

# HIGH- PERFORMANCE IMAGINATIONS

How DreamWorks Animation is bringing bigger, bolder ideas to life with Lenovo Neptune™ and High-Performance Computing solutions.

Lenovo Infrastructure Solutions  
for The Data-Centered



Lenovo

# THE STORY

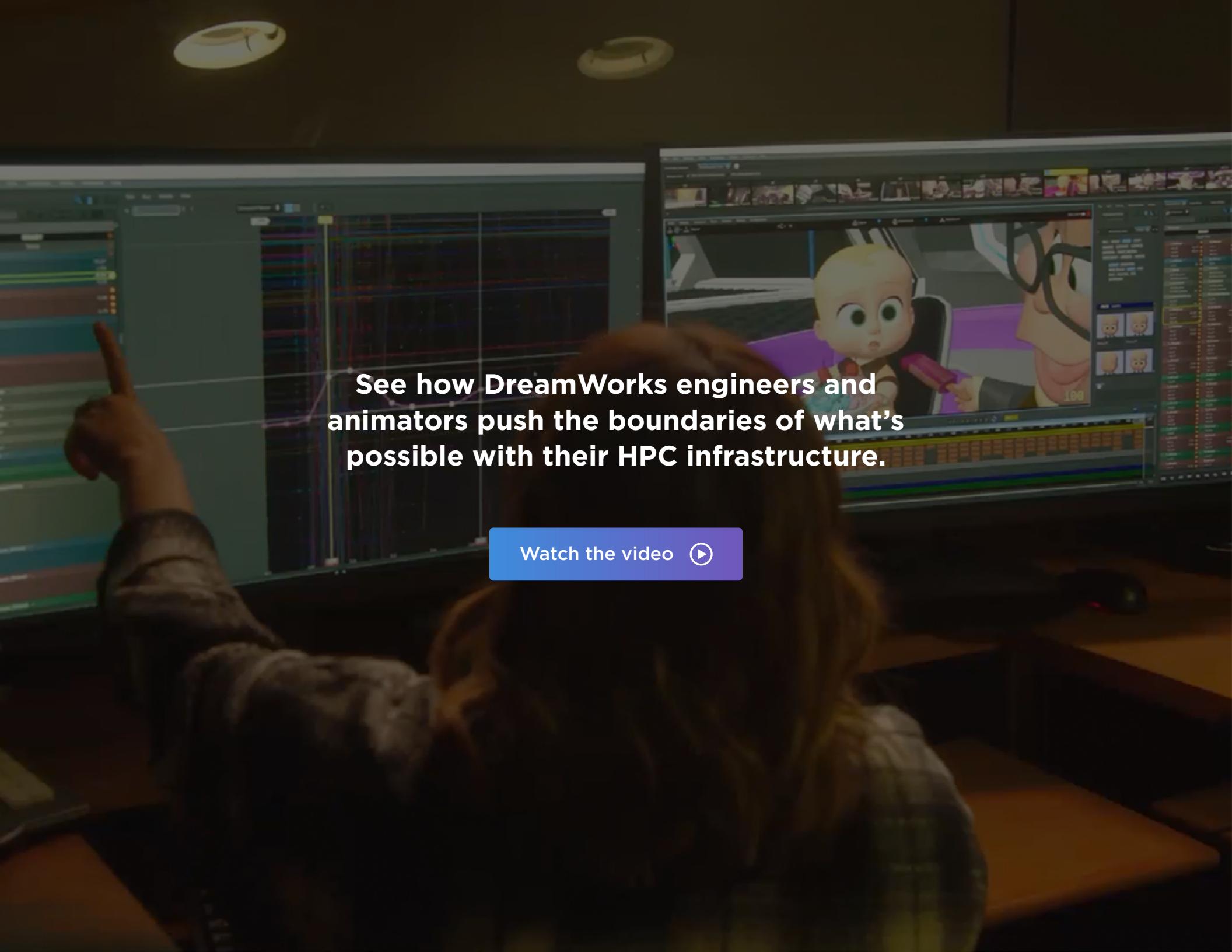
DreamWorks Animation is the force behind animated masterpieces like *Shrek*, *Kung Fu Panda*, *How to Train Your Dragon*, *Trolls*, *The Croods*, and *The Boss Baby*. Every film they create is an evolution of those that came before it — pushing the boundaries of what's visually possible by pushing the technology that brings it to life.

