



GPRO – Status report

The Generic Protocols Evaluation Team

Giovanni Vergine | 14 May 2019

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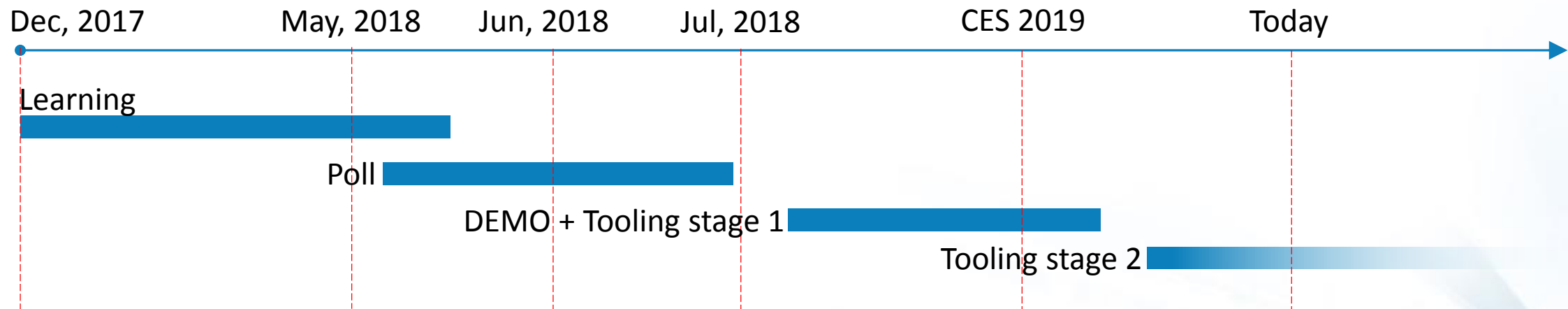
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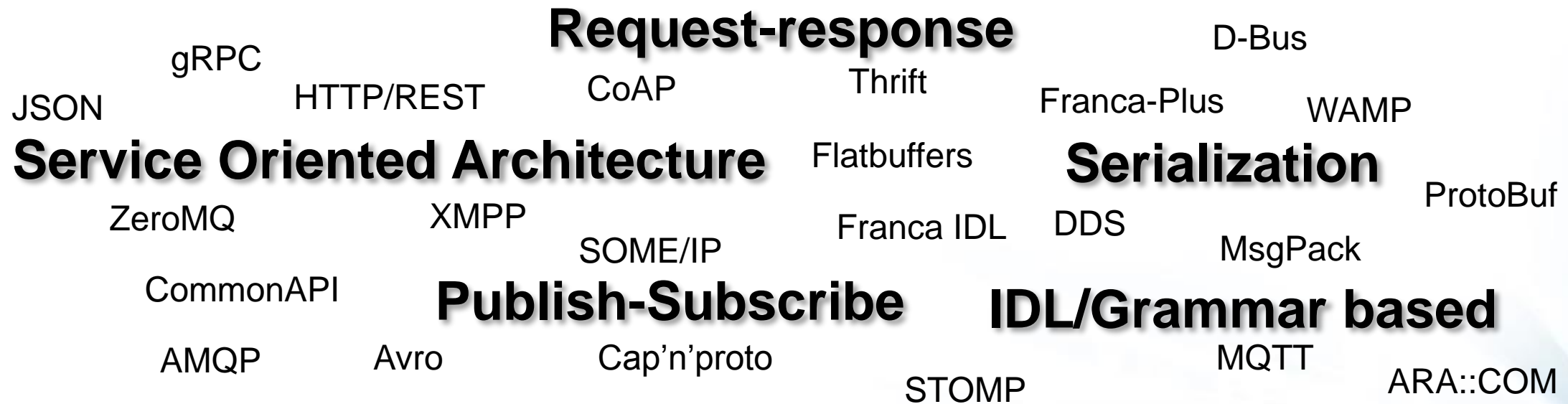
The Generic Protocols Evaluation Project

- Started Dec, 2017
- Study and evaluate communication technologies used today in the Automotive Industry, searching opportunities for interoperability between domains



