“Ensuring continuous delivery by building a software development ecosystems for the automotive industry ”

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Feature Store Summit 13.10.2021

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Software Development in a big company feels like…
MAERSK LINE
How we want it to be like…

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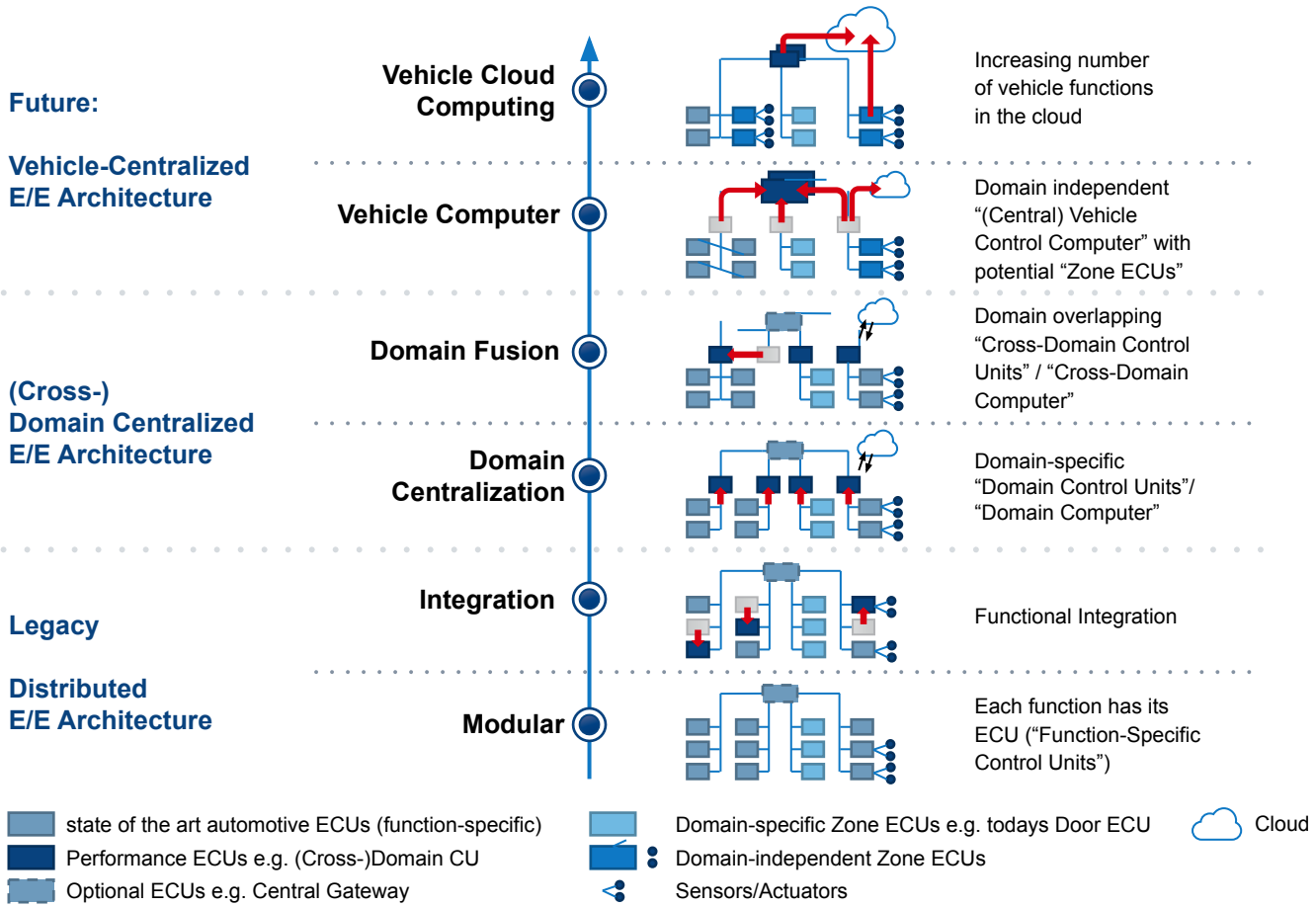
Desirability – Transition from hardware-centric to software-driven vehicles



The ongoing change in the vehicle's E/E architecture require stronger collaboration between entities.

