Redefining IoT in Healthcare

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Robert Kowalik

- Practice Director, HID Global

- 20+ years IT leadership experience
- Early-stage and technology pioneer companies
- Enterprise information solutions
- Emphasis on active RFID systems

Let’s try and sort out what this really means

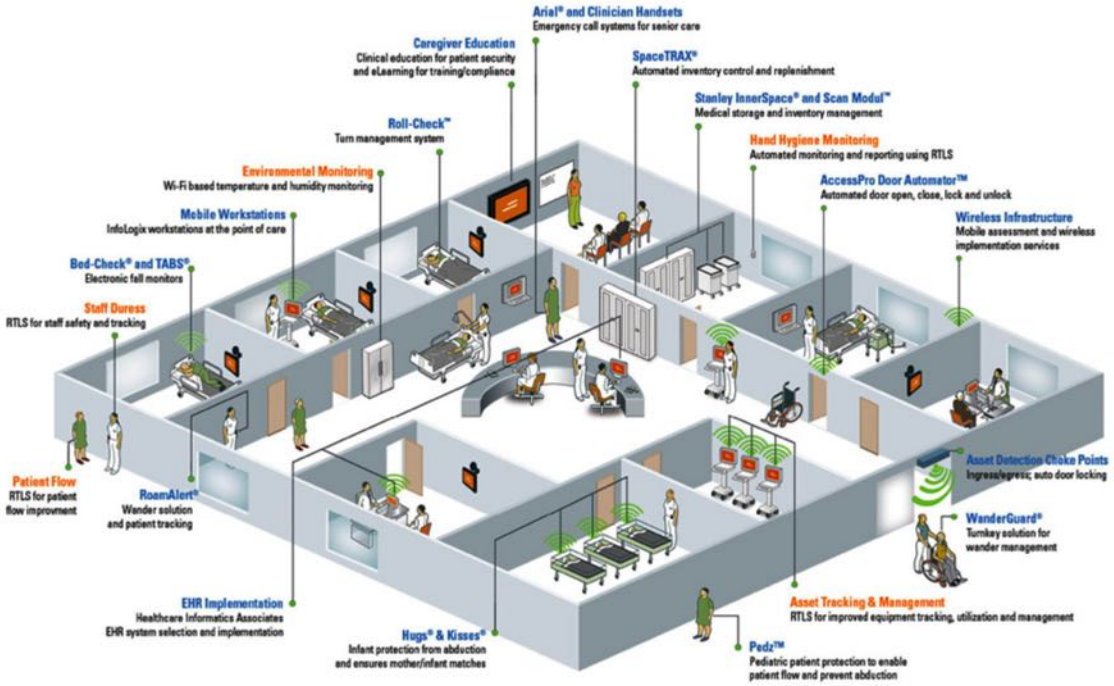
Internet of things (IoT)

