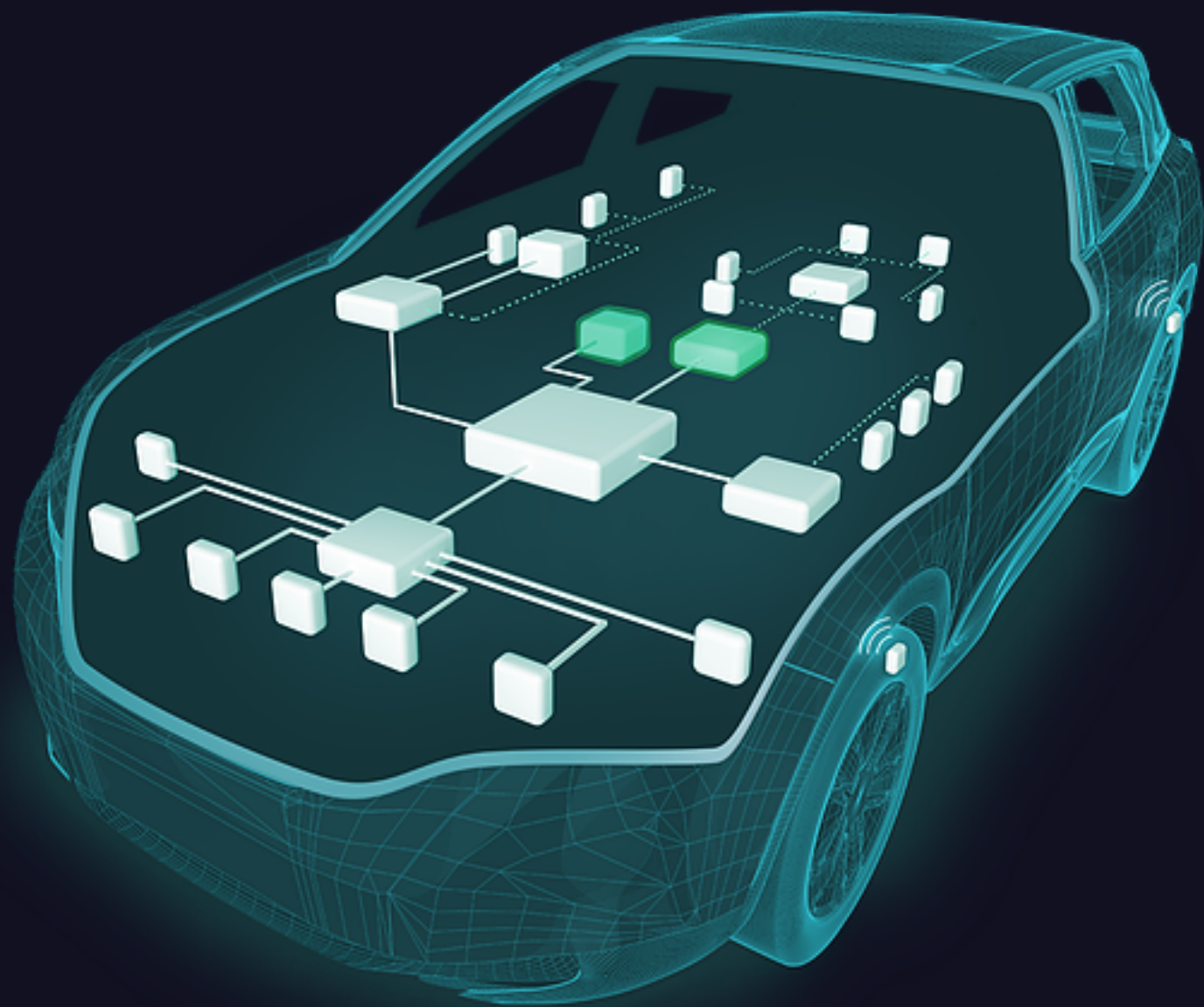


CDEventsCon

CI/CD for Autonomous Drive and Other Complex Systems

"Nobody knows how to build a car..."

