



## **W3C Automotive Working Group**

Gen2 RPC – Scope and Requirements

# Remote Procedure Calls

## PURPOSE

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### Purpose

- Actuate complex vehicle functions from trusted and untrusted devices.
- BYOD integration.
- Vehicle-to-cloud service integration - Smart Cities, Pothole reporting, etc.
- Cloud-to-vehicle service integration - Fleet management. Usage based insurance.



### Requirements

- Security needs to be aligned with VSS security design.
- Service registration / discovery.
- Abstract vehicle access to well-defined set of services.
- Differentiate service access depending on role. (OEM, authorized dealer, owner, 3rd party)
- ECU-ECU communication likely out of scope. (Autosar, etc better suited)
- RPCs will **not** be integrated into Gen2, but rather run next to it.
- RPCs can use Gen2 for signal pub/sub, but Gen2 has no dependencies on RPC.
- Use RPC for complex use cases, retain writeable signals for simple settings (volume control).
- [Implementation note] RPC services must arbitrate between conflicting commands from multiple sources.



- **Extend automotive tech upward toward web ecosystem**  
Extend SOME/IP, RSI, or other automotive protocol with security, libraries, etc, into non-automotive domains such as mobile apps, cloud, etc.
- **Extend web tech down toward automotive ecosystem**  
Extend WAMP, gRPC, or other web-protocol into automotive domains such as ECUs, QNX, etc.

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- We should not build in dependencies on specific in-vehicle technologies protocols.
  - Whatever RPC technology we chose must easily map against the in-vehicle SoA / Zonal Architecture principles of request/reply, pub/sub, events, etc.
  - DDS Distributed Data Service is a possible candidate.



### Initial Focus – Service Catalog Standardization

- Common infrastructure demands standardization of services. The time is now.
- Start with high-value, easy-to-implement services enabling high-profile collaboration.
- Work with non-automotive entity, such as Amazon, to showcase service deployment across multiple OEMs.
- Standardize SOTA? Lots of pitfalls.
- Use services to identify and validate candidate RPC technologies.



### Next steps?

- Magnus Feuer to take first pass on catalog structure and some candidate services. Keep demo services in mind.
- Setup separate call for RPC within the current working group and charter.
- Magnus to talk to Ted to figure out process details.
- Magnus' / JLR's commitment beyond these steps are TBD.

THANK YOU

