



# Presentation Company & Solutions Overview



A background image showing a group of business professionals in a meeting. Several hands are visible, some pointing at documents on a table. One person is holding a pen over a document. The scene is brightly lit, suggesting an office environment.

## Company Overview

Founded in 2015, SmarThesia is a young creative dynamic company backed by many years of experience and successes into the field of Information Technology, Software development on Cloud Platform and Home Automation.



# Team and Partner

«Core» team composed of expert coming only from ICT market of Int. Corporate

Strong and solid relationships with Customers and Suppliers

Continuous innovation and technological frontier Projects

Guarantees professionalism and partnership to satisfy the Customers expectations



Partner



Microsoft®





# IoT Solutions for Smart buildings: Evolution, vision and positioning

Productive

Resources Optimization

Space Occupancy

Access Security

Manage

Building Management





# SmarThesia Solutions



Identity Management



Access Control



Booking and visitors  
management



Registration and  
check-in



Presence and  
Occupancy



Resource  
Optimization



Simple to install and  
easy to use.



Professional Services  
and Support



# Solutions capabilities



Mobile App



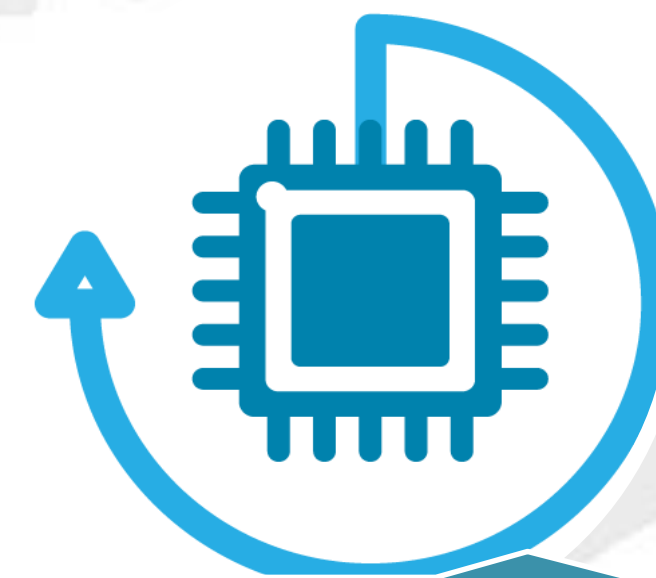
Authentication &  
Security



Scalability



IoT Remote Control



IoT Device  
management



IoT Business Analytics





# PasSy Platform for all Smarthesia Solutions

PasSy Enterprise by SmarThesia is an extensible IoT-based platform to implement any Smart Building IoT scenario where you need secure access management and environments smart control.

The PasSy field gateway allows to communicate with any smartphone and at the same time is able to provide telemetry and receive remote command using typical IoT protocols.





# PasSy Enterprise Solutions Portfolio

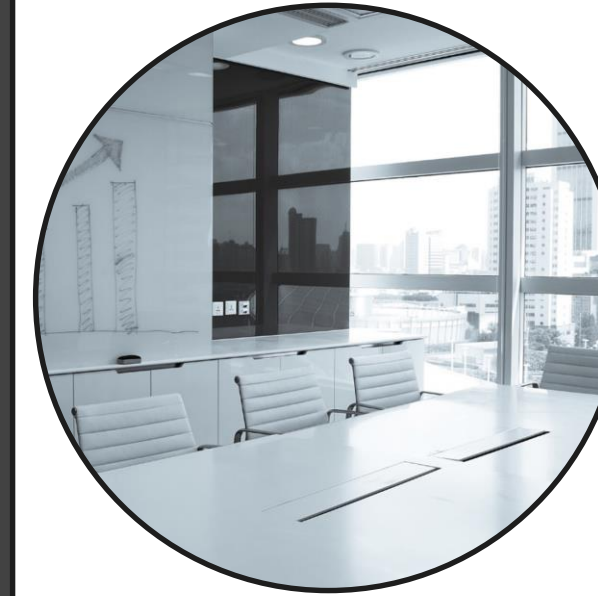




*Smart  
Access*



*Smart  
Lobby*



*Smart  
Meeting*



*Smart  
Spaces*

← Smart Platform →

Smart Access

Bridge virtual identity to physical actions in your buildings and in any service

Smart Lobby

Solution for Hospitality and Welcome Management

Smart Meeting

Solution for Booking Meeting spaces and Automate ambient control

Smart Spaces

Solution for rooms, desks and workplace efficiency



# SmartAccess

Smart Access Solution is used to virtualize user identity, grant permissions for services usage, and execute physical actions in your buildings.

Typical actions include access to parking, access to facility, room booking/check-in/check-out by proximity, shared desk check-in/check-out, get authorized to control meeting room ambient, and in general any authenticated and controlled access to services inside the building.

The goal is to simplify identity management, access management, badge management, policy management and provide innovative user experience to employees and visitors.





# SmartLobby

Smart Lobby Solution allows, through totems to welcome and to communicate information generally provided by receptionist.

Visitors and guests are informed in real time about the services of the facility and will know events, consult programs, etc.

The goal is to fill or integrate the reception activities, giving the ability to search information of interest, perform typical actions such as registration, check-in, phone calls, etc.



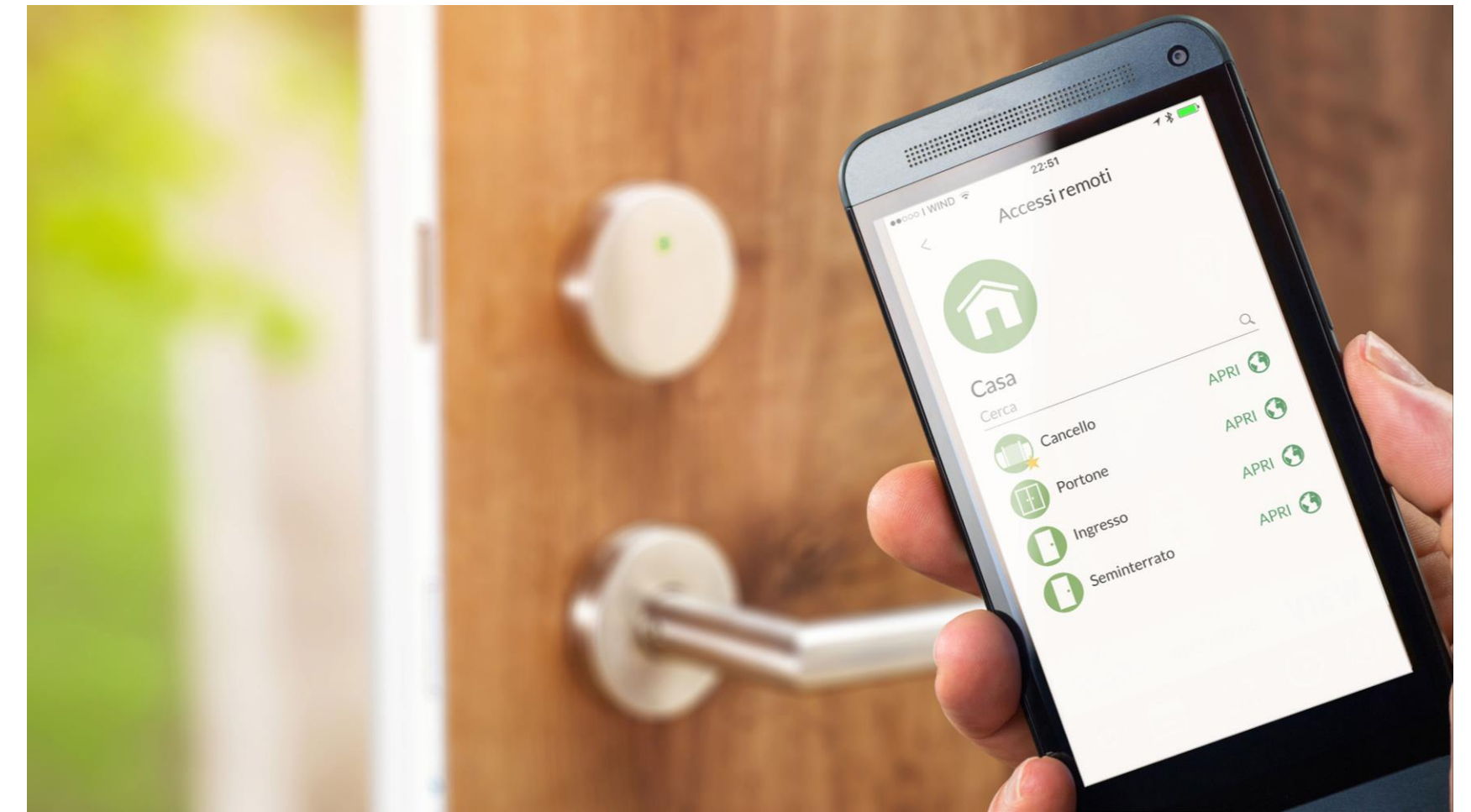


# SmartMeeting

Smart Meeting Solution allows to select the best room for your meetings, invite visitors and get them access to the building and to the available physical and digital services (i.e. guest Wi-Fi) with no hassle.

