MONTE'S CLIENT-BASED TRAJECTORY PROPAGATION ARCHITECTURE

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1. Client-based architectures provide transparency and flexibility in technical software.
2. MONTE utilizes this design principle in its trajectory, coordinate-frame, force model, and numerical integration systems.

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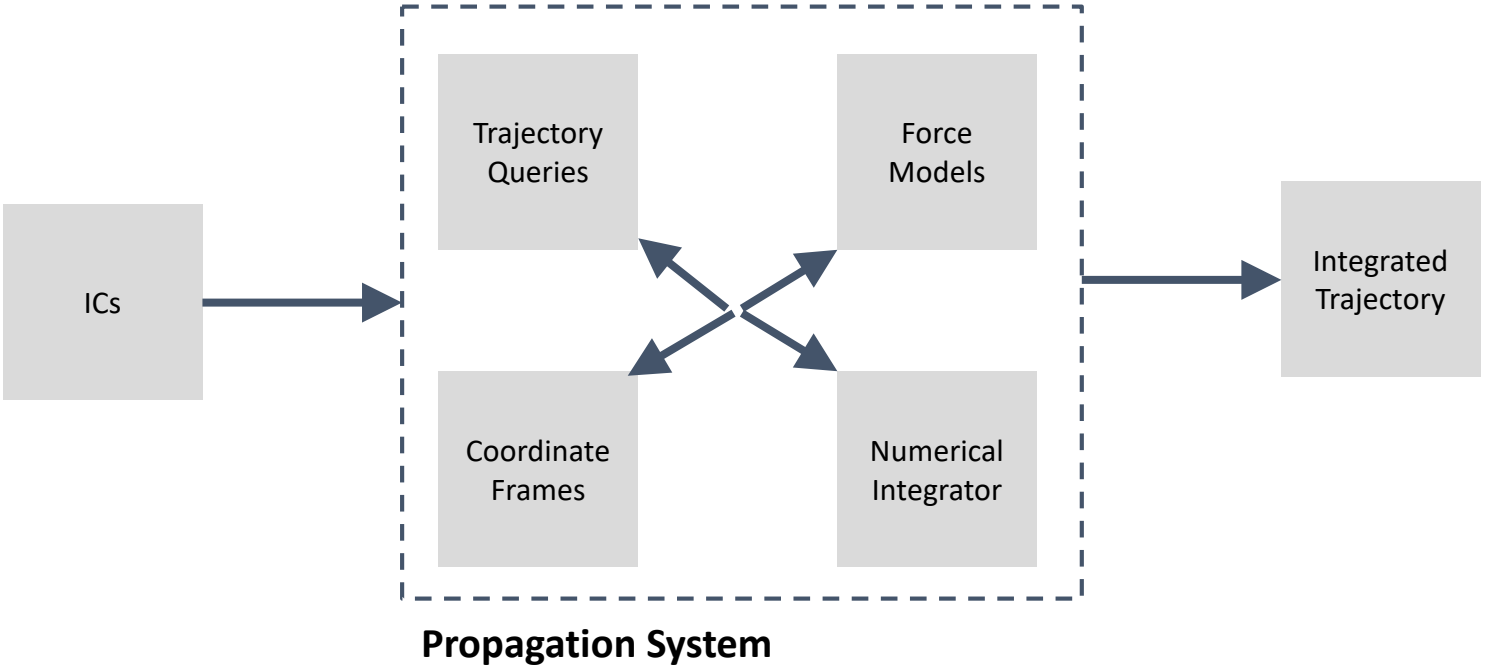
A ***black-box architecture*** hides low-level functionality and offers capability through simplified interface point.



