DRIVE CONSTELLATION

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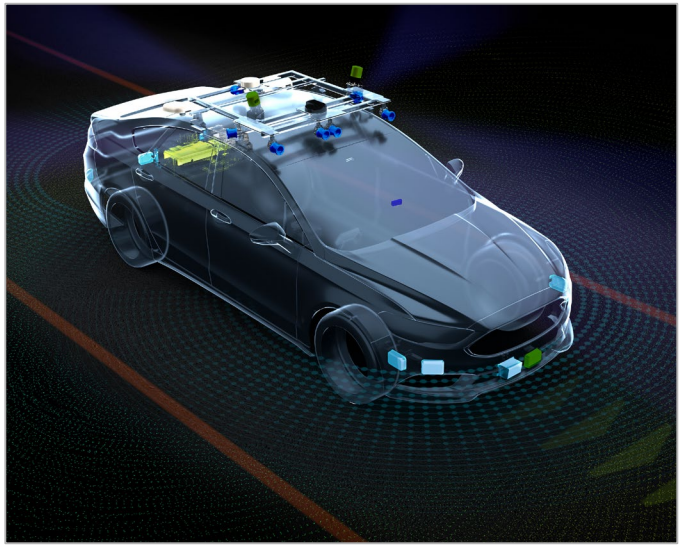
AV VALIDATION ENVIRONMENT