Data Analytic

Sensors data from IoT device

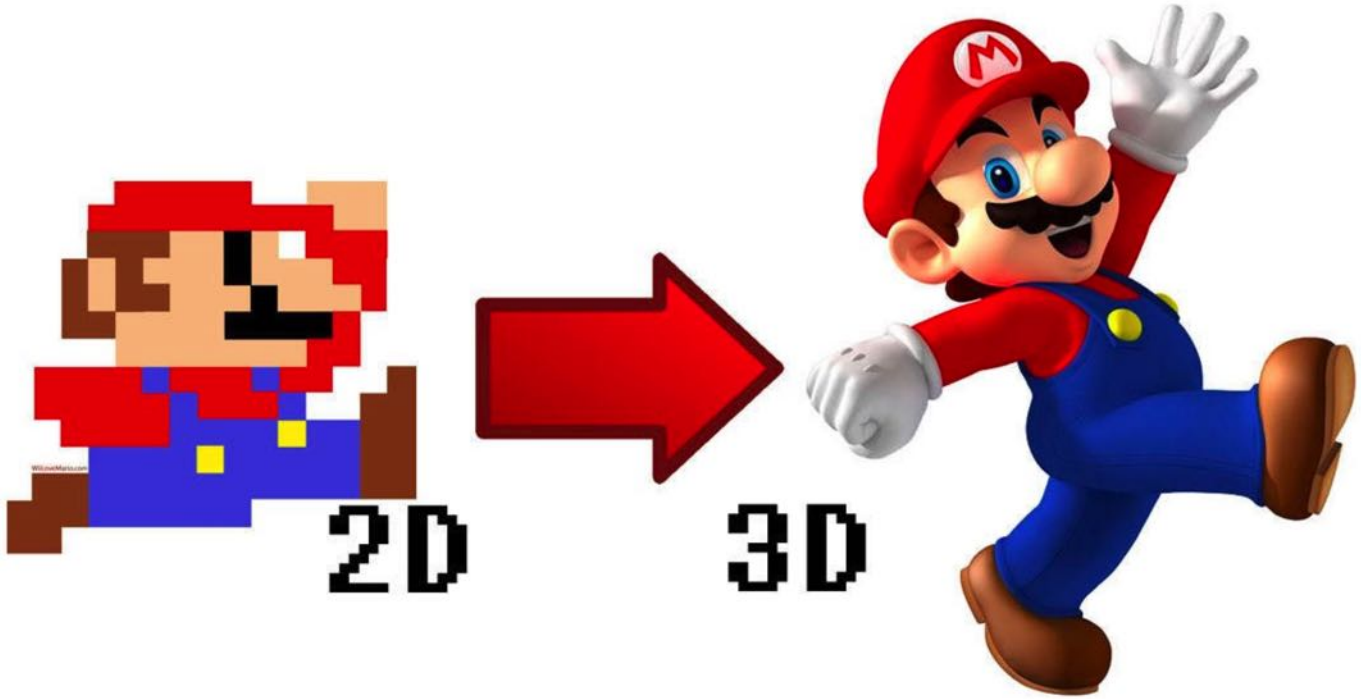
Data Analytic

Data Monitoring Applications



A lot of new data is generated

With over 80 documented use cases

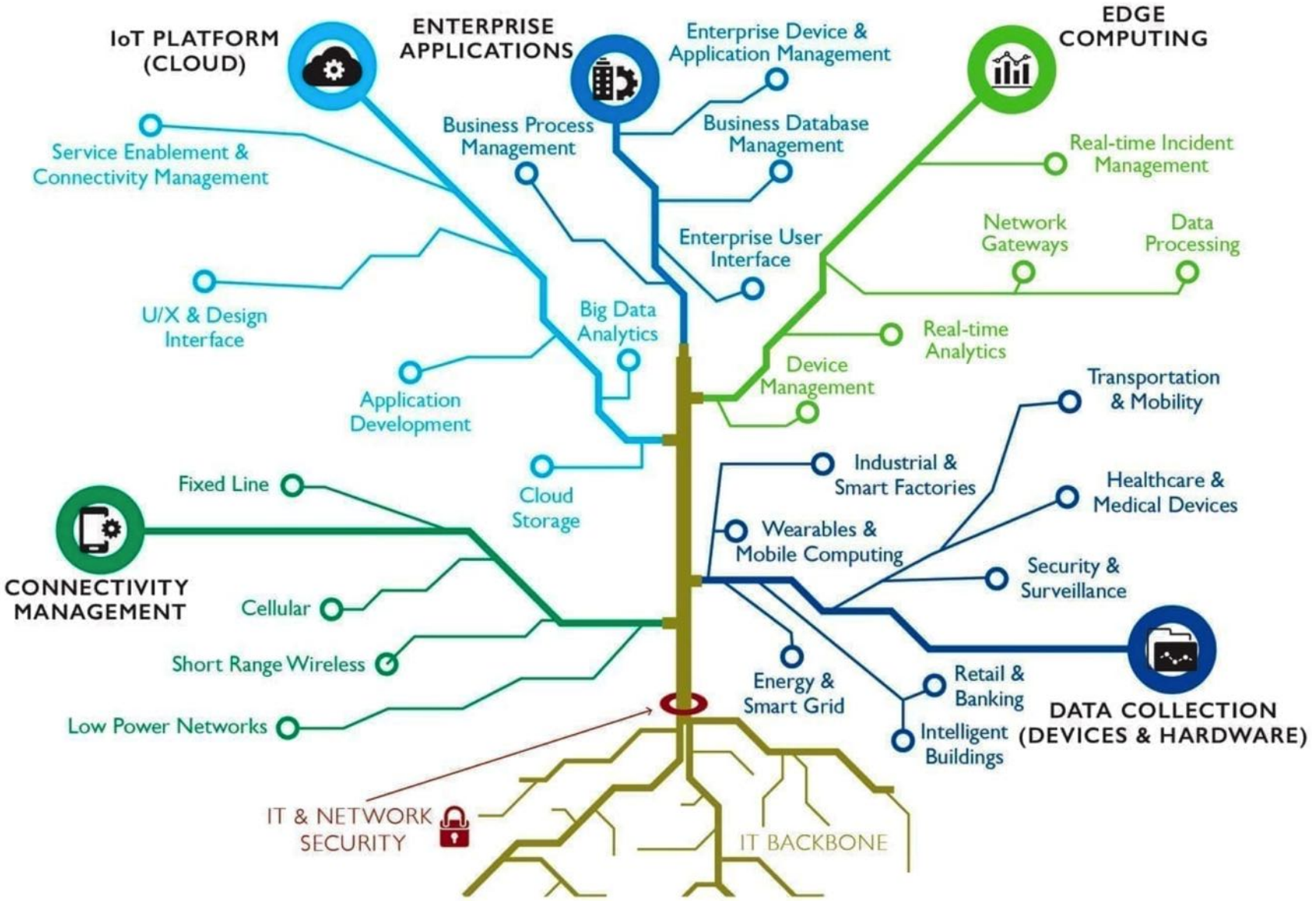


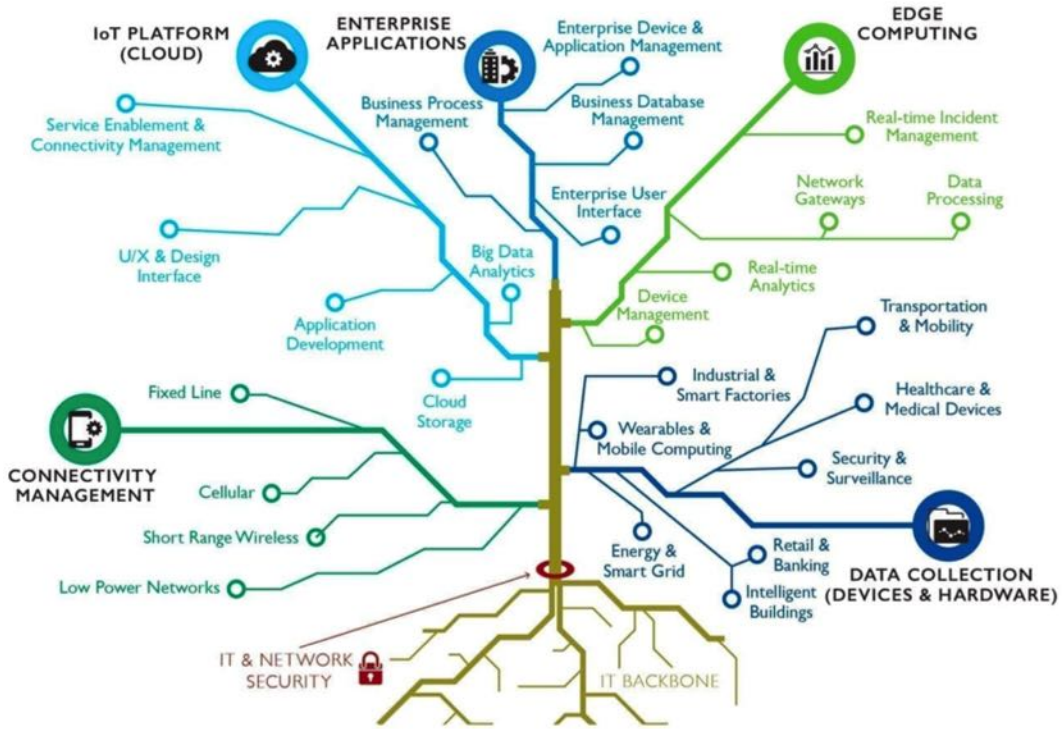
RFID:
‘Asset Tracking’