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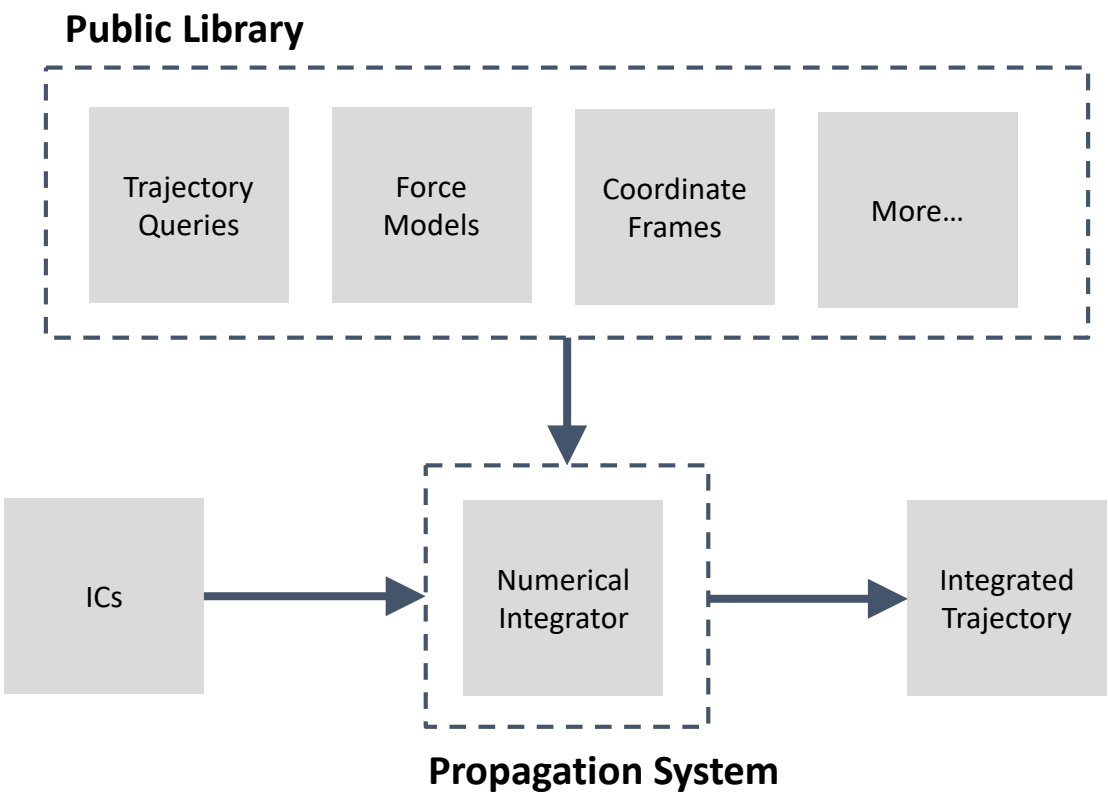
A ***client-based architecture*** pools low-level functionality in a public library which is used to construct high-level capabilities.



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Client-based systems are ideally suited to well informed, capable analysts.

They take more time to develop because nearly everything is front-facing.

Access to low-level components allows for flexibility and creativity when defining and solving problems.

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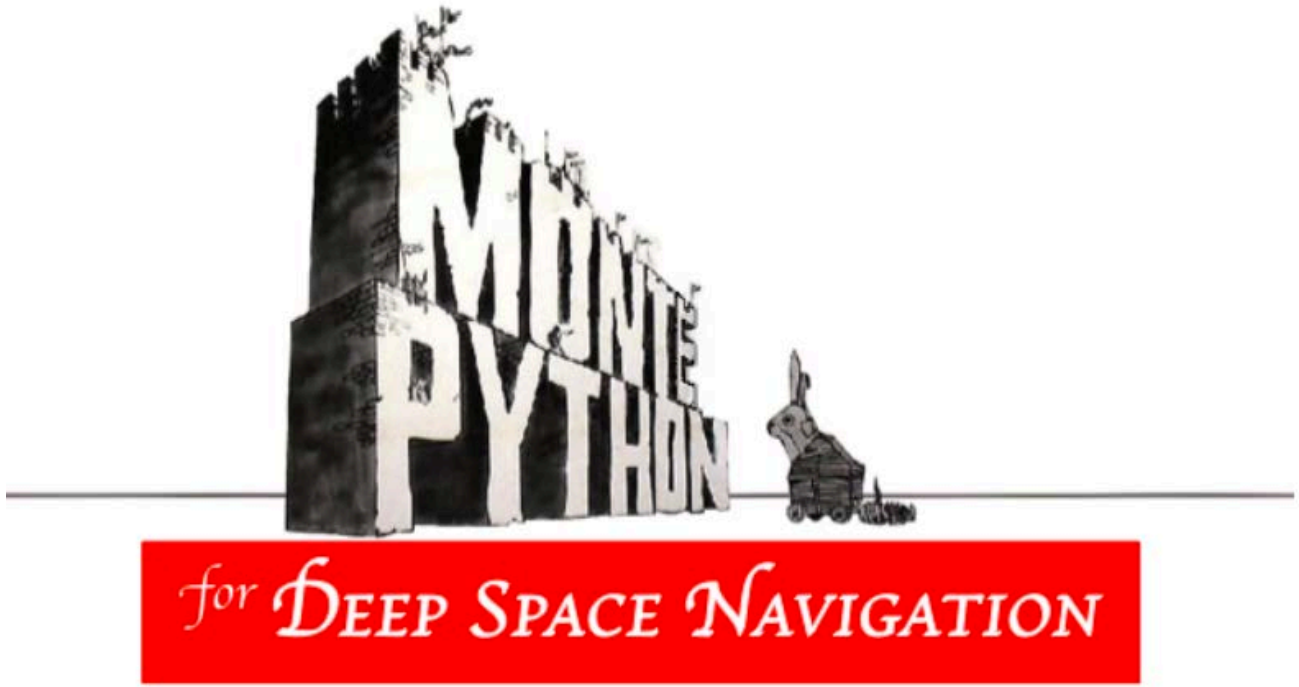

