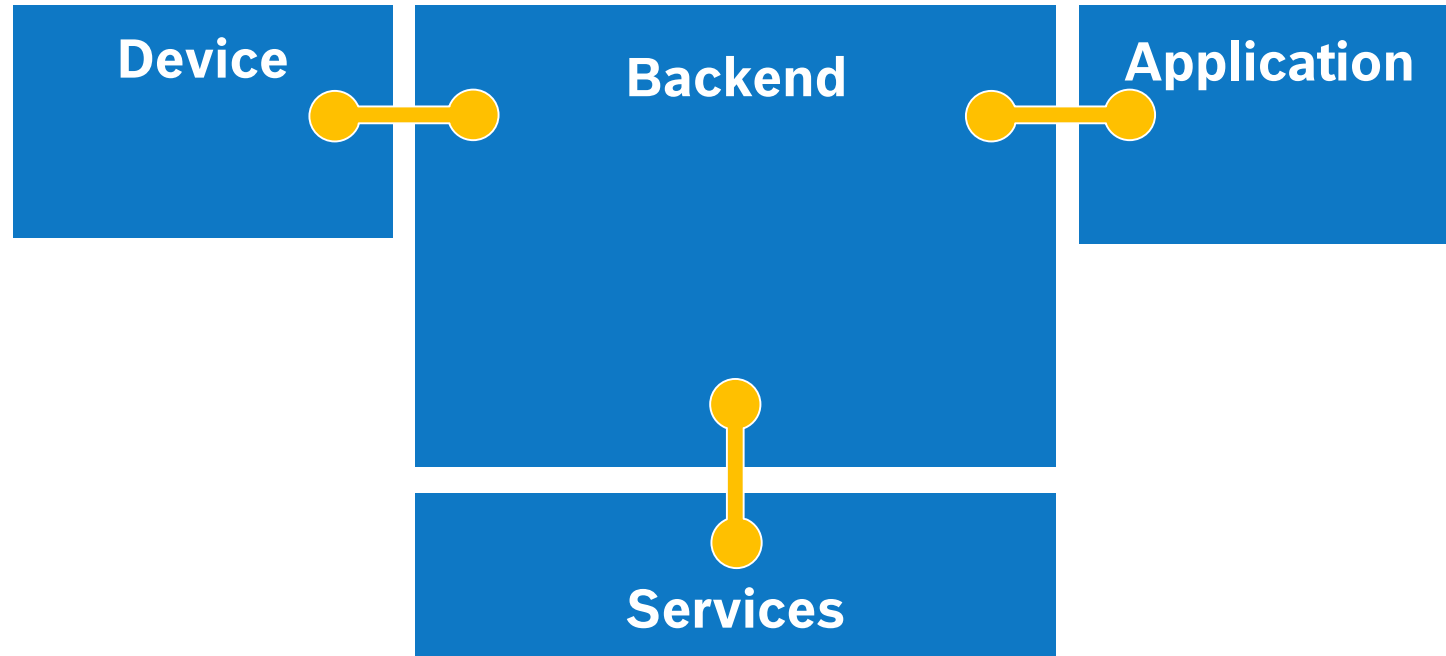


WORKSHOP BOSCH IOT SUITE

06.09.2019

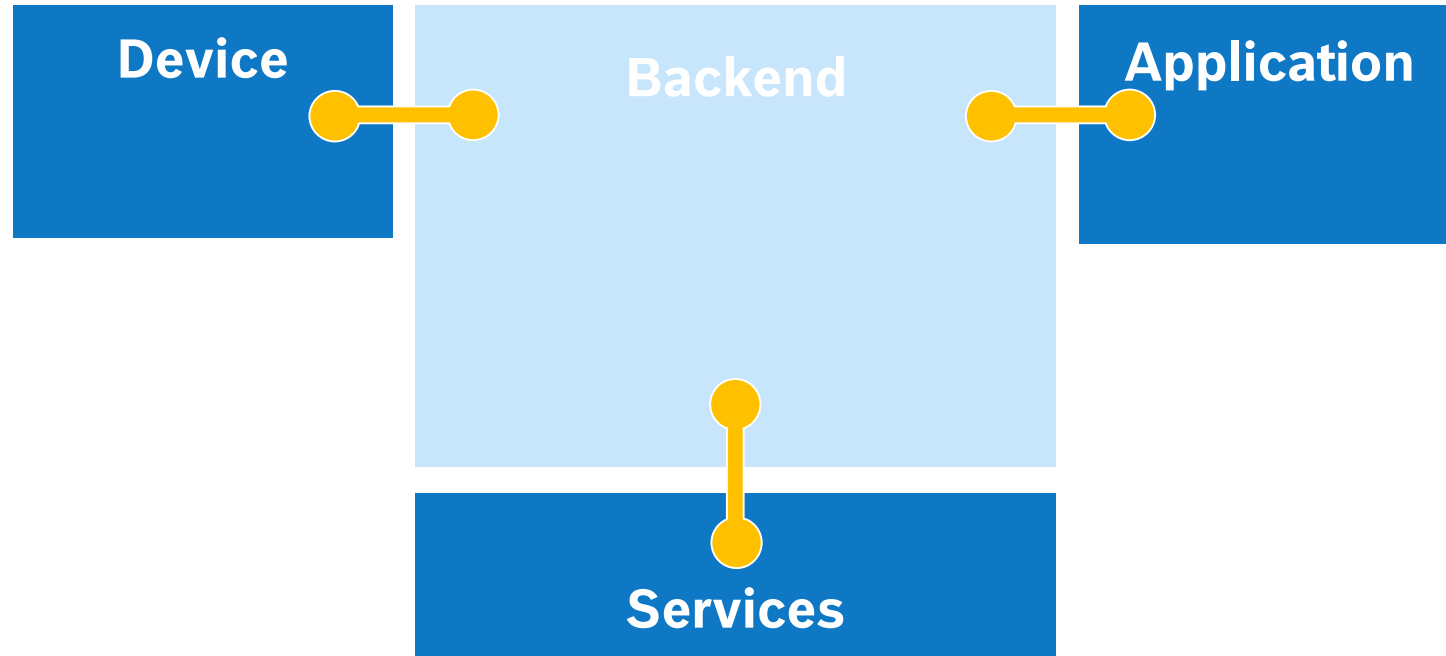
IoT Solution

Simplified elements of a typical IoT Solution



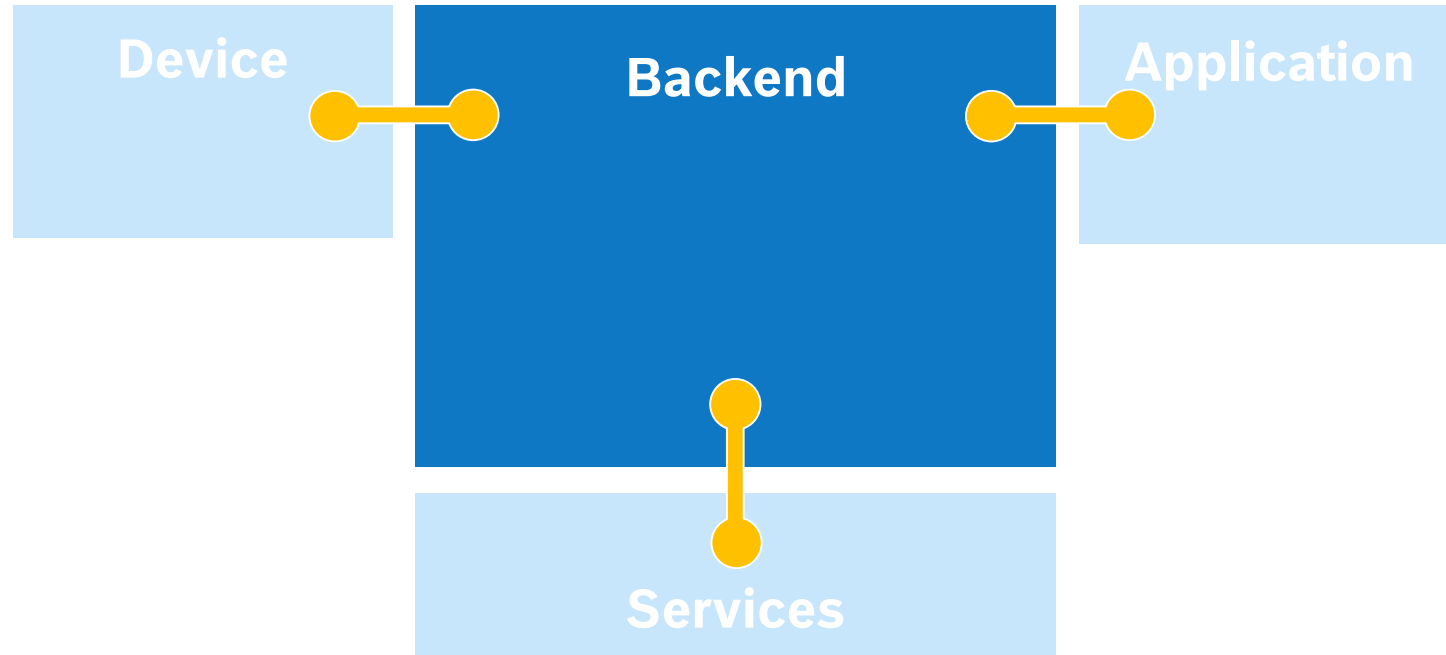
IoT Solution

Simplified elements of a typical IoT Solution



IoT Solution

Simplified elements of a typical IoT Solution



Bosch Software Innovations

We drive digital transformation together with our customers.



One open IoT platform –  **Bosch IoT Suite** – for all business domains.

Some Benefits



Focus

- Focus development capacity on new business opportunity rather than on connectivity (commodity).

