

Virtual Airspace
Simulation Technology
Real-Time Simulation Sub-Element
(VAST-RT)
TIM #2

VAST-RT Overview

VAST-RT in VAMS

VAST-RT and ACES

VAST-RT Concept

Issues to be Investigated

System Concept Diagram

System Functionality

System Components

System Architecture

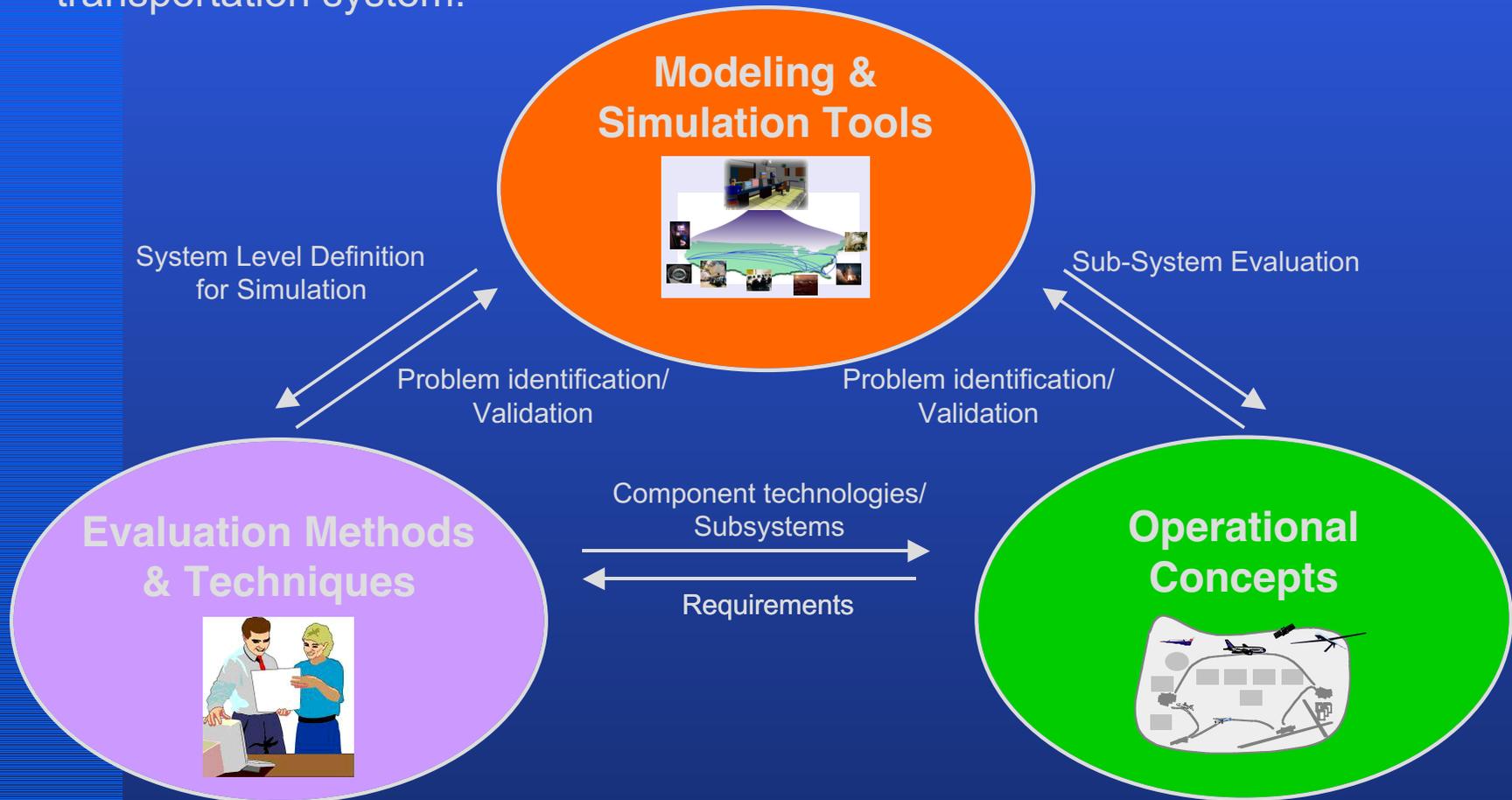
System Integration

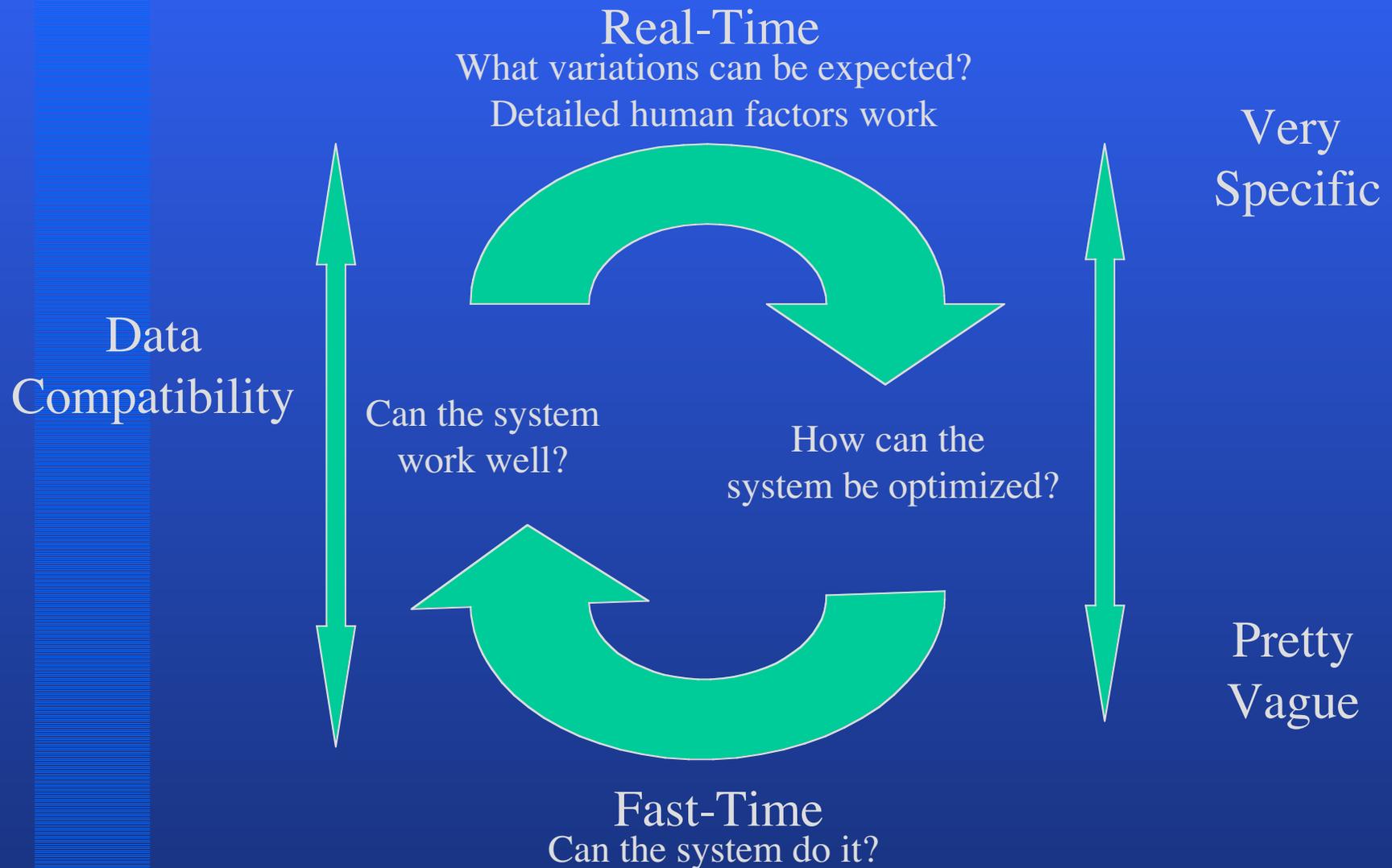
Simulation Models

Collaborative Development Environment (CDE)

Wrap up

Develop the capability to simulate operations within the National Airspace System (NAS) to levels of fidelity sufficient for the research being performed. This capability will provide a safe, cost-effective, common, flexible, and accessible platform for evaluating ATM concepts for the future air transportation system.

