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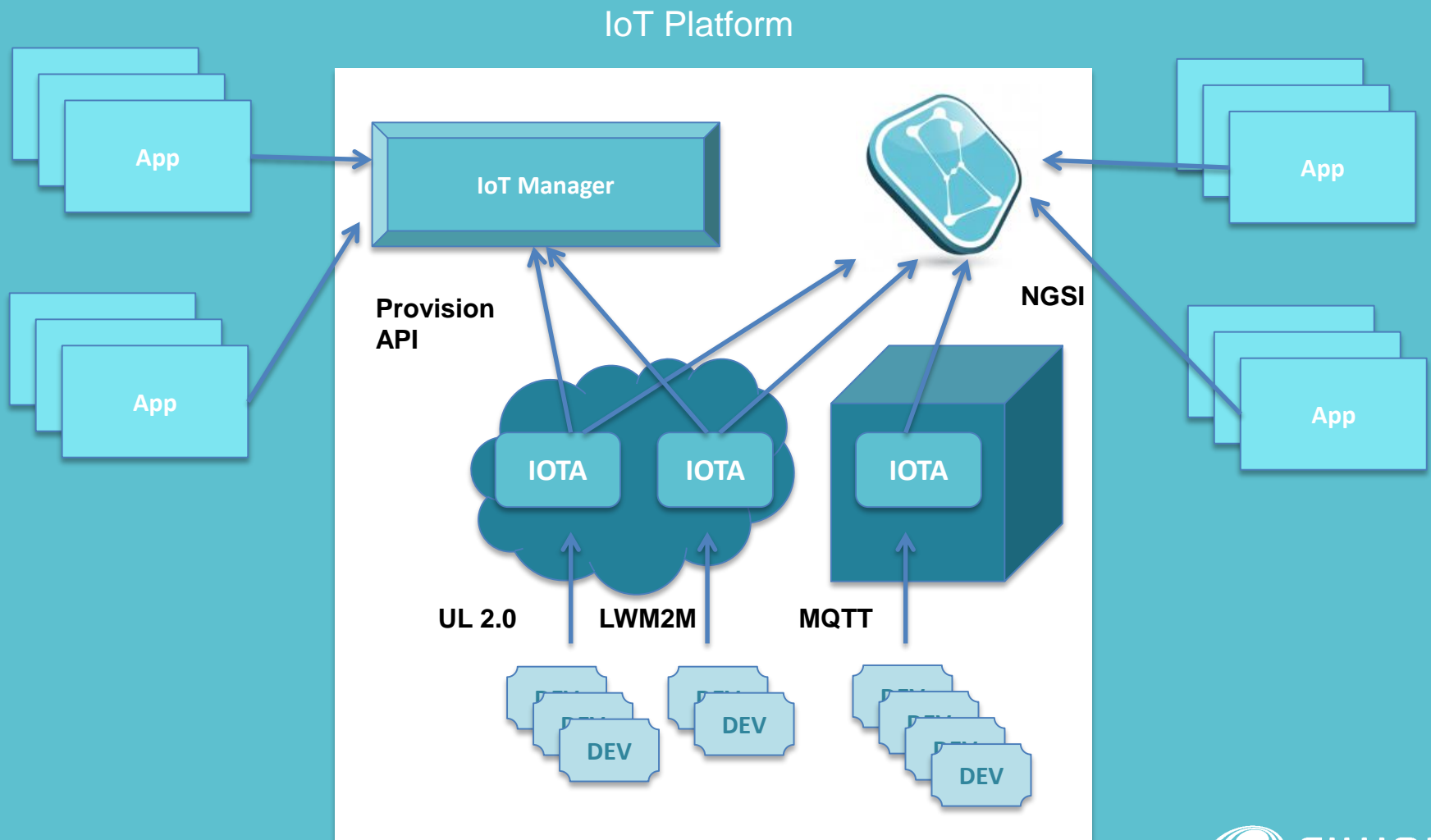
# Connecting heterogeneous IoT Technologies and Products

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# IoT Agent architecture



# IoT Agents Overview

- Design principles:
  - Modular approach
  - Deployment flexibility
  - Ease the creation of Custom IOT Agents
- Device Protocol to NGSI Bridge
  - One entity per device
  - Constrained set of interactions
- Provisioning of devices and groups of devices
- IoT Manager
- Additional services (e.g.: security, model transformation, stats)

# Example: Group provision

API Key provision

Type definition

Common attributes and commands

```
POST /iot/services HTTP/1.1
Host: localhost:4041
Fiware-Service: smartsville
Fiware-ServicePath: /management
Content-Type: application/json

{
  "services": [
    {
      "apikey": "1234567890",
      "resource": "/iot/d",
      "type": "smartcity",
      "protocol": "PDI-IoTA-UltraLight"
    }
  ]
}
```

# Example: Device provision

## Device ID definition

Defines per-device attributes and commands

```
POST /iot/devices HTTP/1.1
Host: localhost:4041
Fiware-Service: smartsville
Fiware-ServicePath: /management
Content-Type: application/json

{
  "devices": [{
    "device_id": "smartsville",
    "entity_type": "smartcity",
    "protocol": "PDI-IoTA-UltraLight",
    "attributes": [
      {
        "object_id": "lum",
        "name": "Luminance",
        "type": "lumens"
      }
    ]
  }]
}
```

# Example: Ultralight 2.0 HTTP

## Simple HTTP Protocol

```
POST /iot/d?k=1234567890&i=smartsville HTTP/1.1
Host: localhost:7896
Content-Type: text/plain
Cache-Control: no-cache
```

## Key Pair values

```
park1|true|park2|false|lum|300
```

## Push and Pull commands

```
HTTP/1.1 200 OK
Content-Length: 88
Content-Type: text/html
Connection: Closed

smartsville@semaphoreFreq|2|smartsville@luminosityL
imit|200
```

# Links and documentation

- IoT Agent Library
  - <https://github.com/telefonicaid/iotagent-node-lib>
- Ultralight 2.0 IoT Agent
  - <https://github.com/telefonicaid/iotagent-ul>
- The Fiware Catalogue
  - <https://catalogue.fiware.org/>

| Thank you!

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