Cross Domain Use Cases

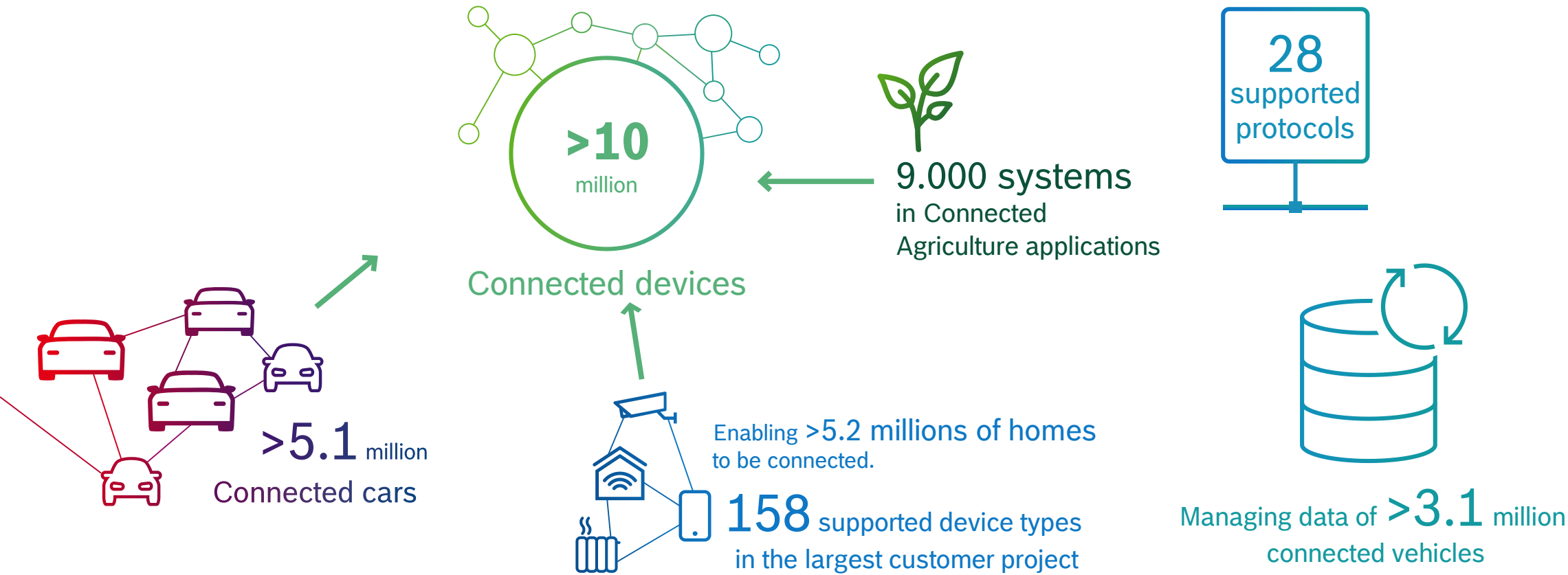
- More easily explore cross-domain business opportunities.

Cost Savings

- Less need to manage homegrown or 3rd party development.