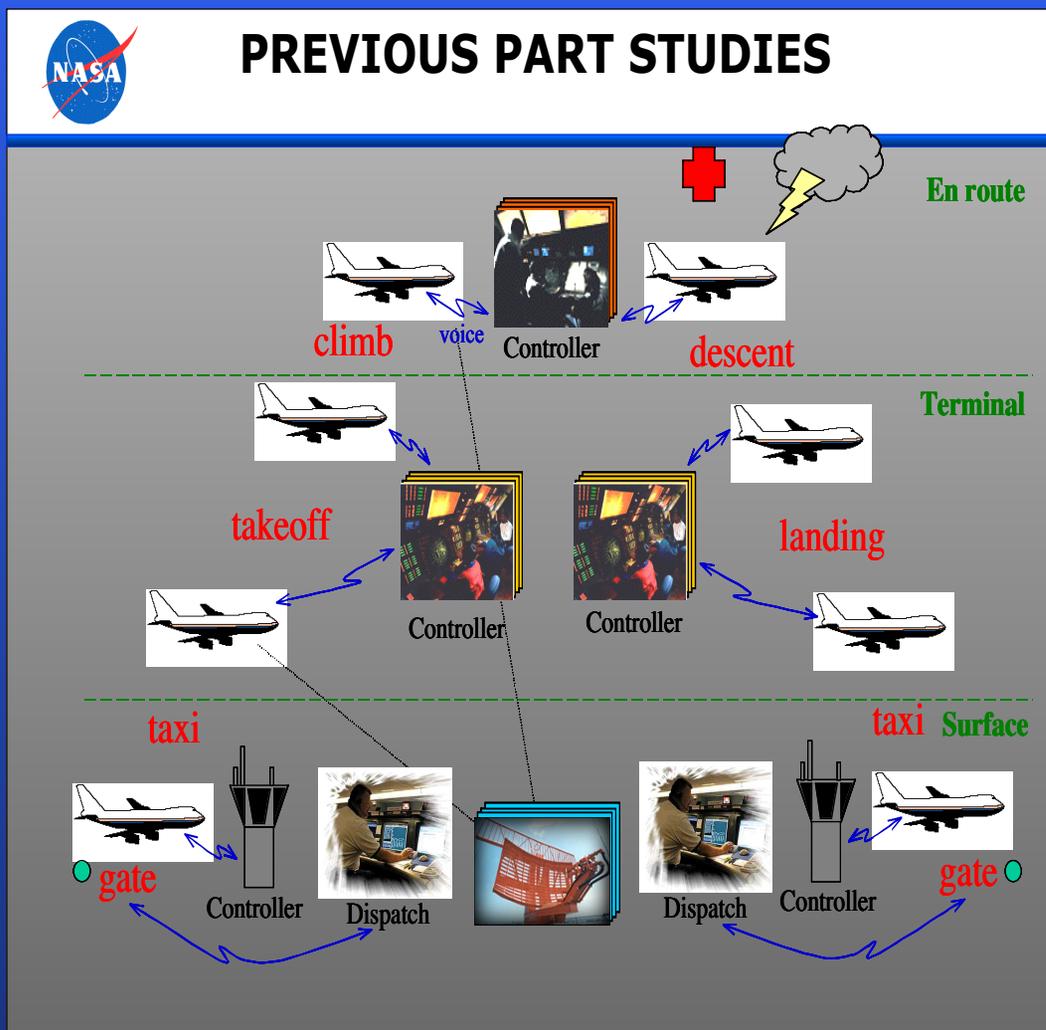


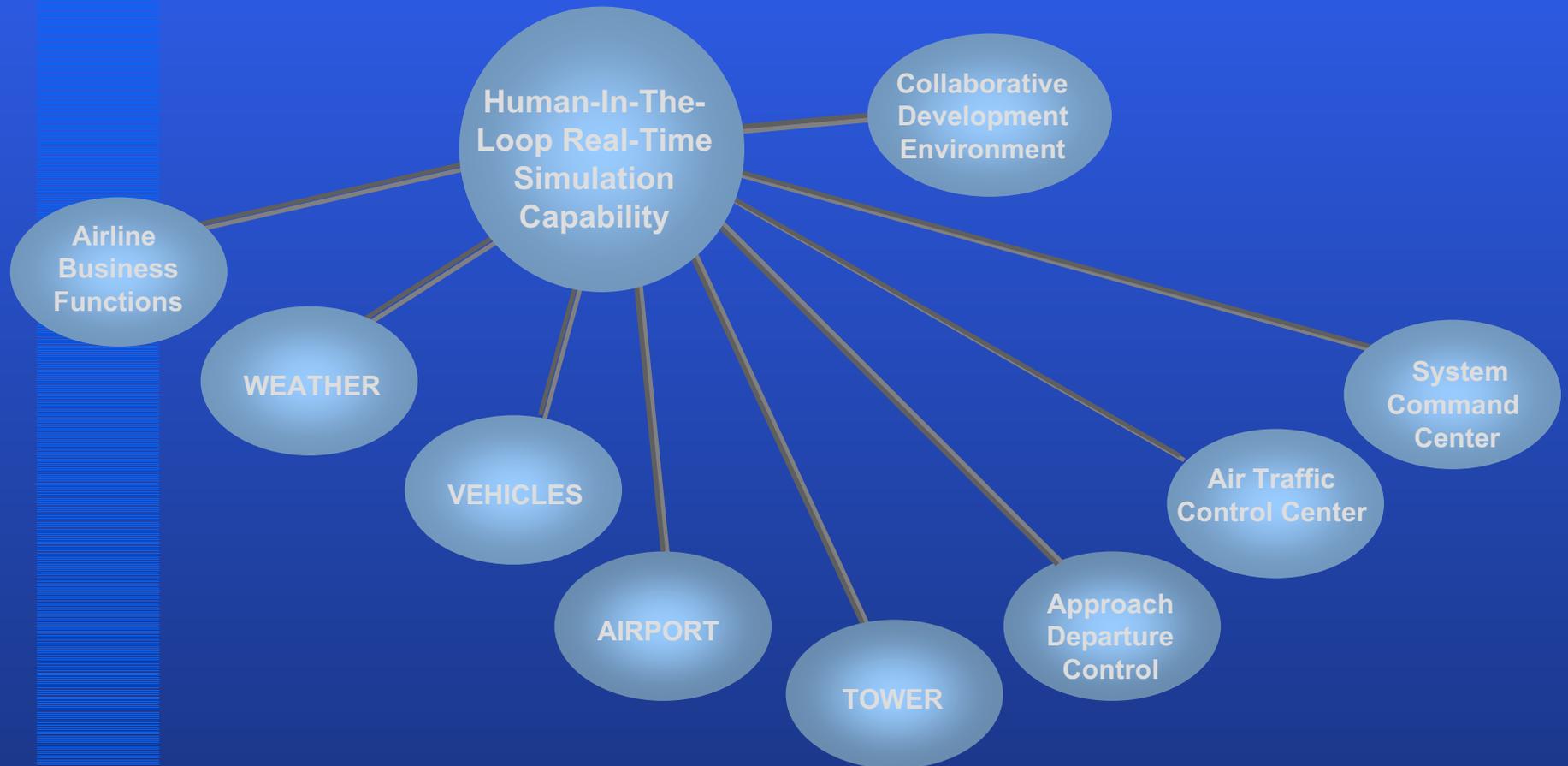


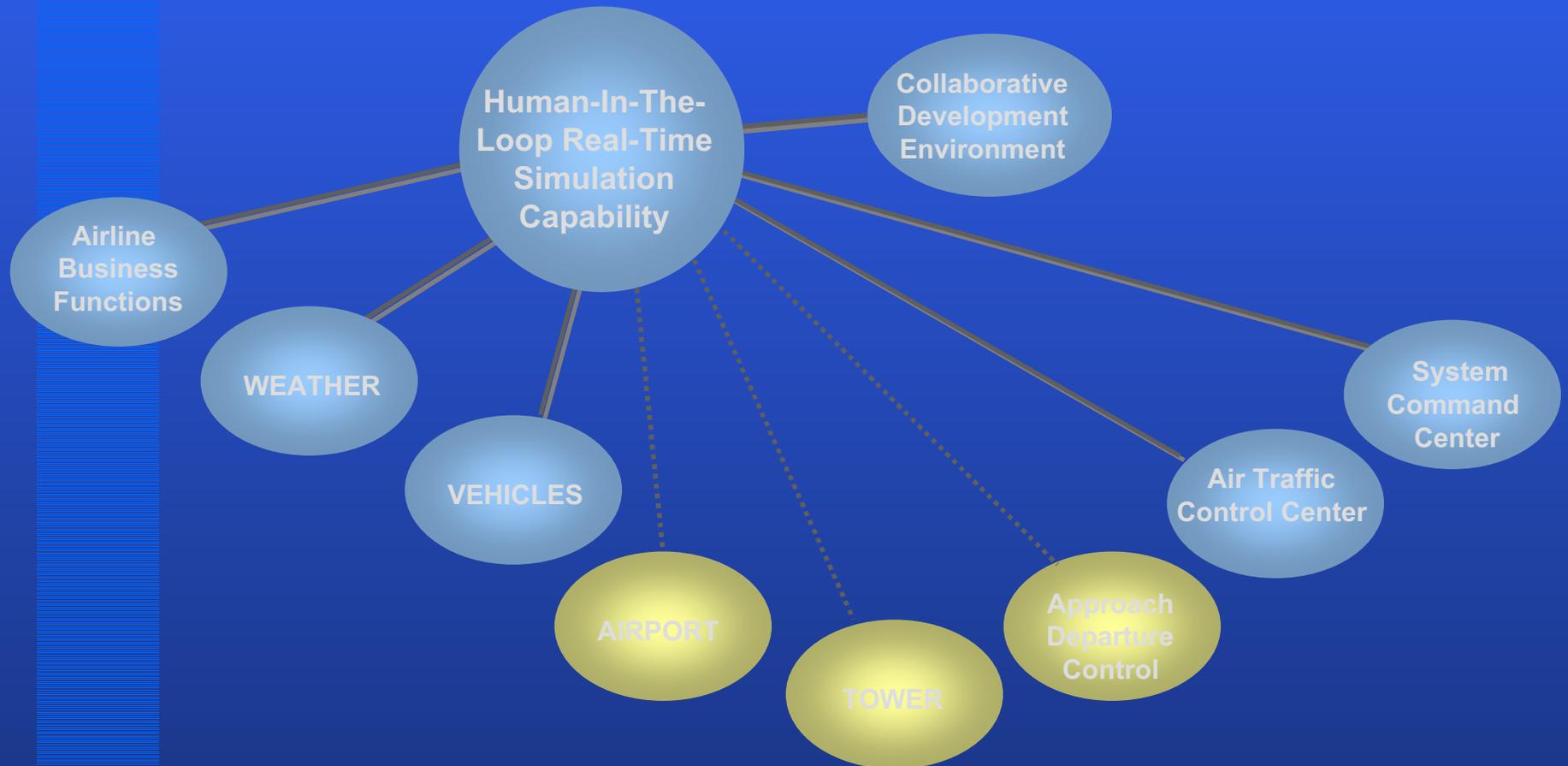
ACES will provide system wide studies of the overall concept. Where it is appropriate, ACES, acting through SEA will provide requirements for detailed VAST-RT studies.

