



The Standards People



*Insights for Edge Software Developers*



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For: **everyone**

***Episode #12 – Location Service***

# In this episode

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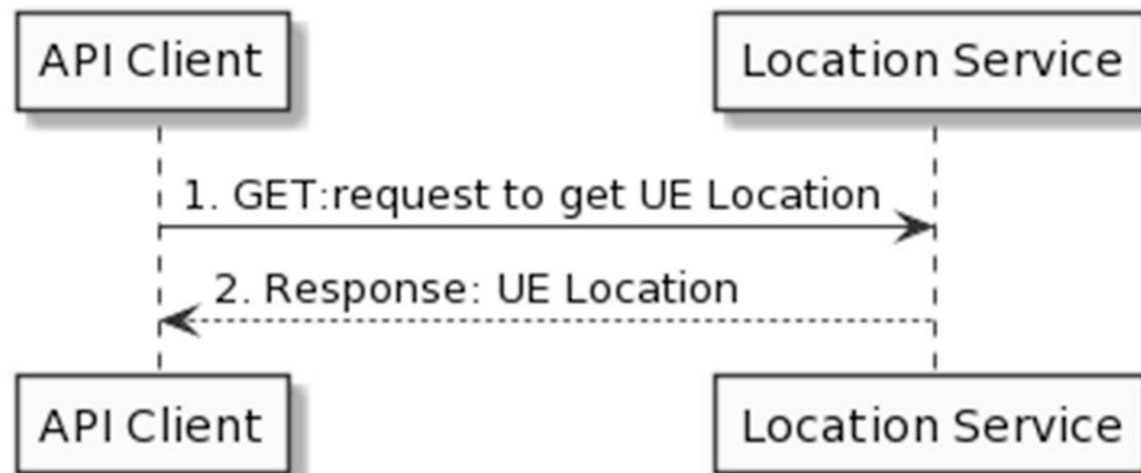
We will learn:

- Functionalities of the Location service
  - a) UE location service
  - b) UE distance service
  - c) UE Area service
  - d) Zone service
- The resource structure of the Location API

NOTE: this episode is applicable to MEC013 v3.1.1 that has been published on 2023 Jan and offers an enriched set of functionality as compared to the previous iterations of the specification.

# UE location service(1)

- The Location Service consumer can get one or more UEs' location information based on ACR(s)
- The Location Service consumer can get all the UEs' location information based on Zone ID and access point ID



## Anonymous Customer Reference (ACR):

Uniform Resource Identifier (URI) scheme describing an anonymous reference that can be mapped to a resource or user/user group

## Zone:

a zone lends itself to be used to group all the radio nodes that are associated with a MEC host, or a subset of them, according to the desired deployment.

## Access Point:

One or more Access points are associated with a zone.

## UE location service(2)

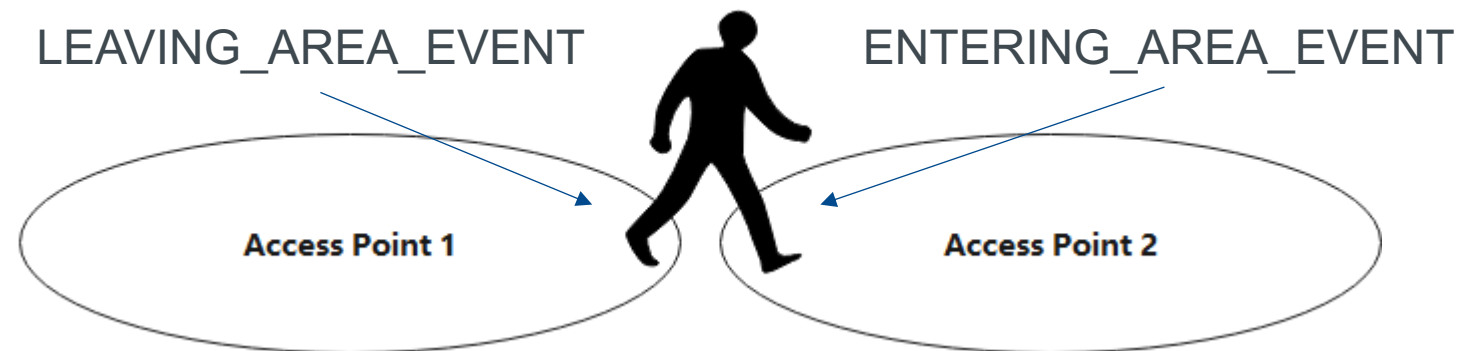
Consumer can subscribe to the events describing UE entering or leaving area.

