Solution: Data

Industry: Research

Region: Europe

CSC

Powering climate solutions through Earth's high-precision digital twin

As the climate crisis unfolds, the climate change adaptation digital twin project under the Destination Earth initiative offers an effective approach to tackling the challenges and fostering adaptation. Through precise Earth system modeling powered by high-performance computing, the collaborative project will assist in anticipating environmental disasters and offer crucial insights across sectors as diverse as energy, food, and public health. This empowers governments, businesses, and communities to make informed decisions and proactively mitigate the impacts of climate change.

"Whether you're looking for insights into future river floods, freshwater availability, or the risk of wildfires in a changing climate, the digital twin can provide that data."

– Jenni Kontkanen,
Development Manager, Digital Twin Technologies, CSC – IT Center for Science

Objectives

- Improve global disaster preparedness through accurate climate predictions
- Enhance environmental resilience with detailed digital twin models
- Empower climate decision-making using science-based insights

Requirements

- Develop a digital Earth replica for predictive modeling, including climate simulations
- Enable precise impact modeling for various scenarios
- Continuously enhance climate simulations for improved accuracy and reliability

Solution

- HPE Cray EX supercomputer
- AMD EPYC CPUs

Outcomes

- Informs the development of climate-resilient infrastructure, such as flood-resistant transportation and coastal protection systems
- Offers insights into the result of reducing carbon emissions
- Provides crucial data for placing wind turbines strategically and anticipates future river floods and wildfires

Additional resources

- Case study

→ Explore digital game changers

Hewlett Packard Enterprise

a50010192ENW