GE Vernova Streamlines DevOps to Accelerate the Transition to a New Era of Energy

Key Results

- Automation of top 10 support cases resulted in a reduction of 25K hours: Productivity gain of 98.8%
- 10% reduction of support cases per year
- Accelerated DevOps processes that reduce downtime and outages

GE VERNOVA

INDUSTRY:
Energy

HEADQUARTERS:
Massachusetts, USA

DIGITAL.AI SOLUTIONS

- Deployment automation
- Continuous delivery, release management, and orchestration

CHALLENGES

- Manual processes created bottlenecks in software release and deployment
- Inadequate visibility into potential issues
- Increased risk of failures or downtime
- Lack of collaboration between teams led to delays in resolving issues

Highlights

GE Vernova has a technology base that helps generate approximately 25% of the world's electricity.

As part of its effort to constantly improve the performance and reliability of its power generation equipment, the company's monitoring and diagnostic (M&D) team relies on Digital.ai solutions to integrate, orchestrate, and automate its core DevOps processes. The results contribute to GE Vernova's cost avoidance goals, reliable uptime for critical equipment, and a more productive and satisfying work environment for software engineers and support staff.

The Challenge

Accelerate DevOps to Maximize Equipment Performance

GE Vernova has an extremely ambitious mission: "electrifying the world while simultaneously working to decarbonize it." That goal motivates every one of the company's 75,000 employees, and it directly ties to the day-to-day jobs of one group in particular: the company's gas turbine monitoring and diagnostic (M&D) team.

With more than 7,000 industrial assets under its watch, the M&D organization is responsible for early detection of potential problems in the turbine fleet and prompt remediation of any issue via software. That means software development and delivery processes are critical to equipment performance and uptime, which in turn are critical to overall business performance and customer satisfaction.

"We are constantly trying to improve the speed and efficiency of our ability to deliver software into a production environment," said Eric Haynes, Principal Engineer at GE Vernova. But that's a complex, multi-dimensional challenge.

> **"We needed visibility into what's happening in our fleet of turbines so we could predict and prevent failures.**
>
> **Eric Haynes**
> Principal Engineer at GE Vernova

"We needed visibility into what's happening in our fleet of turbines so we could predict and prevent failures," said Mr. Haynes. "We needed the ability to automate the commissioning and upgrading of on-site monitoring servers (OSMs); we needed to automate repetitive manual DevOps processes; we needed to eliminate rework, waste and errors in migrating templates; and we had to get our analytics teams, development and deployment teams, and support staff working together better."

The cost and risk of suboptimal DevOps was clearly rising. "We'd have war-room situations where a release was scheduled for 2-4 hours, and it ended up taking 12-24 hours," said Mr. Haynes. "When you have major apps offline for long periods of time, and when you don't have great visibility into to what's happening with the fleet, there is a risk of catastrophic failures, which can cost tens of millions of dollars."

The Solution

Modernize DevOps with Intelligent Automation

A consistent leader in harnessing the latest innovations to accelerate software development and delivery, GE Vernova actually began its DevOps journey back in 2011.

"At first we were focused on specific bottlenecks," said Mr. Haynes, who has been with the company for 35 years. "Over time, we realized we needed to intelligently integrate and automate every aspect, and Digital.ai has been central to that goal." Here are the highlights of how the DevOps journey has unfolded:

2011-2014: Focus on continuous integration and deployment automation. "As we went deeper into Agile methods, we needed continuous integration of software and analytics to generate releasable artifacts faster than we could under the waterfall method," said Mr. Haynes. "We also experimented with deployment automation to create a more repeatable process so support and DevOps teams could pick up the pace."

2014-2020: Addition of release automation capabilities. "Deployment automation was very successful, but it didn't solve all of our problems," said Mr. Haynes. "The quality of the software released was still lower than expected. That's where XebiaLabs (now part of Digital.ai) entered the picture.

