Generic Protocols Evaluation Project

2017-12-05 Project Team Meeting

AGENDA

1. Roll Call (5 min)
2. Project participants (according to survey)?
3. Assigning/approving project lead
4. Discuss project goals (5 min)
5. Review Project Wiki page (list of technologies) (15 min)
6. Standards organizations behind the technologies
7. Prioritization of collected topics (15 min)
8. Practicalities - issue tracker, mailing list, meeting setup
9. Actions, next steps (5-10 min)

ORGANIZATION

1. Project participants (according to survey)
2. Project Lead
3. Mail addresses

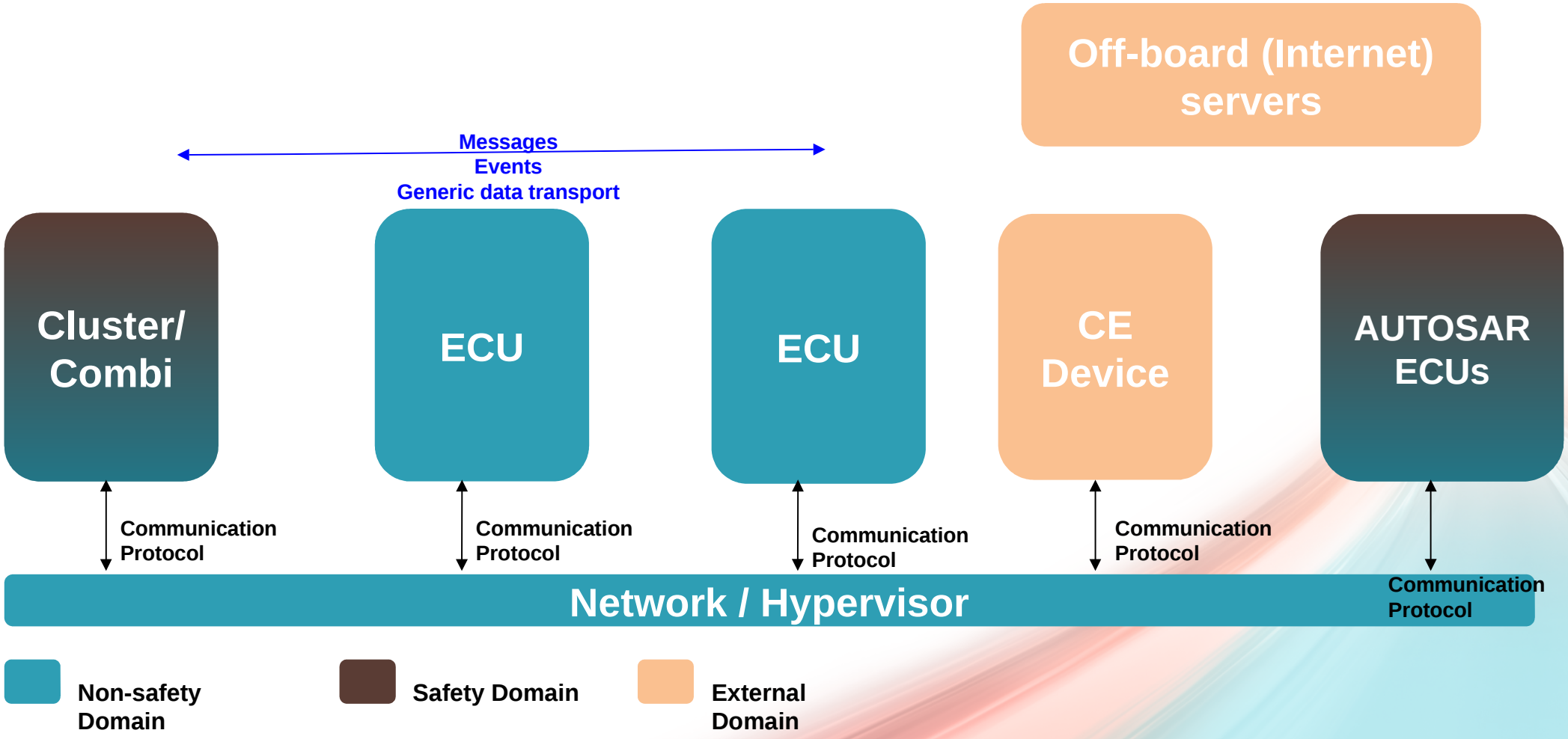
[Review] Why is this project needed?