Building knowledge about software

- 23 technologies related to communication between software components
 - Presentations, videos, discussions.
 - Available in GPRO wiki [here](#) and [here](#).
 - Not really possible a satisfying categorization



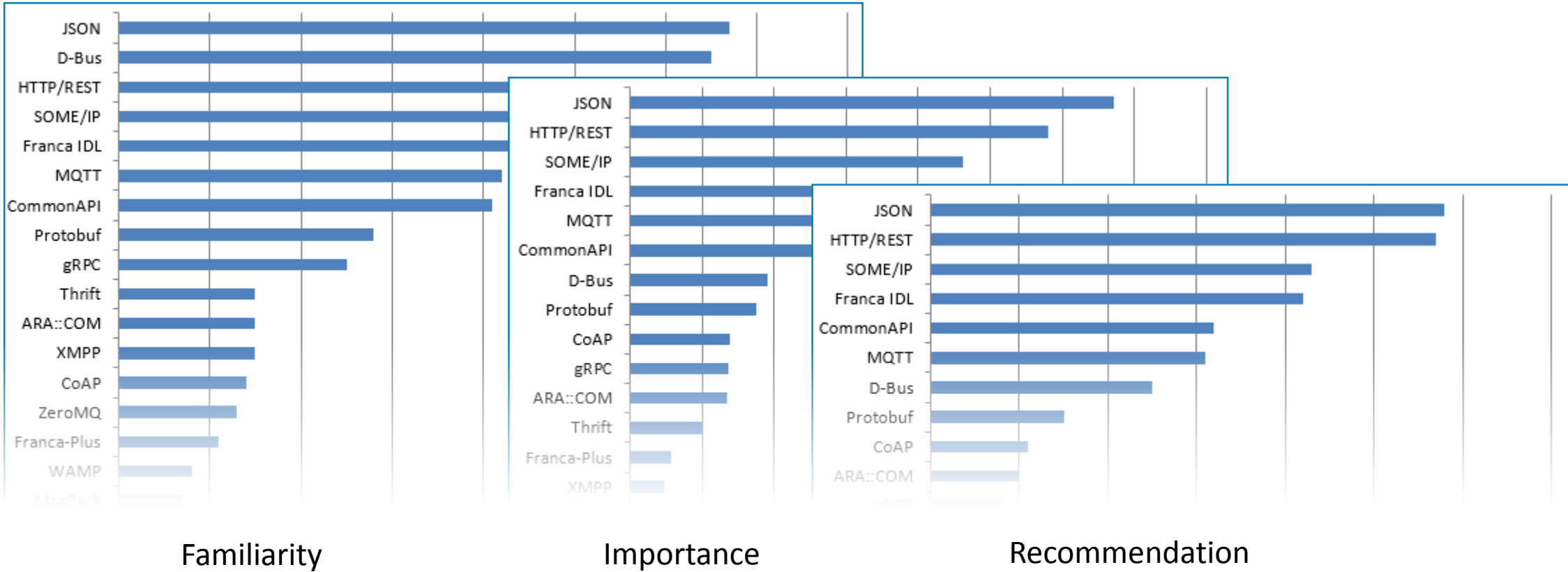
Building knowledge about people



- Launched survey on June 2018
- Goal: get the opinion of the participants about the technologies considered

