



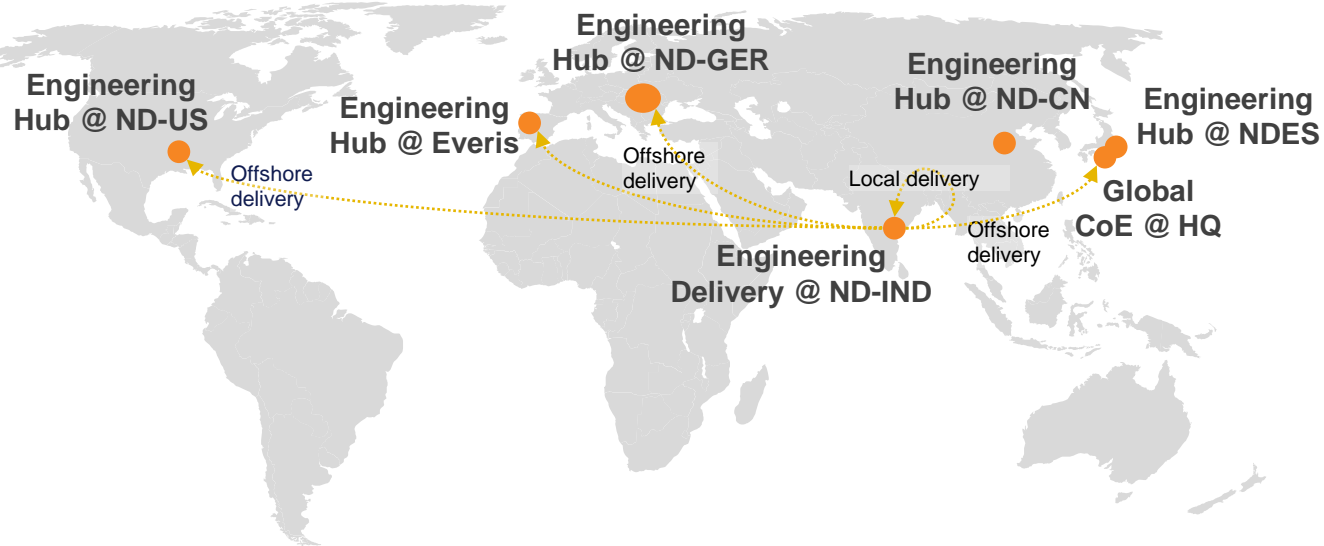
ADAS @ NTT GROUP

prostep ivip Systems Engineering Day Japan 2019

Jens Krueger, Head of Global Automotive Engineering Center of Excellence
Johannes Kreckel, Product Manager Simuloop (ADAS Validation)

Global Automotive – Engineering Center of Excellence

Global presence



Mission

- Global expert team to support global accounts such as BMW, VW, Daimler, Tier 1 suppliers or **Japanese OEMs** outside Japan
- **Global business strategy in Engineering domain** (PLM, CASE) including offering development / innovation, vendor & partner management, group company support
- **Coordination of global proposals**
- **Global sharing of innovation & best practices**

Head : Jens Krueger – NTT DATA Germany



- 20 years at NTT DATA Germany
- Product Lifecycle Management (PLM), Systems Engineering
- Project experience includes BMW, Audi, Airbus, Yazaki, Autoliv

PLM partnerships



Portfolio: PLM4CASE

- **PLM:** Traditional PLM portfolio including AMS / DevOps and software development covering all domains.
- **PLM4CASE:** MBSE, ADAS validation, AI for CAE, embedded software

ADAS Validation Platform



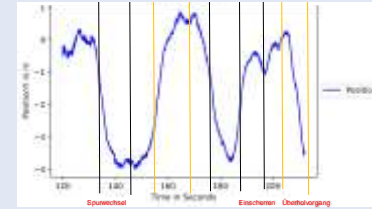
NTT DATA Germany Simuloop
Cloud-based platform
for ADAS validation

AV Simulation



NTT DATA Germany
CARLA-based simulation of
environment & ego-car in Azure

Scenario recognition



NTT DATA Germany
Recognition of driving scenarios
in AV sensor data stream

Data logistics / Ingest



NTT DATA Germany, HP, IAV
Test data ingest and preprocessing
with micro datacenter and NTT Cloud

Scenario Verification



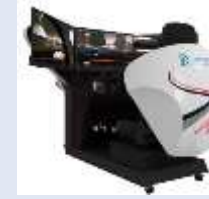
CATS ZIPC GARDEN
Scenario-based
AV vehicle verification