This collaboration is enabled by joint software development in the cloud.

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Internal survey – BOSCH SWE are ready for great achievements

- Software engineers (SWE) want to **focus** their “brainpower” **on feature development** that serve customer needs.
- SWE intrinsically strive for efficiency. **Re-use of ideas** and solutions is seen as **viable** and highly beneficial.
- **Automation** is absolutely **vital** and is easily possible in a purely digital environment.
- But...

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Internal survey – BOSCH SWE feel to be slowed down

- Development **infrastructure** today is **causing friction**: tools don't work together seamlessly; and product development oftentimes is separated from infrastructure development.
- **Processes** are perceived **as chains** holding SWE back.
- Accidental flow of information tends to result in **island solutions**. There is a strong need for more and institutionalized exchange of knowledge.
- The transition from a **command and control structure** to an agile environment is ongoing.

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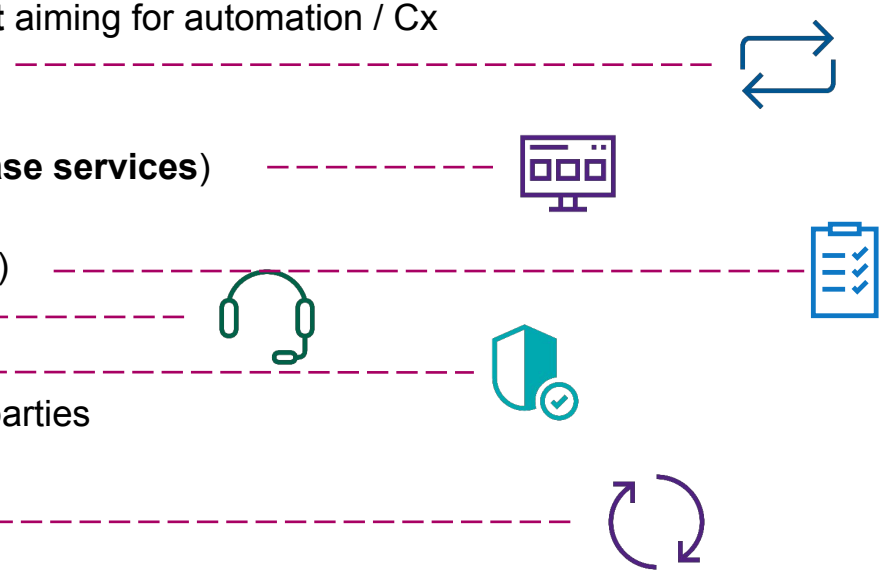
Internal survey – BOSCH SWE demand a solution

- We, the SWE of BOSCH, require a platform that
  - ... provides a modern cloud-native **software development environment** aiming for automation / Cx
  - ... a user-friendly access via **dashboard** and self-service management
  - ... a machine-friendly access via **open / modular / extensible APIs**
  - ... provides ready-to-use tools for professional software development (**base services**)
  - ... offers pre-configured alternative tools (**on-demand services**)
  - ... allows the plug-in of existing tools and APIs (**bring-your-own service**)
  - ... ensures **24/7** support
  - ... is **compliant** to security and other standards
  - ... offers **re-use** of existing solutions (e.g. toolchains) provided by other parties
  - ... allows **multi-party** including 3rd-party software development
  - ... aims for **no downtime** infrastructure updates
- The platform **should not**
  - ... prescribe tools (but recommend if requested)
  - ... ensure business unit specific process compliance, “out of the box ASPICE”
  - ... offer customer-specific CI/CD pipelines (but offers standard workflow templates)
  - ... take responsibility for the bring-your-own-services (but takes full responsibility excluding application / tool)