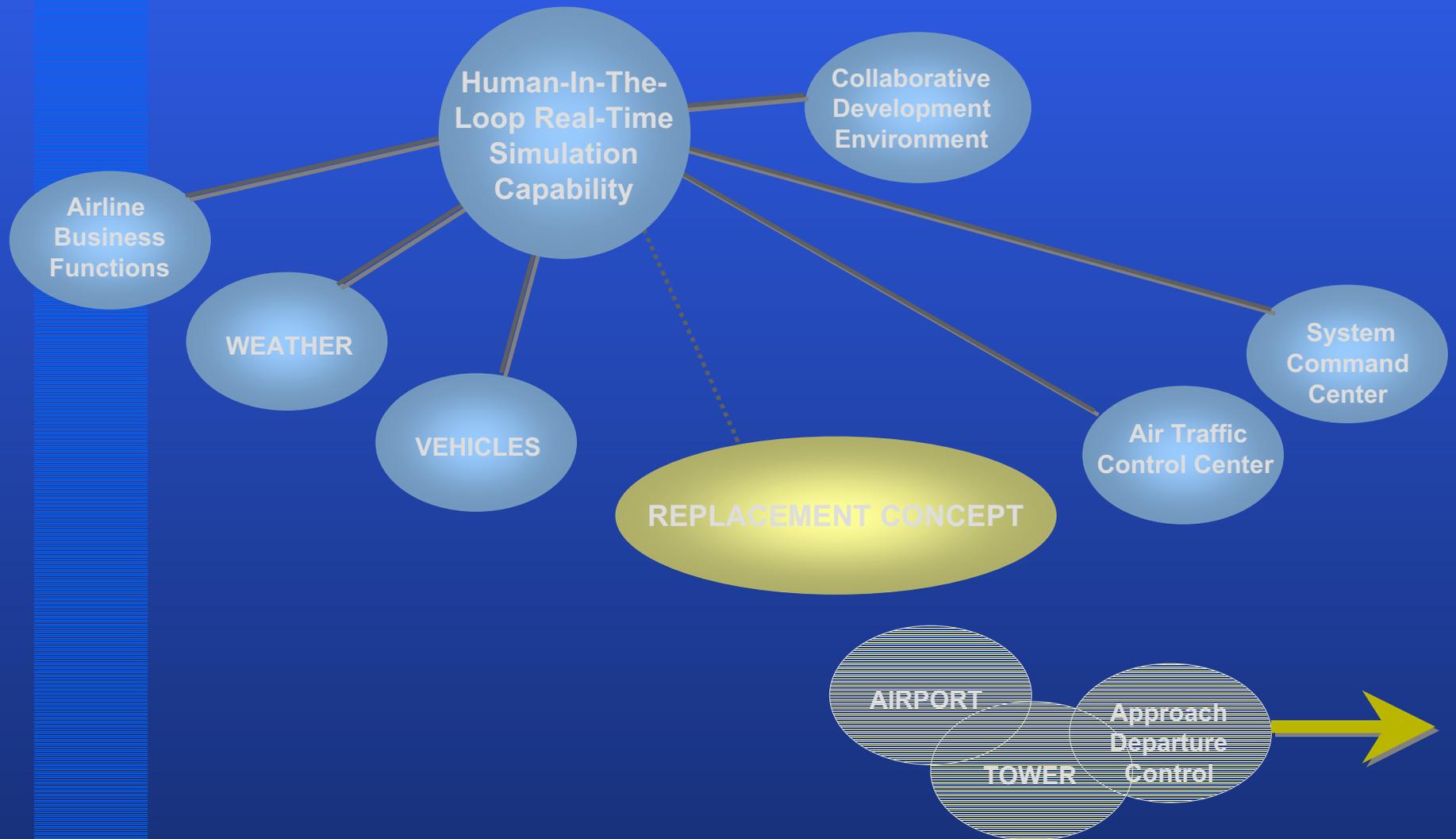
VAST-RT will examine the detailed issue using RT simulation techniques and provide refined data to ACES for their next Non-RT study.

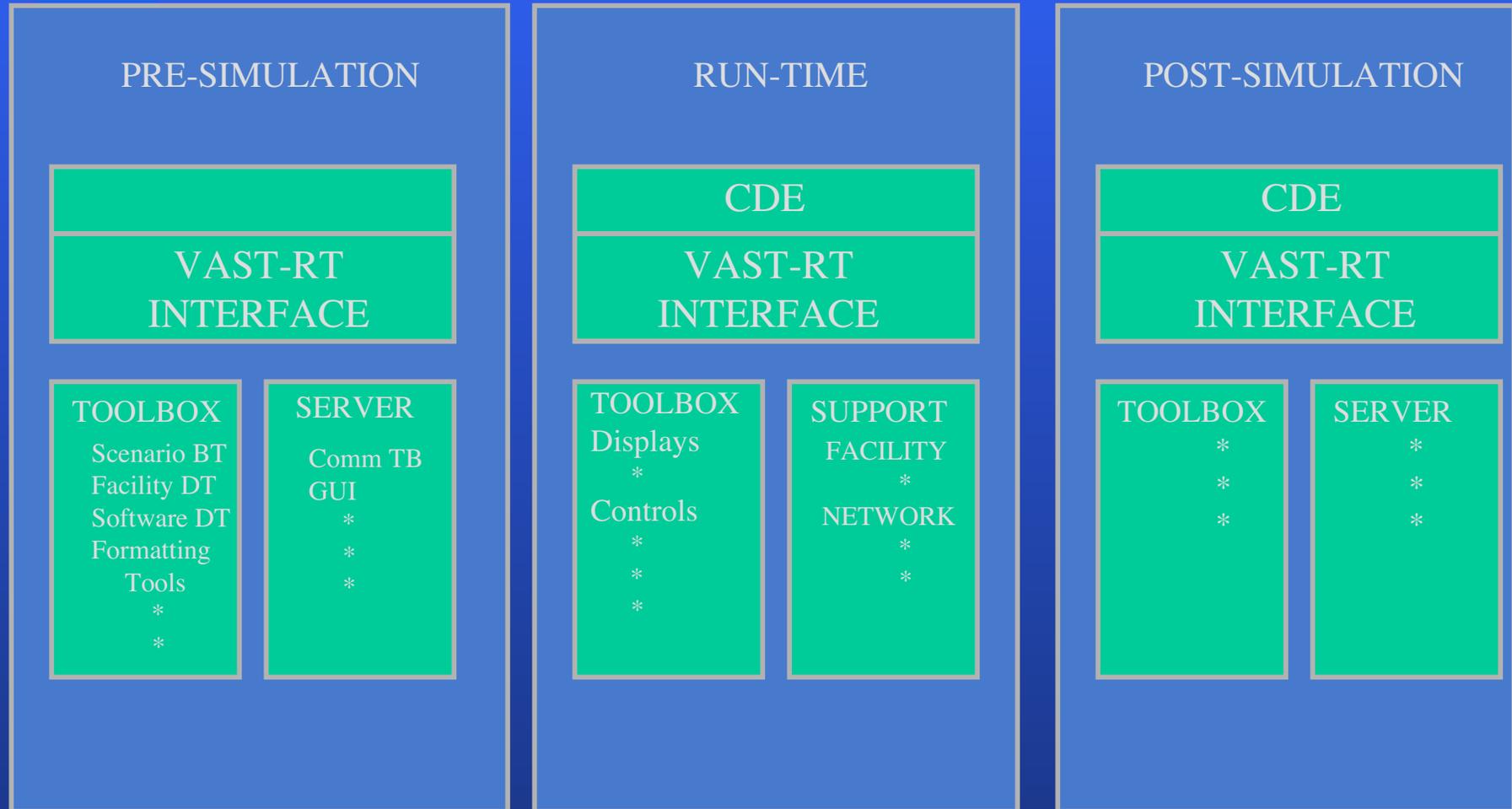
ACES will make additional studies and this process will repeat as often as is required.