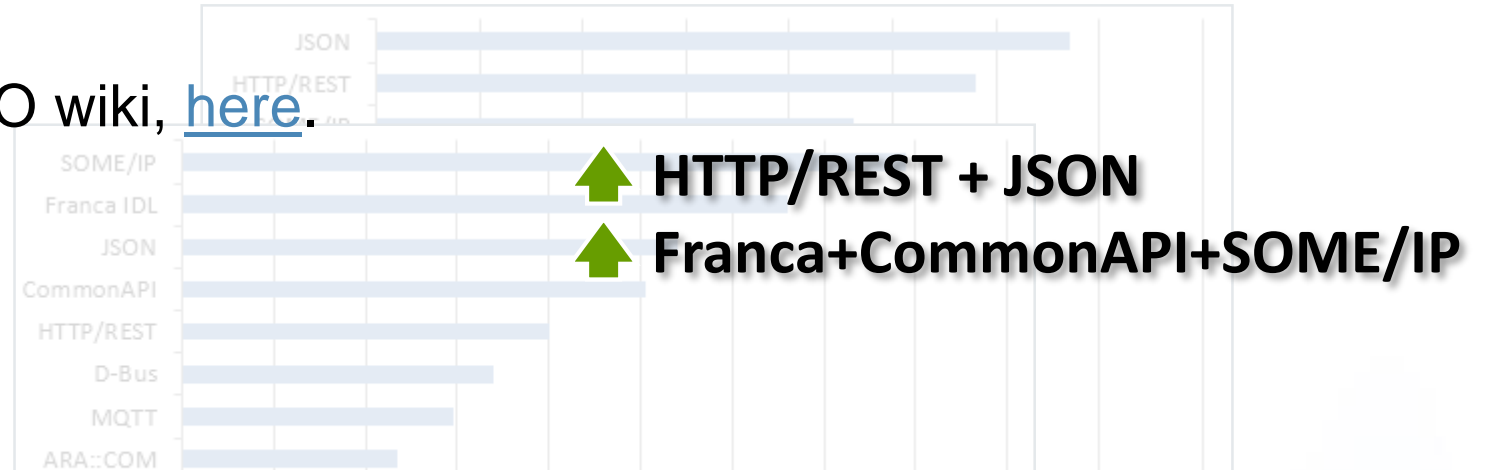
Question	Score
Familiarity with such technology	0..4 (unknown / extremely familiar)
Importance of the technology for communication inside the vehicle	0..4 (not important / extremely important)
Importance of the technology for communication outside the vehicle (e.g. towards the Cloud)	0..4 (not important / extremely important)
Are you using/Did you use such technology?	No/Yes (0,1)
Would you recommend such technology?	No/Yes (0,1)

Building knowledge about people



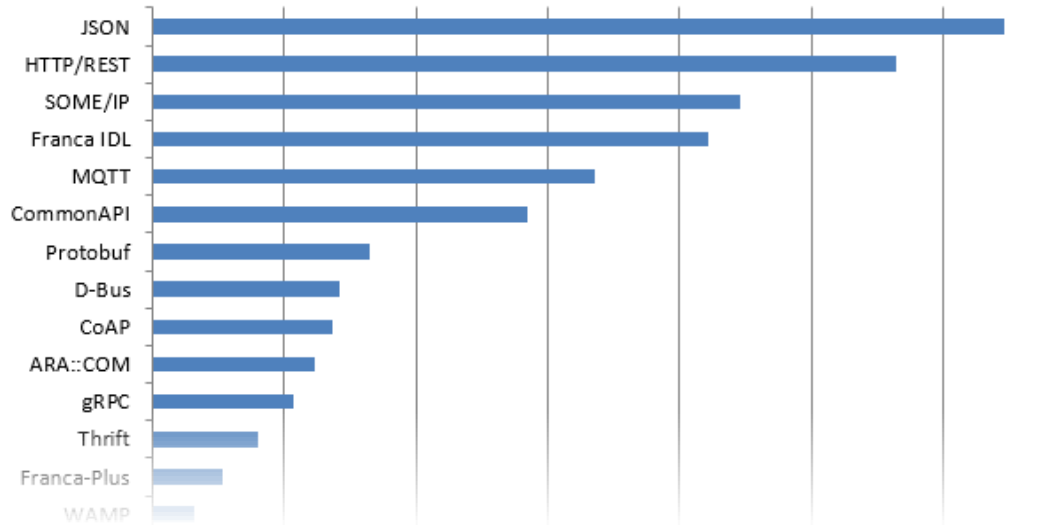
Results of the survey

Full results are available in GPRO wiki, [here](#).