Type name	Description
"ENTERING_AREA_EVENT"	Entering area reporting event.
"LEAVING_AREA_EVENT"	Leaving area reporting event.

Consumer can track a target by subscribing to the periodic reports.

Attribute name	Description
reportingAmount	Number of event reports
reportingInterval	Interval of event reports

NOTE: the subscription target is UE

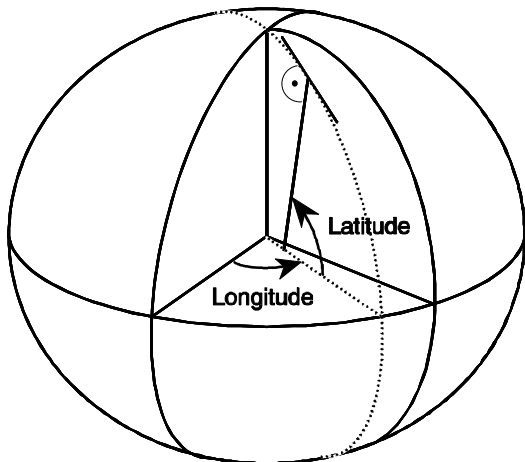


# UE location service(3)

- Location information can be presented in various forms. The main forms include:

## Geolocation

the LocationInfo support to indicate geolocation which is described by attributes of latitude, longitude and altitude.



## Relative location

the RelativeLocationInfo represents the relative location in a reference system that is a Cartesian coordinate system and described by a map.



## Civic Address

Contextual information of a user location (e.g. aisle, floor, room number, etc.).



# UE distance service

- The Location Service consumer can get the distance between two UEs identified by their ACRs.
- The Location Service consumer can subscribe to the UE Distance event. The Distance event is referenced from OMA-TS-REST\_NetAPI\_TerminalLocation-V1\_0\_1-20151029-A

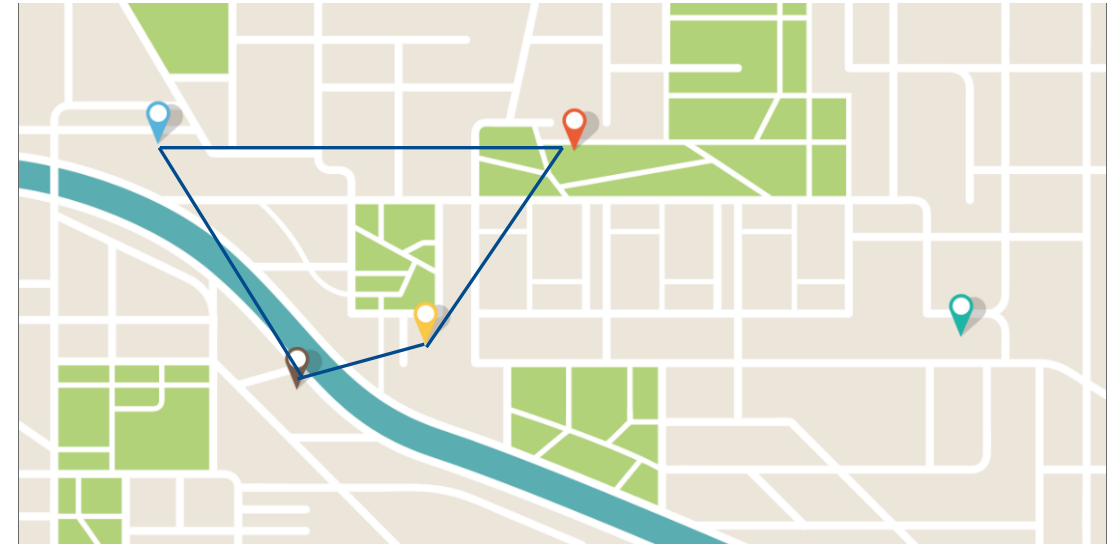
## 5.2.3.2 Enumeration: DistanceCriteria

An enumeration, defining the distance criteria between devices.

Enumeration	Description
AllWithinDistance	All monitored devices are within the specified distance.
AnyWithinDistance	Any of monitored devices gets within the specified distance.
AllBeyondDistance	All monitored devices are beyond the specified distance.
AnyBeyondDistance	Any of monitored devices gets beyond the specified distance.