Astrodynamic Platform

Python Library

Mission Design & Analysis

Flight Navigation

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Trajectories

+ Coordinate Frames

+ Force Models

+ Integrator

= Propagation

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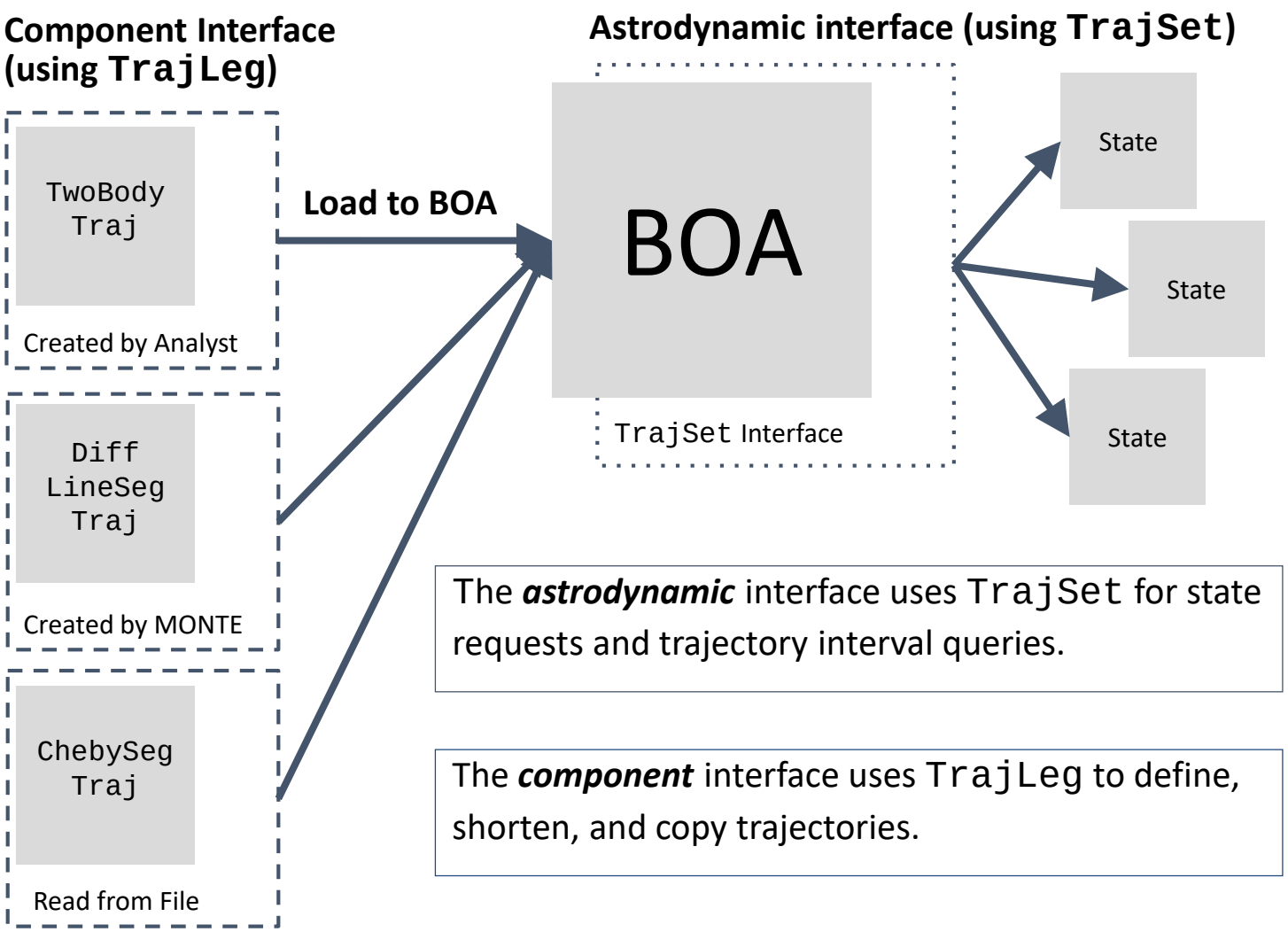
= Propagation