Every single element in a CG animated film is computer-generated and artist-created — geometrically modeled, animated, surfaced, textured, and simulated according to the properties of real-life physics.

The making of a CG animated film requires an incredible amount of data, and the best-available high performance compute (HPC) capabilities.

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A person with long hair is seen from behind, pointing their index finger towards a large computer monitor. The monitor displays a complex 3D animation software interface. On the screen, a 3D model of a baby wearing glasses is being worked on, surrounded by various toolbars and panels. The background is a dark studio environment with overhead lights.

**See how DreamWorks engineers and  
animators push the boundaries of what's  
possible with their HPC infrastructure.**

Watch the video 



# THE PARTNERSHIP

DreamWorks' data center was already running at capacity — both from a real estate perspective, and when it came to power and cooling. In order to meet a demand for content creation while continuing to raise the bar of on-screen visual fidelity, the animation studio sought advances in new technology, greater efficiency, and increased density to support their growing business and creative ambitions. They needed powerful innovation today, with the ability to scale and continue advancing tomorrow.

DreamWorks chose to partner with Lenovo because of our customer support, expertise in navigating IT complexity, future-proof technology, and control over our supply chain. Together, we built an on-premises HPC infrastructure that has seen advances in scalability and efficiency.

And we did it during a global pandemic.

# THE RESULT

Together, by bringing powerful HPC solutions with Neptune™ liquid-based cooling technology into their data center, DreamWorks' technology can keep pace with their creative innovation.



Increased compute capabilities by **20%**



**Future-proofed** high-performance computing systems



**Reduced cooling costs** by using water returned from existing sources

# NEPTUNE™ LIQUID COOLING TECHNOLOGY

With Lenovo Neptune™ direct-to-node liquid-based cooling technology, DreamWorks can truly unleash the superpowers of their award-winning MoonRay renderer and Arras cloud computation systems, enabling robust interactive rendering for near-real-time artist feedback.

Neptune™ utilizes warm water, direct through customs and overheat sinks on the motherboards to efficiently extract heat from the compute systems and circulate it through the building's cooling system. This direct-to-node cooling technology enables peak processing performance at all times, ensuring there is no trade-off between performance, energy efficiency and cost savings.

