EDGE **X** FOUNDRY™

Vertical Solutions Working Group

November 17, 2020

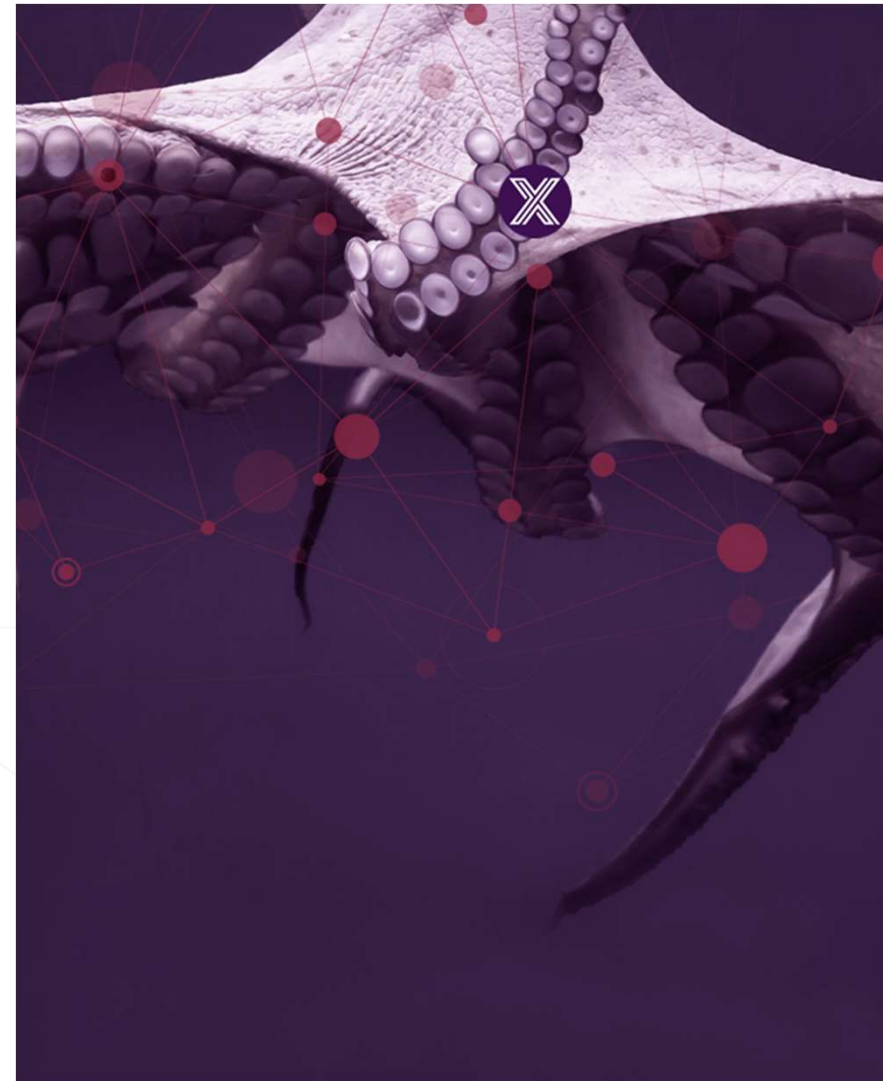TSC chair:
Jim White (IOTech) – jim@iotechsys.com

Working Group Co-chairs:
Camilo Dennis (Intel) – camilo.a.dennis@intel.com
Henry Lau (HP) – henry.lau@hp.com

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EDGE X FOUNDRY™

Agenda

HP to present Introduction to HP Engage Edge – World's first retail product powered by EdgeX !

Learn how HP is using EdgeX to create solutions to allow businesses to gather and process onsite, real-time data from an array of endpoints in order to better manage and monitor business metrics.

Meeting recording & slides to be posted to:
https://wiki.edgexfoundry.org/display/FA/Vertical+Solutions+Working+Group
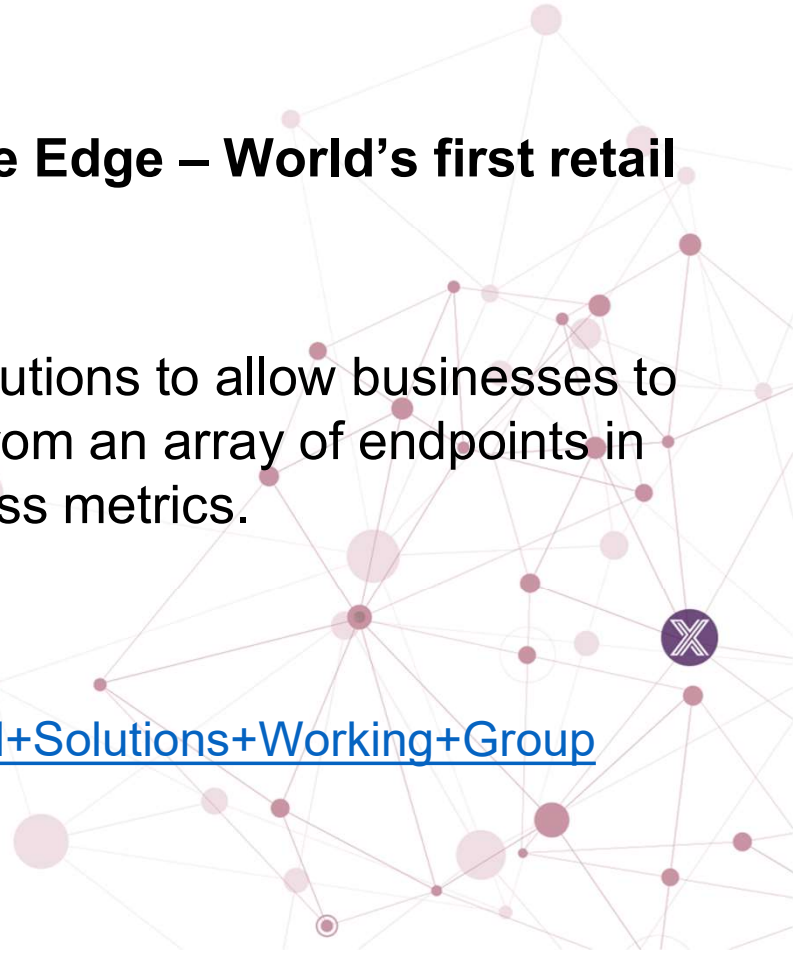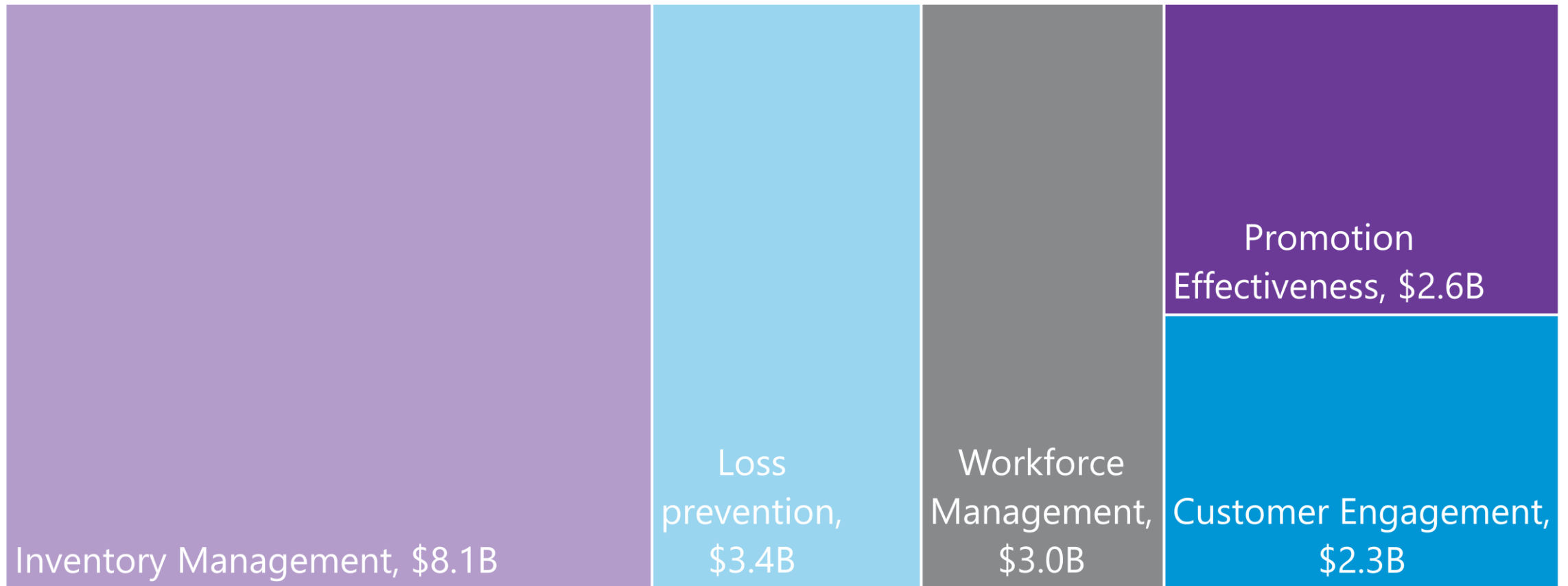
HP ENGAGE EDGE INTRO

