



DRIVE CONSTELLATION

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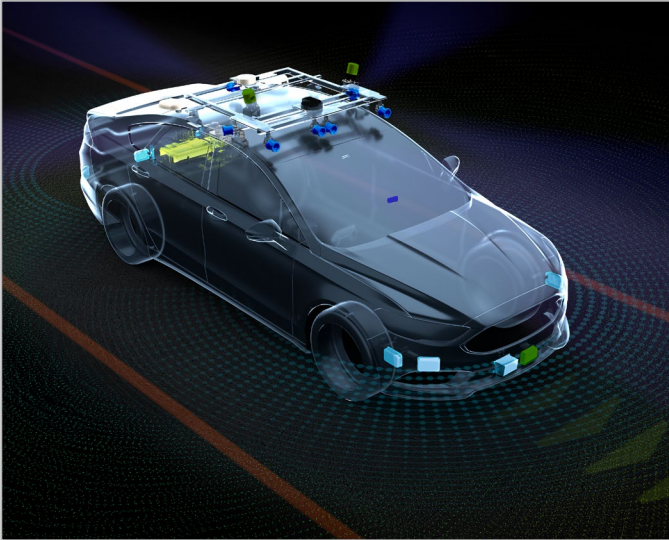
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An abstract network diagram with green nodes and lines on a dark background. The nodes are represented by small green circles of varying sizes, some of which are slightly blurred. They are interconnected by thin, light green lines that crisscross the frame, creating a complex web-like structure. The overall aesthetic is futuristic and technological.

AV VALIDATION ENVIRONMENT

AV SAFETY VALIDATION

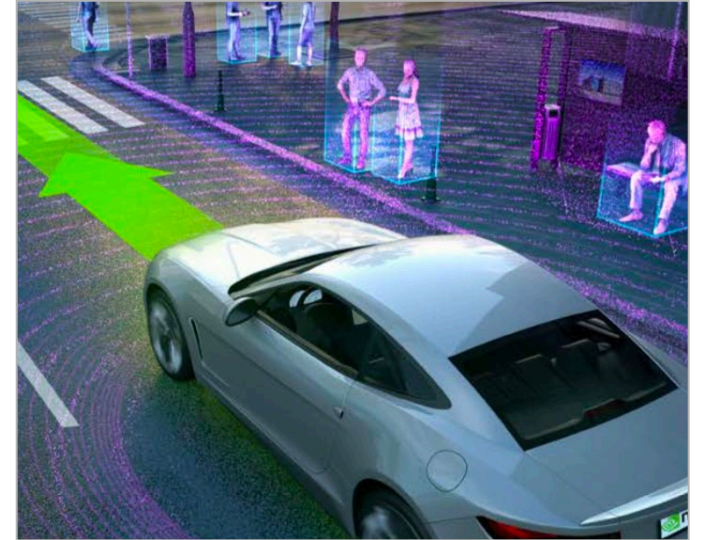
The Challenges



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

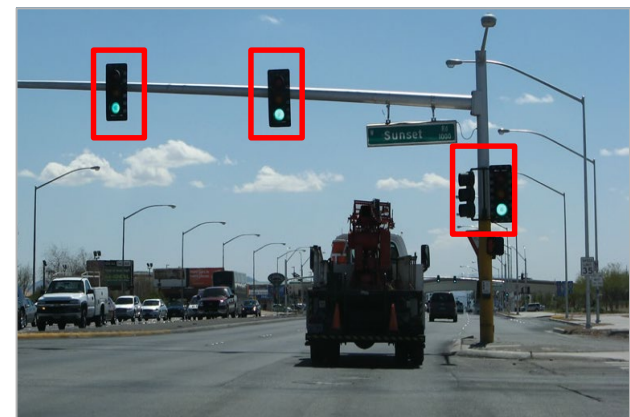
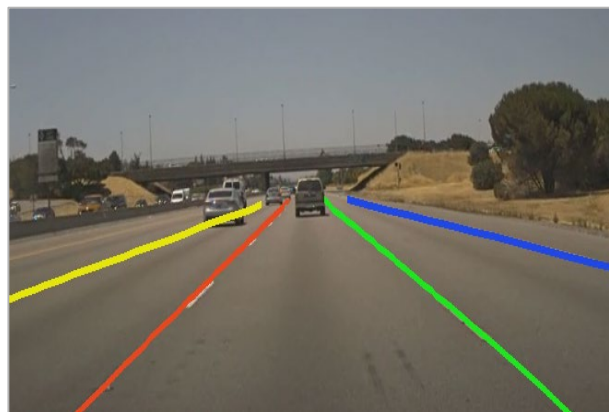
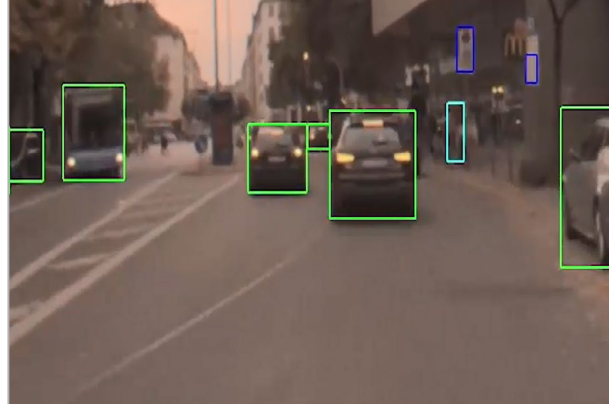
End-to-End System Level Test

