Vehicle Signal Interface

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Vehicle Signal Interface

- A new software bus for rapidly accessing vehicle data

- Optimized for producer/consumer information sharing

- Why not D-Bus?

  - D-Bus struggles to produce signals rapidly enough

  - Running sample test applications on an Intel Atom:

    - D-Bus generated ~4,000 signals/second

    - VSI generated ~5,000,000 signals/second

- VSI operates using a shared memory segment
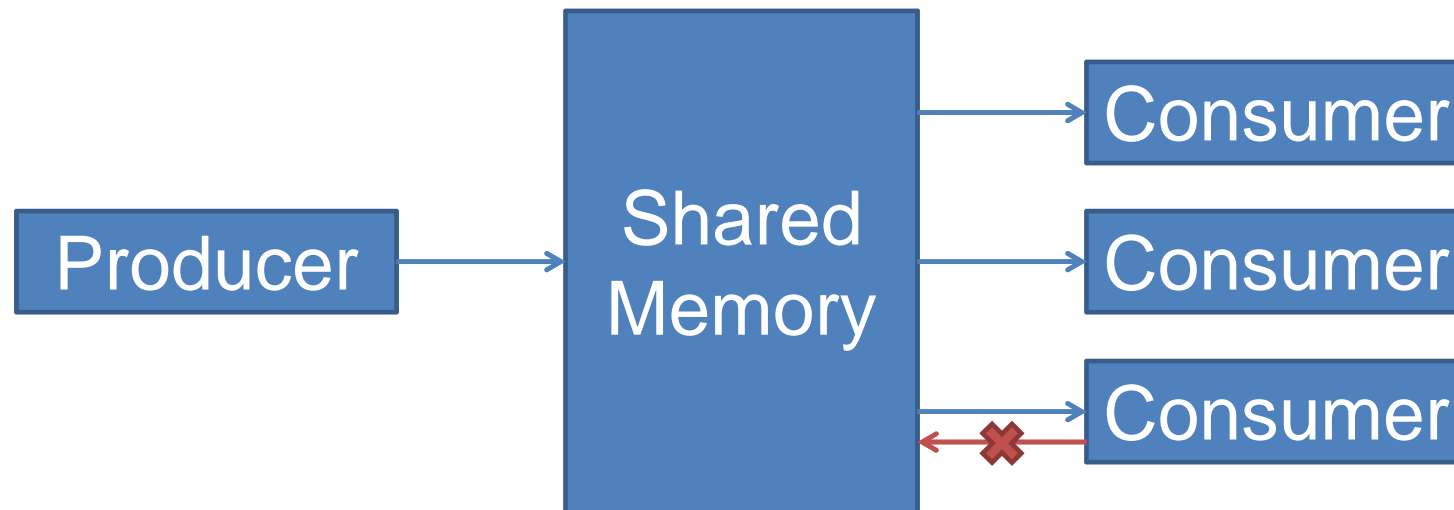
- It does not support remote method invocation

- The API is currently a simple dynamic library
- Will support both individual signals and groups of signals
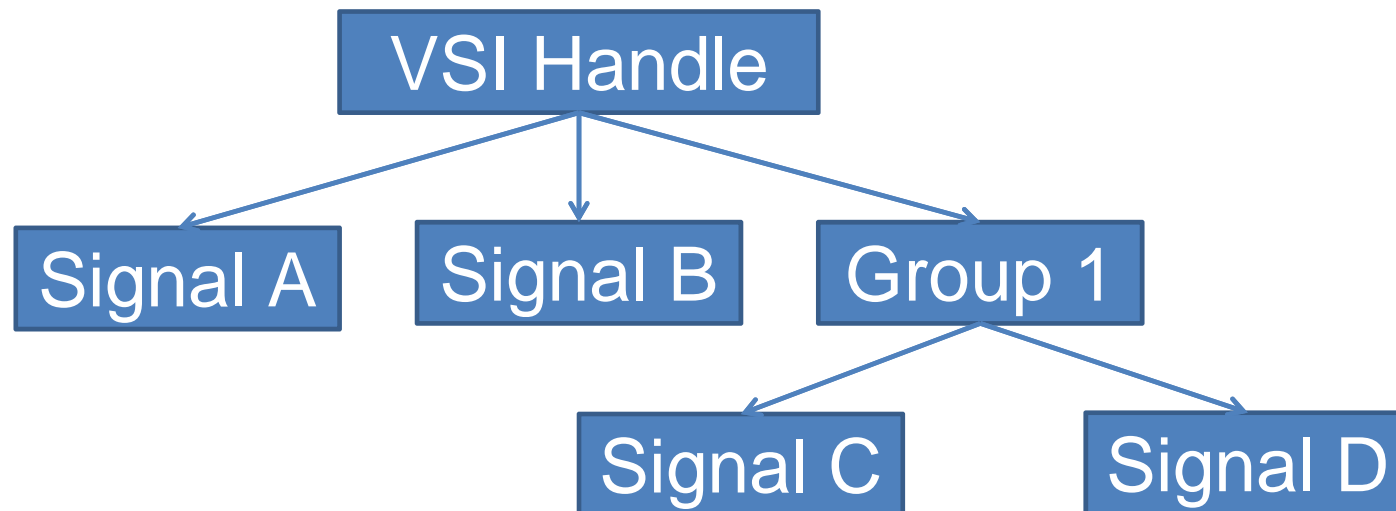
Current Status and Next Steps

- The core is functional, but being improved upon
  - Next, we will develop the core to a more complete state
- The API is under internal review
  - Next, we will complete internal review and post it externally to solicit feedback

Future Considerations

- Security features have not yet been discussed
- Mechanisms for isolating signals need to be evaluated
- Potential Franca IDL/Common API integrations should be considered. For example, current options:
    1. No Franca IDL/Common API
    2. Franca IDL for the VSI API, no Common API
    3. Franca IDL and Common API

Future Considerations

- Option 1: No Franca IDL/Common API
- Pros:
  - No additional development work
  - Lean API
- Cons:
  - Additional bus to connect to
  - Lacking any abstraction

Future Considerations

- Option 2: Franca IDL for the VSI API, no Common API
- Pros:
    - Partially abstracted API
    - Small incremental lift
- Cons:
    - Lacking runtime abstraction
    - Franca IDL abstraction is primarily academic

Future Considerations

- Option 3: Franca IDL and Common API
- Pros:
  - Fully abstracted API
  - Fully GENIVI compliant
- Cons:
  - Large development cost
  - Lacking remote method invokation requires duplicated VSI development work for Common API integration

Thank You

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