Sandip Kamat – Global Product Management & Strategy

Henry Lau – Distinguished Technologist, Retail & Industry Solutions

Nov 17, 2020

SOLUTIONS IT SPEND $19.4B MARKET (CAGR 11.8%)
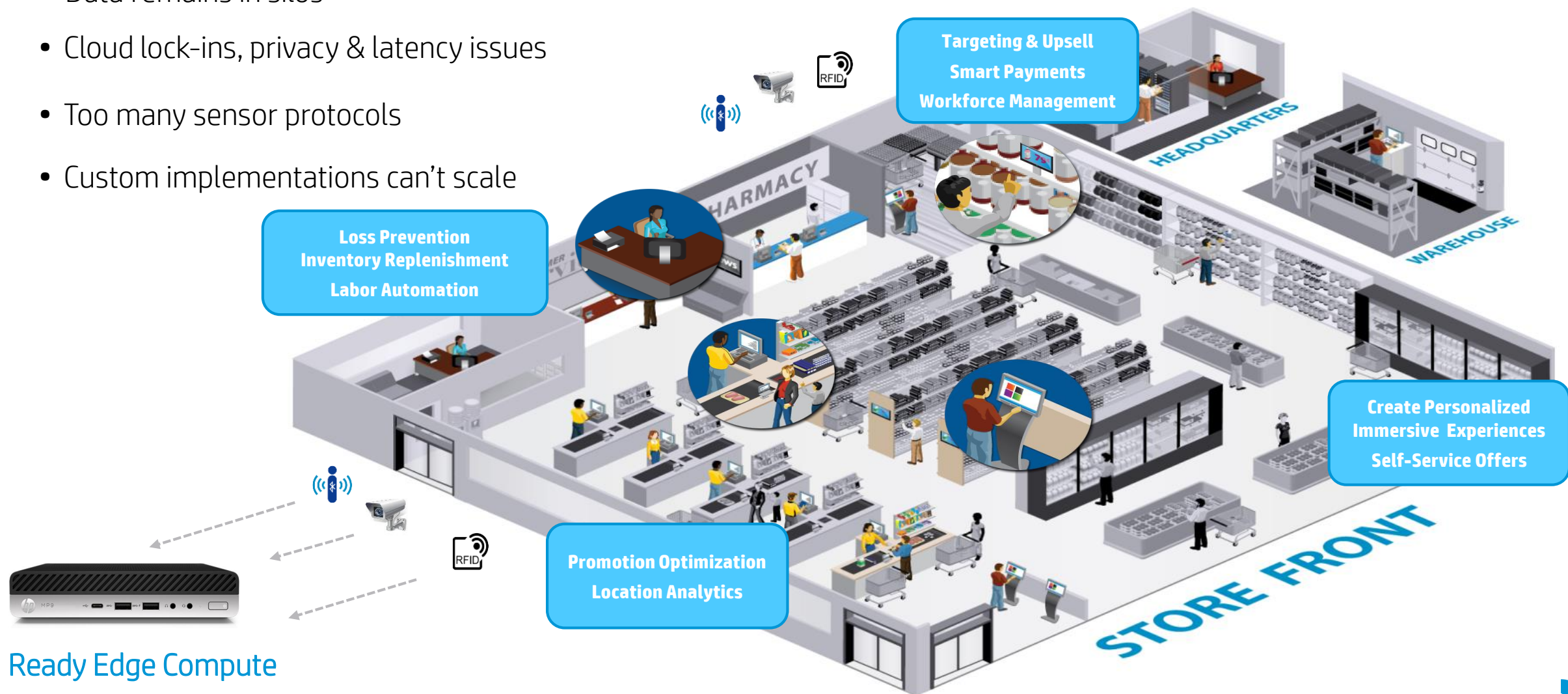
IT Spend for 2020 per Use Case

Inventory Management, $8.1B

Loss prevention, $3.4B

Workforce Management, $3.0B

Promotion Effectiveness, $2.6B

Customer Engagement, $2.3B

Source: IHL IT Spend Report, February 2020

BUSINESSES ARE DIGITIZING FOR ACTIONABLE INSIGHTS

- Data remains in silos

- Cloud lock-ins, privacy & latency issues

- Too many sensor protocols
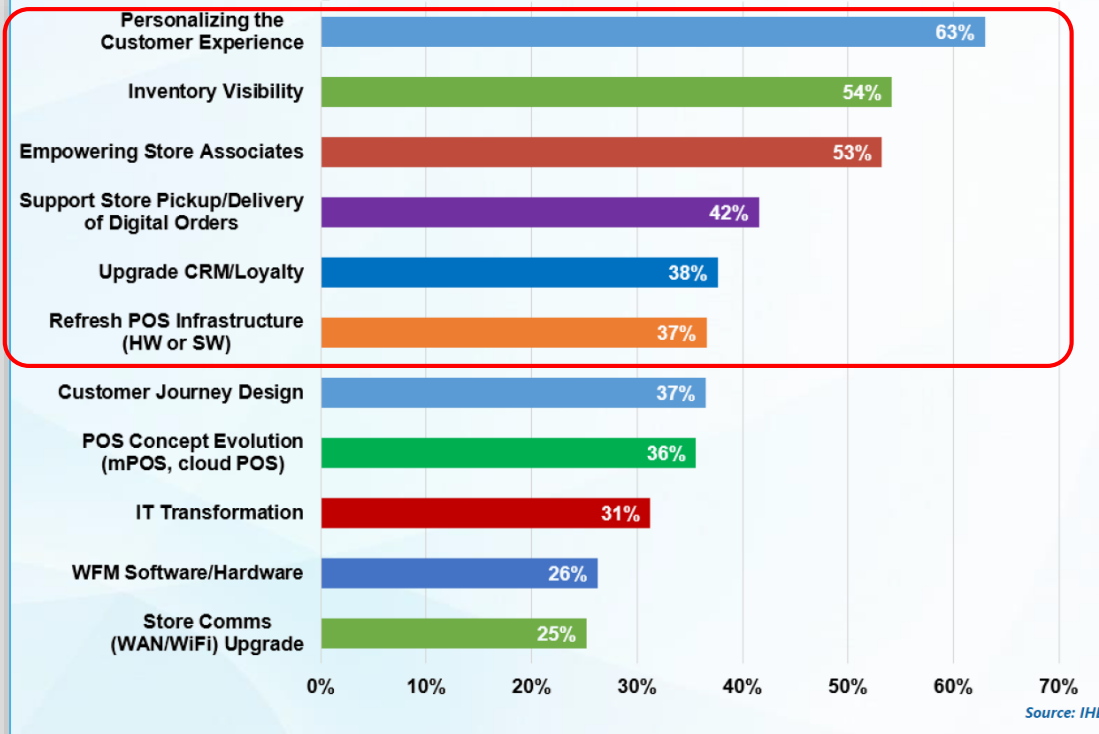
- Custom implementations can't scale

