



CVII – Comparison of some initiatives

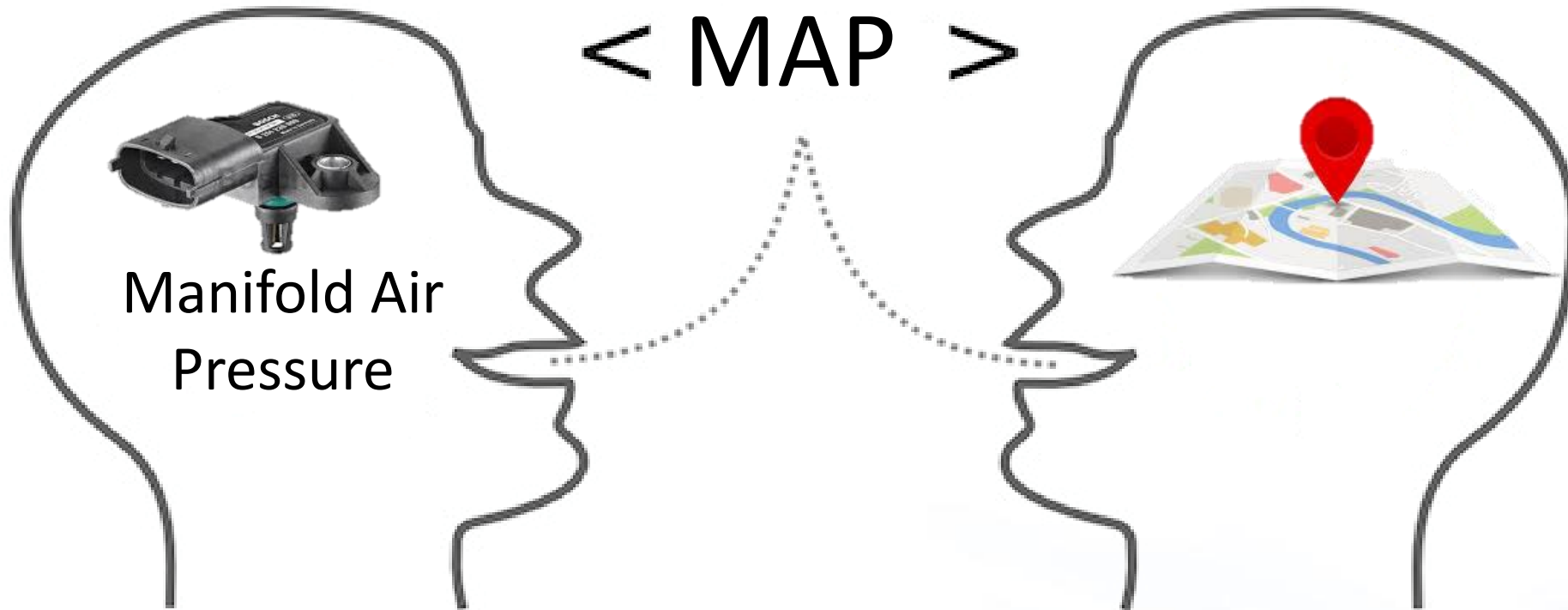
JASPAR, SENSORIS and VSS

29 October 2020

Dr Benjamin Klotz

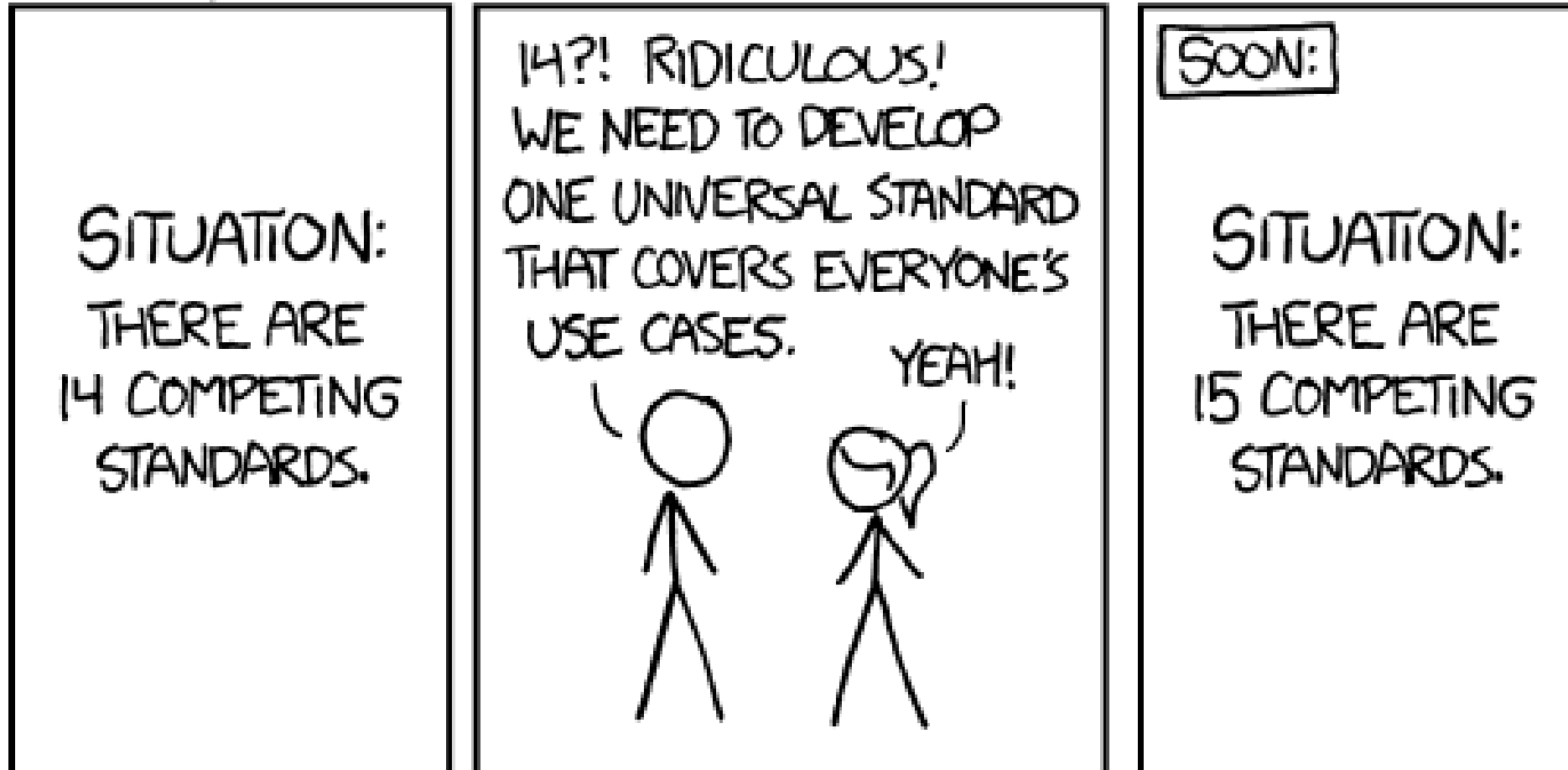


Standards: a need



Standards: a risk (aka the xkcd 927 effect)

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)



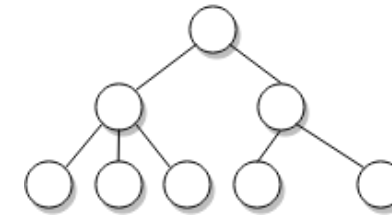
Purpose, Scope and Objectives... Some initiatives



Japan-based organization
Electronic control systems
Software of in-vehicle
networks
New areas of car
electronics



Interface for
requesting/sending
vehicle sensor data from
vehicles to clouds and
across clouds
Focus on the content
and encoding of the
interface



**Vehicle
Signal
Specification**

Domain taxonomy for
vehicle signals
No external information
No concrete interface
definition