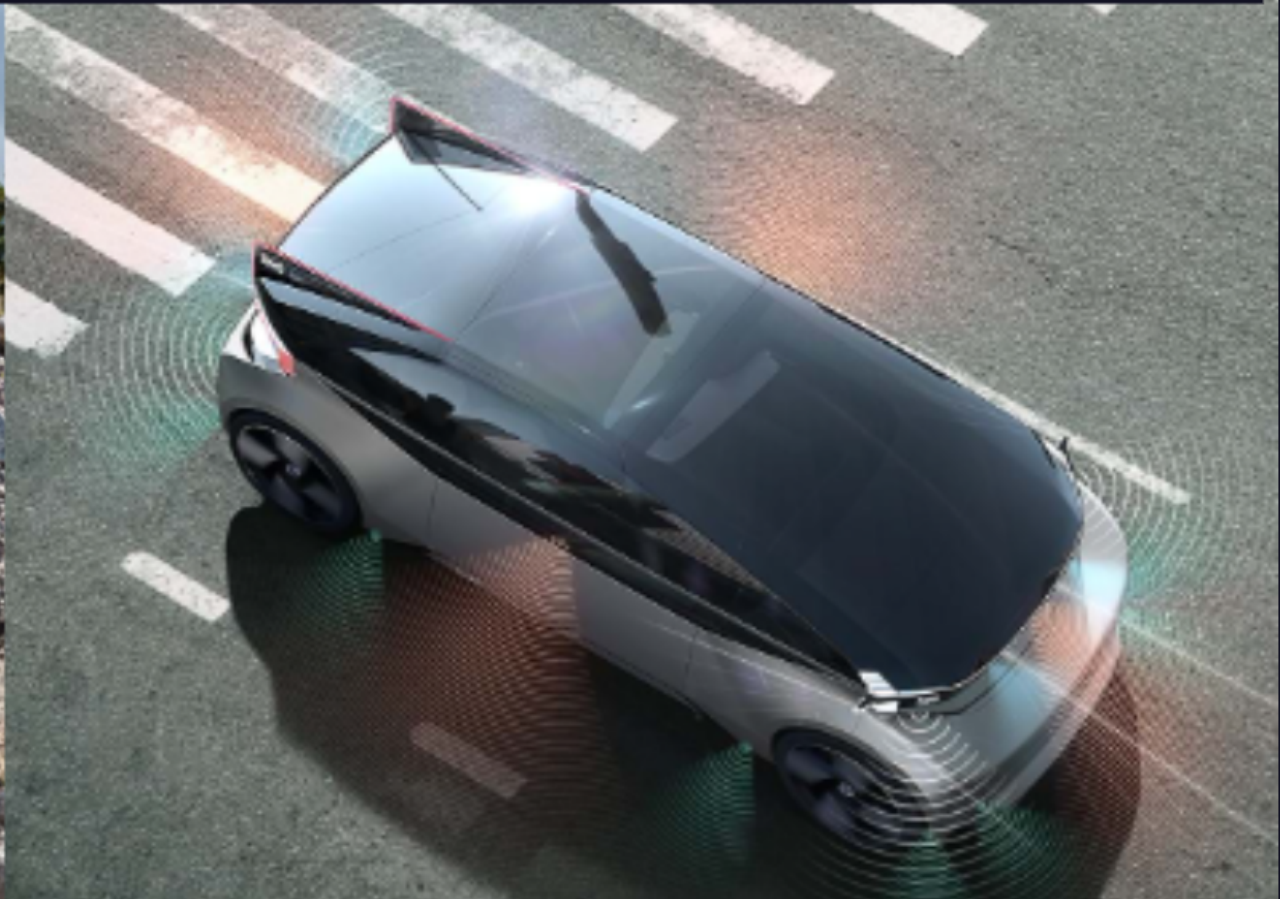




CDEventsCon

CI/CD for Autonomous Drive and Other Complex Systems
(especially using events)

Erik Sternerson, doWhile



In this talk

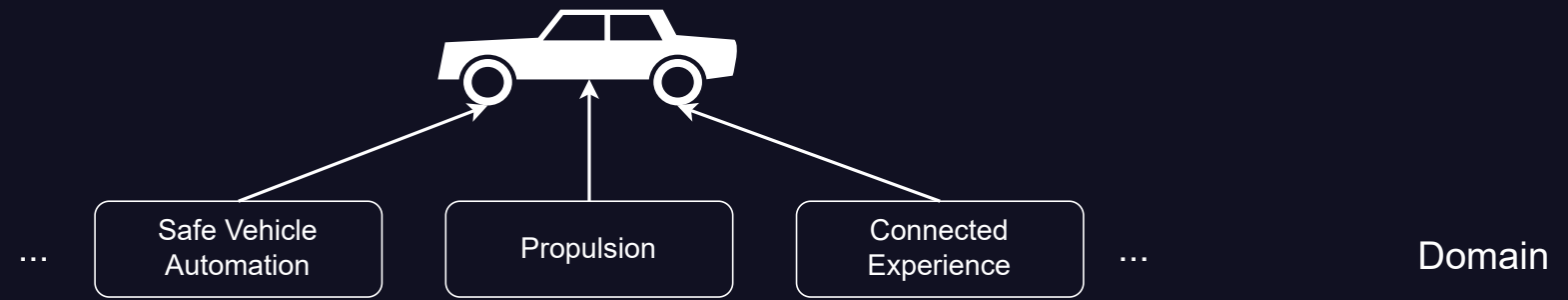
- **CD/CD for autonomous drive**
- **Transitioning to events**
- **Future**