Targeting & Upsell
Smart Payments
Workforce Management

Loss Prevention
Inventory Replenishment
Labor Automation

Create Personalized
Immersive Experiences
Self-Service Offers

Promotion Optimization
Location Analytics

HEADQUARTERS

WAREHOUSE

STORE FRONT

RFID

PHARMACY

Ready Edge Compute

Seamless Data ingestion to create insights

RETAIL/HOSPITALITY/INDUSTRY SURVEYS
(IHL, 2020)

Priorities

Top Priorities for 2020

Priority	%
Personalizing the Customer Experience	63%
Inventory Visibility	54%
Empowering Store Associates	53%
Support Store Pickup/Delivery of Digital Orders	42%
Upgrade CRM/Loyalty	38%
Refresh POS Infrastructure (HW or SW)	37%
Customer Journey Design	37%
POS Concept Evolution (mPOS, cloud POS)	36%
IT Transformation	31%
WFM Software/Hardware	26%
Store Comms (WAN/WiFi) Upgrade	25%

Source: IHL

Spending Plans

Store Transformation
Within 24 Months

Category	%	Growth
Proximity / Location-Based Marketing	59%	
Single Unified Commerce Platform	43%	+330%
Internet of Things	41%	+310%
RFID	36%	+300%
Video Analytics	33%	+266%
SD-WAN	31%	+288%
Conversational Commerce	33%	+450%
Edge Computing	28%	+460%
Microservices Architecture	34%	+750%

Source: IHL
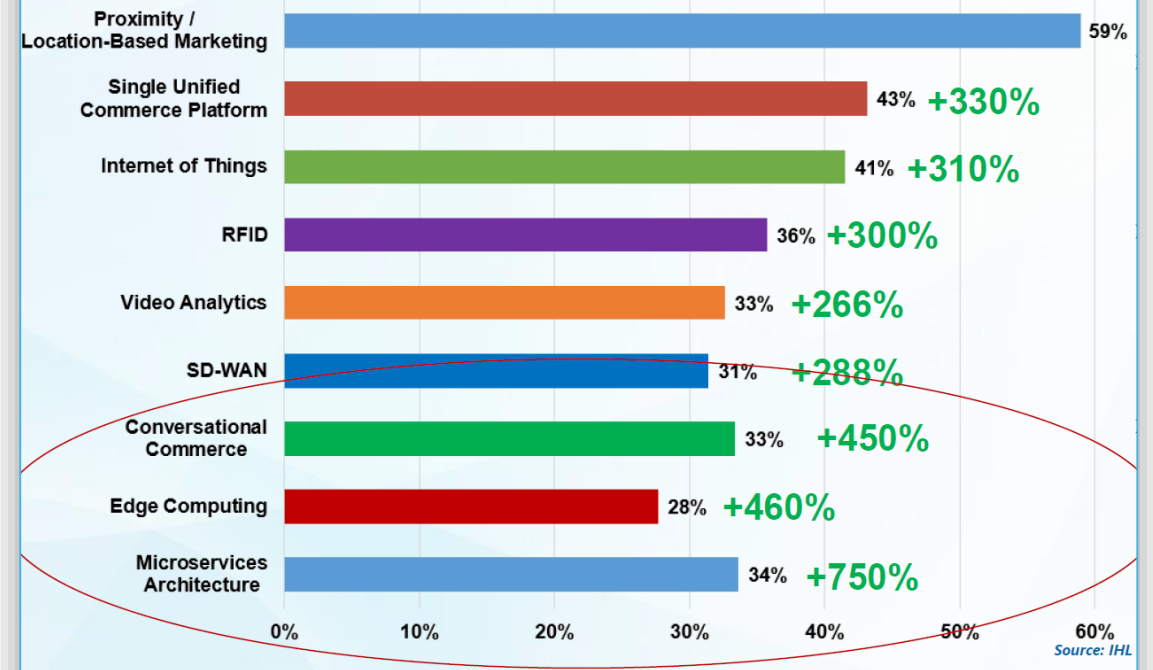
"From our research, edge computing at the store/restaurant level is one of the highest growth technology areas in all of retail with 460% growth from 2019-2021"

Greg Buzek, President, IHL Group

WHY HP

HP PORTFOLIO
Purpose-built Solutions, Global Presence

All-in-One

Engage One Prime
Small and Medium Businesses

RP9 G1
Performance All-in-One

Engage One
Retail Redefined
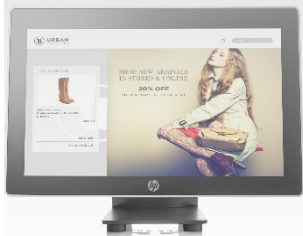
Convertible

Engage Go
Enables mobile and fixed POS

Modular

MP9 G4
Small Multi-purpose

Engage Flex Pro / C
Performance Multi-purpose

Peripherals

Displays

Barcode Scanners

Receipt Printers

Other Peripherals

Cloud Solutions

Engage Catalog
Preloaded POS Apps

Engage Console
Mobile Device Mgmt

Edge Solutions

Engage Edge
Accelerate Store Digitization

CHALLENGES & OPPORTUNITY

- Edge Solutions promise better latency, privacy & security, But hard to implement.

- Many sensor types/protocols

- Custom solutions hard to scale & service

Theft Detection   Inventory Management   Customer Engagement   Promotion Effectiveness   Workforce Management

Our opportunity

- Build on HP's market leading Hardware portfolio, Global footprint, Service coverage and Security.

- Accelerate time-to-market with a ready Edge Compute.

- Industry-leading data ingestion framework. (Bring any sensor, it just works!)

- Scalable & Extensible (multiple compute options, use cases)

WHY EDGEX

Edge Today	EdgeX
• Controlled by a single vendor / proprietary	✓ Vendor-neutral, Industry-standard, Open framework
• Customized & non-scalable solutions	✓ Ecosystem unifies & accelerates deployment of IoT
• CIOs can't update sensors, analytics, use cases.	✓ Freedom for CIOs to upgrade their components, sensors or analytics engines.
• No industry collaboration, community innovation	✓ Broad industry support, community innovations

6M DOWNLOADS!
(MAY 2020)

hp

INTRODUCING
HP ENGAGE EDGE

HP ENGAGE EDGE

Accelerate your Edge Solutions

Theft Detection

Inventory Management

Customer Engagement

Promotion Effectiveness

Workforce Management

Enable such use cases

MP 9

Purpose-built hardware
(Starting with HP MP9)

SDK

Data ingestion software ready for a variety of sensors

Preloaded Data-Ingestion Software

HP ENGAGE EDGE

Accelerate your Edge Solutions

Enable use cases such as:

Theft Detection Inventory Management Customer Engagement Promotion Effectiveness Workforce Management

Data ingestion software ready for a variety of sensors

World's first retail product powered by EdgeX™

- Common sensors supported out-of-the-box

- Intel certified "RFP-ready-kit"

- HP's world-class services & carepacks

VALUE PROP

What	Who	Why
World's first retail product powered by the EdgeX Foundry™	Retail, Hospitality & Industry partners looking to…	✓ Accelerates your Edge deployments
Purpose-built	manage their business metrics..	✓ Avoids custom implementations
Preloaded data ingestion software	With Real time, onsite Edge solutions.	✓ Frees you to focus on core competencies
Choice of HP hardware	No cloud lock-ins, latency & privacy issues	
HP's warranty & service		

SAMPLE USE CASES

USE CASES

Loss Prevention

Inventory

Engagement

Promotions

Labor Autom.

