

Data Analytics Accelerating the Energy Transition for Electric Utility Companies

Managing Electric Utility Data Science Projects with Dell Technologies, NVIDIA, and Domino Data Lab

Enterprise MLOps Platform

Benefits of a System of Record for Data Science Projects include:

1. Enabling data science teams to build and deliver models faster
2. Using a single platform that automatically tracks the work of data science teams
3. Enabling and improving collaboration and discussion
4. Adding business value by eliminating the time required to manage tools and infrastructure
5. Simplifying the Data Lifecycle through structured model management processes
6. Measuring Data Science value through improved visibility into data science projects

Smart grids are driving the need for digital transformation

Data analytics is not new to the electric utility industry. The newest energy transition toward decarbonization and digitalization is creating a need for grid modernization that can manage distributed resources, bi-directional power, and probabilistic methods of forecasting resource supply and consumer load demand. This is also creating new input sources from an array of connected devices creating large amounts of data being generated from transmission and distribution devices, smart meters, electric vehicles, residential solar panels, and geographic information systems (GIS).

Utilities are working to define where the sources of value are as well as what services and capabilities they want to provide to their customers, employees, regulators, and shareholders. This is allowing the utility environment to become more flexible, digital, and data driven in their operating models. Analytics-based technologies are required to augment the utility staff's skills to ensure utilities can support their evolving business model. Data science projects can enhance customer satisfaction, optimize the efficiency of generation sources, monitor physical assets, mitigate the effects of environmental events, and maintain high metrics of reliability and resiliency of the electric grid.



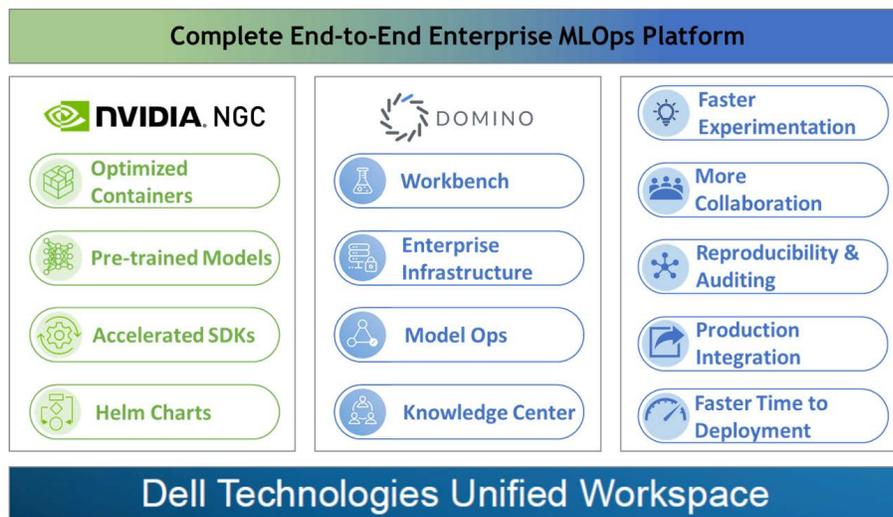


Figure 1: The end-to-end Dell Technologies Enterprise MLOps Platform by NVIDIA and Domino

The lifecycle of a data science project is complex and roadblocks in scaling and deployment can delay the value that is realized. Assembling the right mix of people, data sources, computing resources, and team structure to develop intelligent software applications with productive results is a new challenge. The abundance of recent AI success stories from technologically adjacent companies is encouraging organizations in more conservative industries, like utilities, to invest in the development of intelligent applications. As teams develop and deliver new data models, they need flexible infrastructure, immediate access to the latest innovative tools, and methods to collaborate.

Modernizing utilities with advanced analytics

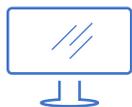
The partnership between Dell Technologies, NVIDIA, and Domino has yielded a single enterprise platform with purpose-built functionality for each step of the life cycle. Domino Data Lab's Enterprise MLOps platform is a "system of record" for data science work that streamlines your data science projects from inception to scaled deployment. Domino tracks all data science activity across an organization; Dell Technologies provides validated infrastructure building blocks that are tuned and optimized to provide the best performance; and NVIDIA provides free optimized containers for all major AI frameworks and libraries,

pre-trained models and transfer learning toolkits for time-saving development, workflow collections for common AI workflows, and Helm charts for fast deployment. To further assist data scientists to run their workloads most efficiently, Domino Data Labs is validating Domino Data Science Platform with NVIDIA AI Enterprise which runs on Dell Technologies NVIDIA-certified servers. The collective cross-industry expertise in these companies have resulted in an optimal environment to run Domino's Enterprise MLOps platform to help utility companies set up and operationalize an effective data science environment in weeks rather than months. For example, a Fortune 500 energy distributor invested in data science as a function in 2019. In less than two years, they built out a global team and its underlying infrastructure, and they've built and deployed 50+ models to date.¹

Dell Technologies uniquely provides an extensive portfolio of technologies—spanning workstations, NVIDIA certified servers, networking, storage, software, and services—to create the HPC and data analytics solutions that underpin successful AI, machine learning, and deep learning implementations. This joint solution increases data scientist productivity by offering self-service workspaces and allowing data scientists to configure their own environment from a library of AI models and frameworks.

Reference:

1. How AES Went from Zero to 50 Deployed Models in Two Years (Presented by Domino Data Lab): <https://www.nvidia.com/en-us/on-demand/session/gtcspring21-ss33050/>



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