Mixing Presence and Proximity capabilities, the Solution allows employees to book the Nearest Available Room on, and invited visitors are automatically authorized to all the doors and restricted gates to reach the room.

Check-in to meeting room allows the organizer to get control and interact with BMS to control different features like: lighting controls, audio/video systems, sensors, buttons and wireless actuators, energy meters, etc.



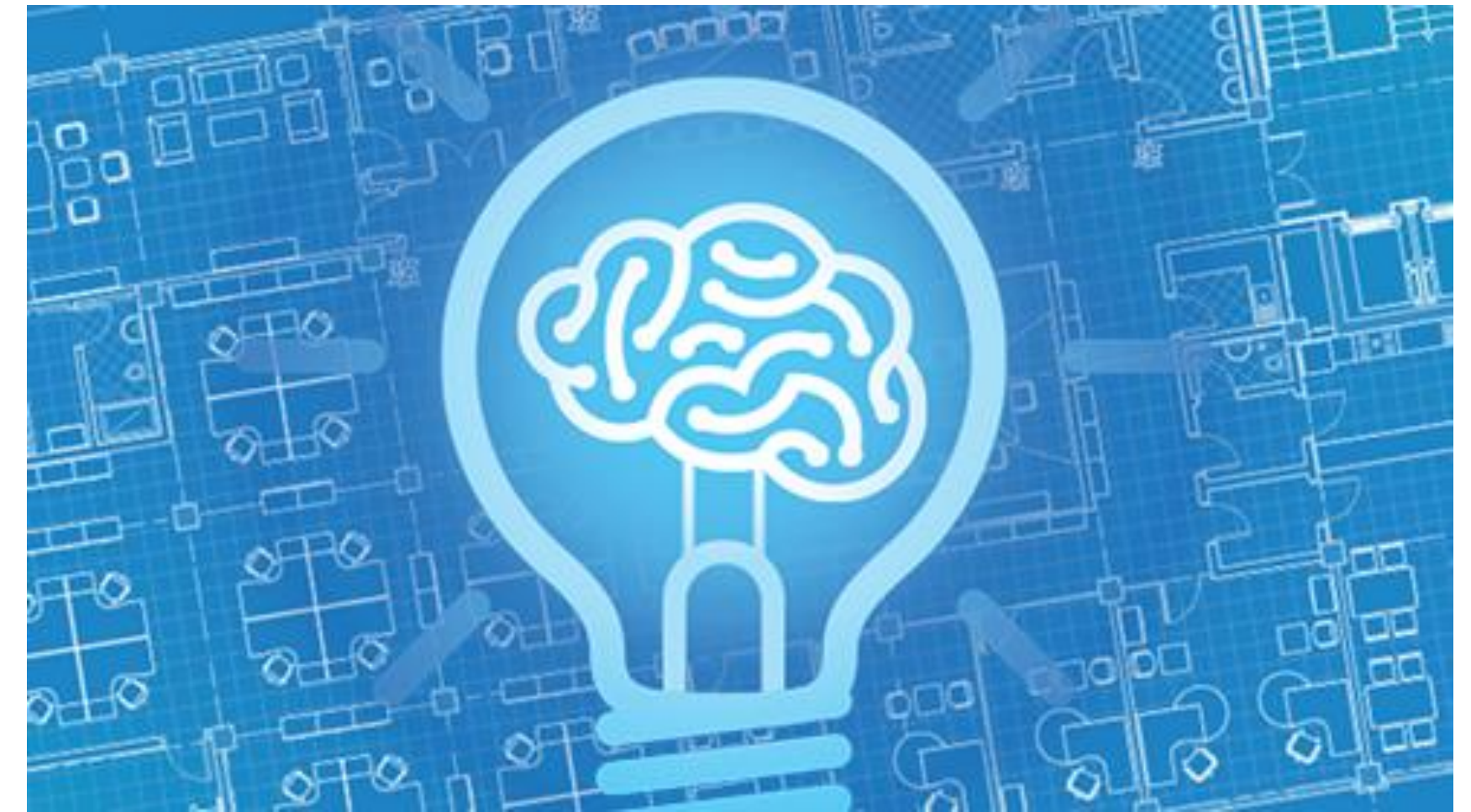


# SmartSpaces

Smart Spaces Solution allows to maximizes workplace efficiency and resources productivity, using real time information to choose the place to work based on the perfect fit for your employees needs.

Using Booking and Check-in/Check-out (room, desk, etc.), the Solution will automatically optimize spaces usage preserving user preferences and maximizing productivity at the same time,

Big Data analytics on occupancy allows enterprise to gain insights on spaces usage by employees and visitors to model their own modern workplace strategies.







# Smart Access Solution



# Smart Access details

## Virtualize user identity, authorization and policies

### Virtual Identity

☐

- ☐ User Digital Representation based on Secure Key
- ☐ Works with any existing Access Control system

### Authorization

☐

- ☐ Permissions connected to Secure Key
- ☐ Fine control over privacy

### Secure Keys

☐

- ☐ Exchanged thorough Local protocols (Bluetooth)
- ☐ Or secure remote RestAPI call

### Policies

☐

- ☐ Set of rules stored in the back-end
- ☐ Allowing any possible scenario



# Smart Access Actions



## Proximity

Local actions can be done if the user is exactly in one place or an area of the building.

This is done with Bluetooth Beacons.

## Tapping

User must "tap" its Smart Phone, Badge, Wearable to a specific placeholder. This is done normally with NFC Tags or BT Beacons using very-near-proximity to support non-NFC devices.

## Remote

Local actions can be done from everywhere. Remote user status is evaluated during the Policy check and command is communicated thorough the IoT Gateway.



# Smart Access components

An App, which turns your smartphone into a keychain. The App is designed for companies, their employees and visitors. It allows to interact and get "access" to turnstiles, car parks, doors, gates, lockers, vending machines, etc.

APP

A web site accessible from everywhere. It is used to create a virtual key or badge in few simple steps. Assign permissions and actions to each Virtual Identity dynamically. Show reports and statistics on Identity usage on services.

Portal

An IoT Gateway able to connect to any smartphone and to check Virtual Identity and execute any local command (network or electric). It receives data from sensors and devices connected to it and routes them to the cloud.

Control device

All the logic is driven by a centralized cloud-based solution integrated with all the other systems (like SOS, Office 365/Exchange, etc.) and correlated by user location (proximity) to physical objects or areas inside the Building.

Cloud





# Smart Lobby Solution



# Smart Lobby details



## Provide building welcome and registration services

### Register

☐

- ☐ Welcome users
- ☐ Finalize registration process

### Authorize

☐

- ☐ Identify users (also with biometry)
- ☐ Provide dynamic access to areas

### Guide

☐

- ☐ Provides Concierge Services
- ☐ Integrates with external services



# Lobby Key components are



## Digital signage services

Monitors for general information, information about the different service areas and for the events. For improve communication strategy with a powerful communication tool.

## Digital signage for Kiosks

Kiosks are equipped with touch screen monitors and specific peripherals like printer, NFC, 2D and 3D cameras, etc. Users locate registration/events dedicated kiosks and preferred access and turnstile and use Smart Phones or Badges to be indentified at the kiosk.

## Interactive digital Kiosks

Lobby Management can quickly customize the device loading specific service SW, changing colors and contents. Kiosk run a Bot software that can interact with users and control the kiosk devices. User can run Bot in their devices without use kiosks as a personal assistant.



# Smart Lobby BOT service



Manage all the user interaction logic for the different part of service.  
Offer a conversational interaction with the customers.

Goals

Different services depending from the type of channel used.  
BOT can interact using different clients like Web Chat client and many chat services like, facebook messenger, skype, etc.

