

# SimulateWorld™

## Secure Model Driven Synthetic Environment

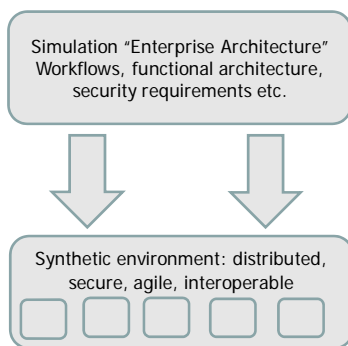
### Rapid prototyping & simulation

SimulateWorld™ is a 4D (3D + time) virtual reality simulation and rapid prototyping synthetic environment for secure information sharing.

### Architecture driven IT: Aligning IT and business

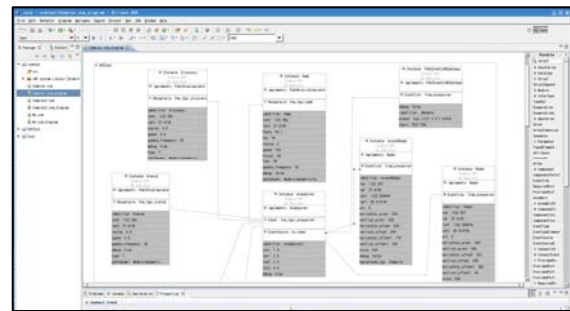
SimulateWorld is based on ObjectSecurity's general vision of aligning business and IT. In today's complex world, IT is an integral business concern and business enabler. Tangible agility, control, cost-savings, and return-on-investment can only be achieved if the business stays in control of the architecture and its requirements. SimulateWorld supports this vision by allowing the business to impact the architecture and its requirements through intuitive, technology-neutral graphical models, which are then mostly automatically mapped onto COTS

IT infrastructure. This way, the architecture enables agility on the more transient IT "plumbing" layer where COTS products should be flexibly replaceable.



### Rapid model-driven configuration

One of the main differentiators with other simulation products is that SimulateWorld is "model-driven". This innovative approach this means that both system configurations and security policy configurations can be defined in intuitive, standards-based graphical models:

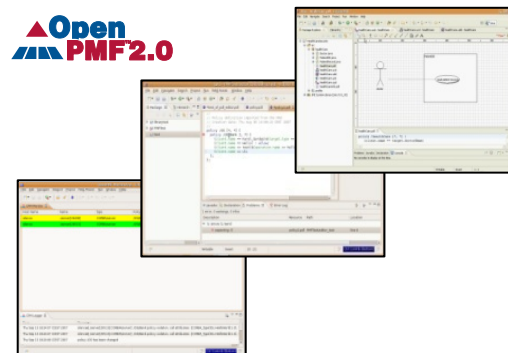


SimulateWorld™ system model definition example

SimulateWorld can be flexibly deployed on most runtime infrastructure, including ObjectSecurity's SecureMiddleware CCM middleware, Web services, and HLA. Numerous COTS an open source technologies are available.

### Model driven security management

SimulateWorld also includes highly innovative support for "model driven security" through ObjectSecurity's OpenPMF technology. OpenPMF lets you define intuitive security requirements, which are then automatically transformed into fine-grained information flow security policies. These policies are automatically enforced across the entire synthetic environments IT infrastructure at runtime, and compliance can easily be demonstrated in the central monitoring console.



## Why simulate?

**Safe prototyping and testing** Prototype and test secure information integration prototypes before they get deployed in the real world. For example disasters such as aircraft crashes and their crisis management can be visually simulated. Once the secure information integration infrastructure meets the requirements of all involved parties, it can easily be “unplugged” from the simulator and “plugged” into the real sensors.

**Getting stakeholder buy-in** It is critical to get stakeholder buy-in for secure information sharing, especially when several agencies are involved. Stakeholders can see and test the functionality information sharing system and fine-tune it to maximise the benefits. The strong security of the underlying SecureMiddleware, OpenPMF, ObjectWall bundle allows stakeholders to participate in the simulation without jeopardising their information assets or the operational safety of their real-world systems. It is most useful in homeland security, air transportation, and defence where many stakeholders can be involved information integration is often also a political challenge.

## Use case – rapid prototyping to simulation to deployment

One of its intended uses is the demonstration of secure information integration prototypes before they get deployed in the real world. Stakeholders, artefacts, sensors and actuators can be integrated with secure middleware technologies in the same way the real world is integrated. Various virtual sensor types are available, such as radars and vehicle positions, and other sensor types can be flexibly added as plug-ins. Furthermore, objects in the simulation world can be remote-controlled manually or automatically via the same consistent component-based middleware approach to allow the simulation of human behaviour, events, and sensors.