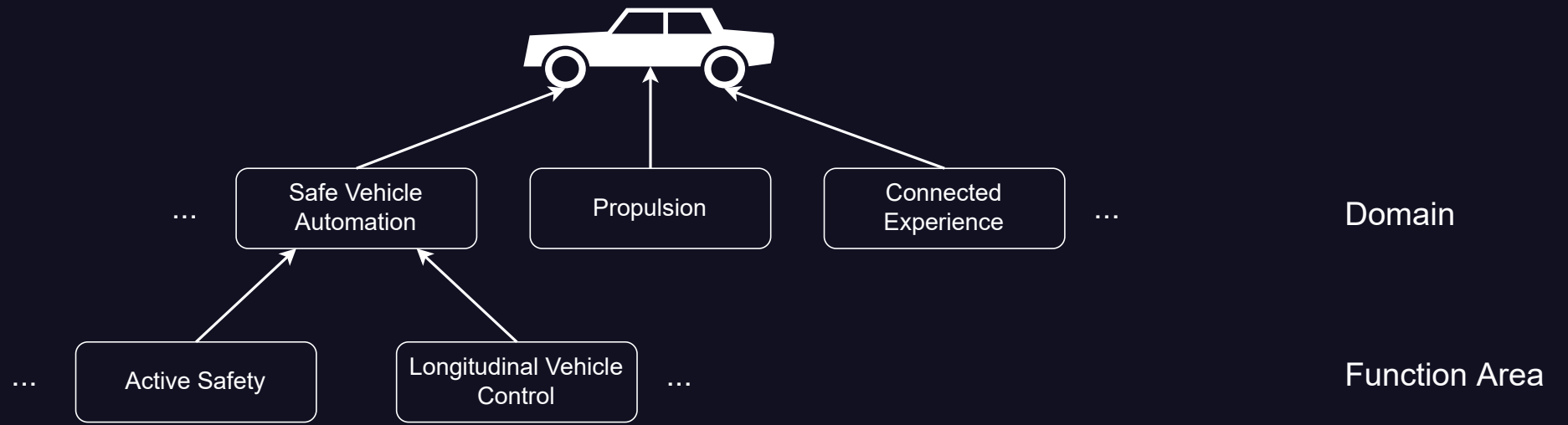


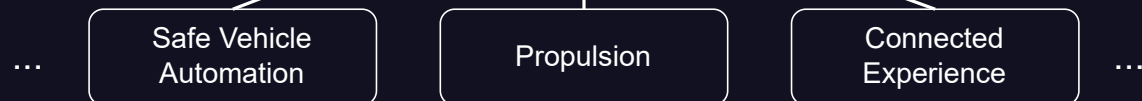
Building Complex Systems











Domain

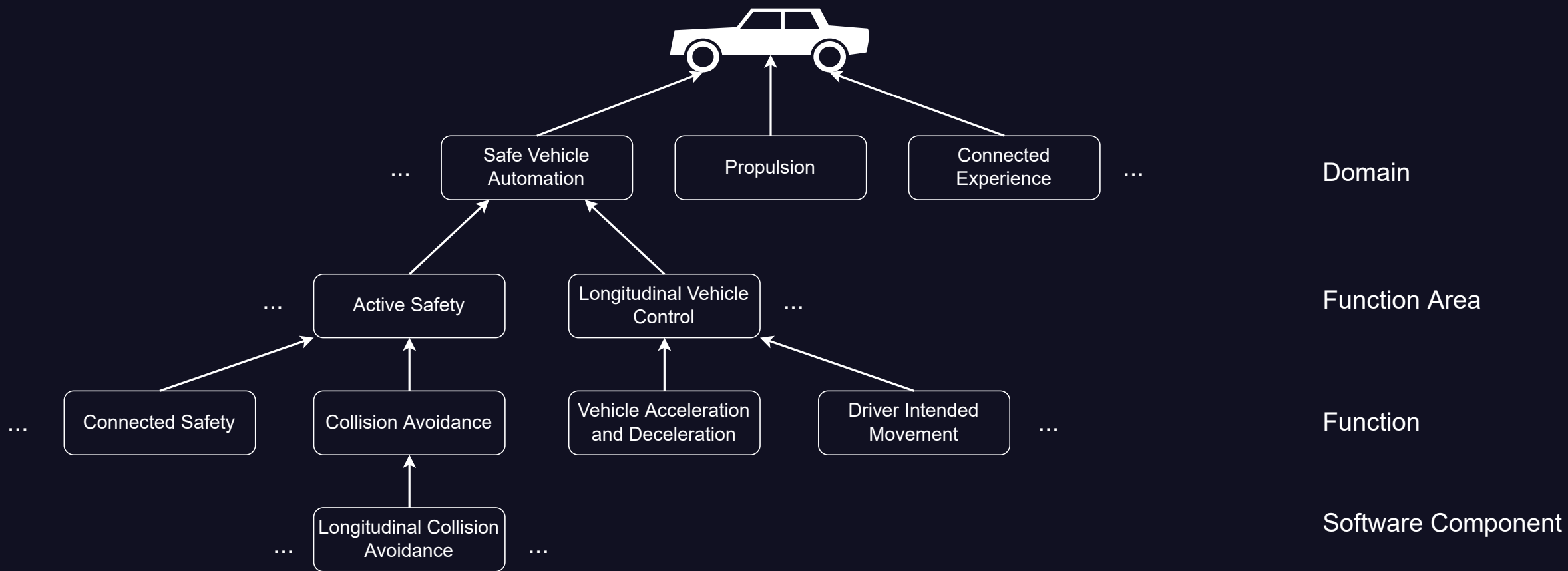


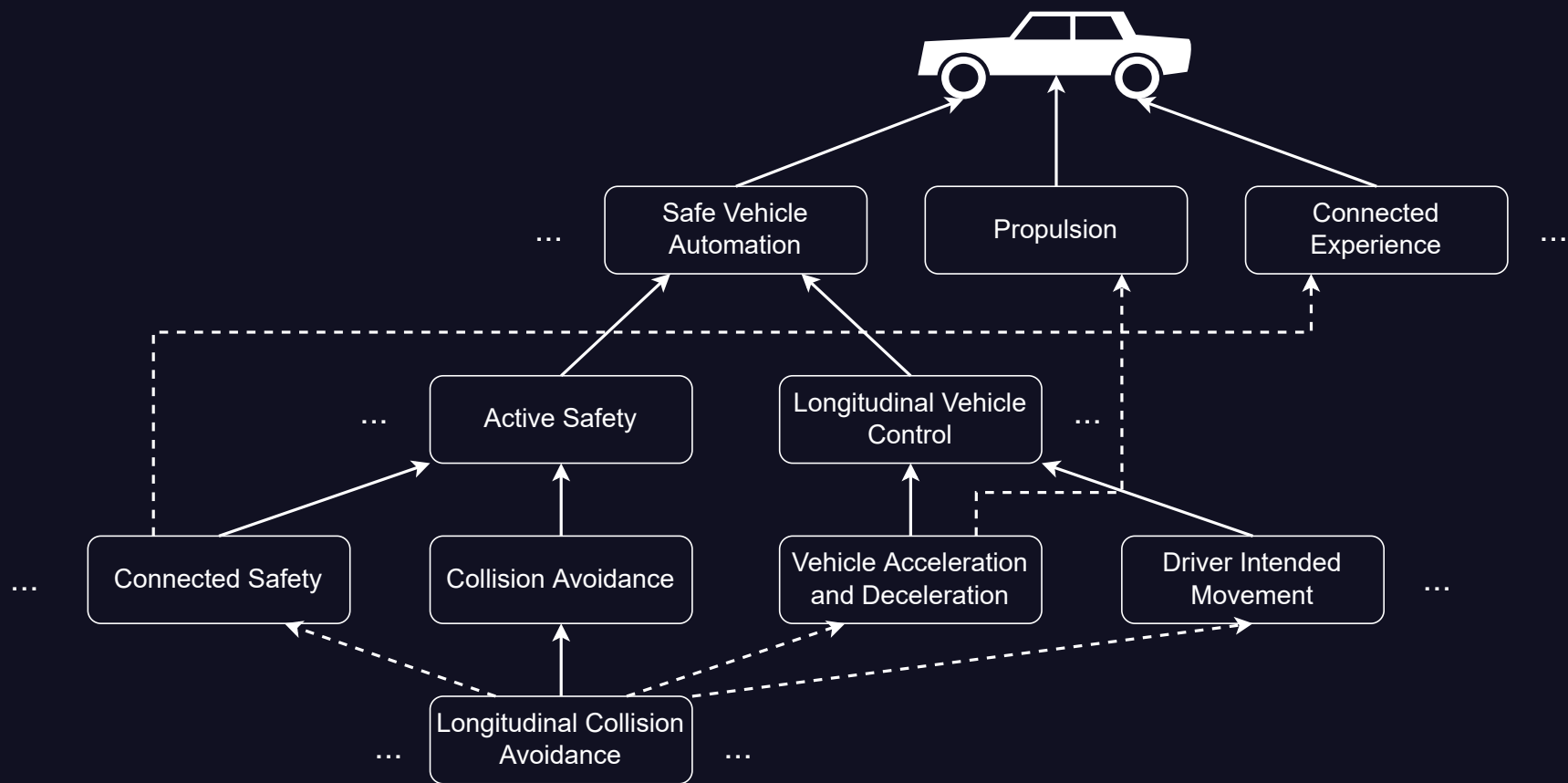
