Powering the trusted identities of the world's people, places & things

Tamper Evident RFID – Tags for security critical Applications

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HID

About HID Global

Leading the industry in
security and sustainability

- Privately held company and an ASSA ABLOY Group brand

- Headquartered in Austin, TX

- 3,300+ employees worldwide

- International offices that support 100+ countries

- Production facilities in U.S., South America, Asia and Europe

- Primary brands include ActivID®, OMNIKEY®, EasyLobby®, FARGO®, IdenTrust®, LaserCard®, Lumidigm®, Quantum Secure®, Arjo Systems®, Bluvision®

- Serves a variety of markets: PACS (physical access control), LACS (strong authentication / credential management, card personalization, visitor management), Government ID, Bluetooth Low-Energy (BLE) and (RAIN®) RFID identification technologies for a range of industrial applications

Pick the right Tag for your Application

When do I need Security?
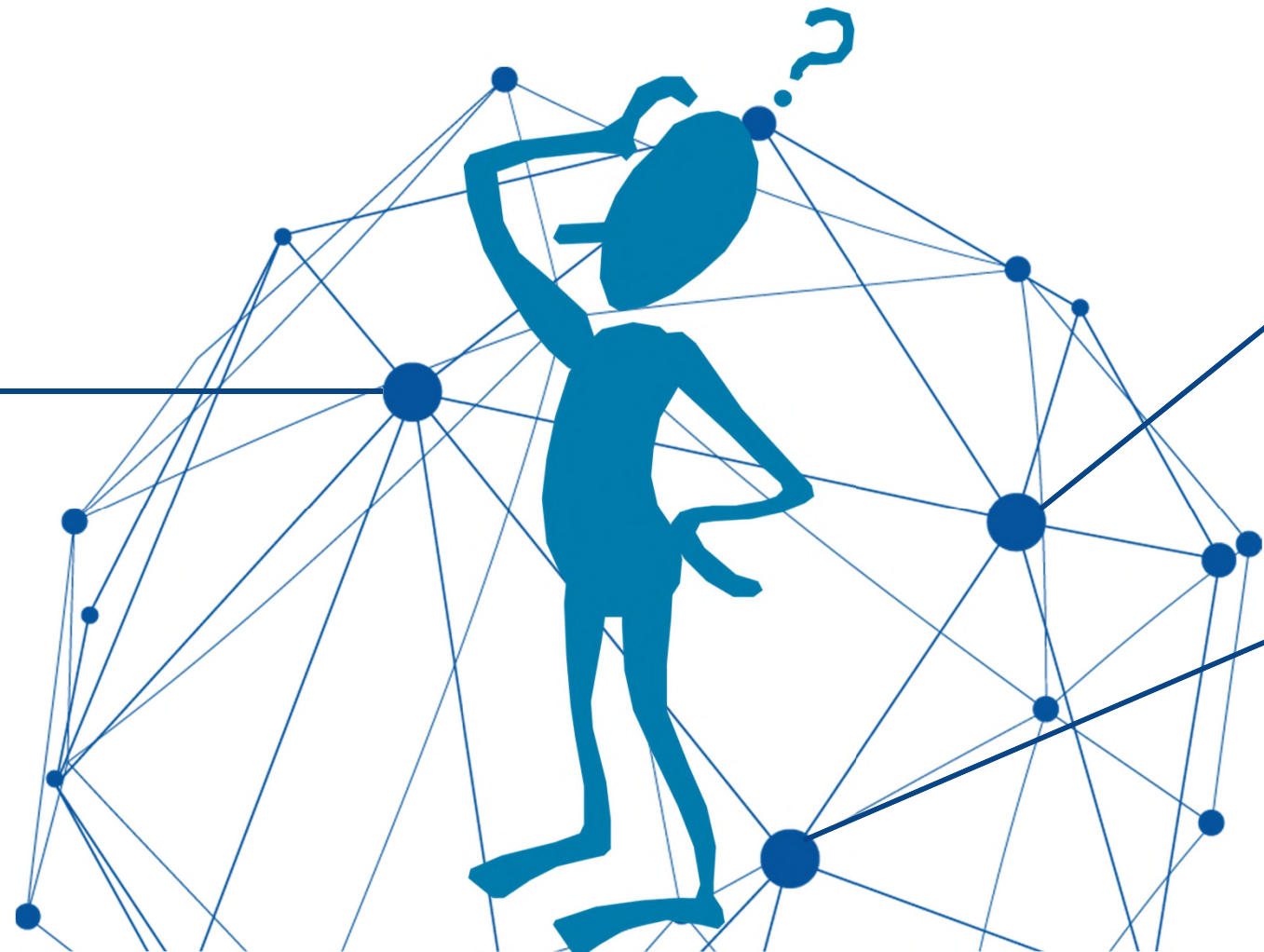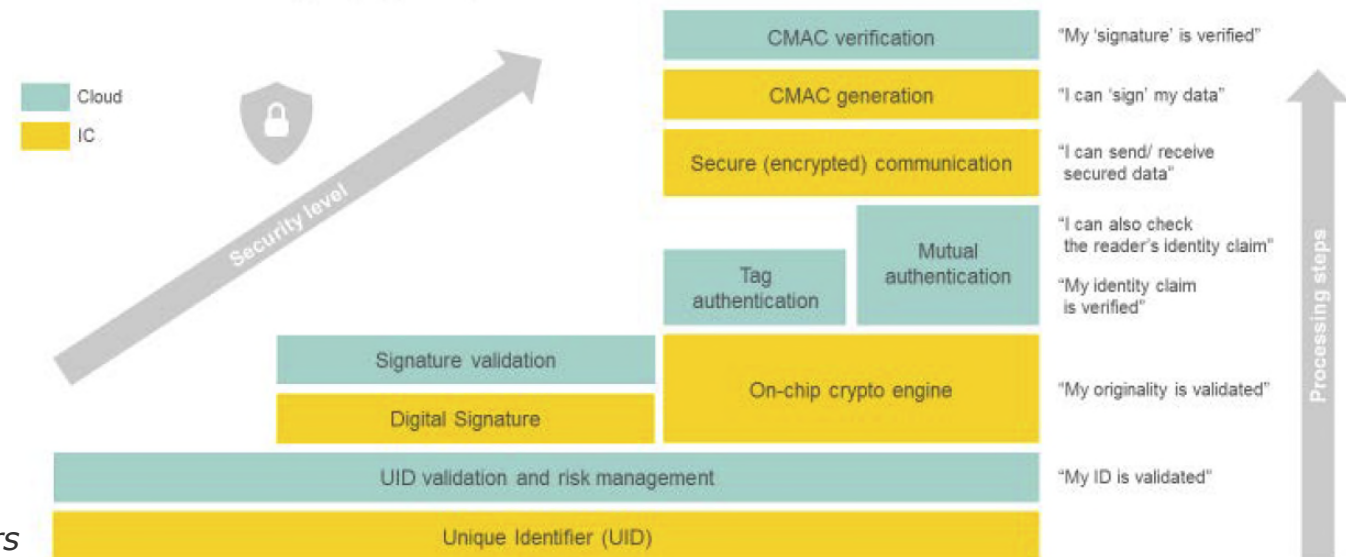
Logical Security