The ***astrodynamic*** interface uses `TrajSet` for state requests and trajectory interval queries.

The ***component*** interface uses `TrajLeg` to define, shorten, and copy trajectories.

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Trajectories

+ Coordinate Frames

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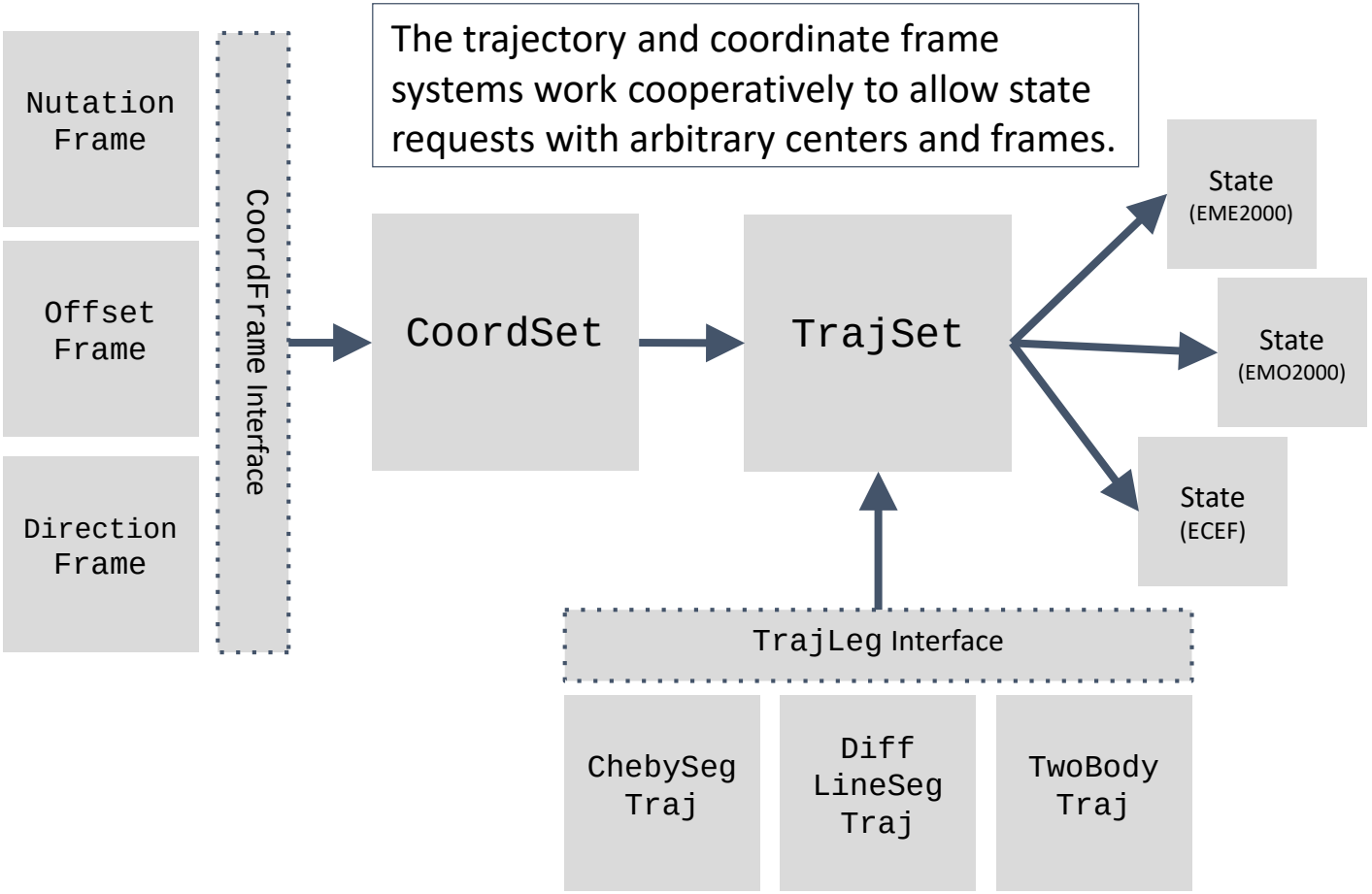
= Propagation



