



Bluetooth at the Edge

2019 Market Update with the Bluetooth SIG

Webinar

May 30th 2019

Today's Speakers



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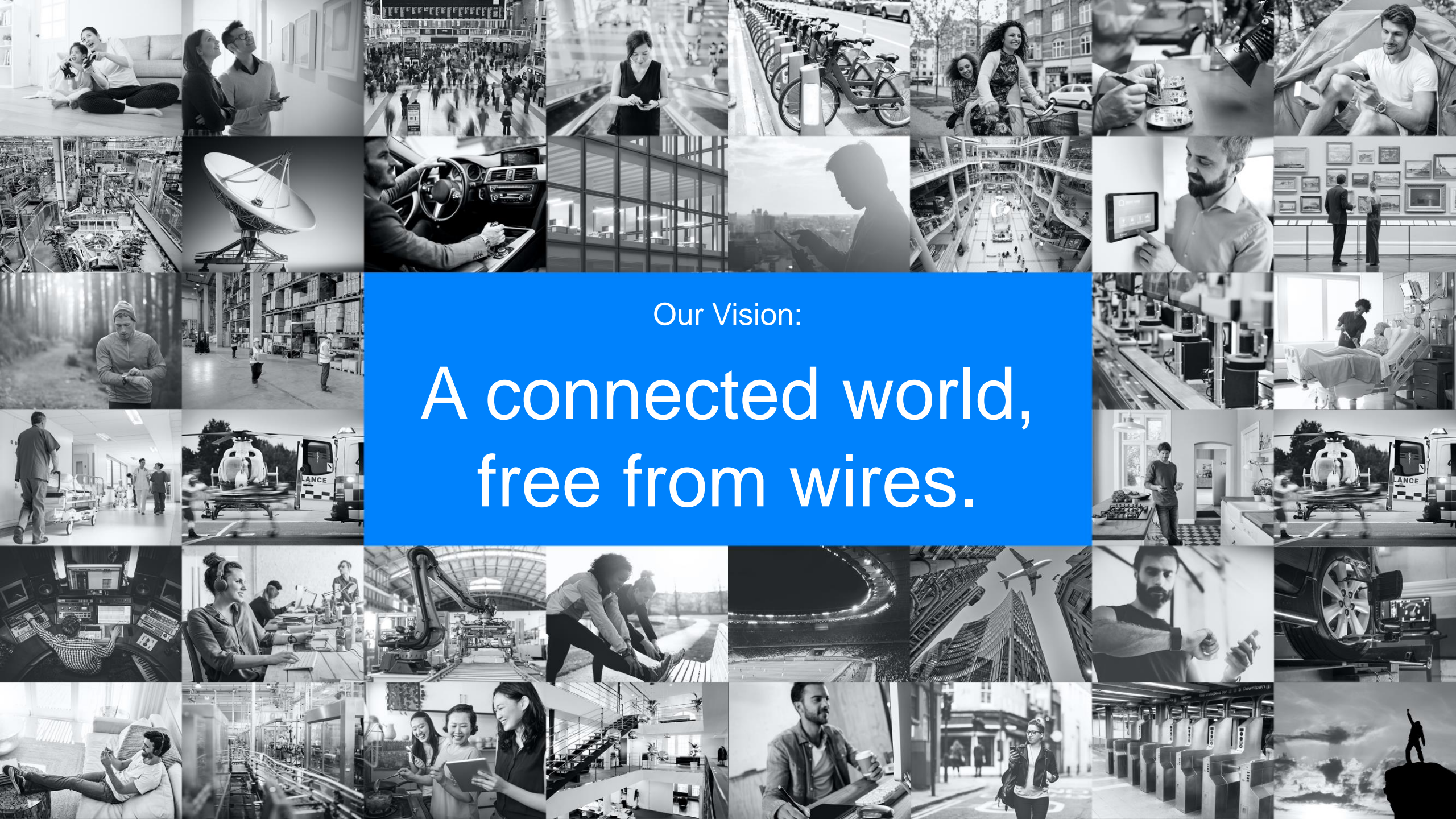
Highlights from the
2019 Bluetooth Market Update

The future of Bluetooth

Chuck Sabin

Senior Director, Market Development
Bluetooth SIG





Our Vision:

A connected world,
free from wires.

Bluetooth SIG, Inc.



