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A Renesas Company

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A New Web Services Standard for Building Controls



Renewable Energy



**Smart Cities
Streetlighting**



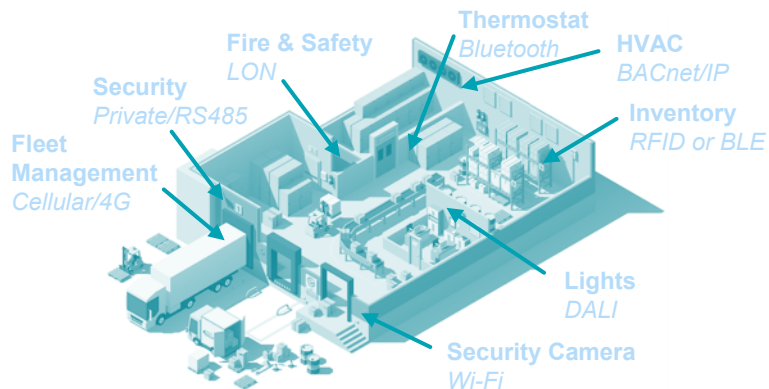
**Commercial &
Residential
Buildings**



Internet of Things

Technology Integration Drives Smart Building Cost

Typical Industrial Environment



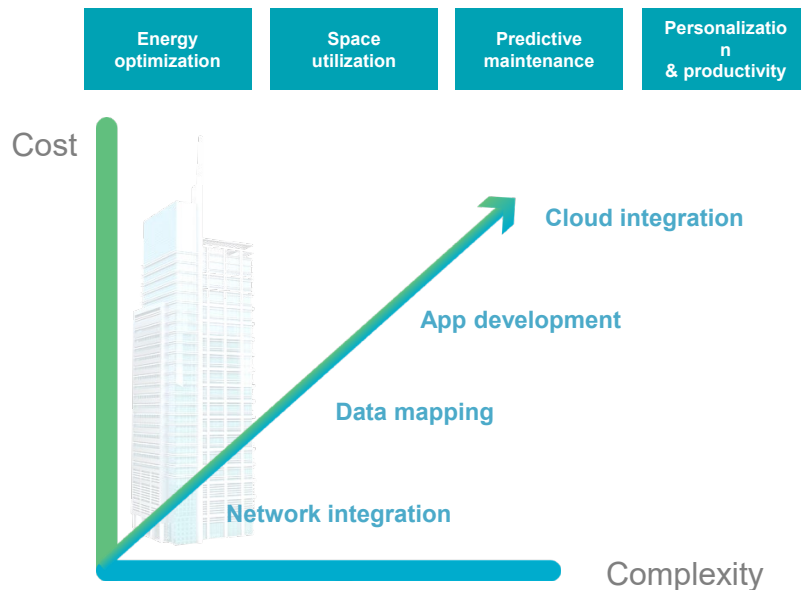
Legacy systems and protocols

Industrial scale, availability, reliability

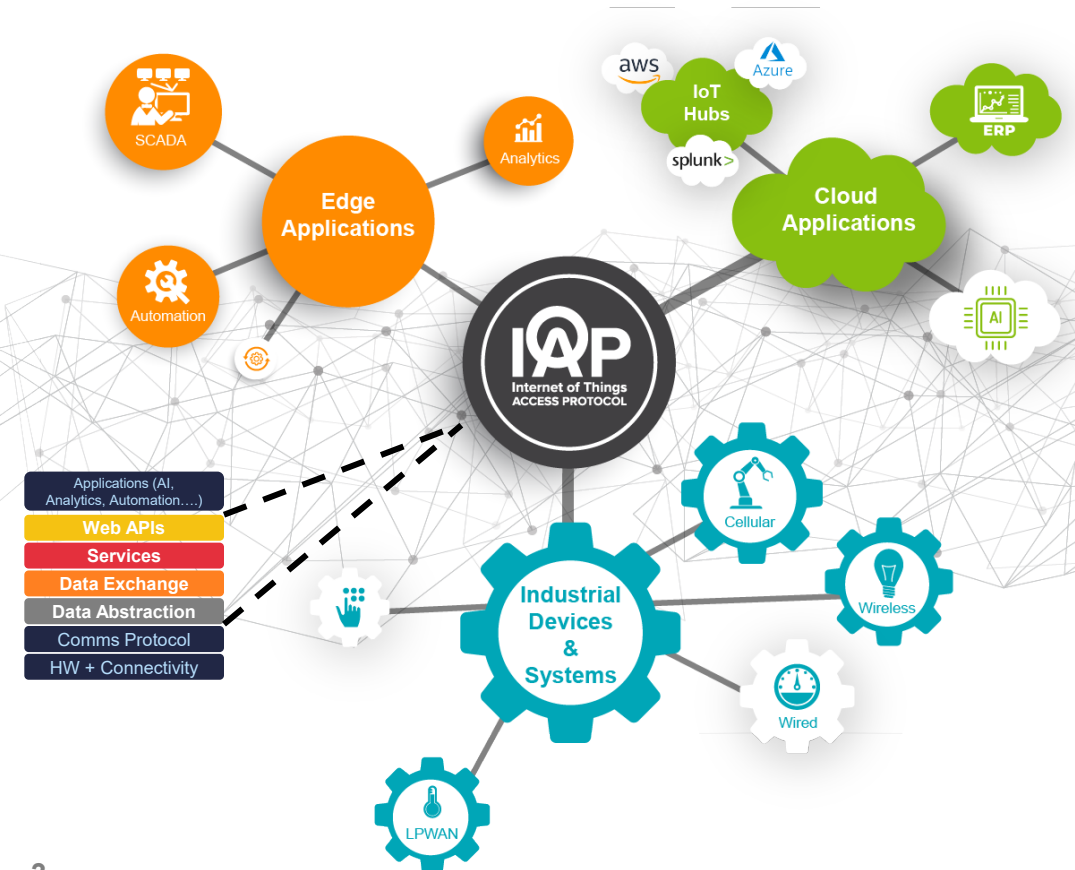
Multi-application & vendor environments

Ownership of data and infrastructure

Industrial IoT Use Cases Require Complex and Costly Integration



Case for an Open IoT Centric Data Fabric

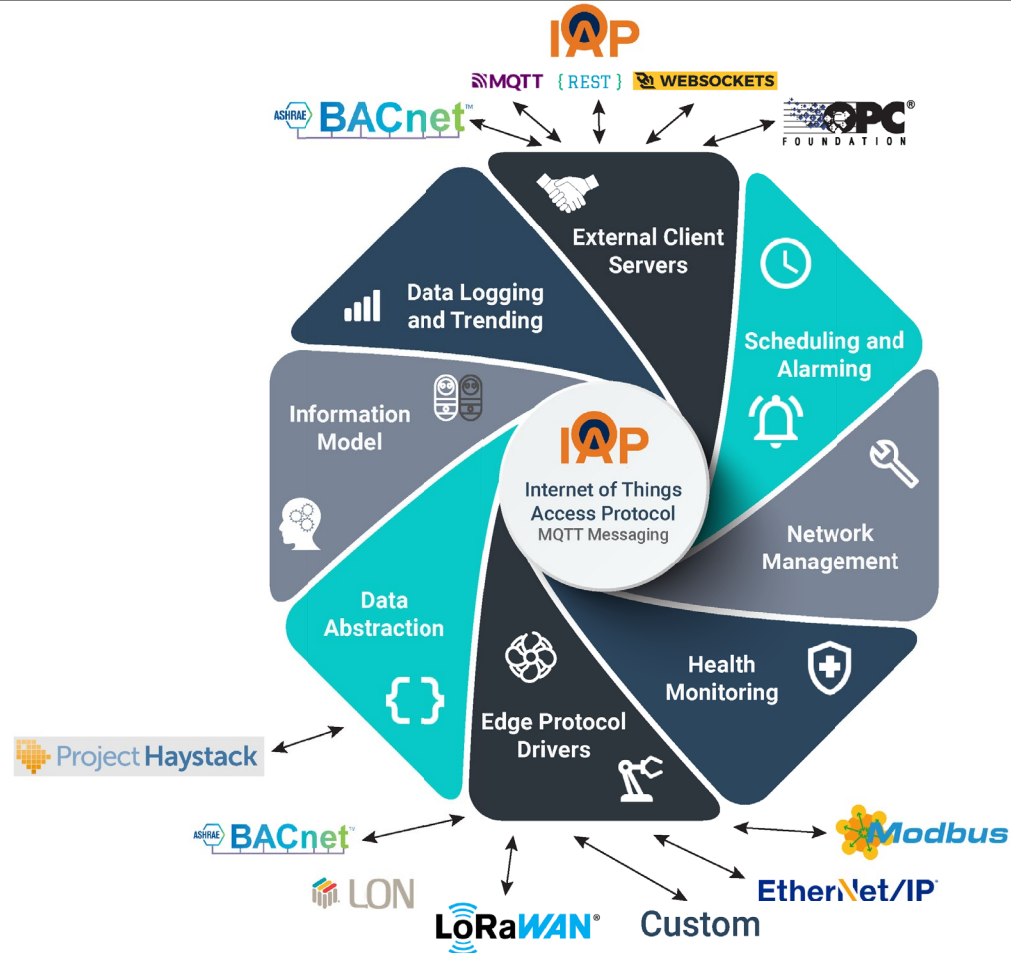


Solution to the integration problem relies on an IoT centric data fabric that...