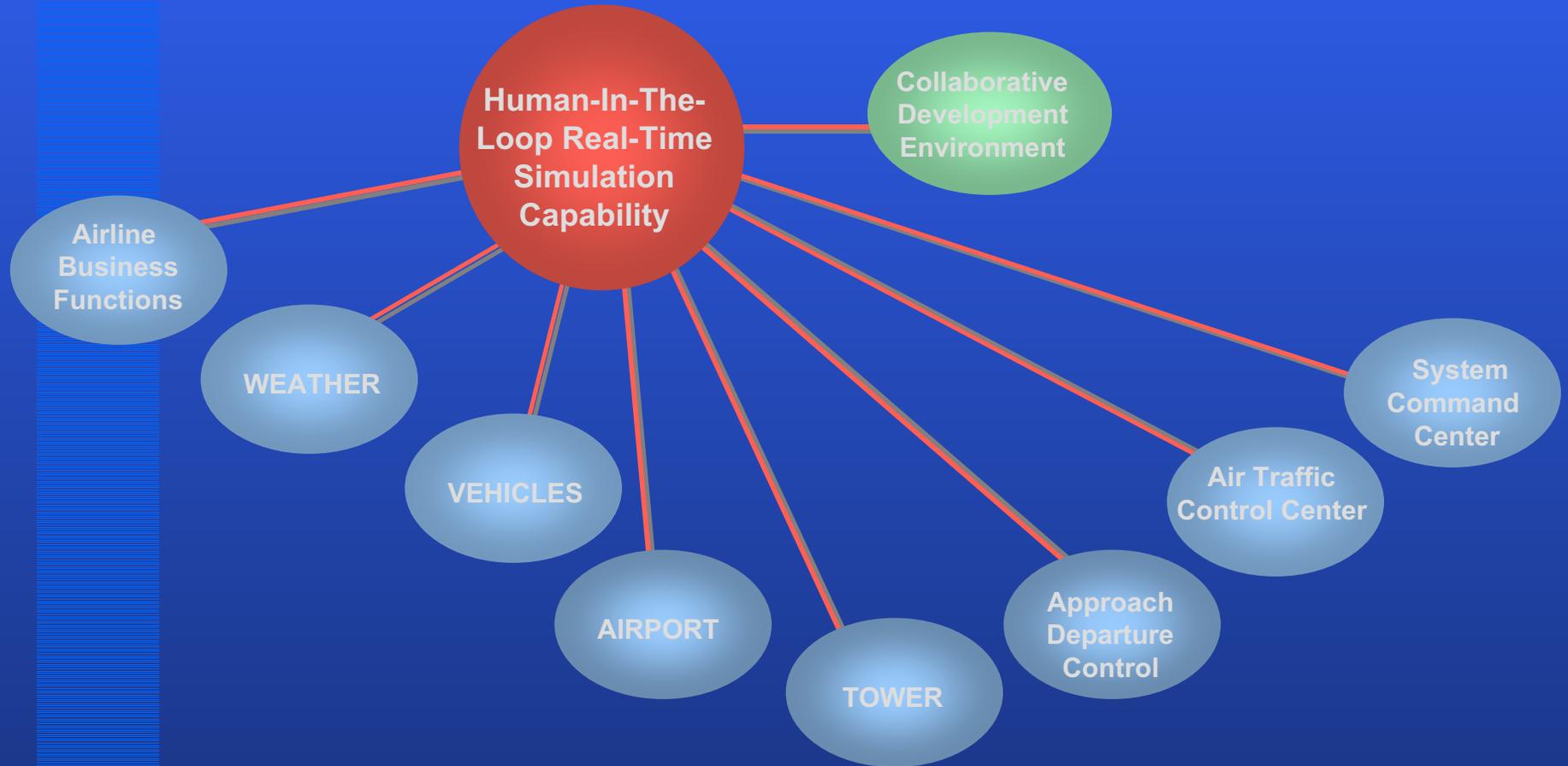




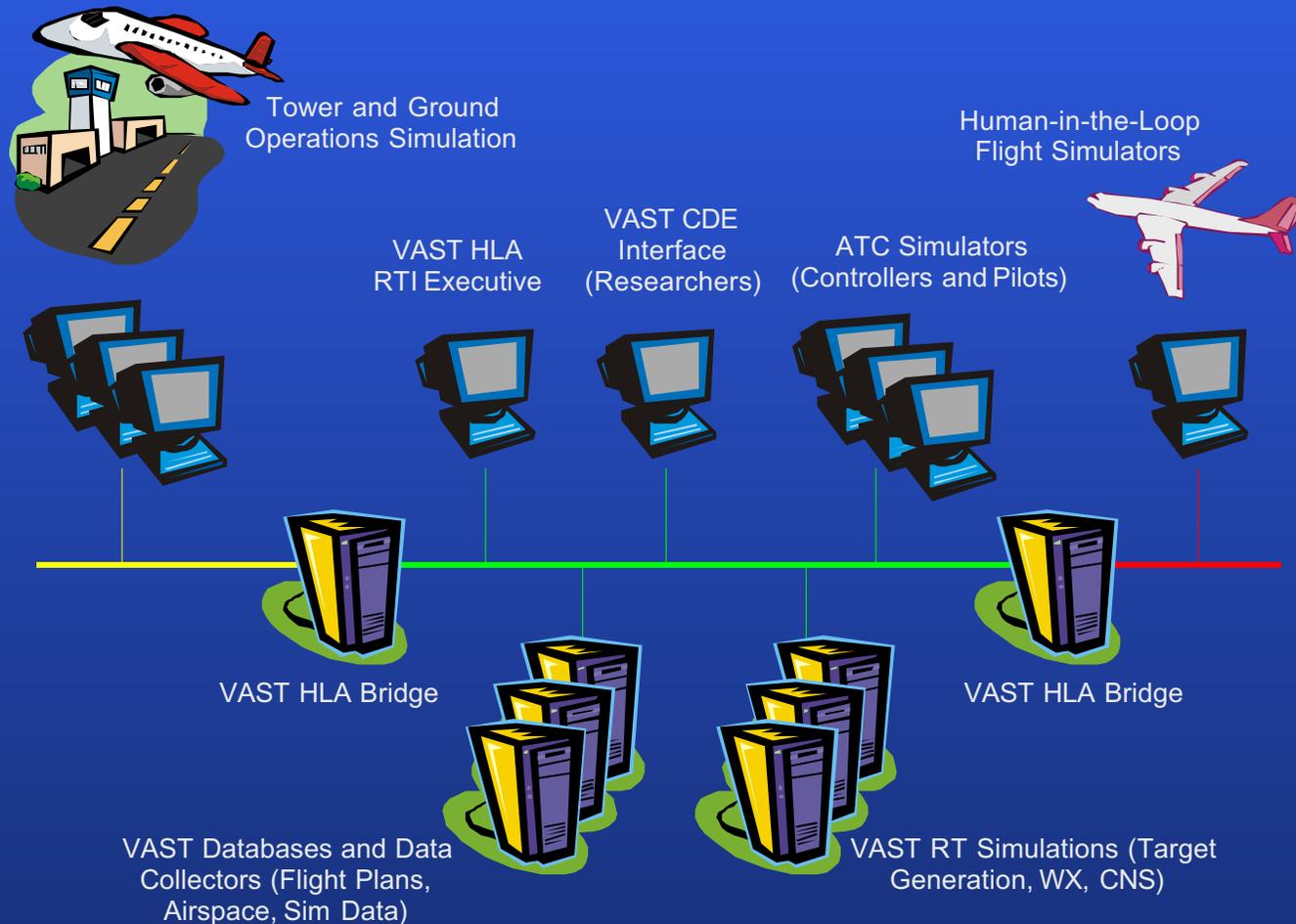


Non-VAST-RT Tools can be placed in the appropriate toolbox but only if they conform to the VAST-RT Interface Requirements Specification both in their operation and in their output.

VAST Real-Time System Architecture

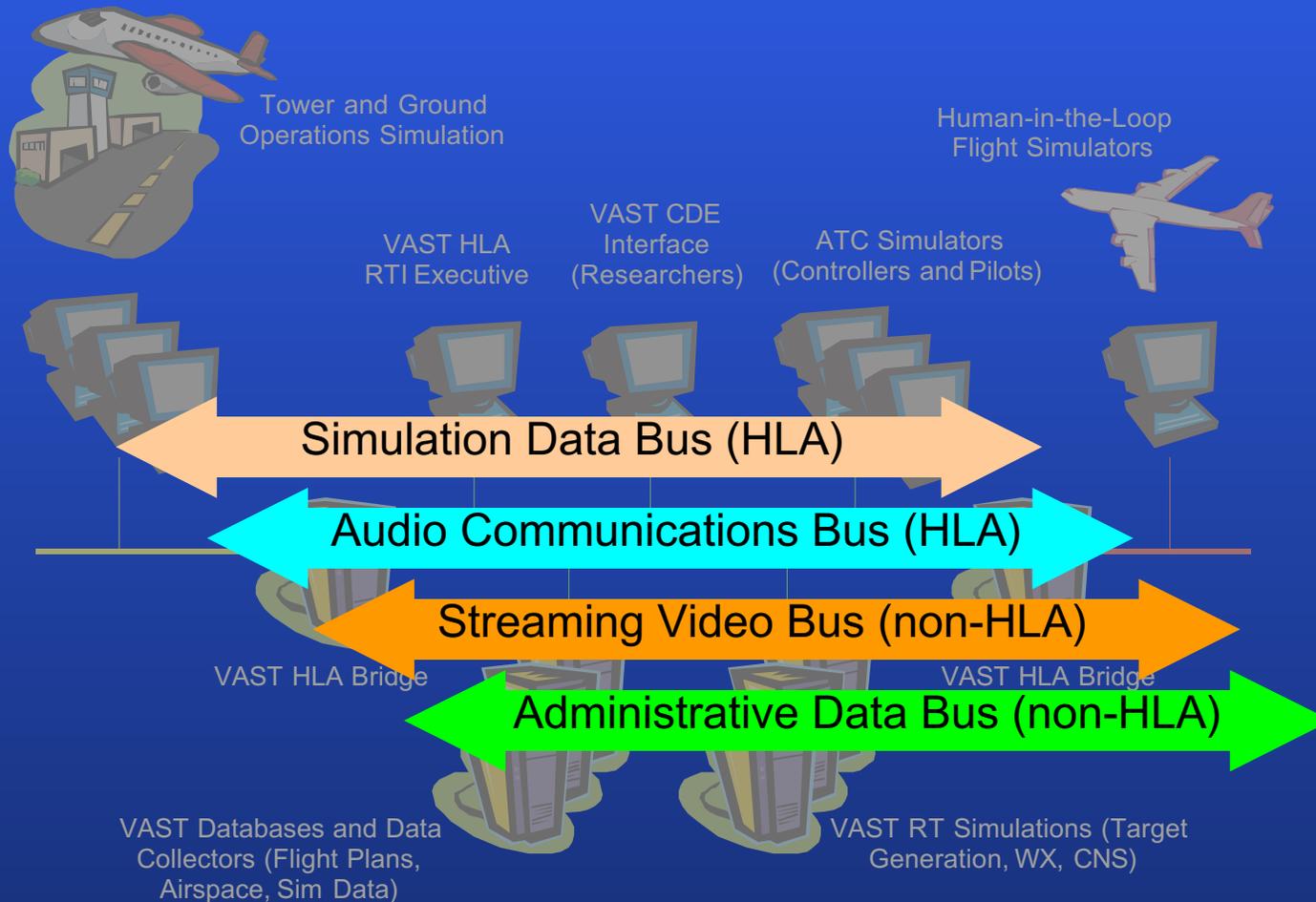


Example of a VAST-RT Distributed Simulation



VAST RT VAST-RT Architecture

The VAST-RT Architecture provides the data buses to interconnect all of the participants



Federates communicate with each other via HLA RTI's.

RTI Exec Coordinates Object Publishing and Discovery.