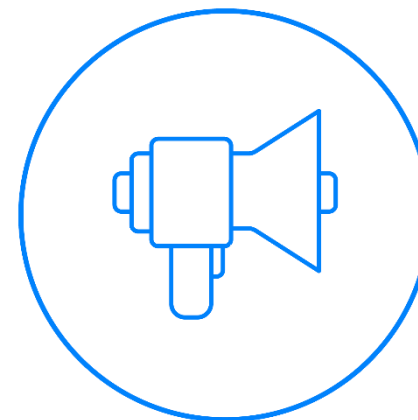
Specification

We expand the capabilities
of Bluetooth technology



Qualification

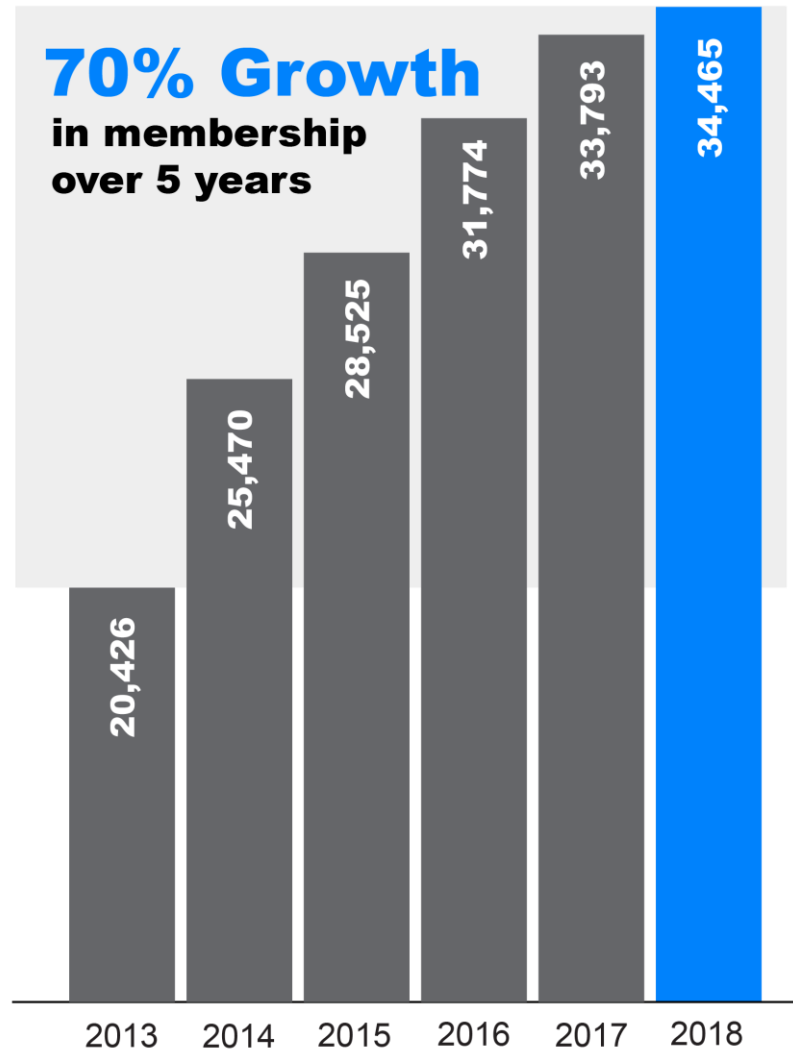
We drive
Bluetooth interoperability



Promotion

We grow the
Bluetooth Brand

A Growing Community

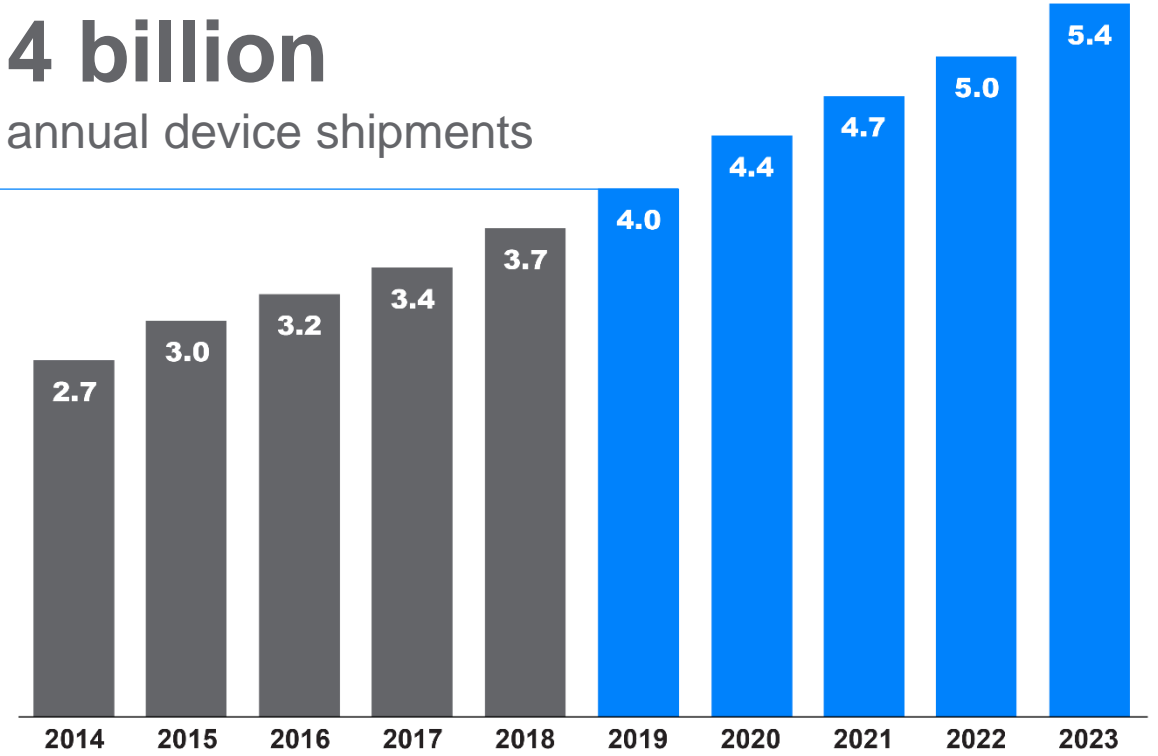


A Successful Community



4 billion

annual device shipments



8% CAGR

2018 - 2023

numbers in billions

Bluetooth is a Solution Oriented Technology



Audio Streaming

wireless headsets
wireless speakers