Services

Bot Logic is implemented server side using Microsoft Bot Framework.  
For the kiosk it use Directline 3.0 channel that allow Bot server to send "actions" to the kiosk.

Connect

Bot client implements human hands-off, while Bot server become a bridge for a human to human conversation.  
Flows are implemented using conversations dialogs and where applicable using Adaptive Cards technology.

Implement





# Smart Meeting Solution



# Smart Meeting details

Depending from organized meeting, manages

## Planning

☐

☐ Plan and Invite visitors at the meetings

☐ Integrated into Office 365

## Authorization

☐

☐ Authorize visitor to reach the room

☐ Control the room efficiency with check-in/out

## Connection

☐

☐ Interact with different sensors

☐ Connect to home automaton bus

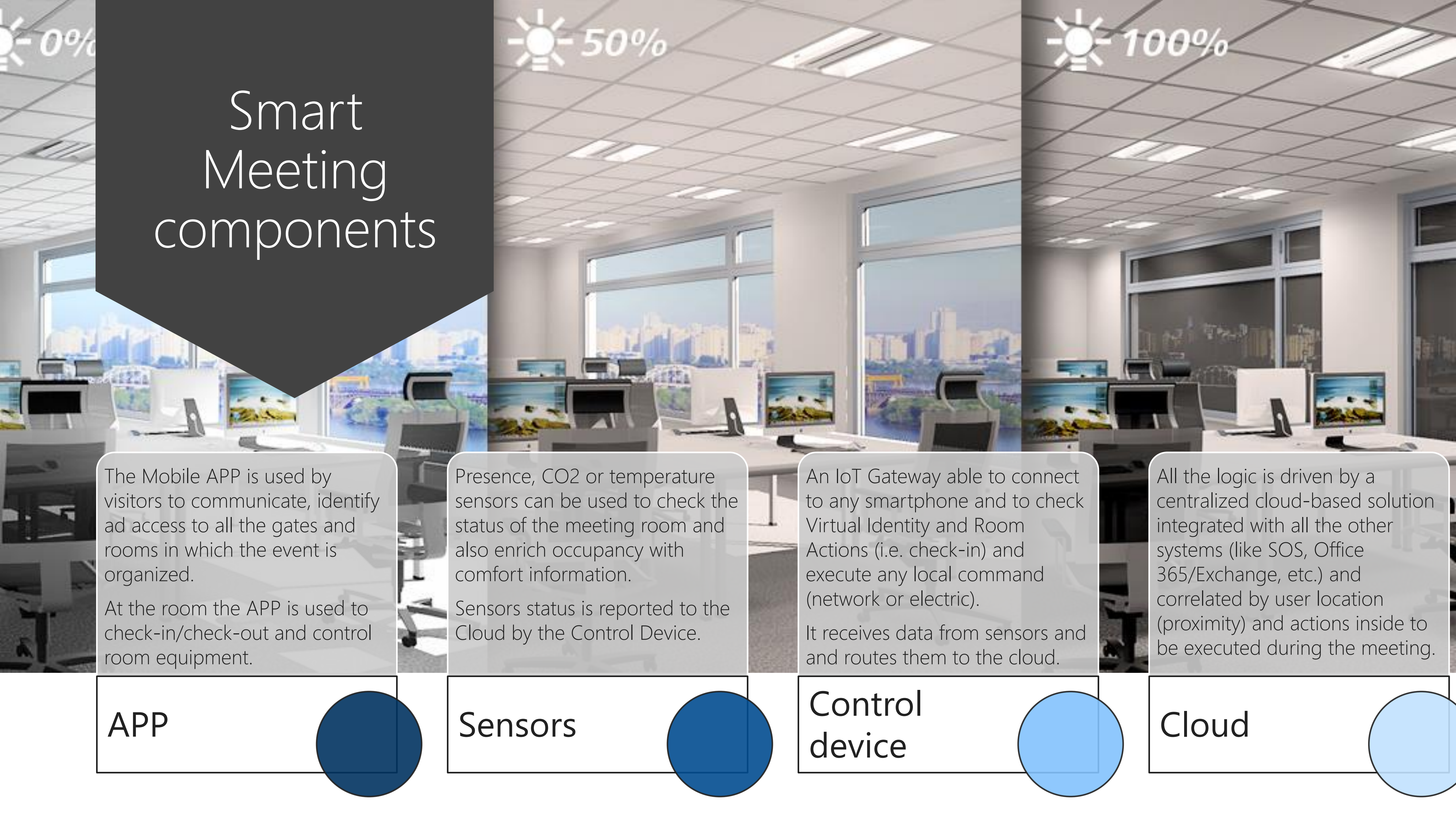
## Control

☐

☐ Lighting, air or temperature control

☐ Audio/video systems, etc.



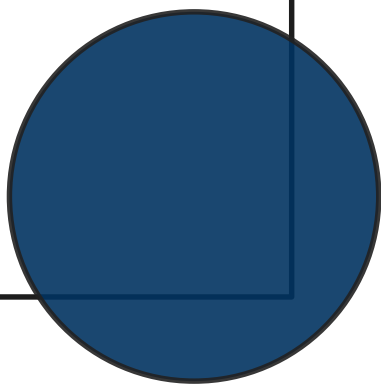


# Smart Meeting components

The Mobile APP is used by visitors to communicate, identify and access to all the gates and rooms in which the event is organized.

At the room the APP is used to check-in/check-out and control room equipment.

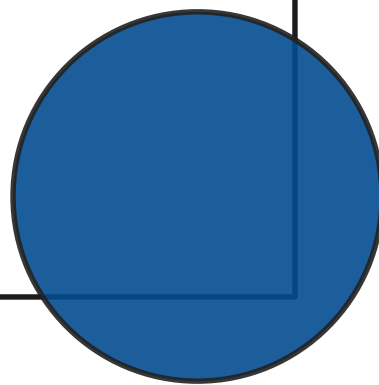
APP



Presence, CO2 or temperature sensors can be used to check the status of the meeting room and also enrich occupancy with comfort information.

Sensors status is reported to the Cloud by the Control Device.

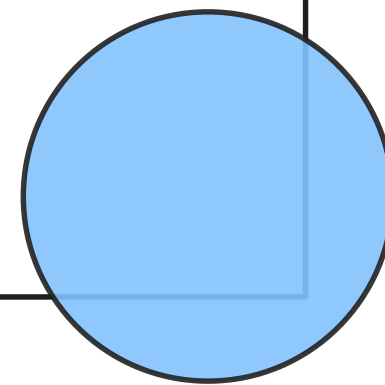
Sensors



An IoT Gateway able to connect to any smartphone and to check Virtual Identity and Room Actions (i.e. check-in) and execute any local command (network or electric).

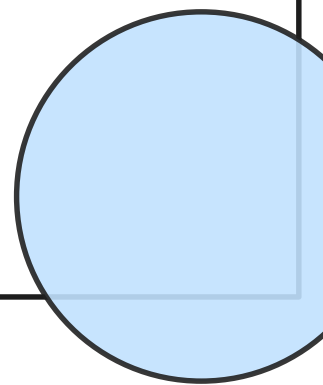
It receives data from sensors and routes them to the cloud.

Control device



All the logic is driven by a centralized cloud-based solution integrated with all the other systems (like SOS, Office 365/Exchange, etc.) and correlated by user location (proximity) and actions inside to be executed during the meeting.

Cloud







# Smart Spaces Solution



# Smart Spaces details

Makes your spaces more productive with

## Booking

☐

- ☐ For availability resources or spaces
- ☐ Selecting specific features and location

## Check-in/out

☐

- ☐ Start/end of using the space
- ☐ Activated by Proximity, extend usage time

## Presence

☐

- ☐ with security PIRs, Cameras or sensors
- ☐ Digital Twin connected IoT Gateway

## Optimization

☐

- ☐ Control spaces
- ☐ auto-reschedule to a smaller space with the same features



# Smart Spaces components

The Mobile APP is used by users to “tap” at shared spaces (rooms, desks, etc.) check-in. The very-near-proximity user experience is done with very cheap NFC tags and Bluetooth beacons (the APP automatically use the best technology).

APP

Presence sensors and intelligent cameras can be used to check the status of the space, the presence of the people and how many people are in a space. It is possible to set notification if limit values measured by a sensor are exceeded.

Sensors

An IoT Gateway able to connect to any smartphone to execute check-in/out and any local command. It receives data from sensors and devices connected to it, both electrically and via network interfaces, and routes them to the cloud.

