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Mission of the Century

Proven RFID & IoT technology ensures the safety, efficacy and security of people, vaccines and devices

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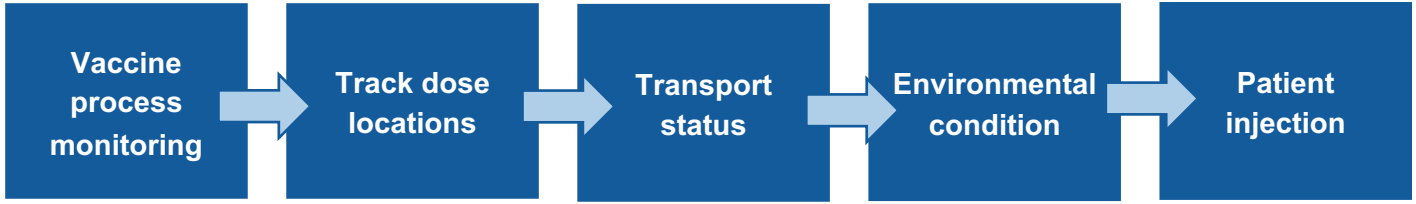
Agenda

1. Vaccine Chain of Custody
2. Immunization Passports
3. Digital Contact Tracing & Infection controls
4. RFID medical use cases & applications

SecureVaccine Supply Chain & Secure Drug Custody

RFID holds the key to safe & secure supply chain

The pharmaceutical industry uses millions of RFID tags or labels each year to reliably identify today's drugs and vaccines during development and manufacturing, from controlling formulation and monitoring dosing to assigning specimens and data to participants in clinical trials




InLine Tag


(On-metal) Labels


IN Tag


SlimFlex


Bin Tag

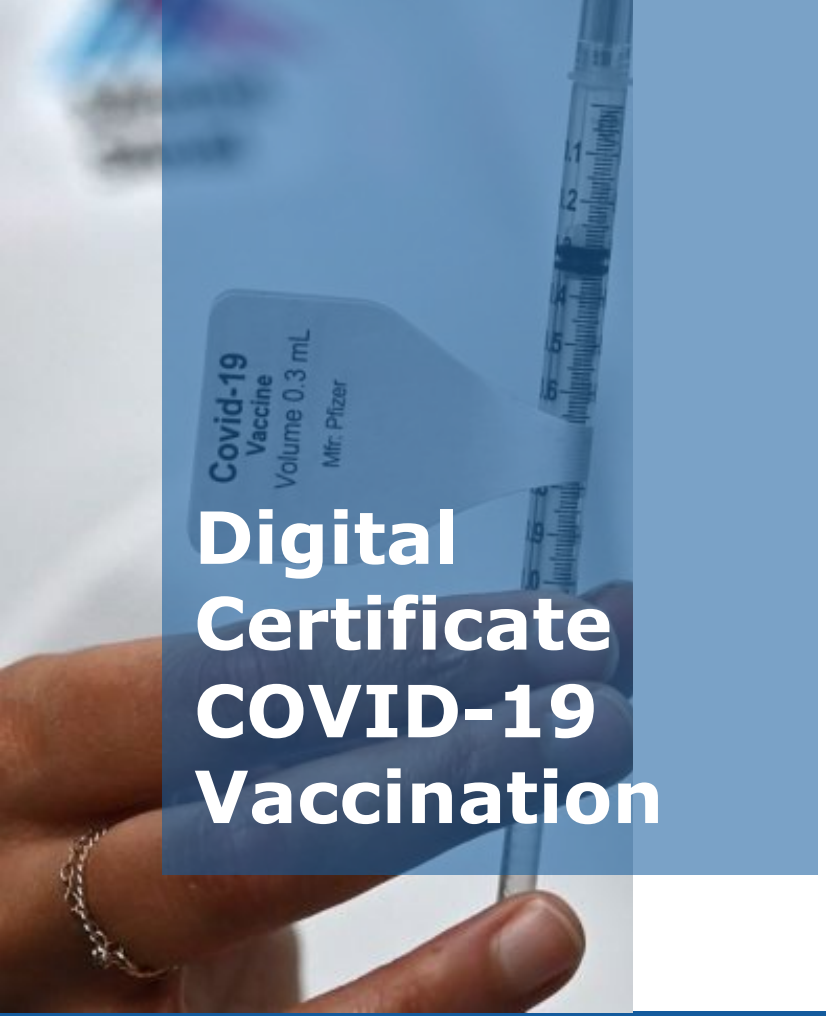
Epoxy Tag

Benefits of RFID:

- Protect, secure and authenticate vaccine chain of custody
- Trace drug & vaccine down to item or package level
- Secure equipment, storage units and other R&D assets
- Available for low-temperature operation, high-speed bulk scanning
- Anti-counterfeit features ensure safety, efficacy and security

Sealing Emergency Drugs

- Access to drug safe in emergency vehicles is secured via HID PACS embedded reader board in lock and HID Credential Badges for doctors
- Each drug box is locked with a SealTag edTamper RAIN® RFID
- Tag provides a different status when seal is broken
- Storage cabinet has a built-in reader that automatically produces an audit trail of who has used which drug when.



Digital Certificate COVID-19 Vaccination

01 **Mass immunization campaign** has started with the available vaccines

02 Monitoring certified vaccinations **accelerates immunization confirmation of citizens,** enabling society's return to normalcy

03 A **card certifying the individual vaccination,** will grant social interactions in the future (currently in secure lockdown)

04 Any **industry involving people interaction** is deeply impacted by the pandemic, a vaccine ID permits operations to restart immediately

Digital Identification

Must deliver advanced immunization identification features

Open
Non-proprietary technologies

Accessible
Easy access to card data, no additional app needed

Instant
Smart Card initiates and authenticates digital certificate immediately

Private
Sensitive data is only available to authorized entities

HID Global Solution

HID Global built a Smart Card based solution, using industry international standards: ISO7816, ISO14443, NFC Forum NDEF Type 4

HID Smart Cards supports ISO14443 protocols, NFC (Near Field Communication) compliant mobile devices (Android and iOS)

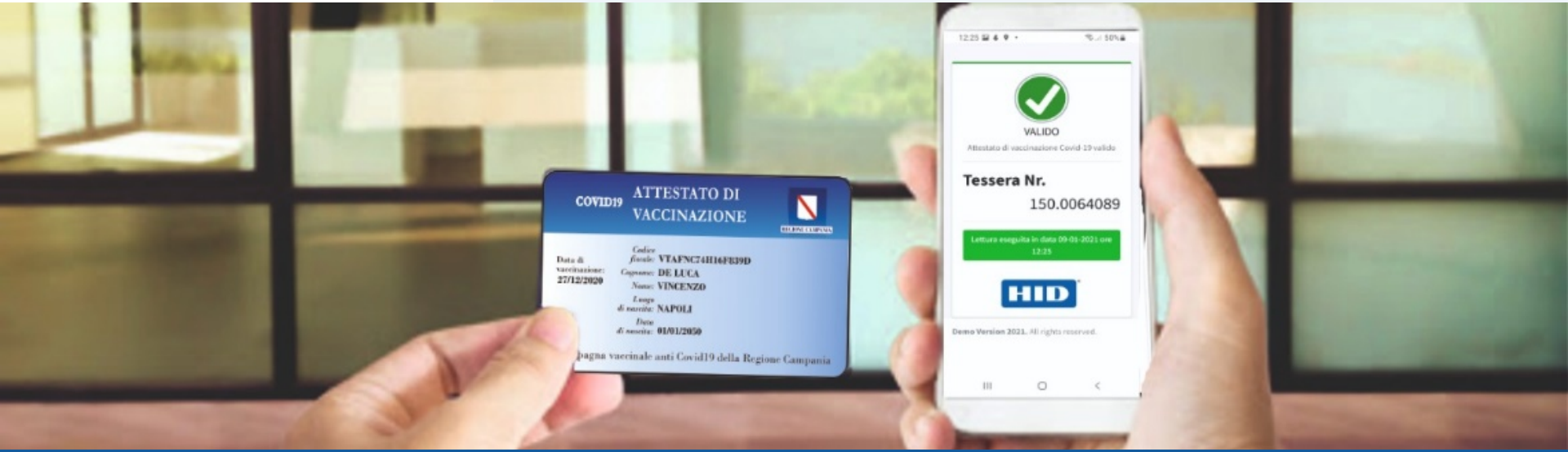
The Card Profile Type NDEF Type 4, automatically launches activation and reading process with the tap of a mobile device, no app required