in-car infotainment



Data Transfer

sports & fitness devices
health & wellness devices
peripherals & accessories



Location Services

point of interest information
navigation & way finding
item & asset tracking



Device Networks

control systems
monitoring systems
automation systems

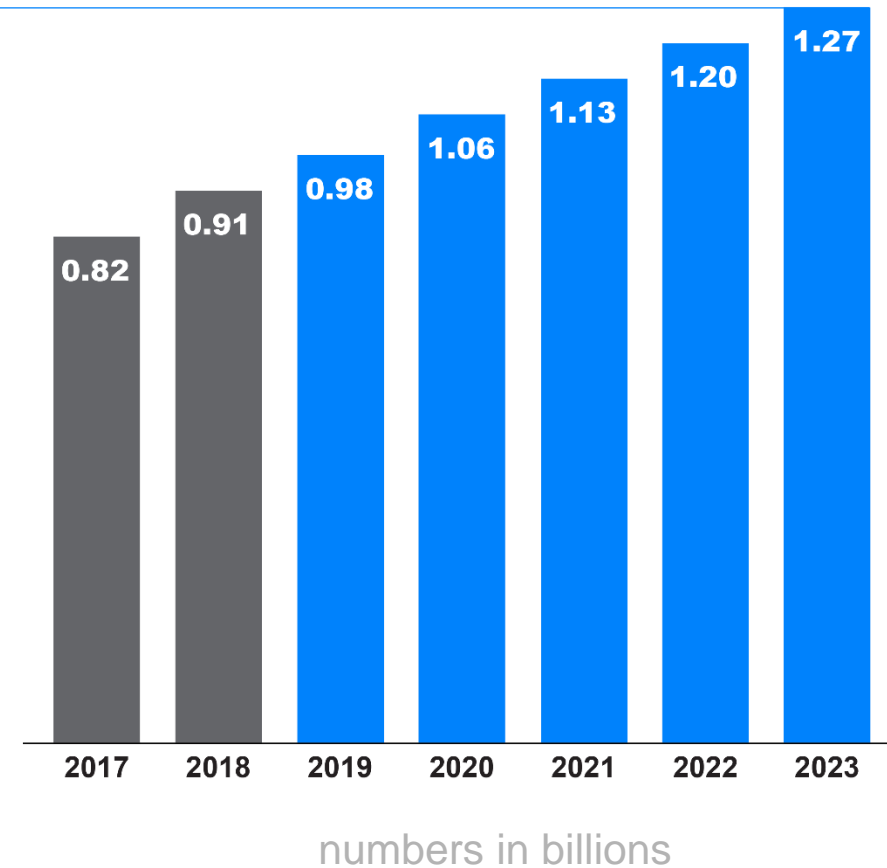


Audio Streaming is blue.

1.27 billion
annual device shipments

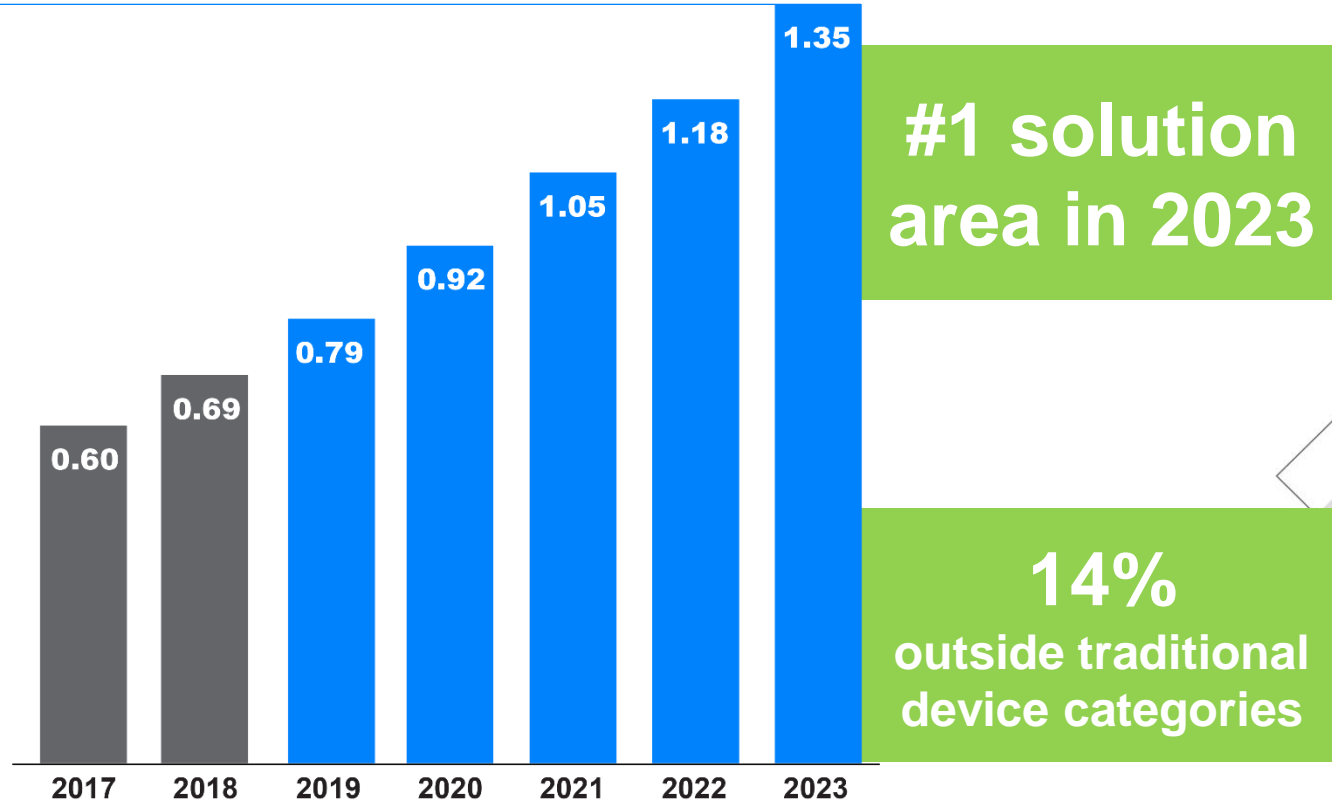
>50%

of all headphones
purchased are
wireless



Data Transfer is blue.