## Simulate secure information sharing

Improved information sharing across a distributed IT environment has many benefits:

- ▶ Your organisation can be optimised because rich information flows are faster, maybe even in real-time.
- ▶ New and better services can be offered because information is available in real-time from many more sources.
- ▶ Your organisation has better ‘situational awareness’ and can react quicker to uncontrollable external factors (e.g. backlog).
- ▶ User safety can be improved because of better information and faster response times (e.g. transportation)
- ▶ Collaboration and ‘collaborative decision making’ are enabled through good information sharing

## Many organisations benefit

Many industries benefit from simulating secure information sharing, including:

- ▶ Transportation (air traffic control SWIM, airport CDM, intelligent surface transport systems)
- ▶ Homeland security (counter-terrorism, people protection)
- ▶ Defence (C4ISR, CDM)
- ▶ Logistics, courier
- ▶ Manufacturing
- ▶ Utilities, telecoms etc.

## No security, no information sharing

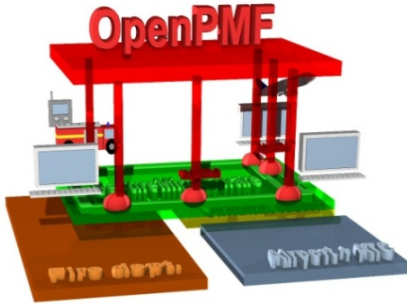
Information security plays a big role in information sharing because of the value of the information itself, and because of the increased dependence on the correct and timely information.

Because responsibilities for certain business functions are normally clearly assigned, there is often an initial resistance to basing decisions on information provided by other sources that are perceived to be obtained in a less trustworthy manner.

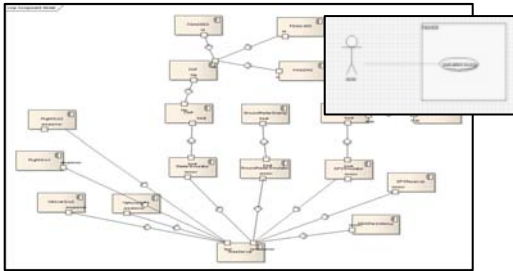
Good security can mitigate this problem.

## SimulateWorld™

SimulateWorld can for example be used to simulate multi-stakeholder collaborative decision making, e.g. in air transportation as depicted in this diagram:



The following kinds of models specify the deployment and the security policy:



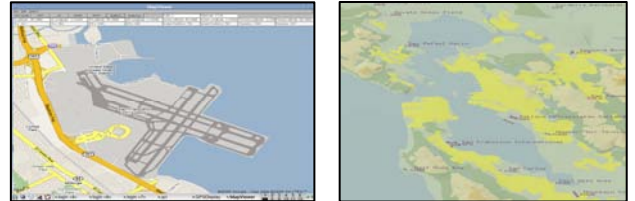
The system can then be deployed together with the generated security policies with the click of a button:



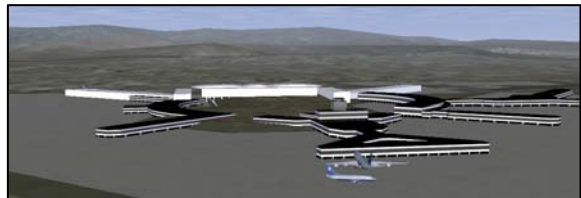
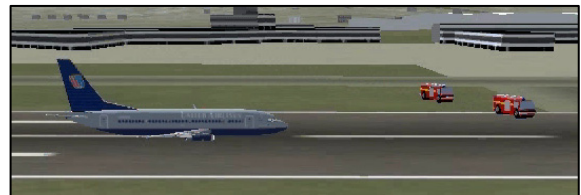
The next screenshot shows the SimulateWorld 4D virtual reality environment (based on FlightGear, an open source flight simulator) from the perspective of a stationary aircraft – fully remote-controlled via SecureMiddleware, and with virtual radar and GPS sensors.



The following screenshots show the GPS position viewer prototype (based on virtual and real GPS) and the radar (based on the virtual aircraft radar plug-in) – each deployed on different computers, integrated seamlessly using SecureMiddleware. Additional sensors are available as add-ons.



You can manually fly aircraft like in an off-the-shelf flight simulator, while all sensors will automatically generate the same data as in the real world (e.g. position data).



An important feature of the SimulateWorld architecture is that these sensor feeds can easily be replaced by the real sensor when the prototyped and agreed information integration architecture is ready to be deployed in the real-world.

To learn more and get started, we invite you to talk with us about the solution that works for your needs and environment.

Please contact us at: [info@objectsecurity.com](mailto:info@objectsecurity.com).

[www.simulateworld.com](http://www.simulateworld.com)