

Bently Nevada Makes Streaming IIoT Data More Accessible

Bently Nevada, a Baker Hughes business, is a world leader in condition monitoring and asset protection. The company leverages over 60 years of expertise with over 6 million sensors and 100,000 rack monitoring systems installed globally. Bently Nevada is always focused on unleashing the power of their data to empower their customers and ensure the health of machines and assets.

Today, development teams at Bently Nevada are using modern UI toolkits to enhance their systems with more flexibility, performance and an enhanced user experience — allowing customers to view and interpret Industrial Internet of Things (IIoT) machine data more quickly and take faster action to ensure continuous plant operations.

“Infragistics helps us to move faster and accelerate our building of applications. Their controls are user-friendly and more intuitive, and they help us deliver a great user experience.”

Vikas Desai, Global Technology Executive
at Baker Hughes



Industrial Technology Solutions

- Industrials
- Oil and Gas
- Power Gen
- Renewable Energy

Challenges

- Need for high-performance data grid to handle streaming IIoT data
- Requirement for grid flexibility to allow easy customization of cell data
- Desire to configure grid with little or no code

Solution

- Infragistics Ultimate UI for WPF

Results

- Customers see IIoT data more easily and can act on it faster
- Developers implement and configure the data grid faster
- Bently Nevada can accelerate development and bring applications to market faster

Digital Transformation in the Industrial Sector

Process-intensive operators in diverse sectors such as oil and gas, power generation, renewables, steel, pulp and paper, and others are increasingly optimizing the efficiency of their plants by gaining a single, plant-wide digital view of their operations.

A connected facility supported by a powerful condition-monitoring platform, such as Bently Nevada's System 1, can turn wide-ranging asset data into focused, actionable insights that help teams across all industries make smarter, proactive maintenance decisions.

Recently, Bently Nevada launched its next-generation condition monitoring and protection platform, the Orbit 60 Series, which is built on a highly scalable architecture and specifically designed for cybersecure machinery protection.

The screenshot displays the Infragistics Custom Editor control in Orbit Studio. The interface is divided into several sections:

- Instrumentation:** A tree view on the left showing the hierarchy of components, including 3U 19 Inch Chassis, Power Slot, System Interface Module, CM Module, Protection Processor Module, and various input modules.
- Properties:** A central table with columns for Measurement Name, Under, Level 4 (Danger) Latching, Level 4 (Danger) Delay, Level 3 (Alert), Level 3 (Alert), and Level 3 (Alert) Over. The table lists various measurements like Overall, Bias, 1X Amplitude, 1X Phase, 2X Amplitude, 2X Phase, Speed, and Gap, with their respective settings.
- General:** A detailed configuration panel on the right for the selected 'Relay Channel'. It includes fields for Name, Tag Name, Base, Slot, Channel, Active, Channel Type, In the Protection Path, Default Coil State, Relay Severity, Enable Latching, Associated Protection, and Paired Channel.
- System Utilization:** A section at the bottom showing the utilization of the Protection Processor Module, currently at 15.178% for Processing Power.

The 'General' panel for the Relay Channel configuration is as follows:

Property	Value
Name	Relay Channel
Tag Name	RelayChannel
Base	3U 19 Inch Chassis
Slot	12
Channel	1
Active	<input checked="" type="checkbox"/>
Channel Type	Relay Channel
In the Protection Path	<input checked="" type="checkbox"/>
Default Coil State	Normally Energized
Relay Severity	Severity Level 4
Enable Latching	<input type="checkbox"/>
Associated Protection	Default Protection Group
Paired Channel	None