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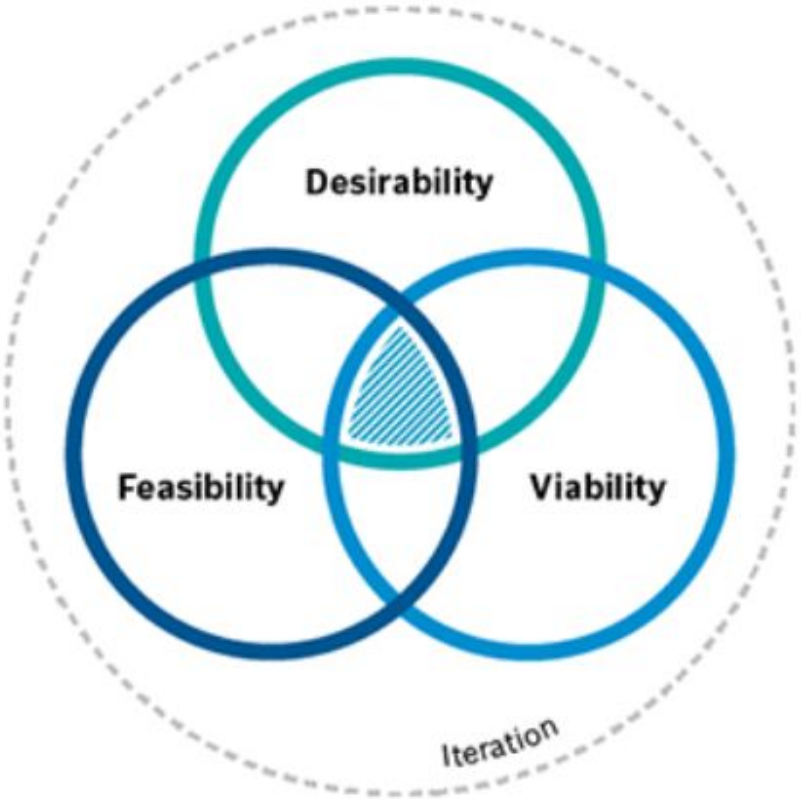
Three views to achieve the target



- A desirable solution, one that our customer really needs
- A feasible solution, building on the strengths of our current operational capabilities
- A profitable solution, with a sustainable business model