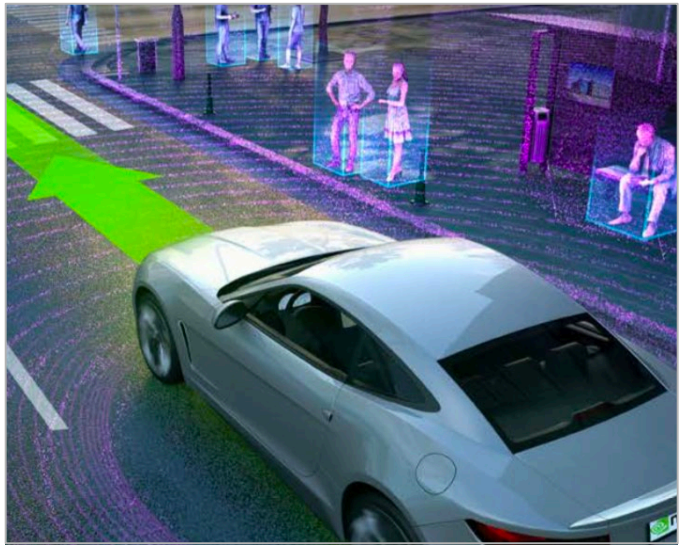
AV SAFETY VALIDATION

The Challenges



Highly Complex System
Large Computers, DNNs, Sensors

Real-Life Scenario Coverage
Account for Rare & Unpredictable Cases



Continuous Reaction Loop
Vehicle & World are Dependent

THE AV VALIDATION GAP

COMPONENT LEVEL SIL

Low Fidelity | Scalable

ON ROAD TESTING

High Fidelity| Doesn’t Scale

No Coverage for
Extreme & Dangerous Scenarios

AV REQUIRES A COMPREHENSIVE VALIDATION APPROACH

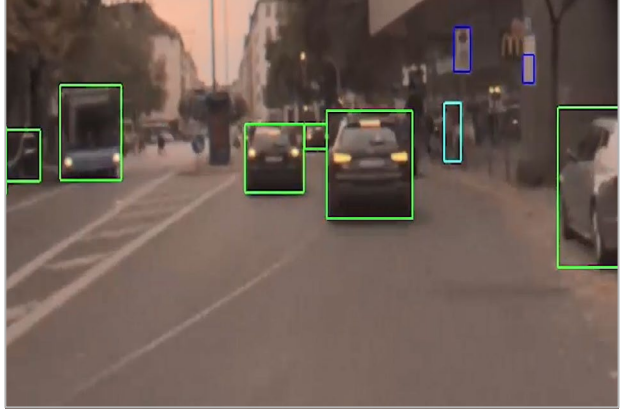
End-to-End System Level Test

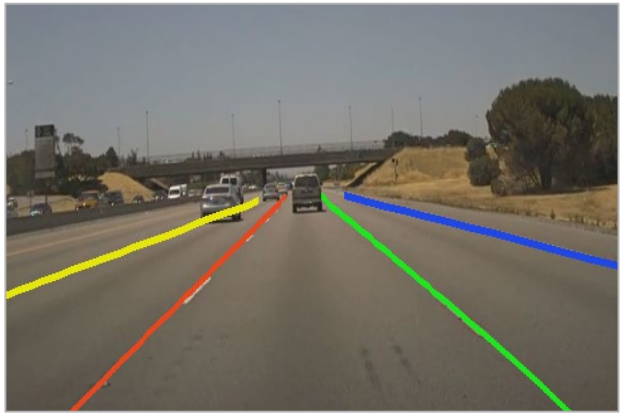
Large Scale | Millions of Miles

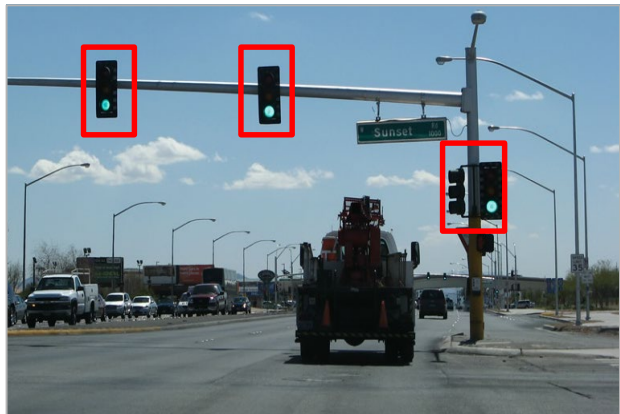
Diverse Vehicle and World Conditions

Data Driven | Scenario based

Repeatable and Reproducible








DRIVE CONSTELLATION HW

DRIVE CONSTELLATION

Virtual AV Simulator

Hardware in the-Loop System Level Simulator

Timing Accurate and Bit Accurate

