arm

SOAFEE use-case for COVESA SDV Telemetry project
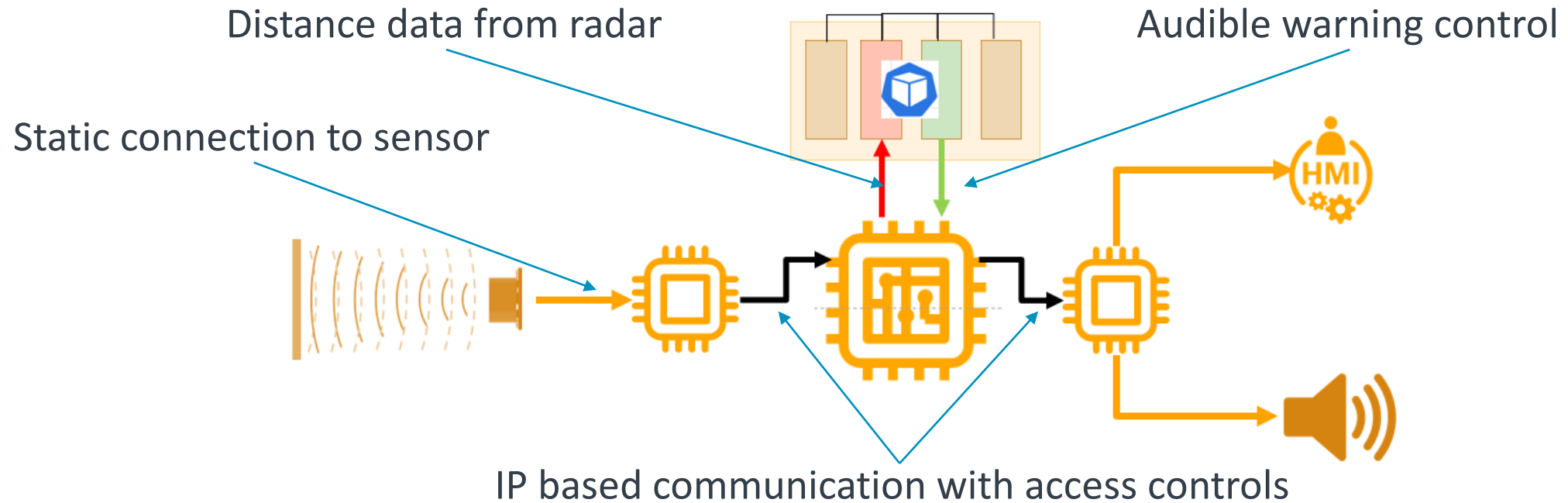
4th April 2022

Original use-case, with additional annotation

Parking distance control

Distance data from radar

Audible warning control

Static connection to sensor

HMI

IP based communication with access controls

arm

Use-case actors

User

- As a car driver/passenger I expect visible/audible responses to my or environmental inputs within certain time limits.

Developer (of applications or system)

- As a "SOAFEE Developer" I need access to data which describes the runtime performance of workloads when running on different platforms during the software development lifecycle. This must include, CI/CD pipelines, system integration platforms and systems deployed in the field.

- As a "SOAFEE Developer" I need access to historical performance data of workloads so I can identify trends and variation in performance over time.

Orchestrator (including runtime and OS)

- As a "SOAFEE Orchestrator" I need to be provided with the host system runtime capabilities to schedule workloads on an appropriate system segment.

- As a "SOAFEE Orchestrator" I need to be provided with the runtime requirements and expected real time performance for each workload, via a well-known metadata schema, in order to schedule the workloads on a suitable system segment.

- As a "SOAFEE Orchestrator" I need to have access to real time performance data for each deployed workload, to monitor actual vs requested real time performance.

CI/CD Pipeline

- As a "SOAFEE CI/CD Pipeline" I need to execute functional tests and store results to enable the evaluation of workload operation over time. Historical test data must be available to enable test result comparison over time.

- As a "SOAFEE CI/CD Pipeline" I need to execute non-functional tests and store results to enable the measurement of realtime workload performance trends.

- As a "SOAFEE CI/CD Pipeline" I need to execute non-functional tests and generate pass/fail results based on performance thresholds provided with the test definition. Historical test data must be available to enable test result comparison over time.

- As a "SOAFEE CI/CD Pipeline" I need to be provided with a set of workload performance parameters to capture during the evaluation of workload performance.

FuSa Certifier

- As a certifying authority I need to be able to track functional and non-functional requirements across implementations in multiple software components.