Function Area



Function







Domain

Function Area

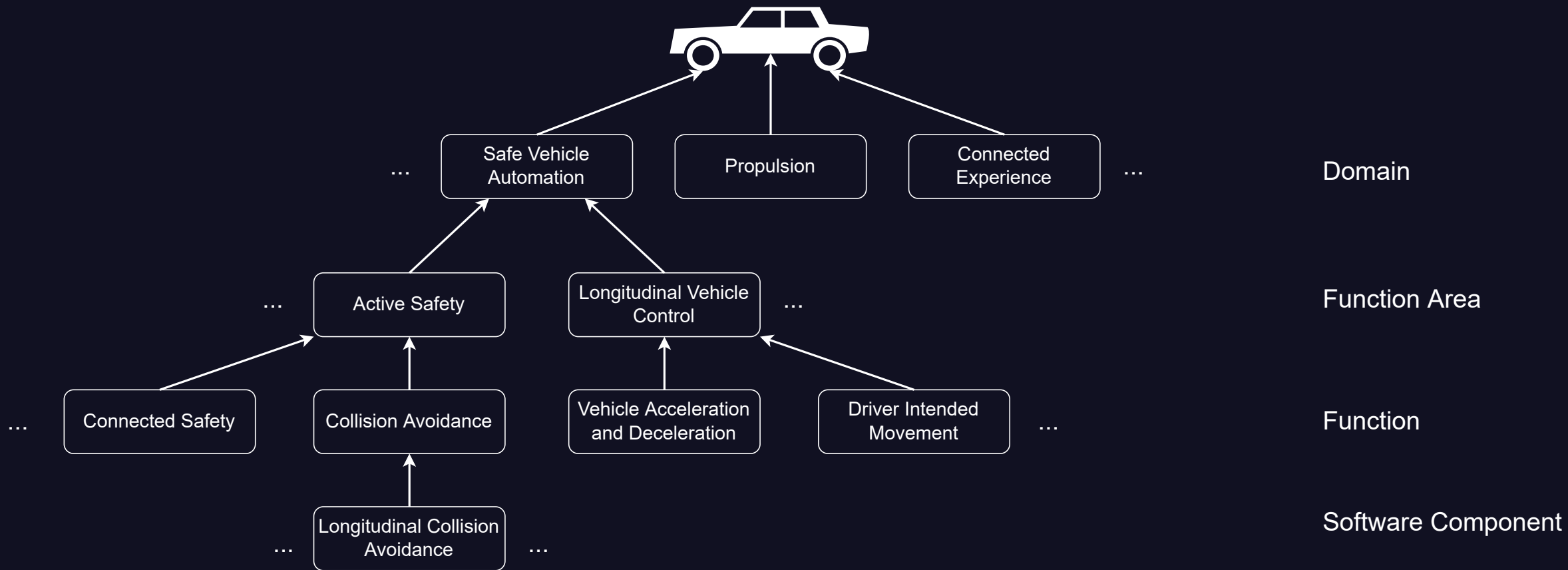
Function

Software Component



Integrate





Continuously



Continuous ... Integration ... ?



