

Astos Solutions Products Presentation

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Product Portfolio of Astos Solutions



■ COTS Software

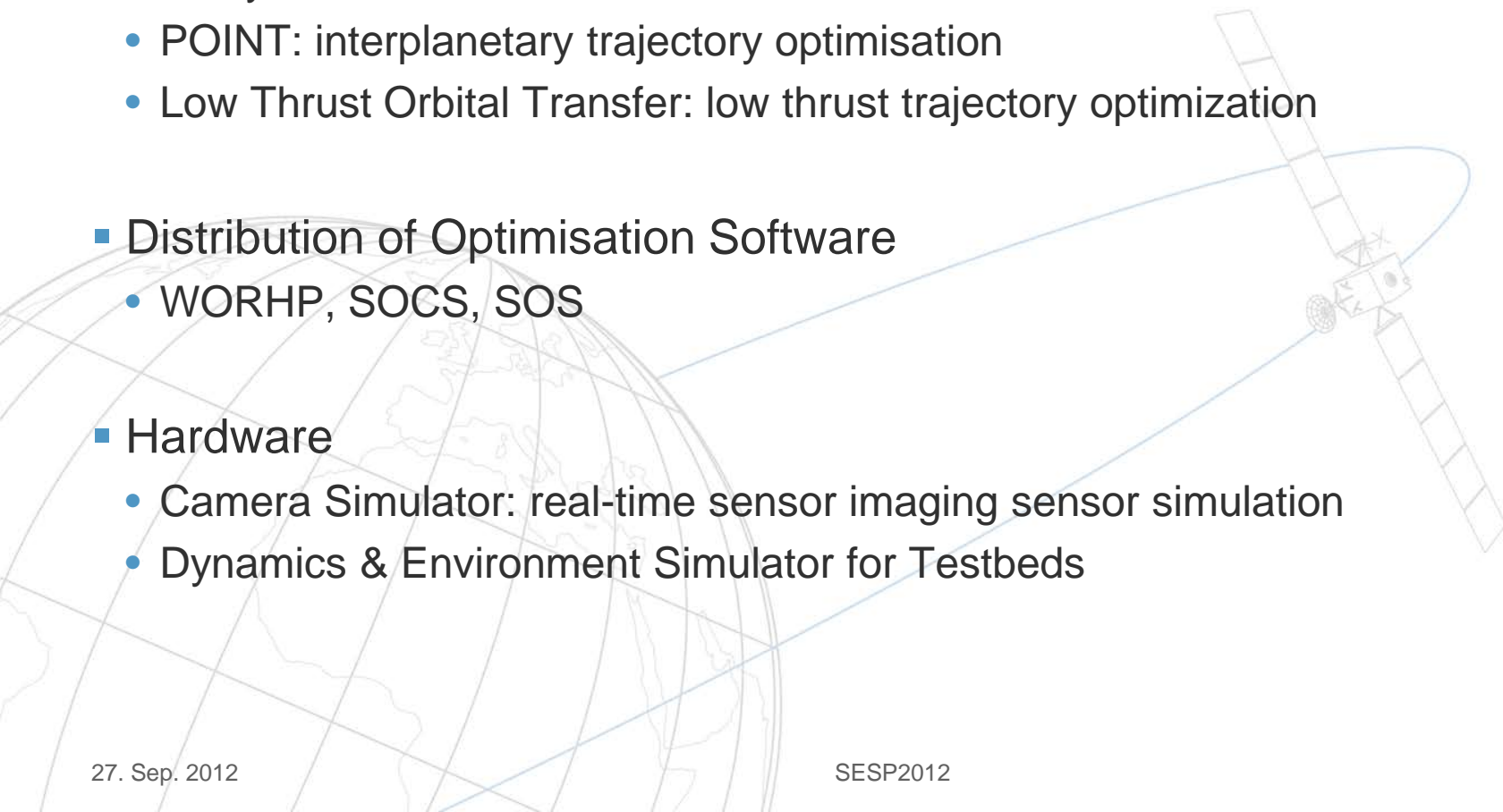
- GESOP: general environment for simulation and optimization
- ASTOS: trajectory & vehicle design optimization, mission, system and GNC Analysis
- POINT: interplanetary trajectory optimisation
- Low Thrust Orbital Transfer: low thrust trajectory optimization

■ Distribution of Optimisation Software

- WORHP, SOCS, SOS

■ Hardware

- Camera Simulator: real-time sensor imaging sensor simulation
- Dynamics & Environment Simulator for Testbeds