1.35 billion
annual device shipments



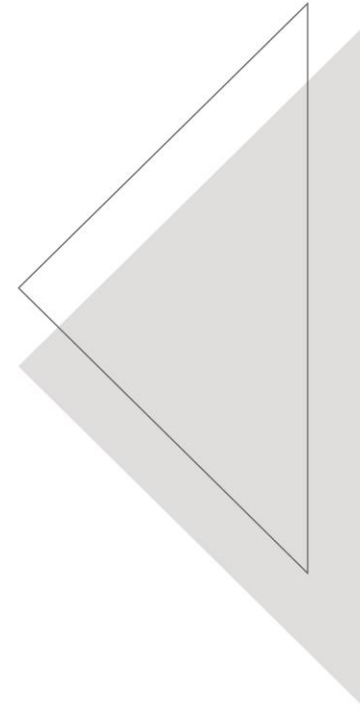
numbers in billions



Data Transfer is **blue**.

Recent Advancements

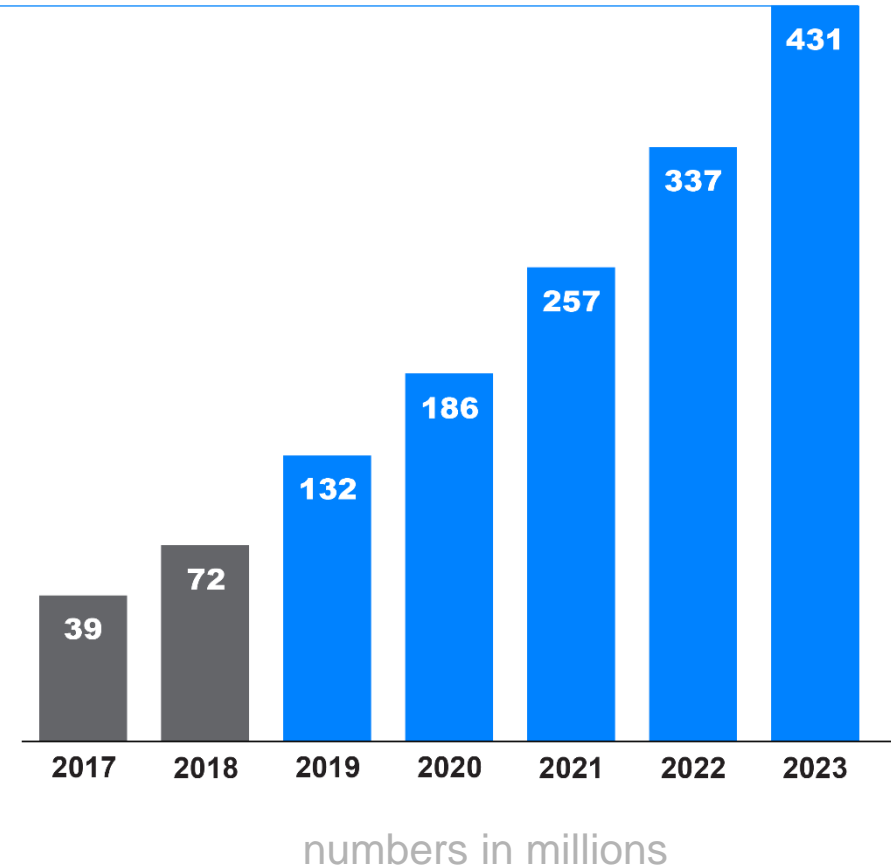
- 4x Longer range
- 2x Higher speed
- And more coming...



Location Services are blue.

431 million
annual device shipments

Fastest growing
solution area for
Bluetooth, today





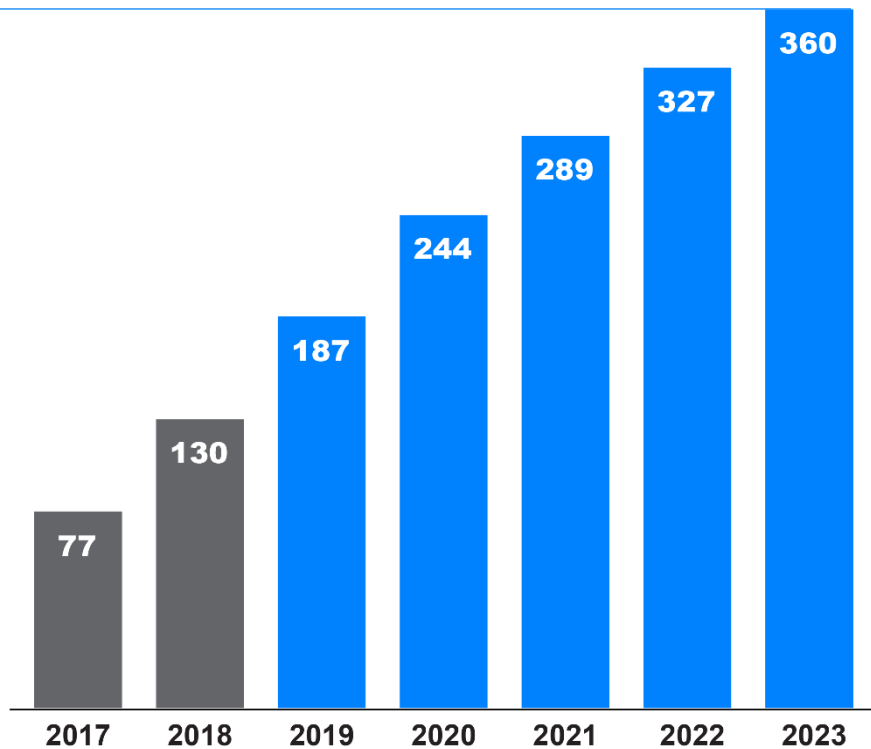
Location Services are blue.