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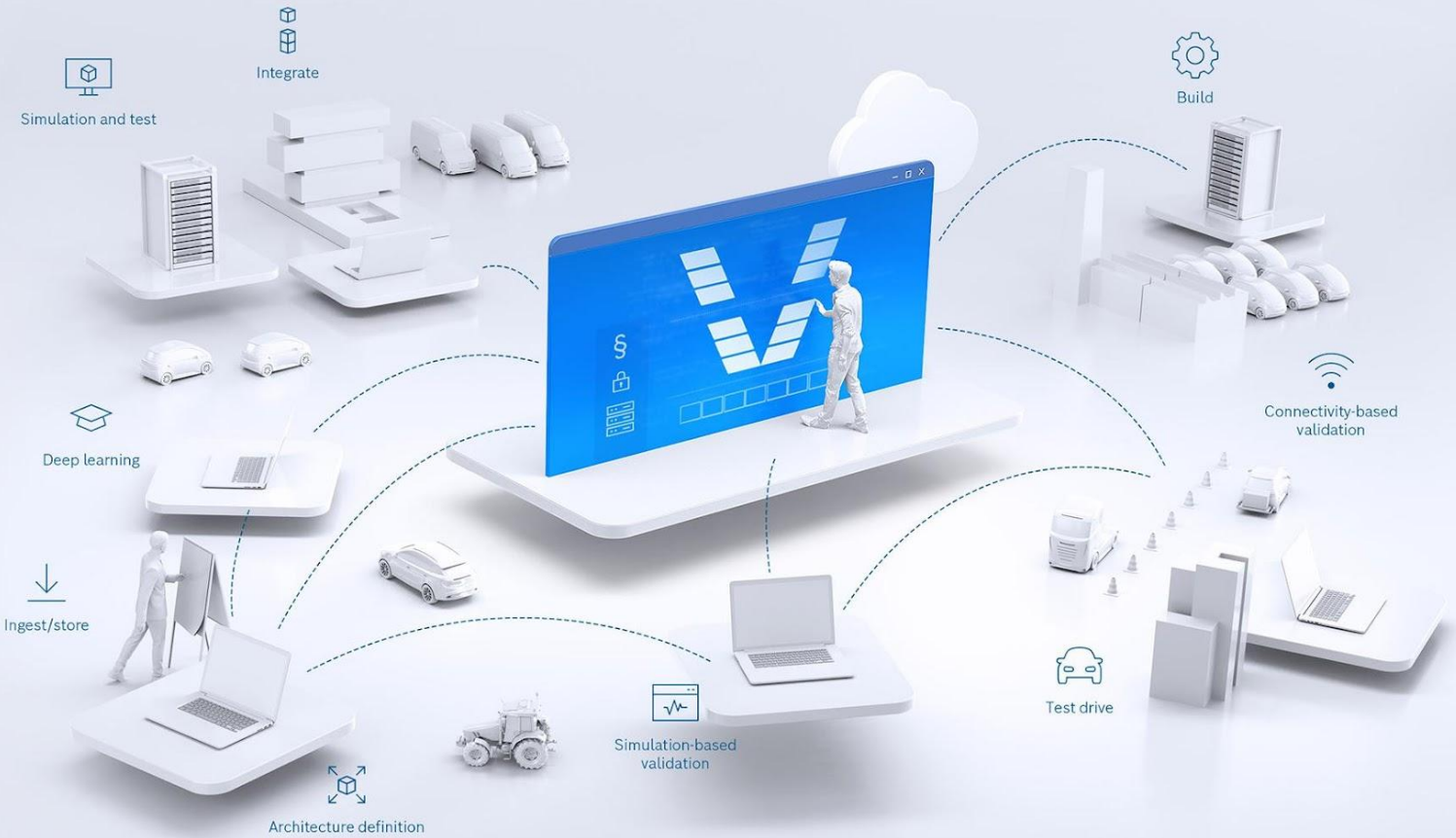
Desirability – Customers face challenges in Automotive Software Development

OEMs require a platform to

- increase speed
- reduce cost
- gain flexibility

in software sharing models with Bosch and further development partners



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Feasibility – Combining the best of two worlds

Persona: Embedded SW developer

Business Goal: t/o w/ OEMs

Condition: Process conformity (e.g. ASPICE)

Characteristic: bi-directional traceability of features

"We bridge the **gap between** current **process-driven** software development and **state-of-the-art** development methodology."

