



Ilion Animation Studios increases productivity of 200 artists with BlueArc Networked Storage Solution

“We had to set up a studio at the same time we were working on this most ambitious project,” Rueda said. “Storage and hardware is not our business, so we were looking for something that would scale well and be simple to manage. We evaluated options on the market that would support CIFS protocol. We’re not running large databases, we needed to handle large files with very high performance storage.”

Gonzalo Rueda,
Ilion, Chief Technology Officer

“When we were researching storage solutions, BlueArc’s expertise in the entertainment industry made them a top choice,” said Gonzalo Rueda, chief technology officer and director of technology for Ilion. “Throughout the development of ‘Planet 51’, BlueArc provided us with an added level of service. They understood how we work within our environment and were able to take a consultative role in ensuring the solution met the exceptional demands of our animation artists.”

“For vendors that do not live in the NAS storage space, it’s more like configuring a SAN and putting NAS heads in front of it,” Rueda said. “BlueArc fulfilled our needs for bandwidth and IOPs. We had one Titan storage server to start, while other vendors were talking about clustering two and three nodes.”

Summary

Today, the technology required to create computer generated images in the production of motion pictures has become a competitive differentiator for cutting edge organizations such as Ilion Animation Studios. As part of this advanced infrastructure, deploying a high performance storage solution allows artists to create more revisions by dramatically accelerating render farm output—fueling extraordinary productions on schedule while reducing costs. Ensuring the productivity of artists, enhancing scene quality and adhering to aggressive schedules is critical to the success of every studio. The BlueArc and Ilion Studios partnership has resulted in a full length animated film with visual effects like no other. Welcome to the universe of Planet 51.

The Customer

Ilion Animation Studios was founded in 2002 to create state-of-the-art computer animated movies for worldwide theatrical release using its own purpose-built, cutting-edge technology. Based in Madrid, Spain, Ilion delivered Europe’s largest animation launch with the release of “Planet 51.” Premiering to a worldwide audience, and with distribution on 3800 screens in the United States alone, “Planet 51” is a defining production for Ilion as the studio’s first full length feature film. Given the importance of the project to the company’s future, the management team realized that selecting the right storage partner was critical to their success.

The Challenge

Gonzalo Rueda, Ilion’s Chief Technology Officer with responsibility for all technical functions at the studio, quickly came to realize the importance of a high performance NAS (Network Attached Storage) solution in enabling the creative potential of the studio’s 200 artists. This team was dependent on over 200 Hewlett Packard workstations and a render / compositing farm consisting of over 300 physical nodes and 2500 cores. A proprietary, in-house rendering application and home grown asset management system enabled file access. Also, Ilion ran applications such as Nuke, Autodesk Maya and 3D Studio Max on the farm. Toward the end of the project, production was moving at such an intense pace at times that Gonzalo’s team had to balance rendering and compositing work between the same physical server assets. On weekends, idle workstations were added to provide a total of 4000 cores of processing power. This environment posed a number of challenges:

- Intense pace of production schedule demanded a file storage system that could handle over 3000 simultaneous file interactions when rendering a scene in addition to providing extremely high bandwidth for compositing.
- Ability to manage large shared file systems and corresponding folders was critical.
- Since varied applications employed were running on both Windows and Linux based servers, concurrent support for NFS and CIFS protocols without degradation was a clear requirement.
- Cost considerations required scaling the deployment in phases to balance cost without compromising performance.

“BlueArc Data Migrator software allowed us to reduce the strain on the primary storage tier dramatically by transparently moving data between the Fibre Channel and SATA drives,” said Rueda. “We were able to access metadata quickly on Fibre Channel, even if a portion of the data was on SATA, improving our overall performance and decreasing our dependency on a large Fiber Channel tier, which reduced our costs tremendously.”

The Solution

Given that Gonzalo and his team would be so dependent on the storage solution ultimately deployed in support of the Planet 51 project, he conducted a lengthy research engagement with an emphasis on bandwidth and performance compared to value. During its assessment, the team evaluated solutions from EMC, NetApp, HP and BlueArc. In order to help Ilion develop a storage infrastructure that would support such a diverse and high performance application environment, the BlueArc team drew upon its extensive experience in the Media and Entertainment industry. According to Gonzalo, “The team took a consultative approach to help set up the initial configuration while keeping costs under control. BlueArc understood how our environment worked.”

Given the cost considerations associated with a start-up, Ilion elected to scale the deployment in two phases in order to balance cost and performance. The initial solution consisted of a single Titan Storage System with a pool of SATA based storage which supported 160 feeds through 200 render nodes. Over the course of two years, this solution was able to scale tightly in accordance with Ilion’s production capacity. However, as the tempo of development accelerated, it became apparent that an additional system would be required. Upon completion of a full needs evaluation considering both current and future requirements, Ilion decided to add a second Titan storage system and an incremental tier of high performance Fibre Channel storage. Ultimately, the final configuration consisted of clustered Titans and 90 TB of Fibre Channel and SATA capacity. In addition, Ilion took advantage of BlueArc’s Intelligent Tiered Storage functionality which enabled transparent migration of files between the Fibre Channel and SATA tiers in order to reduce dependency on manual administration.

The Results

Despite the phased deployment approach, both the initial installation and subsequent upgrades to the BlueArc solution were completed successfully. In fact, Gonzalo recalls, “Given our tight schedule, simplicity was key. We needed the system to be easy to get set-up and running. With BlueArc, there was no need to troubleshoot or fine tune issues later on.”

While the scene work for Planet 51 spanned a period of 22 months, the last 9 months of production leading to the film’s completion was particularly hectic for Gonzalo’s team. At peak production, members of staff were constantly present in order to maintain ren-

der operations 24 hours per day, seven days a week. In fact, a few particularly devoted administrators volunteered to work through the Christmas holiday. During this time, the BlueArc solution delivered sustained performance allowing Ilion’s 200 artists to produce a greater number of shot iterations. The team wanted a solution where the larger effects would not quickly overcome system cache while rendering input files and producing output files on 300 render nodes. Given BlueArc Titan’s exceptional performance profile, Ilion found that many jobs were performed directly on the network without issue. This resulted in not only a higher quality production, but also enabled greater creativity and experimentation by the artists.

BlueArc’s data migration capabilities were used extensively in transparently moving files between the primary and secondary tiers during the course of production. Although the BlueArc solution provided standard policy templates, Ilion decided to create customized versions to best support their unique work flows. The primary FC tier was devoted to sequences that were active in production. Once completed for review or finalized, the sequences were then automatically migrated to the less costly and more energy efficient SATA tier. As an additional benefit, file system Metadata was transparently maintained on the primary tier, enabling fast access across the storage tiers even if the main portion of the data resided on lower cost SATA disks. This significantly improved overall performance without the need to maintain higher capacities on the primary tier of storage.

While the vast majority of system capacity is dedicated to frames, assets, textures and animations, the solution’s multi-protocol accessibility and common storage pool allowed administrators to also use the Titan cluster for business data, such as Exchange and PostgreSQL.

The Conclusion

Supporting such varied, data intensive application workloads was an important element of the creative effort put forth by Ilion in bringing the vision of Plant 51 to the big screen. Despite the resounding success of the film, Ilion Animation Studios will continue to push the limits of reality based animation and is already hard at work on a new and even more ambitious project. As an ongoing partner in these endeavors, BlueArc’s ability to provide high performance, easy to manage, and cost effective network storage solutions will continue to support Ilion into the future.



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