ASTOS Applications

Interplanetary

Observation

Telecom

Aero-Assisted
Maneuvers

Formations

Debris

RvD

Reentry

Space Robotics

Ascent

Constellations

Sounding
Rockets

Station Keeping

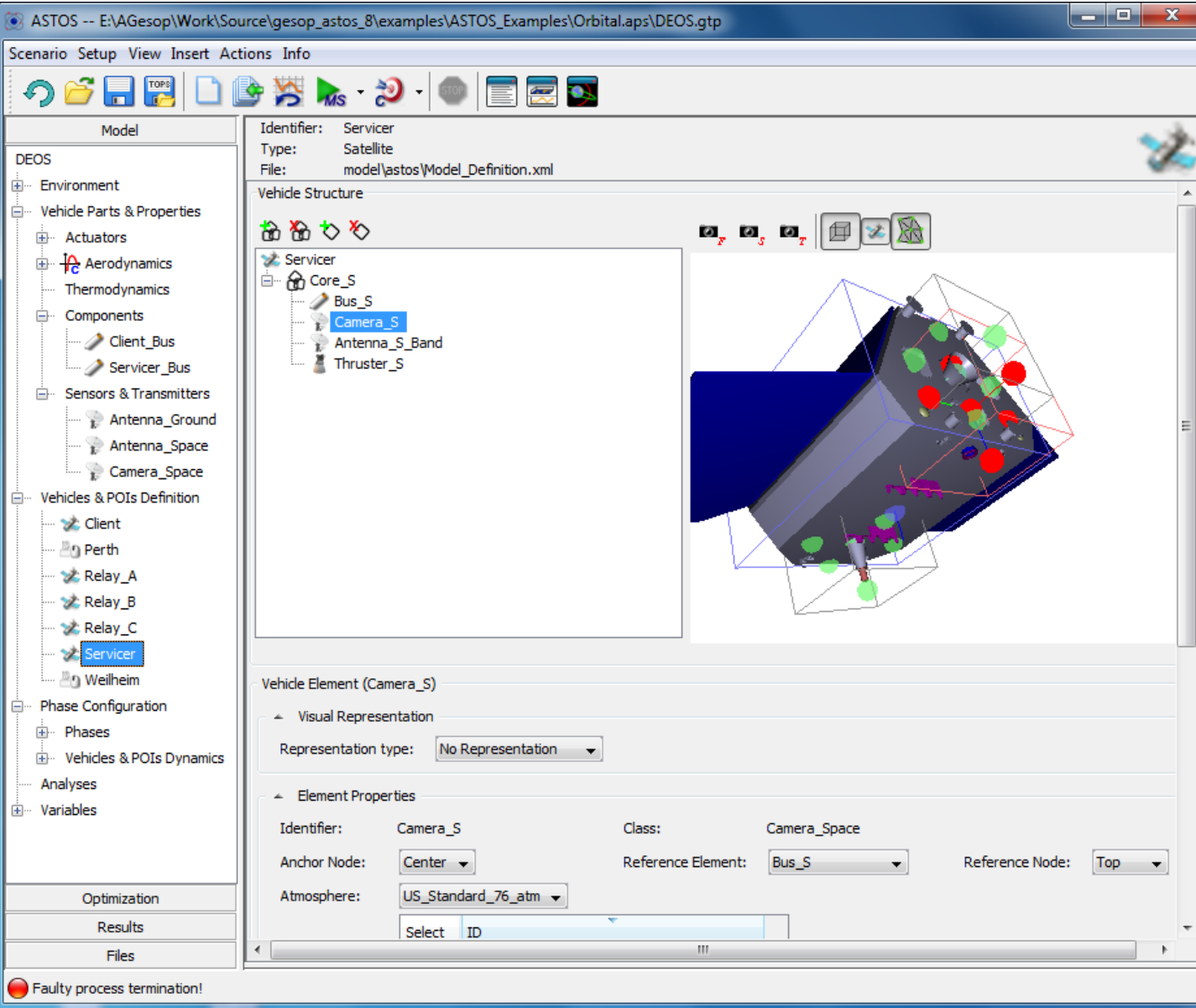
Orbit Transfer

Libration Point
Missions

ASTOS Techniques

- Trajectory & vehicle optimisation
- Propagation & mission analysis
- Multi-Body simulation
- Monte Carlo simulations
- Safety analysis
- System analysis
- GNC analysis with flexible modes
- Visualization
- Reporting