Recent Advancements

- Bigger broadcasts
- Direction Finding
- And more coming...

Device Networks are blue.

360 million
annual device shipments



numbers in millions

4.5x

growth in
residential smart
lighting by 2023



Device Networks are blue.

Driven by mesh networking

- Ture industrial grade solution
- Network optimizations
- Over-the-air updates
- And getting even better soon...



Bluetooth is a Solution Oriented Technology



Audio Streaming

wireless headsets
wireless speakers
in-car infotainment



Data Transfer

sports & fitness devices
health & wellness devices
peripherals & accessories



Location Services

point of interest information
navigation & way finding
item & asset tracking



Device Networks

control systems
monitoring systems
automation systems



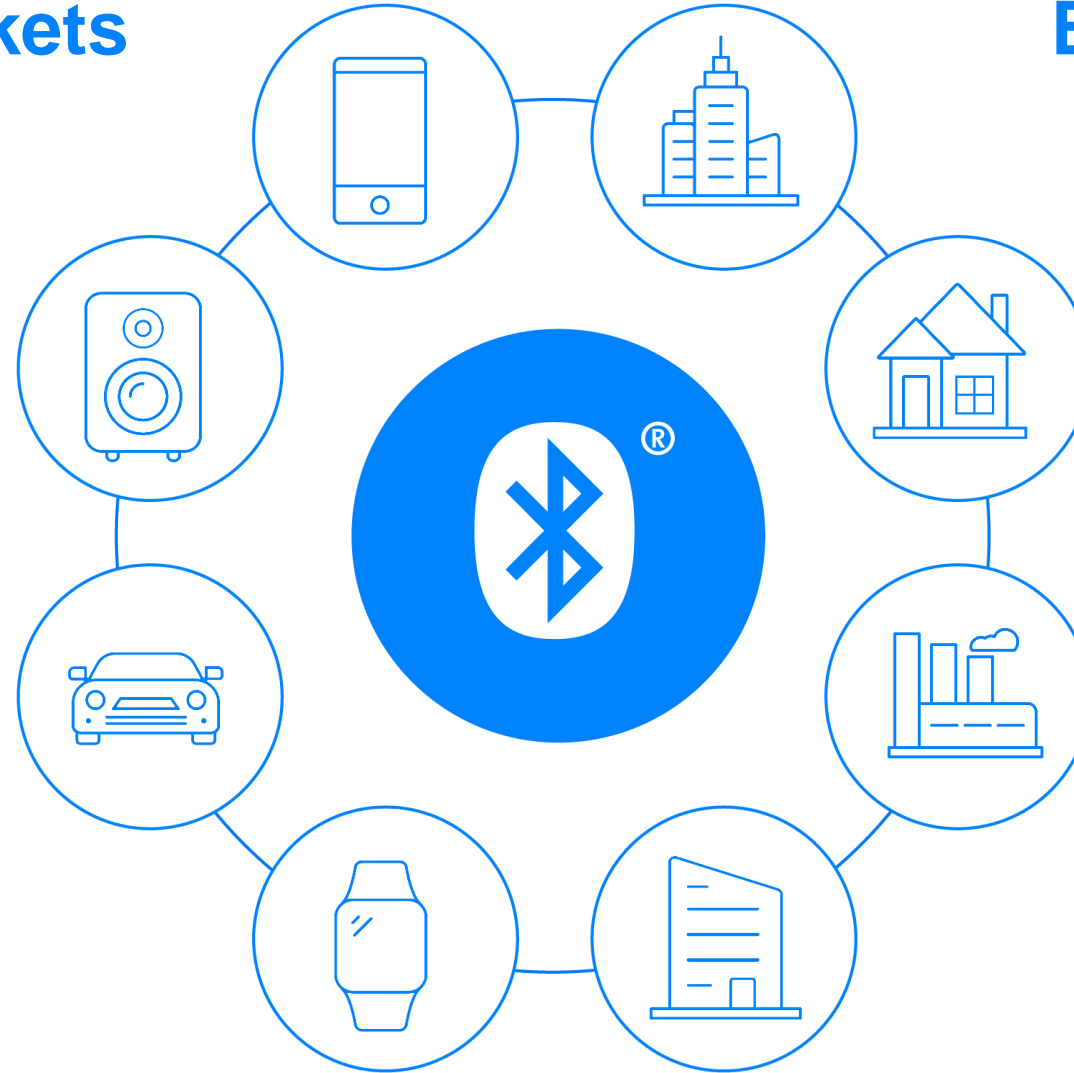
Established Markets

Phone, Tablet & PC

Audio & Entertainment

Automotive

Connected Device



Emerging Markets

Smart Building

Smart Home

Smart Industry

Smart City

A connected world, free from wires.



Market Data for Everyone

- New 2019 Bluetooth market update and infographics
- Comprehensive view of bluetooth technology solutions and markets
- Shipment forecast to 2023 for key vertical markets

Now available at
[Bluetooth.com/markets](https://www.bluetooth.com/markets)



Thank you!