Control device

All the logic is driven by a centralized cloud-based solution where user location (proximity) and actions (check-in/out) are validated and tracked. Get insights and optimize spaces based on bookings, presences, counting, and check-ins/outs.

Cloud



One identity,  
multiple  
options

## Our solutions bridge your identity to physical world

### Keys Holder



- ☐ Smart Phone (iOS, Android)
- ☐ Badge and Token
- ☐ Dynamic PIN and Biometry

### Proximity



- ☐ Bluetooth Beacons
- ☐ NFC
- ☐ Wifi

### Presence/counting



- ☐ Infrared sensors
- ☐ Microwave sensors
- ☐ 2D and 3D Cameras

### Action



- ☐ Electric contacts
- ☐ I/O (UART, I2C, USB)
- ☐ Network (BACnet, HTTP, etc)



Fast and easy  
to get to work

## Our solutions easily integrate with your building

### Sensors



- ☐ Use existing sensors
- ☐ Integrate with Security PIRs
- ☐ Wired/Wireless sensors

### IoT Device Options



- ☐ Electric Panel (DIN Rail)
- ☐ Wall-mounting
- ☐ Desktop-mounting

### Networking



- ☐ Wired Ethernet
- ☐ Wi-Fi
- ☐ LoRa

### Gates control



- ☐ Electric locks
- ☐ Wireless locks
- ☐ BMS-controlled locks



# Remote monitoring and control

## Our solutions work anytime and anywhere

### Dashboard



- ☐ Remote Monitoring
- ☐ Telemetry
- ☐ Alarm and Alerting
- ☐ Diagnostic

### Remote Control



- ☐ Remote open / actions
- ☐ Device Management
- ☐ Remote monitoring

### Policy



- ☐ Assign and Revoke Authz
- ☐ Define complex rules
- ☐ Manage subcontractors

### Data Management



- ☐ Business Intelligence
- ☐ Maintenance planning





# Use Cases



# Booking and Optimization

1. Organizer can reserve remotely any space: office couches, desks or meeting room

2. System create the permissions and accesses based on the reservation

3. Visitors or guests are informed in real time of invite and reservation on where an event takes place

4. System allows Space Optimization according to Resources and Spaces





# Space Utilization



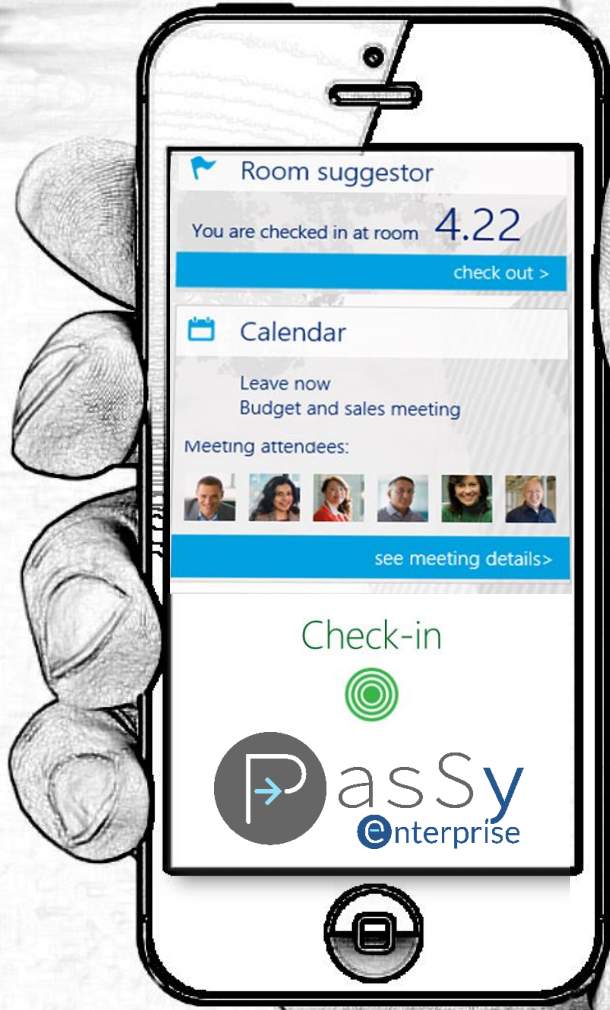
5. IoT Controller manages local commands and Bluetooth communication with Smartphone

4. Users can gain access with his smartphone to the workplace, open the meeting room door

1. By Proximity, Users can see the nearest room or desk calendar and bookings

3. Users can do check-in or check-out the space just tapping

2. If a room or desk is free you can do immediately booking







System can control room occupancy with presence of at least one participant

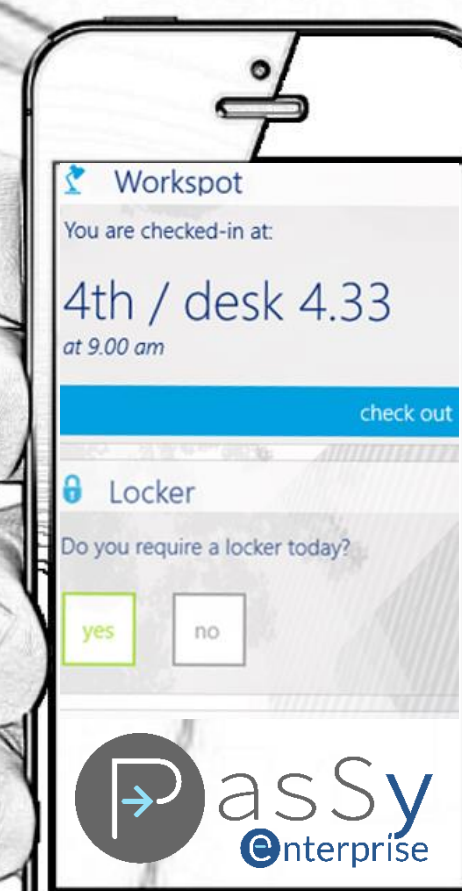
Users and System can control video projection

Users and System can control window shades, ecc...