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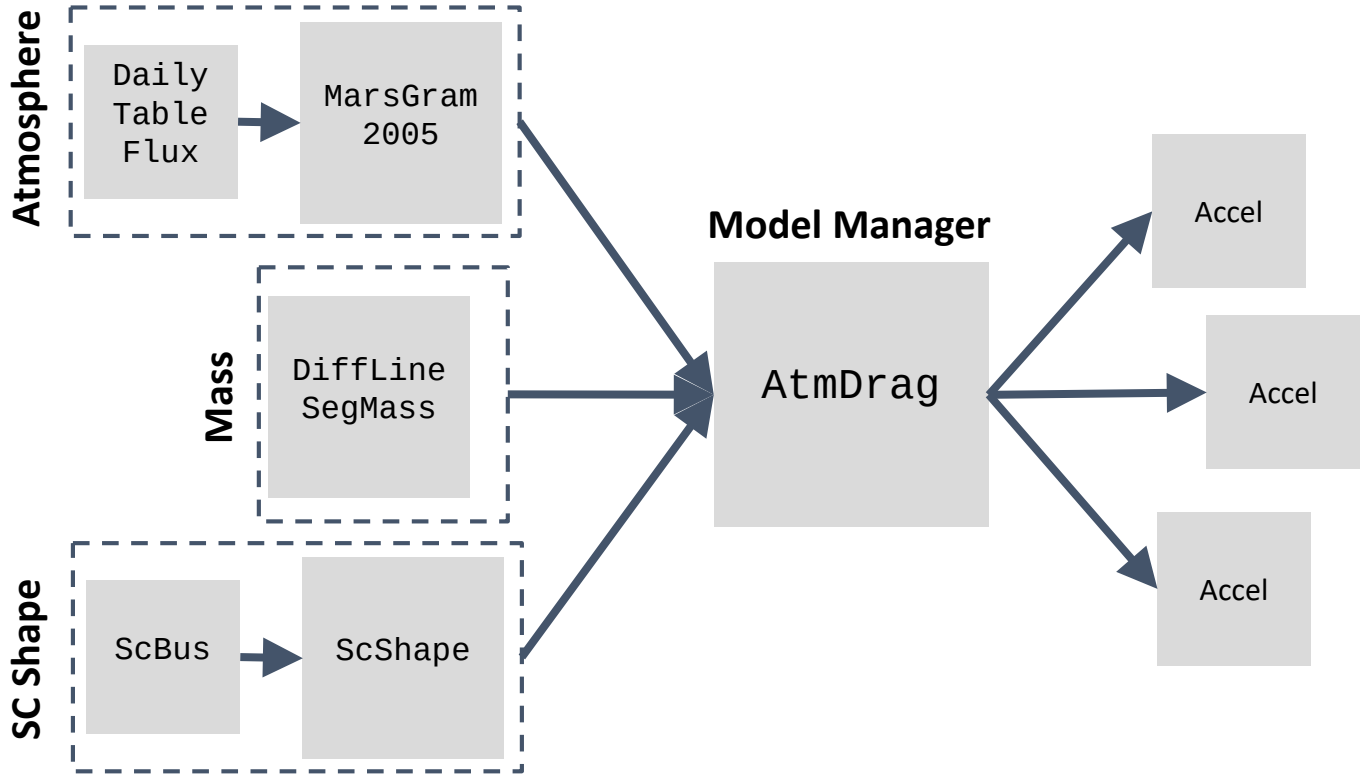

Model	Description
M.AtmDrag	computes the acceleration of an atmosphere model on a body.
M.ExpAccel	computes an exponentially decaying acceleration on a body.
M.FiniteBurn	computes an acceleration and mass flow rate from a finite duration maneuver.
M.Gravity	computes point mass, extended-body, and relativistic gravity accelerations on a body.
M.ImpulseBurn	computes an instantaneous change to the mass and velocity of a body due to a maneuver.
M.PolyAccel	computes an acceleration on a body modeled as a set of polynomials in Cartesian X, Y, and Z.
M.SolarPressure	computes the acceleration on a body due to the impact of solar electromagnetic radiation.
M.AcsSolarDesat	computes the acceleration on a body due to thruster firings which counter solar radiation torques.
M.SmallBurn	computes instantaneous changes to the mass and velocity of a body due to a set of small maneuvers.
M.PeriodicAccel	periodic acceleration model used to model effects that vary on a per orbit basis.