Considerations for **Commercial IoT Bluetooth Solutions**

About Rigado



Rigado provides Edge Data Solutions for Smart Building Environments

COMPANY

Creating **Bluetooth Low Energy (BLE)** solutions with IoT innovators since 2010



SOLUTIONS

Edge Connectivity & Computing for asset tracking, sensing & monitoring



PARTNERS

A robust technology ecosystem, providing **device-to-cloud**, integrated solutions



CUSTOMERS

More than **300** global customers with over **5 million** devices in **30,000** locations



Rigado Edge Data Solution for Smart Environments



Rigado Cascade

'Edge-as-a-Service'

Integration
directly to our cloud partners
and customer applications



Gateways
connectivity, edge computing
& secure management



Sensors
data collection & automation

Our Partners

Solution Providers & Integrators

Smart Building Operations Solutions

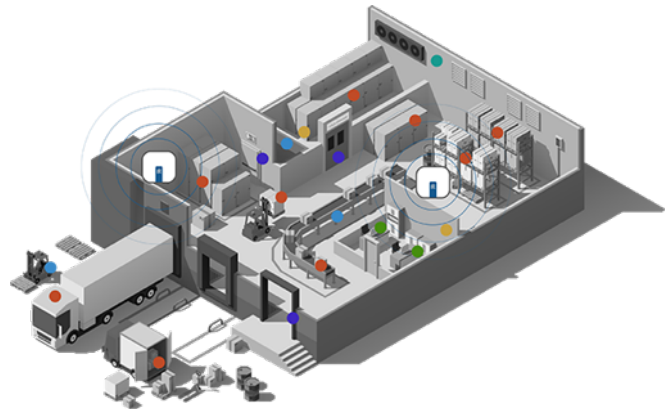
- Space utilization
- Energy usage
- Building controls (BMS)
- Predictive maintenance

People & Asset Monitoring Solutions

- Safety & security
- Location services
- Conditions (temp, humidity)
- Activity, events, alerts

Commercial Spaces

Retail & Logistics, Workplaces, Hospitals



Key Edge Solution Drivers in Commercial IoT



#1: Proliferation of Wireless Devices & Data (especially Bluetooth)

Bluetooth sensors & devices growing quickly for Commercial IoT use-cases such as smart buildings, location services & asset monitoring.

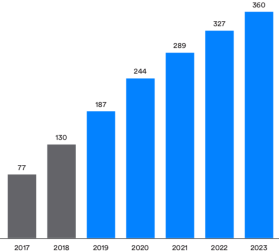
Device Networks

Solution Area

Annual Bluetooth Device Networks Device Shipments

numbers in millions

360 million
annual shipments



23% CAGR
2018 - 2023

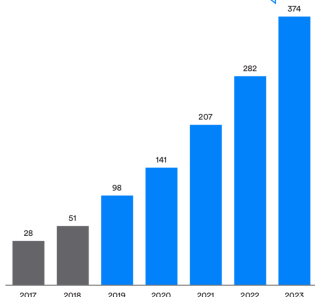
Smart Building

Market Numbers

Annual Bluetooth Smart Building Device Shipments

numbers in millions

374 million
annual shipments



7x
growth in Bluetooth smart
building location services
devices by 2023

**46%
CAGR**
for Bluetooth
automation-related
smart building devices
through 2023

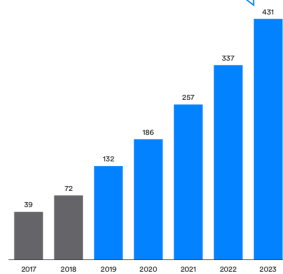
Location Services

Solution Area

Annual Bluetooth Location Services Device Shipments

numbers in millions

431 million
annual shipments

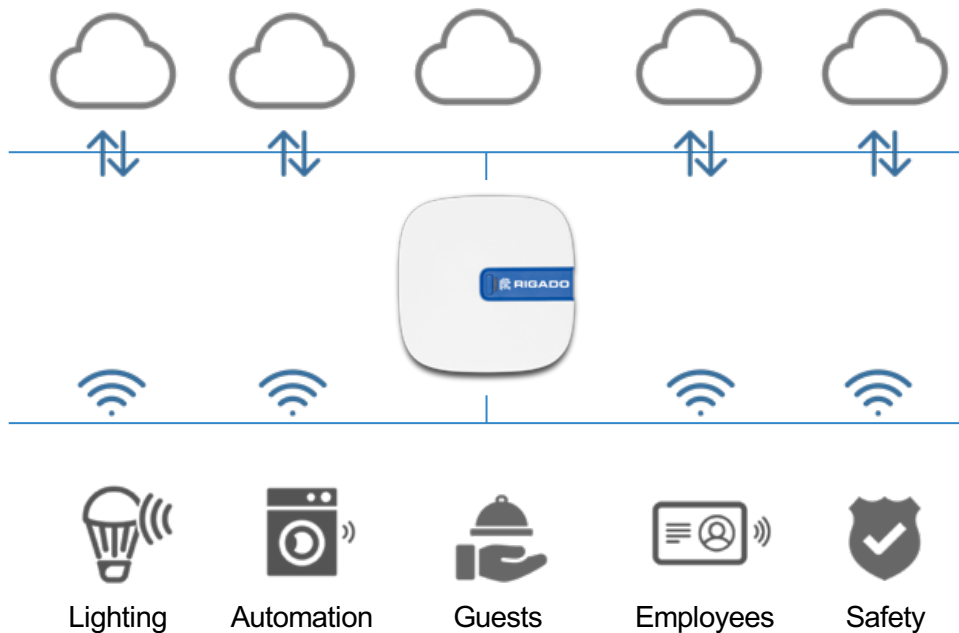


43% CAGR
2018 - 2023



#2: Need for Shared & Secure Edge Infrastructure

Traditional 'stovepipe' solutions are being replaced by common sensors, gateways and edge computing that serve multiple cloud applications – with security and manageability at scale.