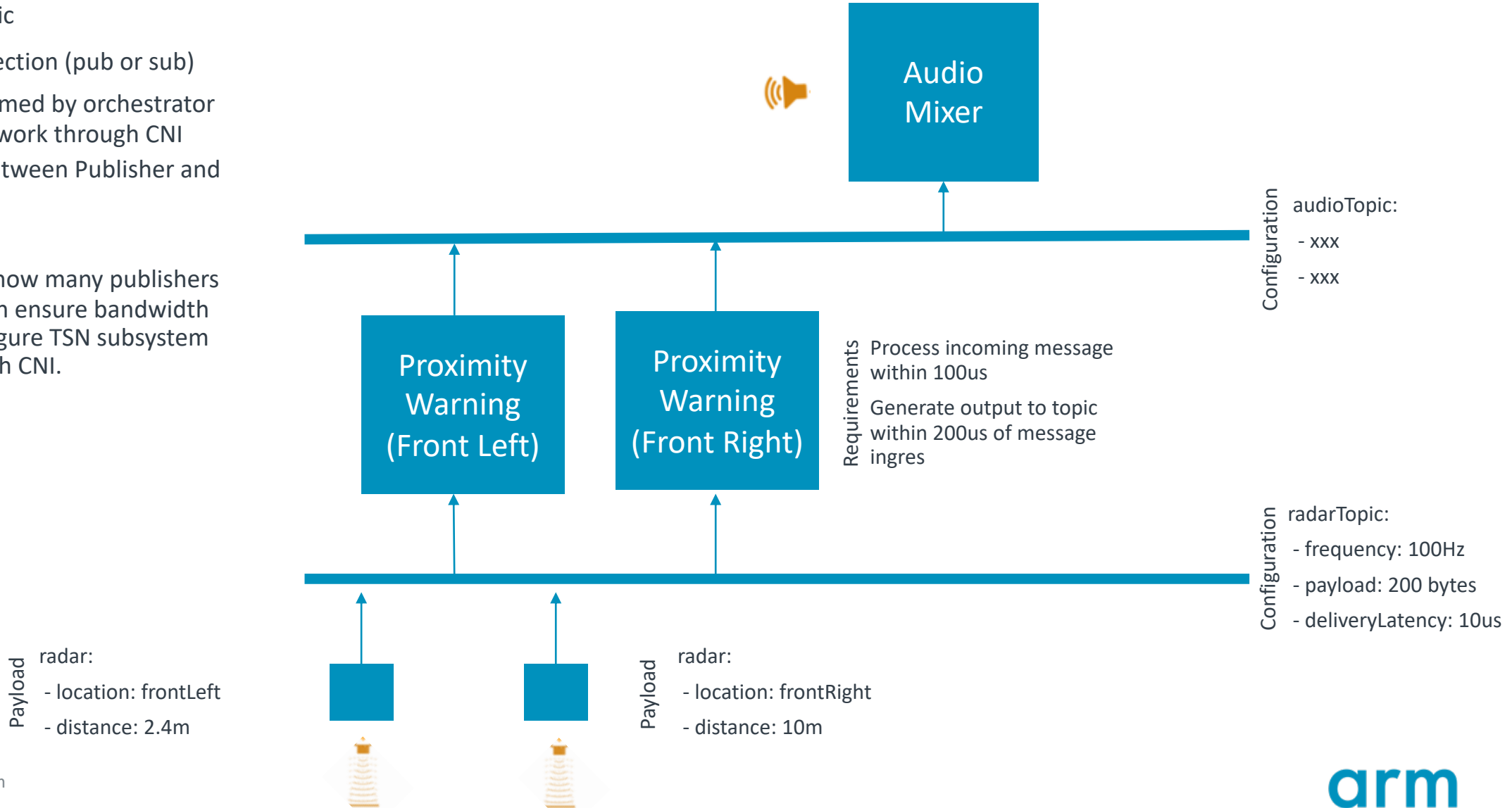**arm**

Orchestrator actor view of use-case

▬▬ Pub/Sub Topic

→ Message direction (pub or sub)

Configuration: consumed by orchestrator to configure TSN network through CNI

Payload: Contract between Publisher and Subscriber

Orchestrator knows how many publishers are on a 'topic' so can ensure bandwidth availability and configure TSN subsystem appropriately through CNI.

Audio Mixer

Proximity Warning (Front Left)

Proximity Warning (Front Right)

Requirements: Process incoming message within 100us

Generate output to topic within 200us of message ingres

Configuration: audioTopic:
- xxx
- xxx

Configuration: radarTopic:
- frequency: 100Hz
- payload: 200 bytes
- deliveryLatency: 10us

Payload: radar:
- location: frontLeft
- distance: 2.4m

Payload: radar:
- location: frontRight
- distance: 10m

arm

arm

Thank You

Danke

Gracias

Grazie

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

شكرًا

ধন্যবাদ

תודה