> **"With Digital.ai Release we can cut the manual processes and let people focus on higher-priority activities.**
>
> **Eric Haynes**
> Principal Engineer at GE Vernova

"We had initially focused on software, and now we realized we needed to take everything we'd learned and apply it to analytics as well. With the XebiaLabs tools, our DevOps approach could look at the whole picture—people, processes, and tools—then identify the bottlenecks, then build a more efficient, integrated, automated process."

2020-2024: Intelligent automation with continuous delivery and fully automated testing. GE Vernova has continued to expand its use of automation to include new functions and processes in software and analytics. "Through 2020, it was pipeline for software and analytics; after 2020 we ventured outside the traditional pipeline and started automating processes such as commissioning of remote servers at the power plant," said Mr. Haynes. "Soon we'll be doing final factory testing of a remote automation piece where we're actually doing an upgrade of our HP server VMs (virtual machines) using Digital.ai Release to orchestrate this.... We typically have 300 of these servers each year that we have to upgrade, and with Digital.ai Release we can cut the manual processes and let people focus on higher-priority activities."

The Results:
Lower Risk, Higher Morale

The value of Digital.ai solutions has been substantial for GE Vernova, the M&D organization, and energy consumers according to Mr. Haynes.

For GE Vernova, a streamlined DevOps process for M&D has translated to contributing to the M&D team's annual cost savings and avoidance, according to Mr. Haynes. "When you put all the pieces together—delivering artifacts to production faster, reducing cycle times, resolving issues on remote servers sooner—it all contributes to our mission of keeping our customers' fleet of turbines up and running optimally, which translates into hundreds of millions of dollars a year in cost savings and avoidance for our customers," he said.

> **"When you put all the pieces together—delivering artifacts to production faster, reducing cycle times, resolving issues on remote servers sooner—it all contributes to our mission of keeping our customers' fleet of turbines up and running optimally, which translates into hundreds of millions of dollars a year in cost savings and avoidance for our customers.**
>
> **Eric Haynes**
> Principal Engineer at GE Vernova

The modernization of DevOps has also increased both the productivity and job satisfaction of employees. "If you look at the self-healing capabilities alone, you see the productivity gain," said Mr. Haynes. "Our L1 support teams generally took care of problems manually in our fleet of 1200 OSMs. That involved a lot of mundane tasks detecting and resolving issues, and that was taking up the majority of their time. Now, with Digital.ai, they're freed up to work on more interesting, impactful, and enjoyable tasks rather than housekeeping."

Part of the benefit of higher morale is longer retention rates for top talent, according to Mr. Haynes. "We have reduced friction with tools like Digital.ai Release and Deploy," he said. "They help remove frustration, and that's part of the reason we tend to keep people for a long time."

All of these results dovetail back to the core mission of GE Vernova. "The main mission of the diagnostic center is to assist our customers in maintaining and improving the overall performance of their power generation equipment—so we can contribute to the mission of electrifying the world," said Mr. Haynes. "With the help of Digital.ai Release and Deploy, the software that is orchestrating our efforts is more effective in assuring the availability and reliability of our equipment, which translates to us providing better service to our customers."

About GE Vernova

GE Vernova Inc. is a global energy company with 75,000 employees, headquartered in Cambridge, Massachusetts. The company is committed to delivering a more affordable, reliable, sustainable, and secure energy future. Building on over 130 years of experience, GE Vernova is uniquely positioned to help lead the energy transition.

> **"Now, with Digital.ai, they're freed up to work on more interesting, impactful, and enjoyable tasks rather than housekeeping.**
>
> **Eric Haynes**
> Principal Engineer at GE Vernova

About Digital.ai

Digital.ai is an industry-leading technology company dedicated to helping Global 5000 enterprises achieve digital transformation goals. We enable technology-driven enterprises to accelerate digital transformation by unifying, securing, and generating predictive insights across the software delivery and development lifecycle.

Additional information about Digital.ai can be found at digital.ai/ and on X, LinkedIn, and YouTube.

Learn more at Digital.ai

digital.ai™