Scalable Platform | Data Center Solution

Simulate Rare and Difficult Conditions

Efficient | Scenarios of Interest

DRIVE CONSTELLATION HW

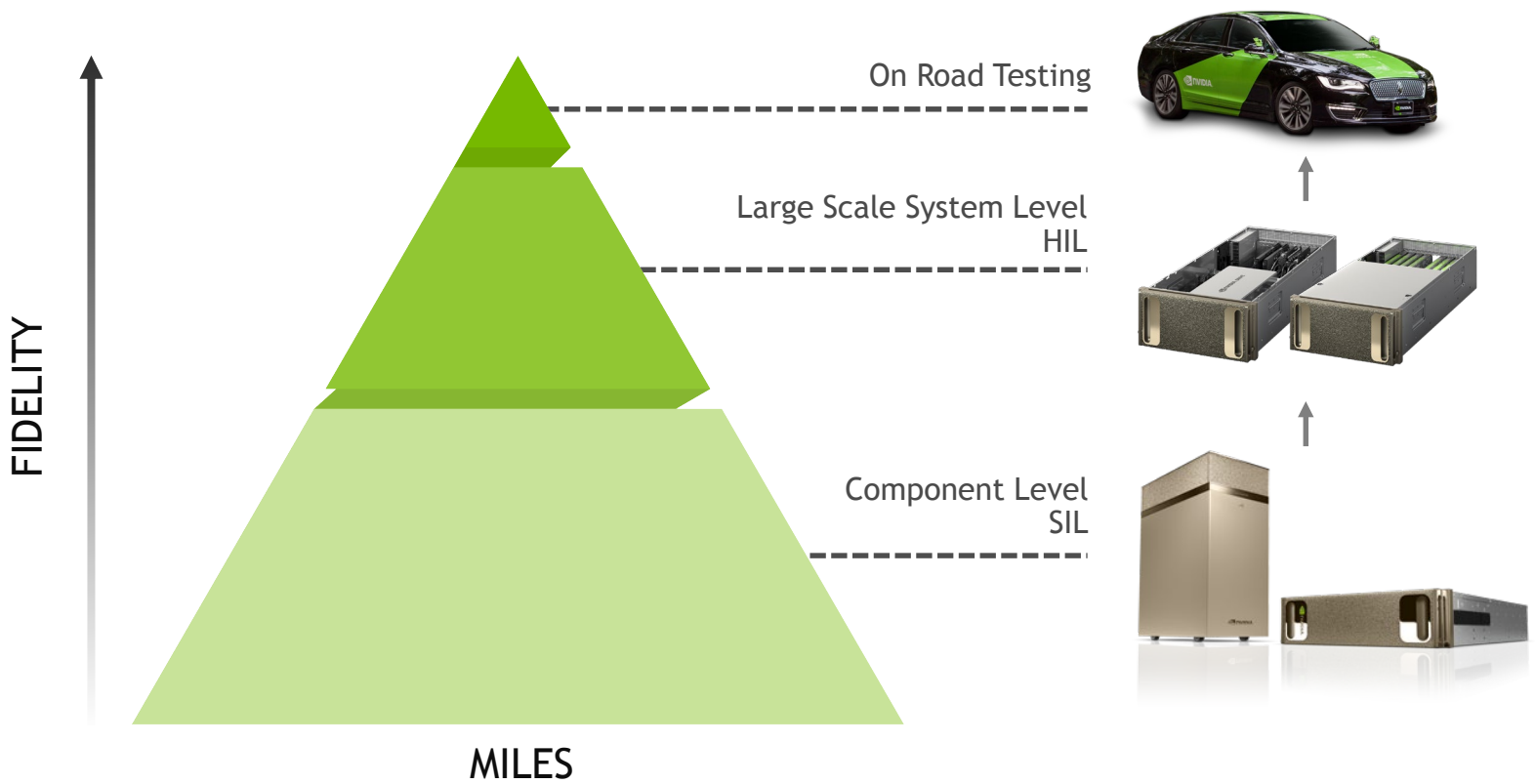
CONSTELLATION TEST FLEET IN THE CLOUD

Virtual Proving Ground for AVs

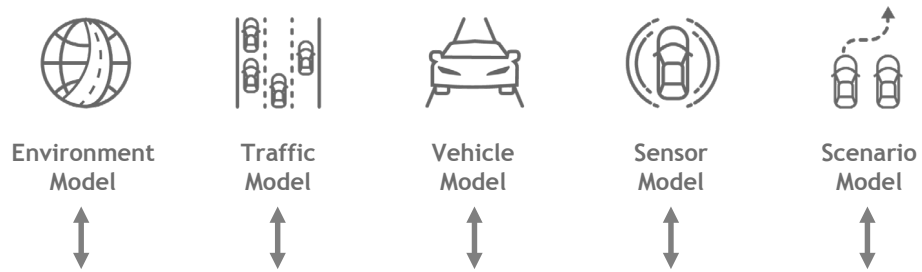
DRIVE CONSTELLATION ARCHITECTURE

NVIDIA DRIVE VALIDATION METHODOLOGY

Three Pronged Approach



DRIVE CONSTELLATION ARCHITECTURE



DRIVE Sim Core API

DRIVE Sim

Linux OS

DRIVE Constellation Simulator

DRIVE AV

Perception | Mapping | Planning

DRIVE IX

DRIVE CORE | DRIVE NETWORKS

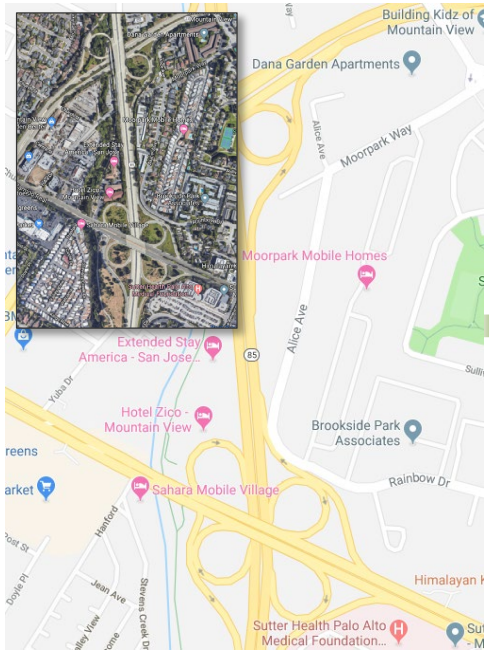
DRIVE OS

DRIVE Constellation Vehicle

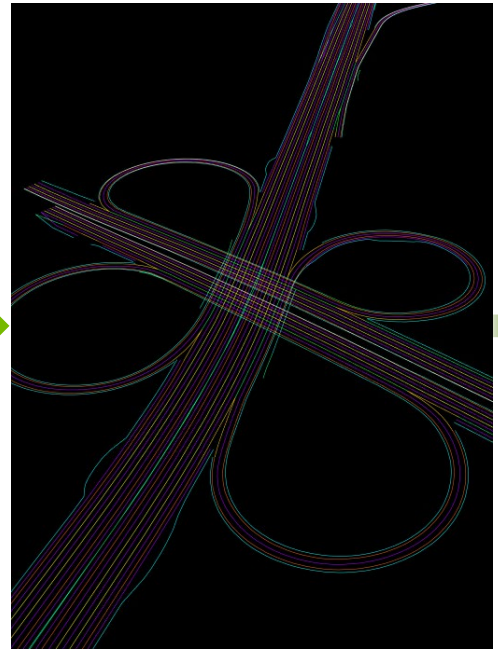

CREATING ENVIRONMENTS

ENVIRONMENT MODEL

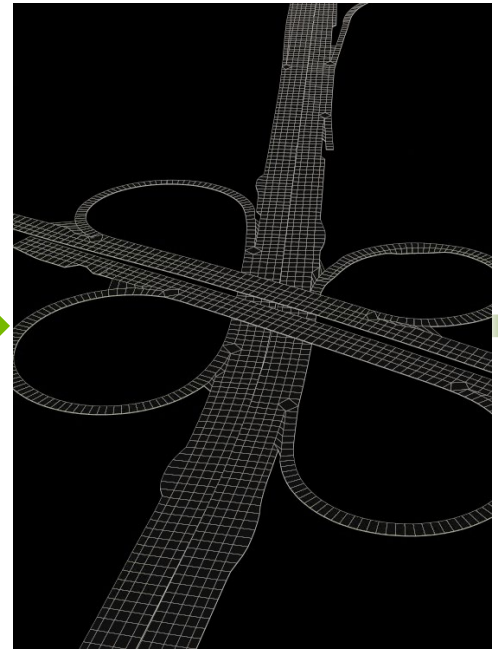
From Maps — to Roads — to Full Environment



Area of Interest



HD Map Data



Road Geometry

Environment

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