- On-Premise installed
- Vendor Specific
- Asset Tracking Application
- Custom-Built Dashboard / Reports
- Data managed in asset tracking system

IoT:
Enterprise ‘Data’ Services

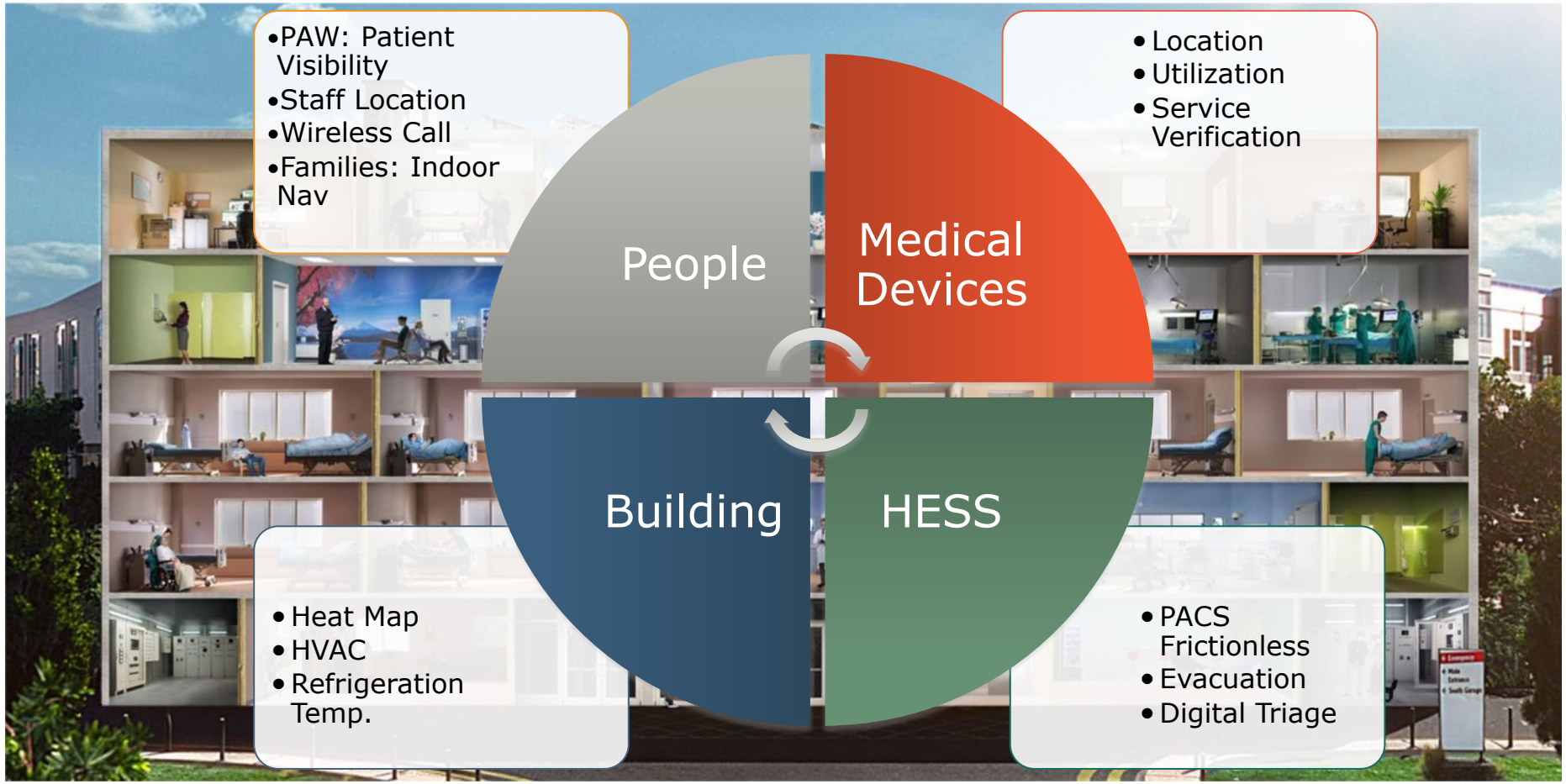
- Cloud Based
- Vendor Agnostic
- Location & Condition Monitoring Services
- BI provides analytics
- Data managed in many systems of record & Enterprise Data lake