HP MP9

Data ingestion software ready for a variety of sensors

AUTONOMOUS CAR EDGE

- When driving a vehicle, milliseconds matter

- Numerous sensor data streams
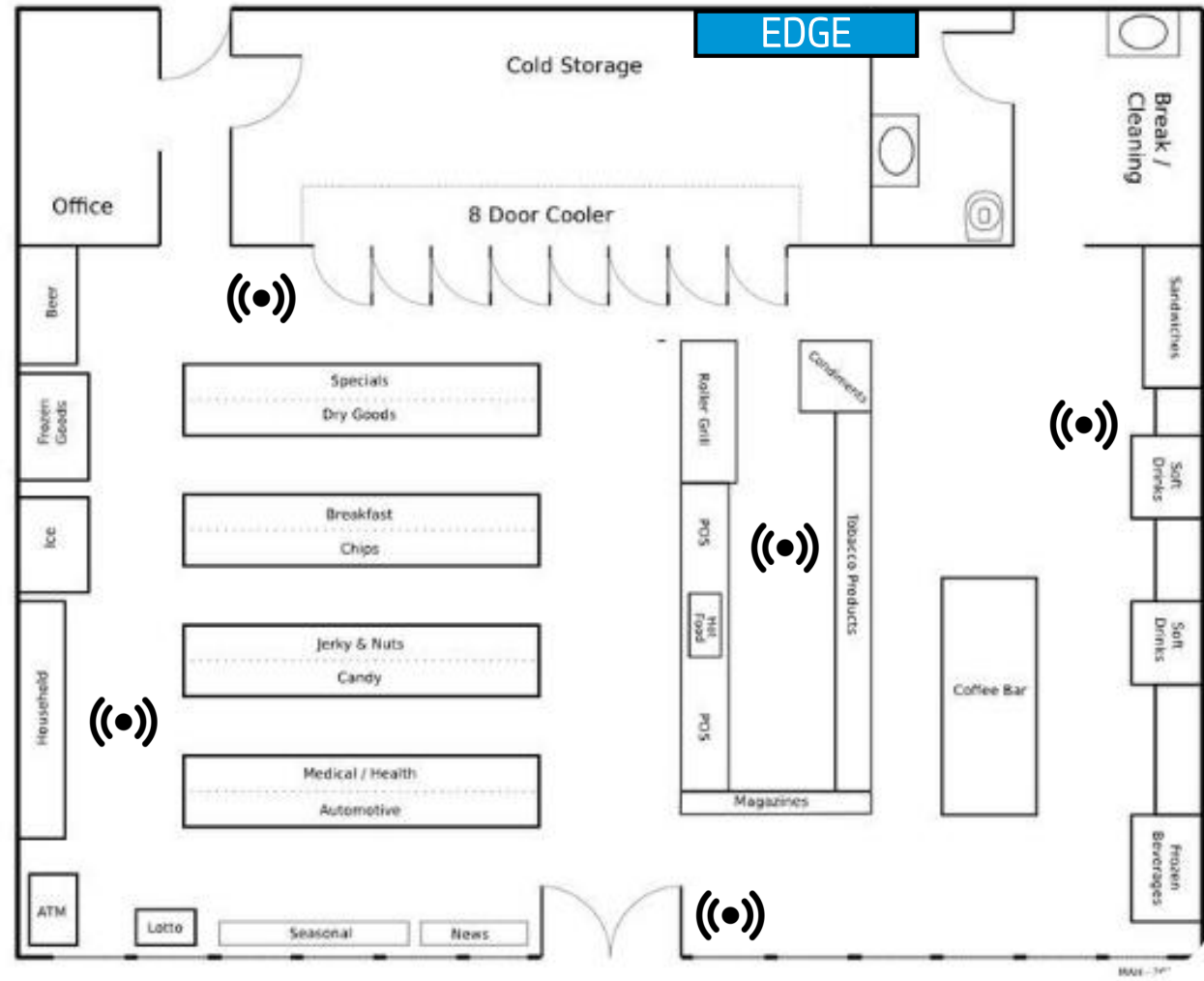
- Real-time data analysis
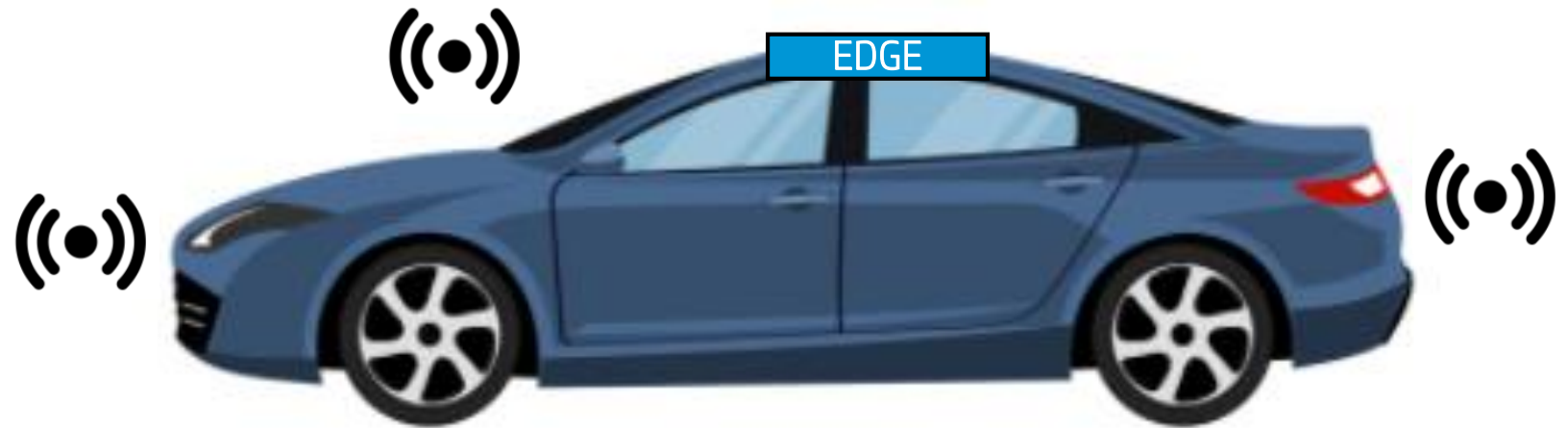
FACTORY AUTOMATION EDGE