CDF: Continuous Integration

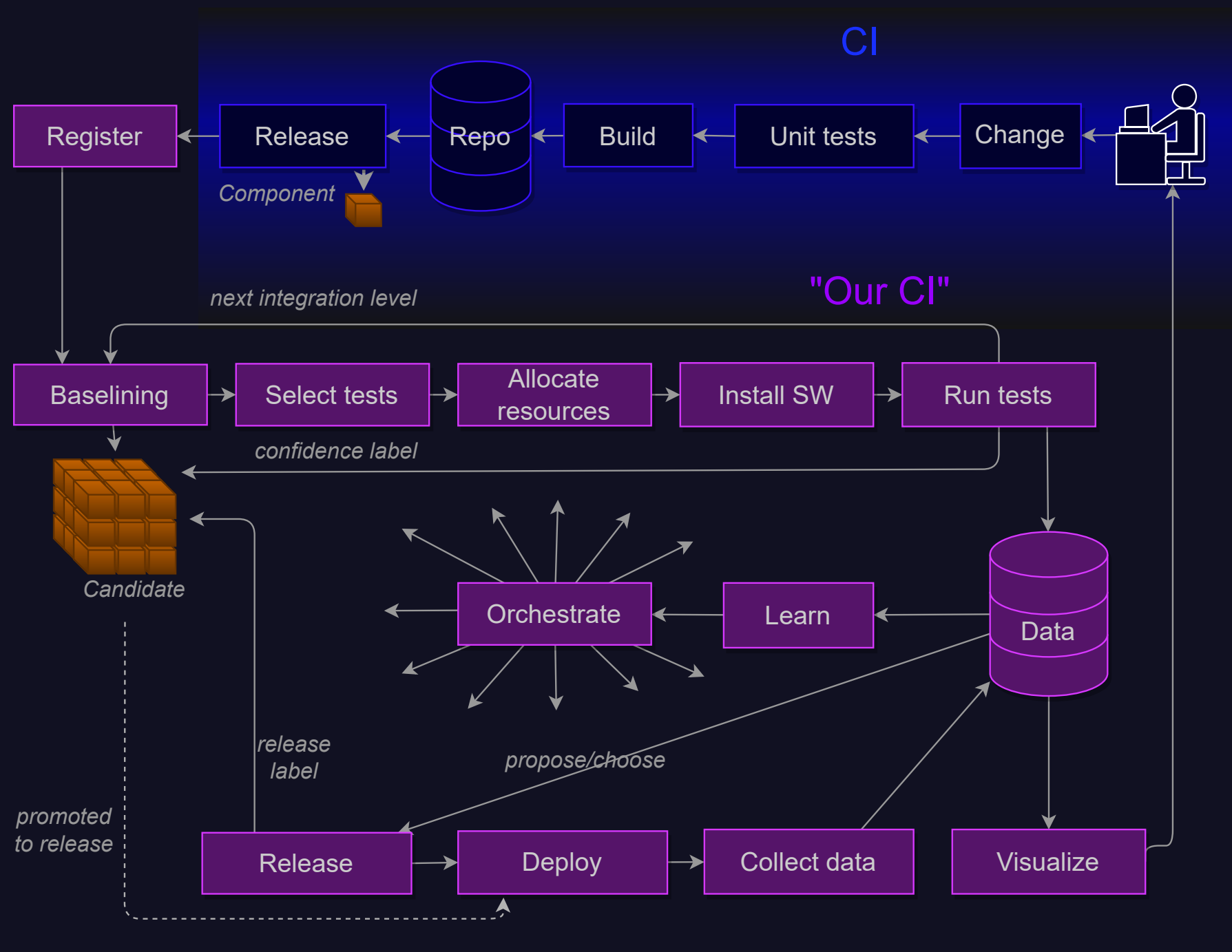
"the practice of merging all developer working copies to a shared mainline several times a day"



"Our" Continuous Integration

"frequently and iteratively integrate components together in increasingly complex compositions"





Before events



Before events

- **Releases => File + e-mail**
- **Pipelines => Jenkins server per team**
- **Verification results => "Known by the team"**



Enter events



First: Infrastructure



Infrastructure

- **A vocabulary (created/updated)**
- **A transport (RabbitMQ)**
- **A triggering system (we DIYed it!)**



