HLA 4 – The Best HLA version Ever

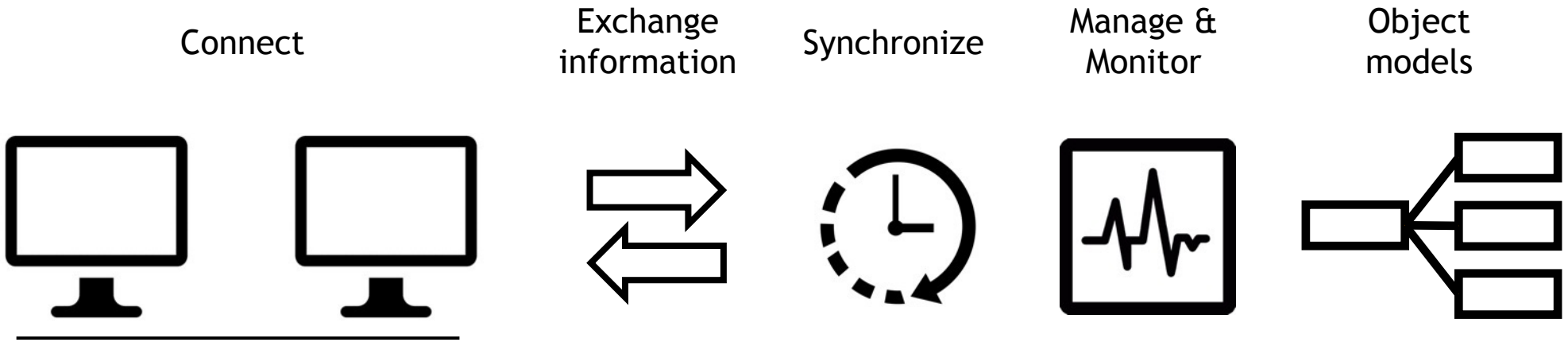
Fredrik Antelius

Head of Products, Pitch Technologies

Selecting a Simulation Infrastructure

- Open standards simplify collaboration — technically, commercially, and politically
- Supports an ecosystem of tools, components, and models
- Designed for ease of use by simulation developers, integrators, and operators
- Enables long-term availability and vendor neutrality
- Allows independent updates of individual components
- Enable reuse and extension of legacy systems
- Supports essential security and compliance requirements

Overview of HLA Capabilities



- Connect simulations across different hosts
- Services to exchange information using publish-subscribe and filtering
- Services to synchronize startup, execution and simulation time
- Services to manage and monitor the running simulations
- Support for object models for different domains

HLA 4 – A strong Foundation for Interoperability

- Latest HLA version from 2025
- Builds on a HLA's modular, extensible architecture
  - Backward compatible with earlier versions
- Enhances reuse, deployment, and extensions of simulation systems
  - Federate Protocol & Extended Object Model merge

Merging Revolution

- Builds on the modular structure from earlier versions
  - Add attributes to existing object classes
  - Add parameters to existing interactions
  - Attach additional dimensions to attributes and interactions
- Simplify adaptation and extension of reference models
- Maintain backward compatibility
- Enhance reuse and composition

Deploy Anywhere

- Ready for cloud, hybrid, and in-field environments
  - Not just classrooms and labs
- Federate Protocol uses a client-server model
  - Like online games and web apps
  - Container-friendly for modern deployment
- Resumable connections for operation at the edge of connectivity
  - Message history can be resent when needed

Scalable by Design

- Directed Interactions to send a message to a specific entity
  - Reduced load on receiving simulators
  - Reduced network load
- Improved interest management for more robust and practical data filtering
- Leverages cloud and hybrid resources
  - Compute, storage, and networking
- Scales from small, standalone setups to large, multi-site federations

Security in HLA 4

- Federate Authentication
  - Restricts access to federations based on simulator credentials
  - Fine-grained control over participation in sensitive simulations
  - No changes to object models or infrastructure
- Secure Federate Protocol
  - Support for TLS 1.3 and Secure WebSocket
  - Secure and authenticated communication without added complexity
  - Inspectable protocol for transparency and compliance
  - Available as a RTI independent, stable, open-source client library

Quality of Life

- Modern C++11 and Java 11 APIs
- Support for more programming languages
- Improved object model with reference types
- Native support for unsigned integers
- Simplified connection setup
- Sensible defaults for all switches minimizes configuration

PiTCH

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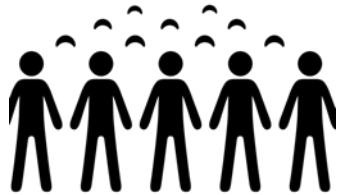
Secure

Proven



Scalable

- 25+ years of operational experience
- Proven in large multinational exercises
- Modernized for cloud, edge, and hybrid environments
- Enhanced security, interoperability and developer experience
- Seamless migration support for legacy systems

Leader in Standards-Based
Distributed Simulation Solutions