Physical Security

Logical Security (Cryptography)

- **Common use cases**
  - Access Control
  - Contactless Payment
  - Brand Protection
    (finished goods or consumables)

- **Different security levels and complexity**
  - Password
  - Symmetric Key(s)
  - Public/private asymmetric keys
  - PKI certificates …

Security by Design:
from base level to cryptographic operations

- Cloud
- IC

Security level

CMAC verification	"My 'signature' is verified"
CMAC generation	"I can 'sign' my data"
Secure (encrypted) communication	"I can send/ receive secured data"

Mutual authentication — "I can also check the reader's identity claim"

Tag authentication — "My identity claim is verified"

On-chip crypto engine

Signature validation
Digital Signature — "My originality is validated"

UID validation and risk management — "My ID is validated"

Unique Identifier (UID)

Processing steps

Graphic by NXP Semiconductors

Physical Security: Tamper Evident vs. Tamper Proof

Tamper Evident

Tamper Proof

Tamper Respondent

Passive Tag Examples

SlimFlex™ Seal Tag vTamper

 NFC

 RAIN RFID

Includes a built-in cable tie for fast retrofit and
visually tamper evident application.

 Tag

Standard SlimFlex Seal Tag HF and UHF

Mini SlimFlex Seal Tag UHF

Large Seal Tag Black UHF

Seal Tag vTamper

HF Chip : ICODE SLIx2

UHF Chip: Higgs 3/4,

Read range up to: 8m (26 ft)

Sealing Bags of Ore

- Seal Tag vTamper used to tag bags of Ore helping optimization and logistics

- Proves that bag has not been opened between mine site and refinery

Tag

Advanced Seal- electrical Tamper

Electrical tamper Tag: Stops functioning when tampered
Good when verifying individual items

Seal Tag eTamper Evident HF/NFC ICODE SLIx

- App: NFC eTamper seal for cabinet, fire extinguisher, maintenance

eTamper Sticker / Coin MIFARE DESFire EV1 / HID Trusted Tag

- App: NFC Parking payment, Commercial Refueling, …

size 18 x 23 x 3.5 mm

HF Chip: ICODE SLIx

Tag

size Diam 39 x 7 mm

HF Chip: DESFire, TTS

Seal Tag eTamper

Advanced Seal- electrical detection

Seal Tag edTamper Evident UHF UCODE G2iM+

- Electrical detection: Tag provides alarm info when tampered

- Check integrity of Seal for life jacket. Crew can walk along the aisle once with an RFID reader and if a seal is broken or missing, the software can pinpoint the seat

Other applications: cabinet, evidence/equipment handling for police
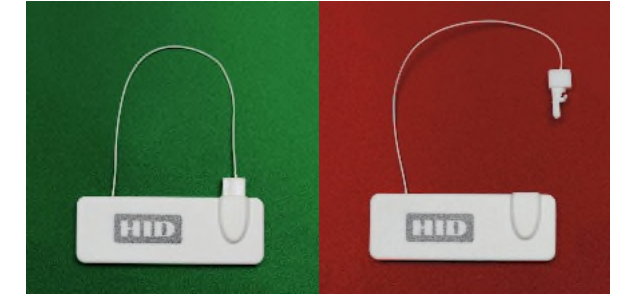
Size 39 x 14 x 2.6 mm