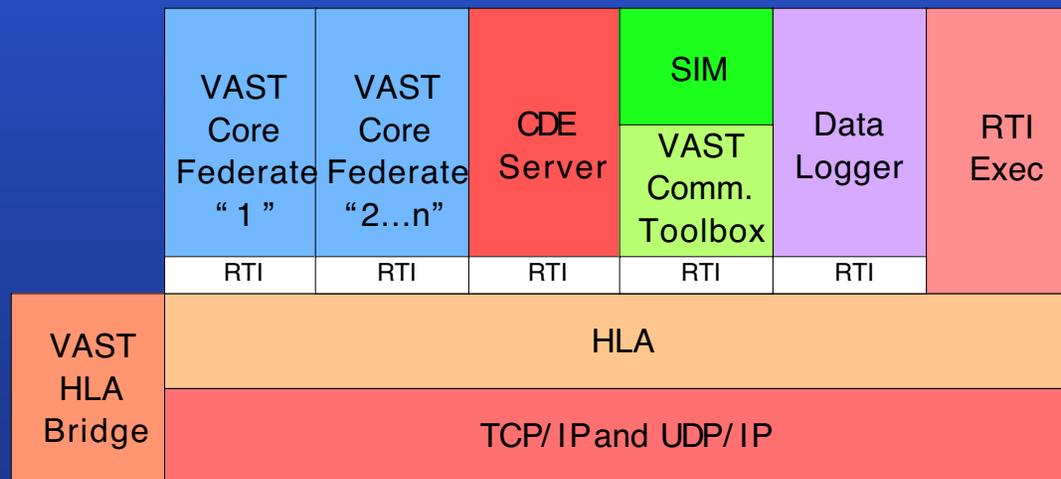
Models



CDE



Models



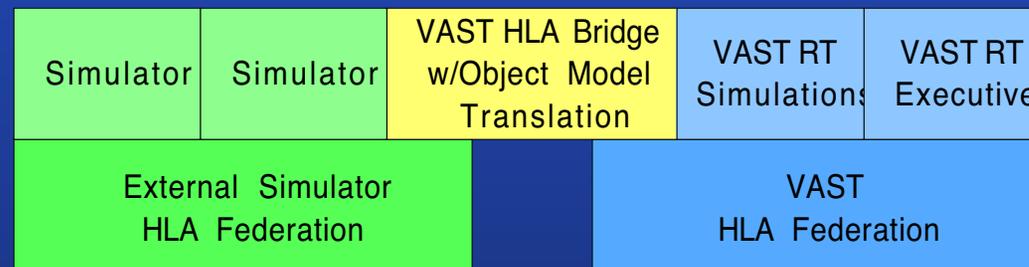
VAST-RT HLA Bridge Advanced Features:

Object Model Translation Toolbox:

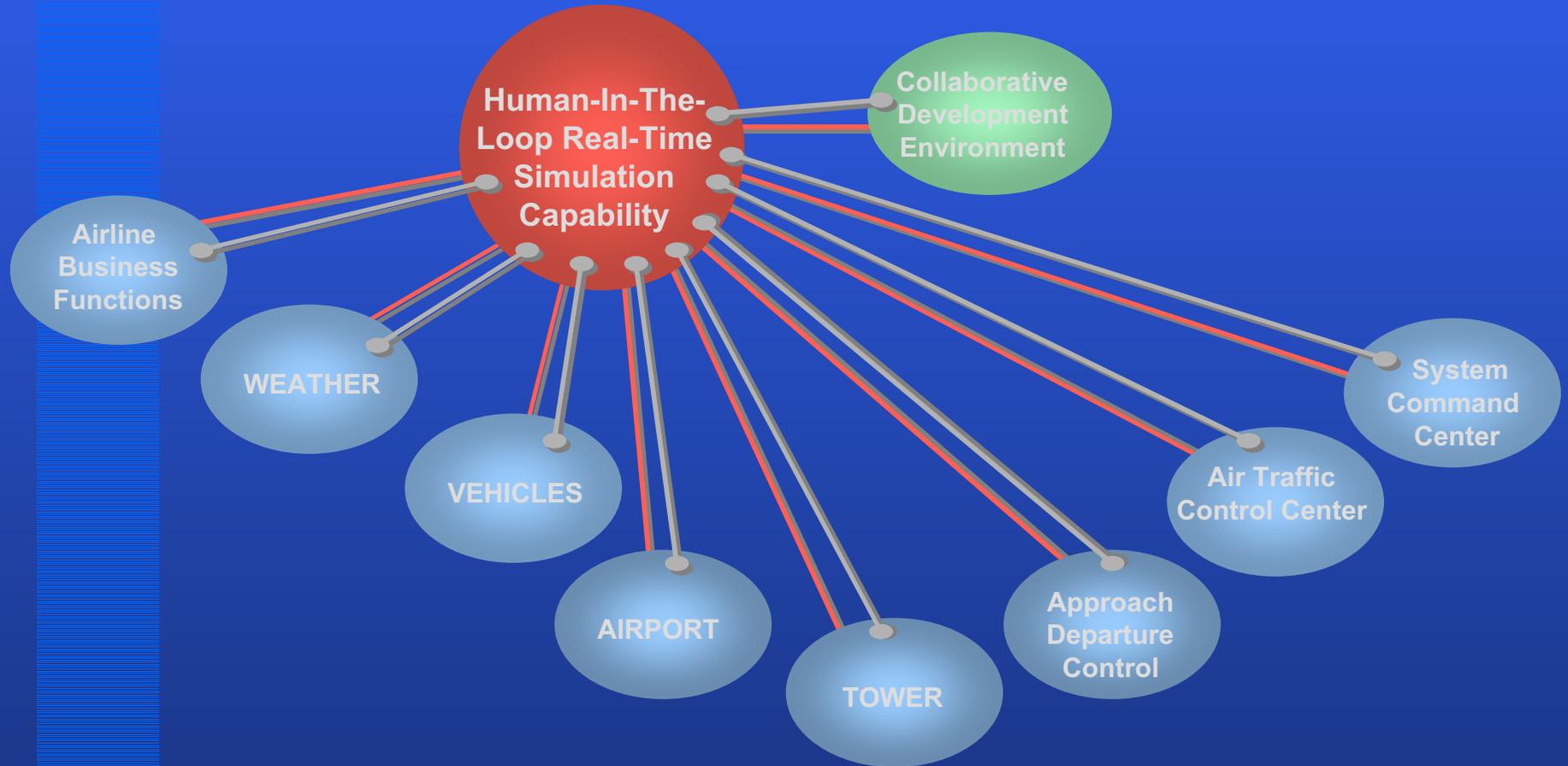
Coordinate Transformations, Message Translation

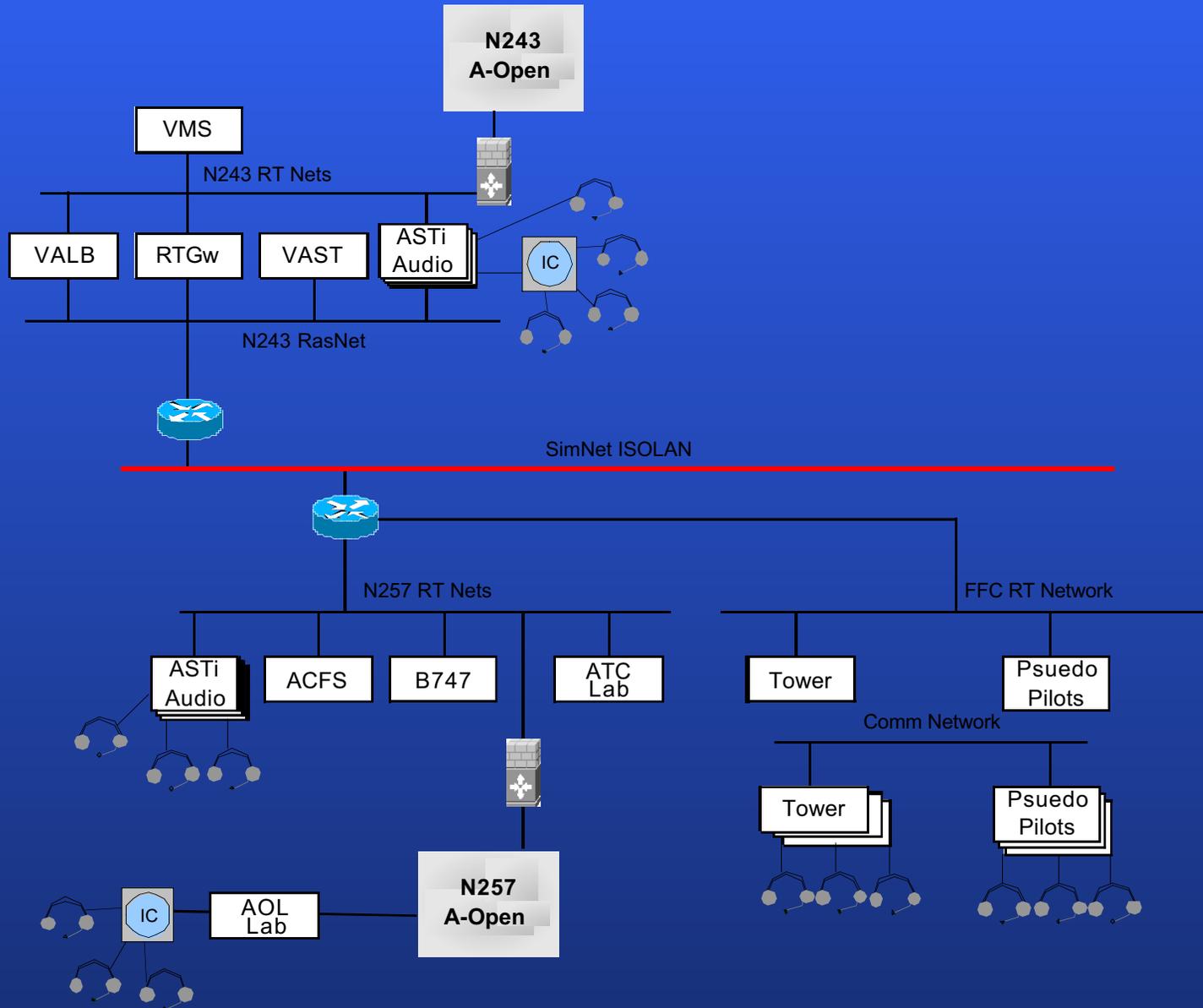
Simulation State Memory:

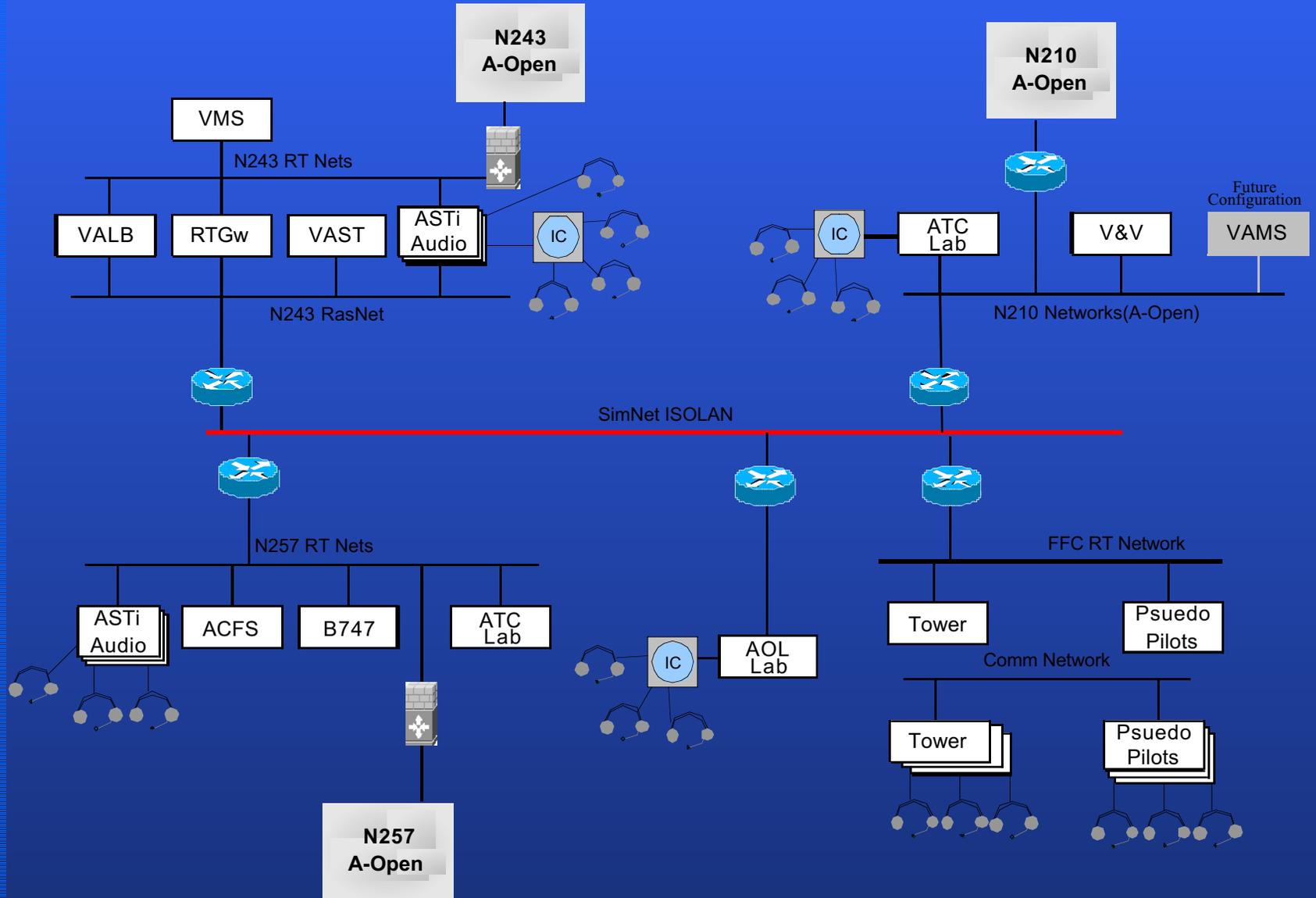
Improved Performance for Late Joining Systems



