

# 20200514-Virtual-Technical-Summit-CCS-Workshop-Minutes

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| 1 | <b>## Introduction</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2 | <p>Philippe Robin welcomes everyone and hands over the mic to Kevin Valdek</p> <p>50 attendees</p> <p>slide deck for this workshop is <a href="#">here</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3 | <b>## Project overview</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 4 | <p>Kevin: this is the presentation Gunnar and I delivered in the Automotive World webinar last week, recording is available</p> <ul style="list-style-type: none"><li>• Introduction<ul style="list-style-type: none"><li>◦ slide #4: Project charter<ul style="list-style-type: none"><li>▪ Even though cars are connected, they are limited to specific OEM/brands</li><li>▪ A lot of ideas and start ups introducing new services...</li><li>▪ We want to harmonize these activities... Define building blocks with flexibility for common solutions... Define data exchange and access</li></ul></li><li>◦ slide #5: Vehicle data<ul style="list-style-type: none"><li>▪ not limited to specific types but clustered by anonymity (personalised, pseudonymized, anonymized)</li></ul></li><li>◦ slide #6: Services / Needs<ul style="list-style-type: none"><li>▪ up-to-date data, typically telematic through a cloud server, but also bulk on big data</li></ul></li></ul></li><li>• Data Model<ul style="list-style-type: none"><li>◦ slide #9: Common data model<ul style="list-style-type: none"><li>▪ the industry needs this (different implemenations for each OEM... This is to avoid this situation)</li><li>▪ Gap analysis in the CCS project (CVIM, SensorIS, ISO20078, Android Automotive, VSS) in 2019</li></ul></li><li>◦ slide #10: Vehicle Signal Specification (VSS)<ul style="list-style-type: none"><li>▪ VSS is at the core of the CCS project</li></ul></li><li>◦ slide #16: Value exchange formats<ul style="list-style-type: none"><li>▪ proposed protocol to group and exchange VSS data</li></ul></li></ul></li><li>• Framework:<ul style="list-style-type: none"><li>◦ slide #18: capture data in vehicles<ul style="list-style-type: none"><li>▪ ECUs speaking VSS2 (SOME/IP, DDS, HTTP/REST) or current bus translation</li></ul></li><li>◦ slide #19: cloud transfer &amp; storage<ul style="list-style-type: none"><li>▪ Transfer/Storage with the W3C defined protocol Gen2, "Gen2" is a vehicle API over HTTPS and WebSockets + data lake based possibly on object storage in a later stage</li><li>▪ Buffering (high frequency, poor connectivity...) to take into account</li></ul></li><li>◦ slide #22: Neutral servers and data marketplaces opportunity included (in accordance to ISO20078) or simple 3rd party access</li></ul></li></ul>                                                                                                   |
| 5 | <p>discussion on framework architecture</p> <ul style="list-style-type: none"><li>• Iyyaz Baber: What about a noSQL DB in the cloud?</li><li>• Kevin: We could. In the end, the proof-of-concept came from our experience with relational DB, there is no restriction</li><li>• Ulf: the server exposes an API. As long as it follows the API, the DB could be of different types.</li><li>• Gunnar: this would depend on the data (time series fitting into a relational DB ?).</li><li>• Teddy Zhai: When you say: "Cloud is Client, and in-vehicle is Data Server", do you mean in a logical view or technological view? It means, for example, Data Server needs to open ports and listen on them.</li><li>• Ulf: it's both, the data servers needs to open ports and listen, and response to requests (standard client-server model)</li><li>• Gunnar: it can vary from this current proof-of-concept architecture to a production-ready solution. Typically there could be an SSL tunnel set up by OEMs</li><li>• Teddy: This is a major architecture decision in our view. It would be great if GENIVI can provide a threat model for it.</li><li>• Gunnar: I think in the later stages of proof-of-concept development, it is worthwhile to address these questions about how to set up private networks between some parts (e.g. OEM to car). If we end up using SSL/TLS then the GENIVI Security team has previously published a best practice document for SSL/TLS which avoids a lot of security pitfalls.</li><li>• François Fischer: data model - you can add SAREF/Autopilot</li><li>• Philippe: we had a look at SAREF proposal in September 2019 (SAREF Automotive - <a href="https://www.w3.org/2019/09/trans-data-ws/SAREF.pdf">https://www.w3.org/2019/09/trans-data-ws/SAREF.pdf</a>) and estimated that it was more on the long term (5+ years) goals, it might be worth rechecking the status of SAREF work</li><li>• Francois: I coordinated a project about IoT and automated driving, i.e. AUTOPILOT and we pushed data models to SENSORIS and SAREF, see <a href="https://autopilot-project.eu/">https://autopilot-project.eu/</a></li><li>• Gunnar: there are datasets included in the current VSS work, we expect to use an Electric Vehicle (EV) use case and data set for the proof-of-concept demo implementation</li><li>• Gunnar: our objectives are to get fast results, identify technologies and components that need to be standardized</li></ul> |
