Demonstrating SimTG

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Astrium Satellites

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What is SimTG?

- SimTG is the Astrium infrastructure for functional system simulation

- SimTG is the result of a harmonization of the existing infrastructures of TLS and FDH

- SimTG elements have been gradually applied to programmes since 2006

- SimTG is now fully operational and will be applied to the upcoming projects

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SimTG consists of …

- **SimTG Kernel:**
  - Hard-Real-Time simulation kernel

- **SimOPS:**
  - Light-weight simulator operation tool

- **SimERC32/SimLeon:**
  - Emulator of ERC32 respectively Leon

- **JSynoptic:**
  - On- or offline display of simulation data

- **SimDB and SimML:**
  - Simulator configuration database and XML exchange

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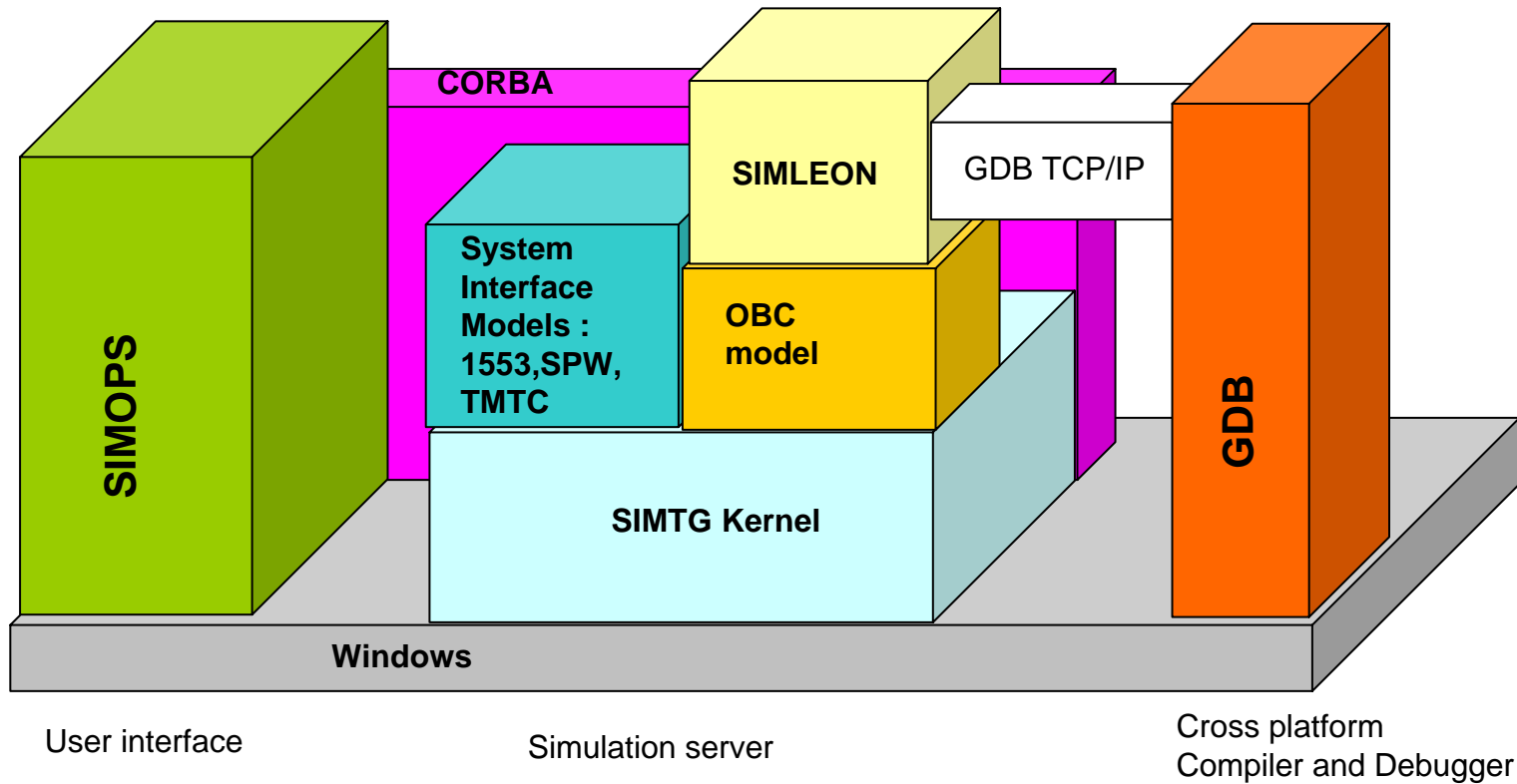
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Demo Case1: DIVAS SVF

- **Objective**
  - The operational DIVAS SVF delivered to on board SW verification team

- **Covered SimTG building blocks**
  - SIMTG kernel
  - SIMOPS
  - SIMLEON (LEON processor emulator)
  - SIMTG system interface models
    - 1553
    - TM/TC
    - spacewire