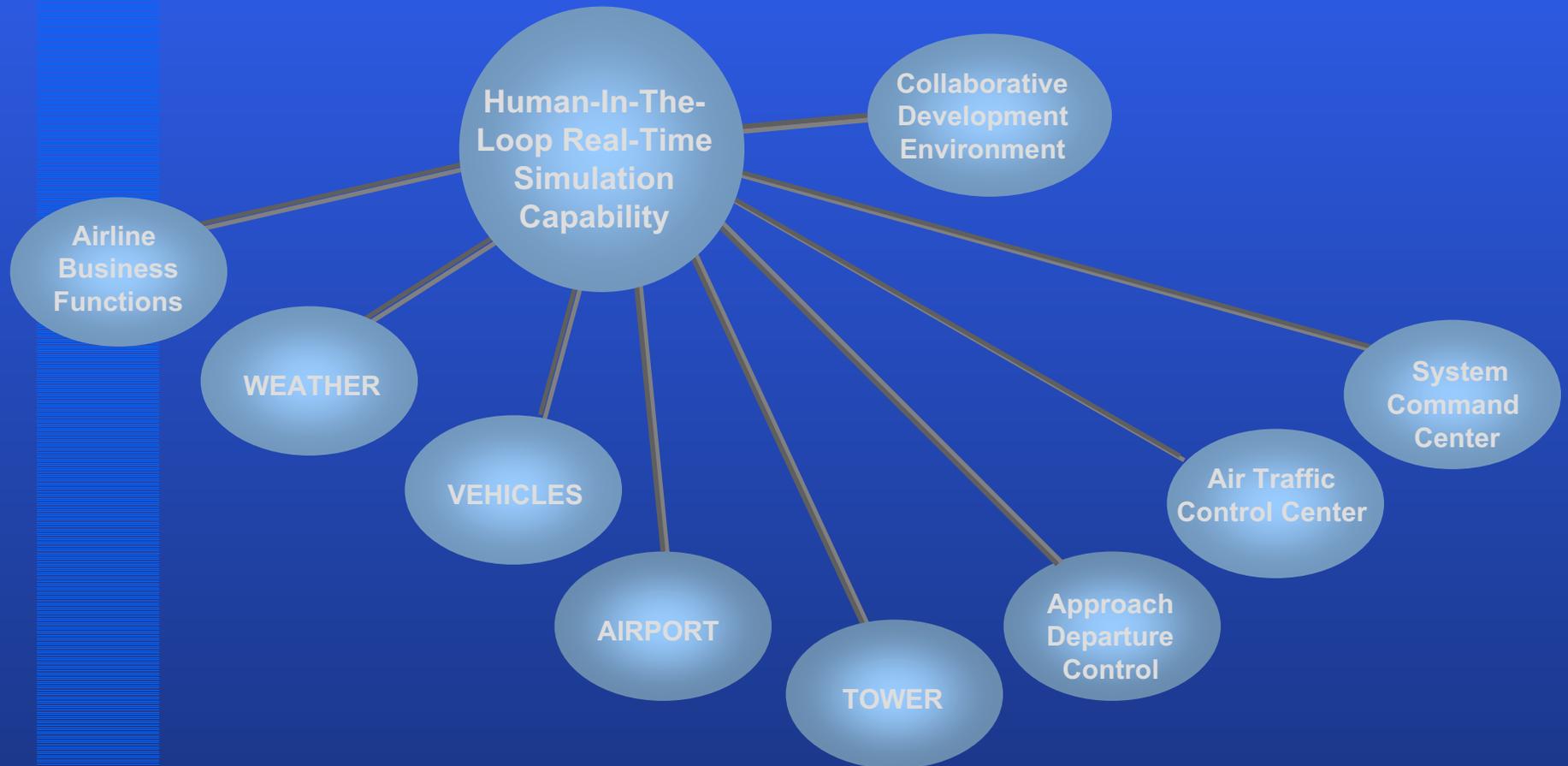
VAST Real-Time System Integration

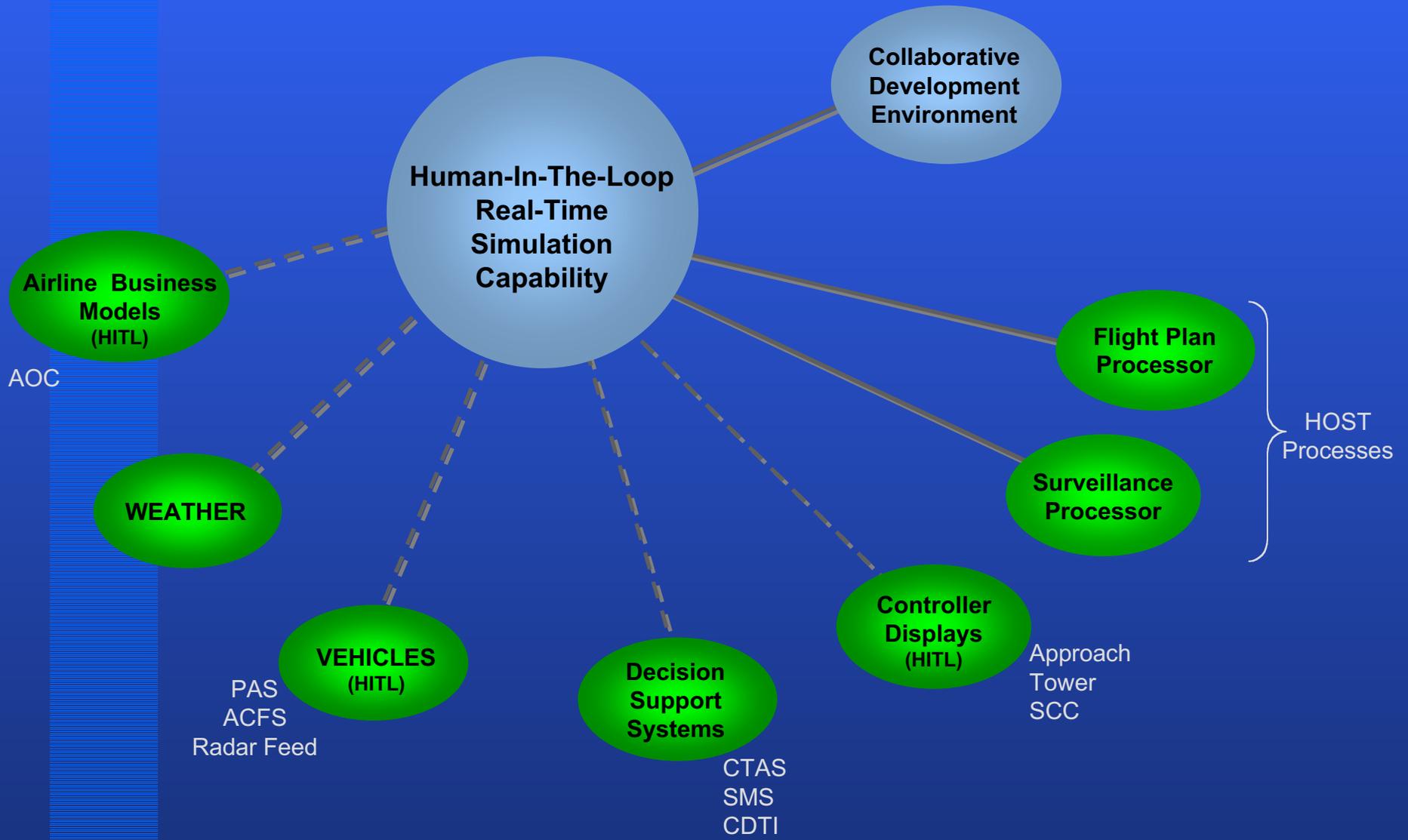


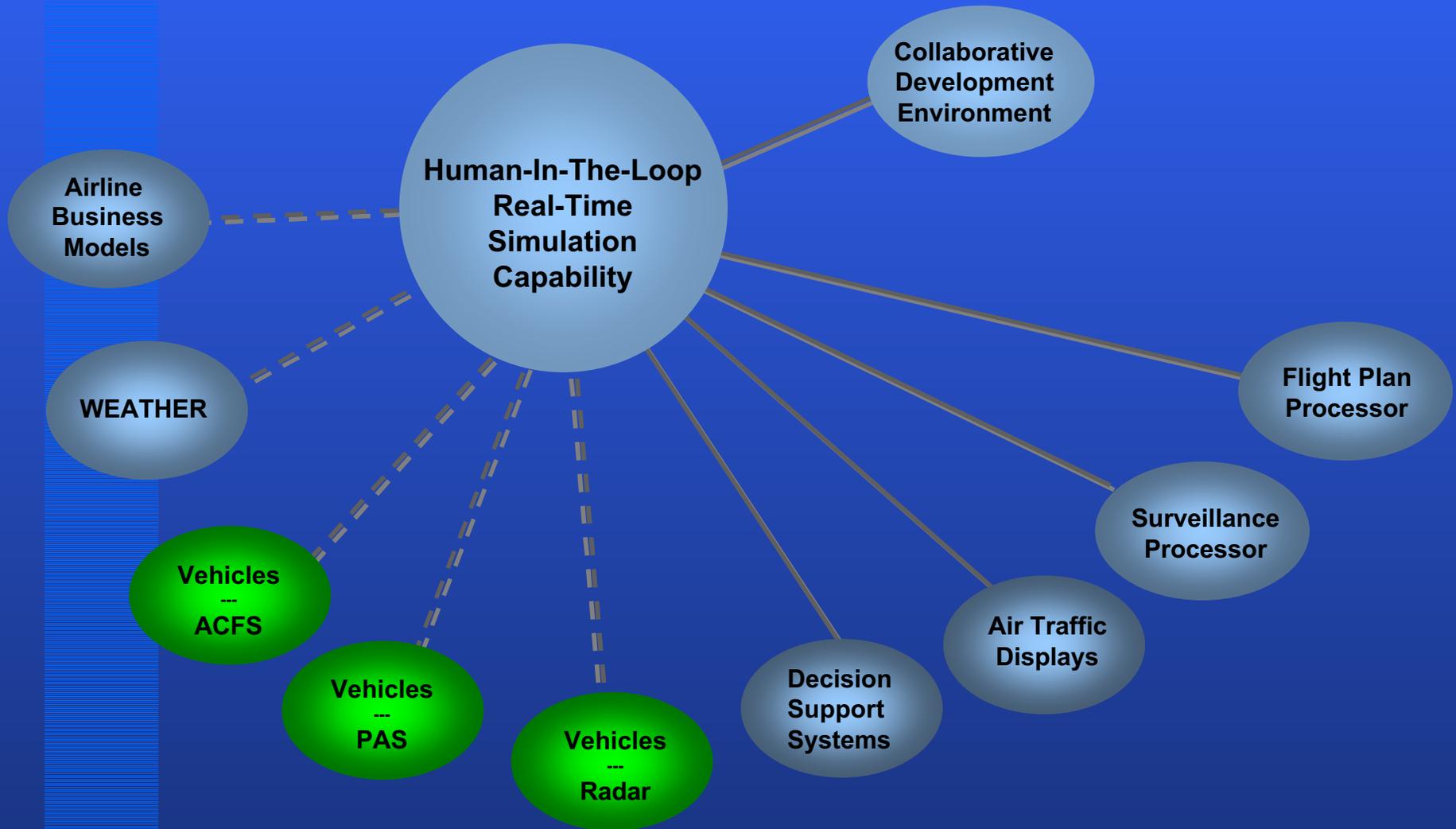


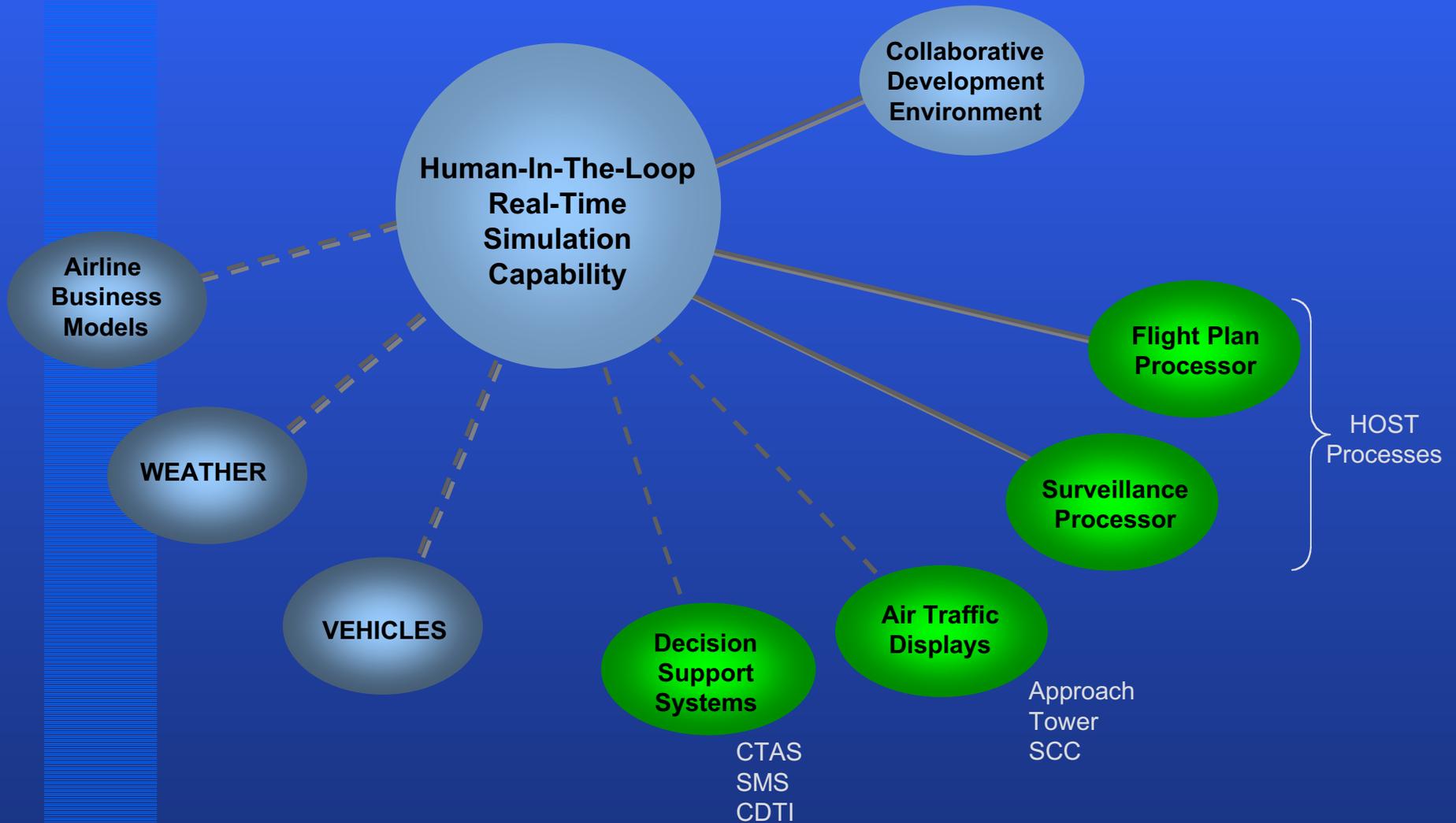


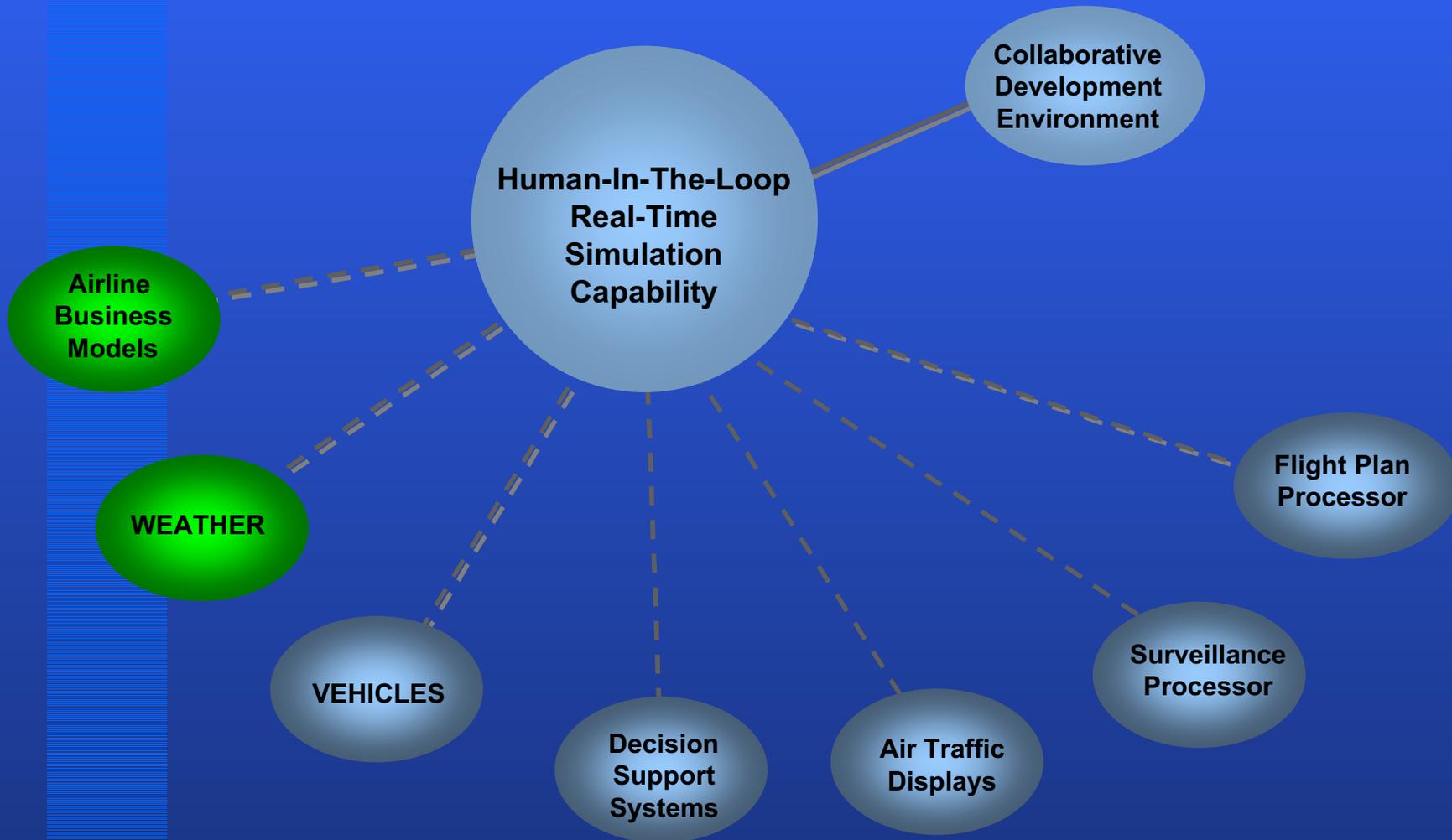