- Predictive maintenance of equipment

- Environmental measurements
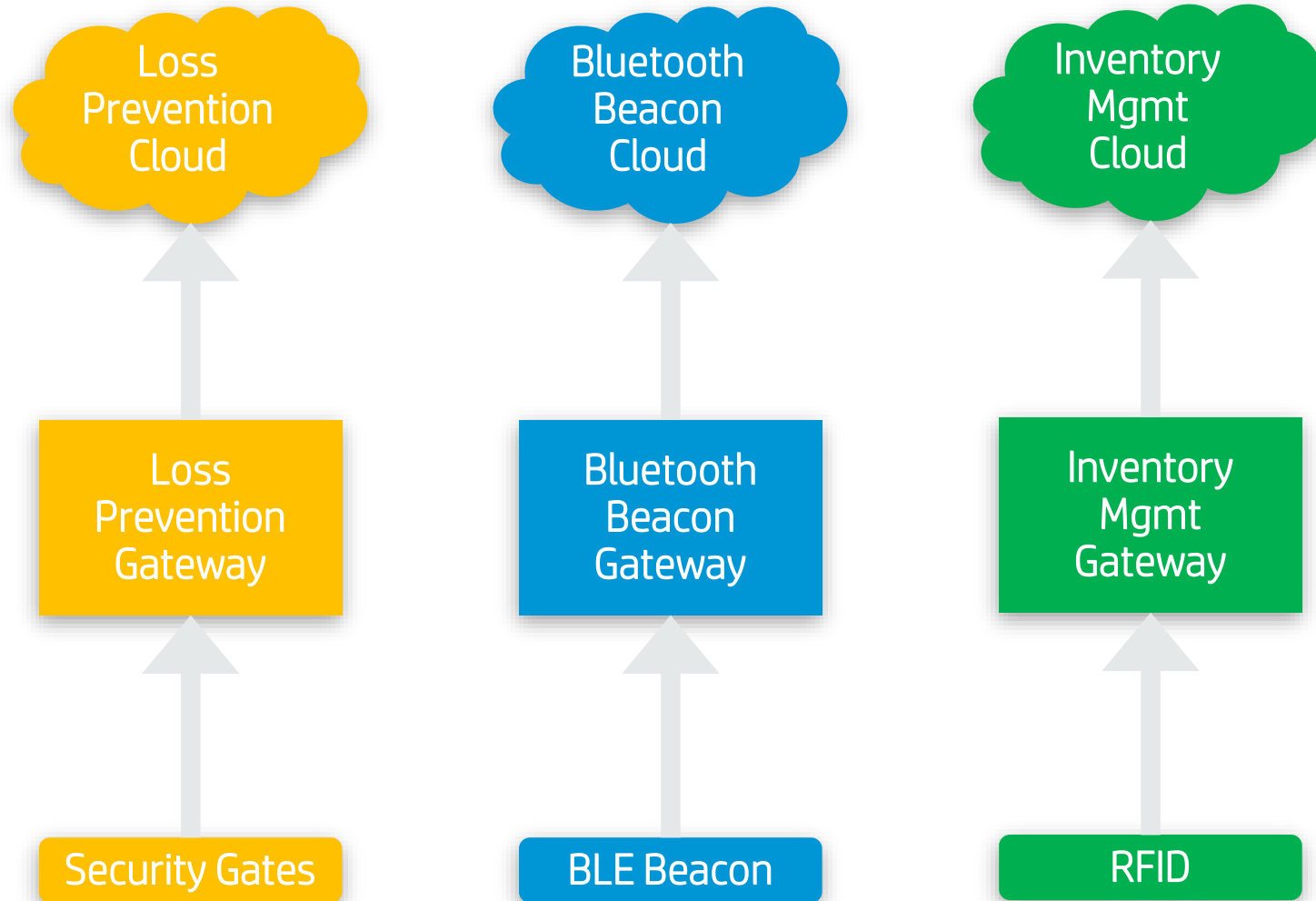
- Monitor shop floor traffic
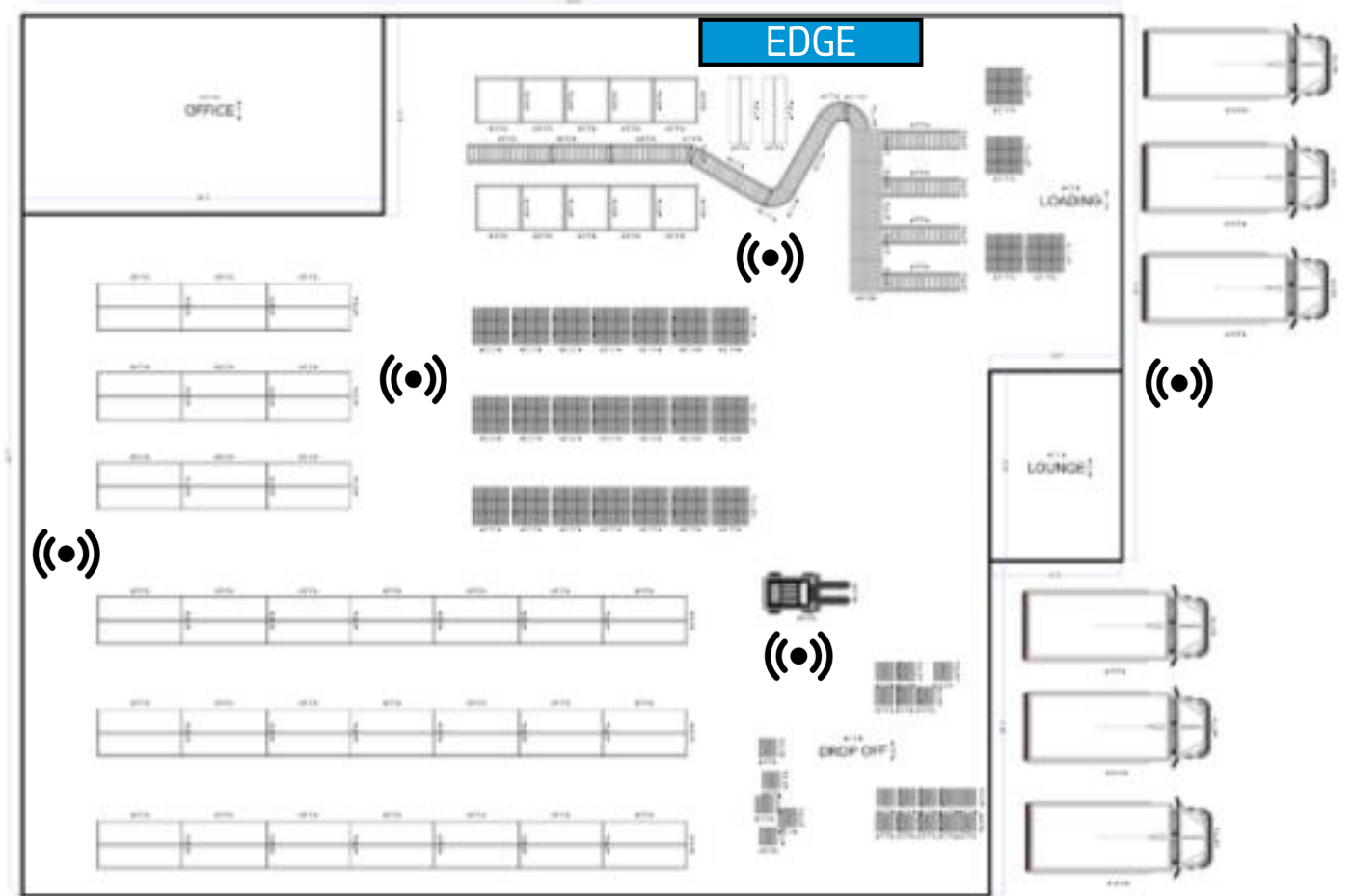
RETAIL STORE ON-PREMISE EDGE

- People tracking
- Asset management
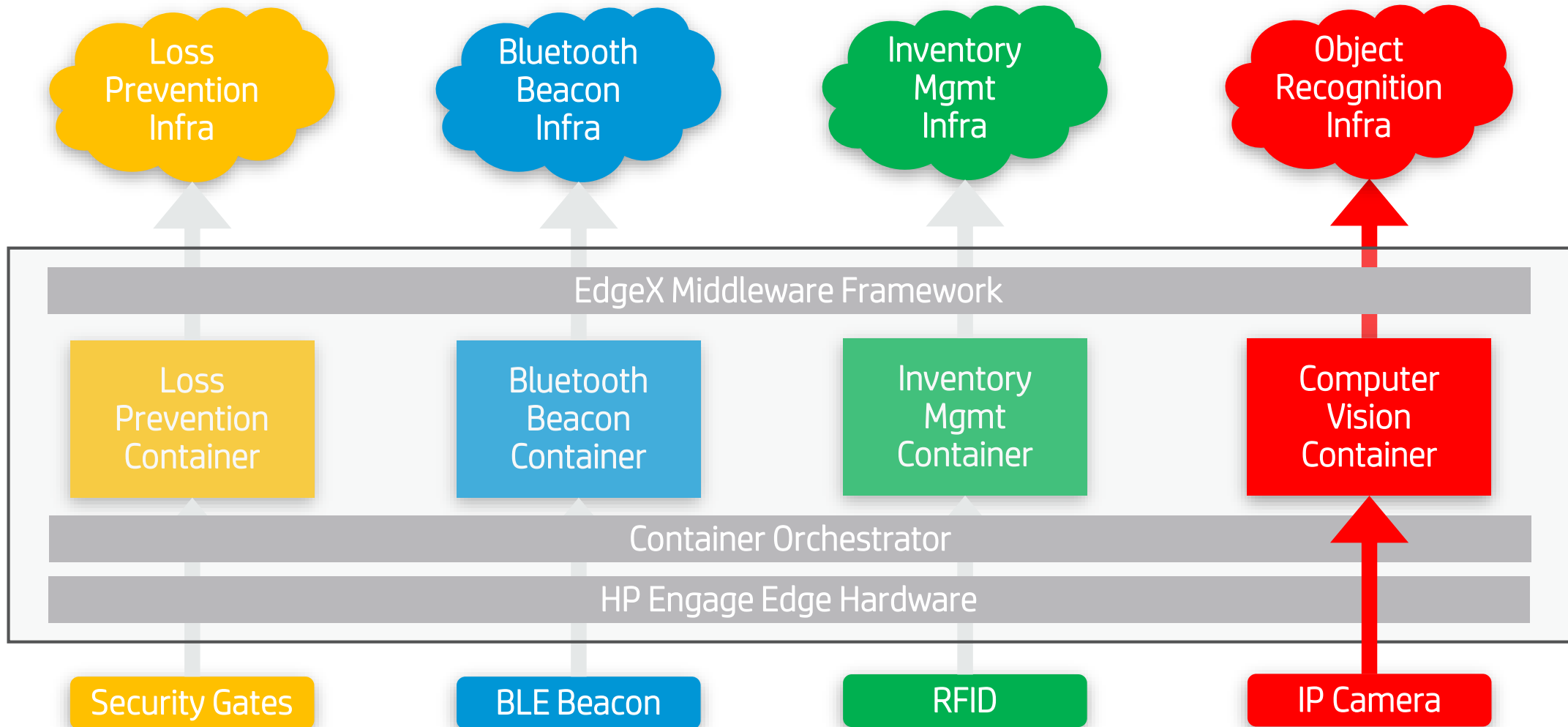- Shelf replenishment
- Loss prevention