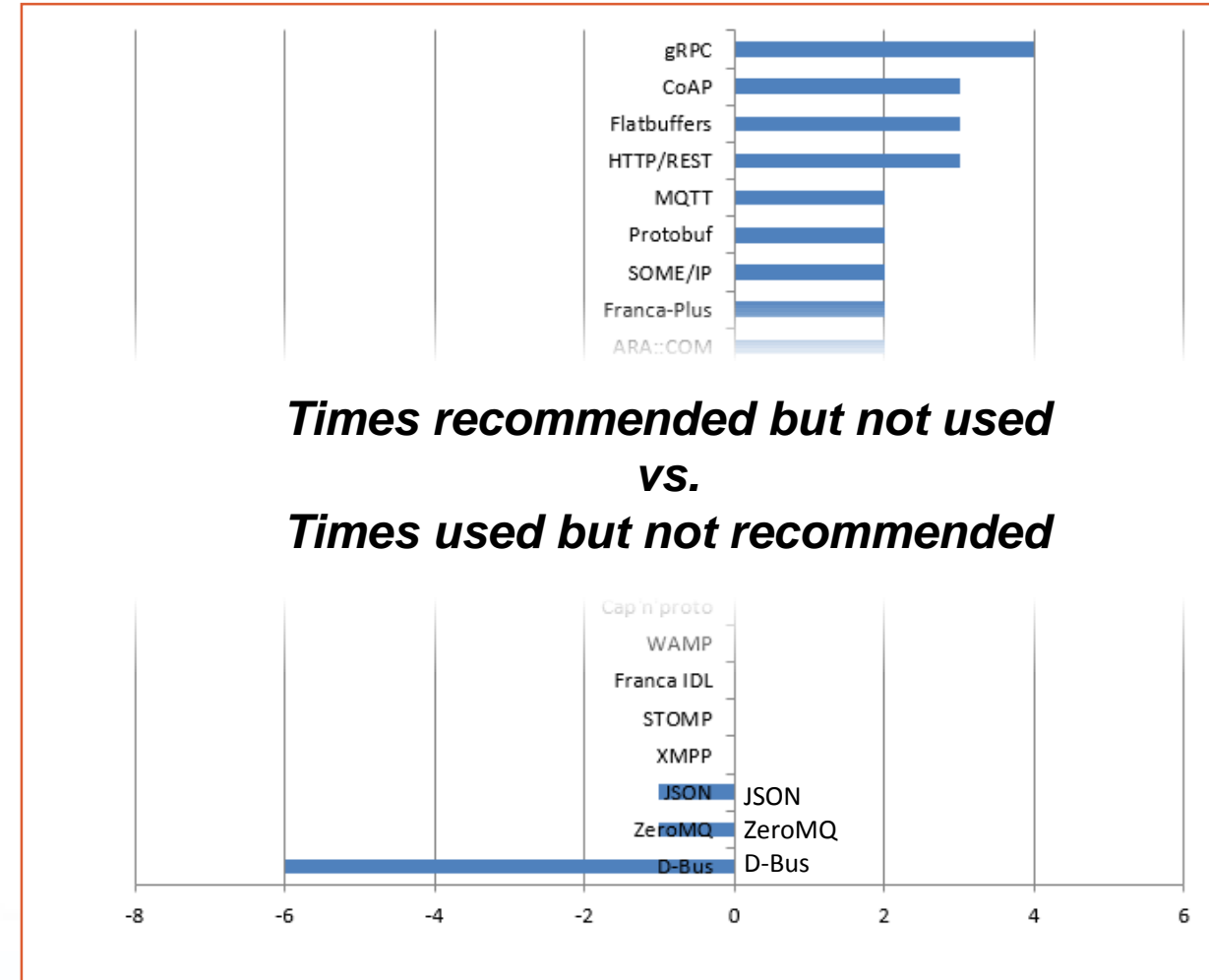


Question	Results
Familiarity	JSON, D-Bus, HTTP/REST, SOME/IP, Franca IDL, MQTT, CommonAPI, Protobuf, ...
Importance inside the vehicle	SOME/IP, Franca IDL, JSON, CommonAPI, HTTP/REST, D-Bus, MQTT, ARA::COM, ...
Importance outside the vehicle	JSON, HTTP/REST, MQTT, Franca IDL, SOME/IP, Protobuf, CommonAPI, CoAP, gRPC,
Are you using it?	JSON, HTTP/REST, Franca IDL, D-Bus, SOME/IP, CommonAPI, MQTT, Protobuf, ARA::COM, ...
Would you recommend it?	JSON, HTTP/REST, SOME/IP, Franca-IDL, CommonAPI, MQTT, D-Bus, Protobuf, CoAP, ...