Protocol and formats



REST interface

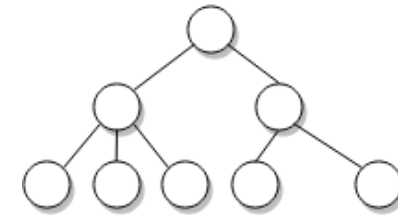
“Messages”: JSON payloads over HTTP



Google Protocol Buffers (protobuf)

Data messages in categories (expandable)

Identifies of submitter, session, message, vehicle fleet, vehicle, and driver

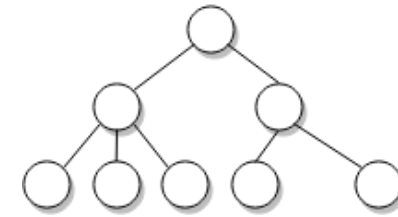


Vehicle
Signal
Specification

No communication protocol required

JSON, csv, C, franca serialization

Data Message Structure



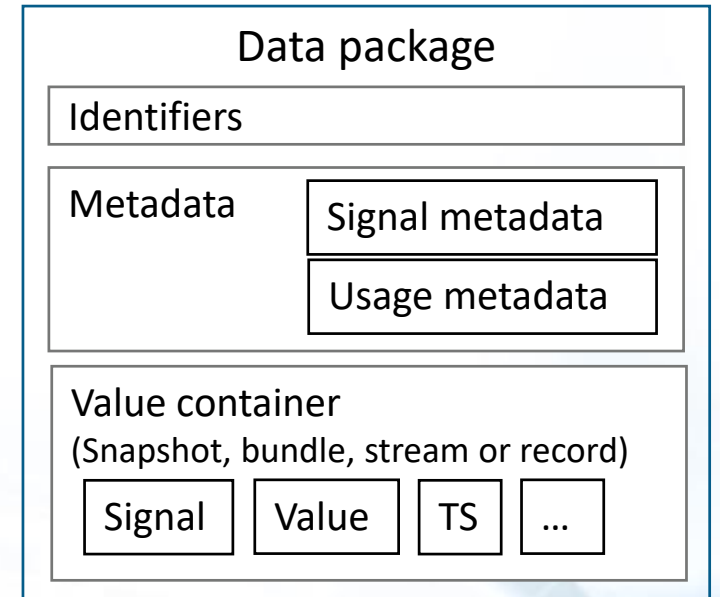
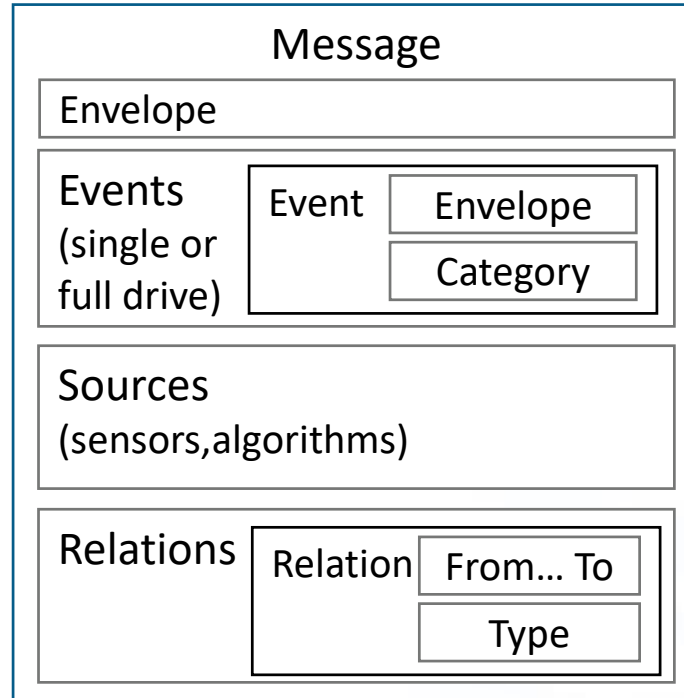
**Vehicle
Signal
Specification**