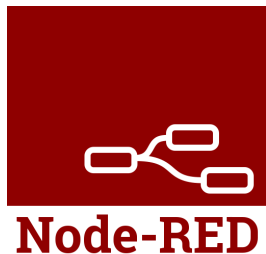
- Seamlessly connects any IoT end points with each other and with clients and applications
- Provides access to device data securely from anywhere
- Enables resilient and decentralized edge computing
- Eliminates the need for custom code to support every new device type
- Runs anywhere—sensors, controllers, gateways, edge servers, or cloud servers

IAP is an open ANSI/CTA standard – ANSI/CTA-709.10

IAP Overview



Example 1: Streaming IAP Data to Google Cloud



SmartServer CMS

https://10.0.0.113/cms/#/dashboard

DEFAULT SEQ NEW DASHBOARD

Sequencing

DASHBOARD

Node-RED

filter nodes

Flow 1 Starter Kit Flow [S]Cloud Filter[1] [S]Starter Kit Flow[1] Cloud Filter CloudTest

template

GCP

- dns - change - create
- dns - records - list
- pubsub
- pubsub
- gcs - write
- log
- metadata
- gcs - read
- monitoring
- gcs - signedURL

glp/+/fb/dev/+/+/cfg

glp/+/ev/data

MQTT DP Filter

DP Throttle

pubsub

Filter Dp Update

Dp Throttle Update

topic: "DIO-01/Digital Input/0/nvoDI/value"

payload: "{\"data\":100,\"deviceHealth\":\"normal\"}"

debug

all nodes

7/6/2021, 12:17:49 PM node: Dp Throttle Update

DIO-01/Digital Output/1/nvDO : msg : Object

{ topic: "DIO-01/Digital Output/1/nvDO", payload: {"data":{"value":0,"state":0,"_msgid":"e952aed.05d75"} }

7/6/2021, 12:17:49 PM node: Dp Throttle Update

DIO-01/Digital Output/2/nvDO : msg : Object

{ topic: "DIO-01/Digital Output/2/nvDO", payload: {"data":{"value":0,"state":0,"_msgid":"36be3ee.815abc2"} }

7/6/2021, 12:17:55 PM node: Dp Throttle Update

MS-01/Lamp/0/nvoLampFb/value : msg : Object

{ topic: "MS-01/Lamp/0/nvoLampFb/value", payload: {"data":0,"deviceHealth":"norm",_msgid":"85353def.31073"} }