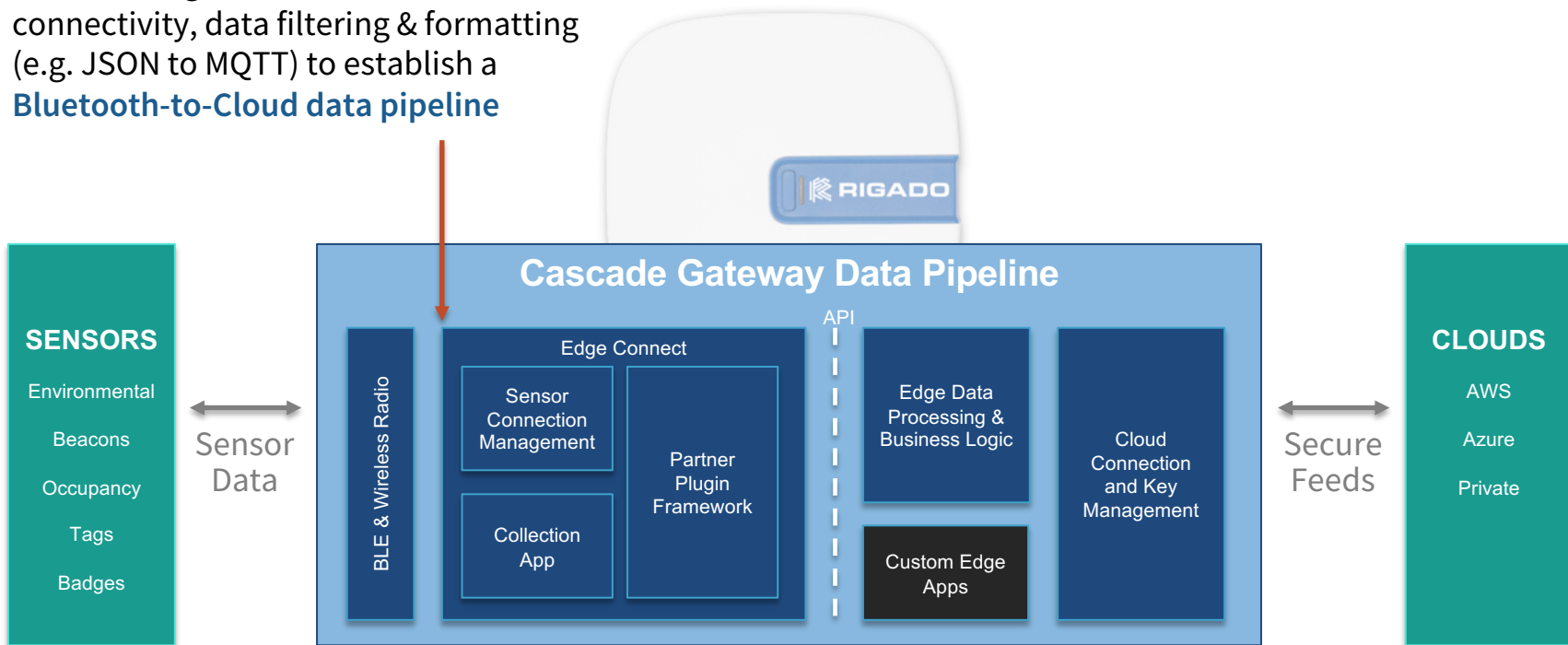
- 1. Making Bluetooth easy** for enterprise app developers (largely web/cloud) who need to access devices & data
- 2. Reducing the cost** (development & management) of gateway configuration, provisioning, installation, updating
- 3. Keeping the system secure** for entire life of the edge data network, even as new threats emerge

Making Bluetooth Easy for web/cloud developers



Edge Connect

allows configurable Bluetooth device connectivity, data filtering & formatting (e.g. JSON to MQTT) to establish a **Bluetooth-to-Cloud data pipeline**



Reducing the TCO of large-scale Bluetooth



Edge Direct

Monitoring & Management

Setup & Configure New Gateways

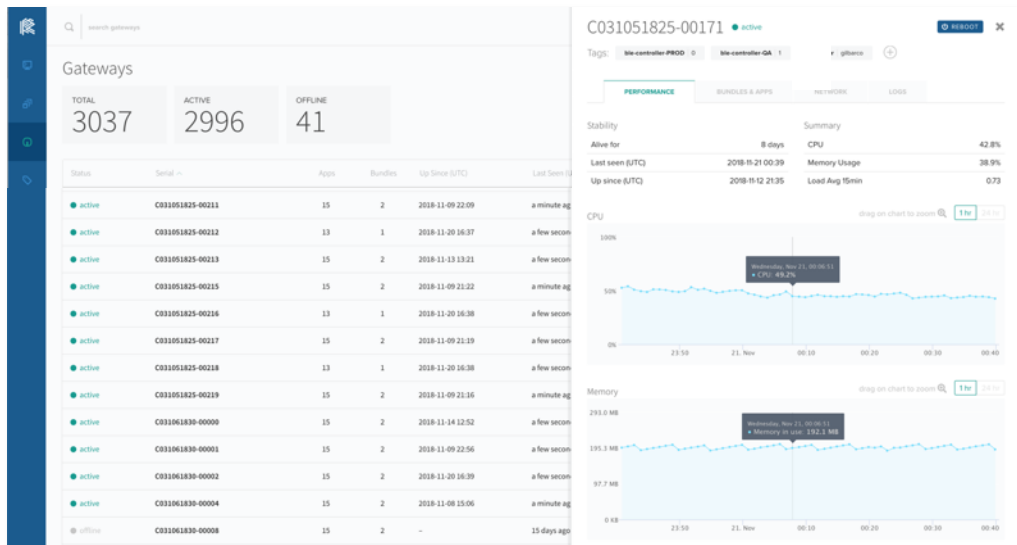
Pre-configuration and provisioning tools allow new gateways to 'phone home' for remote configuration upon deployment.