Infragistics Custom Editor control in Orbit Studio

Infragistics Property Grid in Orbit Studio

Making Streaming IIoT Data Actionable

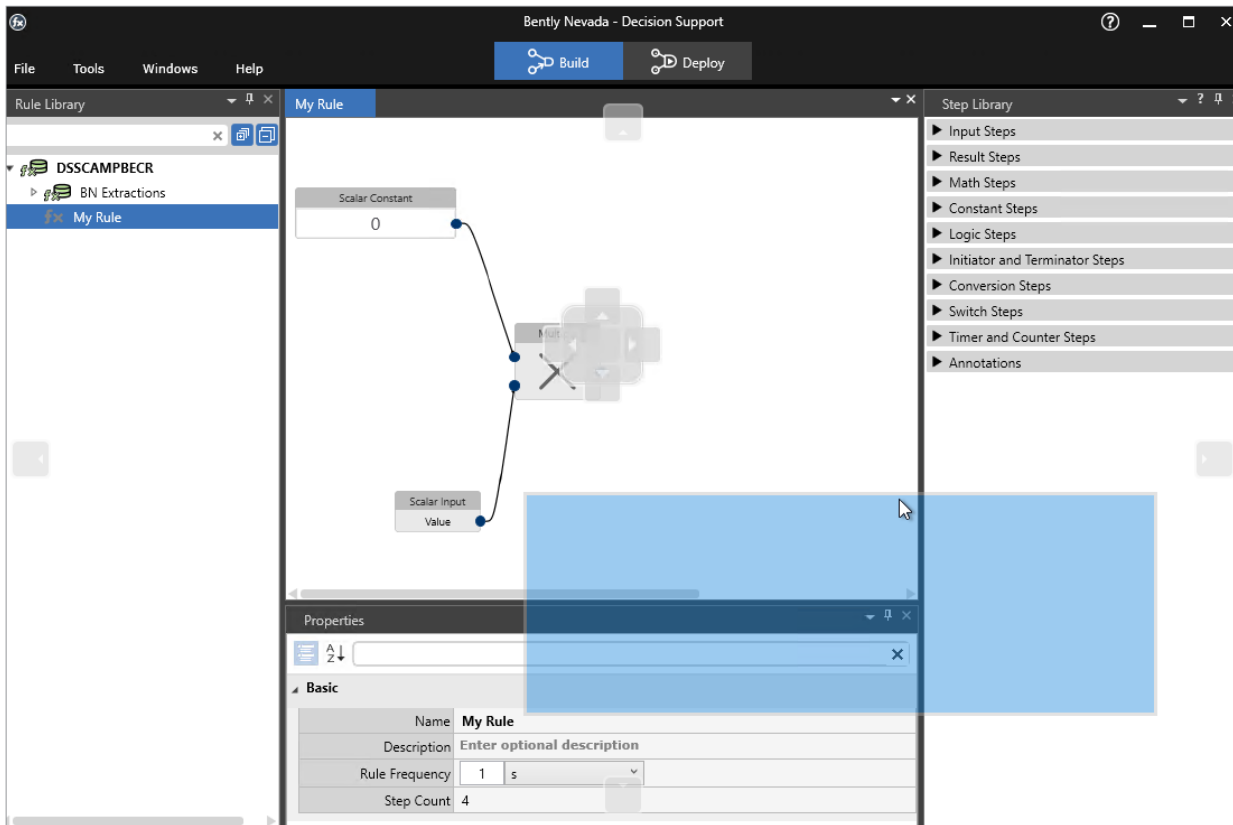
Because Orbit 60 is based on a data-driven architecture that must handle high volumes of streaming IIoT data from hundreds or thousands of devices, an important concern was the ability to create visualizations that could handle the live, streaming data and make it accessible to users in meaningful ways.

"Instead of overwhelming our end users with a seemingly infinite list of columns in a data grid," says Craig Campbell, Senior Staff Software Architect, "we wanted to make it easier to see the important information, at a high level, and then let them decide if they wanted to dig deeper into the data."

Gaining Grid Flexibility with Infragistics

A long-time user of Infragistics UI toolkits, Bently Nevada decided that the Infragistics Ultimate toolkit offered the type of flexibility and performance needed for Orbit 60.