Data management is fully GDPR compliant. Upon card reading, authenticity is granted using advanced dynamic cryptography in the microprocessor.

HID Solution

How it Works

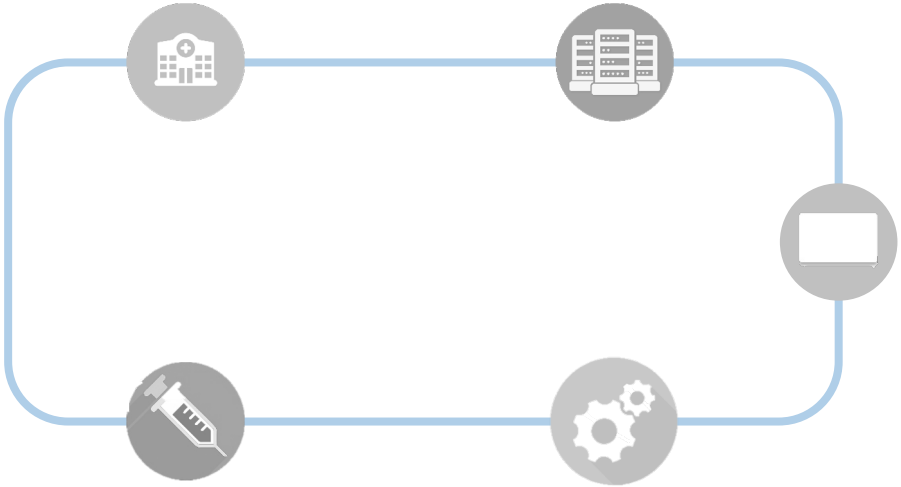
1. Tap the card using any mobile device (NFC enabled)
2. A web service call to the Health Authority (or specified web service) will return the required web page to the device browser
3. Showing the check result, (e.g., «vaccination complete», «vaccination date», and/or additional information specified by the Health Authority will also display



Life Cycle Management

Health Authority gathers vaccination data. Their platform collects required data related to the vaccinated person.

Data is automatically sent to the card bureau and the personalized cards are delivered to the vaccination centers to be distributed.



The Smart Card issuing and delivery to the vaccination centers is recorded on the Health Authority platform. The verification function will be available.

When the vaccine immunization finishes, the same card, without any data update, provides confirmation of expiration.

It is possible to manage and issue duplicates in case of loss or card malfunction.

Even as vaccines roll out, contact tracing is still necessary

HID Location Services: Workplace Safety

HID delivers an IoT enterprise enablement platform to meet the newly required policies outlined by governments and health agencies around the world.