7/6/2021, 12:17:55 PM node: Dp Throttle Update

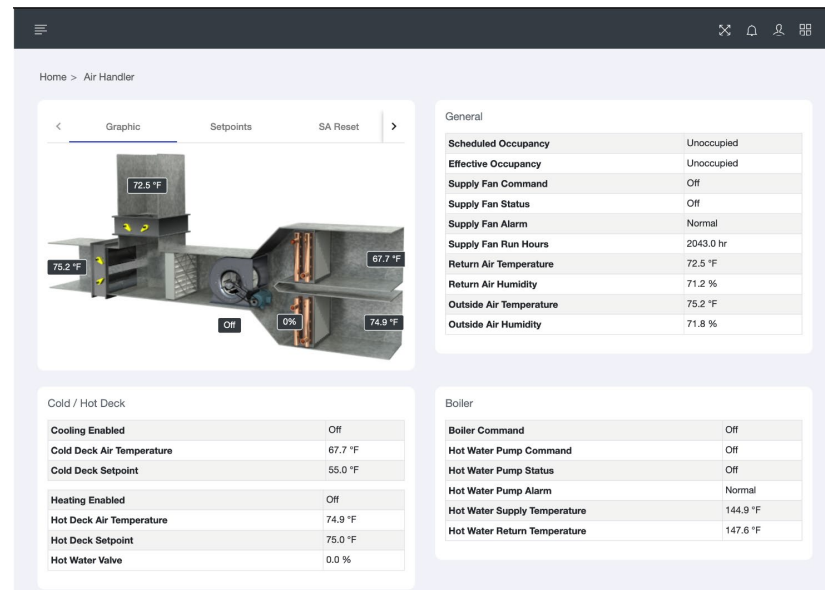
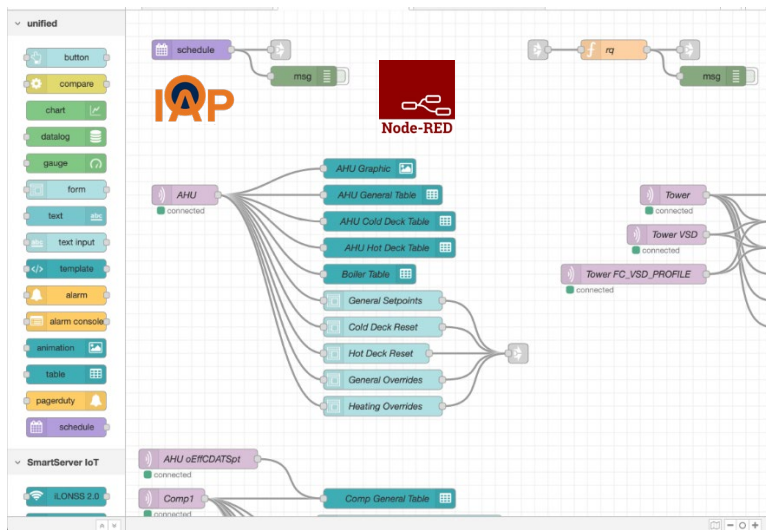
Tstat-01/AV/7/Room Temperature : msg : Object

{ topic: "Tstat-01/AV/7/Room Temperature", payload: {"data":83.5,"deviceHealth":"n",_msgid":"81674ace.1b06a8"} }

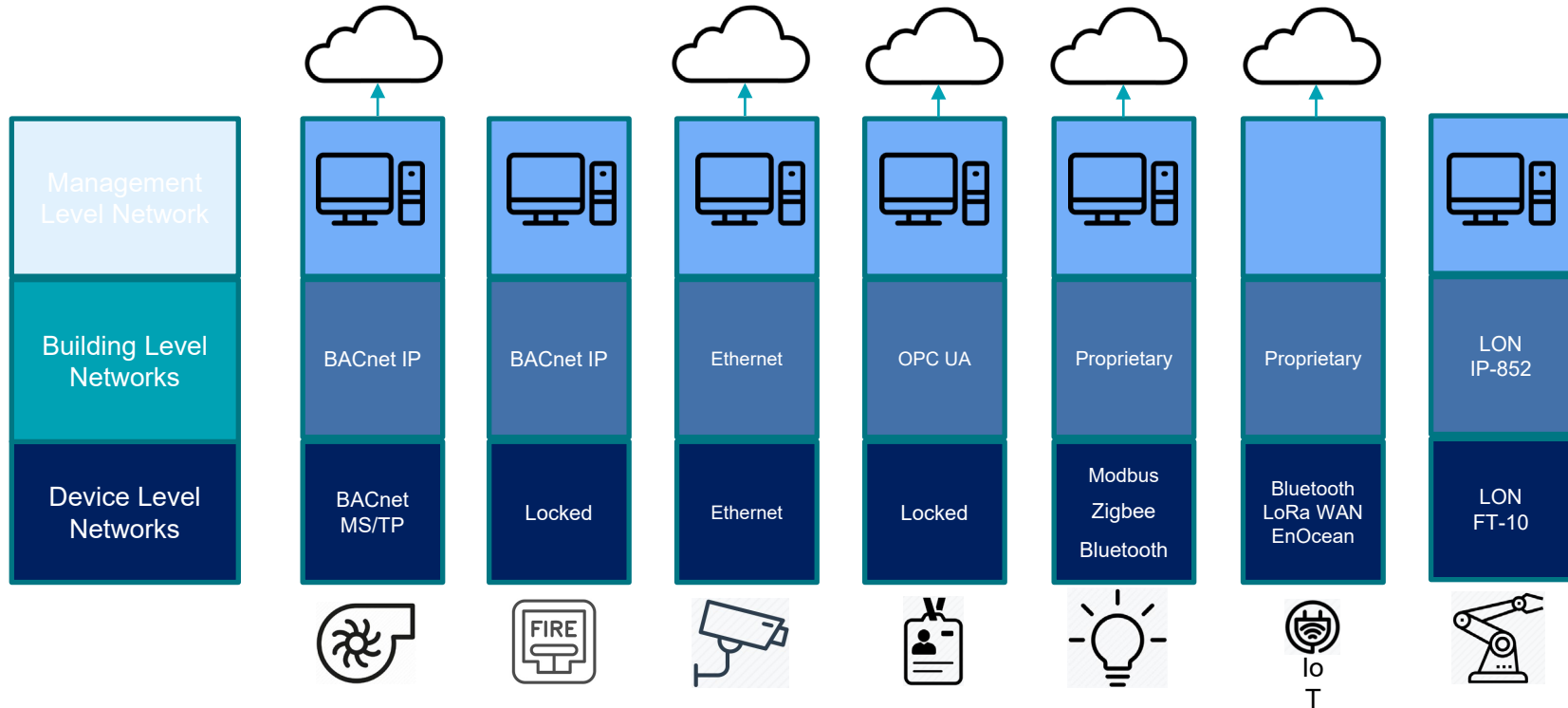
7/6/2021, 12:18:07 PM node: Dp Throttle Update

