Caterpillar’s NextGen HMI Panels Bring Flexible Intelligence to the Edge

Bright Wolf helped develop a modern and modular edge software platform enabling Caterpillar’s energy & transportation teams to improve asset monitoring efficiency and reduce ongoing development costs.

A Common, Configurable HMI Platform Creates a Competitive Advantage

Caterpillar’s NextGen Human-Machine Interface (HMI) software platform provides integrated display packages and consistent operator experiences across product lines, with broad industrial protocol support, out of the box integration with third-party systems, and configurability across a wide range of environments and applications.

The NextGen HMI software platform eliminates the need for a variety of individual product and hardware vendor-specific display systems, enabling Caterpillar to deliver more capabilities and better customer experiences across product lines based on a shared common core. Team members can walk up to a unit and be instantly familiar with the design system and operating procedures or customize screens and behaviors for their particular needs and workflows.

Many Customers and Markets With Unique Needs

From marine diesel engines and generator sets to propulsion systems, and from oil & gas production to rail equipment, how could Caterpillar serve the needs of their dealer networks, fleet owners, and operators across so many scenarios and environments?

• Multiple hardware vendors, each with their own software and toolkits, created inefficient engineering silos and supply chain dependencies
• Separate builds were needed for each product, region, and customer requirements – fragmenting development efforts and creating inconsistent user experiences
• Service technicians had to learn to support each system, dealers could not add value, and customers were unable to customize the displays for their own use cases

The Perfect Balance of Consistency and Flexibility

A common platform running across their product lines helped Caterpillar unify development efforts and cut dependencies with the same software across hardware from any vendor. As a result, core functionality and interface elements – including service & maintenance tools – create a consistent and reliable experience. At the same time, modularity and flexibility means dealers, fleet owners, and operators can make their systems their own with field-customizable applications, bringing more value to their Caterpillar equipment.

• Streamlined engineering pipeline reduces development costs
• Consistent, richer built-in support tools reduce maintenance & warranty costs
• Self-service customization enables customers to create value-added experiences

“We needed end user-configurable displays, and multi-protocol support in a robust, adaptable platform. We chose Bright Wolf for their deep experience delivering customizable solutions at the industrial edge, and they’ve been a steadfast solution partner every step of the way.”

- Merritt Callaghan, Engineering Manager
Customers Get More Done in Less Time

By integrating the HMI panel across their product lines, Caterpillar provides their customers with consistent functionality and design, creating a safer and more intuitive environment. The consistent interface reduces training and support costs while empowering customers to create their own experiences on a common foundation.

- **A common experience and capabilities across product lines**
  A consistent user experience enables service technicians to have a similar experience as they move from engine to engine, location to location. There’s no need to learn or remember how different displays work.

- **Expanded functionality for streamlining end user and service operations**
  Commonality saves both on-the-job and training time. Settings, graphs, charts, and reports provide improved interaction and faster troubleshooting.

- **Designed for rapid, self-service customization by dealers and asset owners**
  Easy access to features that formerly required specialized equipment and software. Now, users can make configuration changes, check or reset alarms, download product status reports, access histograms, and much more using the main touchscreen.

More Control & Flexibility, Less Risk & Expense

Adaptable support for industrial protocols, form factors, and developer tools

- Bright Wolf provided common industrial protocol clients (including Modbus, CANBUS, and J1939) along with tools and support for custom protocol development.

- CAT product teams can choose hardware from a variety of vendors to meet form factor and operating environment requirements without lock-in to vendor software platforms.

Reliable data management creates a low-risk path to high-performance applications

- Bright Wolf provided edge platform infrastructure for data collection and secure access.

- CAT product teams can focus on developing better customer experiences with a streamlined engineering process and flexibility across their product lines.

Caterpillar’s adaptable edge platform reduces development and support costs, providing a unified foundation and customizable applications for their teams and customers worldwide.

A trusted partner for industry leaders with a new vision for a connected world

Bright Wolf provides a proven path for delivering industrial IoT solutions and accelerating enterprise transformation.

- Digital Strategy Workshops
- Transformation Readiness Evaluations
- Customizable Platform Accelerators
- Rapid Deployment, Iterative Feedback
- Flexible Engagement Models
- Repeatable, Proven Success
- Microsoft Azure & AWS IoT Solutions

Bright Wolf Platform Accelerators

- **SpringBoard Cloud** Industrial IoT application engine and secure data management infrastructure

- **GearBox Edge Suite** Connect and optimize every machine with network/hardware independent protocol translation clients, local historian, and edge analytics.

- **GearBox Device Manager** Dynamically configure and control devices and fleet behavior with web-based device management applications.

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"The introduction of this new line of smart marine displays strategically positions Caterpillar to continue as the industry leader in developing, distributing and supporting durable, reliable equipment."

- Merritt Callaghan, Engineering Manager

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