

RAM Pathways Foundation™

High Performance, Interoperability, Composability

Introducing RAM Pathways Foundation™

The RAM Pathways Foundation™ is a set of next generation software frameworks and library components for delivering high-speed communication and scalable computational performance to applications running in parallel and distributed cluster-computing environments. The RAM Pathways Foundation™ focuses on three main objectives in providing the software developer with an object-oriented toolbox that addresses the challenges presented by today's network-oriented applications community. These objectives are:

- High Performance
- Interoperability
- Composability

The result is a solid software foundation that combines state-of-the-art distributed event processing with high-speed network and shared memory communications. This foundation helps applications deliver scalable performance across heterogeneous computer platforms and network architectures, while simplifying the effort needed to construct advanced distributed and service-oriented applications.

Major Features

- High Speed Communications over networks and shared memory architectures
- Distributed Object-oriented Client-Server framework
- HiGrids multi-dimensional content comparators and filters
- Distributed Publish-Subscribe Data Distribution framework
- Multi-Replication Computing framework
- Coordinate System and Motion Algorithm libraries
- Utility and Container Libraries

Communications

- Supports shared memory and networked communications
- Startup and terminate functions to launch multiple processes that execute in parallel
- Asynchronous message passing with support for unicast, multicast, and broadcast services
- Coordinated message passing with support for unicast, multicast, and broadcast services
- Remote method invocation on distributed objects
- Robust client/server communications infrastructure with dynamic connectivity and fault tolerance
- Integrated support for big and little endian data types

HiGrids Multi-Dimensional Content Filters

- Primitive data types (int, double, boolean)
- String data types
- Complex data types (geo-position)
- Persistent and one-shot filters
- XML input and output handlers

Publish-Subscribe Data Distribution Networks

- Decentralized distributed data servers
- Policy-based multi-hop message routing
- Dynamic fault-tolerant node and link reconfigurations

Multi-Replication Computing Framework

- Automatic distribution of tasks to available processors using combination of time and space multiplexing
- Data-flow application patterns
- Dynamic load balancing
- Interfaces for use in Service Oriented Architectures

Support Utilities

- Motion utilities to support parameterized motion types (e.g., great circle, rhumbline, elliptical orbit, extrapolation, spline, polynomial, etc.)
- Coordinate system transformations (ECR, ECI, round earth, and ellipsoidal WGS84)
- Motion utilities to compute when moving targets enter and exit a specified range