Tstat-01/AV/39/Occupied Heat Setpoint : msg : Object

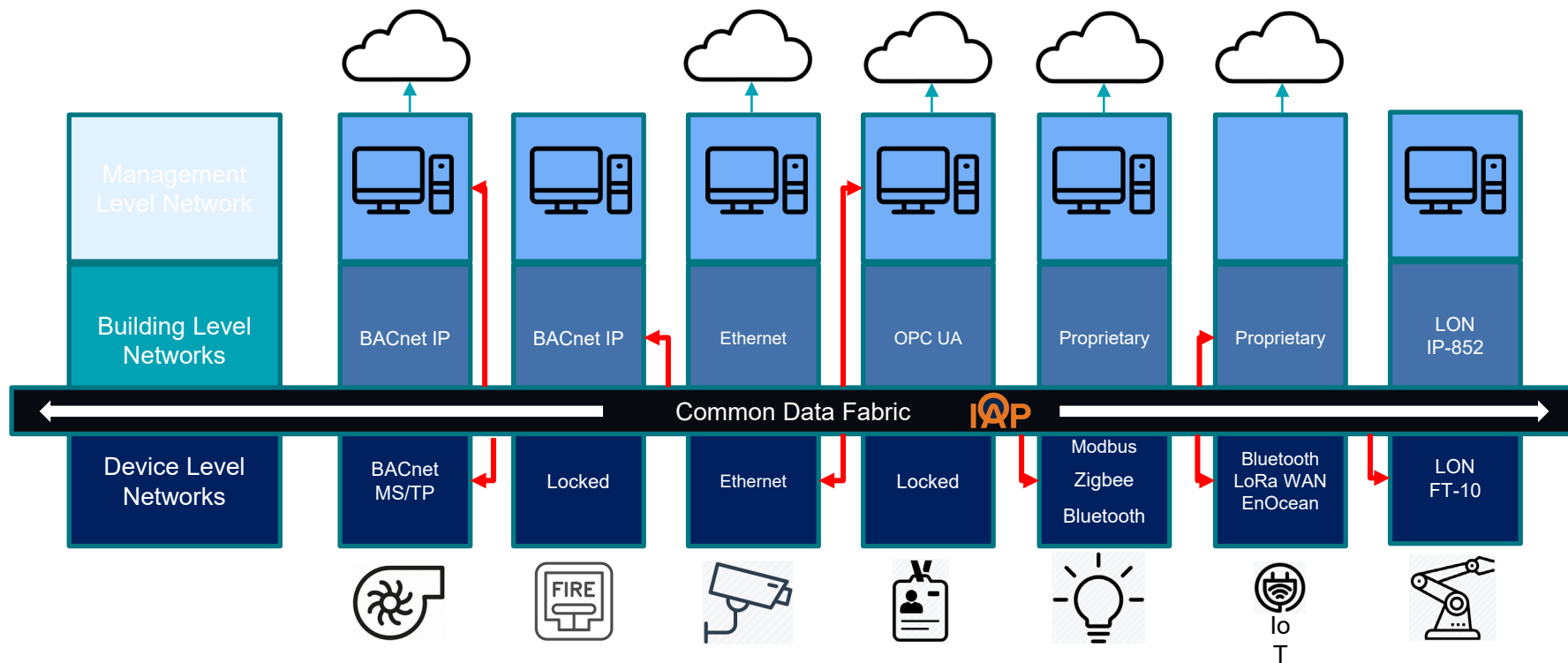
Example 2: Partner-Created Open-Source Tool Set



