Delivering Business Results for Connected Industrial Systems
Start Faster. Go Further.

Our Customers

- Industrial “Thing Makers”
  - Healthcare
  - Heavy Equipment
  - Oil & Energy
  - Fleet Management
  - Agriculture
  - Cold Chain Transportation
  - Fluid Management

Solution Outcomes

- Asset Management
- Enterprise Workflow
- Predictive Maintenance
- Yield Optimization

How We Work

- Our team has decades of experience with industrial protocols and edge systems
- We bring this together with the power of the cloud and sophisticated data management
- Our technology allows us to rapidly deliver customer pilots that show value fast, and scale to durable production systems
Delivering Business Results

Bright Wolf has a proven record of delivering business outcomes for customers. We have deployed solutions that deliver in each of the following areas:

- **Asset Management**
  - Monitor, Maintain, Track, and Control your assets
  - Utilization, location, diagnostics, alerts, geo-fencing

- **Enterprise Workflow**
  - Integrate data from connected assets with ERP, CRM, and data visualization tools to enable support, sales, and product workflows

- **Predictive Maintenance**
  - Sophisticated data modeling and management enable continuous machine learning loops for advanced predictive capabilities

- **Yield Optimization**
  - Time series semantic web graph data model enables generation of insights from normalized disparate data sources, with delivery to the right person at the right time to optimize business outcomes
A Trusted Partner for Connected Industrial Solutions

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### DEVICE
- Decades of experience with hardware devices and sensors
  - Multiple sensors with different protocols per device (CAN, J1939, Modbus, OPC-UA)
  - Configurable and Custom Runtime Engines
  - Protocol Configuration Tools

### EDGE
- Proven technology and expertise for results at the edge
  - Independent Local Operation
  - Remote Control of Devices
  - Data Cleaning, Transformation
  - Local Filters and Buffers for Resilient, Optimized Cloud Data Transfers

### CLOUD
- Secure Data Management and Cloud Service Integration
  - Device Lifecycle Management
  - Data Security and Access Control
  - Applications and Dashboards
  - Analytics and Machine Learning
  - Integration with Existing Enterprise Systems

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**Open System Architecture for Smart Digital Transformation**

- Deep expertise with industrial controls and protocols, embedded systems, and intelligent data management at the edge with secure data transfer and processing in the cloud
- Durable solutions for your choice of on-premises, hybrid, and public cloud deployments
- Dynamic integration with your existing systems and workflows
Complete Lifecycle Services

Bright Wolf supports your complete IoT project lifecycle from design and development through to managed deployments.

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Your Guide for Connected Evolution

Trusted at Caterpillar since 2009
Bright Wolf has deployed a variety of industrial telematics systems with 1000’s of assets currently being monitored.

“The Bright Wolf IoT Platform is core to our ability to drive industrial grade equipment operational systems and rapidly responding to the unique and evolving marine market requirements.” - Merritt Callaghan, Caterpillar Inc.

IoT Evolution Product of the Year
Enables operational data mining in the cloud while keeping sensitive data on-premises and accessible by authorized staff and integrated systems.

“Beyond their deep experience with connected systems, Bright Wolf fundamentally differentiated themselves technically by architecting a system that gracefully enables our increasing needs for edge-based intelligence” - Walt Hauck, VP of Global Product Development
Bright Wolf Solution Capabilities

• Integrate with existing enterprise systems
  – ERP, CRM, customer plant management systems, custom algorithms, etc

• Sophisticated local and cloud data management
  – Clean and transform data at the edge and in the cloud
  – Local buffer and filters for robust and efficient data transfers

• Comprehensive protocol support
  – Configurable edge runtimes and Protocol Configuration Tools

• Device lifecycle management
  – Large populations of devices, at different lifecycle stages, with granular access permissions

• Flexible data tool choices
  – Integrate with your choice of BI, ML, analytics, workflow, and other tools
Bright Wolf is a trusted partner and technology provider for architecture design, system integration, development, and operational support for industrial and enterprise IoT systems.

Vertical solutions include Manufacturing, Oil & Gas, Healthcare, Agriculture, Smart Building, Cold Chain Transportation, Heavy Equipment, and other industries.

Contact:
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Industrial IoT Data Security

- Authentication
- Authorization
- Auditable

Data

Access Control

Policy Enforcement

Business Logic

Enterprise Systems

IoT Applications

Devices

3rd Party Tools

Time Series
- Cleaned
- Normalized
- Trusted
- Linkable
- Addressable
- Auditable

- Consistently Applied
- Auditable Ruleset
- Dynamic Authoring

- Data Transformation
- Analytics
- ML/AI

Bright Wolf
Bringing Industrial Data to the Cloud

The Real World

- Temperature
- Level, Flow
- Acceleration, Tilt
- Machine Vision, Ambient Light
- Position, Presence, Proximity
- Force, Load, Torque, Strain, Pressure
- Motion, Velocity, Displacement
- Acoustic, Sound, Vibration
- Humidity, Moisture
- Electric, Magnetic
- Chemical, Gas
- Locks
- Sensors

Smart Connected Devices

Analog + Digital Input Modules

Industrial Control Systems

Gateway

Protocol Bridges
Edge Analytics
Data Management
Local Operation
Policy Enforcement
Configuration

Intelligence at the Industrial Edge

- Translate Modbus, OPC-UA, etc to MQTT
- Clean, synthesize, filter, and buffer data
- Execute rules, policies, and logic for local operation and learning without requiring connectivity to the cloud

Cloud

- Analytics
- Dashboards
- Machine Learning
- Reports and Alerts
- Enterprise Backend
- Data Management
- Data Modeling
- Device Lifecycle Management
- User Roles
- Security Policies

The Edge

MQTT
HTTPS

IoT

Wi-Fi

900MHz Mesh

Modbus
OPC UA
SAE J1939
PROFI NET®
NMEA

The Cloud