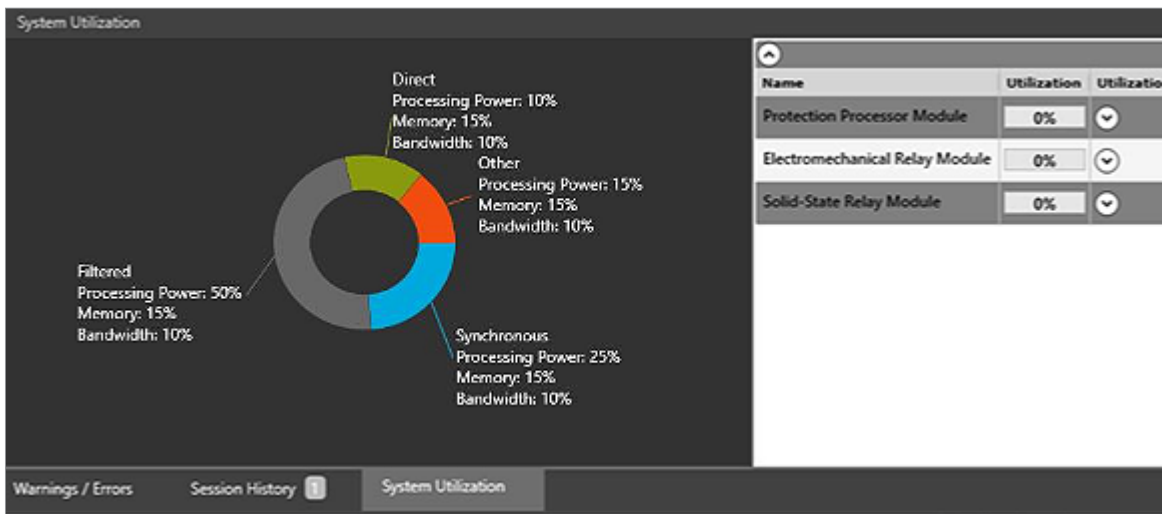
“We demoed the ability of the Infragistics Data Grid to group columns and nest rows to our Technical Product Managers” says Campbell, “and this inspired them to rethink how they could present the data to the end user, which was not possible with an earlier static grid.”



Infragistics WPF Data Tree, Property Grid, and Dock Manager controls in Decision Support

“ We need controls and components that offer high performance and have been tested and documented. We don’t have control developers, so we rely on Infragistics. They are more of a partner than just a vendor to us. ”

Craig Campbell, Senior Staff Software Architect



Infragistics WPF Charting in Orbit Studio

An important feature of the Infragistics grid is the ability for developers to use custom editing features dynamically, per cell. Bentley Nevada’s applications require this flexibility because they display data in different cells in a variety of formats. The Infragistics data grid allows many options such as drop-down menus, specialized buttons to open dialog boxes, and many others.

“ Custom editors per grid cell allow our developers to work with the grid and interact with complex Bentley domain data models seamlessly and with almost no turnaround time. ”

Cody Worsnop, Lead Developer at Bentley Nevada

“This capability allows a developer to work with the grid and interact with complex Bentley domain data models seamlessly and with almost no turnaround time,” says lead developer, Cody Worsnop.

Other critical features that were built into the grid included sorting, filtering, pinning, reordering, grouping, and nesting, also reducing development time and enabling Bentley Nevada to get to market faster.

“Part of our challenge is we need controls and components that offer high performance and have been tested and documented,” says Campbell. “We don’t have control developers, so we rely on Infragistics. They are more of a partner than just a vendor to us.”

“Infragistics helps us to move faster and accelerate our building of applications,” adds Vikas Desai, Global Technology Executive at Baker Hughes.

Value of Infragistics

While Bently Nevada has seen a range of benefits from Infragistics Ultimate, Campbell sums up the key features that he believes make Infragistics Ultimate worth the cost:

- Styling - "It's easy to create custom styles to fit our application theme."
- Functionality - "There's a good deal of functionality in each control along with properties that allow us to modify the functionality, and these are well defined and discoverable."
- Extendibility - "We can extend the controls through attached behaviors or derived classes, which allows us to add functionality that we are missing."

"We look to Infragistics to also help us deliver a great user experience," says Global Technology Executive, Vikas Desai. "One of our key pillars for all of our systems is the need to provide a better user experience. And when we use Infragistics' controls, those features are embedded into it — they are user-friendly, more intuitive, and they contribute to the application's user interface."

About Infragistics

[Infragistics](#) provides the world's largest enterprises with tools and solutions to accelerate application design and development, and foster team collaboration. More than two million developers worldwide use Infragistics' enterprise-ready UX and UI toolkits to rapidly prototype and build high-performing applications for the cloud, web, mobile and desktop. Infragistics Ultimate UI for WPF offers a complete library of more than 100+ WPF controls, including lightning-fast grids and charts, and dynamic data visualizations.