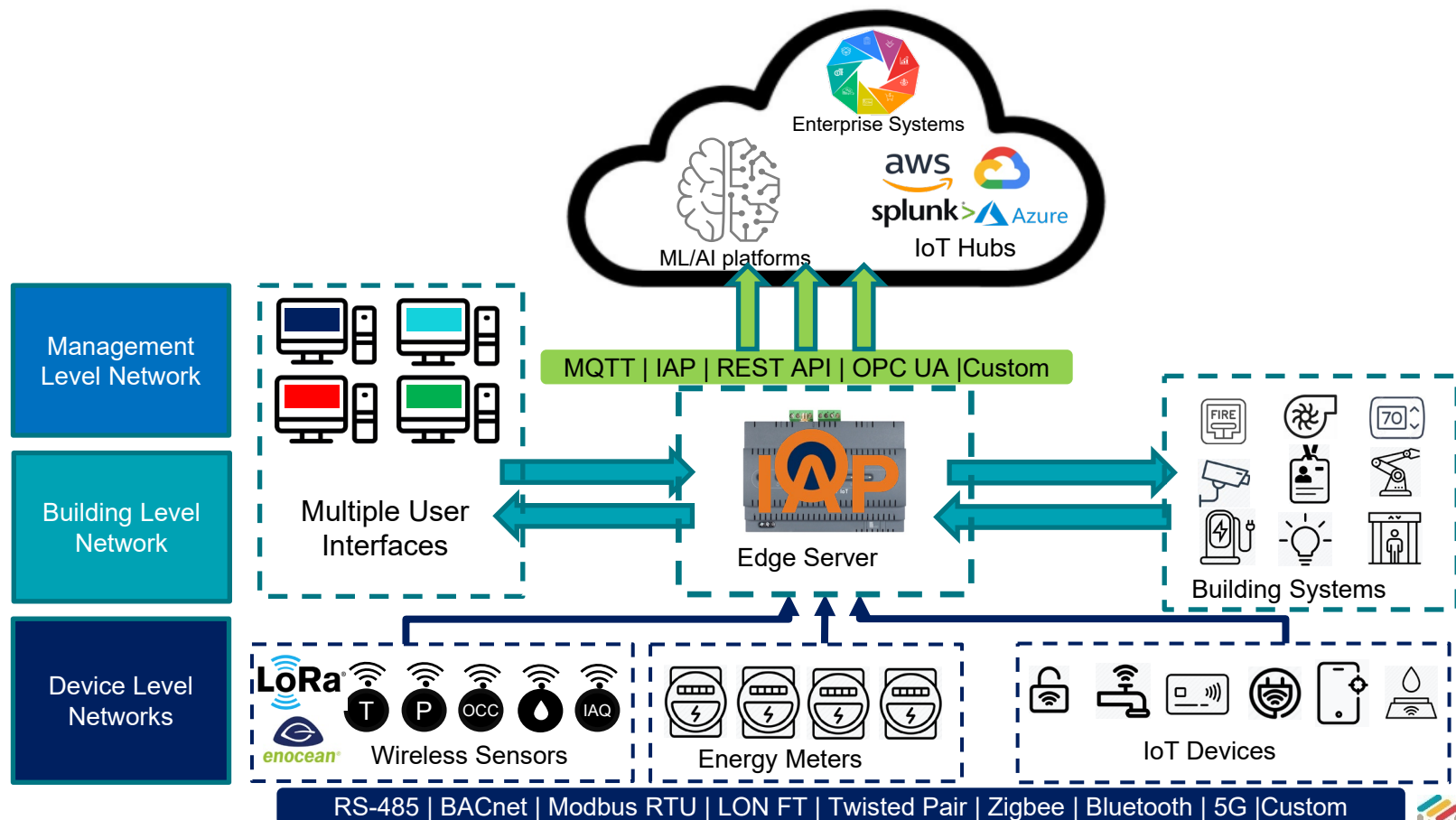
Typical Smart Building Network Architecture



