Oregon State University

College of Earth, Ocean, and Atmospheric Sciences

Future Infrastructure: Data Centers with Agentic AI & NVIDIA Omniverse

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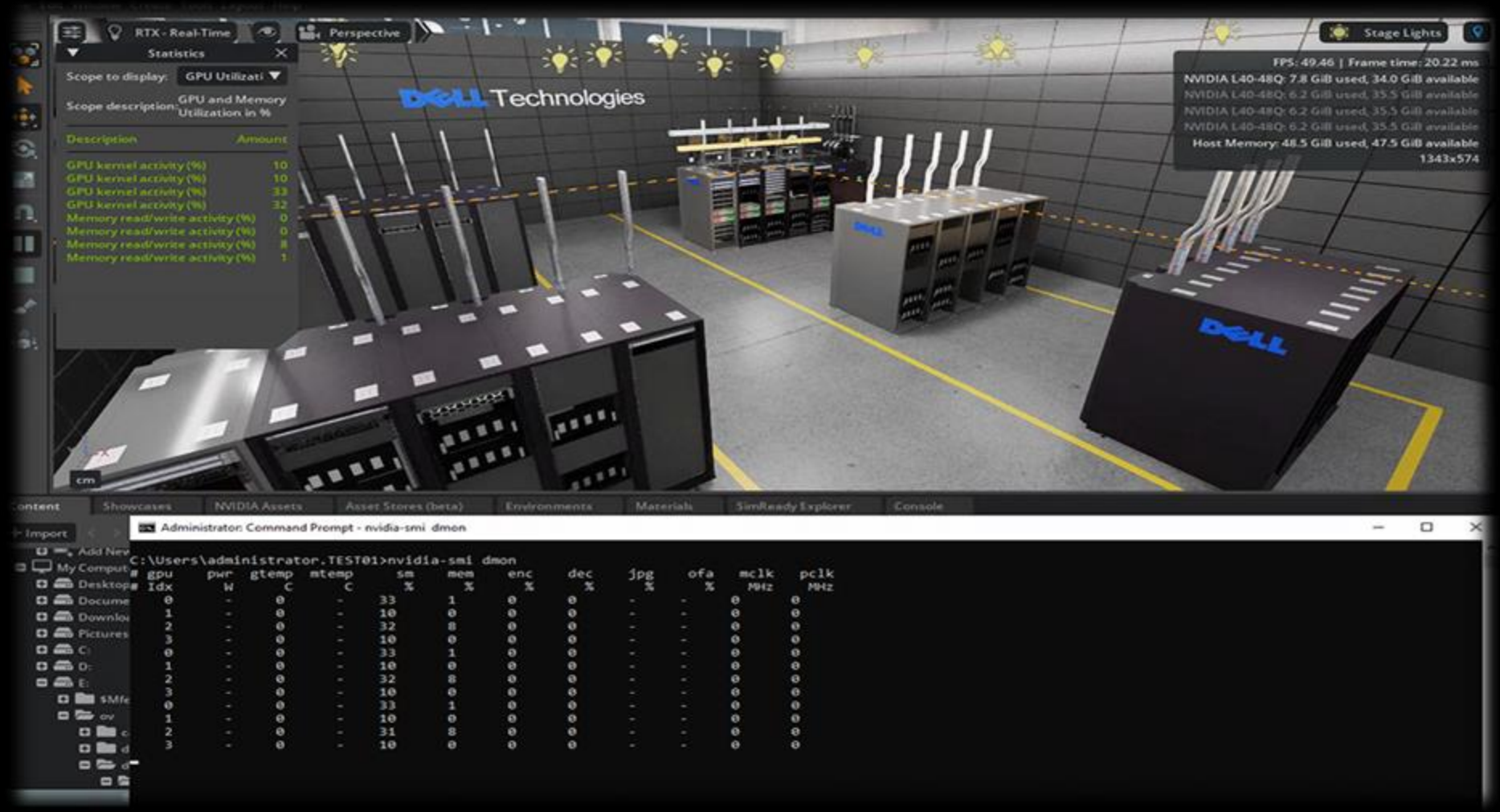
Working with UIT Advanced Research Computing Service (ARCS) to use the Omniverse to build out an example of the NVIDIA Superpod that will be donated for the HCIC. RACS also has a build of the ECC server room and will be able to help users leverage the Omniverse.

NVIDIA OMNIVERSE™

How We Built The 3D Omniverse Example

We Take 2D CAD drawings and convert into 3D models using Fusion 360.

Then we build scenes in NVIDIA USD Composer and populate it with items like racks, servers, CRAC units etc.



Problems building the Omniverse Model

Challenges:

- Learning Omniverse
- Accurate 3D modeling
- Real-time data
- Getting Objects like Racks and Computers
- Doing the Physics Behind Doors Opening

What's Next

- Scale AI-Driven Optimization across multiple data centers to handle larger workloads and dynamic environments.
- Improve Real-Time Monitoring with better predictive capabilities and self-adjusting systems.
- Optimize Cooling and Power Management by integrating more advanced AI features for energy efficiency.

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Burt Server Room (ECC) in the Omniverse

Working with Wayne Wood, we were able to build out an Omniverse representation of the ECC server room we are currently rebuilding to meet new industry standards. We hope to make this into a full Digital Twin as we finish the upgrades.

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