ASTOS Scenario Definition



1. Environment
2. Vehicle Parts
 - Servicer
 - Antenna
 - Camera
3. Vehicles & POI setup
4. Phases config.
5. Vehicles dynamics config.
6. Analysis

High Quality Visualization with ASTOS

Realistic appearance of celestial bodies

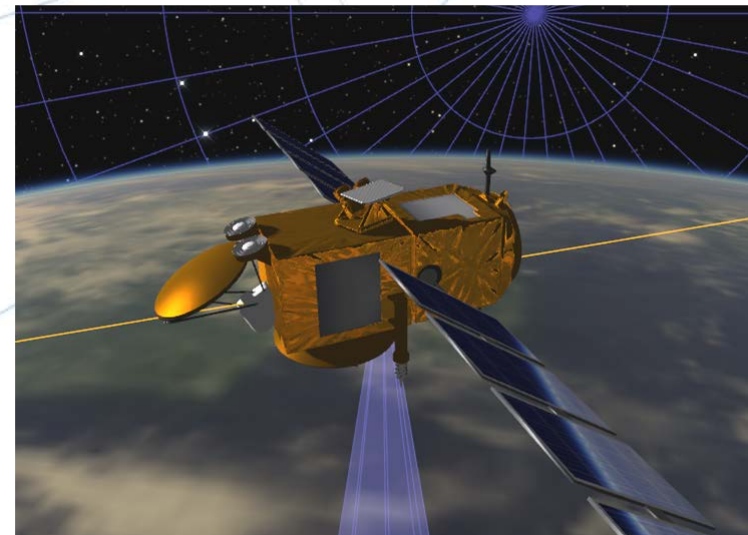
- Texture
- Shadow
- Reflexion of light from surfaces (e.g. Regolith, water or ice)
- Light scattering through atmosphere
- clouds
- Important for analysis of visibility

Detailed representation of spacecrafts and launch pads

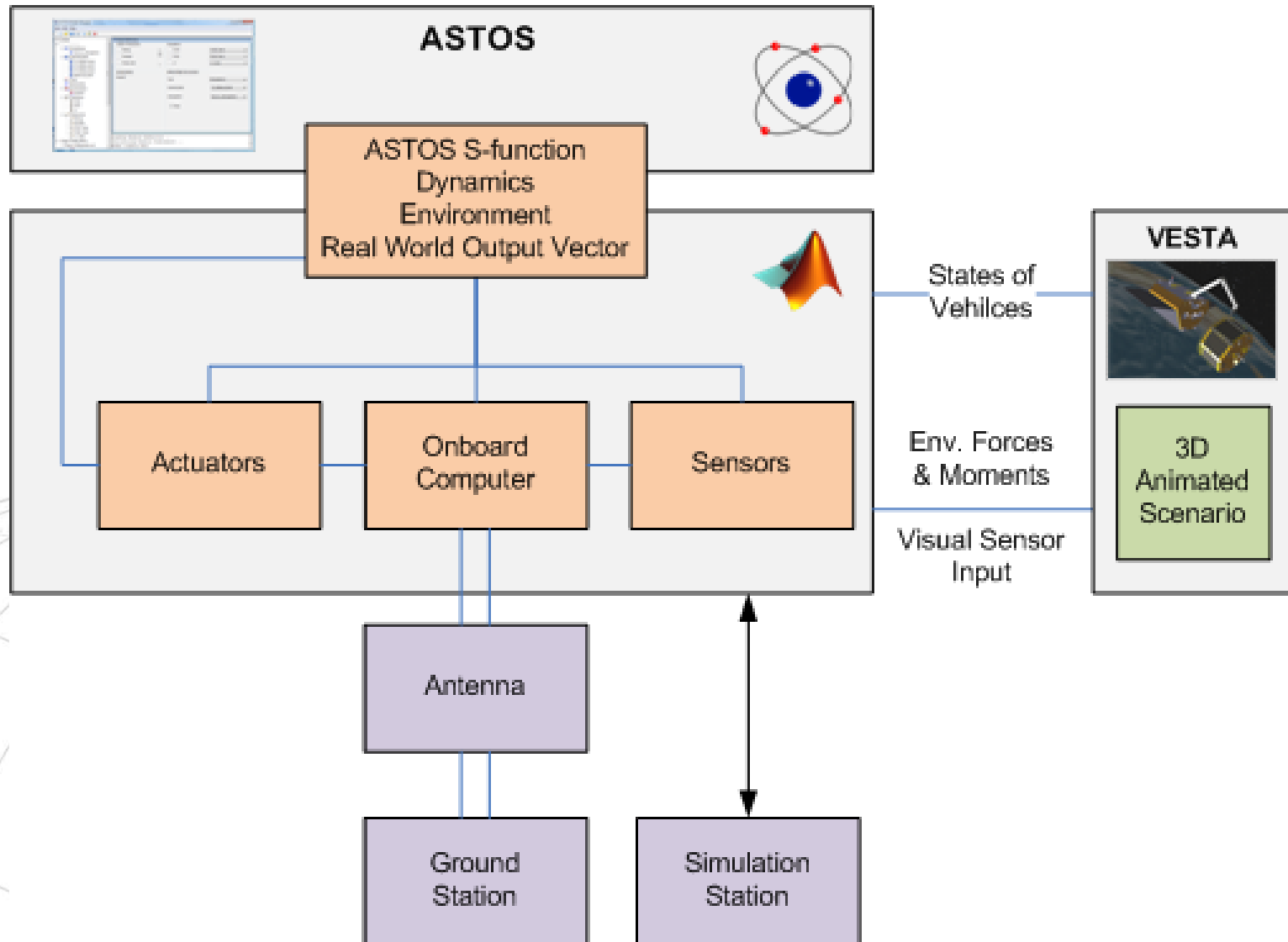
- Texture
- Shadow
- Reflexion from surface depending on material
- Effects during re-entry (heat, shock wave)

