AI for Nuclear Fusion Research: Data Protection and Sovereignty on AWS

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Generative AI application
Data Foundation
STORAGE
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DATA INTEGRATION
OPEN DATA
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AI can predict and pre plasma instabilities in

Mon, Mar 4, 2024, 9:59PM | Nuclear News

The Princeton Plasma Physic

Science Nev

AI finds hic

New AI approa sion vessels fr

Date: Au

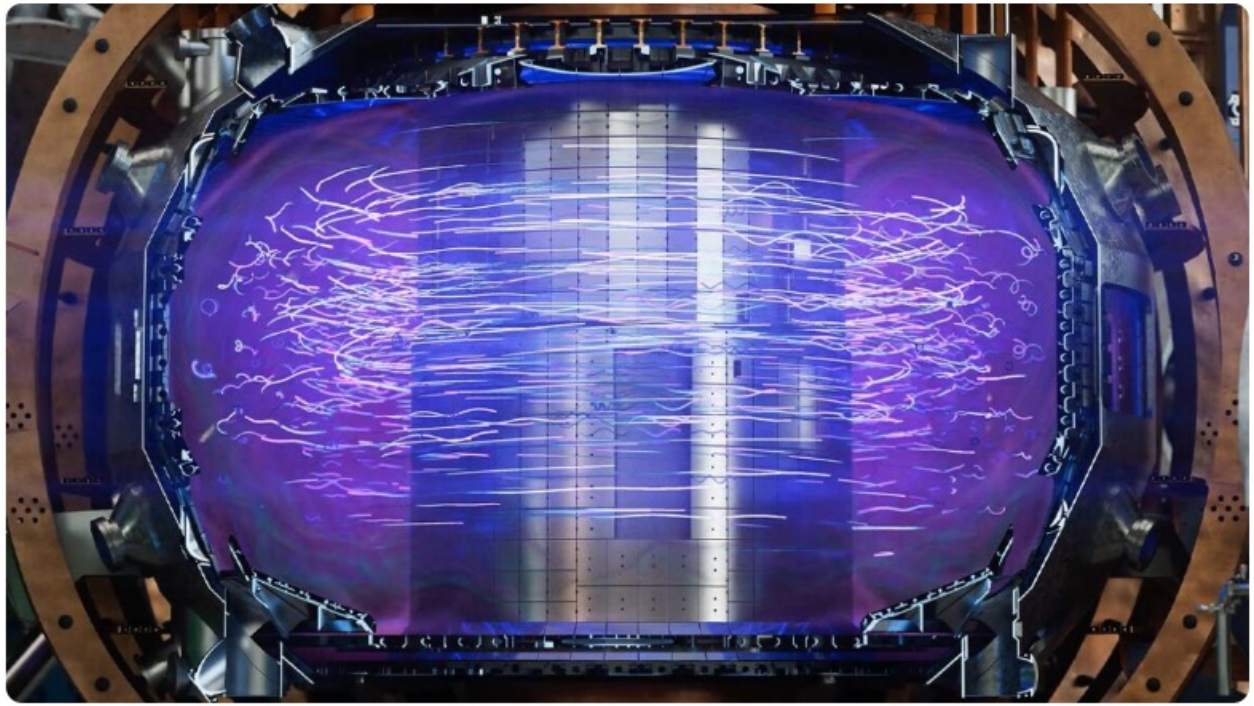
Source: Pri

Summary: Sci spe fro ow clo

A team of engineers, ph Princeton Plasma Physic predict—and then avoic magnetic confinement using past experimental data from operations San Diego, Calif., before proving through real could forecast so-called tearing mode instabi —enough time for an AI controller to adjust op the plasma that could potentially end the fusic

NVIDIA and General Atomics Built a Virtual Sun to Turn Star Power Into Real-Time Insight

written by Jerry Louis-Jeune | October 29, 2025



TL;DR: NVIDIA, General Atomics, and partners just unveiled an AI-enabled digital twin of the DIII-D National Fusion Facility. It slashes key plasma predictions from weeks down to seconds, letting researchers run interactive "what-if" experiments and iterate way faster toward practical fusion energy. Announced October 28, 2025 at NVIDIA GTC in Washington, D.C.