Users and System can control room lighting

## Space Automation and control

Users can do meeting check-in/out with smartphone

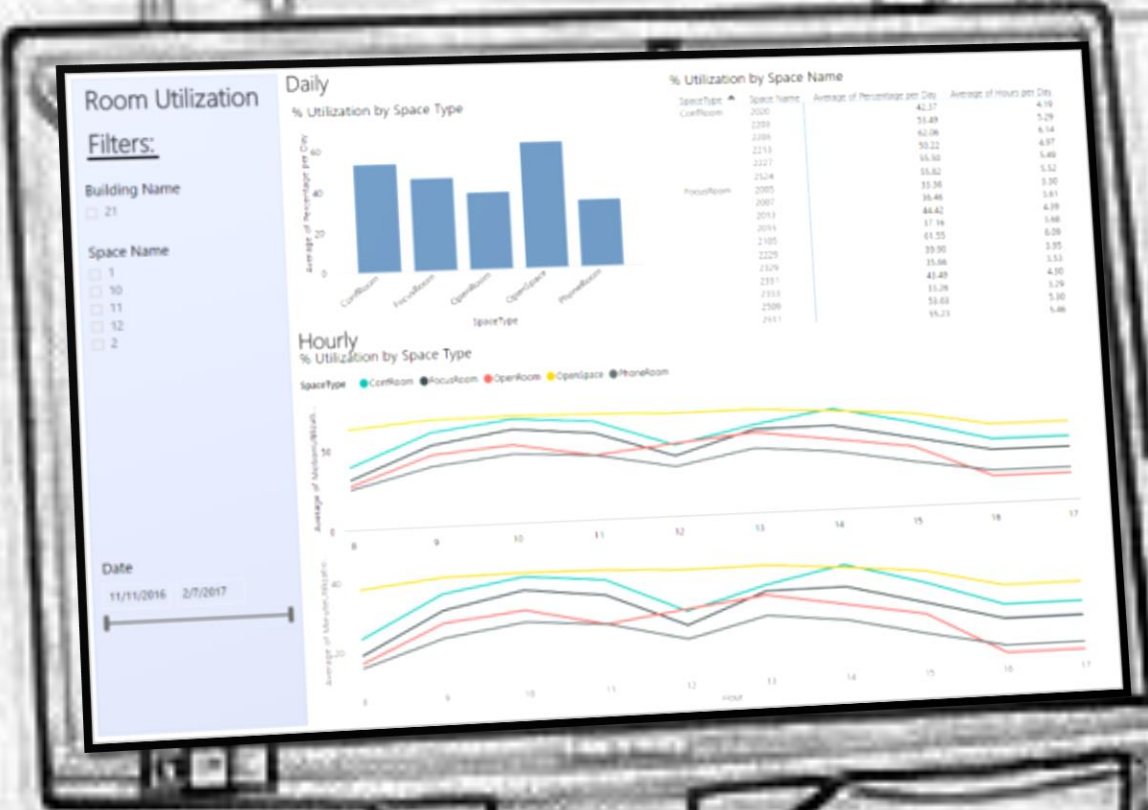




# Space Utilization Analytics

Users can monitor if they are using spaces following company policies

Spaces managers get gain insights on space utilization and perform optimizations





# Visitors Management

1. Organizer schedules meeting using Outlook

2. Organizer enabling the visitor to a meeting

6. Organizer receives arrival notification

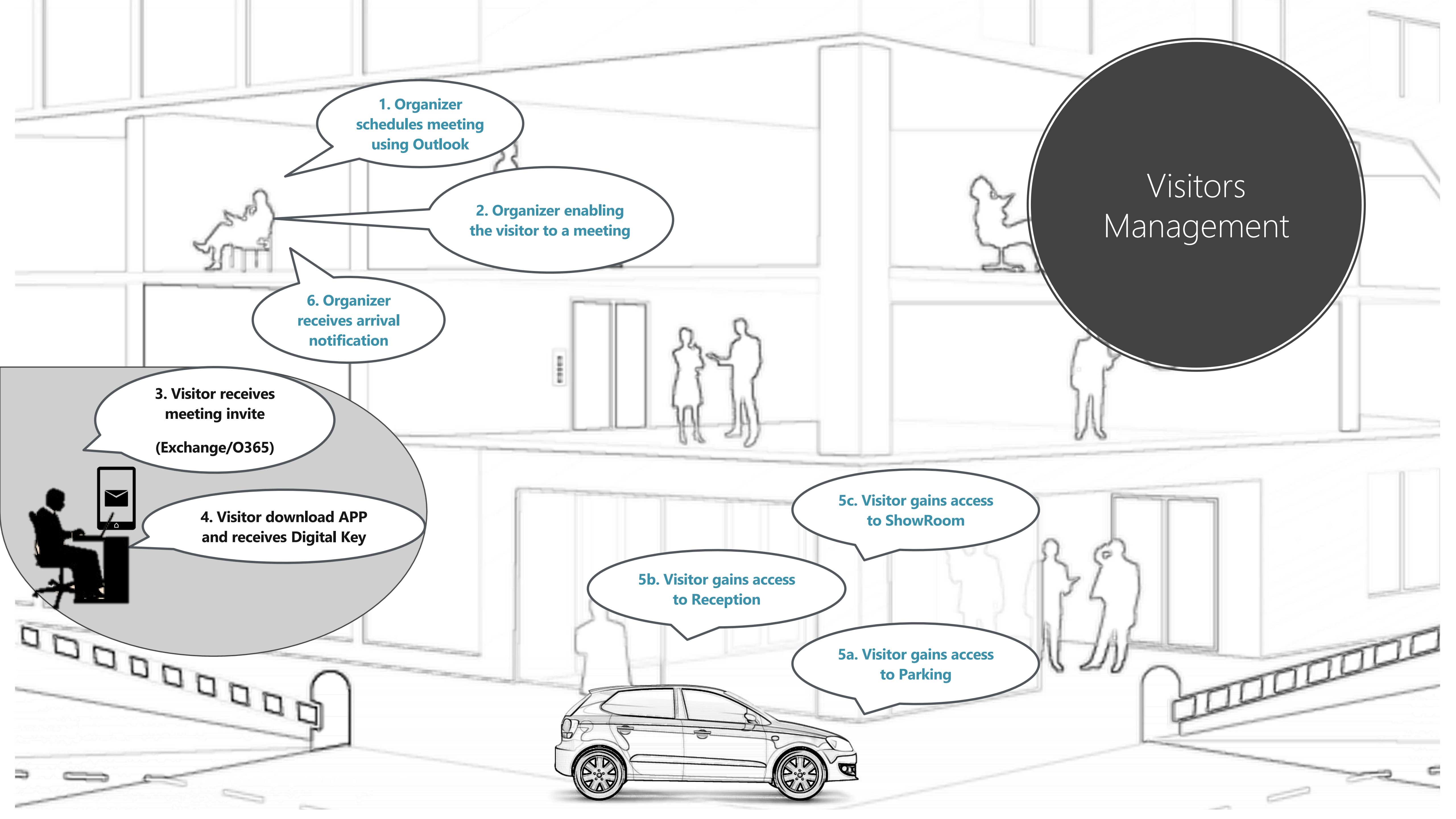
3. Visitor receives meeting invite (Exchange/O365)

4. Visitor download APP and receives Digital Key

5c. Visitor gains access to ShowRoom

5b. Visitor gains access to Reception

5a. Visitor gains access to Parking





1. Customer registration portal and require an appointment or meeting via BOT -based Interaction

2. BOT organizes and enables customer to the meeting



5. For security, Customer can be identified with immediate profile picture check

3. Customer arrives and is automatically enabled to access

4. He access to Virtual Reception and do self check-in (with adhesive badge)

6. Customer get instant access to services (i.e. WiFi)

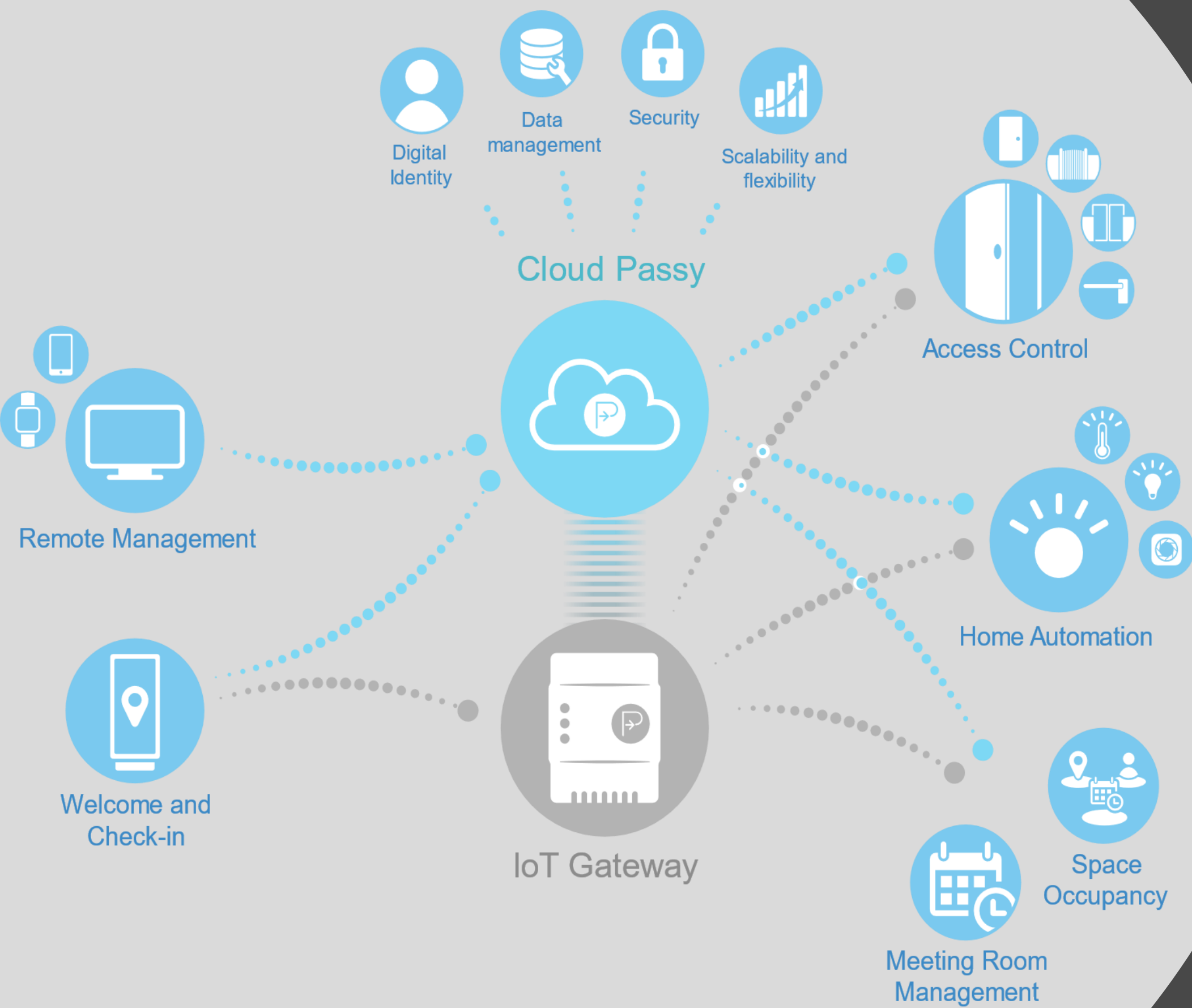
7. Notification arrive to the meeting host