Visual aids for

- Coverage, visibility, sensor field-of-view
- Attitude, conjunctions
- Vectors, trajectories, frames
- Points and areas of interest
- ...

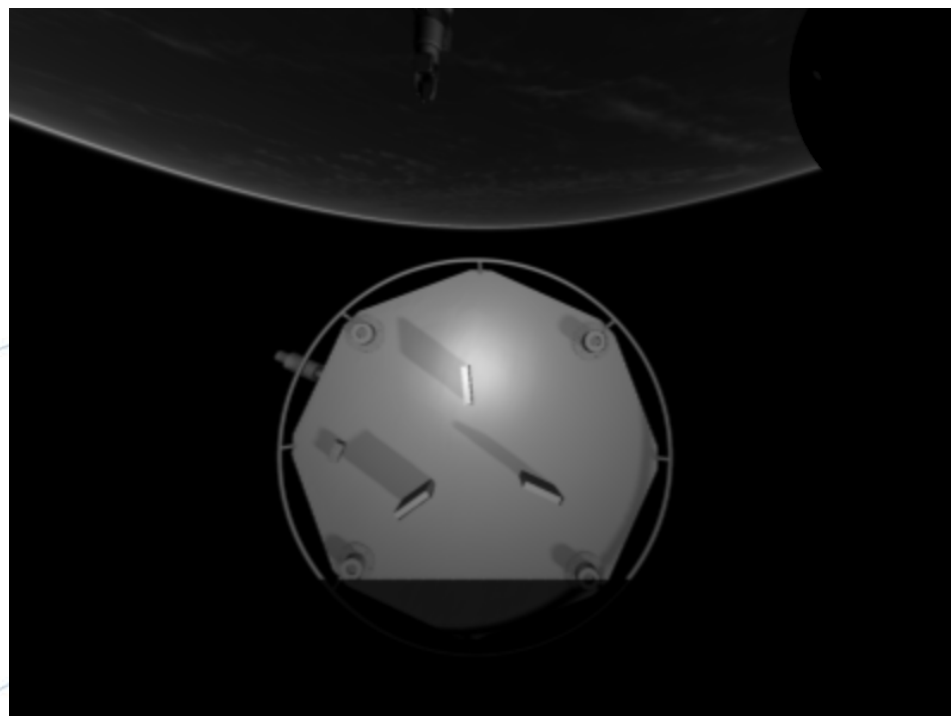


ASTOS-GNC Module



Camera Simulator

- Generation of raw sensor data of imaging sensors in real-time
- Consideration of relevant camera properties
 - Field of depth
 - Field of view
 - Resolution
 - Frame rate
 - Sensor spectrum
- Can emulate a variety of sensors
 - 3D camera
 - Scanning and flash LIDAR
 - 2D camera



Leadership requires solutions



Visit us in Einstein

Thank you!

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