



#### Objective

Build an efficient, practical, intensive, stable animation rendering platform that occupies less computer storage space, while exhibiting low energy consumption and convenient management

#### Approach

Introduce an animation rendering solution based on HPE Moonshot System and build an “animation rendering farm”

#### IT Matters

- Build an animation rendering platform with the highest computing density and the most optimized efficiency
- Reduce the IT maintenance time and workload, reduce costs and complexity of management
- Compared with traditional solutions, this method improves computing performance by 25% and reduces power consumption by 10 times

#### Business Matters

- It enables a 70-member production team to accomplish animation rendering in an effective and smooth manner
- The total output and production efficiency are significantly improved
- It upgrades the users' experience and users' retention rate

## Shanghai SingingRain Animation perfects lifelike animation with breakthrough Nano Core

Maximizes rendering performance, efficiency, and quality on HPE Moonshot



Shanghai SingingRain Animation is constantly striving to deliver the best animation experience to its users. Leveraging the breakthrough compute density and energy efficiency of the HPE Moonshot System, the company built an animation rendering farm that dramatically accelerated production of the company's revolutionary new 3D animation product, Nano Core.

### Driven to be the best

#### High quality standard for 3D animation

Shanghai SingingRain Animation Design Co., Ltd., formerly Coastline Animation Studio founded in 2008, is driven to be the most competitive brand in the Chinese animation industry. To ensure users have the best possible experience, Shanghai SingingRain Animation constantly analyzes every element of the animation process, from character setting to animation production. The company's latest innovation, the sci-fi adventure 3D animation product, Nano Core, has received widespread interest and response from the industry.

#### Dilemma: how to balance quality and cost

While the outcome was a great success, the development process faced some significant challenges early on—primarily in terms of quality assurance, cost control, and efficiency.

“Efficiency and quality of animation rendering are two key elements for success of an animation product. However, animation rendering consumes a considerable amount of operating resources such as funds, materials, manpower, and time. Instead of outsourcing rendering, Shanghai SingingRain Animation established a small in-house rendering farm with high performance, high reliability, and low cost.”

– Lu Jun, producer of Nano Core of Shanghai SingingRain Animation Design Co., Ltd.

The dilemma: how to simultaneously ensure low cost and high quality. Animation rendering consumes most of the cost. To create truly lifelike animation to meet users' increasingly high requirements for visual effect, each frame needs to be perfectly rendered.

Lu Jun, producer of Nano Core, explains, “Efficiency and quality of animation rendering are two key elements for success of an animation product. However, animation rendering consumes a considerable amount of operating resources such as funds, materials, manpower, and time. Instead of outsourcing rendering, Shanghai SingingRain Animation established a small in-house rendering farm with high performance, high reliability, and low cost.”

#### **Technical hurdles in animation rendering**

Building an efficient, compute-intensive animation rendering farm with advanced architecture and stable operation has important strategic significance and provides a tactical supporting role for the company's rapid business development. However, during implementation, the animation rendering farm faced several hurdles:

- **Unsatisfactory computing density and growing energy consumption**

Animation rendering requires outstanding computing capacity. Stacking up traditional servers occupies too much space in the machine room, and also increases power

consumption due to increase cooling requirements. Shanghai SingingRain Animation had to resolve space, efficiency, and performance issues or sustainable development would be impossible.

- **Production speed impacting creation continuity**

The average duration of each episode for Nano Core is about 28 minutes. At 24 frames per second, a traditional server takes 20 minutes to render each image; one minute of animation rendering would require an entire week. The hysteresis of the results during animation production greatly affects the staff's ability to create and think consistently, which has a major impact on their quality of work.

- **High operating costs**

Apart from enormous costs in time and manpower, the animation rendering farm required ongoing maintenance. This resulted in high operating costs, eroding Shanghai SingingRain Animation's competitiveness.

Animation processing speed depends on the server's CPU power and capacity. The higher the CPU floating point operating capacity and I/O throughput, the greater the animation rendering performance.



## A new approach to animation rendering: HPE Moonshot System

To address these challenges and improve animation rendering performance, quality, and efficiency, Shanghai SingingRain Animation worked with HPE to move its animation rendering process onto the HPE Moonshot System.