| 6 | <b>## proof-of-concept demos</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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| 7  | <p>Demo #1 - OEM cloud</p> <ul style="list-style-type: none"> <li>• Ulf: shows a Cloud and Connected services demo involving 3 components: <ul style="list-style-type: none"> <li>◦ data server (W3C Gen2),</li> <li>◦ data base (Open Vehicle Dataset Server a.k.a. OVDS)</li> <li>◦ CCS vehicle client</li> </ul> </li> <li>• Data server can be accessed through multiple protocols (HTTP, WebSockets) with VSS(2) data (but open to use other compatible domains - with a service manager)</li> <li>• Data base is a SQL database with a VSS-to-DB adapter</li> <li>• CCS client sits in between and creates a list of all VSS leaf nodes and issues read/write requests to the Gen2/OVDS servers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8  | <p>Demo #2 - Vehicle data generation</p> <ul style="list-style-type: none"> <li>• slide deck is <a href="#">here</a></li> <li>• Stefan Vysocki (from the GENIVI AASIG Vehicle Data / VHAL project) shows a demo of a vehicle data feeder using a vehicle simulator and a GraphQL server <ul style="list-style-type: none"> <li>◦ simulator used in the demo is OpenDs, a frame example is given (could be VSS too)</li> <li>◦ the demonstration includes the simulator interface and a GraphQL server to retrieve values from the simulator</li> </ul> </li> <li>• Kevin Valdek: Could we use a fleet instead ?</li> <li>• Stefan: Yes, by configuring multiple ports</li> <li>• Stephen Lawrence: Could you containerize the simulator and automate tests ?</li> <li>• Stefan: It is partially containerized, no issues.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 9  | <p>Demo #3 - GraphQL client on top of a VSS schema</p> <p>slide deck is <a href="#">here</a>, Kevin shows a demo</p> <p>Discussion</p> <ul style="list-style-type: none"> <li>• How to have data anonymization ?</li> <li>• there is consent here</li> <li>• What about the identification?</li> <li>• Here we could have many types of identifiers, such as what a brand allows you to access (a certain fleet for instance)</li> <li>• What happens when the user removes consent (need to do something on the 3rd party side) ?</li> <li>• These are great use cases, we should look into them.</li> <li>• How do we categorize what is to be anonymized and what is not ?</li> <li>• Since privacy is partially region-based, it might be better to have configuration outside of the VSS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 10 | <p>Discussion on technology options</p> <ul style="list-style-type: none"> <li>• Gunnar introduces the topic with this <a href="#">slide deck</a></li> <li>• How to generate data <ul style="list-style-type: none"> <li>◦ Usefulness of an easy to run driving simulator <ul style="list-style-type: none"> <li>▪ it would be nice to use the simulator as a driving game and generate data</li> <li>▪ Iyyaz: I go for it !</li> <li>▪ Gunnar: which operating system would you use ?</li> <li>▪ Iyyaz: ubuntu, linux or windows 10</li> <li>▪ Christian: having vehicle data would be useful to test our APIs !</li> <li>▪ Stephen Lawrence points out that CAN can-utils has the basic cansend to send can msgs, look at <a href="https://github.com/linux-can/can-utils">https://github.com/linux-can/can-utils</a>, and <a href="https://manpages.debian.org/stretch-backports/can-utils/cansend.1.en.html">https://manpages.debian.org/stretch-backports/can-utils/cansend.1.en.html</a></li> <li>▪ How important is the sanity of the data ? Could we do statistical analysis on random data? What about randomly generating data ?</li> <li>▪ Gunnar: Is that sending a random generated data you mean?</li> <li>▪ Stephen: can-utils also has cangen for random data</li> <li>▪ Stephen: it seems also that candevstudio may have some generation capability, look at <a href="#">CANdevStudio repository</a></li> </ul> </li> </ul> </li> <li>• Alternative technologies <ul style="list-style-type: none"> <li>◦ Why not using MQTT between the vehicle and the cloud (rather than other than W3C Gen 2) ? with MQTT there is a need to define the payloads</li> <li>◦ using maybe a NoSQL data base</li> <li>◦ Abhijeet: mentions the use of a replica of the car like AWS Car Shadow and like the Ditto digital twin - Device as a service: Ditto project from Eclipse <a href="https://www.eclipse.org/ditto/">https://www.eclipse.org/ditto/</a></li> </ul> </li> <li>• How to do high-volume tests ?</li> <li>• Evaluating the performances ?</li> <li>• What about security ?</li> </ul> |