vNode

The Communication Platform for Industrial IoT

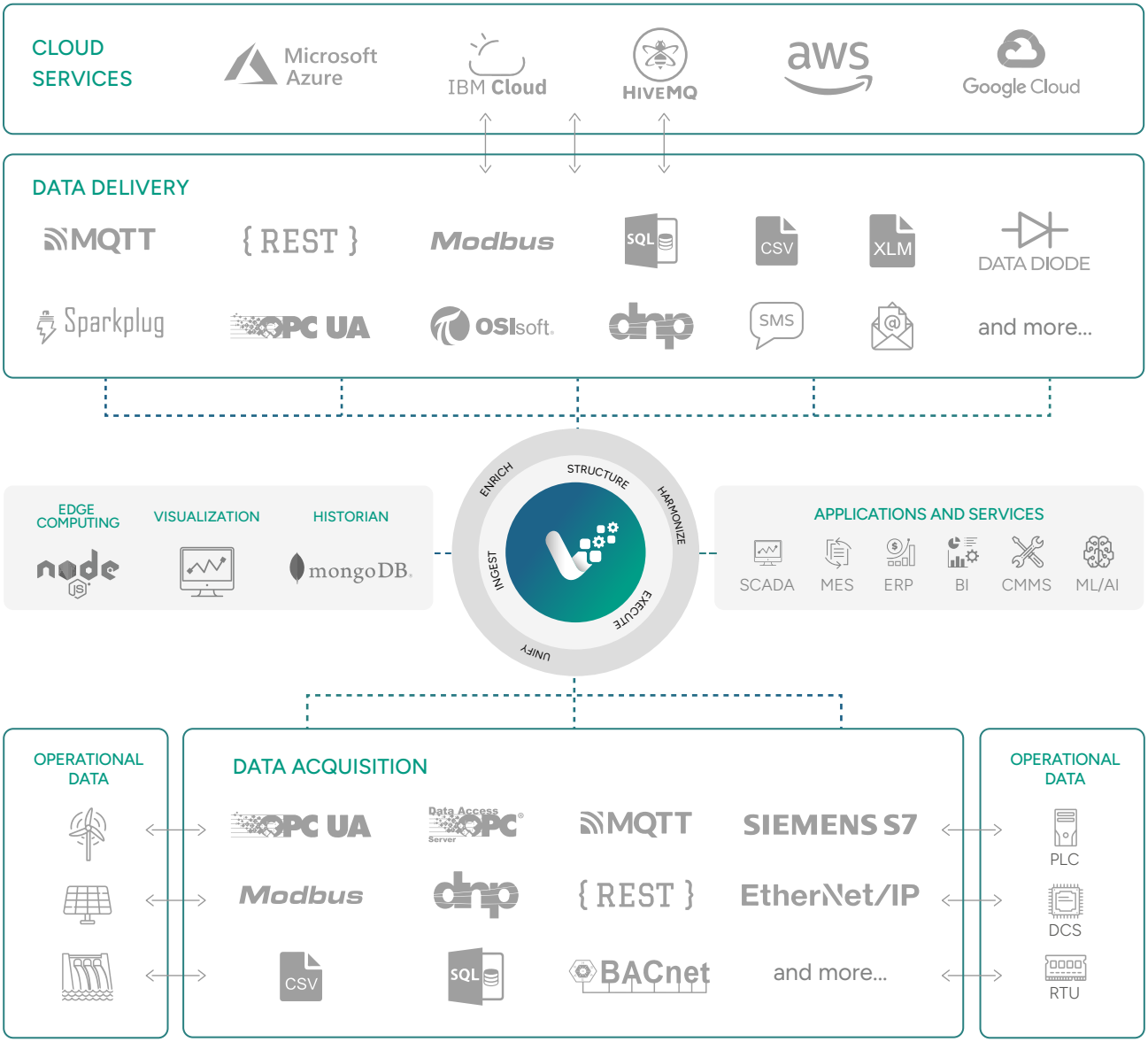
From the Edge to the Cloud

SECURE, RELIABLE AND SCALABLE.

The Communication Platform for Industrial IoT

vNode is a powerful software platform that bridges the gap between plant floor devices like PLC, DCS, Inverters, sensors etc with data visualization and management applications. Designed to ensure reliability, security and scalability, and provide a ready-to-use solution in industrial environments. It seamlessly integrates control systems with SCADA, HMIs, MES, databases, cloud platforms and more.