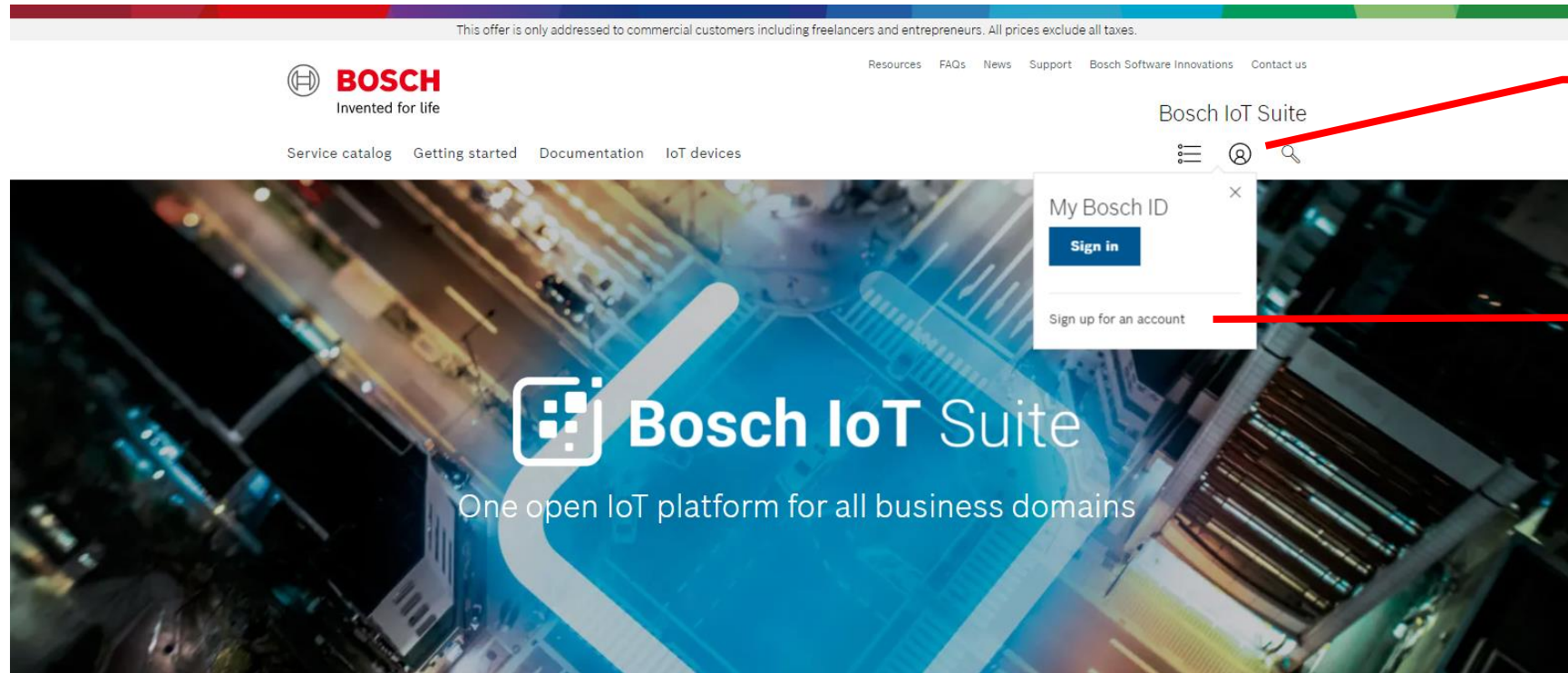
The Bosch IoT Suite

Facts and figures



Register a free account

Get a Bosch ID at **bosch-iot-suite.com**

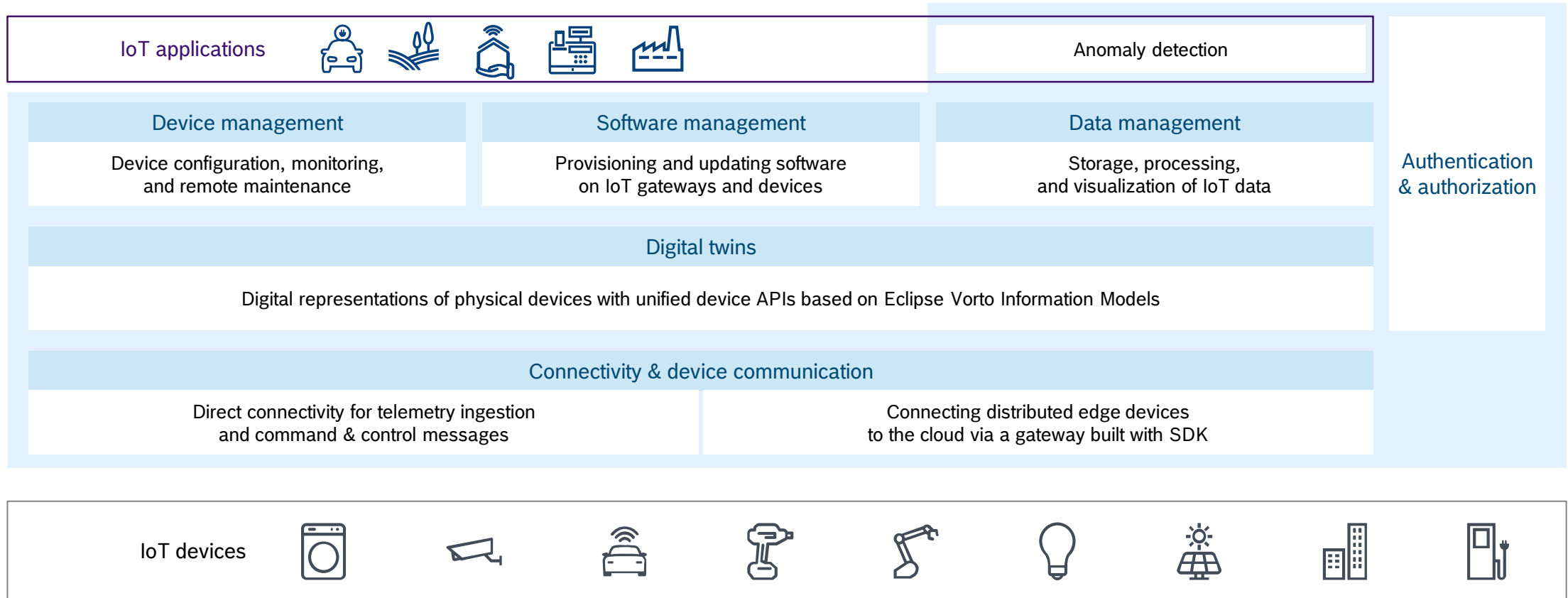


Step 1

Step 2

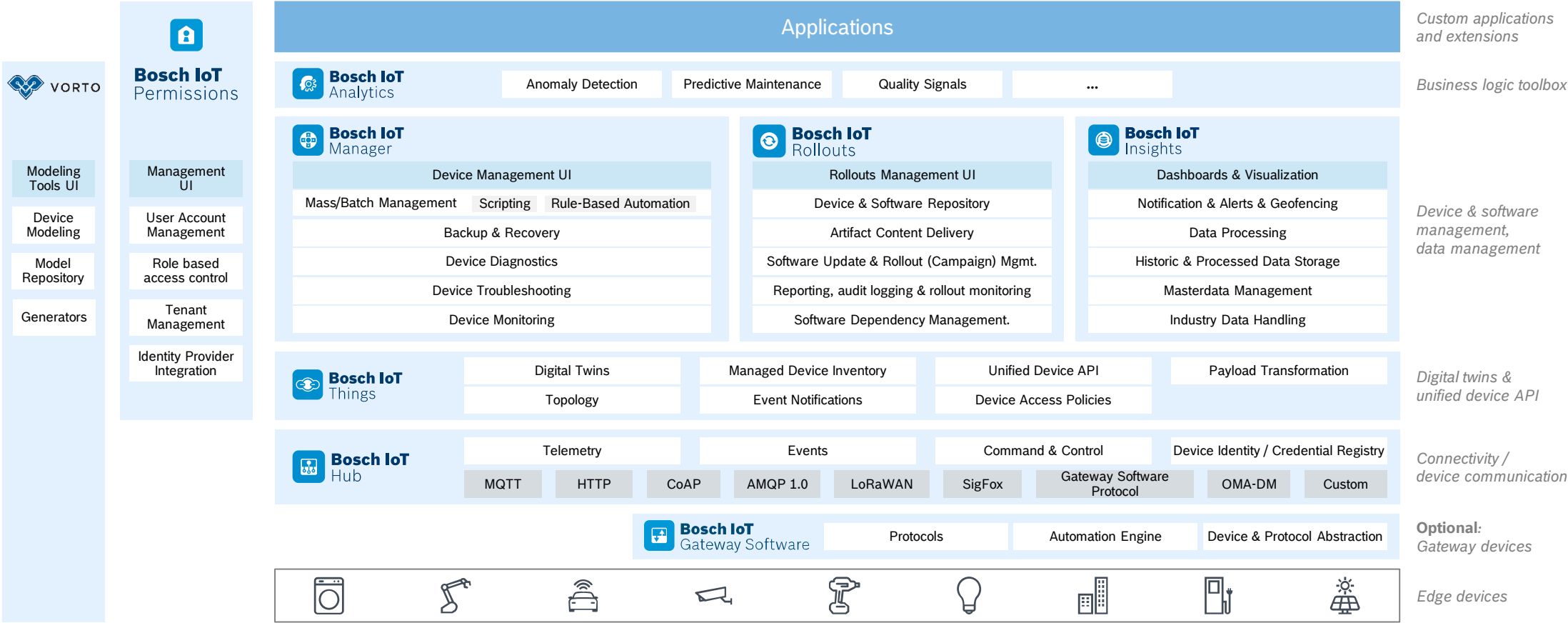
The Bosch IoT Suite

Functional layers for IoT solution development



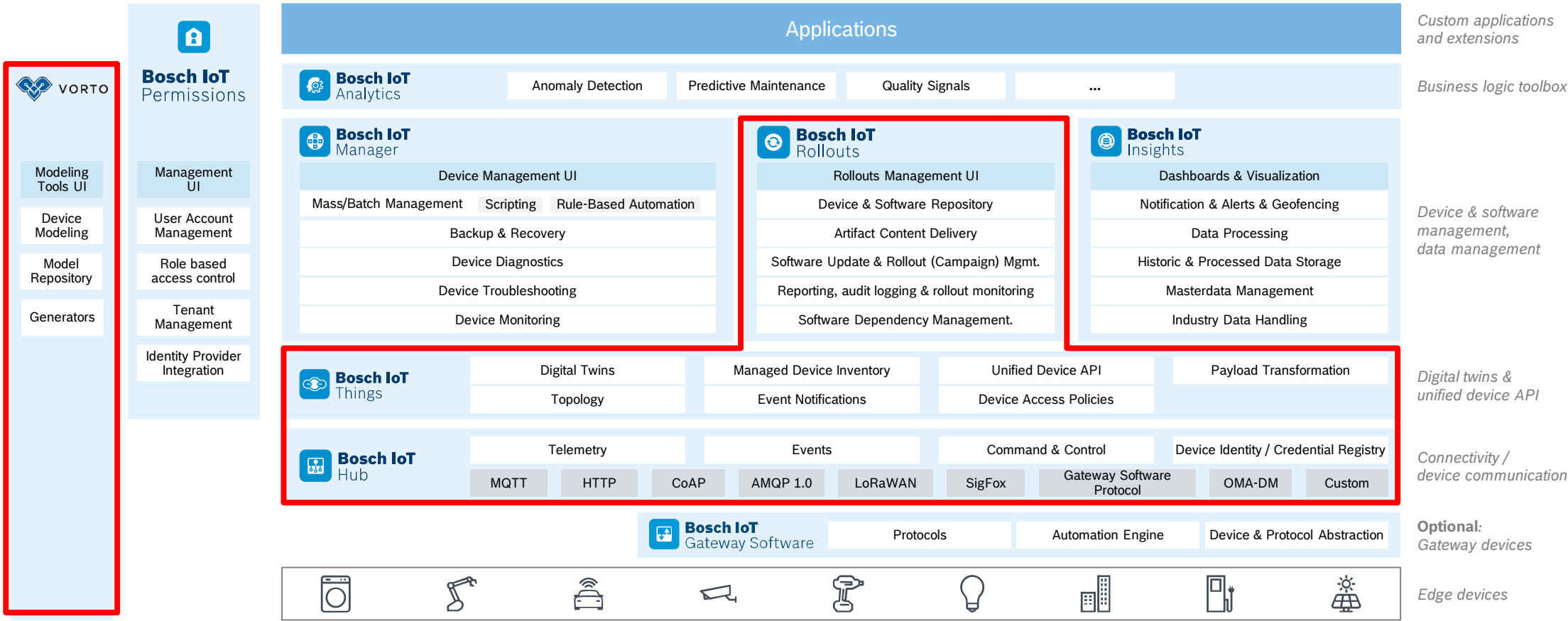
Bosch IoT Suite

Features located on architecture



Bosch IoT Suite

Features located on architecture



The Bosch IoT Suite

Leveraging Eclipse IoT projects



Domain-independent backend solution for rolling out software updates.



Allows you to describe the abstract capabilities and functionality of devices as Information Models.



Where IoT devices and their digital twins get together.



Provides remote service interfaces for connecting large numbers of IoT devices to a backend.



1) Device Inventory

Bosch Software Innovations GmbH

© Bosch Software Innovations GmbH 2018. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution as well as in the event of applications for industrial property rights.



BOSCH IOT HUB



Connects your things

Bosch IoT Hub

IoT is characterized through device heterogeneity and diversity



The various protocols so far defined or currently used to connect the wide range of devices imply a big challenge when building interoperable IoT solutions.

