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*Bruno Mahe
Head of Technology
Illumination Mac Guff*



Producers of Dr. Seuss's "The Lorax" Use Hitachi Technology to Deliver Their Animated Films More Quickly Than Industry Standards

From storyboard to box office, Illumination Mac Guff produced Dr. Seuss's "The Lorax" in significantly less time and a fraction of the budget required for most feature-length, fully animated films. The very scalable, high-performance BlueArc network storage solution, now called Hitachi NAS Platform, was instrumental to Illumination Mac Guff's accomplishment. (BlueArc is now part of Hitachi Data Systems.) The solution supports intense CG rendering and production requirements for 190TB, 300 artists and crew, and 8,000 cores for a render farm operating 24/7.

The beloved world of Dr. Seuss has returned to the big screen with Dr. Seuss's "The Lorax." Based on the book, this full CG animated film earned US\$70.2 million in its 1st North American weekend to score the biggest box-office for an animated film in 2012. "The Lorax" is a cautionary fable about the importance of preserving the environment and features the title character who speaks for the trees. Dr. Seuss describes the Lorax in his book: "He was shortish. And oldish. And brownish. And Mossy. And he spoke with a voice that was sharpish and bossy."

Illumination Entertainment's 1st film with its Paris-based partner Illumination Mac Guff studio was the resoundingly

successful animated film "Despicable Me," followed the successful release of Dr. Seuss's "The Lorax." The movie went from concept and character creation to "It's a Wrap" in a remarkably short time and less than what is typical for a full CG feature animated film. This was accomplished on budget and on schedule.

The Art and Science of Animated Feature Films

Tremendous detail goes into creating and producing an animated movie. On the front end, writers, artists, voice talent, editors and producers all come together to tell the tale. From the initial concept flow the text, storyboard, illustrations, story sequencing and

ILLUMINATION
ENTERTAINMENT

Illumination Mac Guff

INDUSTRY
Entertainment

SOLUTION
File and Content

HARDWARE
Hitachi NAS Platform 3090 and 3080, data migrator feature

SOFTWARE
BlueArc JetMirror, cluster namespace feature

SERVICES
Provided by Hitachi TrueNorth Partner, NewNet



“They [HDS] really came through when we needed it most. Today we have a faster, more energy efficient, and more agile storage solution that will hold up to the significant demands of this business. We look forward to what our company, and our storage, can accomplish into the future.”

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timing, and the digital rendering processes. Illumination Mac Guff produces CG computer animation, which comprises hundreds of thousands of individual images that are conceived by their extensive team of artists and then rendered through digital animation to create every element of each frame of the film. “Despicable Me” generated 142TB of data and over 100 million files.

Animation projects of this caliber depend on highly reliable and scalable data storage solutions with exceptional performance capabilities for ample capacity and quick retrieval of the dense media files. As Illumination Entertainment and Illumination Mac Guff were completing “Despicable Me” and beginning “The Lorax” project, they had to handle unexpected back-end issues with the existing primary data storage solution. The storage manufacturer was dissolved. The growing storage demands required by CG animation also meant that Illumination Mac Guff would need more capacity, greater performance and robust functionality.

“We could not afford to have anything go wrong that might cause delays. We needed to ensure that our files would be highly available during the project and beyond,” says Bruno Mahe, head of technology for Illumination Mac Guff.

Behind the Scenes With Data Requirements

To safeguard Illumination Mac Guff’s production and rendering environment, Mahe turned to its French storage integration provider NewNet for help. “Switching storage solutions during a project was not the preferred mode of operation, but we had no

guarantee that our existing storage would have continued support or development for its products. We had a lot of special requirements and wanted to be certain that we chose the best solution moving forward,” he says.

Requisites for a new storage solution included extensive scalability that would not sacrifice performance, to cope with CG application demands and the vast number of files and data volumes that would be generated for Dr. Seuss’s “The Lorax.” While Illumination Mac Guff was using commercial software packages, including Autodesk Maya, Mahe was looking for storage particularly capable of seamless integration with Illumination Mac Guff’s proprietary render engine and workflow, including the in-house asset manager.

“There is a tremendous spike in rendering during a 2-to-3 month period in our film cycle and the storage must be able to support that with scalability and manageability. And we are very energy conscious, which happens to align with the theme of Dr. Seuss’s “The Lorax,” so we wanted to find a storage solution that was as green as possible,” Mahe furthers.

After considering numerous potential storage products, Illumination Mac Guff narrowed its list to 2 vendors. “We selected the only vendor offering the levels of performance, scalability and efficiency necessary to accomplish our goals. The technology works with all of the proprietary software developed by Illumination Mac Guff, which will help us deliver projects on time and on budget. We were confident that it would be simple and efficient for us to manage,” he continues.

A Better Way to Support Data Storage

Illumination Mac Guff selected a networked storage solution based on 2 clustered Hitachi NAS Platform 3090 systems for production. The data migrator feature was selected for data movement between tiers, and a Hitachi NAS Platform 3080 was chosen for business continuity measures.

During the course of Dr. Seuss’s “The Lorax” project, this solution supported 24/7 operations and access, including 190TB of nearline and production storage, 8,000 cores for a render farm and 140TB of backup. The creative process on the movie eventually tallied nearly 3 million hours of rendering and 177,388 rendered layers or frames, with over 300 artists and crew who worked on the film.

A high-performance network storage platform, Hitachi NAS Platform employs massive computing parallelism. It supports explosive object-based growth demands and facilitates a simpler, more efficient ecosystem. Built on award-winning technology and the BlueArc SiliconFS hardware accelerated file system, Hitachi NAS Platform servers deliver tremendous system performance and scalability, with up to 8PB of usable capacity.

To reduce the cost of keeping more data online for quick access by busy Illumination Mac Guff artists, the system provides intelligent tiered storage of large, dynamic data sets and deploys multiple levels of storage virtualization to eradicate the typical complexities and availability issues of large-scale file systems. The data migrator feature moves and manages storage between tiers.

The system adds sophisticated file system functions with point-to-point data transfer capabilities to prevent conflicts and bottlenecks for consistently high performance.

The cluster namespace feature is a single global namespace that integrates all the elements of the storage system to provide a single logical view of the data. So whenever Illumination Mac Guff employees request data on this or future projects, no matter where it resides in the cluster, it can be swiftly retrieved and presented.

For disaster recovery planning, Illumination Mac Guff is using BlueArc JetMirror for high-speed replication of product data to the Hitachi NAS Platform 3080 located off-site, as well as fast failover in the event of disaster. Because the BlueArc JetMirror file system is object based, all file system structures, metadata and user data are stored as related objects. BlueArc JetMirror uses native replication of these object blocks to efficiently speed the replication process, rather having to gather the separate objects associated with a file before transfer.

"The Hitachi NAS Platform gives us a lower cost of ownership, data protection and a consistently high-performing storage solution that we can rely on, day in, day out, no matter where we are in the creative journey," says Mahe.

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Network Storage Solution Becomes a Box-Office Hit, Too

Dr. Seuss's "The Lorax" seems to be winning over moviegoers with its superb animation and timeless message.

The network storage solution implemented at the production company during the making of "The Lorax" is helping to create a sustainable IT environment that will scale to meet future data growth requirements. The solution was a standout among other potential options, with industry-leading performance and scalability levels.

"They [HDS] really came through when we needed it most. Today we have a faster, more energy efficient, and more agile storage solution that will hold up to the significant demands of this business. We look forward to what our company, and our storage, can accomplish into the future," Mahe concludes.



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SS-386-B DG March 2013