THE STORE ROOM CLOSET SYNDROME

Loss Prevention Cloud

Bluetooth Beacon Cloud

Inventory Mgmt Cloud

Loss Prevention Gateway

Bluetooth Beacon Gateway

Inventory Mgmt Gateway

Security Gates

BLE Beacon

RFID

- Run out of space
- Run out of plugs
- Incompatible tech
- Difficult to maintain or upgrade
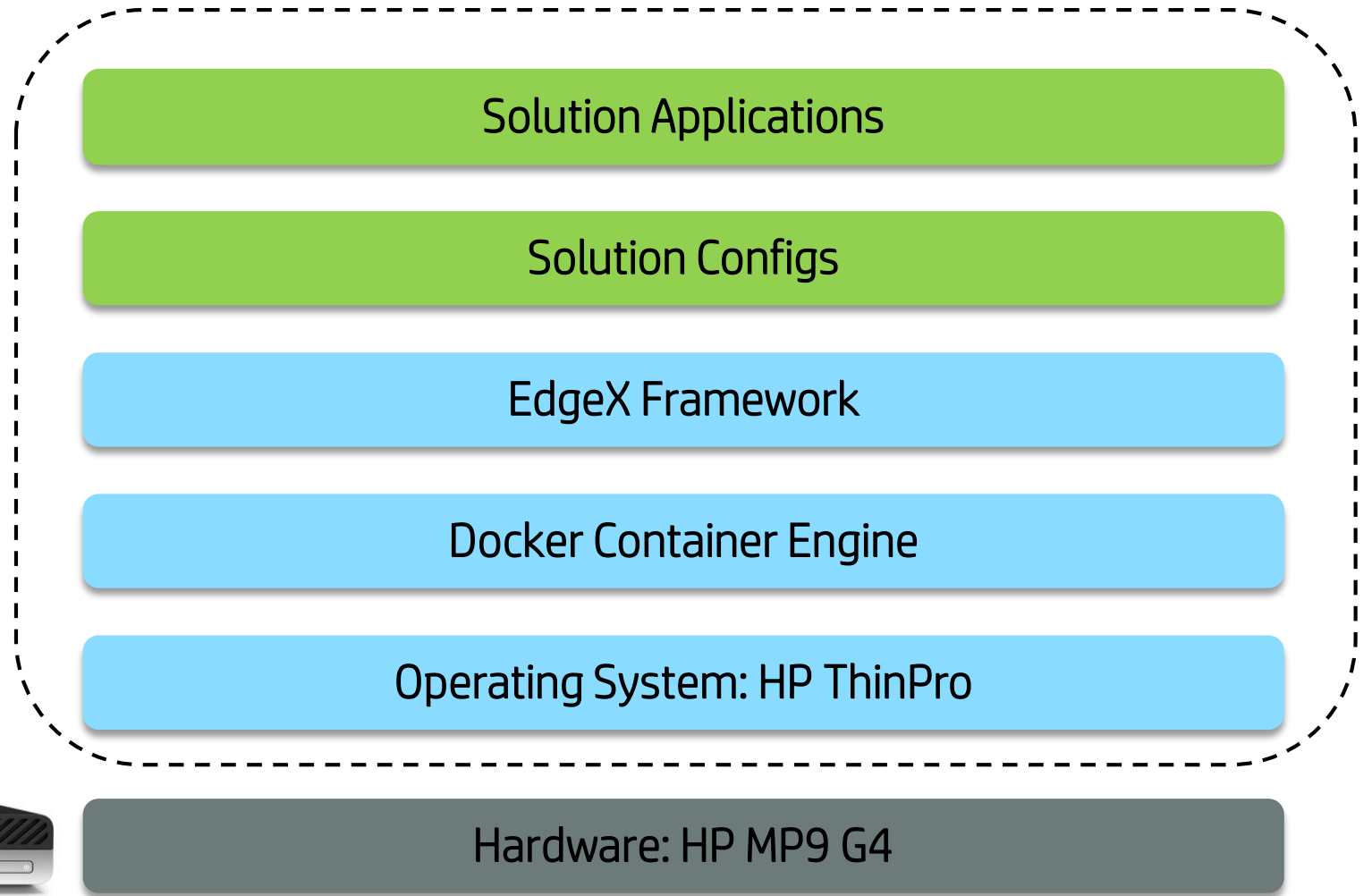
COMMON FRAMEWORK FOR FLEXIBILITY & ADAPTABILITY

Loss Prevention Infra

Bluetooth Beacon Infra

Inventory Mgmt Infra

Object Recognition Infra

EdgeX Middleware Framework

Loss Prevention Container

Bluetooth Beacon Container

Inventory Mgmt Container

Computer Vision Container

Container Orchestrator

HP Engage Edge Hardware

Security Gates

BLE Beacon

RFID

IP Camera

HP ENGAGE EDGE – SOFTWARE

ENGAGE EDGE SOFTWARE LAYERS

- **HP Components:**
  - HP ThinPro OS
  - Docker Container Engine
  - Edge Framework

- **Solution Components:**
  - Devices Config
 - Applications Config
  - Use Case Applications

Solution Applications
Solution Configs
EdgeX Framework
Docker Container Engine
Operating System: HP ThinPro

Hardware: HP MP9 G4

EDGEX MIDDLEWARE FRAMEWORK

- An open source, vendor neutral, flexible, interoperable, software platform
- Interacts with physical devices and Information Technology systems