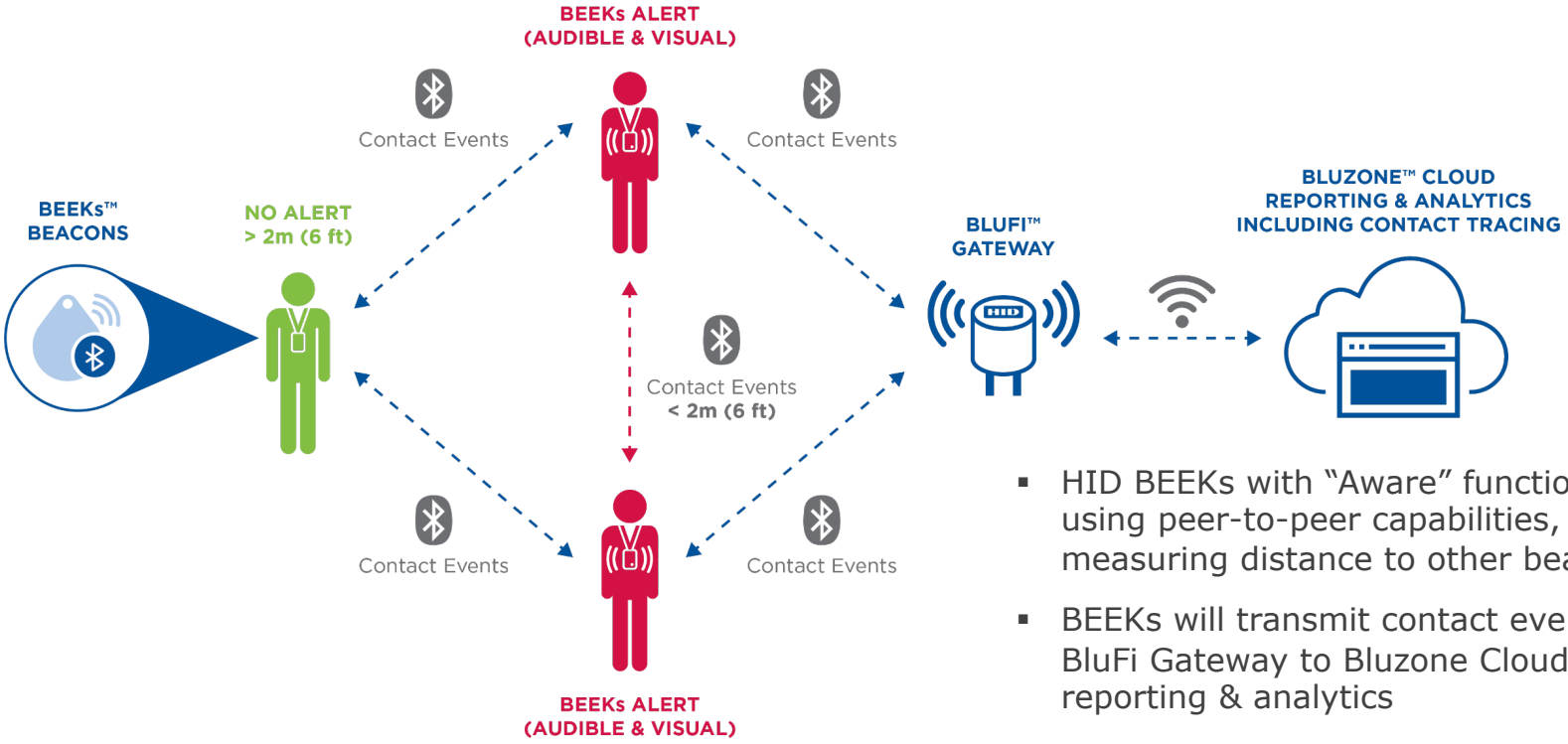
Workplace Safety Applications:

- Employee Physical Distancing (Peer to Peer)
- Contact Tracing
- Hand Hygiene Validation (future)

Secure, digital solution using real-time location, proximity-based location services and cloud technologies to:

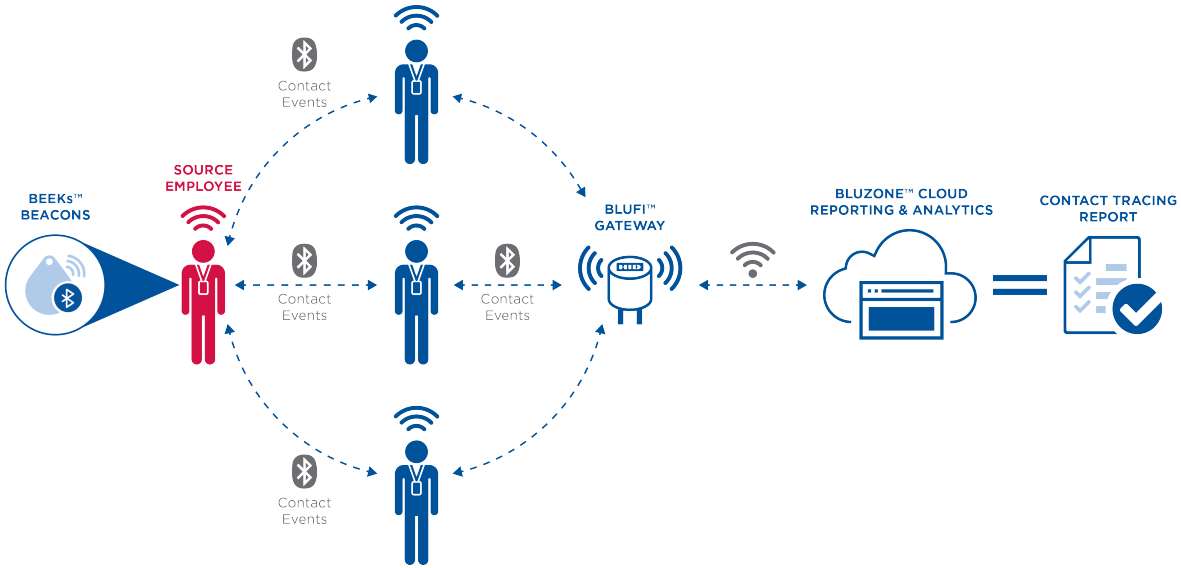
- Provide a safe working environment for employees, visitors and contractors
- Digitally adhere to regulatory mandates
- Restore productivity and employee confidence
- Empower employees to be safe without compromising privacy
- Measure performance, enable quantifiable accountability and gain real-time insight into the historical trail of interactions through data intelligence and analytics

Employee Social Distancing
Preventative feedback for behavioral Changes



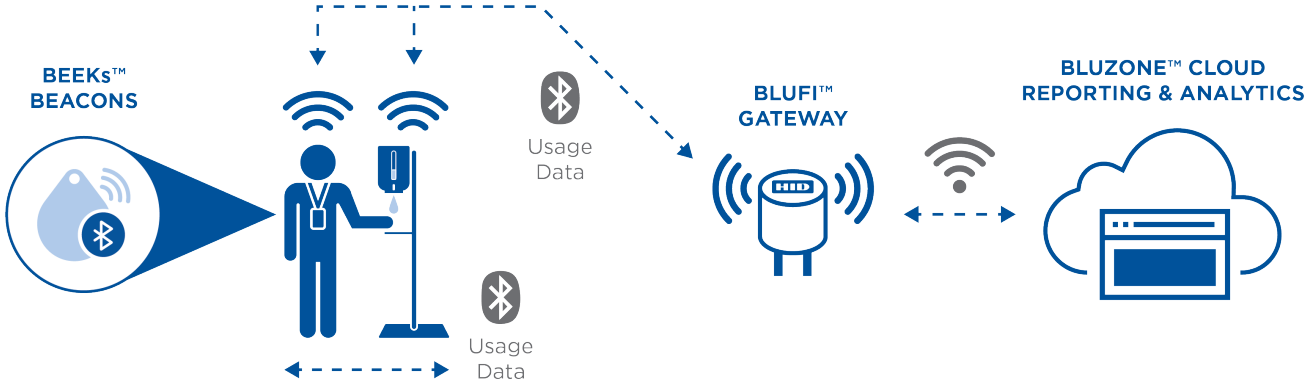
- HID BEEKs with "Aware" function signal using peer-to-peer capabilities, measuring distance to other beacons
- BEEKs will transmit contact event via BluFi Gateway to Bluzone Cloud for reporting & analytics

