Edge Programmable Industrial Controller

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IOT Simplified

OPTO 22
Your Edge in Automation.™

This is EPIC.

The world's first Edge Programmable Industrial Controller

groov EPIC processor

Real-time, open-source Linux® OS

Industrial quad-core ARM® processor

Configuration, troubleshooting, and HMI on touchscreen or remotely through web browser

Dual, independent Gigabit Ethernet network interfaces for designing secure systems

Dual USB ports for serial communications, touchscreen monitors, or Wi-Fi adapters

HDMI output for optional external monitor

Wide -20 to 70 °C operating temperature range

groov I/O

4 to 24 channels per module

4, 8, or 16 position stainless-steel chassis

Hot-swappable I/O

Multi-featured analog output with voltage, current, and loop sourcing in one module

Analog inputs offer 20-bit resolution at 0.1% accuracy over span

DC outputs: load switching at 0.4 amps per channel @ 70°C

AC outputs: load switching at 0.5 amps per channel @ 70°C; blown-fuse detection

AC/DC outputs: mechanical relay at 5 amps per channel @ 70 °C

Channel-to-channel isolation available

UL Hazardous Locations approved and ATEX compliant

Guaranteed-for-life I/O

groov I/O module

What is EPIC?

Edge – Collect, process, view, and exchange data where it's produced—at the edge of the network. Securely share data among databases, cloud services, Allen-Bradley® and Siemens® PLC systems, and other equipment, using tools like Ignition Edge® by Inductive Automation®, Node-RED™, and MQTT. Visualize data on the integral touchscreen, an external HDMI monitor, or from any web browser or mobile device.

Programmable – Options for control programming include flowcharting with PAC Control™ or IEC-61131-3 standard languages with CODESYS. Secure shell access lets you build your own custom-developed applications with Python, C/C++, and other languages and run them on an open, Linux-based automation system.

Industrial – From plant floors to remote sites, the edge demands industrially hardened equipment—like a wide operating temperature range, solid-state drives, UL Hazardous Locations approval, and ATEX compliance.

Controller – Reliable real-time control—with flowchart, Ladder Diagram, Function Block Diagram, Structured Text, Sequential Function Charts, and custom programming options—plus guaranteed-for-life I/O provide the solid base for all other functions.

Learn more about *groov* EPIC. Speak to an application engineer at 800-321-OPTO, email us at systemseng@opto22.com, or visit us on the web at opto22.com.

groov EPIC™

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groov EPIC Software

groov MANAGE

groov Manage is the central command to your *groov* EPIC® system, helping you configure, troubleshoot, and commission your *groov* EPIC processor, I/O modules, and network interfaces. You can use this browser-based application locally on the EPIC processor's high-resolution color touchscreen, or on your computer, smartphone, or tablet.

PAC Control

PAC Control, part of the PAC Project Software Suite, is an intuitive tool for programming industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications. Flowchart-based with optional scripting, PAC Control lets you create and debug control programs and then download and run them on a *groov* EPIC processor.