Popularity & trends



$$\text{Popularity} = (\text{Inside-vehicle importance} + \text{Outside-vehicle importance}) \times \text{familiarity} \times (1 + \text{recommended})$$



Building knowledge about people

Generic Communication Protocols Evaluation

Too many choices, too much diversity, too much boiler-plate code, adaption layers, and incompatibility: this seems to be the scenario in automotive today for communication frameworks and protocols.

In the scope of the GENIVI project "Generic Communication Protocols Evaluation" we are collecting feedback from the automotive industry about the current and wished usage of some of the most used technologies today.

With this poll we gather your inputs to find the industry preferred options.

How much do you feel familiar with the following technologies?

	Not familiar	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
Franca IDL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CommonAPI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MQTT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

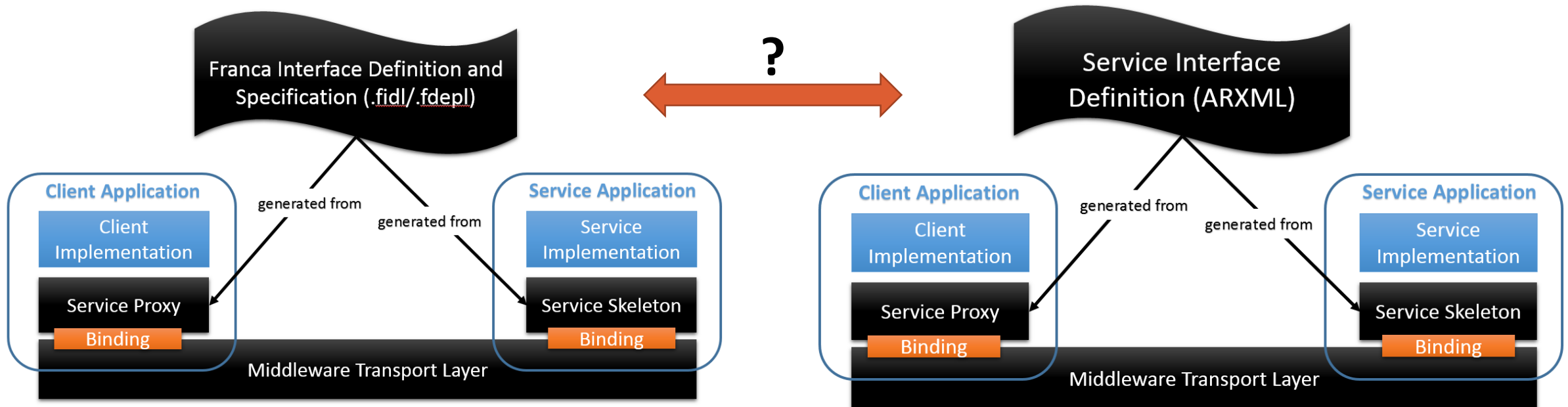
<https://tinyurl.com/y6m7uljw>

Select each technology that you use in products or during development

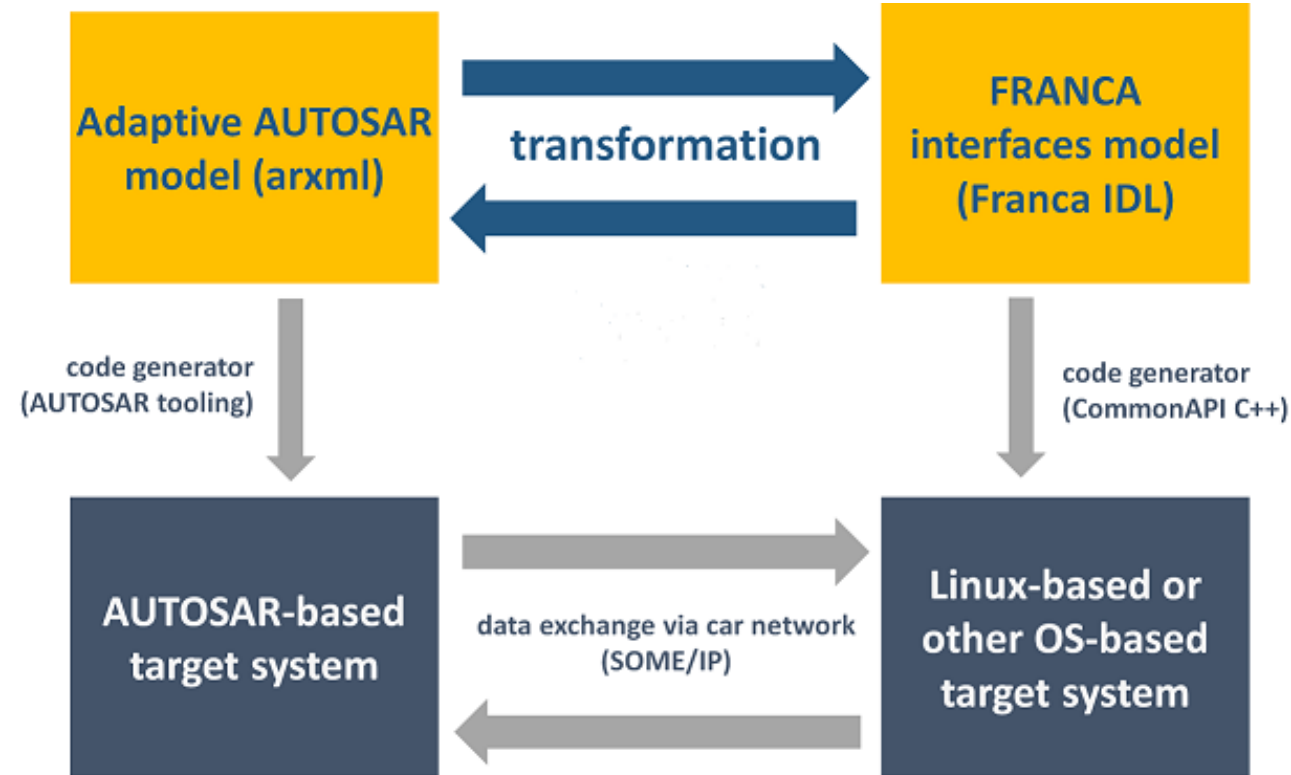
- Franca IDL
- CommonAPI
- MQTT
- WAMP
- AMQP
- XMPP

CES 2019 DEMO

- CommonAPI and ARA::COM can use SOME/IP and share similar concepts.
 - Are they interoperable?



CES 2019 DEMO



Join the Franca & Adaptive AUTOSAR workshop tomorrow at 11.00 in Studio 7&8

Whitepaper



- Available in GPRO wiki, [here](#).
- Same content of this presentation, but goes deeper.
- Conclusions:
 - Representative of the Industry confirmed the importance of Franca+CommonAPI+SOME/IP and AUTOSAR Adaptive software stacks in their current and future plans. Therefore, we demonstrated possible way to interconnect both environments introducing a new tool.
 - During CES2019 and internally in OEMs and Tier1s, there has been good feedback for such tool also in accordance of the future plans of development.

Next steps



- The Automotive Industry is constantly evolving
 - we need to update the survey with emerging technologies and to involve more participants in it.
 - E.g. ADAS (ApolloRT, ROS, ROS2 – RTPS/DDS)

- The IDL translation tool for interoperability between AUTOSAR Adaptive and CommonAPI needs to reach near-to-production quality

Thank you!

GPRO Wiki:

<https://at.projects.genivi.org/wiki/display/DIRO/Generic+Communication+Protocols+Evaluation+Project>

Visit GENIVI:

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<http://projects.genivi.org>

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