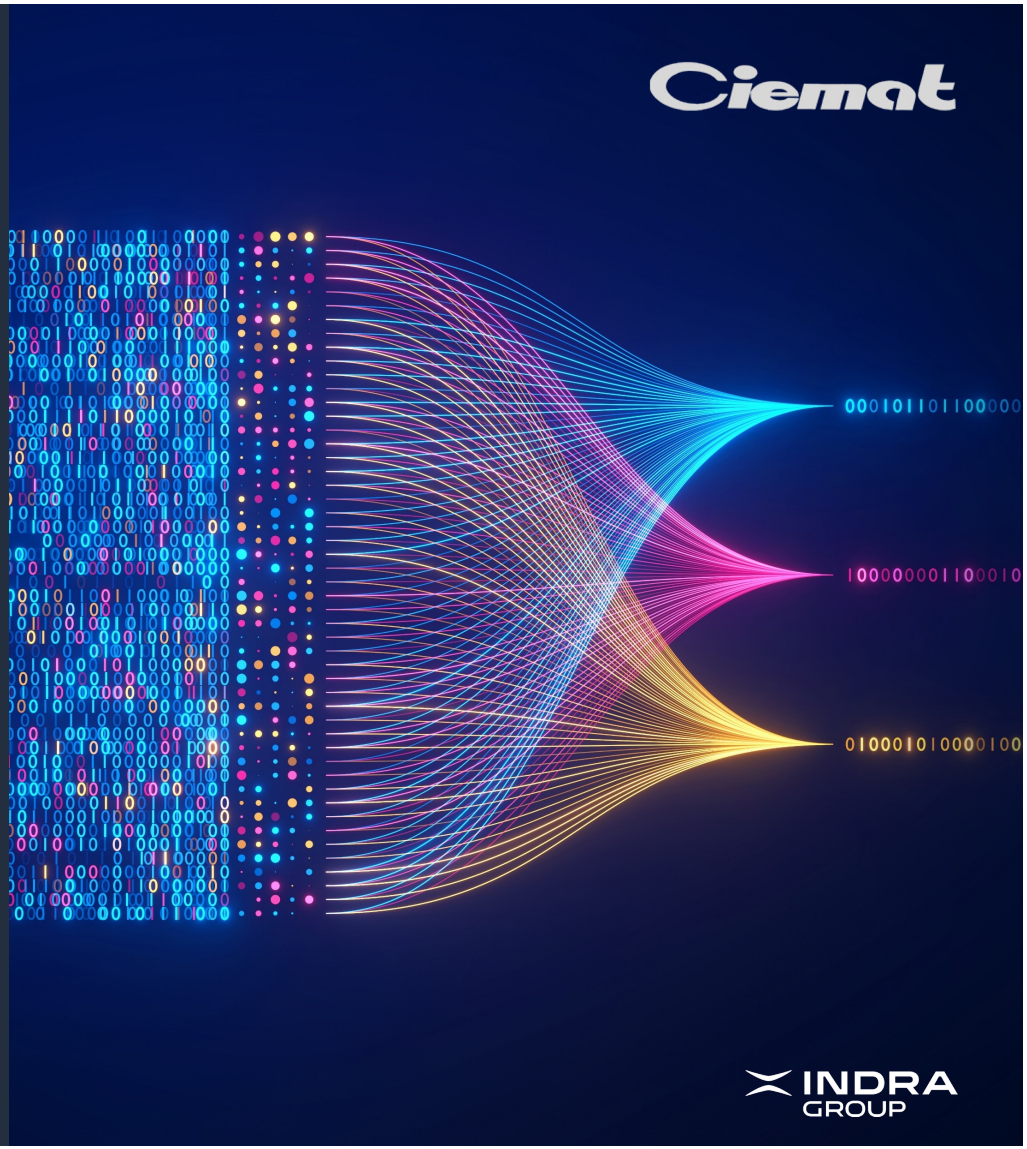
Generative AI is powered by foundation models