Mastering the variety of protocols

MQTT

XMPP

OMA-DM

CoAP

TR-069

+ various proprietary protocols

ETSI SmartM2M

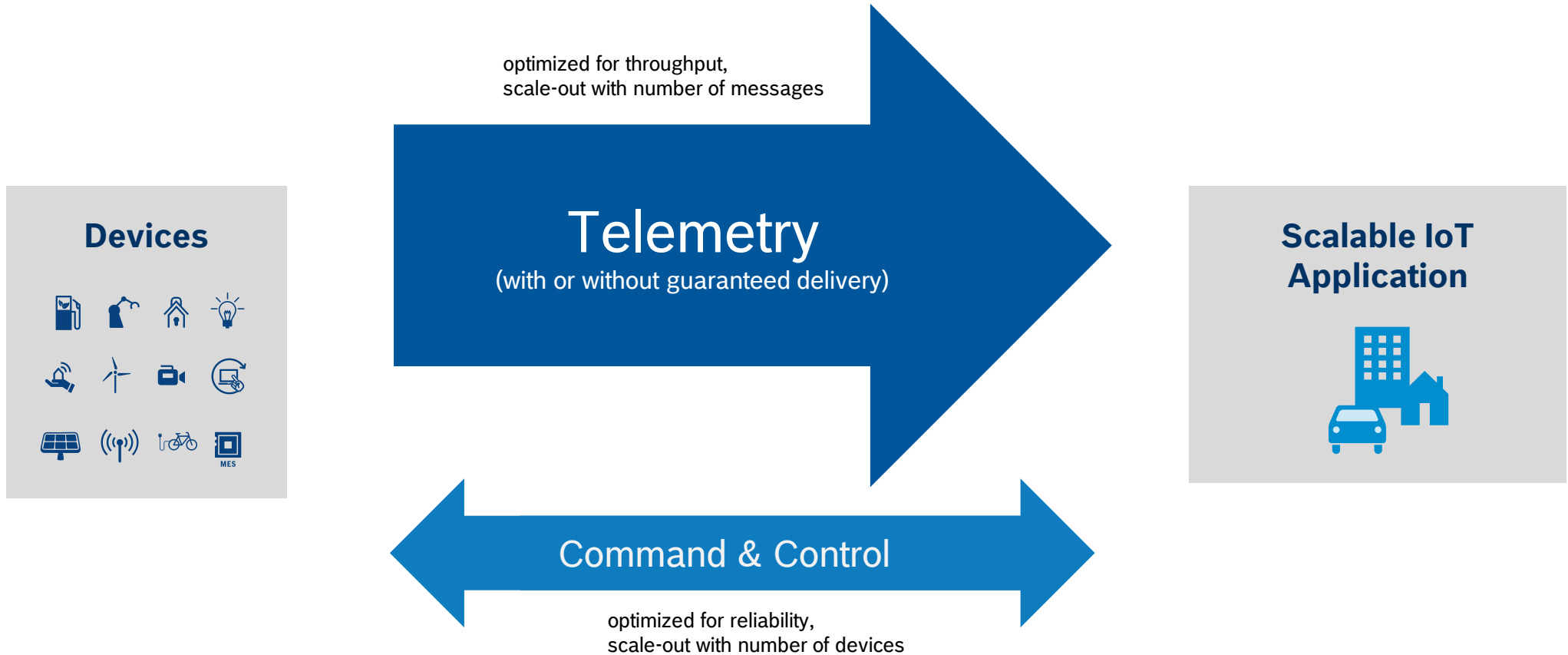
Lightweight M2M

Choosing the right protocol for your IoT application is an essential step.

Important criteria are *network range*, *network bandwidth*, *power usage*, *security* and *price*.