Large Scale | Millions of Miles

Diverse Vehicle and World Conditions

Data Driven | Scenario based

Repeatable and Reproducible



The background is a solid black field. Overlaid on this are numerous thin, light green lines that crisscross the frame in various directions, creating a complex web-like pattern. Interspersed among these lines are several small, bright green circular dots of varying sizes. Some dots appear as sharp points of light, while others have a soft, out-of-focus glow. The overall effect is reminiscent of a star map or a network diagram.

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

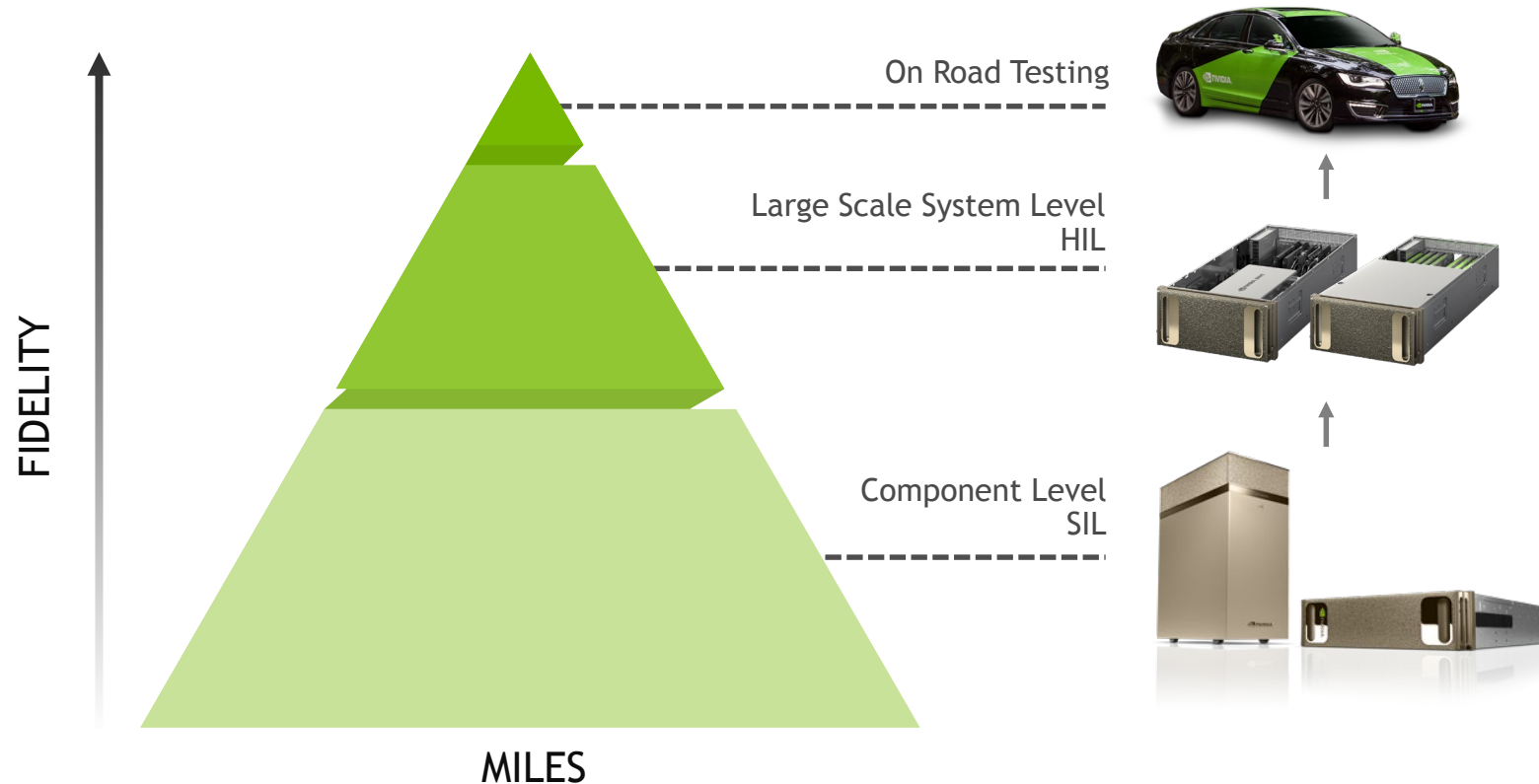


The background of the slide is a dark, almost black, field. It is populated with a network of thin, light green lines that crisscross the frame. At various points where these lines intersect or terminate, there are small, bright green circular dots. Some of these dots have a slight glow or halo effect. The overall impression is one of a complex, interconnected system, possibly representing a network or a constellation of points in space.