IoT PLATFORM (CLOUD)
Service Enablement & Connectivity Management
U/X & Design Interface
Application Development
Big Data Analytics
Cloud Storage
ENTERPRISE APPLICATIONS
Enterprise Device & Application Management
Business Process Management
Business Database Management
Enterprise User Interface
EDGE COMPUTING
Real-time Incident Management
Network Gateways
Data Processing
Real-time Analytics
Device Management
CONNECTIVITY MANAGEMENT
Fixed Line
Cellular
Short Range Wireless
Low Power Networks
Transportation & Mobility
Industrial & Smart Factories
Healthcare & Medical Devices
Wearables & Mobile Computing
Security & Surveillance
Energy & Smart Grid
Retail & Banking
Intelligent Buildings
DATA COLLECTION (DEVICES & HARDWARE)
IT & NETWORK SECURITY
IT BACKBONE



This new wealth of data and possibility requires a totally different approach than IT's traditional attitude towards RFID and Asset Tracking (RTLS)

HID SMART HEALTHCARE SOLUTIONS



Shift Mindset

Cloud-Enabled IoT Architecture

Multiple Applications

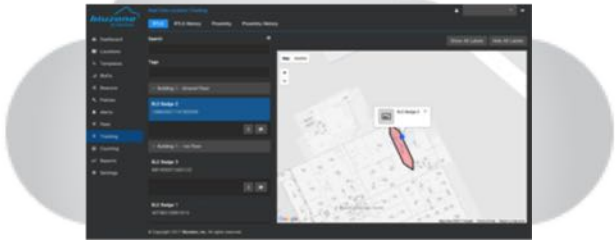
- Patient Tracking
- Asset Tracking
- Wayfinding
- Patient Experience
- Nurse Call
- Staff visibility
- Infection Control Monitoring

Many Benefits

- Many Use Cases
- One Processing Middleware
- One information business integration
- One open wireless network
- Badges, Beacons & Smart Phones
- Dynamically scaling
- At an affordable cost

Solution Architecture

HID Location Services & Condition Data Cloud



Real Time Data

Sensor Beacon

Personal Beacon

Gateway

BLE

Real Time Data

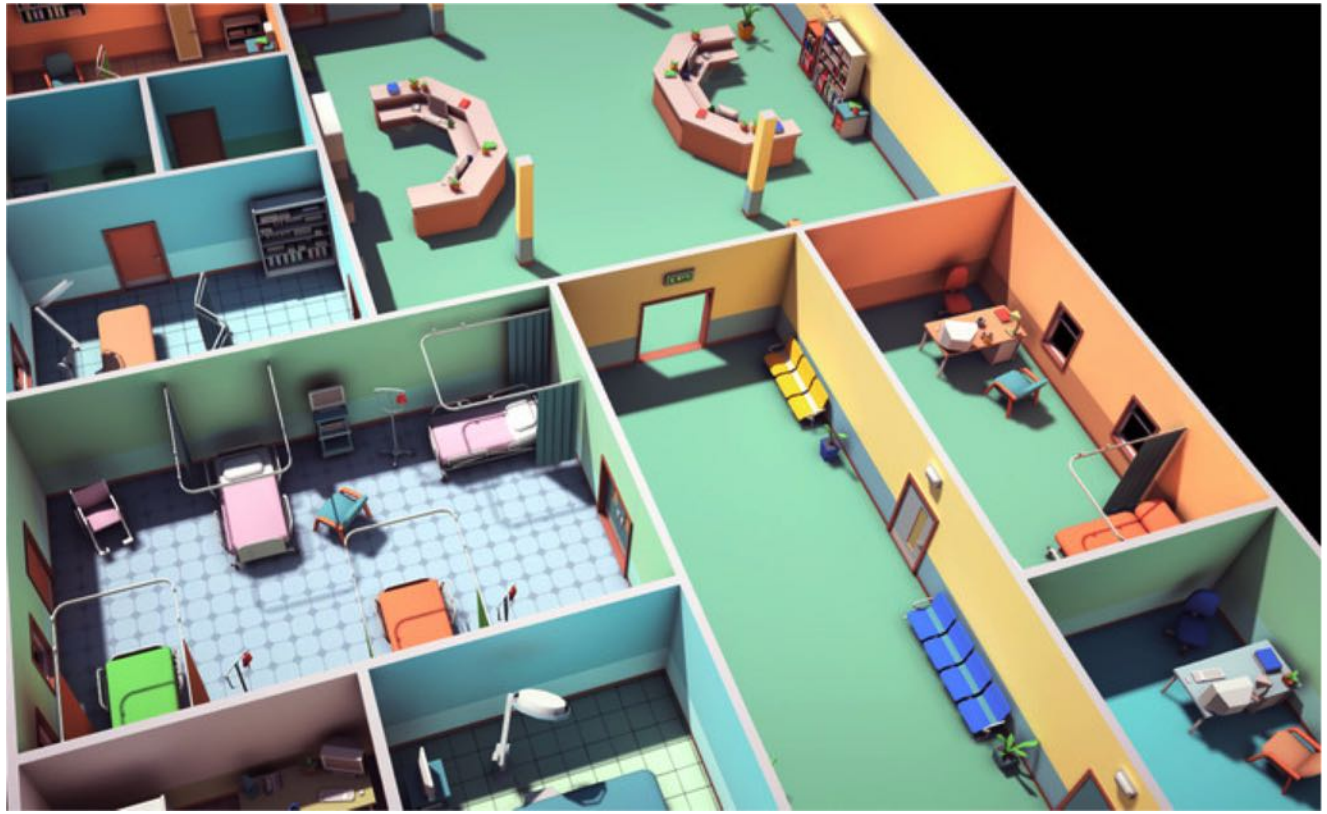
WiFi

Personal Beacon

Beacons & Sensors

- Wide range of form factors to fit various vertical use cases
- Secure, encrypted communications
- Supporting Location, Wayfinding and Condition Monitoring
- Cloud managed
- HID Access Control Embedded
- Vendor Agnostic iBeacon & Eddystone
- Typically 4 years battery life