CODESYS IEC 61131-3

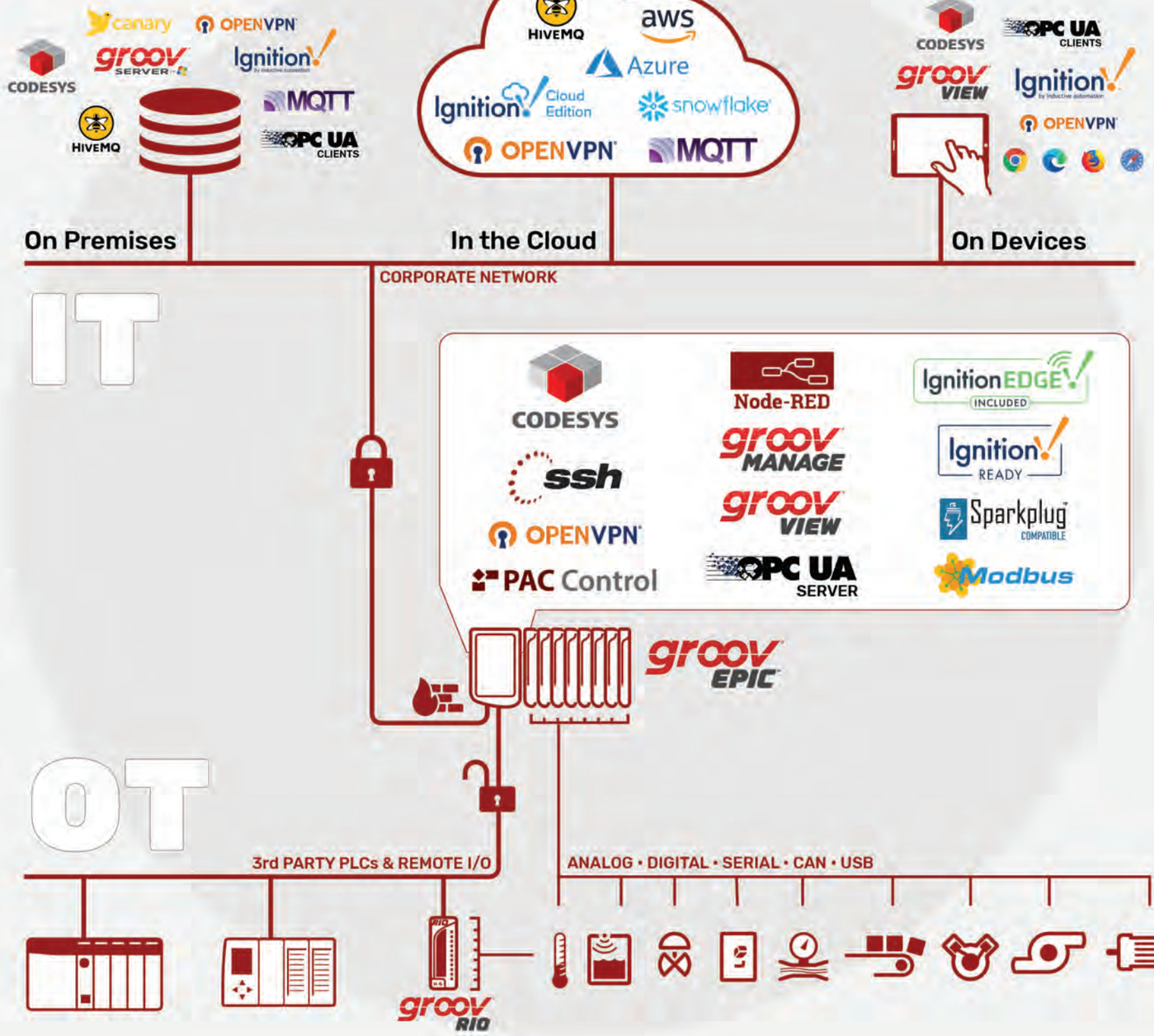
Use CODESYS® Development System V3 to create IEC 61131-3 compliant control programs that run on a *groov* EPIC processor. You can choose among Function Block Diagram (FBD), Structured Text (ST), Sequential Function Charts (SFC), and Ladder Diagram (LD). And you can expand functionality even more using products from the CODESYS Store.

ssh

Build your own custom applications using languages you know like Python, C/C++, and others, and run them on an open, Linux®-based automation system with Secure Shell access.

OPC UA SERVER

With the OPC UA server on board, *groov* EPIC offers a familiar, platform-independent way to exchange data among devices and software within your OT network. Smoothly integrate your PAC Control and I/O tags into SCADA and HMI software using OPC UA–no special drivers required.



groov VIEW

Use *groov* View to build operator interfaces to monitor and manage your system from the EPIC processor, and from any device with a web browser. User authentication and data encryption keep systems secure. *groov* View has easy drag-drop-tag construction, no tag or user limits, and includes trends, events, and user notifications.

IgnitionEDGE INCLUDED · Ignition READY

groov EPIC extends the Ignition® Platform to the edge of your network, eliminating the need for a Microsoft Windows computer. Run Ignition directly on the EPIC processor and gain access to data on Allen-Bradley®, Siemens®, and Modbus®/TCP PLCs and devices with the built-in OPC UA server and drivers. Choose either Ignition Edge® or full Ignition, both products of Inductive Automation®. Utilize the full array of Ignition modules including MQTT, database support, reporting, MES connectivity, and more.

Sparkplug COMPATIBLE

Improve communications efficiency and reduce reliance on IT networking resources with MQTT, a secure, lightweight transport protocol with a publish/subscribe architecture that decouples devices from applications. The Sparkplug payload definition for industrial applications also manages field device states for easier implementation.

Node-RED

Build simple data flows to wire together databases, cloud applications, and APIs using Node-RED. This open-source, multi-platform IIoT development tool gives you a large library of 600+ prebuilt nodes, so you can leverage existing software code and use it directly in your applications.

