

The background of the slide is composed of a grid of small squares in various shades of blue and orange. The squares are arranged in a way that creates a sense of depth and movement, with some squares appearing larger and more prominent than others. The overall effect is a modern, digital aesthetic.

c-tree **EDGE**

IoT DATABASE

Highlights Guide

Fast Data Persistence on the Edge



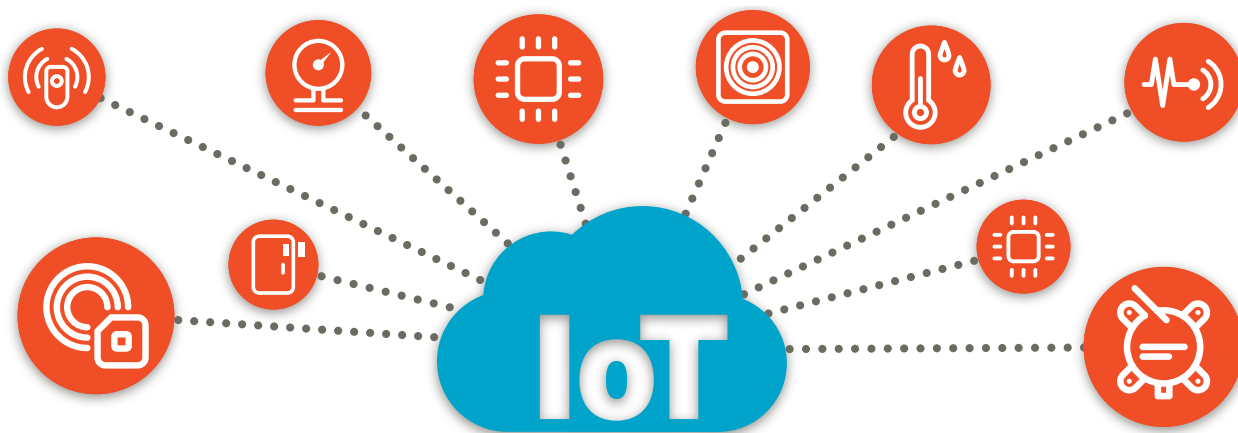
Highlights Guide

c-treeEDGE

IoT DATABASE

FAST PERSISTENCE WHERE IT MATTERS MOST: ON THE EDGE

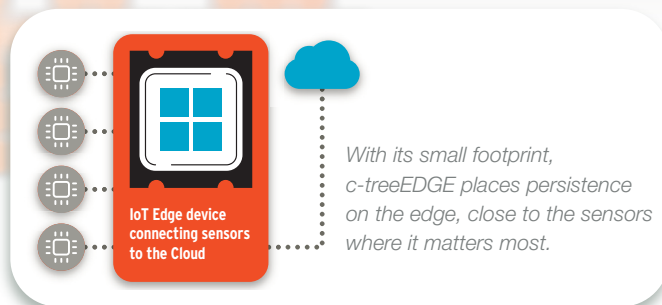
c-treeEDGE is a new version of the FairCom database technology tailored to the unique demands of IoT. With its robust architecture and small footprint, c-treeEDGE brings persistence down from the cloud and on-premise servers and moves it closer to the sensors—on the “edge.” The same proven technology that powers enterprise applications for over 40% of the Fortune 100 is now available for edge computing.



The Internet of Things, or “IoT,” collects data from myriad sensors connected to a variety of devices, from oil wells to industrial equipment to the smart light bulb in your living room. These devices stream data to the cloud, where it is used for analytics or device control.

WORKS WITH





The Cloud

IoT data is often sent to the cloud for storage and processing. Due to considerations such as bandwidth, the data may be aggregated or filtered before it is sent.

Monitoring a factory or controlling drilling equipment (the "Industrial IoT" or "IIoT") requires mission-critical decisions to be made in real-time. A loss of connectivity could be costly for your business.

These factors have shifted emphasis to a different location: the "edge."

The Edge

Processing on the edge reduces bandwidth requirements, improves security, and protects proprietary data.

Existing IoT solutions provide persistence in a cloud-based database. Critical IoT applications cannot wait for data to travel to the cloud and back. They need local intelligence and storage on the edge. They need c-treeEDGE.

Developers' Tools

Vendors are developing tools to model, integrate, control, and operate large IoT deployments. Platforms such as ThingWorx and Node-RED reduce the complexity of developing IoT solutions, turning many aspects of development into a simple drag-and-drop operation. c-treeEDGE fits seamlessly into these environments.

c-treeEDGE is a comprehensive set of building blocks for IoT developers. It gives you everything you need to add persistence on the edge in real-time, in a reliable, consistent way.

Replicate to the Cloud

When the data you capture is crucial, c-treeEDGE has another advantage. It can be paired with FairCom's mature replication solutions, c-treeAMS Replication, so data isn't merely streamed to the cloud, it is replicated there. This ensures the data in the cloud is an up-to-date, exact copy of the data generated by your sensors. If connectivity issues put the cloud "on hold," c-tree replication can synchronize it when the connection is reestablished.



ubuntu^{core}

And Much More...