Automotive processes

IT methods, tools

Business Goal: t/o w/ non-OEMs

Condition: Modern SW methodology

Characteristic: Automation Cx w/ modern tools

Persona: Cloud-native SW developer

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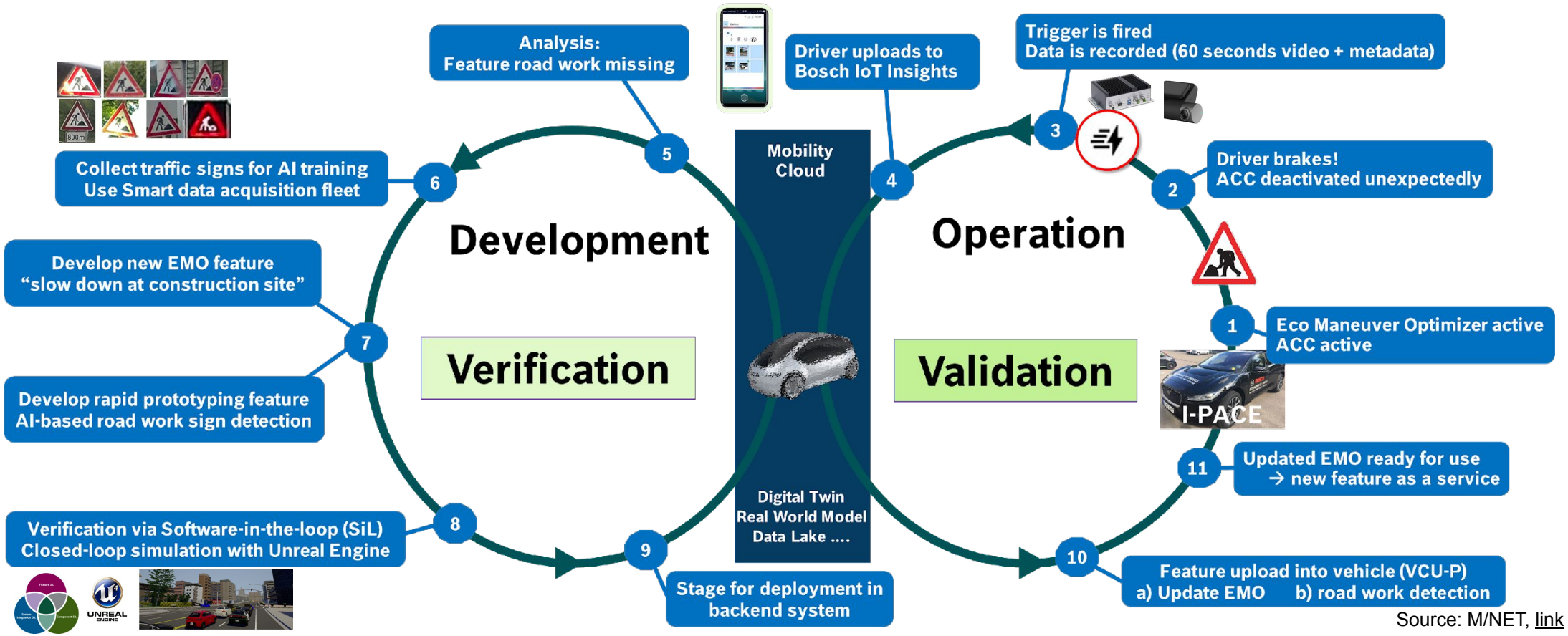
Feasibility – Example PoC: Linking tools and systems



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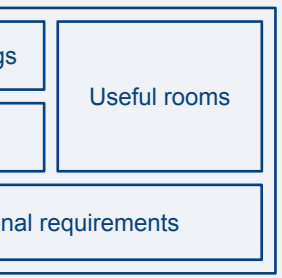
Example for IaaS to SaaS

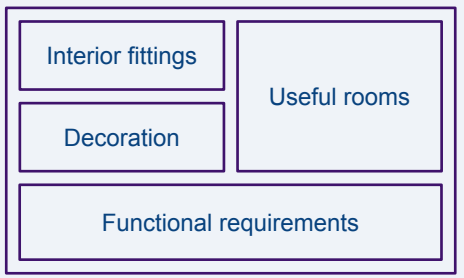
You manage

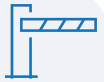
Service owner manages

All on your own “Cabin in the woods”

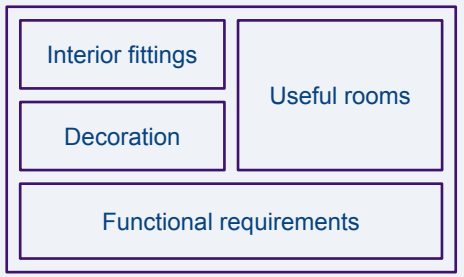


With IaaS “Build in the city”

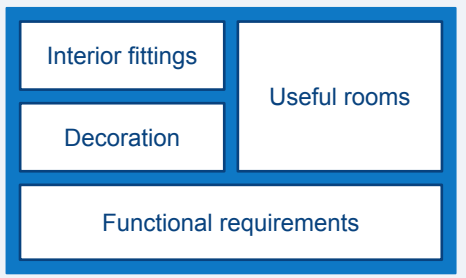




With PaaS “Build in a gated community”



