# Execution Support for HLA-based Distributed Interactive Simulations

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## HLA

+ used for building interactive simulations
+ connects geographically distributed nodes
+ time management (for time- and even-driven simulations
+ data management (tuple space)

- no mechanisms for managing execution according to the dynamically changing conditions of computing resources.
- no implementation with dynamic discovery

## GRID

+ designed to coordinate resources that are not subject to centralized control
+ uses standard, open, general-purpose protocols and interfaces
+ Web Services concept of abstract interfaces allows for modular design (OGSA)

general approach, so no support for interaction

Conclusion: we need **support** for execution of HLA-based **distributed interactive** simulations in **unreliable Grid** environment
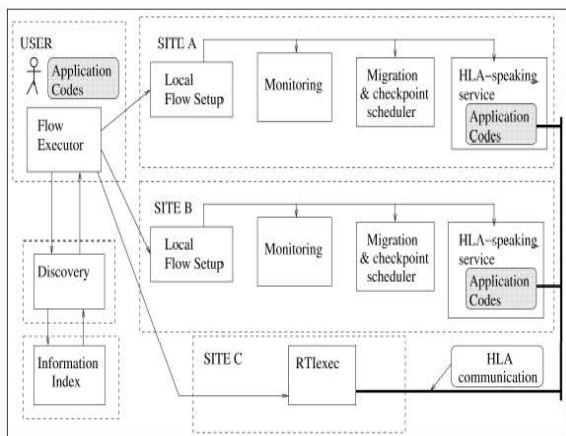


- Flow Executor for setting up a federation HLA-speaking Service for managing federate
- Discovery and Information for finding HLA-speaking services
- Monitoring tool for checking runtime environment of HLA service
- Migration Scheduler to make migration decisions
- Local Flow Setup to setup Migration Scheduler, HLA Service and Monitoring Tool

| HLA–speaking GridService layer | |
| --- | --- |
| User Code layer | ML library layer |
| HLA save /restore API | |
| HLA Bus | |

**Migration Library (ML)** contains functions to:
- ✓ start up and connect to RTI API classes
- ✓ check if external (MS) save/restore request came
- ✓ check if internal (RTI) save/restore request came
- ✓ save/restore user values