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DIVAS SVF dev V0
used to validate OBSW DHS

SIMOPS

CORBA

SIMLEON

GDB TCP/IP

System
Interface
Models :
1553,SPW,
TMTC

OBC
model

SIMTG Kernel

GDB

Windows

User interface

Simulation server

Cross platform
Compiler and Debugger

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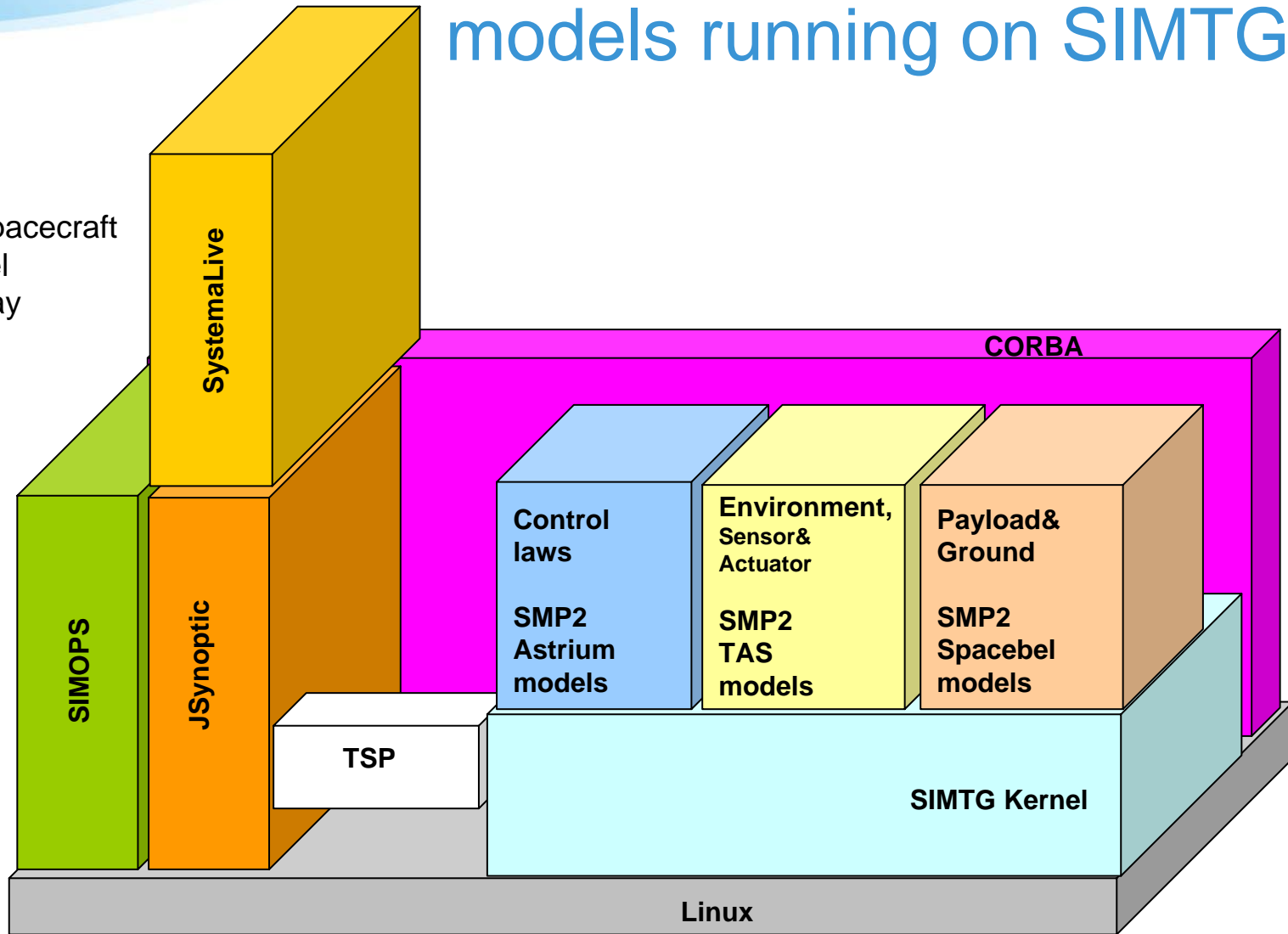# Demo Case 2: Industrial SMP Validation

- **Objective**
  - Integration of SMP2 compatible models delivered by external entities into SIMTG kernel (task part of this validation study)

- **Covered SimTG building blocks**
  - SIMTG kernel (focus on SMP2 compatibility)
  - SIMOPS
  - JSynoptic for 2D Visualization
  - SystemaLive for 3D Visualization

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CNES SMP2 validation study models running on SIMTG

3D spacecraft
Model
display

SystemaLive

CORBA

Control laws

SMP2 Astrium models

Environment, Sensor& Actuator

SMP2 TAS models

Payload& Ground

SMP2 Spacebel models

SIMOPS

JSynoptic

TSP

SIMTG Kernel

Linux

User interface

Simulation server

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