With SaaS “Rent a furnished apartment”



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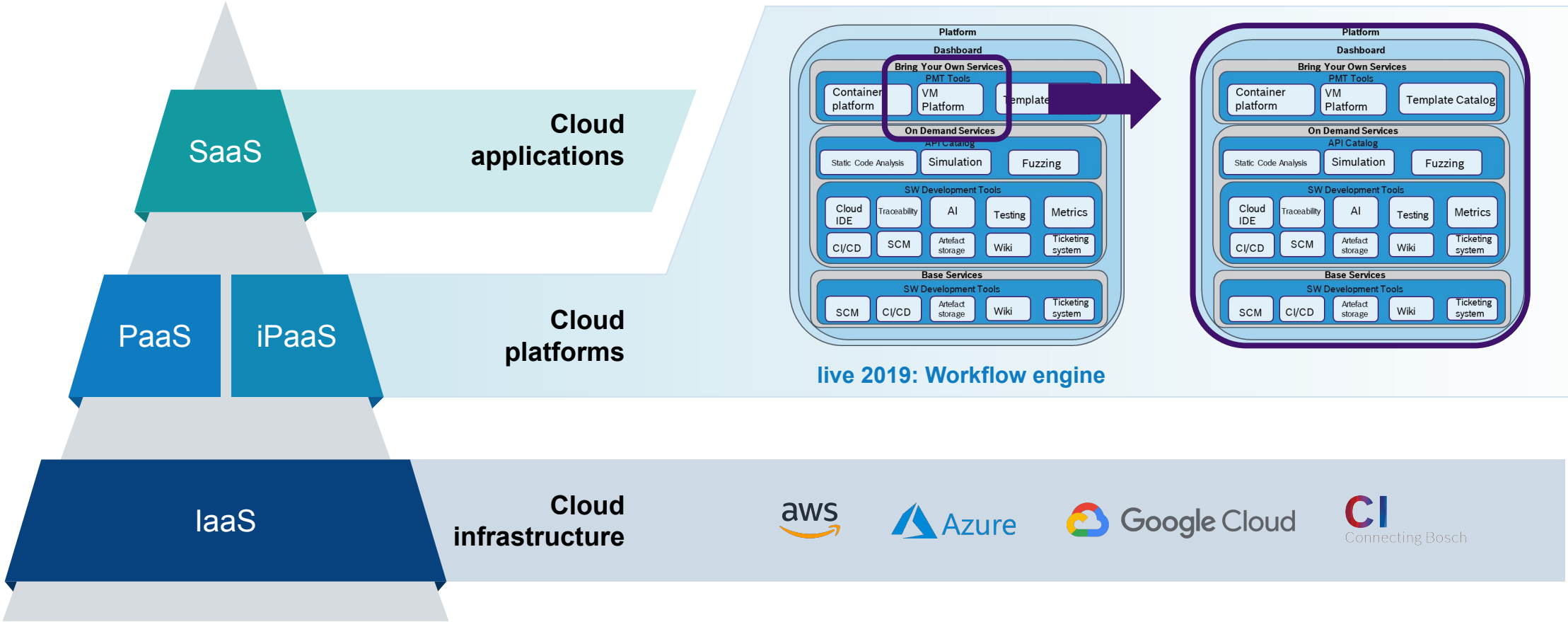
Viability – Focus on Platform as a Service and Integration



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Vision as Code

Goal

Precondition

```
import platform from TOP99

great_software = hassle_free_development() {
    try {
        platform.setup(devEnvironment)
        platform.fulfill_process()
        developer.code()
    } catch(problem) {
        TOP99.handle(problem)
    }
}
```