As automotive software engineers we have (at least) "5 dimensions of incompatibility..."

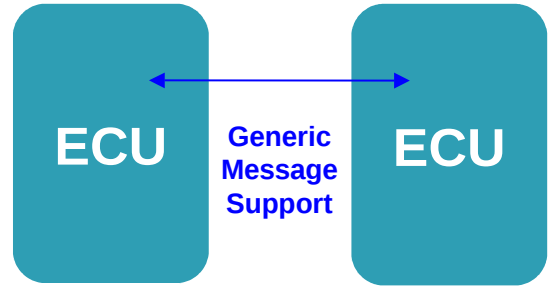
- Network protocol standards
- Data encoding
- Programming languages
- Programming APIs (bindings,...)
- Hardware / CPU architecture specifics (byte order,...)

but wait! there's more!
… IDLs, Tools, Modeling tools? UML?, ...

Support picture - Generic Protocols Evaluation



[Review] Scope and definitions (first proposal)



- **Generic Protocol *(in this context)***

  *"Network (*and IPC) protocols acting primarily as a transparent data carrier, applicable to many different application domains, but including convenience features above that of a plain data stream (socket). For example: data encoding, segmenting, opaque target addressing, routing, peer authentication, delivery guarantee, data integrity and service-discovery."*

- In other words, we are concerned with OSI model levels 5-6 (approx.)
- To reduce scope – focused on segmented, atomic, event/message-based semantics more than "streaming data"
- *IPC needs to be in scope, because of shared parts (data encoding), similarity, and that network-transparency is often a design goal.

[Discuss] Project Goals proposal (high-level)

- Analyze choices among a vast number of messaging protocols & encodings
- Reach consensus on preferred options: Among 10-15 choices, find 3-5 recommended (and for which scenarios they are recommended)

[Discuss] Project Goals proposal (detailed)

- Project participants gain thorough understanding of available choices
- Deep dive: SOME/IP - where is it applicable, and where is it not?
  Similarly for RESTful web interfaces and a few others.
- Produce or identify technology demonstrators newly created or (if exists already) found and highlighted.
- Publish hard data on learning: Performance, resource needs.
- Evaluate popularity / probability to encounter
- Reduce scope of “preferred” choices in industry
- Document applicability and recommendations
- Promote *open* standards and implementations across industry
- Summarize and create (implementation) documentation for recommended choices

[Review] Areas to explore

- Flexibility & network transparency, etc.
- Interface Description Languages: Franca IDL ↔ others
- Tooling:
  - Code generation & bindings
  - Documentation
  - Runtime evaluation / debugging
- Concrete programming APIs, e.g.: Common API C++
- System modeling: **Franca +**

- For studying (& presenting)

Existing technologies to explore

- Refer to Wiki Page from now on
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Evaluation Methods

- How to investigate and evaluate choices?
- Reading docs & presenting to the group
- Asking Questions:
  - Does your company use <topic> for in-car embedded systems?
    - Yes / No / Don’t know / (prefer not to answer?)
  - Does <company> use <topic> for communication to/from car?
  - Does <company> use <topic> for non-embedded (support / IT systems)
  - Uses today vs has used?
- Asking project group, then produce polls?
- Contacting standards organizations behind each choice for presentation/discussion

Standards Organizations

- Assuming this is what the group wants to do:
- Who to contact?
  - OASIS (AMQP, MQTT etc.)
  - … get list via list of technologies – who is behind them?