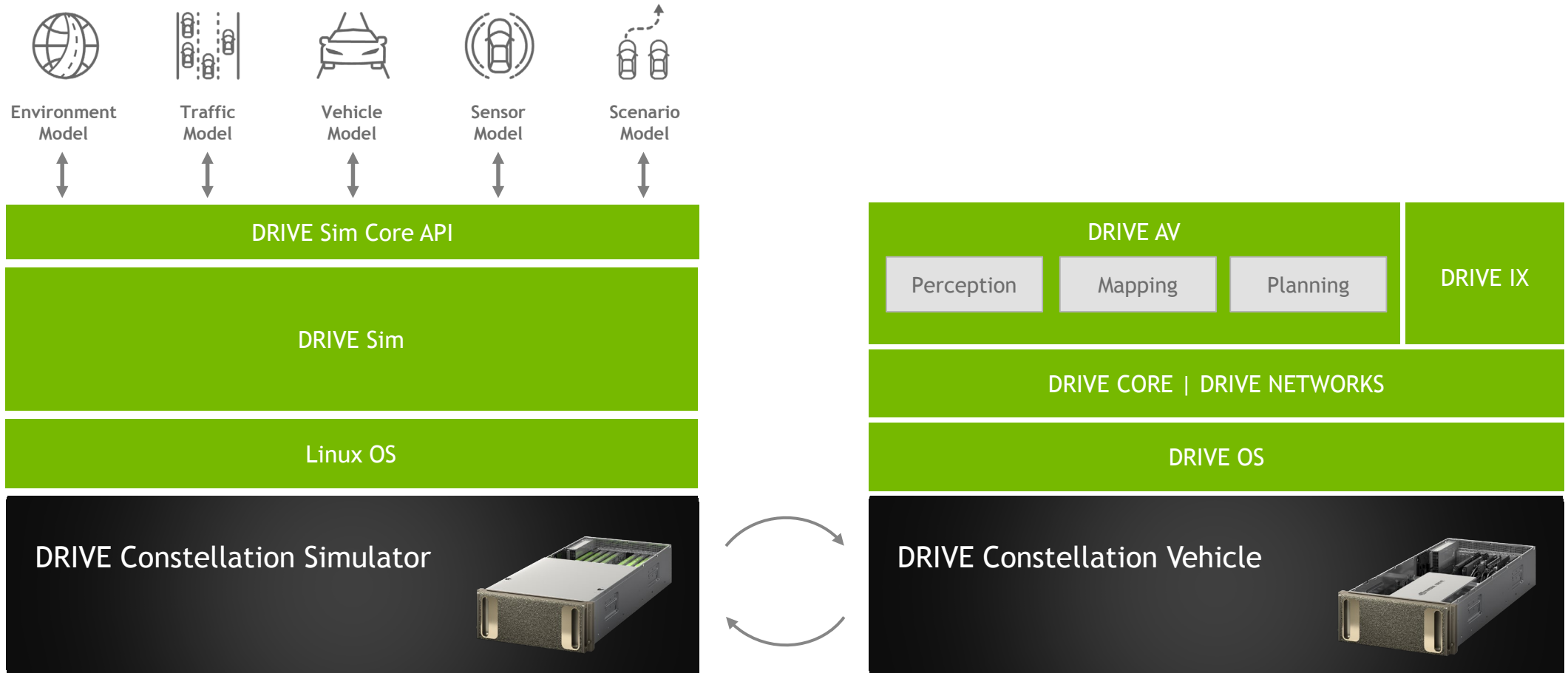
DRIVE CONSTELLATION ARCHITECTURE

NVIDIA DRIVE VALIDATION METHODOLOGY

Three Pronged Approach



DRIVE CONSTELLATION ARCHITECTURE

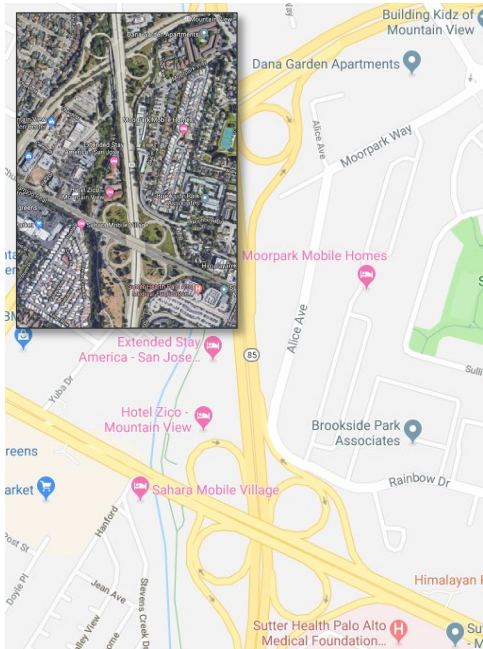


The background is a dark blue field with a complex network of thin, light green lines. These lines connect various points, some of which are highlighted as bright green