Bosch IoT Hub

Two major use cases based on device communication patterns



BOSCH IOT THINGS

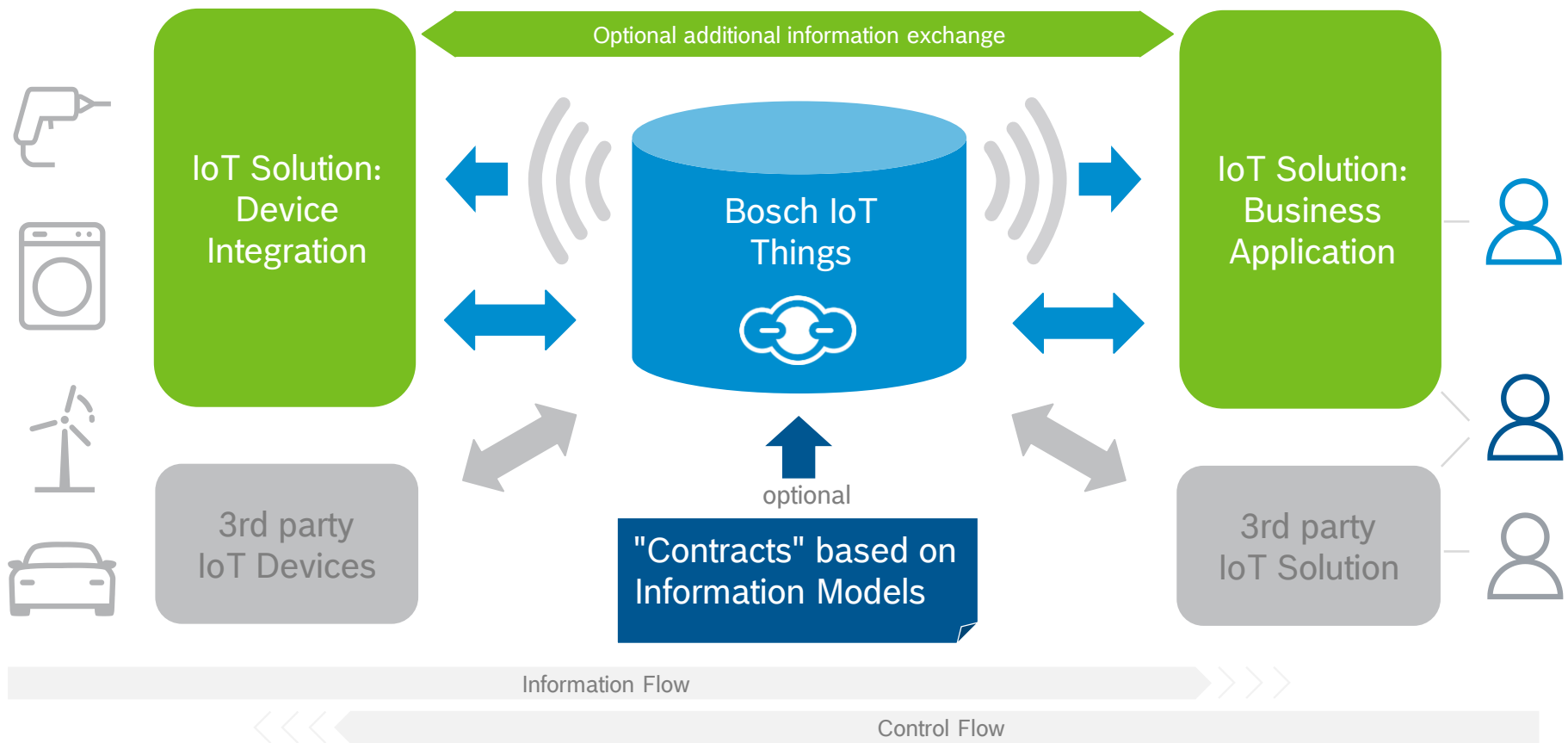


Bosch IoT
Things

*Digital twins management for
IoT assets*

Bosch IoT Things

Big picture



Bosch IoT Things

Policy-based access control

► Thing

```
{
  "thingId": "my.namespace:thing-0123",
  "policyId": "my.namespace:policy-a",
  "attributes": {"key": "value"},
  "features": {
    "featureX": {
      "properties": {
        "key": "value"
      }
    },
    "featureY": {
      "properties": {
        "location": {
          "city": "Berlin",
          "country": "Germany"
        }
      }
    },
    "featureZ": {
      "key": "value"
    }
  }
}
```

► Subject



► Policy

```
{
  "policy": {
    "policyId": "my.namespace:policy-a",
    "entries": {
      "owner": {
        "subjects": {
          "iot-permissions:8c36bc60-xxxx-xxxx-xxxx-4ed6ce7ed64c": {
            "type": "iot-permissions-userid"
          }
        },
        "resources": {
          "thing:/": { "grant": ["READ", "WRITE"], "revoke": [] },
          "policy:/": { "grant": ["READ", "WRITE"], "revoke": [] },
          "message:/": { "grant": ["READ", "WRITE"], "revoke": [] }
        }
      },
      "observer": {
        "subjects": {
          "iot-things:e6bbb40e-xxxx-xxxx-xxxx-f79a4653946b:observer-client": {
            "type": "iot-things-clientid"
          }
        },
        "resources": {
          "thing:/features/featureX": { "grant": ["READ"], "revoke": [] },
          "thing:/features/featureY": { "grant": ["READ"], "revoke": [] }
        }
      },
      "private": {
        "subjects": {
          "iot-permissions:93f24210-xxxx-xxxx-xxxx-620a03644e93": {
            "type": "iot-permissions-groupid"
          }
        },
        "resources": {
          "thing:/features/featureY/properties/location/city": {
            "grant": [], "revoke": ["READ"]
          }
        }
      }
    }
  }
}
```