No unique way. Here, a GENIVI approach

message	unit	element			
	container	unit	element		
		unit	unit	element	
		unit	unit	unit	element

message	administration		Management information
	container	basic	Space information
		contents	Contents body
	container	basic	Space information
		contents	Contents body
		contents	Contents body
	container	basic	Space information
		contents	Contents body

+ reference



<https://www.jaspar.jp/en> (ST-VI-3)

<https://sensoris.org/>

<https://at.projects.genivi.org/wiki/display/DIRO/Value+measurement+formats>

Signal Catalogs



traffic

regulation

obstacle

attention

event

environment

infrastructure

parking



localization

object_detection

weather

driving_behavior

intersection_attribution

road_attribution

traffic_regulation

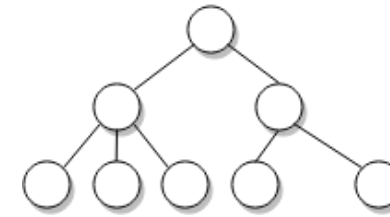
traffic_events

traffic_maneuver

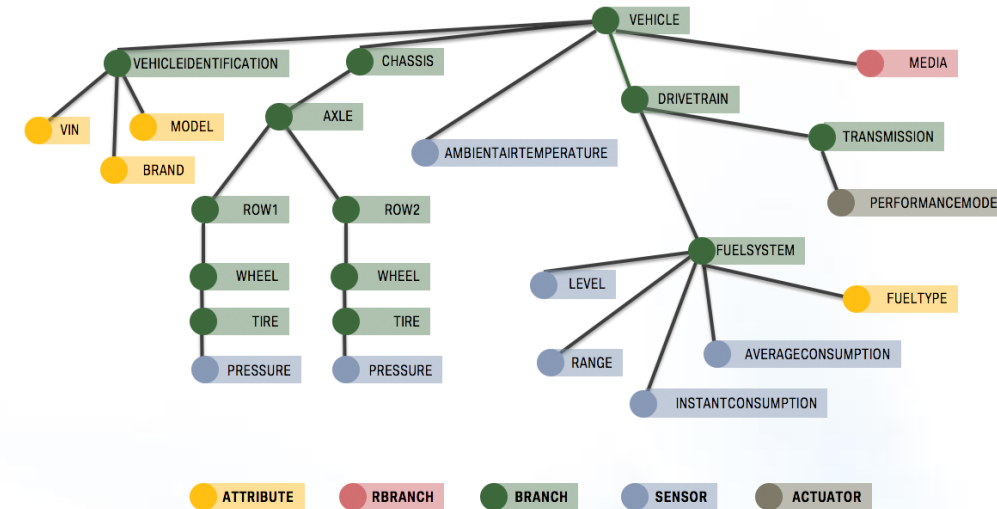
brake

powertrain

map



Vehicle
Signal
Specification



[https://www.jaspar.jp/en \(ST-VI-3 \)](https://www.jaspar.jp/en (ST-VI-3))

<https://sensoris.org/>

https://genivi.github.io/vehicle_signal_specification/

Signal metadata



Time

- UTC/ISO8601

Space

- 3 coordinates
- onRoad, name, lane
- Accuracy
- Sector ID (ISO/NP 17572)

Explicit fixed units per element



Time

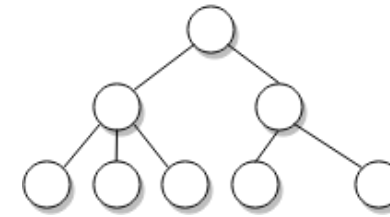
- UTC/ISO8855

Space

- Position and Accuracy
- WGS84/3 coordinates/...

Explicit fixed units (SI) per unit type

Explicit prefix symbols (kilo...) and exponent per value



**Vehicle
Signal
Specification**

Time

- No restriction (W3C uses UTC)

Space

- No restrictions (signals like Navigation.CurrentLocation.Latitude in degrees)

Explicit units (per default SI/automotive standard but adjustable)

<https://www.jaspar.jp/en> (ST-VI-3)

<https://sensoris.org/>

https://genivi.github.io/vehicle_signal_specification/

https://w3c.github.io/automotive/vehicle_data/vehicle_information_service.html