Devices
Sensors
Actuators
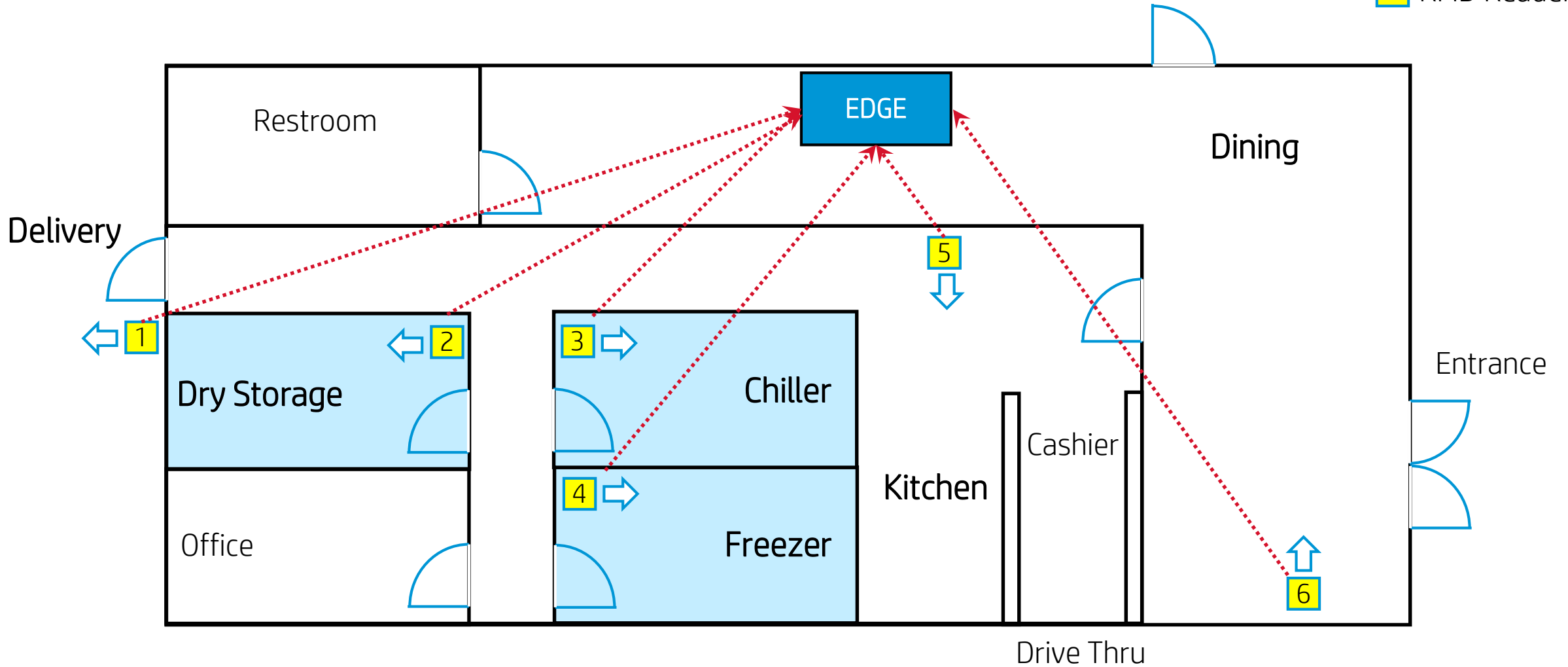Other IoT

On-premise Edge
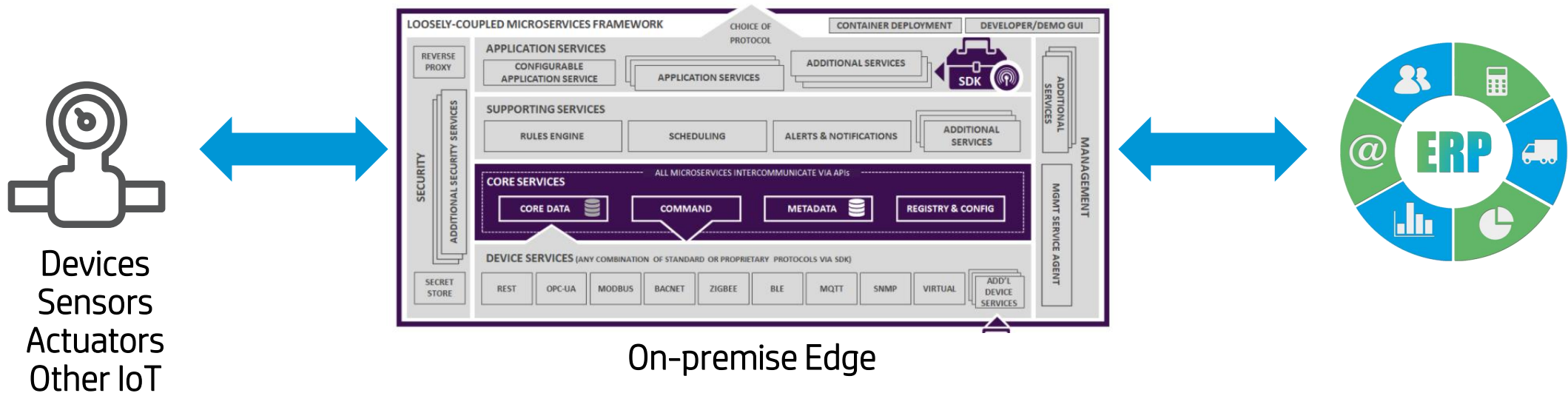
SELF-CHECKOUT LOSS PREVENTION – LAYOUT

SELF-CHECKOUT LOSS PREVENTION – ARCHITECTURE
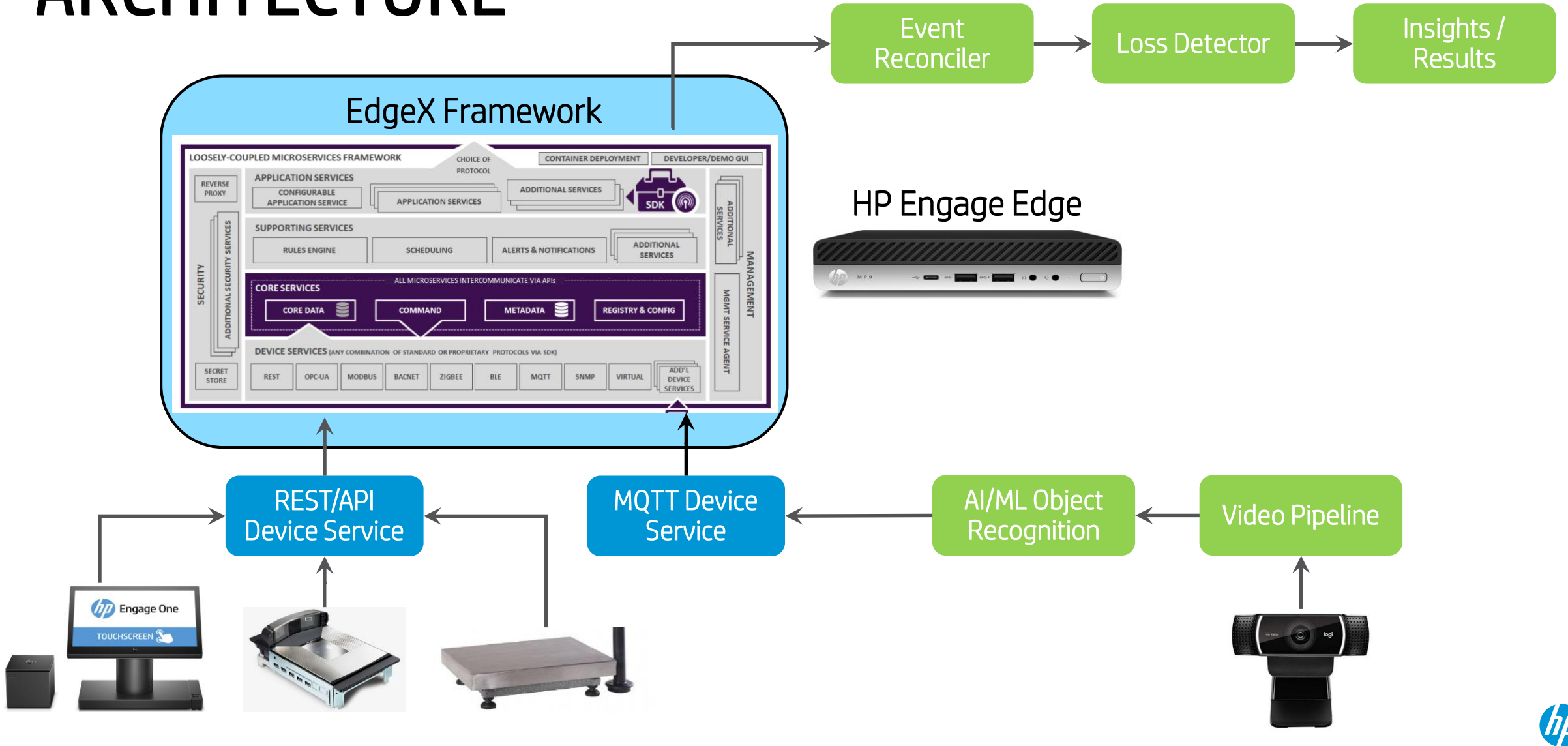
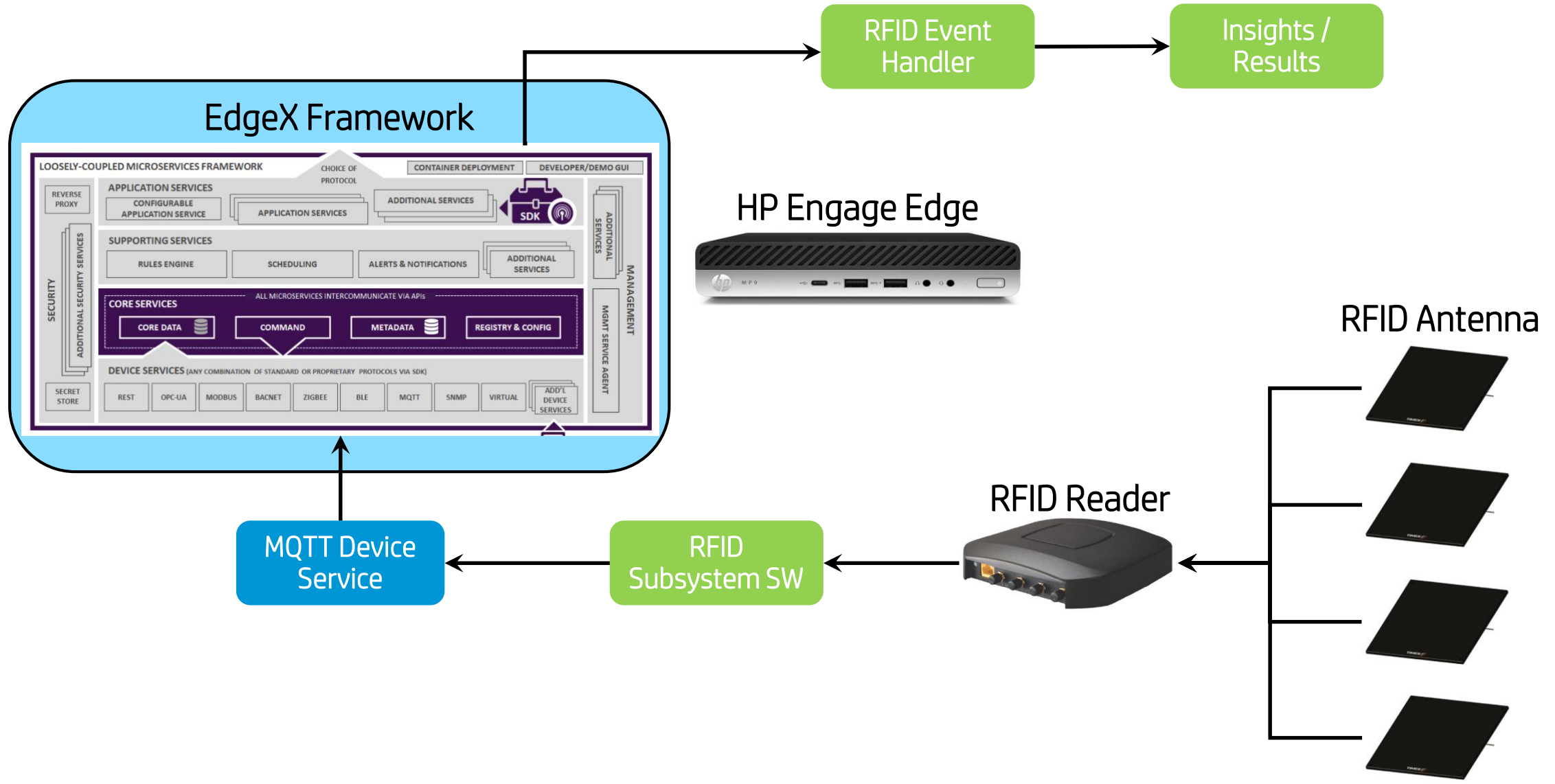# QSR INVENTORY TRACKING – LAYOUT