8. Customer get instant access to gates, doors, turnstiles, elevators, etc. with his mobile.

Lobby Management and Welcome



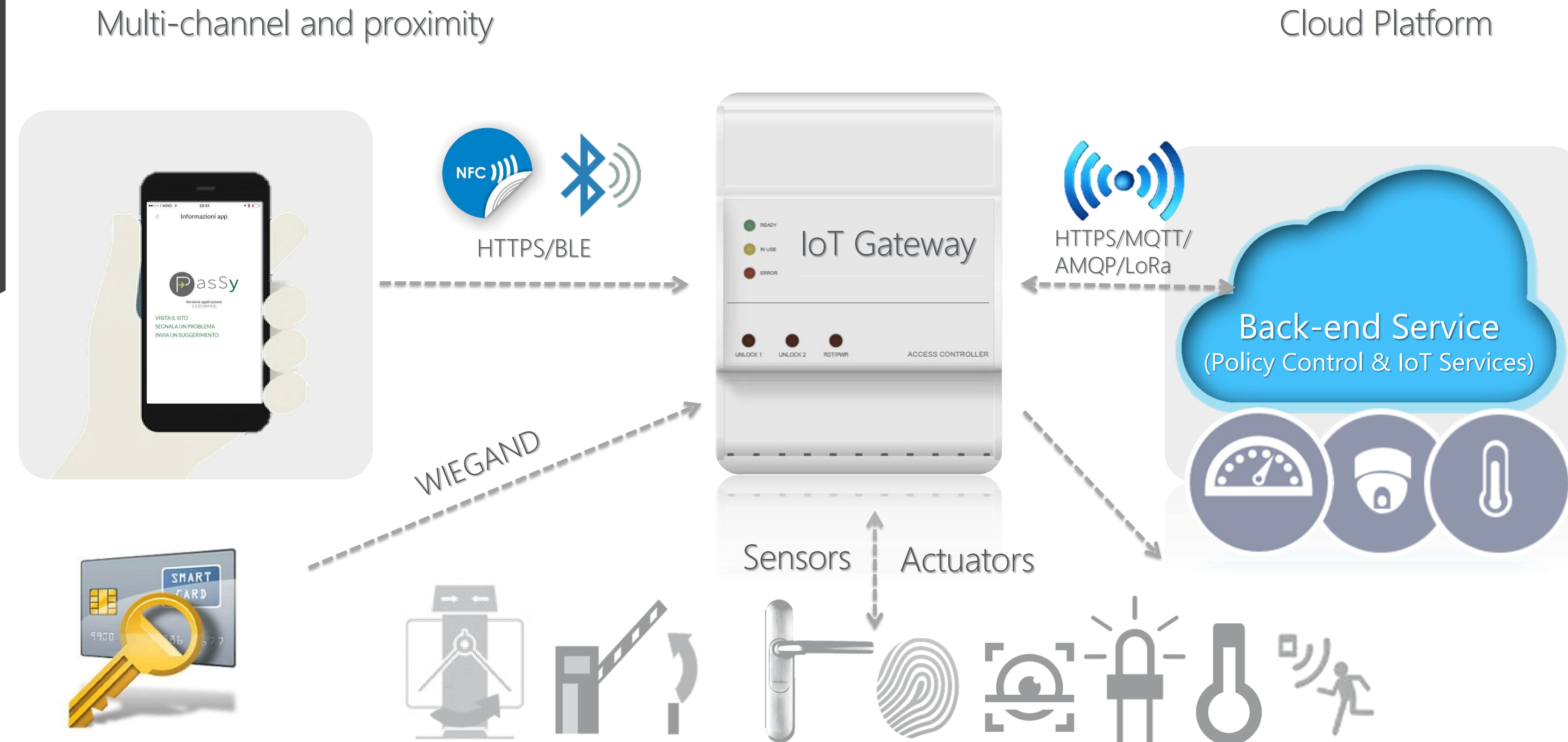




# Architecture



# Solution Architecture



## One keychains

Manage all your digital keys. Replace keys, badges, smartcards, tokens, QR codes, with only your personal smartphone.

## Extensible

A controller allow to manage equipment and sites, to control different devices and project sensors to the cloud.

## Connected

Use typical IoT protocols. Receive remote command, user proximity, user identity (key) and evaluates policies to be cascaded as actions on the Gateways and Apps.



# IoT Gateway

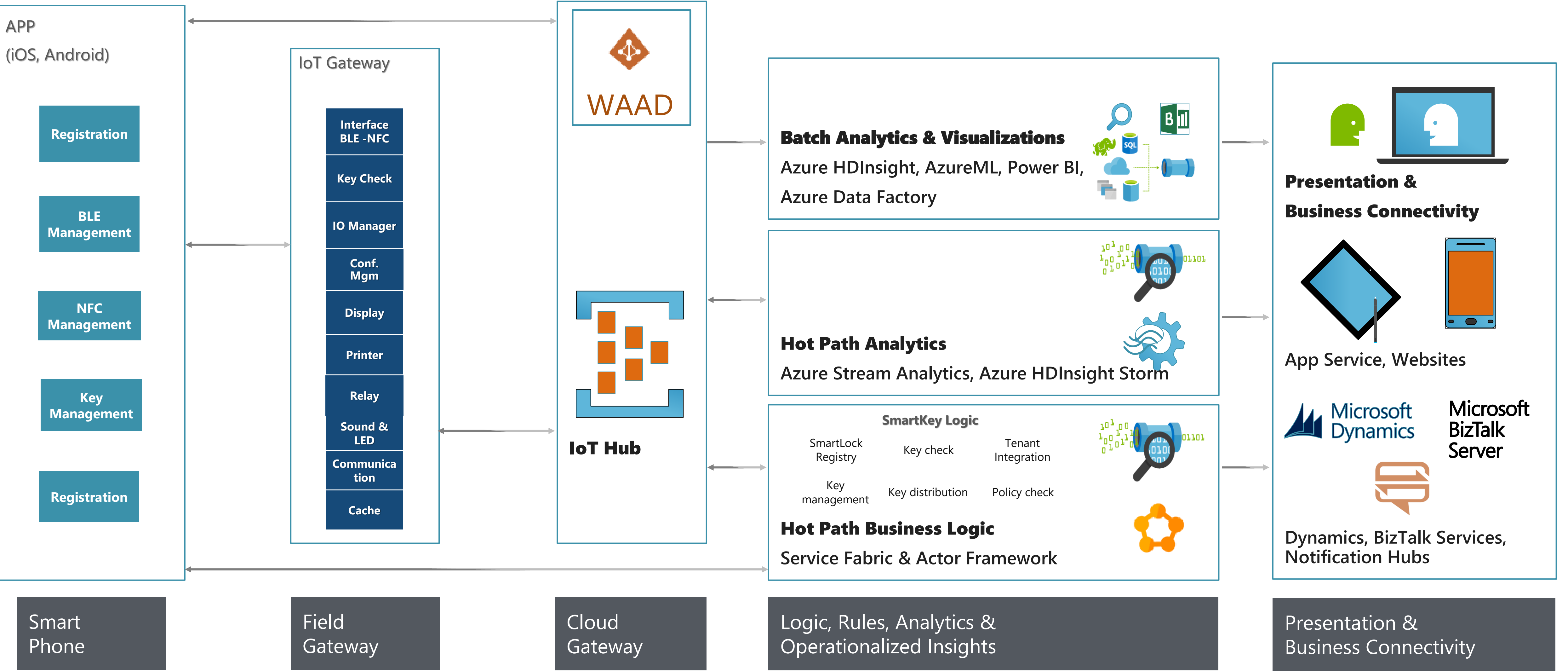


## Technical Features

Form Factor	DIN Rail Mounting, 4U H53 Module
Dimensions	90 x 70 x 60 mm
DC Input Voltage	7,5-24Vdc
Architecture	ARMv6
Power Consumption	Max 500mA @ 12V
USB	1x Micro USB 2.0
Wiegand	2x Readers, 26-37 bit configurable
Electric Contacts	7x Configurable as NO/NC
Relay Outputs	2x Configurable as NO/NC, max 6A @ 50VAC - 6A @ 120 VDC
External Relay	3x Relay Control Lines 12-24Vdc
Expansions	1x UART, 1x I2C, 1x USB 2.0
LAN	Ethernet 802.3
Wireless LAN	WiFi 802.11n
Bluetooth	Low Energy 4.0
Buttons	Power/Reset, Force output 1, Force output 2
IoT Protocols	MQTT, AMQP, REST
Certifications	CE, Microsoft Azure IoT Certified
SmartPhone APP	Windows Phone 10+, iOS 10+, Android 5+
Wireless Locks	SimonVoss Digital Locking System



