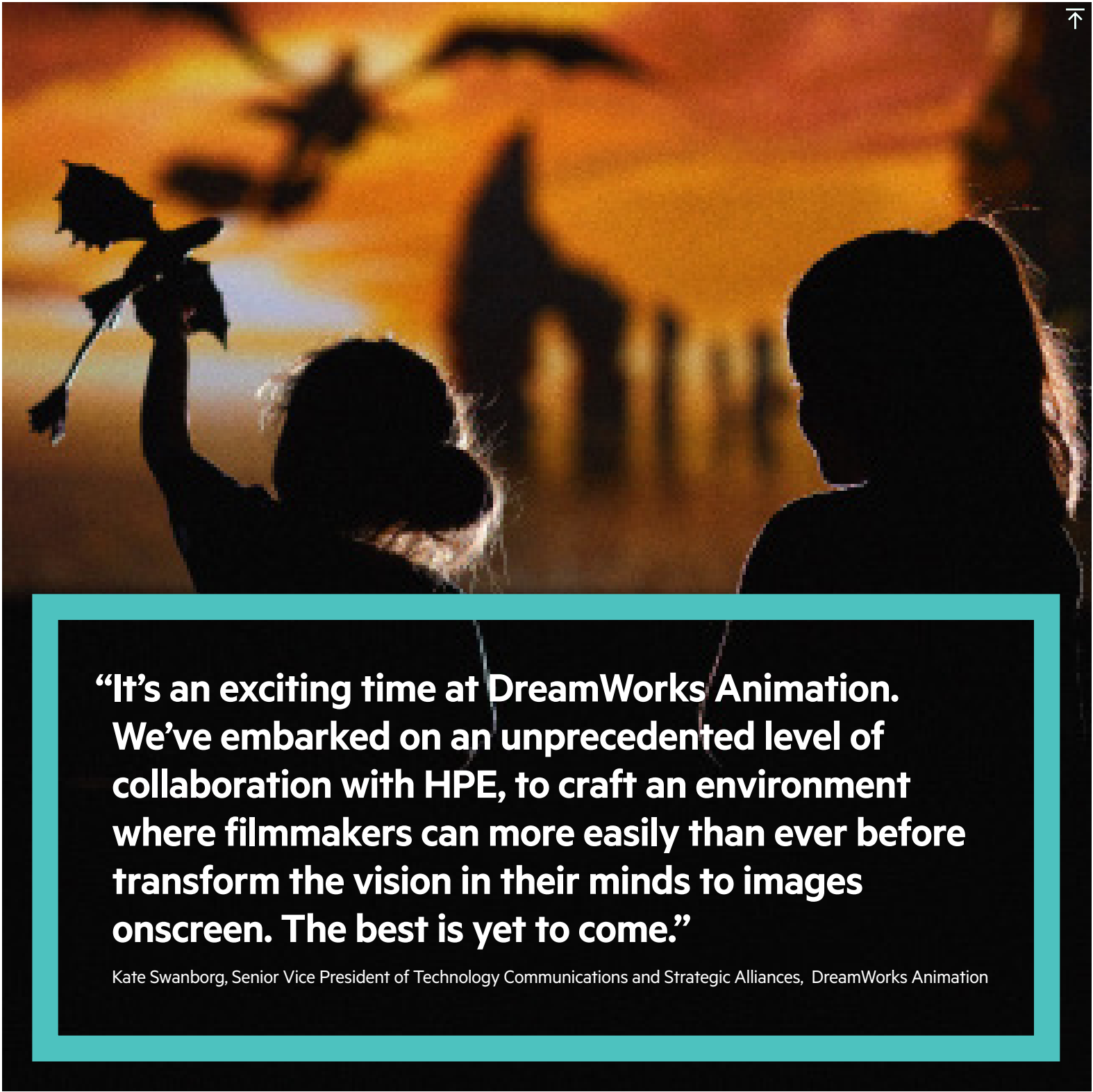
"It's an exciting time at DreamWorks Animation. We've embarked on an unprecedented level of collaboration with HPE, to craft an environment where filmmakers can more easily than ever before transform the vision in their minds to images onscreen. The best is yet to come."

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

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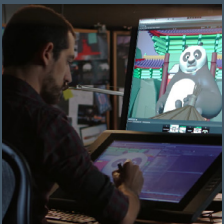
VIDEO
DreamWorks Animation + HPE – Accelerating Next-Generation Entertainment
Watch Video →

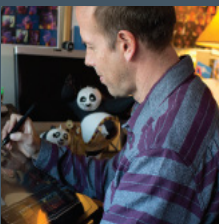ARTICLE
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