VAST Real-Time Simulation Models



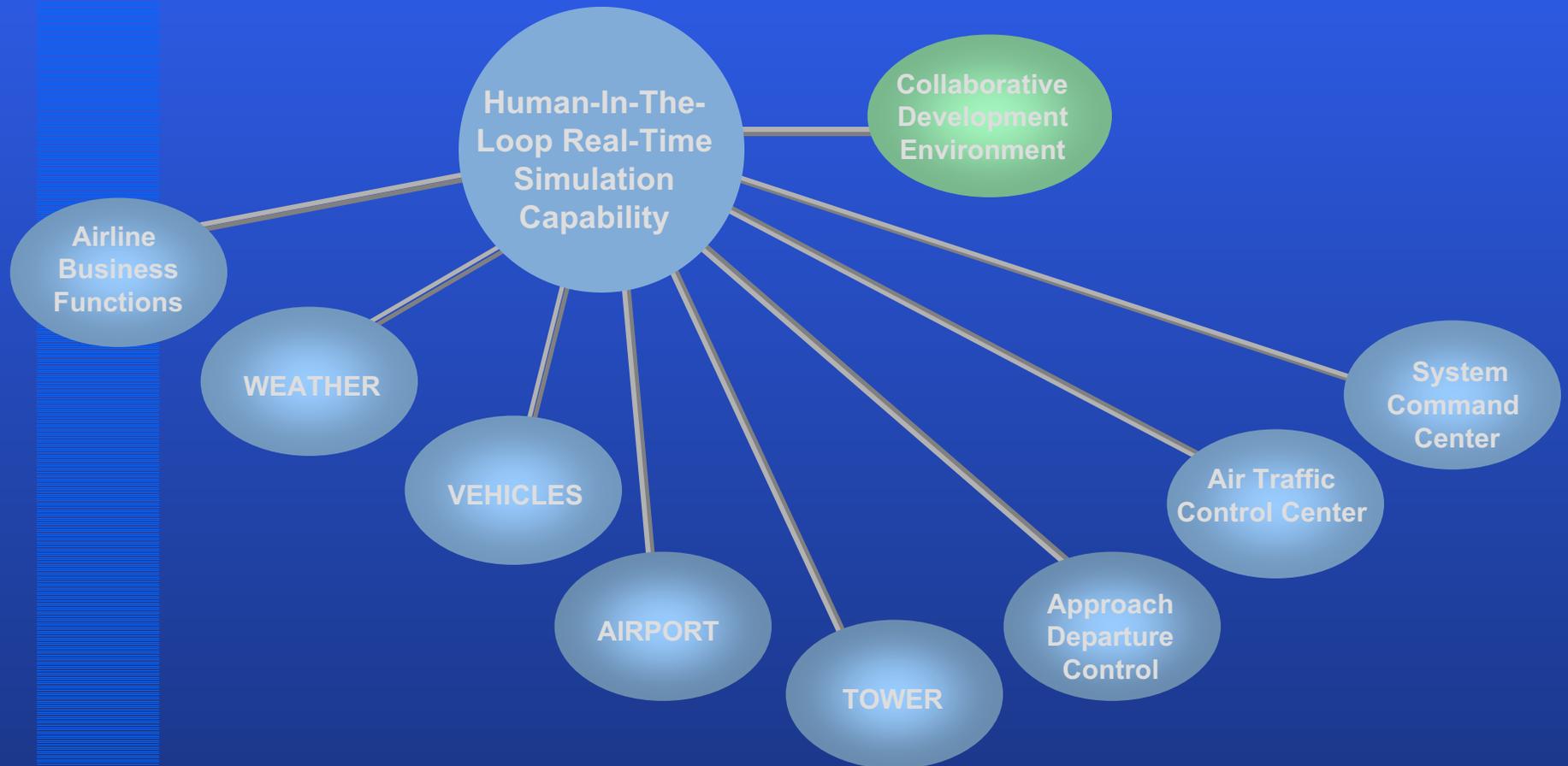


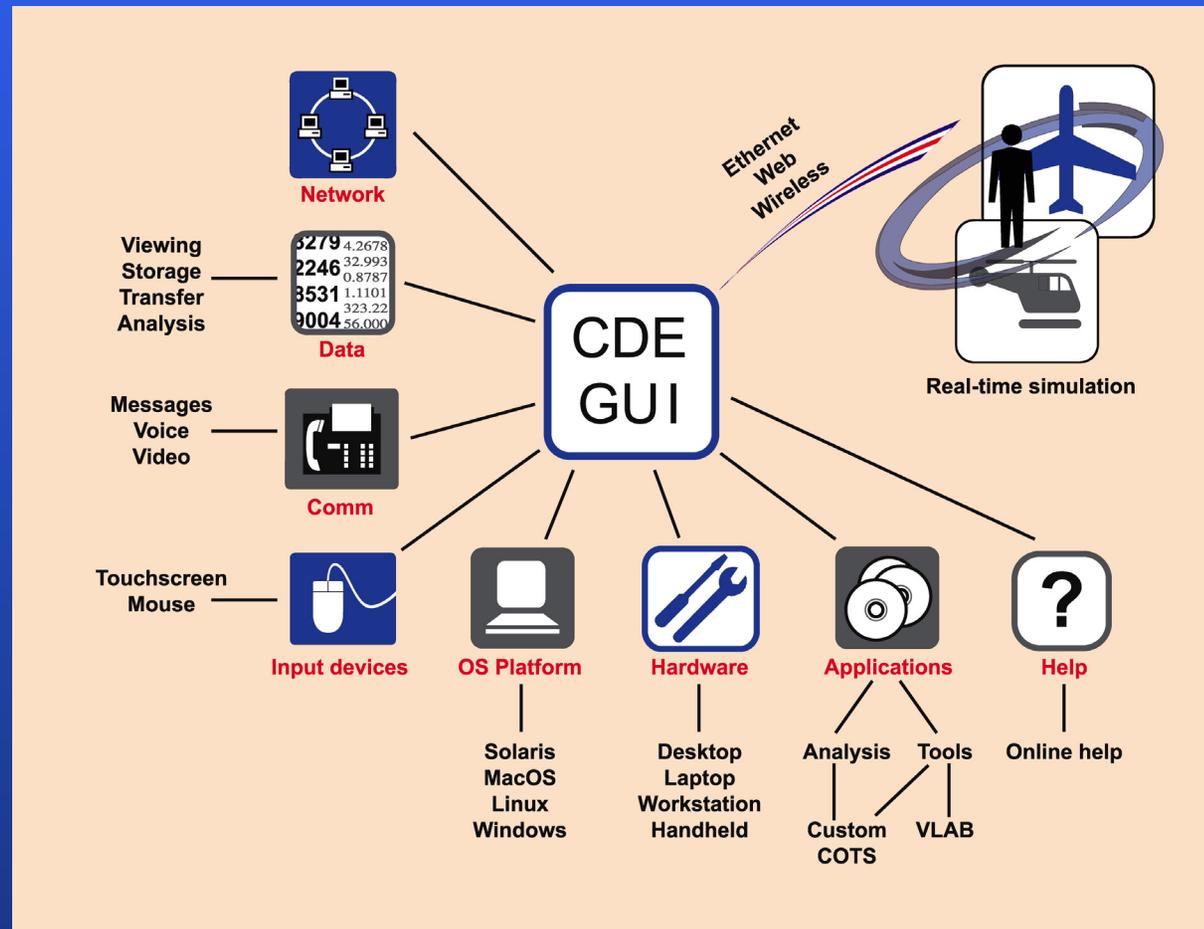






VAST Real-Time
Collaborative Development
Environment





VAST-RT Distributed Simulation