BLE Gateways



- Plug & Play, low product & installation cost solution
- Both beacons enabling mobile wayfinding and collecting data from sensors and tags
- One per room or one per 1,000 sqft (room level/9ft accuracy)

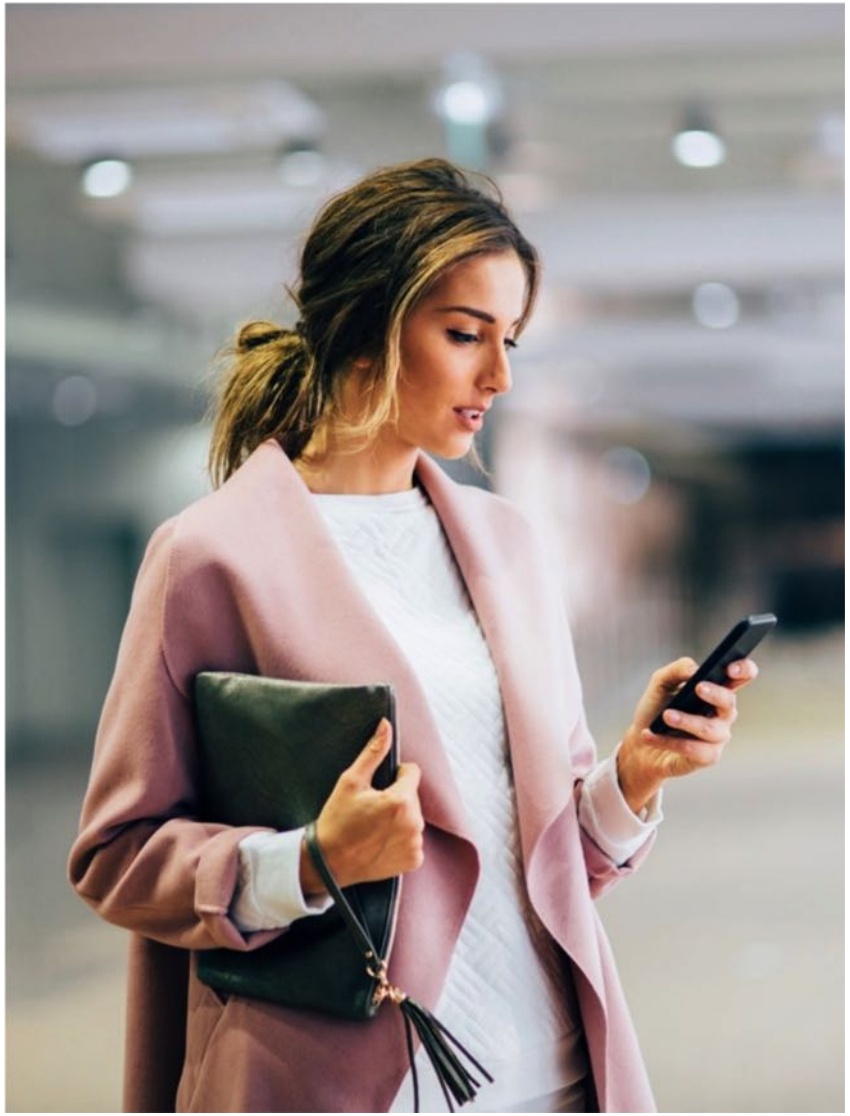
New Access Point support BLE

- sBeacon Edge Filtering helps maintaining low network traffic and end-to-end encryption
- Supporting endless collection of BLE sensors: *from clinical staff duress to infusion pumps or security gun-shot sensors*
- While leveraging existing infrastructure to further reduce cost

Cloud Enabled

- Rapid, simple deployment
- Fleet Management & Monitoring
- Over 200 APIs & Kinesis real-time data streams
- Self-calibrated location engine
- Advanced policies, reporting and dashboard tools

Impacting the Patient Journey



Navigating the Facility Becomes Simple with Wayfinding

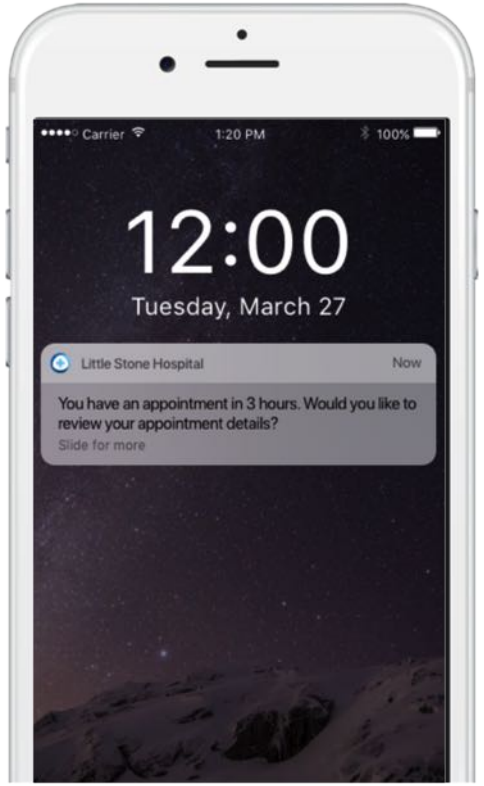
Locating offices and departments in a large facility can be stressful and time consuming for patients

