Achieving training system interoperability

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Fredrik Antelius

- Head of Products, Pitch Technologies
  - M.Sc. in Computer Science & Engineering
- Over 20 years of experience in the modeling and simulation industry
  - Active member of SISO's Standard Activity Committee (SAC) and multiple standard development groups
  - Trained hundreds of students in distributed simulation and HLA
- Developed COTS products for DIS & HLA
  - Extensive experience with DDS, TENA, ZeroMQ and various other simulation infrastructures

Achieving training system interoperability

- Most training systems are not *interoperable by design*
  - They often fail to share necessary information with other systems
  - Simulated entities from external systems may have reduced capabilities
    - For example, remote entities lack radar tracks or don't deploy the landing gear
  - It's not the simulation infrastructure!
- A coherent synthetic environment (SE) requires simulators that effectively support both local and remote entities
  - It's the system architecture!
  - Avoid monolithic simulators that attempt to simulate all aspects of the SE
  - Use smaller, modular components that are responsible for simulating a specific aspect

Selecting simulation infrastructure

- Open Standard
  - Simplify collaboration–technically, commercially and politically
- Ecosystem of components, models and tools
- Ease of use for developers, integrators and operators
- Life cycle support
  - Update individual components
- Leverage and reuse legacy systems
- Support critical security needs
- Capabilities
  - Expressive and extensible data model
  - Rich set of standard data models
  - Interest management and scalability
  - Support interoperability by design

High Level Architecture (HLA) Benefits

Secure

Secure authentication

Secure transportation

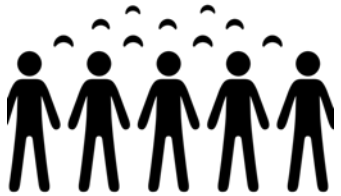
Cross-domain security

Proven

Viking, the largest CiMiC exercise

UK Royal Air Force

Down-selected by NASA



Scalable

Millions of entities

Hundreds of systems

<0.1 ms latency