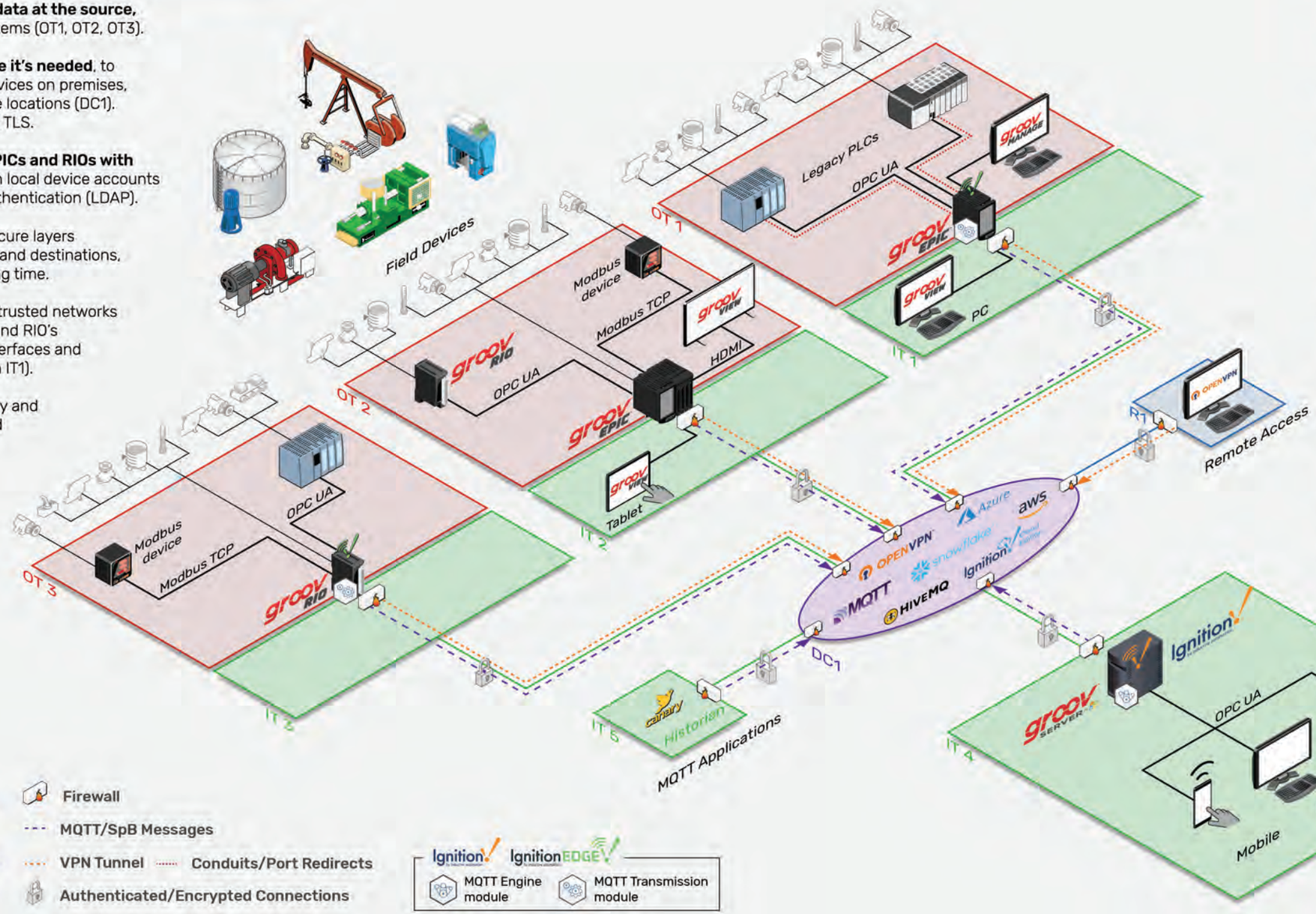
IIoT System Architecture

Acquire and process OT data at the source, from field devices and systems (OT1, OT2, OT3).

Communicate data where it's needed, to software, services, and devices on premises, in the cloud, and at remote locations (DC1). All data is encrypted using TLS.

Secure access to your EPICs and RIOs with user authentication, both local device accounts and centrally managed authentication (LDAP).

- Avoid complex and unsecure layers between data resources and destinations, reducing costs and saving time.
- Segment trusted and untrusted networks into zones using EPIC's and RIO's independent network interfaces and device firewalls (OT1 from IT1).
- Improve system efficiency and scalability with MQTT and Sparkplug B (DC1, IT5).
- Allow secure remote access to your OT systems with VPN.



Real-time I/O sensing and control

- Place *groov* EPIC anywhere. UL Hazardous Locations approved and ATEX compliant.
- Use the control programming language you prefer, either flowcharting or IEC 61131.
- Connect directly to field devices, Modbus/TCP devices, and *groov* RIO edge I/O modules (OT2).
- View your HMI locally, on PCs, and on mobile devices (OT1, IT1, OT2, IT2, IT4).

Multi-vendor network and software integration

- Secure legacy PLCs and acquire their data without disturbing existing systems (OT1).
- Remotely access legacy PLCs with VPN and temporary, on-demand conduits. (R1)
- Securely share data with SCADA systems (IT4) and MQTT applications (IT5).
- Get data from field devices, legacy PLCs, and Modbus/TCP devices using *groov* RIO edge I/O (OT3/IT3).

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