# UE Area service

- The Location Service consumer can subscribe to the notification regarding UE entering or leaving a specific shape.
- The shape could be a circle or a polygon.

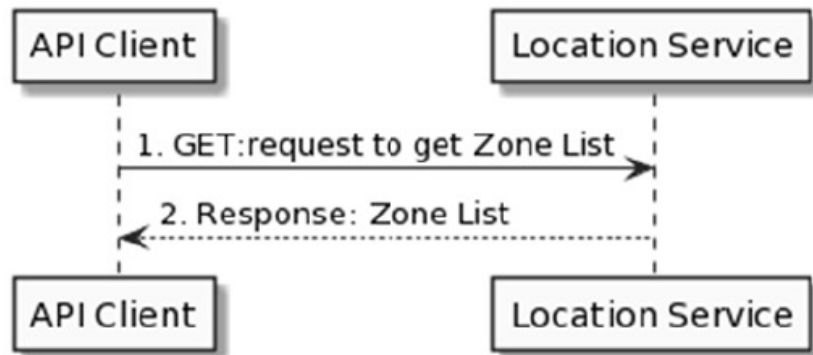


Attributes of type AreaInfo

Attribute name	Data type	Cardinality	Description
shape	Enum(inlined)	1	The shape of the area monitored: 1 = CIRCLE. 2 = POLYGON.
points	Array(Point)	1..N	Shall include one point if the shape is CIRCLE. Shall include 3-15 points if the shape is POLYGON.
radius	UnsignedInt	0..1	Shall be present if the shape is CIRCLE.

# Zone service(1)

- The Location Service consumer can get one or more Zones' and Access Points' information based on Zone ID and access point ID



Note: The zone and access point are defined in OMA-TS-REST\_NetAPI\_ZonalPresence-V1\_0-20160308-C

Element	Description
zoneId	Identifier of zone(e.g. zone001)
numberOfAccessPoints	Number of access points within the zone.
numberOfUnserviceableAccessPoints	Number of inoperable access points within the zone
numberOfUsers	Number of users currently on the zone.

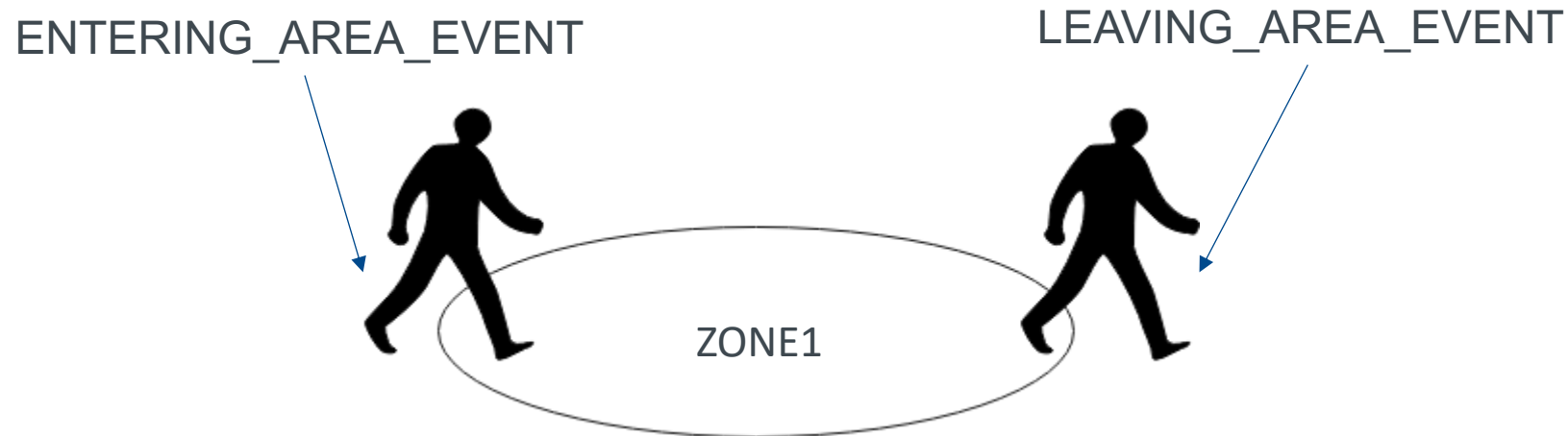
Element	Description
accessPointId	Identifier of access point (e.g. ap01).
locationInfo	The coordinates of the access point.
connectionType	Connection type of access point.
operationStatus	Operation status of access point.
numberOfUsers	Number of users currently on the access point.
timezone	Time zone of access point
interestRealm	Interest realm of access point (e.g. geographical area, a type of industry etc.).