HD Map



NTT DATA, TRI-AD, Maxar
Automated Mapping Platform
based on satellite images

Simulator



everis Simumak
HW & SW for (automated)
driving simulation

Hybrid Cloud IT platform



NTT Group
Hybrid cloud IT platform with
ingest, compute, storage, network

Simuloop is a cloud-based ADAS validation platform

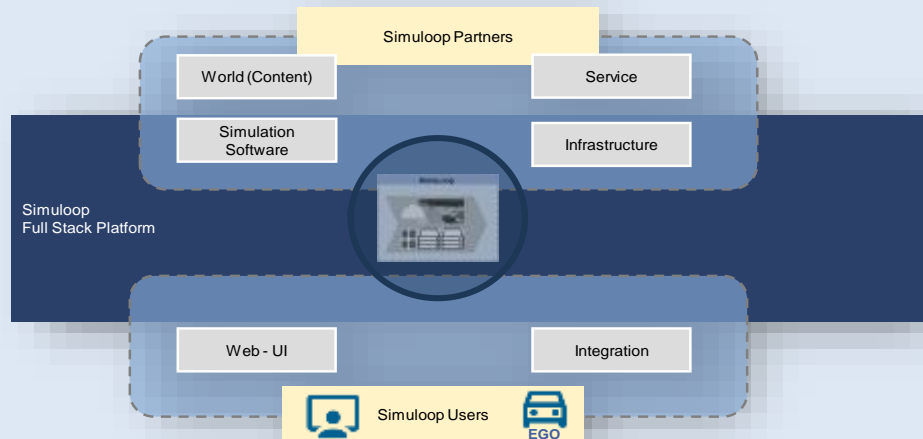
Challenge

- Development and validation of autonomous driving (AD) vehicles requires billions of kilometers test drives
- this can not be done in real life
- ➔ **most of the test drives for AD vehicles can be done in a virtual world**

Solution

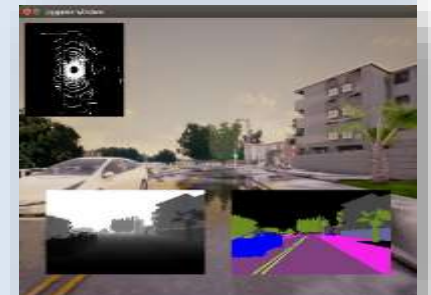
- Cloud-based service for AD development and testing
- Open approach for multiple simulation tools, e. g. CARLA, TESIS
- Leverage AI for scenario identification
- Test planning and workflow management

How it works



Benefits

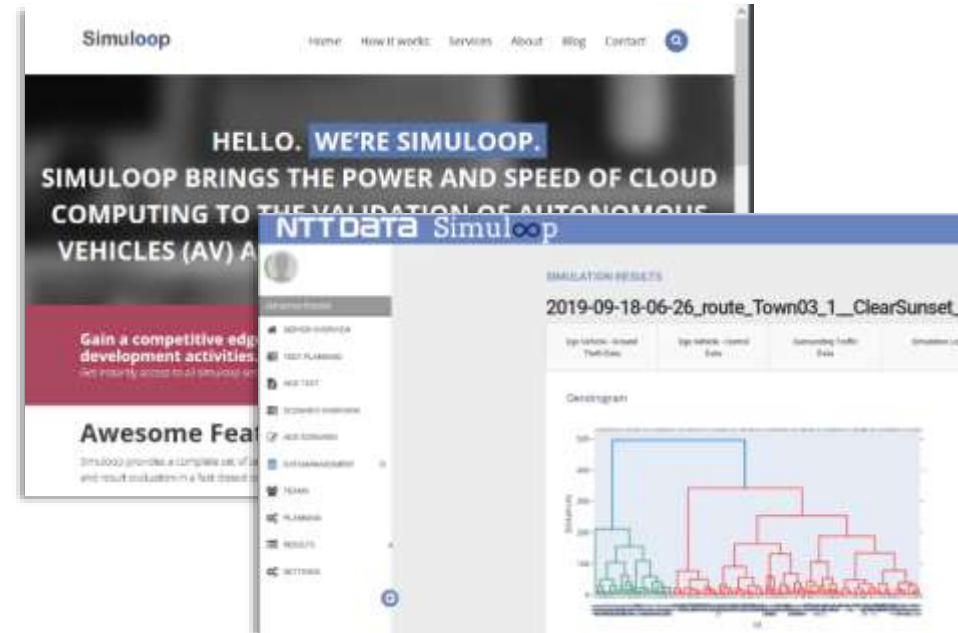
- Accelerate vehicle development & test
- Apply agile principles to automotive engineering (continuous delivery)
- Use well defined test scenarios
- Reduce cost for computing, storage and network



NTT DATA ADAS Validation Platform Simuloop Demo



Simuloop Introduction



Scenario Recognition

NTT DATA

Trusted Global Innovator

Jens Krueger

Competence Unit Manager & Head of Global Engineering CoE
Digital Enterprise

NTT DATA Deutschland

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