

## TCUP Edge



Modern IoT implementations require data processing, transformation and analytics computation to happen close to the IoT endpoints. Organizations experience profound impact with processing at the edge. Faster response time, less dependency on connectivity, enhanced security, and cost reduction are some of the impacted areas. A functionally rich and secure Edge IoT platform is a powerful tool for the enterprises. TCUP Edge, powered by TCUP – TCS Connected Universe Platform, TCS's flagship IoT platform, is a technically advanced platform that speeds up the development of functionally rich, scalable, cost effective and flexible IoT solutions at the edge

## Overview

TCUP Edge is a lightweight IoT platform which is designed to run on resource-constrained devices with low CPU and memory footprint. It provides all functional capabilities needed for developing a stable, robust and easy-to-implement IoT application. It is usually installed on industrial grade IoT gateway devices but can also be installed on any commodity hardware. TCUP Edge is a collection of software components deployed as containers. Customized deployments can be made depending on resource availability and functional requirements.

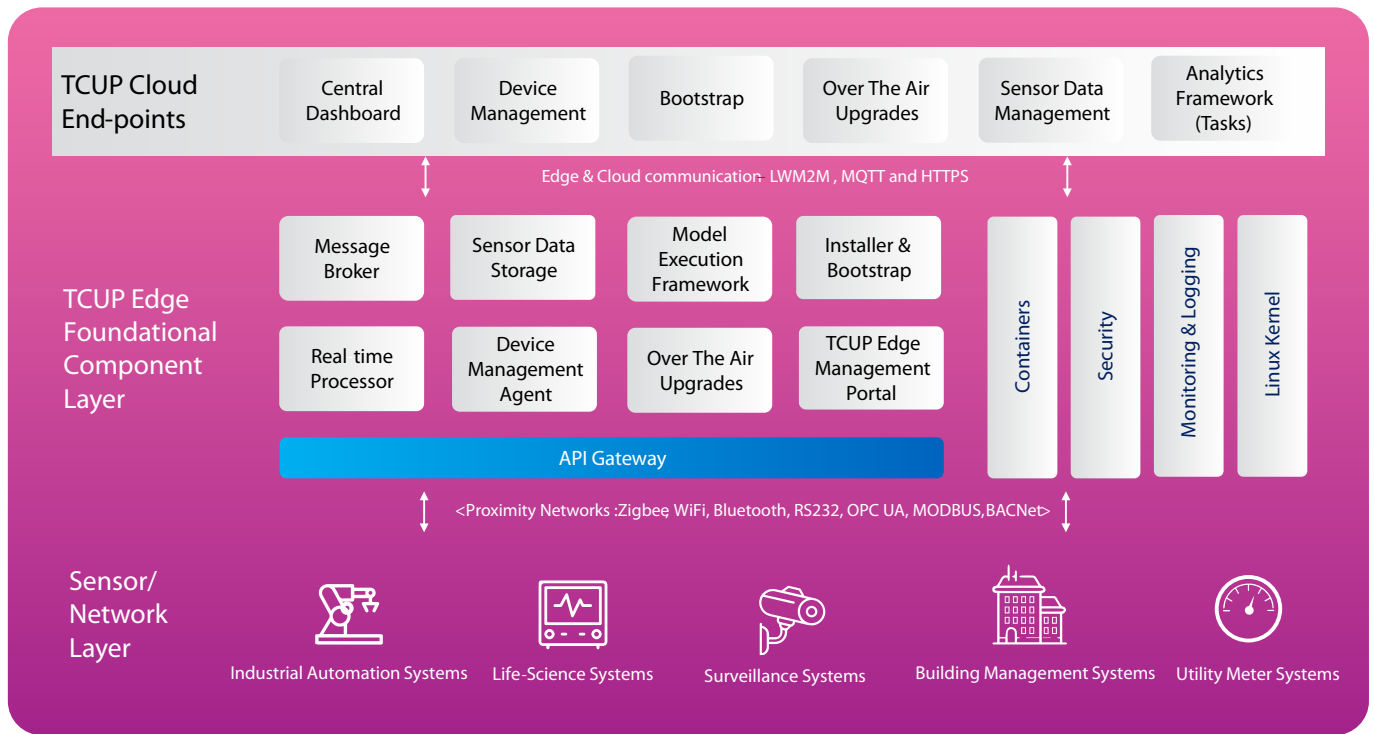
A key aspect of TCUP Edge is the focus on connectivity protocols, cloud integration and analytics at the edge. TCUP Edge can leverage specialized AI hardware, if available, for AI / deep learning inferencing tasks. The edge platform supports sensor stream processing as well as video processing.