Your favorite tools

Automated processes

You code

We handle the bad stuff for you

Hassle-free development: Focus on writing great software

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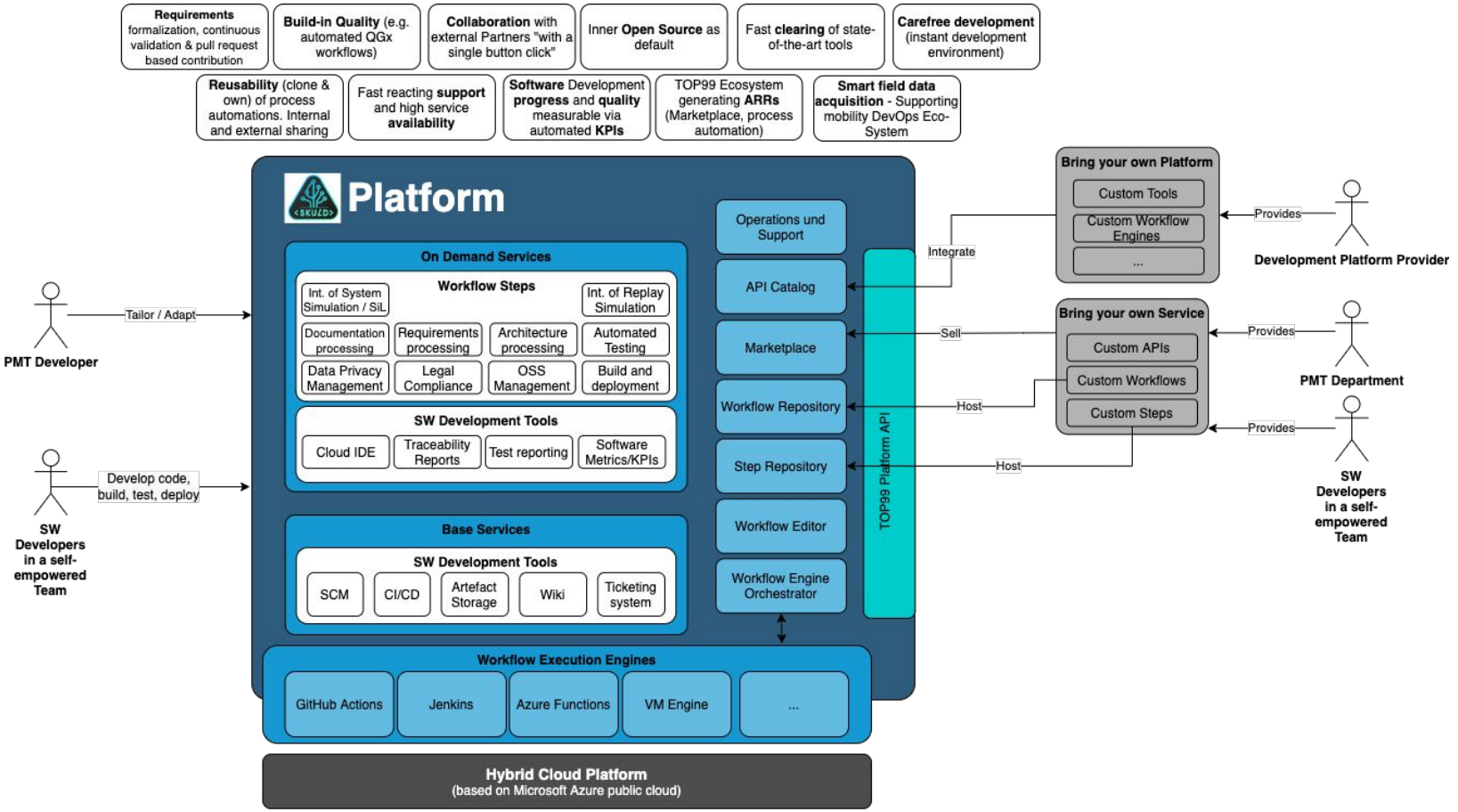
Architecture Big Picture



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Thank you!

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