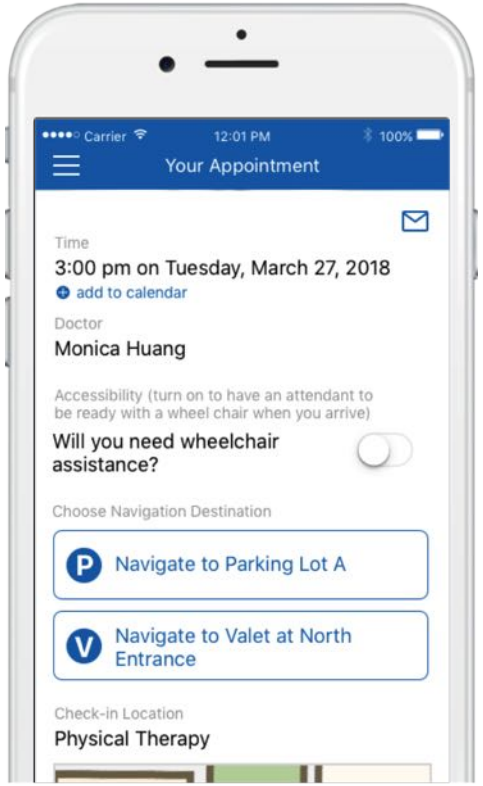
Improve family visitor experience and gain insight into people flow in the hospital

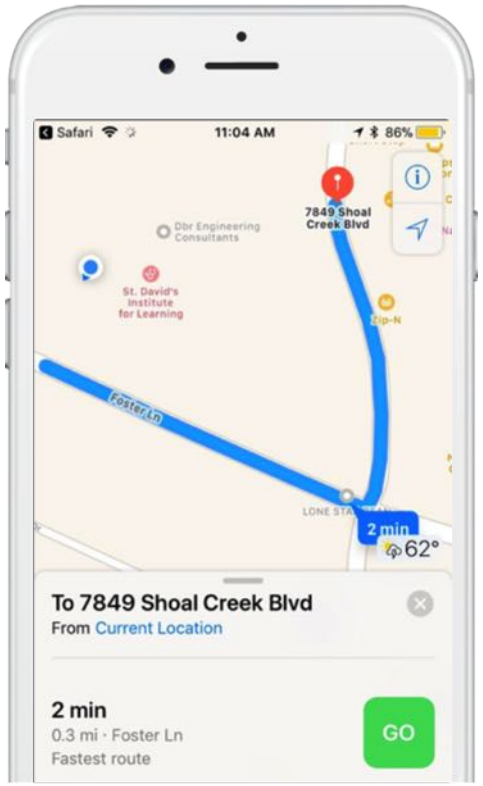
- **Enable phone indoor Navigation**
- **Point of Interest and Location Sharing**
- **Anonymous or shared identity**
- **iOS & Android**
- **Walking Directions to evacuate**