Seal Tag edTamper

Tag

HID
Powering
Trusted Identities

An ASSA ABLOY Group brand

ASSA ABLOY

Seal Tag edTamper Padlock

- One-time use Padlock type passive tag

- To close industrial containers or similar compartments

- Splash water resistant

- Designed for outdoor use

- Provides different status when lock has been opened

Tag

Size 60 x 30 x 111 mm
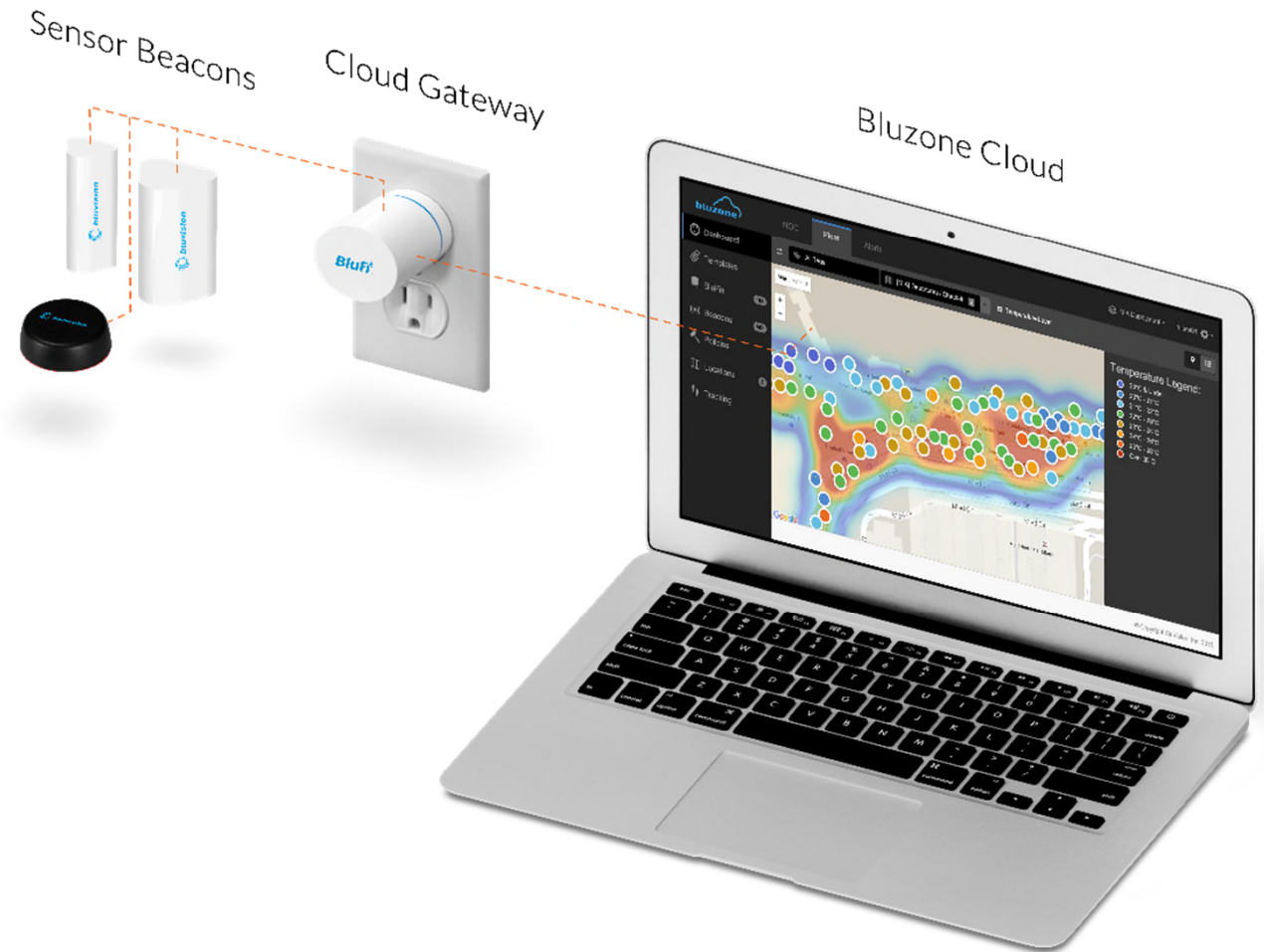
Chip: UCODE G2IM+

Active Tag Examples

Active Theft Detection

- BEEKs™ tamper evident BLE beacon

- Item with beacon moved out of allowed zone (RTLS) → **Alert**

- Beacon removed → **Alert**

- Beacon destroyed → **Alert**

- Optional combination with temperature and/or vibration sensors for condition monitoring

- Remote managmement via Bluzone™ Cloud and BluFi™ gateways
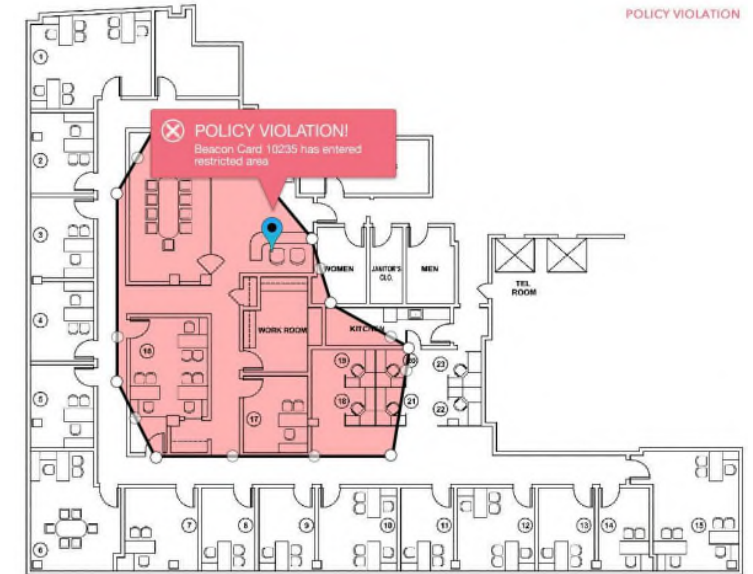
Enabling powerful Solutions