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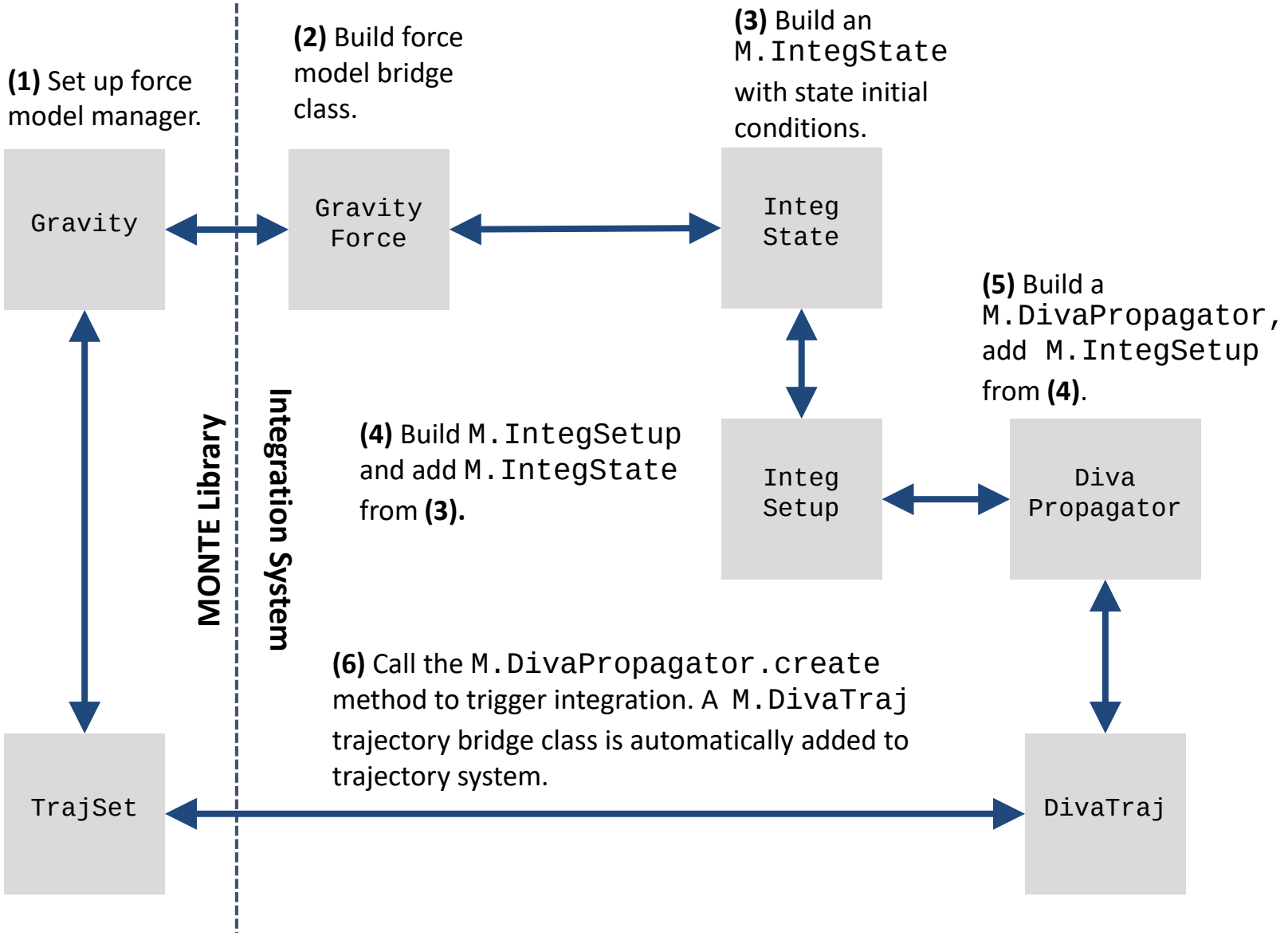

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EXAMPLE: Examine accelerations for…

MONTE-integrated trajectories.

any trajectory.

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Thank you, any questions?

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