Using Navigation to Bring Patients to the Hospital

- Patients arrive on time, avoiding delays in hospital throughput

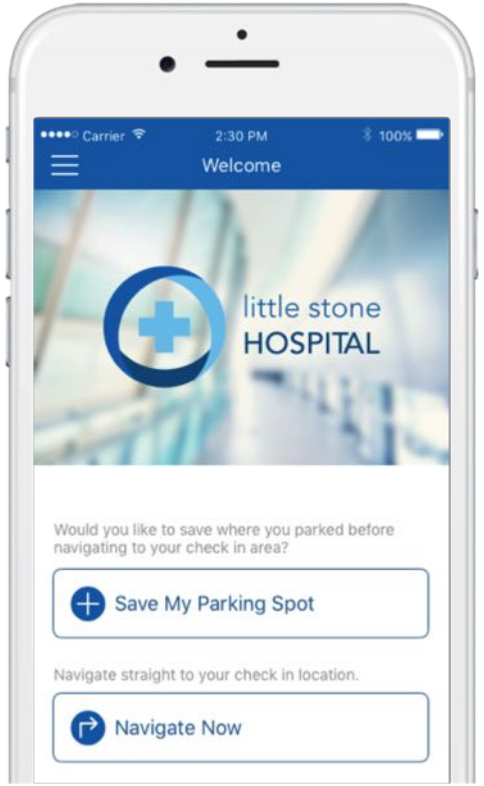


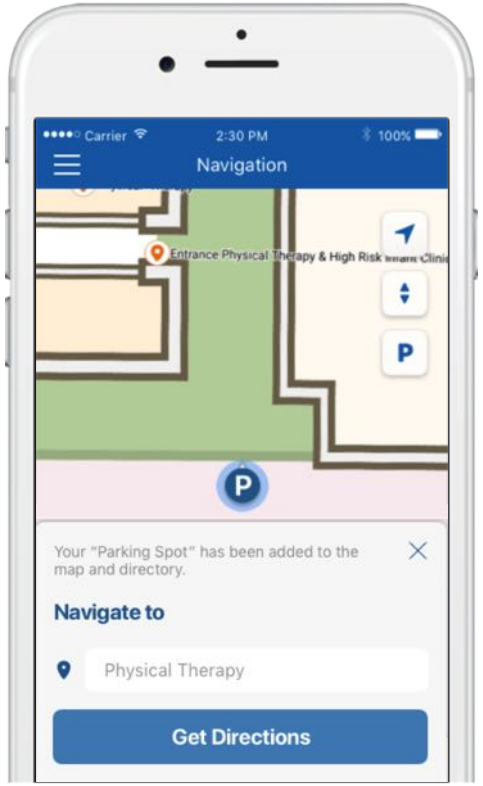


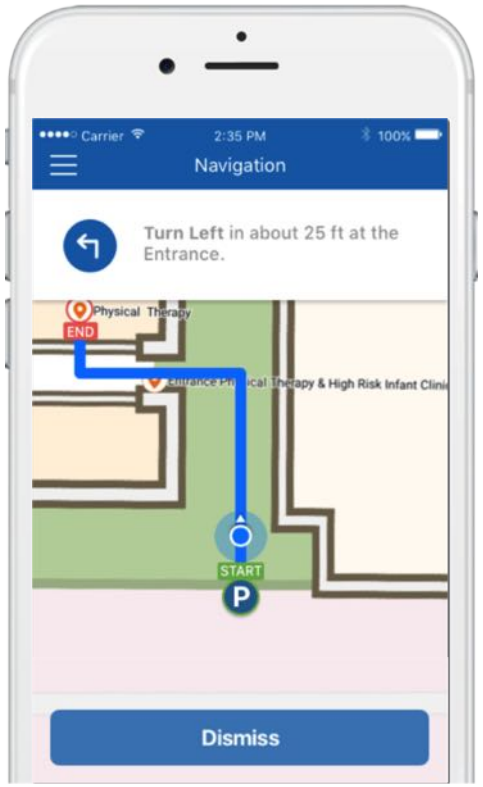


Navigation Directs Patients and Visitors to Parking

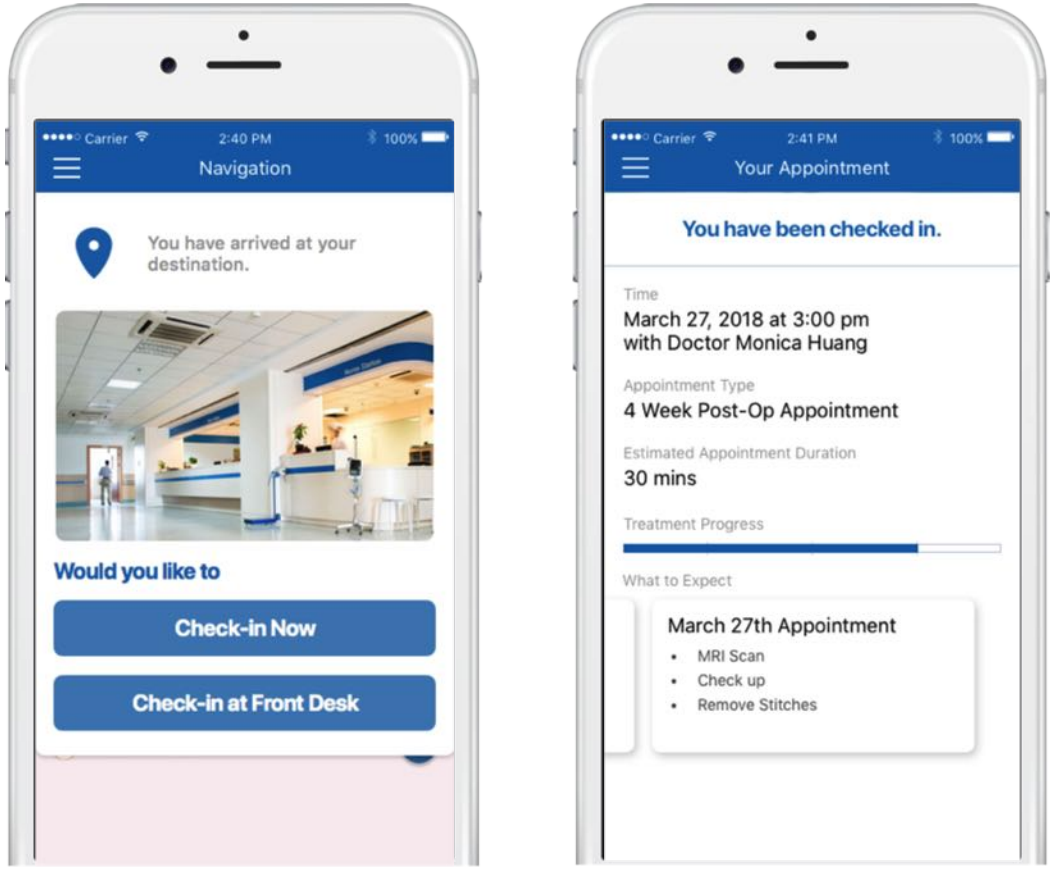
- Patients spend less time looking for parking, arrive at appointments as scheduled