Pretrained on vast amounts of unstructured data

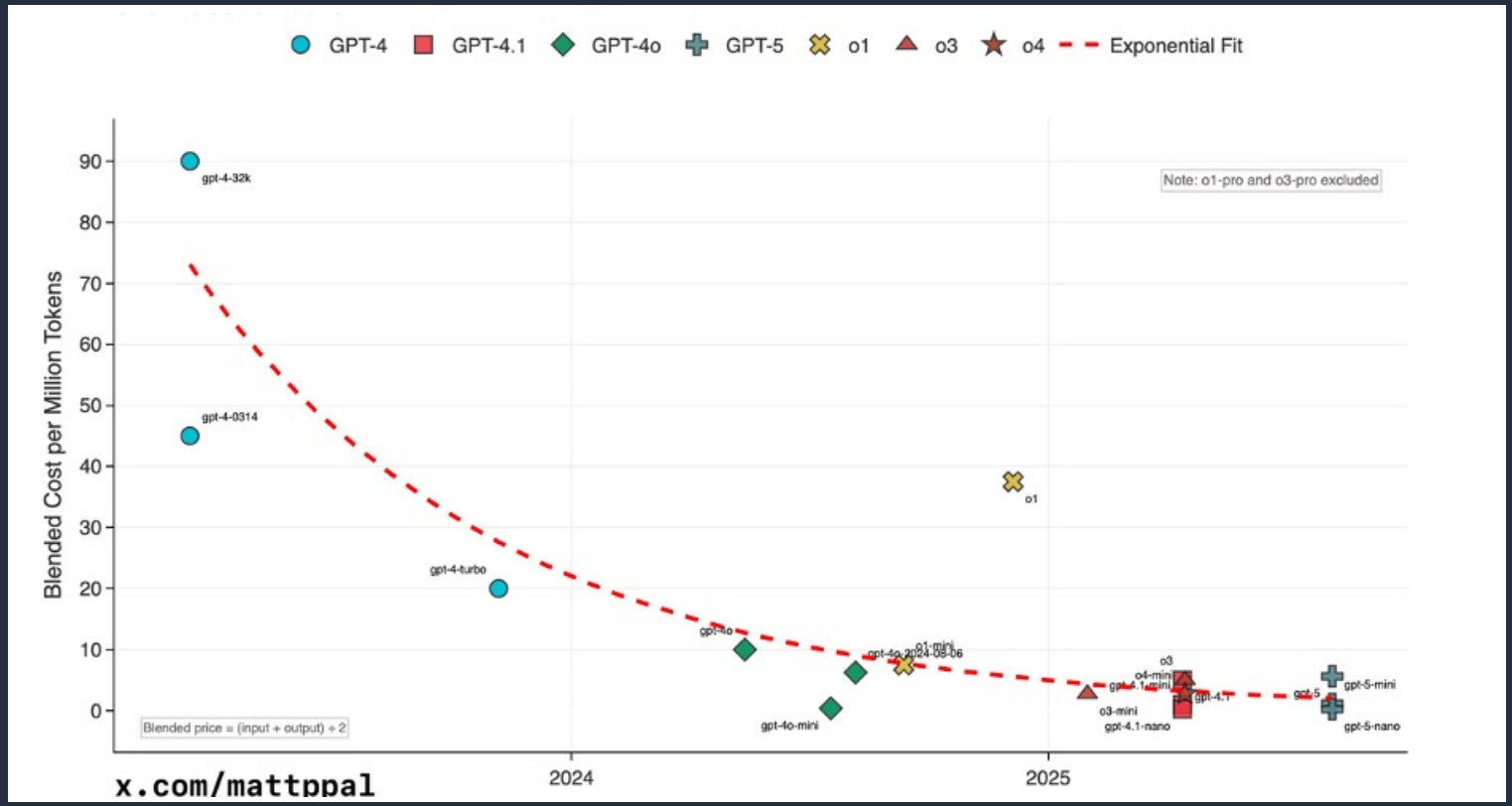
Contain large number of parameters that make them capable of learning complex concepts

Can be applied in a wide range of contexts

Customize FMs using your data for domain specific tasks



What's changed? AI/ML trends



Source: NVIDIA

Amazon Bedrock

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BROAD CHOICE OF MODELS

AI21labs · ANTHROPIC · deepseek · Meta · GPT-oss by OpenAI

amazon · cohere · Luma · MISTRAL AI_ · stability.ai

Fine-tuning
Continued pre-training
Custom Model Import

Agents
Knowledge Bases (RAG)
Guardrails

Security of your data

None of the data is used to train the underlying model
All data is encrypted in transit and at rest
Data used to customize models remains within your VPC