Leading Edge Development

c-treeEDGE seamlessly integrates with the tools you are using to develop your IoT apps. Regardless of your project, it has an interface that simply "drops in" to add persistence on the edge.

Platforms:

- ThingWorx
- Node-RED
- Node.js

Integration:

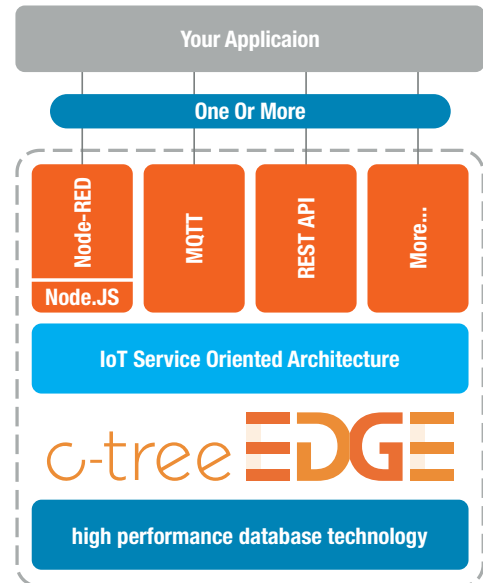
- REST API
- JSON Support

Protocols:

- MQTT
- TCP/IP and Shared Memory
- More to come...

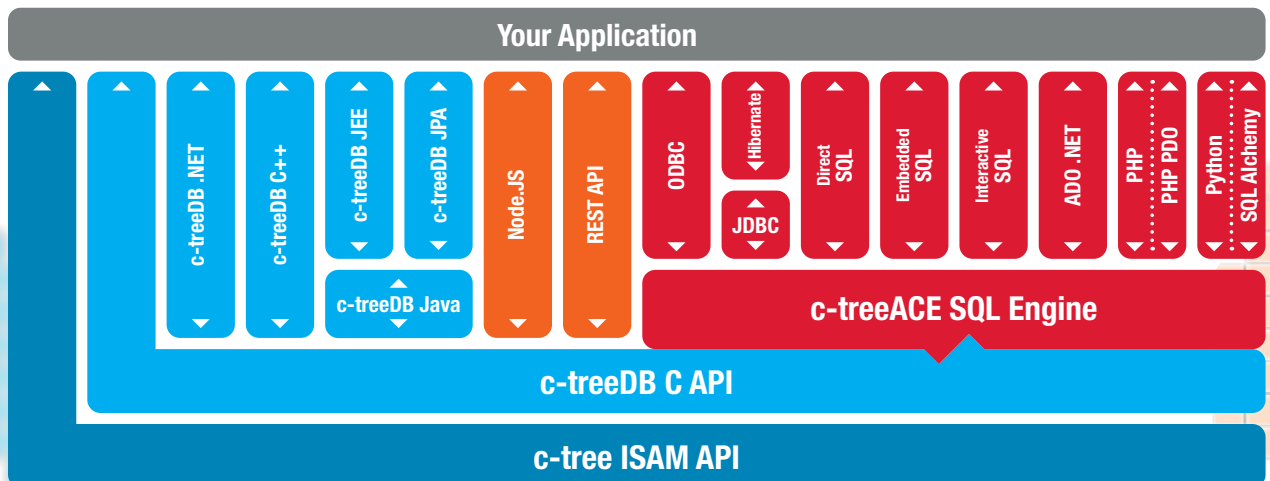
Operating Systems:

- Android Things
- Raspbian
- Windows IoT
- Windows X86/X64
- Linux X86/X64



Over 20 Relational and Non-Relational APIs

IoT data is typically small chunks of information that require little to no relationship modeling. It has a stronger affinity for non-relational (NoSQL) modeling than a relational (SQL) structure. At its core, c-treeEDGE leverages FairCom's advanced non-relational technology to provide fast handling of unstructured data with immediately consistent ACID transactions, plus SQL access for reporting and analytical tool access, all over your same single instance of your live data (no ETL is required).



Seamless Integration Simplifies Development

With c-treeEDGE, the emphasis is on seamlessly integrating with your development environment. By providing extensions to popular tools and frameworks such as ThingWorx, Node-RED, and MQTT, c-treeEDGE offers full database control and persistence on the edge. If you are building an application with ThingWorx or Node-RED, you can simply drop in the c-treeEDGE extension to add persistence on the edge. If you have an existing solution using MQTT, you can simply add c-treeEDGE and redirect your MQTT there. You can persist data at the edge or turn persistence on and off via commands sent via MQTT.

Node-RED with MQTT – If you have a Node-RED project that uses MQTT, c-treeEDGE can act as an MQTT broker, selectively persisting data while simultaneously passing the messages on unchanged.