Monitor Gateway Performance

Real-time data & alerts for every gateway in the field, including CPU load, Memory usage, connection status & more.

Deploy Edge Applications

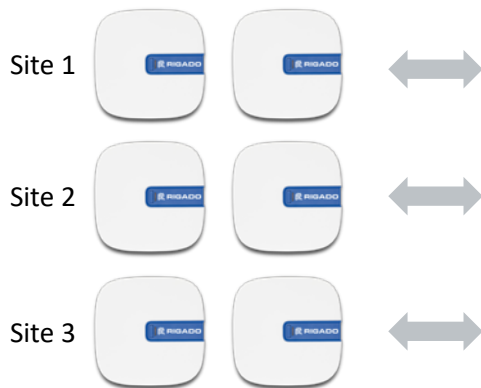
Control and schedule application updates across large gateway populations with our tag-based orchestration tools and API.



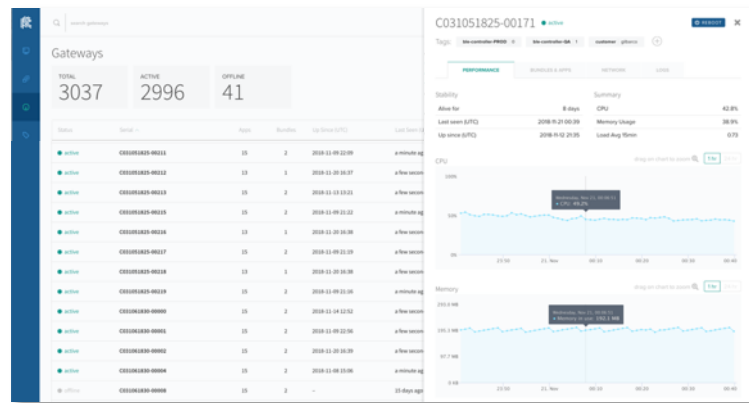


- secure ID
- encrypted key
- ready to install

Gateways in the field connect to Rigado for apps & configuration.



Customers Ops and Engineering teams use Cascade to monitor Gateways in the field. Rigado provides automatic security updates.



Start Secure, Stay Secure

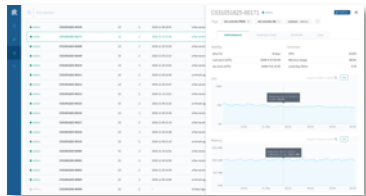


Gateways are created with a secure ID and encrypted key at the point of manufacture.

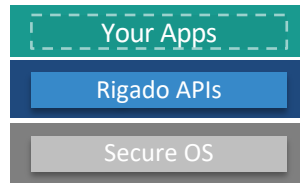


Encrypted key management

Initial programming & all future updates are signed & verified for run-time protection.



All applications run in secure containers, on an encrypted OS & filesystem.



Regular security patches are tested & published by Rigado whenever new threats emerge.

1205 CVEs so far in May!



IMPORTANT
Security update



Rigado Cascade Edge-as-a-Service



DEVICES

LOCATION



OCCUPANCY



MONITORING



ACTIVITY



Flexible Device Connectivity

Bluetooth 5, Wi-Fi, Mesh
Integrated sensor partners
Support for custom devices
Tools to install & provision

Direct Cloud Integration

Ethernet (PoE), Wi-Fi, LTE
AWS, Azure & private clouds
Integrated Key Management
Connect directly via MQTT, HTTP



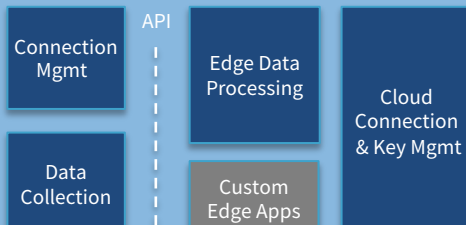
Secure Edge Computing

Ubuntu Core secure edge OS
Automated, remote configuration
Data processing & delivery

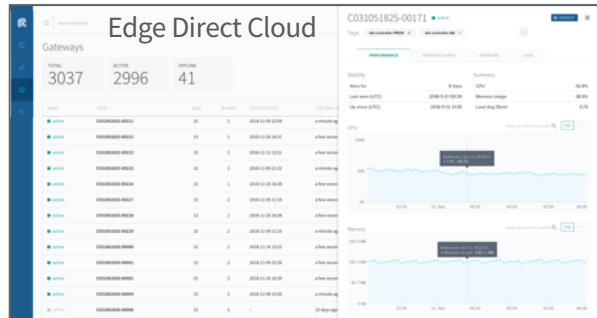
Large-Scale Manageability

Monitor & update via cloud tools
API for automation & integration
Evergreen security updates

Edge Connect Data Pipeline



Edge Direct Cloud



CLOUD

CLOUD SERVICES



ENTERPRISE APPS



EXPERIENCE APPS



Thanks!



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Have a question?

Reach us at:
contact@rigado.com

Thank you!