Contact Tracing
Initiate, Identify & Isolate



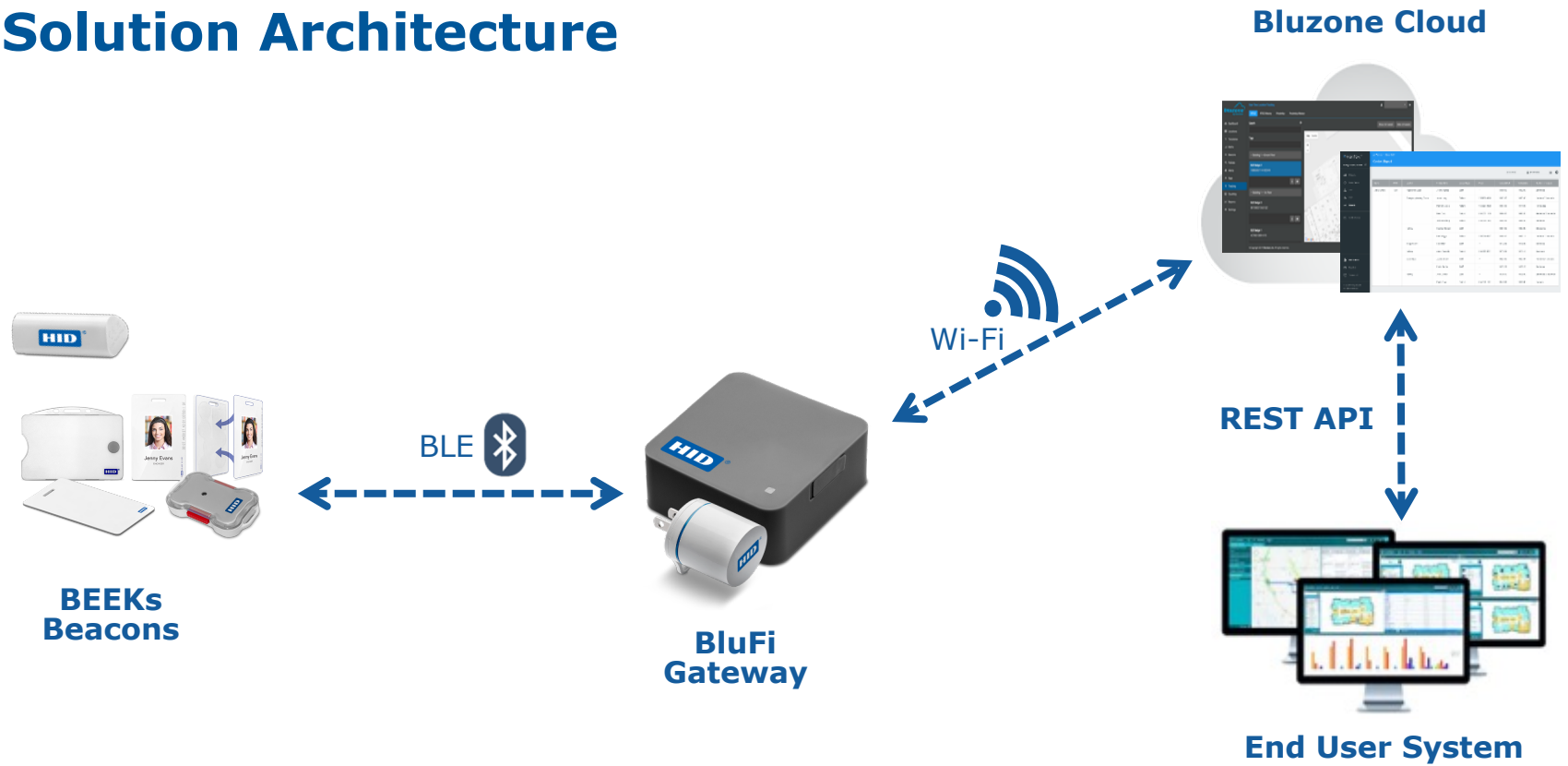
- Delivers real-time analytics and reporting for quick and effective resolutions
- Trace historical movements, quickly locate exposed team members and initiate isolation protocols instantly to mitigate spread of illness
- Automated Contact Tracing provides relevant information on persons identified as exposure risks, names of those within proximity of the infected, location and duration times