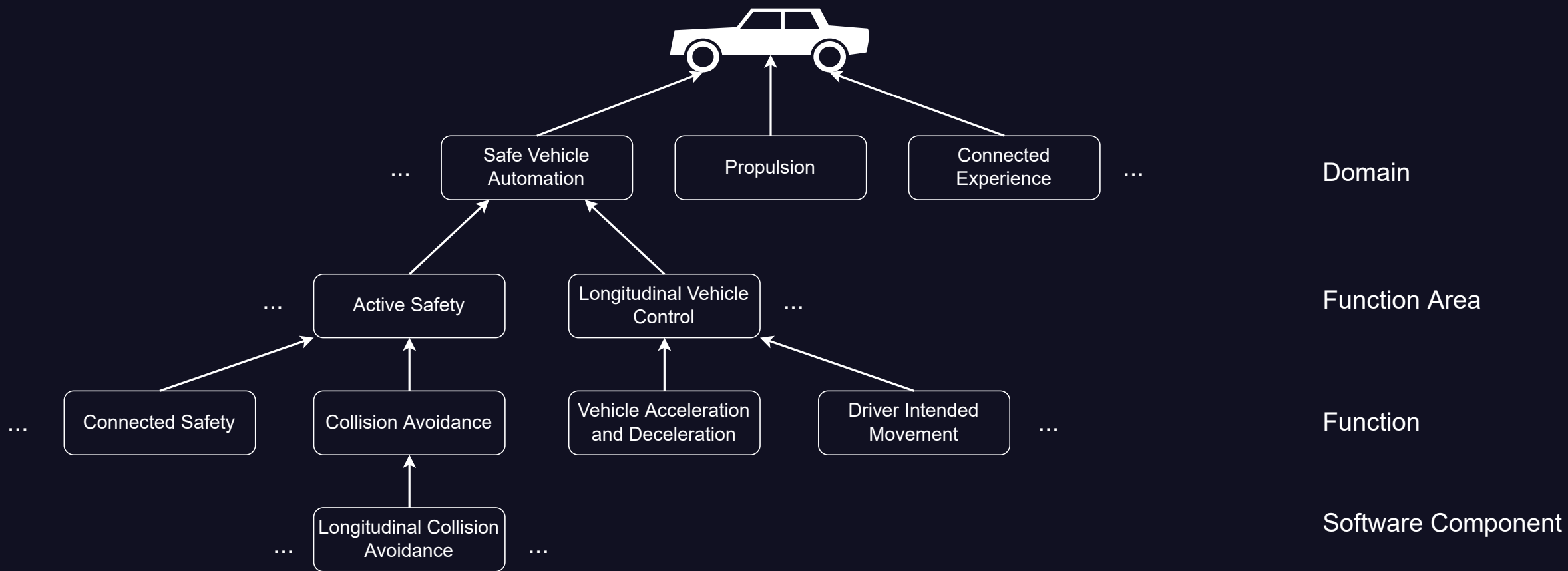
Releases



The release event

- Release identifier (UUID)
- Release version
- File location





Pipelines



The activity event

- **Activity name**
- **Chain ID**
- **Result**



Verification results



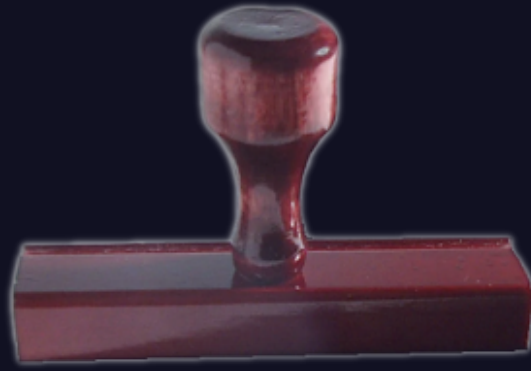
The confidence label event

- Release reference
- Confidence Label