Practicalities

- Need clear commitments from project participants
- A project to achieve results! Those willing to actually work will organize (or self-organize) around a functioning meeting schedule.
- Volunteers for project leader?
- Time poll, or just set a time?
- Mailing list: genivi-projects @lists.genivi.org

JIRA tracker (https://at.projects.genivi.org/jira/projects/GPRO)

- Keep in touch: https://www.surveymonkey.com/r/JZJV5KP

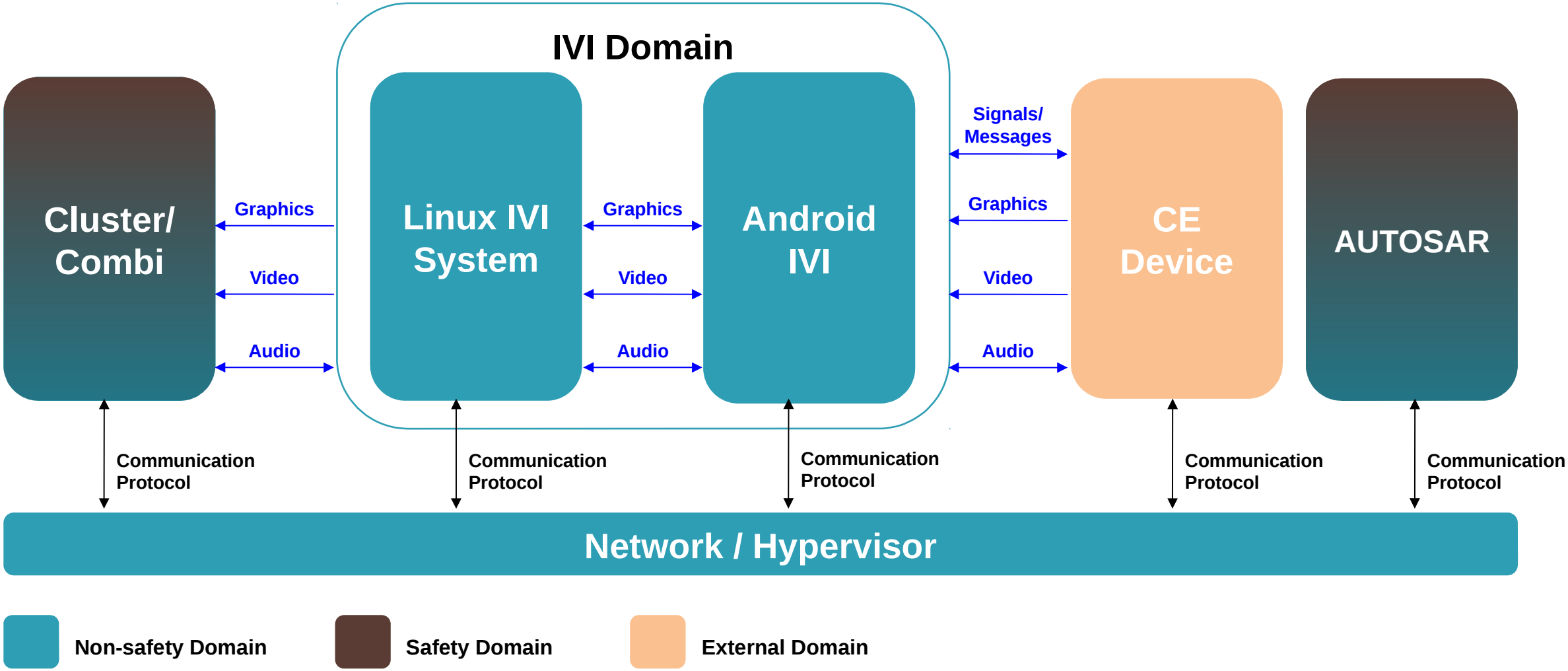
Actions

- AI: Complete list of standards organizations
- AI: Select 2 technologies each
- AI: Template for technology evaluation
- …

(if needed for discussion)

BACKUP SLIDES

Supporting ECU architecture picture (example)



1. Register yourself to projects on the on-line GENIVI Domain Interaction form & survey (https://www.surveymonkey.com/r/JZJV5KP)
2. Projects #2, and #4 – meeting times to be announced
   – register your interest on the on-line form (*https://www.surveymonkey.com/r/JZJV5KP*)
3. Questions? Philippe Robin philippe.robin@technoveo.com

   Gunnar Andersson gandersson@genivi.org

   Use the community mailing list ! genivi-projects@lists.genivi.org