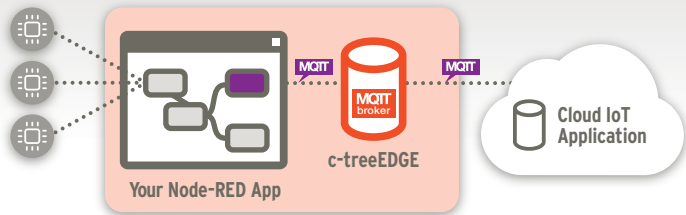
Node-RED/Node.js – Drop the c-treeEDGE node into your Node-RED project and use flows to determine how and when data is persisted.

MQTT – c-treeEDGE acting as an MQTT broker provides complete publish and subscribe services allowing it to persist data from any application generating MQTT traffic.

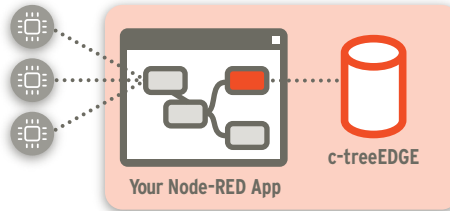
IoT REST API – The c-treeEDGE IoT REST API allows you to create, read, update, and delete data through a fast, small, and local HTTP service.

ThingWorx – c-treeEDGE supports IoT platforms such as ThingWorx. A ThingWorx extension, available in the Marketplace, allows you to easily control and monitor c-treeEDGE.

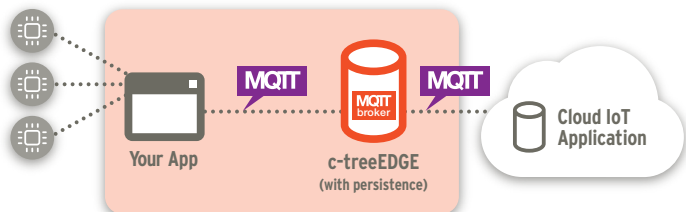
Node-RED MQTT



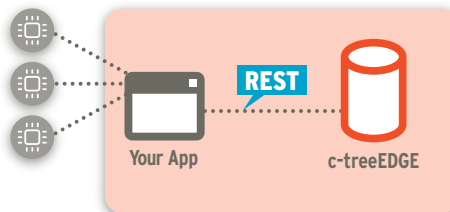
Node-RED c-treeEDGE IoT Persistence



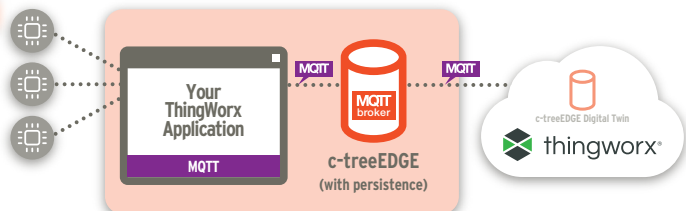
MQTT Broker



IoT REST API



IoT Platforms (ThingWorx)



Why FairCom Is Good for IoT

Performance: Our full-featured database handler is tuned directly to the file system to provide high-speed Record I/O. A modern take on traditional ISAM techniques (with many advanced features like triggers and notification, immediately consistent ACID transactions, batches, conditional indexes, data filters, etc.), it is the fastest way to store streaming sensor data and retrieve it in real-time for industrial-scale IoT projects.

NoSQL by Nature: Sensors typically stream non-relational data, requiring minimum relationship management, especially on the edge. We can handle the data without the overhead of SQL, which gives you a performance advantage.

SQL Access: Although IoT data is typically non-relational, analytics and reporting require traditional SQL queries. Our automatic and seamless SQL mapping is a tremendous advantage in these scenarios, allowing you to run your analytical processes on raw sensor data using a wide variety of relational drivers and APIs (see the red boxes in the API diagram on page 4).

ACID Transactions: c-treeEDGE allows the original data to be stored in a reliable way, providing recoverability and reliability. Transactions are a critical requirement for mission-critical real-time systems, and our transactional engine is unique in this aspect by providing immediately consistent ACID transactions across all of our supported APIs and Drivers.

Edge, On-Premise & Cloud Integration: Poised on the edge, c-treeEDGE can move your data throughout the enterprise—or even to the cloud—for batch and analytical purposes. Real-time replication assures IoT devices will automatically sync to your other on-premise machines, or to the cloud, as needed.

Platform Availability: c-treeEDGE is supported on multiple platforms, ideal for the typically heterogeneous scenario of an IoT solution c-treeEDGE is available for operating systems such as Raspbian, Windows 10 IoT, Ubuntu CORE, and other standards such as Linux.

Only c-treeEDGE provides ACID transactions for mission-critical applications, low-overhead for handling non-relational data, real-time SQL access to this same data, and replication to make it available in other parts of your on-premise computing environment, and/or in the cloud.

Key values c-treeEDGE brings to IoT:

- Lower latency
- Fast Persistence
- Many API/Framework/Platform choices
- Proven technology in use by companies from Visa to NASA
- Enabling Predictive Analytics on the Edge
- Easy to Program/Develop



I want to try it!

To learn more about the c-treeEDGE IoT Database, download a copy from FairCom:
<https://www.faircom.com/download-ctreeedge>