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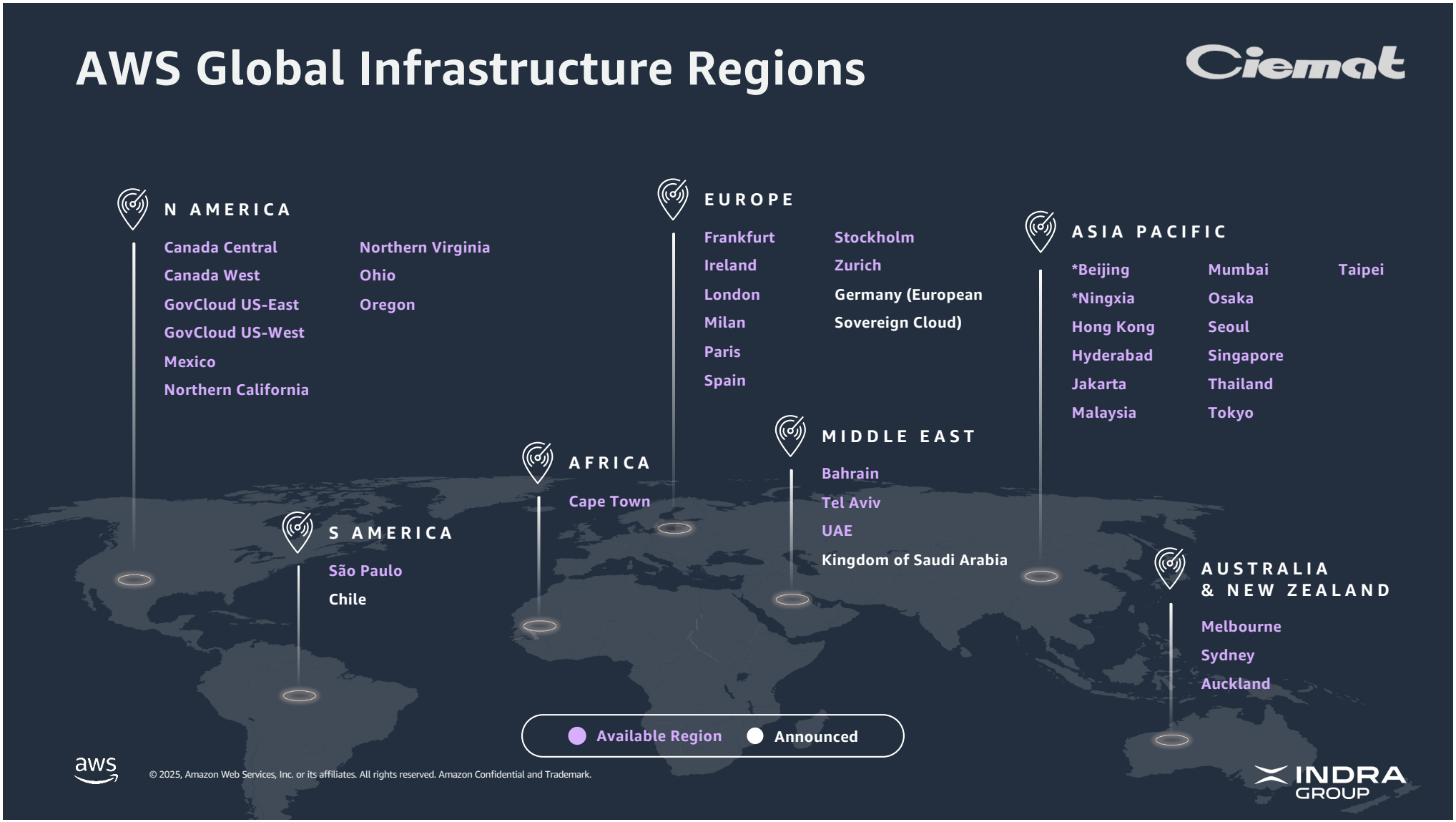
AWS Global Infrastructure Regions



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