What is vNode?



Why vNode?

Reliability

Store&Forward: vNode stores locally time-stamped real time and historical data when communications are interrupted and automatically forwards the buffered data once the connection is reestablished. This ensures data continuity and prevents information loss during network outages.

Compression: vNode always ensures low bandwidth consumption thanks to its data compression algorithms.

Redundancy: vNode platform ensures data integrity and high availability in critical environments by offering redundant connections between data sources and between vNode while keeping the Store&Forward functionality.

Distributed Data Integrity: vNode networks preserve data accuracy across complex, multi-layer infrastructures, ensuring real process values are available anywhere in the network.

Scalability

From **small local systems to large distributed** architectures, guaranteeing the most robust connectivity.

Remote Web Configuration: Web based configuration interface accessible from any device. No additional software needed!

Unlimited Tags & Connections: Scale freely without extra license costs per tag or connection.

Integration

Wide Protocols Support: Easily integrate using OPC UA, OPC DA, Modbus TCP/RTU, MQTT, REST API, SNMP, DNP3, IEC 102/104, DLMS, connectors for SQL databases, MongoDB, Ethernet/IP, Siemens S7 and many more IT/OT protocols.

Ready to use IIoT: Easy installation and configuration without extensive programming.

Object Oriented Configuration: Save hours of configuration using device and tag templates.

LDAP integration: Connect your vNode instances to your Active Directory environment to manage user and roles based on your company´s security policies.

Security

Data Encryption: All communications are encrypted using SSL cryptographic protocols (TLS 1.3), supporting AEAD (Authenticated Encryption with Additional Data) and ECDH agreement protocol for public and private key pairs.

Authentication: Based on digital certificates. You can also have used based and tag-based security.

Firewall friendly: Supports reverse connectivity (outbound only connections) so you are not required to open inbound, reducing the network attack surface

Main benefits

vNode unifies connectivity, analytics, processing, and management in one scalable industrial IoT platform.

Vendor Independence

Wide range of OT and IT protocols supported.

Latency Reduction

Data processing close to its source for immediate responses.

Operational Efficiency

Reduced data traffic and optimized bandwidth usage.

Data Security and Privacy

Strict control over sensitive data security.

Operational Autonomy

Local operation without constant dependence on cloud services.

Modular Architecture

vNode is built on a modular architecture that adapts to your industrial project's needs:

Data Acquisition

Collects data from a wide range of field devices and protocols, including PLCs, sensors and databases.

Data Management

Process and enrich your data with built-in features like alarms, calculations, historization and logic.

Data Delivery

Distribute processed data to cloud services (AWS, Azure, Google Cloud), databases (SQL/MongoDB), SCADA systems and more.

Unlock the full range of vNode capabilities: check the vNode Module List

Typical Use Cases

System Integration
Bridge communication between devices and systems from different vendors and generations.

Remote Monitoring
Monitor industrial assets from anywhere with reliable, secure connectivity.

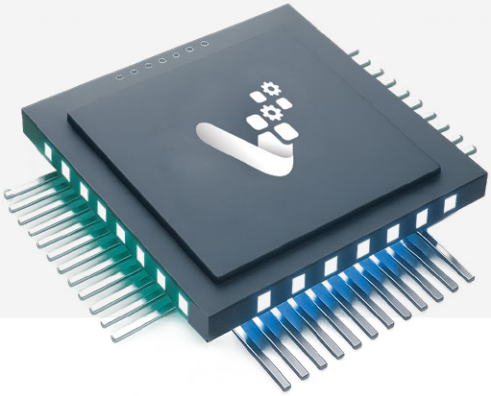
Predictive Maintenance
Feed real-time data into analytics engines to optimize asset performance and reduce downtime.

Secure Multi-Site Architecture
Exchange data between sites via a vNode running in the DMZ network and without opening inbound ports.

Technical Specifications

Supported Systems

- ARM, Intel x86-64, or AMD x86-64
- VMWare, Virtual Box, HyperV, Docker



Compatible Operating Systems

Windows

Any version from Windows 10 to 11, Windows Server 2016 to 2025 and Windows Enterprise 10 and 11.

Linux

Debian 10+ (incl. Ubuntu 20.04+ y Raspberry Pi OS 64-bit)
RHEL 8–9 (incl. CentOS, Oracle Linux, Amazon Linux 2 y 2023)

vNode

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