# Solution Architectural View







# Case Study



# PasSy Enterprise for INAIL



# INAIL

Exchange/ Office  
365 Integration

Visitors Building  
Access integrated  
with plan (or update)  
meeting manage

Visitors Sticky Badge  
Printing

IoT-based Remote  
Monitoring

IoT-based Remote  
Command

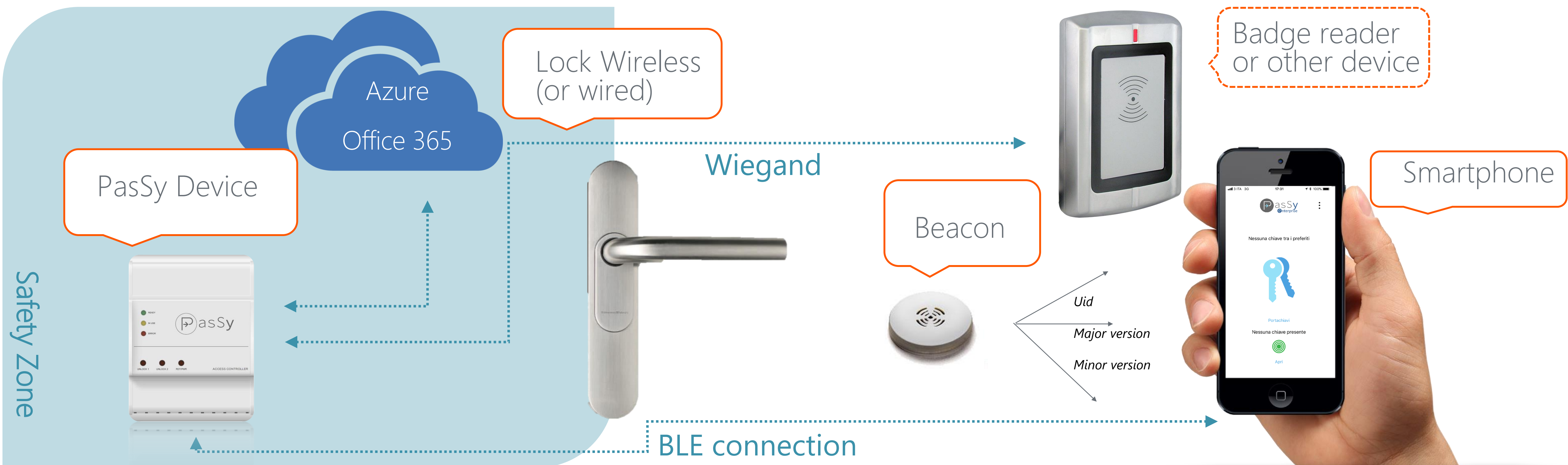
Visitors Parking  
Access (Integration)

Turnstile  
(Integration)

Space Occupancy



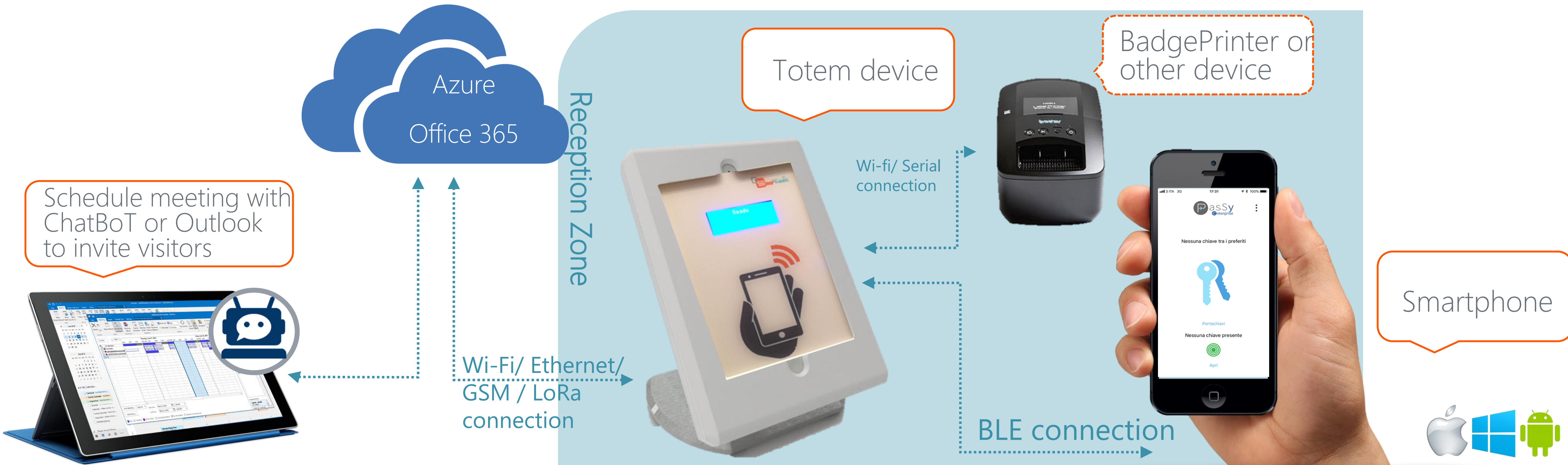
# Access System Components



- ✓ The System allows to command the gate opening with:
  - Smartphone, by proximity via GPS or beacon;
  - Badge or Numeric Keypad: it supports standard Wiegand;
  - Other device: it is extendable to the use of other device (e.g. biometric device);
  - Via IoT secure command.
- ✓ Smart Lock device handles the communication with the Cloud Service, the Smart Phone/Other device and the Locks. It receives the key evaluates access policies results from Cloud Service to command the gate opening.



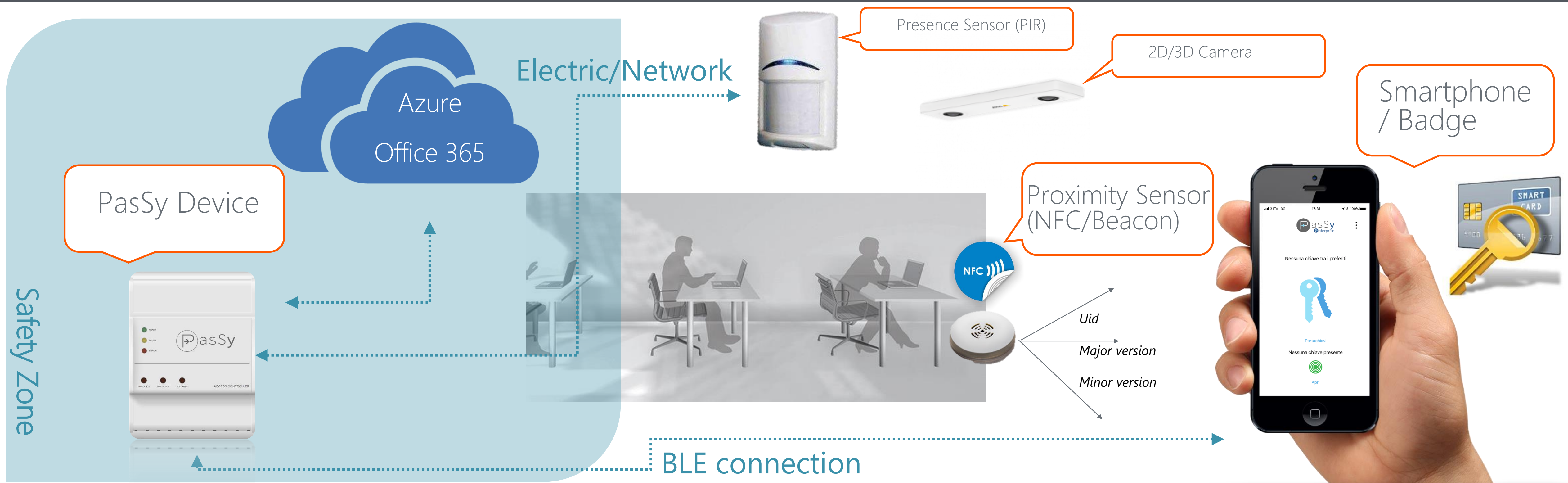
# Visitors Management Components



- ▶ The System allow to command the virtual desk (Totem/Kiosk) at reception so that, after visitor first registration:
  - The Visitor can be identified at the reception desk with immediate profile picture check.
  - The Totem enables the adhesive printing of permission or other action based on policy.
  - Organizer will receive an automatic notification of visitor access.
- ▶ Totem device handles the communication with the Cloud Service, the Smart Phone/Printer device/or other device (like turnstile). It receives the key evaluates access policies results from Cloud Service to command printing and/or opening the barriers etc.