- Result
- Links to verification



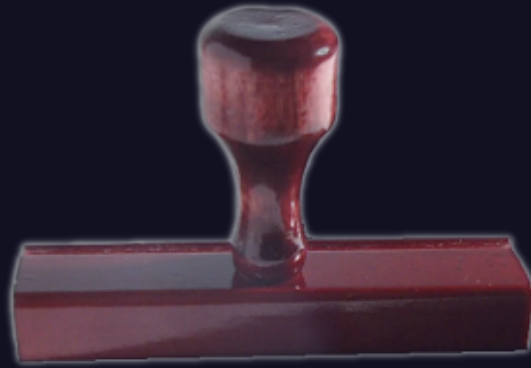
Hang on ... "confidence label"?





SYSTEM SAFETY





SYSTEM SAFETY

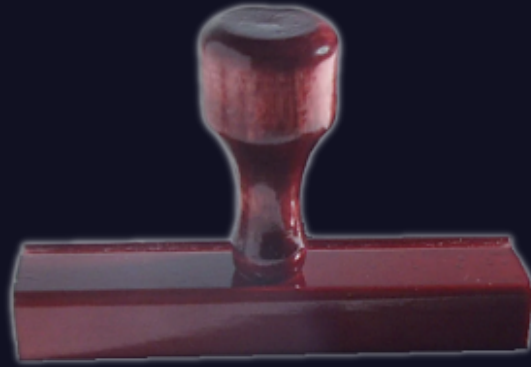
CYBER SECURITY

RECOVERY

LONG. COLL. AVOID.

LAT. COLL. AVOID





SYSTEM SAFETY

CYBER SECURITY

RECOVERY

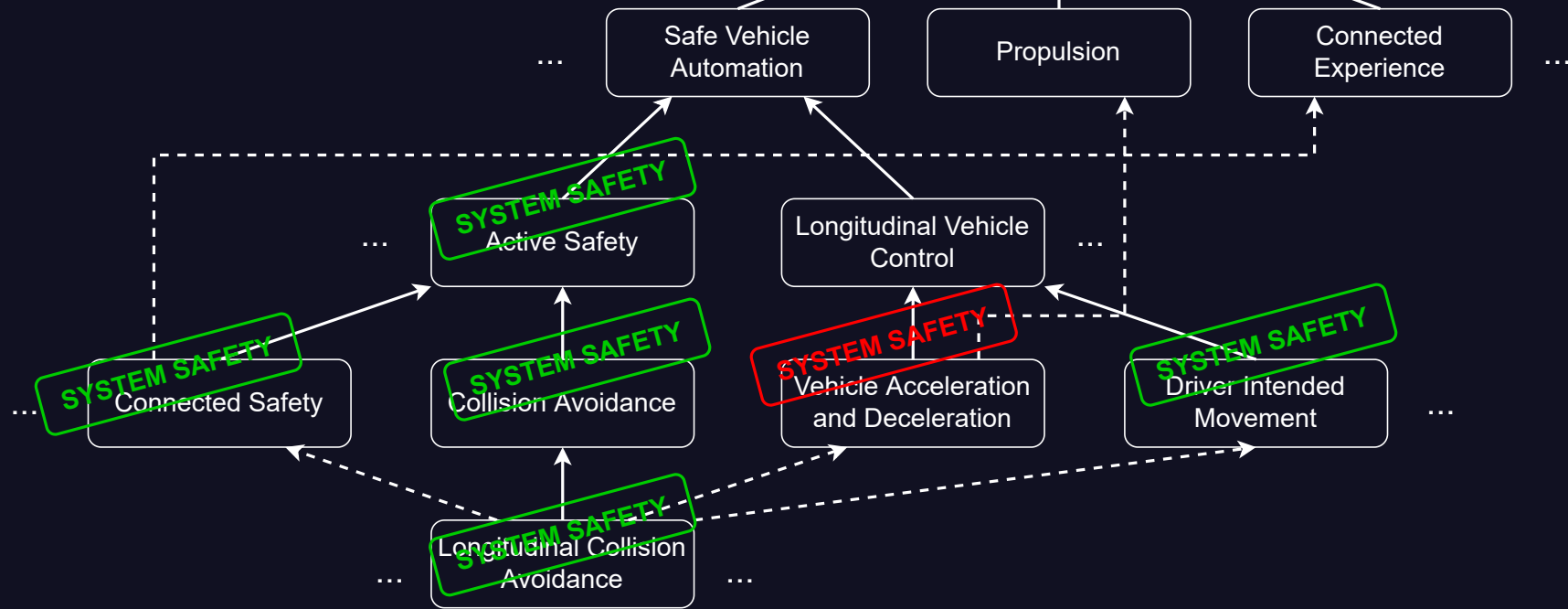
LONG. COLL. AVOID.