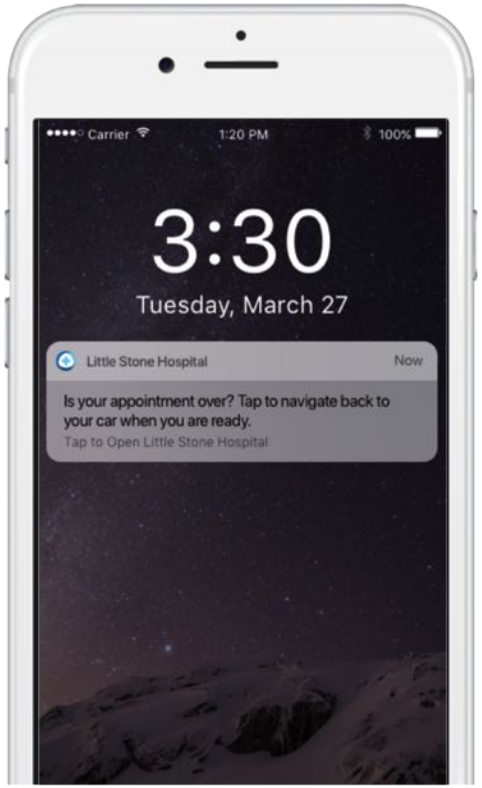


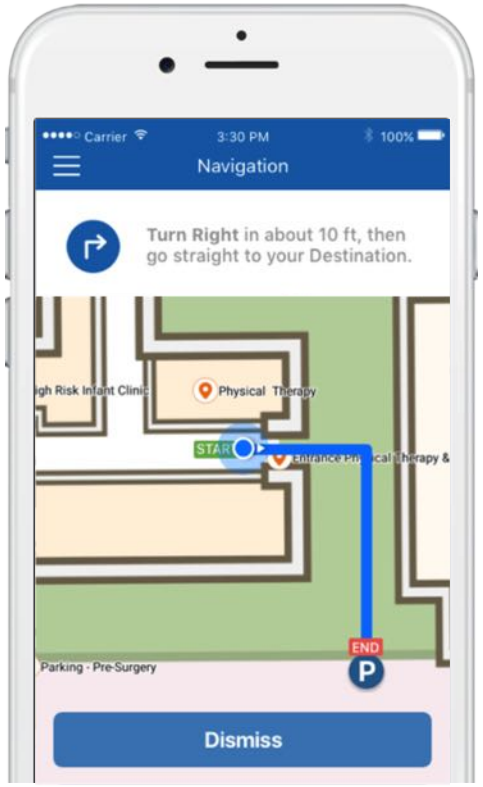


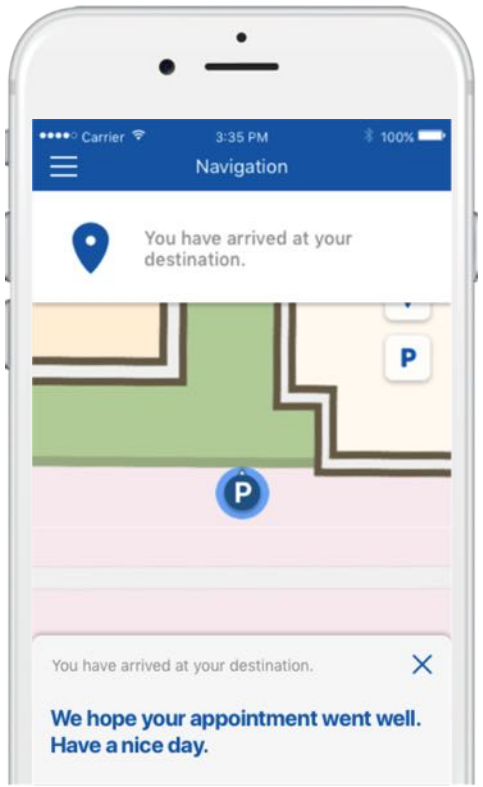
Integrated Mobile Check In Moves Patients Through the Facility Faster



Integrated Check Out Keeps Patients and Staff Moving Smoothly as Visits Conclude







Benefits for Staff and Clinicians

Real Time Patient Traceability

- Real Time Location
- Connecting to building systems
- Read by any Smart-Phone / Tablet
- Infection Control & Provisioning Service
- Increased Patient Safety & Digital Procedure Verification
- Family Dashboard
- Medical Equipment to Patient Validation

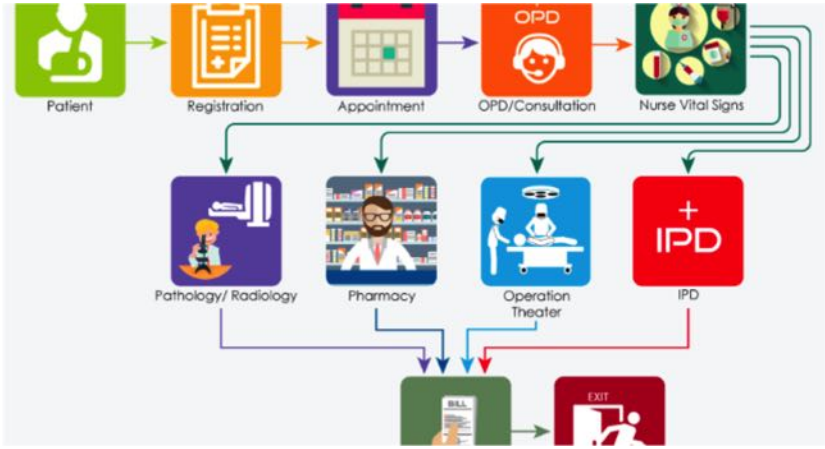
Staff Identification Enhanced

- Connecting to building systems
- Real Time Staff Location
- Staff/Clinical availability
- Location-Aware Wireless Distress Button
- Emergency & Evacuation Visibility
- Medical Equipment use & Patient Care Validation
- Interface with Wall-Mount Displays

Medical Device Visibility Through Cloud Services: Beyond Tracking

- Improved utilization enables reduced device fleet for tangible ROI
- Real time equipment location
- Connection to building systems
- Motion & Time Alerts & Reports
- Service Process Validation
- Utilization Reports & Departmental Billing Enabled

Unifying IoT Point Applications Can Be Easily Accomplished



Leveraging the hospital's 2.4GHz BLE network, many point solutions can be easily built into work processes

- **Hand Hygiene Compliance**
- **Nurse call buttons**
- **Mass-Triage emergency management**
- **Smart Parking**
- **Refrigerator Temperature Monitoring**
- **Condition Monitoring, Predictive Analytics**
- **And more…**

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Thank you

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