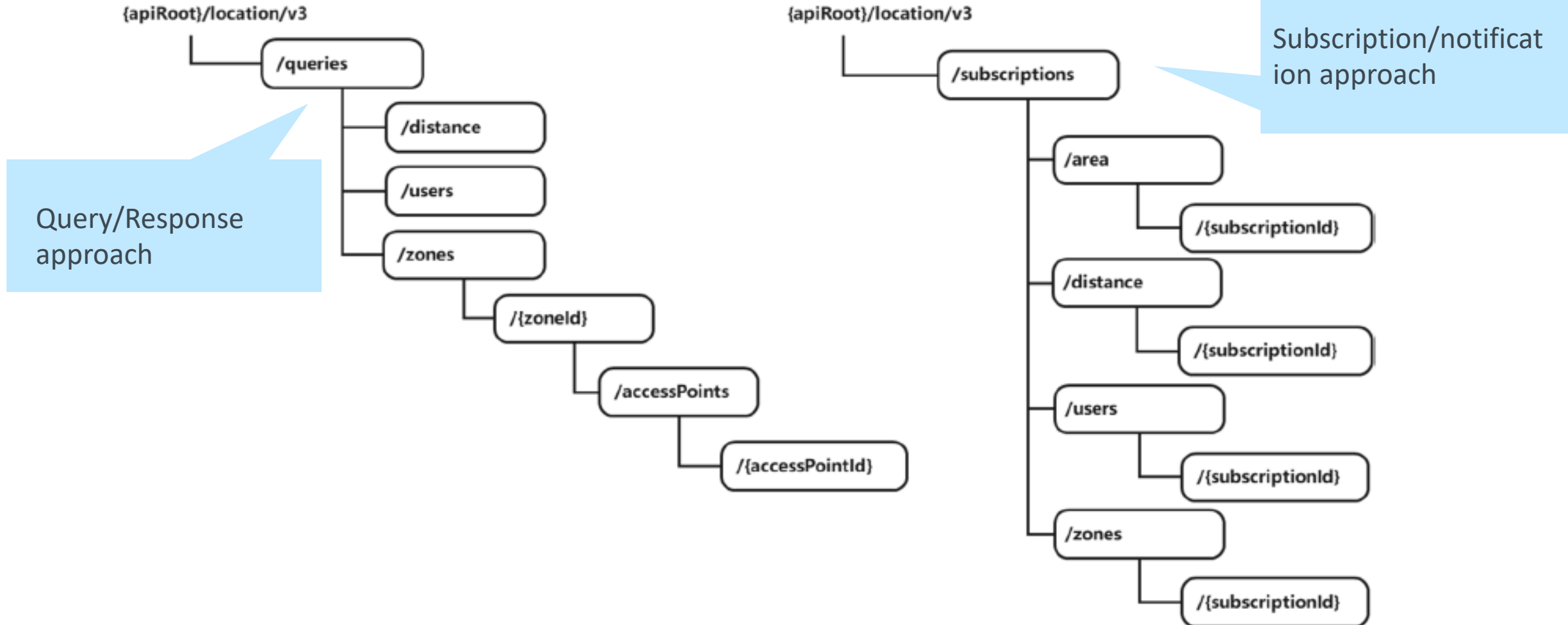
## Zone service(2)

- The Location Service consumer can subscribe to the notifications regarding someone entering or leaving a monitoring zone or access point.

NOTE: the subscription target is Zone or Access Point



# The resource structure of the Location API



# Conclusions and further resources



## What we have learnt:

- Functionalities of the Location service
  - a) UE location service
  - b) UE distance service
  - c) UE Area service
  - d) Zone service
- The resource structure of the Location API



## Interested to learn more?

- Visit the MEC Sandbox and play with Location Services: <https://try-mec.etsi.org/>
- Learn more about Location Service API in MEC013 at [https://www.etsi.org/deliver/etsi\\_gs/MEC/001\\_099/013/03.01.01\\_60/gs\\_mec013v030101p.pdf](https://www.etsi.org/deliver/etsi_gs/MEC/001_099/013/03.01.01_60/gs_mec013v030101p.pdf)
- Also look at Location Service API in MEC013 at <https://forge.etsi.org/rep/mec/gs013-location-api>
- Follow also the next episodes of the MEC TECH Series

# Enjoy the



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