LAT. COLL. AVOID

LAT. COLL. AVOID

LAT. COLL. AVOID





Domain

Function Area

Function

Software Component



Confidence labels

- **Encourages teams to plan and communicate quality**
- **"All verification done" => "The quality I need"**



Events: What do we gain?



Automation without centralization



Observability





< 📄 SWEP_Domain_P519

Track

null

Version

40

Released

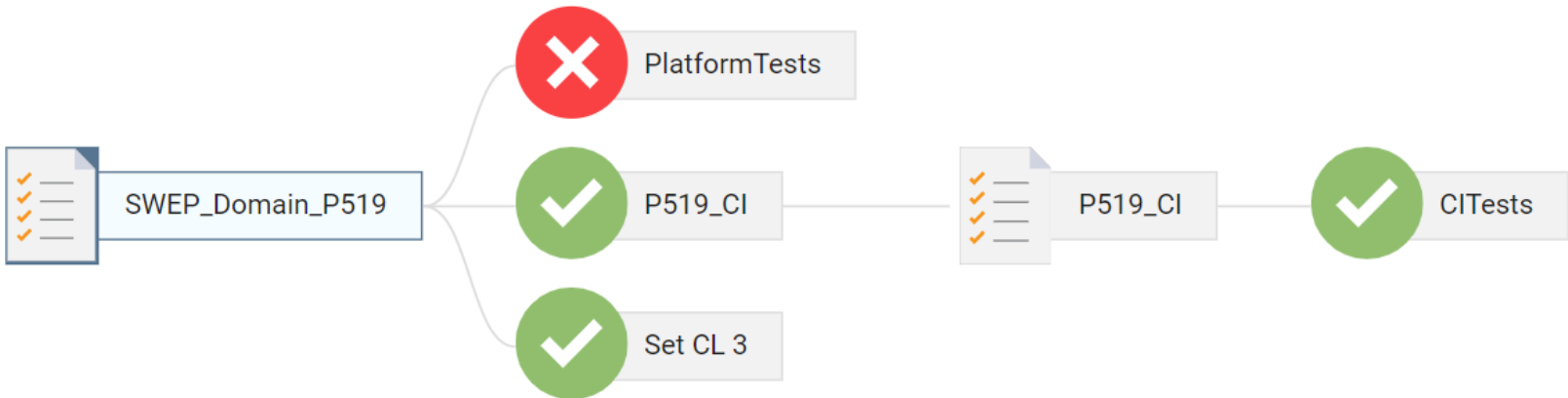
Tuesday, November 16th 2021 at 16:59

Responsible

👤 Unknown

Status

✖ 1 ✔ 3



Type	📄 Baseline
Product	SWEP_Domain_P519
Version	40
Track	null
Released	Tuesday, November 16th 2021 at 16:59
Contact	👤 Unknown
URL	https://confighub.volvocars.net/baselines/9558dc59-ef17-49ae-a2c7-ade20108d6b5
Vendor	{

Collaboration without causation



What will be better with CDEvents

- **Glue code => Interoperability**
- **Detours => Proper path**



Key takeaways

**CI/CD is used outside of code and
cloud**

Complex / Concrete / Shared

Working on shared solutions

Thank you!

Questions?

Erik Sternerson

doWhile / Volvo Cars / Volvo Autonomous Solutions