



Customer Case Study

Volumetric Camera Systems Revolutionizes Immersive Media

Global cutting edge production studio unlocks real-time generative graphics and reduced render times with HP Z Workstations.



Industry

Media & Entertainment

Country

Canada

Objectives

- Overcome hardware limitations hindering ambitious immersive media projects
- Enable high-fidelity, large-scale immersive media projects (e.g., Anyma's *End of Genesys at the Sphere*)
- Activate new possibilities in real-time with generative design and advanced AI integration

Approach

- Integration of HP Z6 G5 A desktop workstations (*with an AMD Ryzen™ Threadripper™ PRO processor² and multiple NVIDIA GPUs³*) into their workflows
- One reliable system over distributed architecture for faster iteration and lower failure risk
- Testing everything at final resolution from day one
- Performing local AI inference for speed and security, rather than relying on cloud solutions

Business Outcomes

- Over 60% reduction in render times and a 3x creative throughput¹
- Transitioned from crash-prone, fragmented workflows to stable, single-system, real-time iteration
- Reduced operational complexity and cost due to the ability to drive large-scale immersive installations with a single workstation





The Leading Edge of Immersive Media

In the rapidly evolving landscape of immersive media, creative vision often outpaces technological capabilities. **Tobias Chen**, a veteran in real-time systems for large-scale projection environments and the founder of **Volumetric Camera Systems**, understands this challenge deeply. Chen's work, which includes building shows that combine real-time simulation, audio reactivity, and generative visuals live across 150,000 lumens of projection, demands uncompromised reliability and immense computational power. One event in particular, Anyma's End of Genesys show at the Sphere, pushed the boundaries of what's possible in immersive experiences.



Fewer hours

lost to triaging,
crashing, and waiting

Bridging The Gap Between Creativity and Compute

Before integrating **HP Z workstations**, Volumetric Camera Solutions faced a common dilemma in the creative industry: hardware limitations constantly bottlenecked their ambitious projects. As Chen describes, "The creative was always outpacing the hardware." This led to constant triaging: splitting renders, batching jobs, and cleaning crashes.

This "death by a thousand cuts" resulted in significant production delays and financial losses, most notably, an overnight render failure due to RAM bottlenecks that cost five figures in a single day. Working at the pioneering edge of resolution and fidelity, far beyond simple Adobe After Effects tweaks, the team was grappling with the need for distributed compute and multi-GPU pipelines. The emergence of AI further amplified these demands, requiring local inference capabilities for speed and security.

"The creative was always outpacing the hardware."

Tobias Chen, Founder & CEO
Volumetric Camera Systems

Finding a Strategic Partner

Volumetric Camera Solutions sought a partner who could provide not just powerful machines, but also a deep understanding of their unique, high-stakes requirements. HP Z technology stood out by offering a solution that went beyond a generic workstation deal. This strategic alignment, coupled with HP's commitment to creative freedom through technology, solidified the partnership.

“[HP] understood the scale, had the roadmap, and could provide reliability at spec.”

Tobias Chen, Founder & CEO
Volumetric Camera Systems

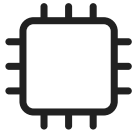
Unlocking New Creative Possibilities

The integration of HP Z workstations transformed their workflows, enabling them to tackle projects of unprecedented scale and complexity. The Sphere’s 16K by 16K resolution, which shattered conventional pipelines, became manageable with the HP Z6 G5 A desktop workstation powered by an AMD Ryzen™ Threadripper™ PRO CPU², which could handle the immense memory and frame throughput without choking. On top of that, having access to multiple NVIDIA GPUs³ meant, “we could process things twice or even three times as fast. As well as run multiple tasks—AI on one, real-time preview on another—without stepping on each other,” says Chen.¹

Workflow Transformation

AI was heavily integrated into the workflow, from generative design passes to inpainting background plates and high-resolution masking. HP Z workstations enabled local inference, which was a “game-changer for speed and security,” according to Chen, eliminating the need to offload to the cloud. The entire creative journey, from idea to implementation, was significantly accelerated, allowing for rapid generation of variations and refinement of visual motifs:

- 1. Ideation and Previs:** Utilizing Unreal Engine for initial concepts.
- 2. Simulation and Generative Assets:** Employing Houdini and custom ML models.
- 3. Iterative Testing:** Rapid iteration in VR, allowing for quick adjustments.
- 4. Final Renders:** GPU-accelerated compositors for high-fidelity output.
- 5. Quality Control:** Full-resolution playback on a small-scale Sphere replica.



2 - 3x faster

processing times¹





Enabling Never Before Possible Collaboration

Real-time

live generative graphics,
no offline rendering required

One of the most significant breakthroughs was the ability to perform real-time live generative graphics directly into an equirectangular (*Sphere-compatible*) format. This capability, previously requiring offline rendering, was made possible by the real-time processing power of the HP Z6 G5 A desktop workstation.

This meant “artists could preview work in near-final fidelity. No more sending files to one machine and waiting. Everyone had access to high-performance machines. We were working in parallel, not in line.” explains Chen.