- The combination of BEEKs™ BLE beacons, BluFi™ gateways and Bluzone Cloud™ services enables centrally managed professional IoT applications

- Real-Time Location (RTLS) and zone based location for workplace optimization and theft detection

Sensor Beacons

Cloud Gateway

Bluzone Cloud

Example of combining Physical and Logical Security

Proof of Presence

Electronic Visit Verification (e.g. Home Healthcare)

Guard Tours

Maintenance and Compliance Inspections

Building High-Rise: Fire & Safety Implementation

Key Building Challenges

1. Compliance with building, federal and local safety inspection regulations

2. Thousands of industrial equipment parts, on paper labels

3. Improve traceability of maintenance logs

4. Antiquated maintenance scheduling

RAEL
MAINTENANCE CORPORATION

Industrial Sprinkler Equipment Systems

Mission:
Simplify and streamline maintenance & inspection process for industrial sprinkler equipment

Deployment Technical Requirements:

1. Easy **integration** into various sprinkler equipment and **CMMS** software applications

2. Must be **mobile** environment for field workers

3. Digital "proof of **compliance**" and reporting for regulatory mandates

4. **Authenticate** the technician to the specific equipment that is being serviced

5. Tag application must be **flexible**, and **robust** to affix to the various equipment & conditions

The Solution: Trusted Automated Maintenance & Inspection

Trusted Tag NFC

1. Strong Authentication
2. Tamper Evident NFC Type 4 + Barcode

Automated Decision

1. CMMS
2. Mobile Process
3. Reporting

HID Cloud Authentication
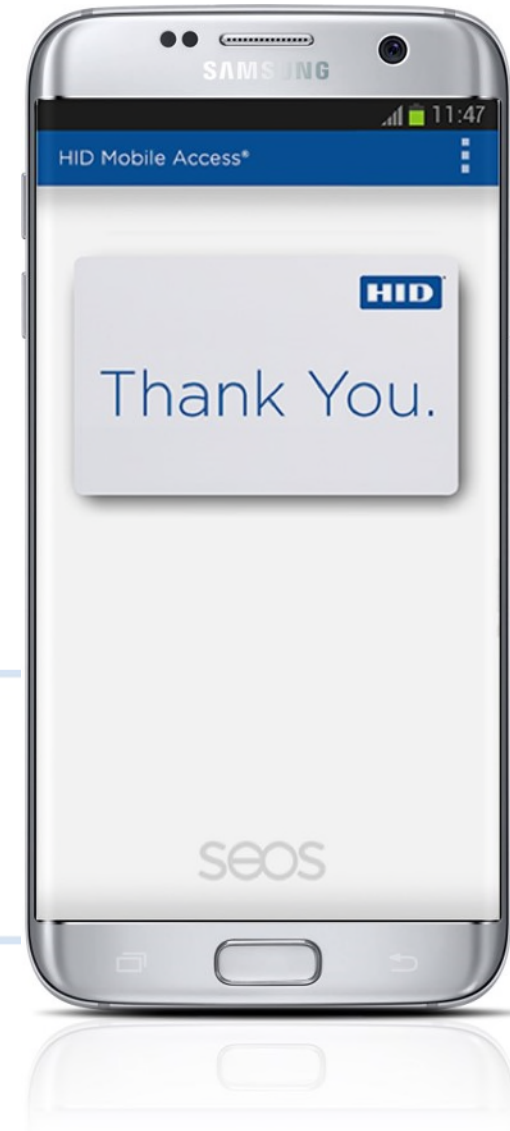
1. HID Authentication
2. SaaS

Facilitates a secure, efficient transaction when technician taps their smartphone on the tagged sprinkler system

SUMMARY

- **RFID** is a great way to **wirelessly identify** / authenticate objects

- For certain applications it is essential to ensure tags are not cloned and remain with the item to identify

- **Logical Security** (cryptography) prevents against tag cloning, eavesdropping, man-in-the middle etc. and enables applications like access control, payment and authentication

- **Physical security** can be achieved with different approaches (vTamper, eTamper, edTamper) – mostly for tamper evidence purposes due to cost/benefit requirements

- Combining both approaches leads to powerful solutions like „**Proof of Presence**" across technologies

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hidglobal.com/rfid