Ann Arbor f2f meeting
W3C Automotive and Web Platform BG
2014/10/09

PROPOSAL ON VEHICLE LOCATION API

T. Hirabayashi
KDDI Research Institute

KDDI Research Institute

PREVIOUS DISCUSSION 1/3

- Anticipating that LBS comes to be very important for the vehicle applications, KDDI suggested we have an extended "Vehicle Location API" [1] so that we can get all the possible location data from not only the local host device on which the Web runtime works but also any devices/servers connected via the Web in the case of smartphone-based IVI.
- KDDI thought this was very important because the current Geolocation API doesn't allow Web runtimes (=the processor of the APIs) to handle location information outside the local host device even if the vehicle has an accurate location information.

[1] http://www.w3.org/2014/05/auto/Proposed_Vehicle_Location_API_20140523.pdf

PREVIOUS DISCUSSION 2/3

- However, most of the other BG participants thought:
  - All the APIs for geolocation information should be handled by the Geolocation API defined as a high-level API, so as not to confuse apps developers and users.
  - Which devices/positioning data to get location information from is rather an issue of system implementation.
- On the other hand, Kaz from W3C pointed out that these use-cases [1] included not only the possible "Vehicle Location API" definition but also an idea of "mapping geolocation data -to-geospatial data like address" (=Geocoding), and it was agreed that Geocoding is an important topic.

PREVIOUS DISCUSSION 3/3

The following action has been required in BG:

- KDDI will talk with the Geolocation WG about the possibility of their extending the Geolocation API draft with KDDI's requirements (Kaz helps).
- The Automotive BG as a whole will continue the discussion on "Geocoding" feature.

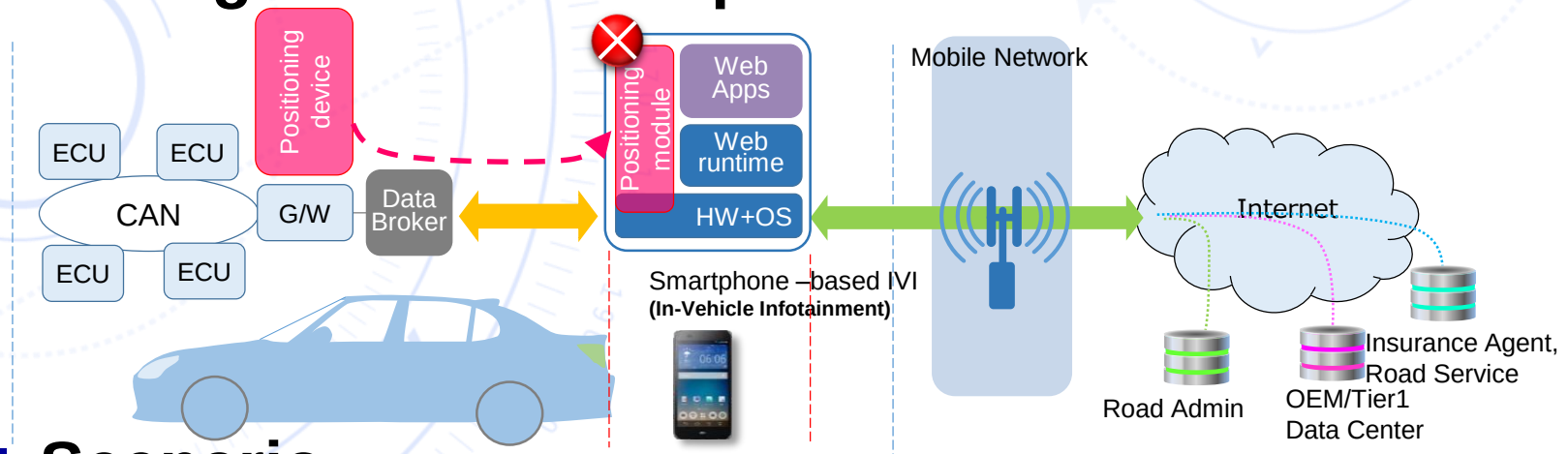
  Geocoding itself is not handled by the current Geolocation WG, but there was hot discussion on Geocoding during the W3C Linking Geospacial Data Workshop [2] held on March 5-6 in London. And as the workshop minutes [3] say, a specific WG is expected to be created collaboratively by W3C and OGC (Open Geospacial Consortium). So probably it would make much more sense to talk with that expected Geocoding WG rather than the current Geolocation WG.

  [2] http://www.w3.org/2014/03/lgd/

  [3] http://www.w3.org/2014/03/lgd/report.php

USE-CASE

- **Configuration: Smartphone/Tablet-based IVI**



[NOTE]
Positioning device provides location data based on the underlying algorithms combining the various sensing technologies such as GPS, wheel angle & rotation, on-board cameras, Radar, LIDAR, lane marker, Gyroscope, Wi-Fi & BT beacon, etc.

- **Scenario:**

In the case where no geolocation information from outside (e.g. GPS, Wi-Fi, BT, cellular triangulation) is available on the smartphone-based IVI (e.g., in mountainous areas and tunnels) , the smartphone user wants to get the location information from the vehicle:

  - The driver wants to call a rescue crew using some roadside assistance app for smartphones in a car trouble.
  - The road and traffic administrators want to monitor the condition of the road/traffic and send the road/traffic condition around the car. (Probe Data Gathering and Location-Based Road/Traffic information Distribution via smartphones)
  - UBI (Usage-Based Insurance) companies want to get actual traveling route information.

POTENTIAL ISSUES ON LOCATION INFORMATION

- **The current Geolocation API spec does not allow the web runtime to get the location information from outside devices even if it is more accurate.**

> **"Geolocation API Specification"**
>
> http://www.w3.org/TR/geolocation-API/#introduction
>
> The Geolocation API defines a high-level interface to location information associated only with the device hosting the implementation, such as latitude and longitude. The API itself is agnostic of the underlying location information sources.

- **The expectation of Geolocation WG participants [4] is that the UA can get the most-accurate location information if "enableHighAccuracy" property is "ON".**

[4] http://www.w3.org/2014/03/lgd/report.php

ADDITIONAL REQUIREMENTS

The Geolocation API may allow an application to obtain location information from external devices outside the local host device if more accurate location information is available on the external device than the local host device.(OPTIONAL)

Requirements of the current Geolocation API Specification

http://www.w3.org/TR/geolocation-API/#requirements_section

- 6.2.1 The Geolocation API must provide location data in terms of a pair of latitude and longitude coordinates.
- 6.2.2 The Geolocation API must provide information about the accuracy of the retrieved location data.
- 6.2.3 The Geolocation API must support "one-shot" position updates.
- 6.2.4 The Geolocation API must allow an application to register to receive updates when the position of the hosting device changes.
- 6.2.5 The Geolocation API must allow an application to request a cached position whose age is no greater than a specified value.
- 6.2.6 The Geolocation API must provide a way for the application to receive updates about errors that may have occurred while obtaining a location fix.
- 6.2.7 The Geolocation API must allow an application to specify a desired accuracy level of the location information.
- 6.2.8 The Geolocation API must be agnostic to the underlying sources of location information.

OPTIONS TO BE CONSIDERED

- **OPTION-1:** Reverting to “Vehicle Location API” described in the initial draft spec.
- **OPTION-2:** Extending Geolocation API
  a. Adding a new “DeviceOptions” attribute,
  b. Adding a new “Accuracy” attribute,

  or

  c. Adding a description on “enableHighAccuracy” that handles the location information from external devices
- **OPTION-3:** Defining “Vehicle-Navigation API”