dots. The overall effect is a sense of a dynamic, interconnected system or a digital network.

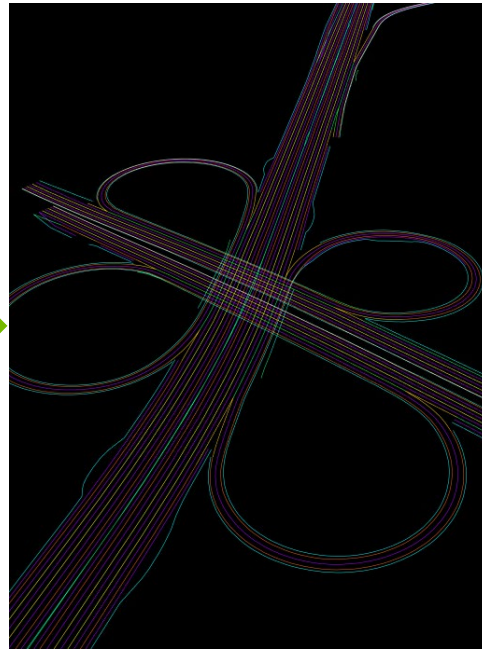
CREATING ENVIRONMENTS

ENVIRONMENT MODEL

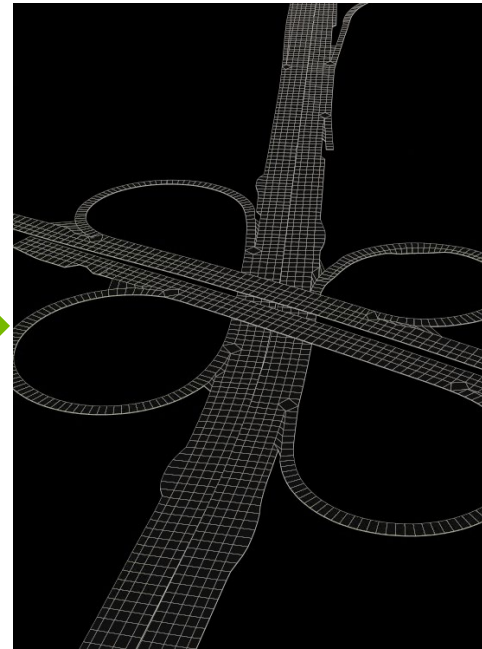
From Maps — to Roads — to Full Environment



Area of Interest



HD Map Data



Road Geometry



Environment



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