BOSCH IOT ROLLOUTS

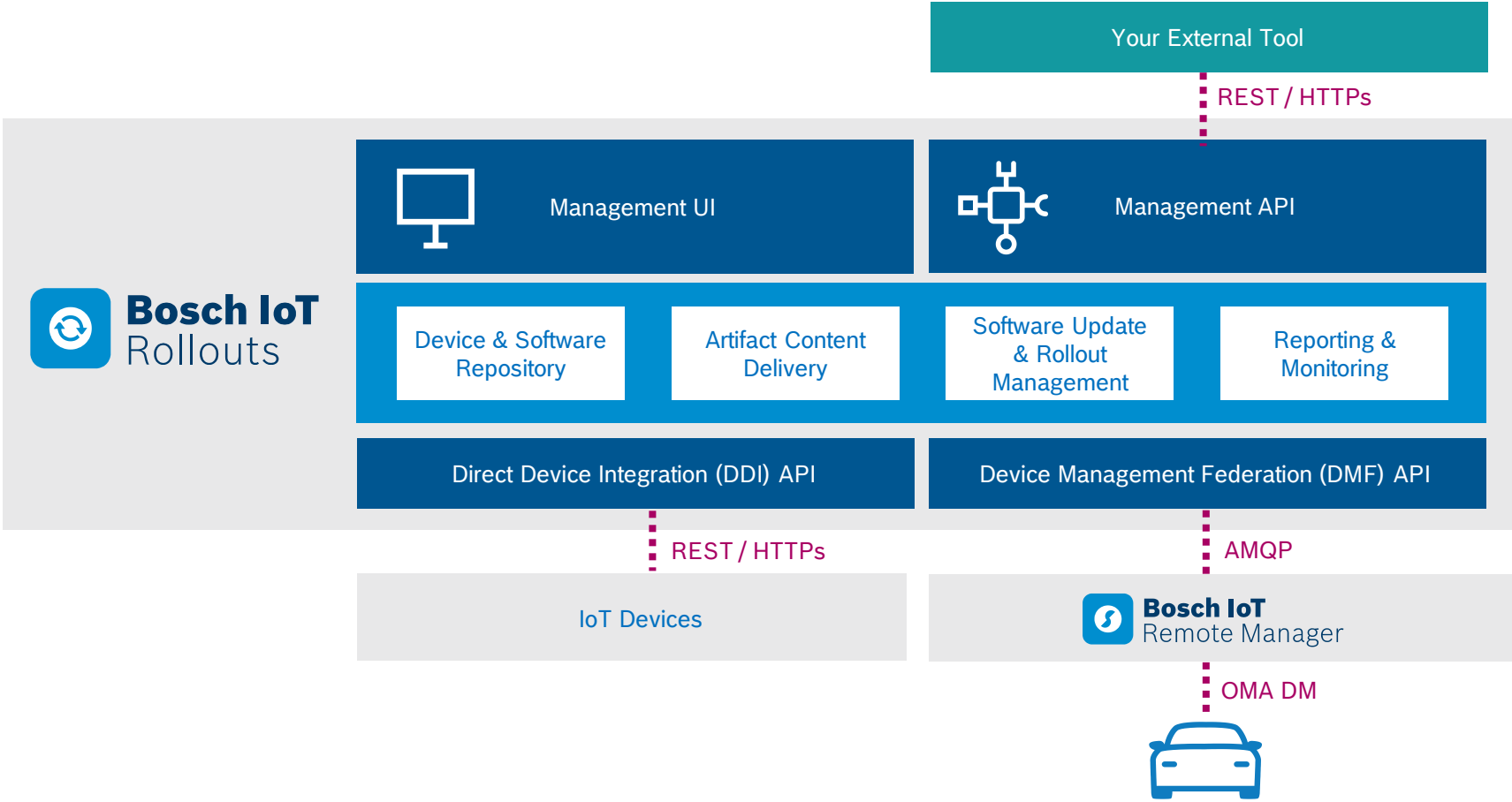


Bosch IoT
Rollouts

All around software updates

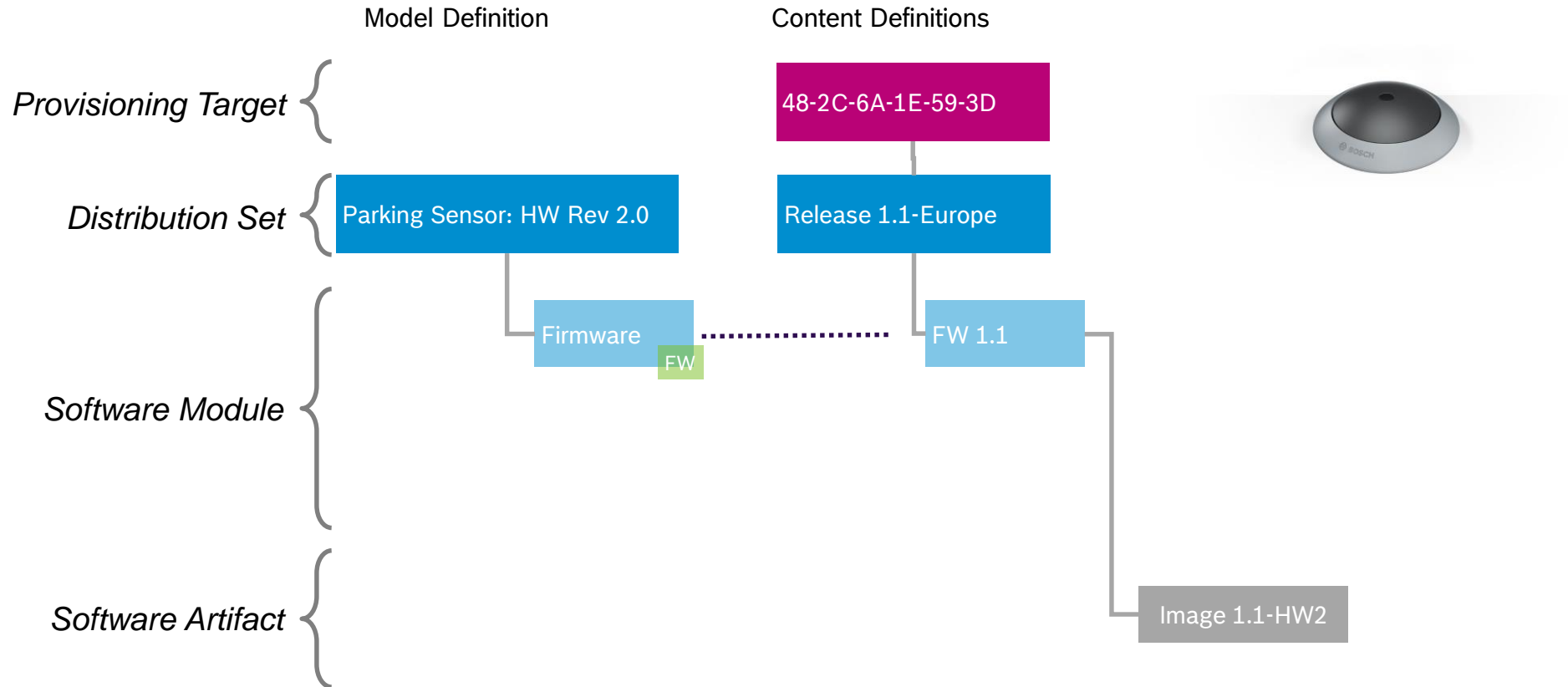
Bosch IoT Rollouts

Rollouts – Architecture



Bosch IoT Rollouts

Flexible Data Model: Connected Sensor Use Case



Bosch IoT Rollouts

Campaign Management – Deployment Groups