# Room Occupancy (Presence, Proximity, Check-in/out)

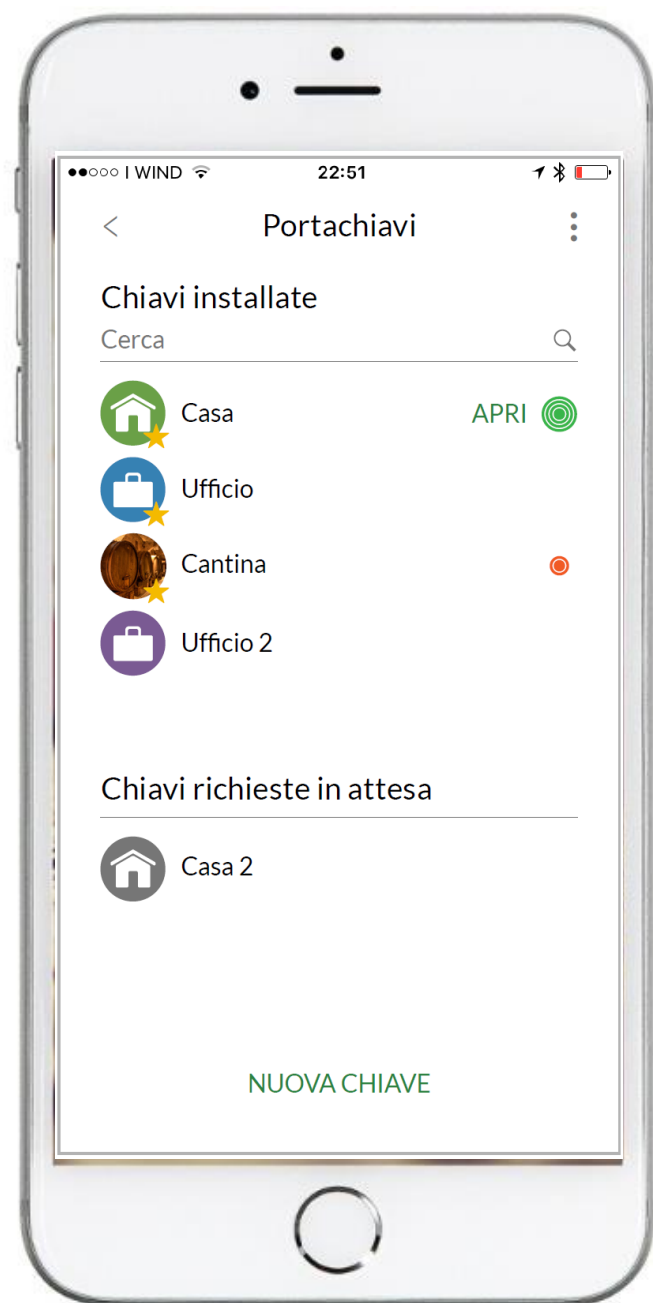


The System allows to:

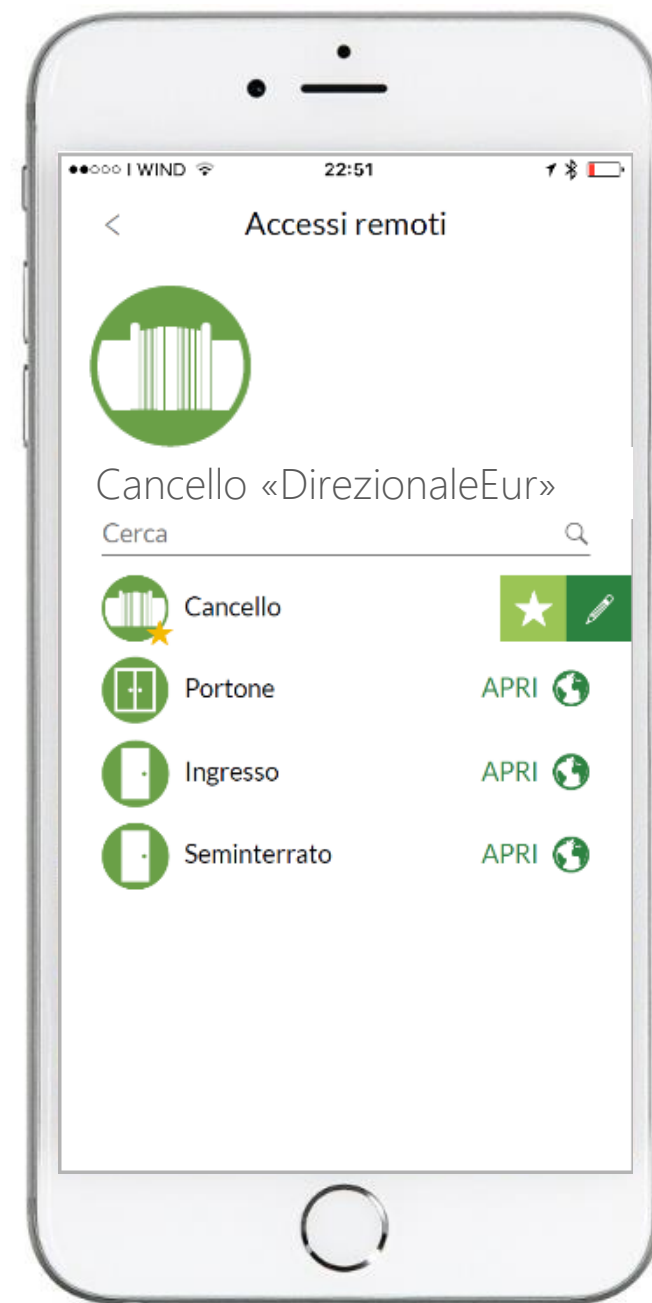
- ✓ Check-in/check-out into the room with your smartphone, check-in activated automatically by Proximity, or with your badge (tapping the Badge)
- ✓ Book a nearby room with your Smartphone see the list of rooms surrounding you, with availability, and quickly book one
- ✓ Presence information with security PIRs that are connected to IoT Gateway to collect presence information from the rooms
- ✓ Counting information with 2D and 3D cameras that are connected to IoT Gateway to collect presence and counting information from the desks and rooms
- ✓ Optimize meeting rooms: booked but not used; used but not booked; auto-reschedule to a smaller room with same features, automatically free no-show rooms
- ✓ Get Insights on Rooms usage
- ✓ Manage the room by monitoring and managing the sensors and gateway from everywhere



# Multi-device APP details



The APP, at early stage, generates a public / private couple key. Keys can be bound to a physical phone (IMEI), to a mobile number, to a user or even shareable.



The solution enables the identification of the "keys" that are already installed and marked as "favorite". It can be opened remotely with a simple button.



The APP provides all the details associated with the "key". Displays the indicator of proximity data. Lists remote access associated with the same "key".



The APP can be extended with further local and remote functionalities communicating with BLE with the field gateway and thorough Wi-fi or 4G connection.




# Building 1 Home

## Lock shortcuts



**Corridor door**  
Available until 18/03/2017 - 23:00  
**Offline**



**Door B**  
Booked until 18/03/2017 - 23:00  
Open



**Group 5**  
Available until 18/03/2017 - 23:00  
Open

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