# HOW IT WORKS

## Direct to Node (DTN) Warm Water Cooling

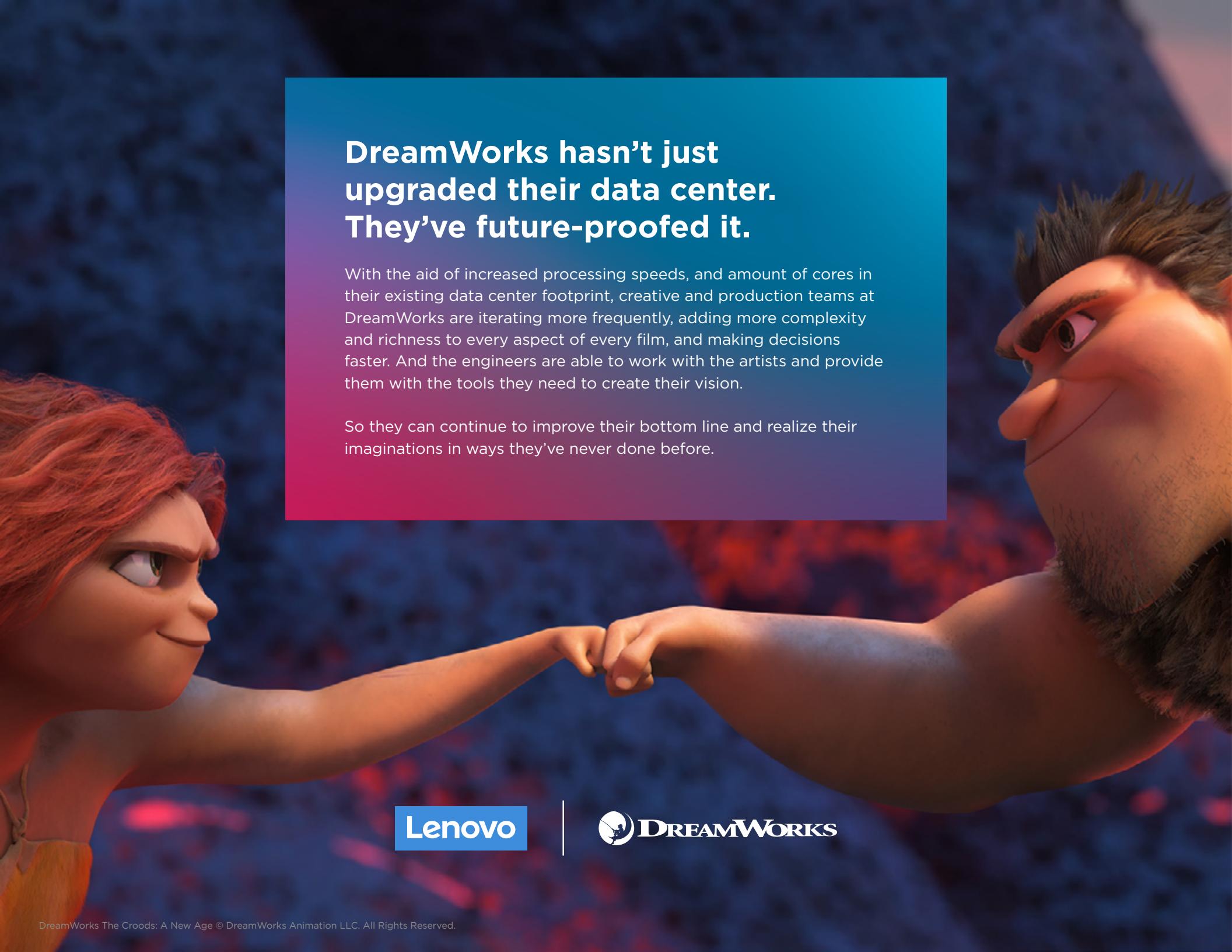
By using water piped directly into the system unit to cool components, instead of using system fans and chilled air, Lenovo's ThinkSystem SD650 can remove heat (up to 50°C) from the CPUs, memory, IO, local storage, and voltage regulators.

- Allows critical server components to operate at lower temperatures compared to standard air-cooled systems
- Enables DreamWorks to run Xeon® Scalable processors up to 240W+ versus the traditional air-cooled systems limit to 165W
- Delivers greater performance with lower data power consumption

## Thermal Transfer Module (TTM)

These integrate a hermetically sealed liquid-filled heat pipe inside a traditional heat sink, and are deployed in our air-cooled ThinkSystem SD650 to allow higher wattage CPUs.

- Transfers heat away from the CPU into an area with more space to disperse heat
- Allows for higher wattage CPUs with more cores/computational power (205W)
- Keeps fan speeds modest for lower acoustic modes



## DreamWorks hasn't just upgraded their data center. They've future-proofed it.

With the aid of increased processing speeds, and amount of cores in their existing data center footprint, creative and production teams at DreamWorks are iterating more frequently, adding more complexity and richness to every aspect of every film, and making decisions faster. And the engineers are able to work with the artists and provide them with the tools they need to create their vision.

So they can continue to improve their bottom line and realize their imaginations in ways they've never done before.



## **What can you make possible with Lenovo Analytics & AI?**

Go from data center to Data-Centered with Lenovo Analytics & AI solutions. We take a customer-centric approach to provide proven, ready-to-deploy solutions to realize your AI transformation and unleash the power of your data.

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