QSR INVENTORY TRACKING – ARCHITECTURE

SOLUTIONS
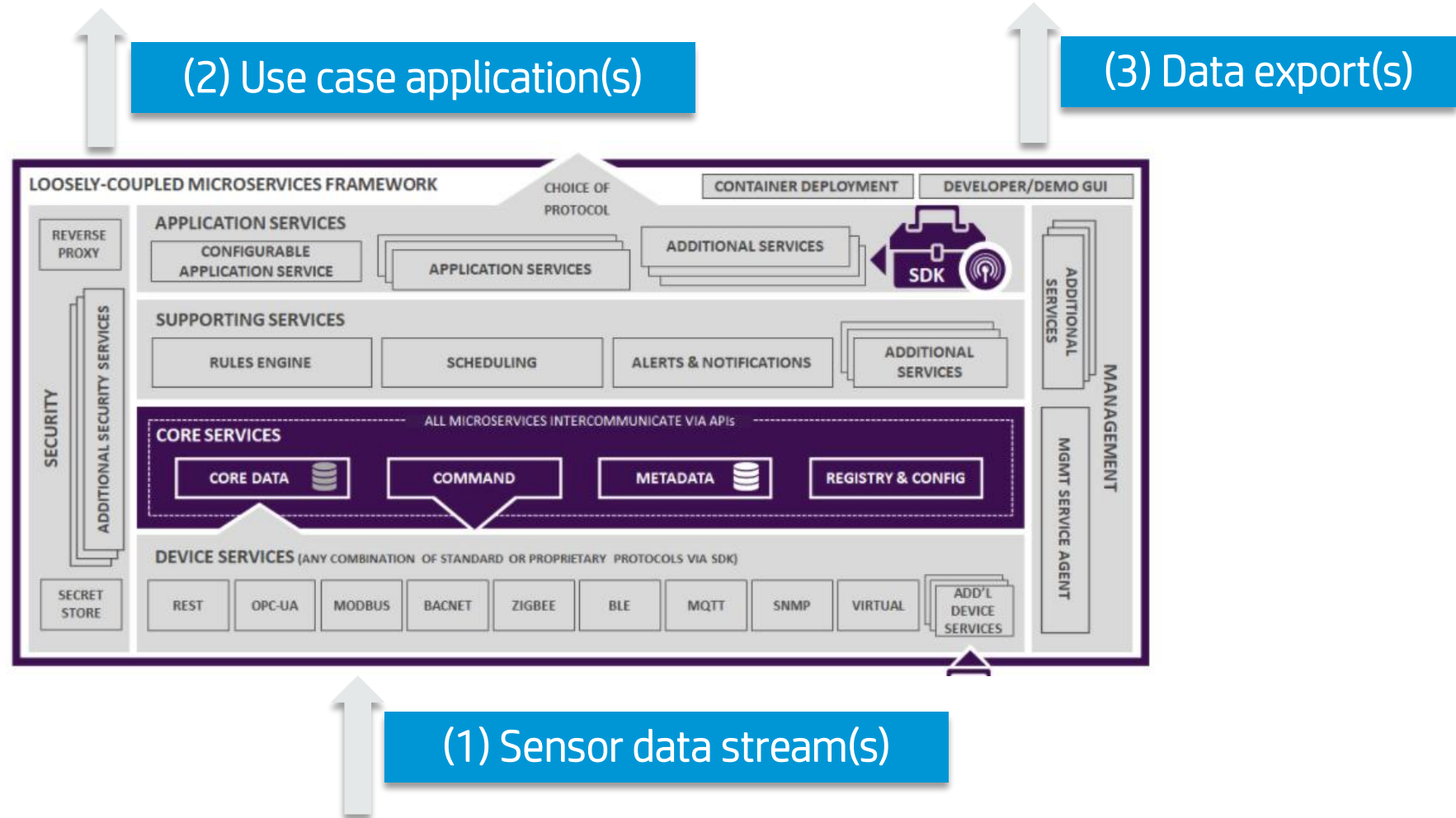# DEVELOPMENT

SOLUTION DEVELOPMENT FLOW

(2) Use case application(s)

(3) Data export(s)

(1) Sensor data stream(s)

"EDGE" IS FULL OF POSSIBILITIES

- Check out the HP blog post

- Currently running pilots, join us

- Let's accelerate the future!

THANK YOU

Thank you

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