TCUP Edge is cloud-agnostic and is not tied to any specific vendor or cloud IoT platform. Neither is it tied to any specific IoT hardware. TCUP Edge has been tested on many different Linux distributions on a wide class of IoT edge hardware.

## Solution

TCUP Edge provides following capabilities at the edge –

- Secure automated onboarding and registration of TCUP Edge nodes
- Proxies, gateways and protocols for data acquisition from field device protocols such as Modbus, OPCUA, CANBus, MQTT, HTTP etc.
- A lightweight service for storage of timestamped sensor data streams and events along with query interfaces and APIs
- Rule-driven streaming data filtering, transformation and aggregation
- Video/image data ingestion, video/image analytics pipeline and storage
- Ability to download Analytics / Machine Learning models from cloud and execute the same at edge
- Ability to periodically synchronize data to various cloud service endpoints based on user-specified schedules and rules; ability to ingest files and synchronize with cloud data lakes
- A user portal for monitoring, rule creation, remote access etc. at the edge
- Over the air upgrades of software and configurations
- Remote management of multiple TCUP Edge nodes via a central management portal



TCUP Edge

TCUP – TCS Connected Universe Platform

## Benefits

- **Modern stack and architecture** – TCUP Edge is built on top of a modern technology stack and architecture designed for highly scalable edge / fog computing environments.
- **Functionally rich** – The rich set of functional components of TCUP Edge cover the entire spectrum of platform needs for edge IoT applications.
- **Scalable** – It is a highly scalable platform that can scale as per resource availability, runs on a variety of edge computing devices, and can make use of specialized hardware accelerators for AI/ML.
- **Flexible** – TCUP Edge is independent of any specific cloud or backend and can easily accommodate new features and existing components.
- **Development support** – TCUP Edge comes with a rich API set and SDK for easy edge application development and cloud integration.

## The TCS Advantage

- **Leading innovation for IoT:** TCS has 19 labs across the globe for IoT-specific development and solutions. Its labs cover cyber security, AI, robotics and more, which helps TCS drive next-level technology.
- **Strategic IoT partnerships:** TCS has made strong commitments to partnerships with IoT players such as Intel, Dell, and Microsoft Azure to enhance its IoT services portfolio. It has built a customer experience center in collaboration with Intel to showcase technologies including 3D printing, virtual reality and IoT.
- **Deep domain expertise:** TCS provides deep domain expertise across all major industry verticals such as Manufacturing, Energy & Utilities, Retail, Life-Sciences & Healthcare. TCUP already powers solutions in Energy management, Fleet management, Health & Safety management, Servitization and Smart Factory solutions.
- **Decades of SI experience:** As an expert solution integrator, TCS is well versed in the delivery of complex IoT projects. The TCS team is able to handle multiple data sources, ensuring seamless integration of the IoT platform with customer back-end systems.

## Awards & Recognition



### To know more

Visit the <https://www.tcs.com/tcs-connected-universe-platform> page on [tcs.com](https://www.tcs.com)

Email: [tcup.iot@tcs.com](mailto:tcup.iot@tcs.com)

### About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at [www.tcs.com](https://www.tcs.com)

**IT Services**  
**Business Solutions**  
**Consulting**

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties.

Copyright © 2020 Tata Consultancy Services Limited