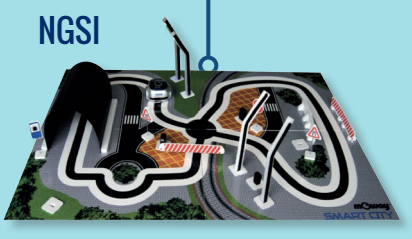
oneM2M-FIWARE semantic interoperability

FIWARE

- Get semantically annotated sensors information from oneM2M platform

NGSI



Smart City non-IoT data e.g. open data

oneM2M

- Collect cars sensor information, semantically annotate and publish in FIWARE
- Apply actuation commands received from FIWARE platform

oneM2M Semantic functionalities

FIWARE NGSI data

Context Management component
//{serverRoot}/NGSI10

Resources for Convenience Operations

- /contextEntities
  - /{EntityID}
    - /attributes
      - /{attributeName}
        - /{valueID}
    - /attributeDomains
      - /{attributeDomainName}
- /contextEntityTypes
  - /{typeName}
    - /attributes
      - /{attributeName}
    - /attributeDomains
      - /{attributeDomainName}
- /contextSubscriptions
  - /{subscriptionID}

Resources for NGSI-10 Operations

- /queryContext
- /subscribeContext
- /updateContextSubscription
- /unsubscribeContext
- /updateContext

Context Consumer component

- //{notificationURL}

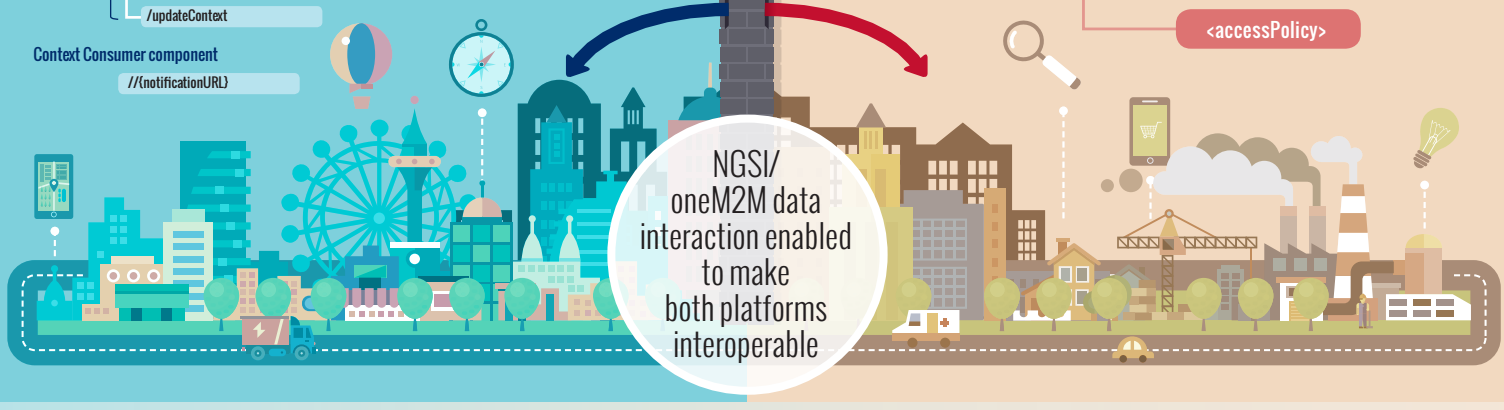
DATA FORMAT AND RESOURCE STRUCTURE BARRIER

Semantic interoperability Sensing

Static interworking Sensing & Actuation

oneM2M oneM2M data

- <CSEbase>
  - CSE-ID
  - pointOfAccess
  - <remoteCSE>
  - <AE>
  - <container>
    - <contentInstance>
  - <accessPolicy>



NGSI/ oneM2M data interaction enabled to make both platforms interoperable

oneM2M Semantic details

Semantic resource discovery (3)

Get sensor data (4)

Data annotator

oneM2M platform (2, 1)

AE:car

Container:Light sensor

- semanticDescriptor
- contentInstance: v1
- contentInstance: v2

Value hasUnit Lux
Value is-a lightIntensity
Value hasDataType Float
Value describes AmbientLight
Value describesEntity car

1. Register container resource with device
2. Create semantic descriptor to annotate container resource
3. Read semantic descriptor and Discover resource
4. Get measurement data as contentInstance

Scenario description

FIWARE

- A5 Expose data in NGSi
- A5 Get data and display on dashboard
- B1 Smart city send sensor data
- C1 Smart city send light control command to car

oneM2M

- B2 Get NGSi data and register them in oneM2M
- A3 Annotate data
- A4 Semantical discovery of resources
- C2 Get light control command and notify the car
- A1 Car registration
- A2 Sensor data register recorded in oneM2M
- C3 Get notification and turn on light