BlueID – Secure offline device authentication for IoT

Florian Schiebl, Chief Sales Officer
Use Case „Physical Access“
The challenge - Digitalization of phys. access

CONVENIENT  SCALABLE  HIGHLY SECURE  UNIVERSAL
CONVENCIENT mobile key

WITH TRUST

EVERYWHERE WITHIN 0,5 SEC

NO PAIRING

AROUND THE OBJECT
SCALABLE mobile key

- WITH TRUST
- ANY COMMUNICATION
- EVERYWHERE WITHIN 0,5 SEC
- ON ALL DEVICES
- UNLIMITED PERMISSIONS
- NO PAIRING
- AROUND THE OBJECT

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HIGHLY SECURE mobile key

WITH TRUST

ANY COMMUNICATION

EVERYWHERE WITHIN 0.5 SEC

UNLIMITED PERMISSIONS

ON ALL DEVICES

SECURE OFFLINE

OPTIONALLY WITH SE

NO PAIRING

AROUND THE OBJECT

WITH IN-REACH DETECTION

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UNIVERSAL mobile key

- WITH TRUST
- UNLIMITED PERMISSIONS
- SECURE OFFLINE
- ON ALL OBJECTS
- NO PAIRING
- WITH IN-REACH DETECTION
- ANY COMMUNICATION
- EVERYWHERE WITHIN 0,5 SEC
- ON ALL DEVICES
- OPTIONALLY WITH SE
- A CHOICE OF VENDORS
- AROUND THE OBJECT
- ONE PROCESS FOR ALL

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The Challenge
Status within the Automotive Sector

Writing into CAN-bus only empowered for central OEM backend system for a keyless:

- Door, window or trunk opening
- Lights or heating switch
- Engine start

Current OEM set-up challenges:

- Only works with online connectivity
- With different response time
- Using traditional IT network security
The future problem of a connected world

Gartner says due to the IoT, Identity and Access Management will change completely by 2020.

Fragmented vendor specific key management is the challenge.

Gartner, Predicts 2014: Identity and Access Management
The solution - BlueID
BlueID...

...enables secure - local - immediate communication & interaction of your objects with any smart mobile device

...by controlling which smart mobile device is allowed at which point in time for how long to interact with a certain object

...everywhere, at anytime, on any device, for any object & always in the same way
What is BlueID? - Pure software that scales

BlueID Software Functionality

- Authorizes interactions with time-restricted tokens (from customer backend – via BlueID – to smart device)
- Creates secure unique PKI identities (for every peer)
- Enables robust local P2P communication (BLE, NFC, WiFi, 3G)

Mobile 2 Object device authentication for everything
Asymmetric encryption & identities

- Every member has an unique private key
- Private keys never get shared but public keys only
- Private/public key pair of every member represents an unique identity
- The object stores only its own private key
- There is no master key involved
- A trusted third party (trust center) endorses the authenticity of each member and signs every token sent
BlueID capabilities for secure mobile keys

OPEN CAR
- with BLE
- offline enabled

START ENGINE
- combining BLE & NFC
- with thatcham like detection
- using scalable SE concept
Securing Bluetooth 4.0 with BlueID

- BlueID enables to robustly restrict BLE reach
  - down to 30 cm

- BlueID utilizes BLE frequency only for transport
  - No use of device based BLE security mechanism
  - No use of BLE authentication & pairing via link keys
  - No security built on adaptive frequency hopping (AFH)

- BlueID secures BLE with trusted service
  - Unique PKI identities to create trusted devices
  - Tokens permitting BLE connectivity between identities
  - Tokens endorsed by trusted third party
  - BLE communication optionally encrypted
BlueID technology strengths – control center

- Enables central secure cloud based access control (global)
  - Less IT infrastructure onsite in single building
  - Supports various country specific lock hardware
  - Large providers can host their own cloud onsite

- Solid data privacy protection
  - No touch on hotel user data
  - No sensitive data in token on smartphone
  - Compliant with EU law

- Creates secure token for every access right (Tokenization)
  - Provides secure time restricted token (who, what, when, how long, where)
  - Enables full flexibility in combining user & object
  - Disables prolongation or hand-over of tokens by user
  - Supports automatic revocation of token with a new token
BlueID technology strengths – smart mobile device

- No storage or transport of pre-shared keys on unknown devices
- No pairing required for BLE, WIFI
- No online connectivity required for command execution (only for provisioning token)
- No SE mandatory (but optionally as add-on)
- Very fast & robust processing within under 1 sec
- Replaces password with unique traceable machine identity based on PKI
- Controlled by time restricted individual tokens
- Works on any smart mobile device & smartcard
- Can turn Android smartphone in card reader
BlueID technology strengths – smart objects

- No extra processor hardware needed
  - BlueID can run in central CPU or directly in BLE chip

- Objects can respond to unlimited number of users
  - No storage of Master Keys
  - No whitelisting and storage of multiple UID’s

- Enables full offline control (patent protected)
  - No wiring or extra Wifi routers
  - No extra bridge controller hardware
  - No online readers

- Protected by highly secure mobile device authentication (PKI)
  - Unique traceable machine identity based on PKI

- Customizable regarding power consumption & crypto length
Our mission – solid trust

With our software we deliver solid trust in any kind of smart device and we protect objects at the heart of a connected world.
Facility references

ISEO Serrature / DORMA GmbH

BlueID opens BLE cylinders and trims with smart devices

Pango Parking Ltd.

Pango parking system | Mobile parking via smartphone app

eQ-3 AG

HomeMatic home automation | Open doors via smartphone app

Emerson Electric Co.

Knürr @Lock BlueID | Unlock server cabinets via smartphone app
Automotive references

Marquardt GmbH

BlueID Drive | Start vehicles via smartphone app

Novero GmbH

Dolphin TCU, empowered by BlueID for Smartphone access

Shared e-Fleet R&D project

Open, start and fuel BMW i3 by smartphone app

LG Vehicle Company

Open car with latest smartwatches and smartphones from LG
BlueID – software technology for IOT

- **BlueID enables universal keys**
  - Fits in any hardware and can control any object in the same way
  - Supports any Smartphone in the same way
  - Provides all kinds of communication: Bluetooth, NFC, WiFi
  - Enables hardware supplier independence

- **BlueID grants convenient & secure mobile keys for end-users**
  - Opening process within 1 sec
  - Supports one-click or automatic access
  - Has the patent for offline virtual network access in EU and US
  - Allows individual device based monitoring and tracking
  - Protects keys against typical hacks

- **BlueID assures business freedom**
  - Integrates in any existing or 3rd party app
  - Connects to any existing access control system
  - Keeps user data in operator hands only
  - Provides software lifecycle management for all smartphone versions
Thank You!

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