3X

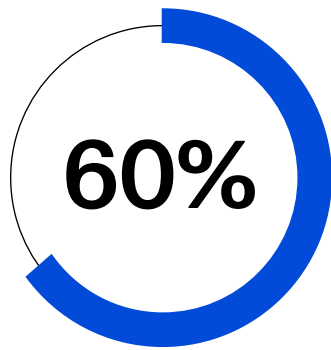
creative throughput¹

Mission-Critical Reliability and Speed

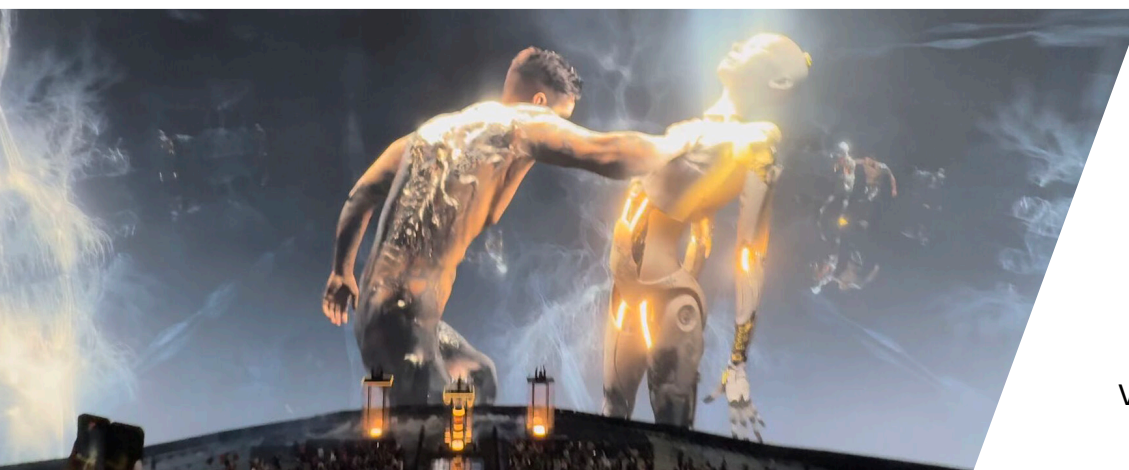
For projects like End of Genesys, reliability is not a luxury but a mission-critical necessity. A system crash mid-render could lead to losing QA testing slots at the Sphere, rescheduling, and potentially delaying the entire show. The HP Z workstation’s reliability ensured uninterrupted workflows. The increased compute power also dramatically improved iteration speed, moving from one iteration per night to three, resulting in a 3x creative throughput¹, according to Chen. This was particularly vital given the tight deadlines, with only one month from motion capture data capture to final pixel delivery.

All in all, the tangible benefits of integrating HP Z technology were significant:

- **Render Time Reduction:** Over 60% reduction in render times on some sequences¹
- **Local Inferencing:** Turnaround times reduced from hours to minutes¹
- **Improved Workflow:** Transition from crash-prone, split passes, and long queue times to single system, real-time iteration, and stable outputs
- **Enhanced Collaboration:** Teams could test ideas without waiting on render queues, maintaining an unbroken creative flow



reduction in render times¹





Transforming the Future of Immersive Experiences

Tobias Chen emphasizes that, “HP Z turned our workstations into creative instruments,” allowing the team to focus on creation rather than fighting technology. The success of the End of Genesys project, which reset expectations for immersive media, inspired Volumetric Camera Systems to embark on an even more ambitious endeavor: the full transformation of the [H.R. MacMillan Space Centre's](#) 360° planetarium in Vancouver.

This project, directly inspired by the Sphere experience, aims to bring a similar spectacle to a wider public. Remarkably, a single HP Z workstation now drives the entire 20-meter dome, utilizing eight Christie 4K projectors stitched together to create a seamless 10K-resolution surface. This setup delivers a pixel density even higher than the Sphere, providing an unparalleled immersive experience for 200-300 people nightly. The simplicity of this solution—replacing complex hardware clusters and sync nightmares with a single, stable, high-performance core—underscores the transformative power of HP Z technology. It makes such a venue feasible without enterprise-level overhead.

Future Vision and Lessons Learned

Chen believes AI will be embedded everywhere in creative industries, not just as a content generation tool but as a collaborative system within the pipeline. The only barrier, Chen asserts, is whether the system can keep up in real-time.

Chen envisions HP Z workstations continuing to scale, focusing on memory speed, multi-GPU bandwidth, and local inference acceleration, while maintaining its core strength as a reliable workhorse.

Real-time fulldome visual generation at 10K, previously unfeasible, is now a reality. With HP Z, we're no longer designing within limits—we're designing from vision downward.

Tobias Chen, Founder & CEO
Volumetric Camera Systems



Solution at a glance

- HP Z6 G5 A
- AMD Ryzen™ Threadripper™ PRO CPU²
- NVIDIA GPUs³



Tobias Chen offers invaluable advice for other creative leaders:

- **Focus on Creative Ceiling:** Don't ask for the minimum spec; instead, ask what the creative ceiling could be with the right setup. "One powerful machine in the right hands can outperform a room of outdated gear."
- **Demand Powerful Compute:** Creative teams should constantly ask for more powerful compute, not as a luxury, but as "oxygen" to close the gap between idea and execution.
- **Educate IT Leaders:** IT leaders should understand that "every hour lost to rendering, crashing, or waiting is an hour of creativity wasted." Providing more power to creatives removes friction and unlocks greater value.

By providing the tools that seamlessly blend into the creative process, **HP Z workstations** and solutions empower artists and innovators to transform their visions into reality, bringing unparalleled immersive experiences to audiences worldwide.

Learn more at [HP.com/Z](https://www.hp.com/Z)

Alessio De Vecchi was the visual creative director, along with the team of: Han Yang, Abhishek Joshi, David W. Jiang, Tobias Chen, Romain Donnot, Ian Spriggs, Artur Gadzhiev, Patrick Conaty, Roman Kaelin and Jason Miller. Credit for End of Genesys goes to Matteo Milleri, aka Anyma.

¹ Based on Volumetric Camera Systems's internal analysis of HP Z6 G5 A Desktop Workstation

² Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. AMD's numbering is not a measurement of clock speed. Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third-party software may have specific configuration or compatibility requirements. Performance varies by use, configuration, and other factors.

³ NVIDIA graphics are sold separately or as an optional feature.

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