Lu Jun notes, “Shanghai SingingRain Animation selected a set of HPE ProLiant m710 Servers and HPE Moonshot 1500 Chassis providing a converged infrastructure. Each chassis is loaded with 45 hot-swap HPE Moonshot servers that work as computing nodes for the animation rendering farm.”

## Breakthrough innovations solve complex animation rendering issues

The HPE Moonshot System introduced a number of breakthrough innovations that solve Shanghai SingingRain Animation’s rendering issues:

- **High-density parallel computing**—To address CPU processing power and capacity, HPE Moonshot supports 45 hot-swap high-density servers inside a 4.3U chassis. This enables revolutionary parallel computing capacity, with the performance equivalent to a rack-mounted server in a fraction of the space.
- **Shared infrastructure**—HPE Moonshot integrates compute, storage, network, power supply, and heat dissipation in a single

compact chassis. The power consumption of HPE Moonshot is only 1/24 that of a traditional server solution, and its footprint is a mere 1/25 of traditional rack setups.

- **Unified management**—HPE Moonshot is connected to a public software management platform to simplify and streamline load distribution, system operating status monitoring, and power supply monitoring.
- **Fast network channel**—A pair of HPE Moonshot-45XGc Switch Modules along with an HPE Moonshot-4QSFP+ Uplink Module deliver high-speed networking with support for 45 10Gb network ports per switch.

## Accelerated time to market

Typically, investors in animation products expect a rapid return on their investments. This makes production speed extremely important. Since adopting HPE Moonshot as the core of its animation rendering farm, Shanghai SingingRain Animation has greatly improved animation production.

Lu Jun reports that animation rendering output has increased 10 times compared to the previous infrastructure. For example, the first three episodes of Nano Core required one year in development. The next three episodes on HPE Moonshot only took five months. And the most recent four episodes were completed within an even shorter period.

This dramatic improvement, not only drives higher animation output, but also accelerates return on investment, providing dual benefits for both IT and the business.

**Case study**

Shanghai  
SingingRain  
Animation

**Industry**

Movie & TV  
animation

**Customer at a glance**

**Application**

- 3D animation rendering

**Hardware**

- HPE Moonshot System
- HPE ProLiant m710 Servers
- HPE Moonshot 1500 Chassis

**Software**

- HPE Systems Insight Manager (SIM)
- HPE ProLiant Essentials
- HPE Integrated Lights-Out 4 (iLO4)

**HPE Services**

- Five years of technical support and hardware repairs are provided by the original manufacturer
- 7x24 technical support hot line
- Comprehensive technical support service from consultation, planning, and deployment to operation and maintenance at the later stages

“HPE Moonshot System has set many industry records, including the highest computing density, lowest energy consumption and smallest footprint, allowing us to achieve a balance between cost control and quality assurance, which is also an important reason for us to choose HPE as our partner.”

– Lu Jun, producer of Nano Core of Shanghai SingingRain Animation Design Co., Ltd.

**Higher performance and efficiency boost production output**

With HPE Moonshot, Shanghai SingingRain Animation has improved overall computing performance in its rendering farm by 25%. In addition, the converged HPE Moonshot infrastructure and unified management platform reduced administration time and effort substantially. And an initial evaluation of energy efficiency in the animation rendering farm showed a tenfold reduction in power consumption with HPE Moonshot compared to traditional rack servers.

Increased performance and efficiency enables more people to work on the production than was previously possible. For example, when using traditional servers, the animation rendering farm could support only 50 members working simultaneously. Now on HPE Moonshot, 70 team members can undertake animation rendering smoothly.

In addition, each episode of Nano Core can be produced faster. Before, rendering one episode required 1.5 to two months. Now, it can be finished within only one month, achieving significant improvement in both total output and production efficiency.

**Nano Core proves to be a big hit**

Most important, Shanghai SingingRain Animation is delivering outstanding 3D animation quality, improving the users’ experience. In fact, user retention has remained very high through ten episodes of Nano Core.

With ten episodes of Nano Core Season 1 now finished, average CTR for each episode is up to 20 million. It is a huge hit for an originally created animated movie. As a result, Shanghai SingingRain Animation has confirmed it plans to produce Season 2.

The HPE Moonshot System will be a secret weapon for Shanghai SingingRain Animation to keep producing top-quality products and continue to improve its operating efficiency.

Learn more at  
[hpe.com/info/moonshot](http://hpe.com/info/moonshot)



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