The Industrial Internet of Things (IIoT)

The Industrial Internet of Things (IIoT) is the connection of industrial devices, machines and sensors to the Internet and to each other. The IIoT brings intelligence, unprecedented coordination and automation to enterprises. It also provides supply chains to enhance efficiencies and increase product quality while lowering operating and maintenance costs across a wide range of industries. The impact of IIoT will be comparable to that of the advances made during the industrial revolution – making machines and devices smarter, allowing enterprises to respond to real-time changes in their business on a scale never before accomplished.

The LocalGrid Fog Computing Platform

Fog Computing is an emerging discipline within the computer networking industry that describes the connection of sensors, devices, and machines (the Edge) to the Internet (the Cloud) and to each other. The “Fog” is defined as the space between the Cloud and the Edge where a new network paradigm has been created to solve connectivity, bandwidth, and latency issues for the immense amount of data generated by the sensors, devices and machines residing at the Edge. LocalGrid Fog Computing Platform can get your project running in the Fog quickly, reducing development costs and time to market.

LocalGrid Transforms Heterogeneous Communications Protocols into a Secure, Open Standard

LocalGrid Fog Computing Platform is embedded software installed on network switches or Edge devices that bridges the communication gap between legacy edge devices and new products:

- Rapid onboarding of Heterogeneous Edge Devices allows sensors, devices, and machines from different (or legacy) vendors and with different messaging protocols to be connected to each other and to the Cloud with minimal configuration.
- Peer-to-Peer Communication directly between in-field intelligent devices enables real-time control, real-time production line changes, and supply chain coordination to increase efficiency without reliance on a centralized server.

LocalGrid Reduces Bandwidth usage, decreases Latency, and increases Security

Edge devices generate tremendous amounts of data. LocalGrid Fog Computing Platform provides the infrastructure between Edge devices and the Cloud for faster and more secure communications without having to send large amounts of data through the Cloud. LocalGrid creates a distributed intelligence network where processing and storage occurs between the 3G/4G, wired or WiFi network switches and the Edge devices where decisions and data processing can occur on a distributed basis.
LocalGrid™ Fog Computing Platform enables

- **Field Message Bus** independent from the private cloud or enterprise network, increasing reliability and ensuring that there is no single point of failure. Eliminates the bottleneck of relying strictly on central command and control architectures and distributes information and intelligence between devices.

- **Reduced Bandwidth** increasing data quality, decreasing latency for real-time decisions and decreases OEM operating costs.

- **Secure** data is encrypted and stored locally on each device, not sent back over the cloud, and only accessed when needed by authenticated devices and users with authorization.

- **Enhanced Big Data** by sending only pre-processed data to a central server for analysis.

LocalGrid Fog Computing Platform supports custom application development in multiple program languages (C, C++, C#, Java, Python, LabVIEW, and more...) and on most embedded platforms (Windows, Linux, and VxWorks running on Intel x86/x64, ARM, and PowerPC). Ask us about other supported targets.

### Key Features

**Data Interoperability**
- Transforms heterogeneous communications protocols to DDS
- Cross-platform support
- Peer-to-Peer edge device and cloud communication

**Application Management**
- Open and extensible architecture
- Local storage and processing on in-field devices
- Remote configuration management
- Application deployment management
- Unobtrusive real-time data monitoring
- Remote Health monitoring
- Edge device Auto-discovery

**Decentralized network**
- Creates a distributed and intelligent device architecture
- Analyze data without waiting for a centralized server across the cloud to process and respond
- High resiliency/Fault tolerant
- Reduces network latency for real-time response to changes

### Features

**Scalable**
- Virtualization of assets
- Multi-tenancy
- Modular

**Security**
- Resilient
- Fault tolerant
- Secured at the edge

**Programmability**
- Multiple APIs
- Multiple application support
- Platform versatility

**Real-time features**
- Deterministic timing capability
- Take action based on real-time data
- Measure and control with determinism
- Real-time analytics

**Embedded applications platform**
- Platform flexibility reduces costs and increases longevity

### With Support From:

- Natural Resources Canada
- Resources naturelles Canada
- Ontario
- Industrial Internet Consortium

### Applications

- Condition Monitoring
- Legacy Integration
- Process Control
- Securing Legacy Protocols

### For more information, please contact

186 Robert Speck Parkway, Suite 201, Mississauga, ON L4Z 3G1
www.localgridtech.com
@LocalGridTech