Hand Hygiene Validation– How it Works



- Embedded Sensor activated when contactless dispenser is used
- BEEKs authenticates dispense and registers event
- BEEKs will transmit event event via BluFi Gateway to Bluzone Cloud for reporting analytics

Solution Architecture



RFID Medical Use Cases & Applications

Application Use Cases

People's identification and tracking

Surgical tools' identification and tracking

Laboratory samples and blood management

Scrubs and garment management

Cooking and cold chain management

Asset's identification and tracking

Supply chain management

Inventory management

Benefits

- Patient **safety** and higher **quality** of care
- **Reduction of costs:**
  Direct
  (timing, coordination, satisfaction, occupancy)
  Indirect
  (insurance rates, legal expenses, labor)
- Higher **efficiency** by **visibility** of assets and Supplier (stock, bed, room, equipment, medicine)

Increase patient security and safety

Automate recording and limit errors

Secure specimen and exchange with BioBank

Secure surgical acts

Cold chain traceability, cooking temp profile, room profile

Optimize equipment flow, utilization, logistics

Improve order / supply chain logistics

Reduce inventory process and optimize re-provisioning

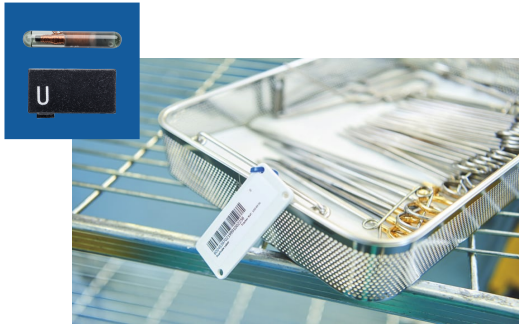
Laboratory samples and blood management

Blood banking

Generally, HF label

Specimen

Human specimen – Vial tracking
Piccolino is best size performances ratio for vial integration and support sterilization and comply with FDA
Animal specimen - Straw tracking
EUNIT wound around the straw
Milk vial
Clear disc can be used in case of larger vial



Tray identification

Glass Tag, Brick Tag and OM discs are ideal for metallic plates – alternatively SealTag Mini

Asset identification, tracking and usage

- Optimize hospital equipment utilization (pump inventories and equipment lifecycle)
- Automate equipment configuration and workflow safety
- Accurate inventory management
- Optimize patient & bed flow, room occupancy
- Real time inventory management and location

RTLS Beacons

InLine Tag

(On-metal) Labels

IN Tag

SlimFlex

Piccolino Tag

Brick Tag

Improving Linen & Uniform Management Services

Secure and ease your linen management services, so you can better focus on patient care

- Improve sanitation controls and minimize contamination within critical environments
- Full traceability of assets used supporting KPIs and compliance
- Improved linen availability
- Cost savings through optimized lifecycle management
- Contactless RFID helps reducing contamination risks by:
  - automated sorting without human intervention
  - Unattended dispensing 24h a day of cleaned items (bedsheets, uniforms etc.)
- Patients' wandering alert system in nursing homes

A Full Solution Enabler for Real-Time Linen Management

- A single provider with +20 years industry and technology expertise
- A complete platform combining UHF RFID and cloud software & services
- Purpose-built RFID equipment to manage large volumes of linen in cages
- Dashboards, web portals, featuring high-value analytics for improved decision making

Monitoring linen efficiently and in real-time from/to laundries/hospitals

Examples of OEM applications using RFID

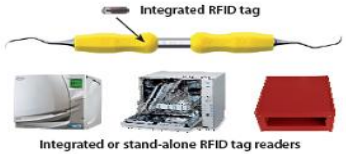
Adaptative Aerosol Delivery

Surgery cutting blades

Dialyzer equipment

Blood oxygenator

Automatic conveyor system for blood analysis



Dentist tools

Cryogenic vials

Skin Care

THANK YOU

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