Smart Building Network Architecture with IAP

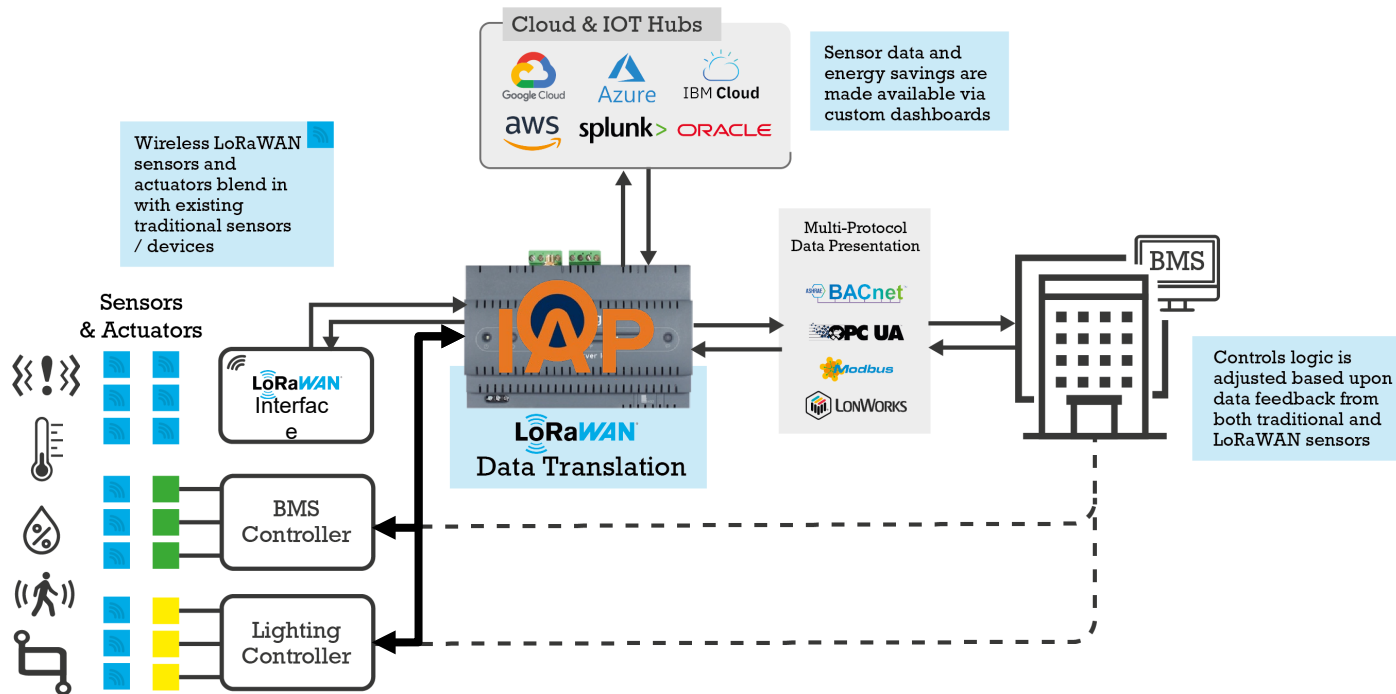


Network Architecture with IAP

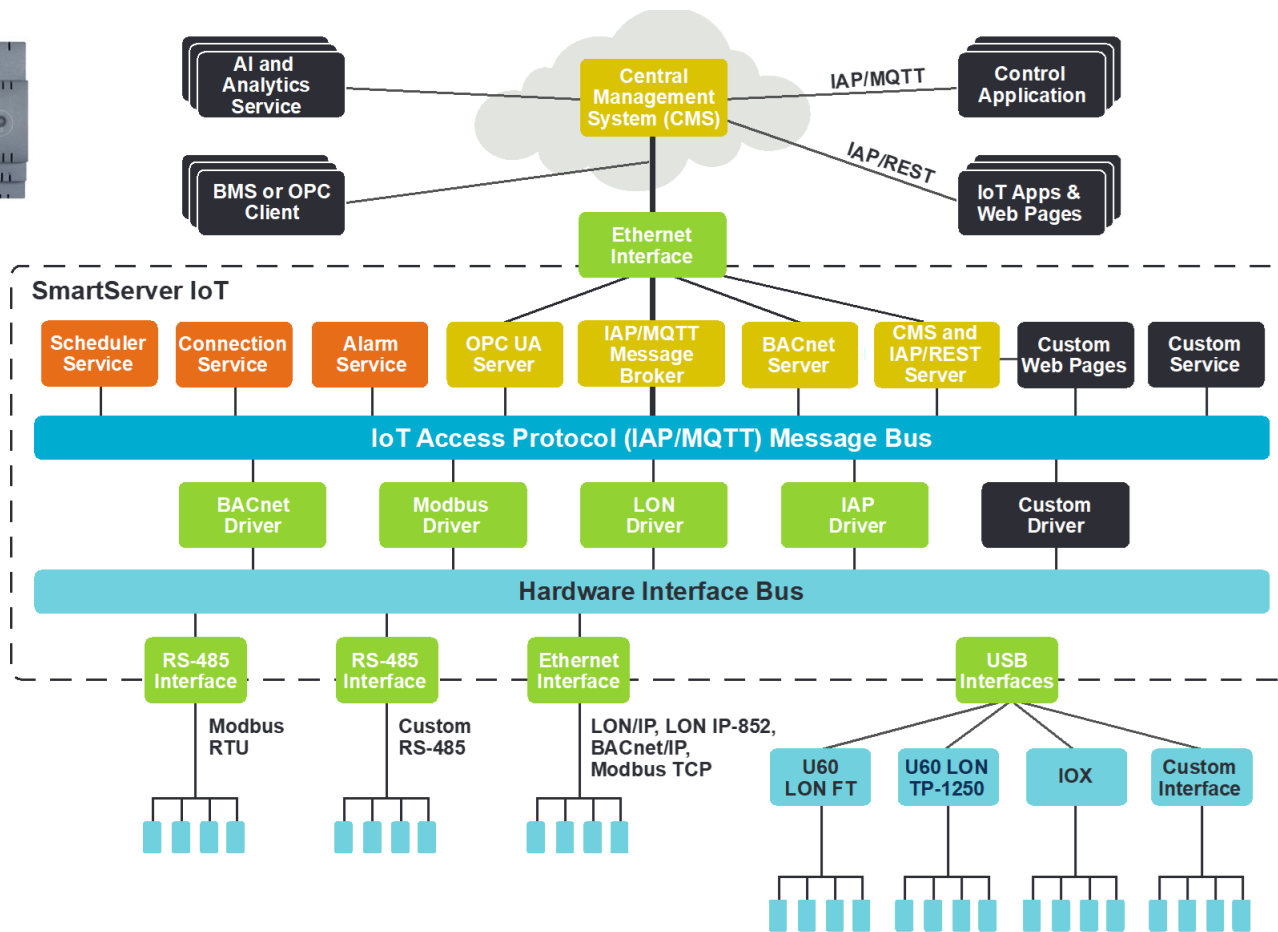


Integrate New Technology into BAC Systems

Example of a LoRaWAN and BAC system integration using IAP



Example IAP Edge Server



Legend

Services

Server interfaces

Driver interfaces

HW interfaces

3rd party modules



IAP – Now and What's Next

Consumer
Technology
Association




https://shop.cta.tech/products/https-cdn-cta-tech-cta-media-media-shop-standards-2020-ansi-cta-709-10-final_1-pdf

- IAP is an open ANSI/CTA standard – ANSI/CTA-709.10
- IAP is in the standardization process with CEN which will be followed by ISO
- IAP documentation is available at <http://iecdocs.diasemi.com/>
- Open-source IAP application examples: <https://github.com/izot/smartserver-iot>
- Edge Server information: https://www.dialog-semiconductor.com/products/industrial-edge-computing/smartserver-iot-edge_server/smartserver
- Get involved!
 - More integrations like Node-RED and Google Cloud
 - More drivers like LoRaWAN
 - More services like BACnet network diagnostics

Consumer Technology Association

CES

TOPICS WHO WE ARE RESOURCES GET INVOLVED JOIN CTA



ANSI/CTA-709.10

September 2021

Web Services for Control Networking Protocol (ANSI/CTA-709.10)

This standard is for software developers and web-page authors. It documents two APIs: IoT Access Protocols (IAP)/MQ, which uses MQTT (Message Queuing Telemetry Transport) as the transport protocol, and IAP/REST (Representational State Transfer), which uses REST over HTTP or HTTPS.

Available to Everyone \$0

ADD TO CART

Questions & Answers



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