NGSI-LD API Roadmap for v1.6.1

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Disclaimer: Roadmap Considerations

- ETSI ISG CIM is always discussing new features and extensions of NGSI-LD, in particular the NGSI-LD API.

- New feature proposals typically come from users and the application of NGSI-LD to new domains and scenarios.

- The drivers of the NGSI-LD API work regularly discuss priorities of features (and fixes) and update the roadmap accordingly.

- However: what will actually be implemented in the next release of the NGSI-LD API depends on actual contributions, so even in case something is considered "high priority" in general, it will only get implemented if partners provide the necessary contributions to the specifications. Partners may have their own priorities, which may change dynamically according to their needs. Also, for some features new concepts have to be developed and agreement has to be reached in ETSI ISG CIM. The general spirit there is very constructive, but reaching agreement may still take time …

- Thus: The roadmap provides a current snapshot of intentions. There is no guarantee that features, even those considered "high priority" at the current point in time, will actually be implemented in the next release of the NGSI-LD API.

- If you are interested in certain features: consider joining ETSI ISG CIM and provide the required contributions!

Current Priority List for NGSI-LD v1.6.1 (1)

Forwarding / Distributed Operation

- Distributed operation has been considered from the beginning, but there are different scenarios that require different features and current assumptions may be too restrictive, e.g.

  - NGSI-LD sources have to implement the complete NGSI-LD API, which is a strong requirement, especially in the case of resource-constraint devices

  → The idea is to define certain categories of NGSI-LD sources only implementing certain subsets of the NGSI-LD API

  - Depending on assumptions, attributes of the same entity may appear in different places (e.g. federation) or should be exclusive to one component (e.g. to enable actuation)

  → The plan is to have different categories in context source registrations like "exclusive" and "inclusive" to enable the respective scenarios

Current Priority List for NGSI-LD v1.6.1 (2)

Grouping of Attributes

- In the current NGSI-LD version, all attributes are completely independent, i.e. to retrieve a given set of attributes, they have to all be explicitly specified in the request.

→ The idea is to attach attributes to a group, so only the name of the group needs to be specified to request the whole set of attributes

Comparing Values of Different Properties in Filters

- In the current NGSI-LD version, filters only allow comparing property values to specified constants.

→ The idea is to also allow comparing the values of two different properties of the same entity.

Current Priority List for NGSI-LD v1.6.1 (3)

Temporal API: Query Whole Entity at a Certain Point in Time

- The current temporal API only allows retrieving attribute values that have been observed, created or modified within a specific time interval.

→ The idea is to add the possibility of querying a complete entity at a certain point in time, i.e. with all attribute values valid at this point. These values may have been valid for a long time, but may have been updated or deleted after the given point in time.

Filtering of Subscriptions

- At the moment only a complete list of subscriptions can be retrieved. Filtering is restricted to entities and context source registrations

→ As the number of subscriptions may be huge and for management purposes it may be necessary to find certain subscriptions, e.g. those that have the same notification endpoint, it should also be possible to filter on subscriptions.

Current Priority List for NGSI-LD v1.6.1 (4)

WebSocket Binding for Subscription/Notification

- Currently the NGSI-LD API supports subscriptions via HTTP and notification via HTTP and MQTT. There is no way to support subscription / notification interactions in case the context consumer is behind a firewall, unless you explicitly open a port.

→ With a WebSocket binding the context consumer can setup the connection and notifications can flow through this connection, so connections do not have to be setup each time and context consumers behind firewalls can be supported.

Current Priority List for NGSI-LD v1.6.1 (5)

Advanced Notification Conditions

- Currently notifications are sent in case there is a fitting create or update, but there is no notification on deletes.

→ Notifications on delete should be supported and more fine-grained specification should be possible, e.g. only on create and/or only on delete.

- Also currently notifications are always sent, even if an update has the same value.

→ While this is necessary in some scenarios, e.g. when looking at the temporal evolution of entities, there are other scenarios where only new values are of interest. Thus an option in the subscription is to be added that allows the latter behaviour.

Deleted Attributes in Temporal Evolution of Entities

- Currently there is no explicit representation of when an attribute is deleted in the Temporal Evolution of Entities.

→ Deletions need to be explicitly represented in the Temporal Evolution of Entities.