

# 3D Simulation for Air Traffic Management

## Advanced simulation and visualization technologies to help design and build the Next-Generation ATM System

### NextGen ATM System

The U.S. Federal Aviation Administration is embarking on an ambitious project to upgrade the nation's air traffic management (ATM) systems. Each team under the FAA Systems Engineering 2020 (SE2020) IDIQ will need an integrated, distributed modeling and simulation environment to try out their new systems and concepts. The major aircraft manufacturers will need to upgrade their aircraft engineering simulators to model the new ATM environment. The avionics manufacturers need to test out their equipment in a realistic synthetic environment.

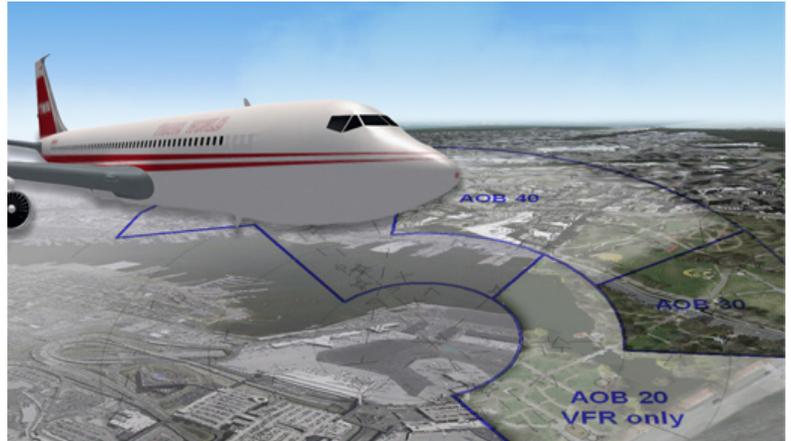
### VT MÄK is in a Unique Position

MÄK can help your company in this process. Many players in the aviation space already use MÄK products for simulation, visualization, and interoperability. For the ATM community we can offer:

- **Simulation Integration and Interoperability** – The US has standardized on the High Level Architecture (HLA) for simulation interoperability and the MÄK Run Time Infrastructure (MÄK RTI) is already in use as a core part of the AviationSimNet. The FAA and NASA Langley have also chosen the MÄK RTI to network together their Air Traffic Management simulations.  
MÄK provides distributed simulation interoperability services over and above HLA expertise, including streaming terrain (VR-TheWorld), networking middleware (VR-Link), gateways to operational systems (VR-Exchange), and simulation debugging and monitoring (HLA Traffic Analyzer).
- **Visualization** – VR-Vantage, MÄK's Visualization line of applications and tools, is used to create 2D and 3D representations of the airspace from the big picture down to ground operations on an individual airport.  
MÄK's VR-Vantage toolkit is being used at the FAA Tech Center for Human Factors studies and MÄK's VR-TheWorld Server is being used as a source of streaming terrain and map data by the Tech Center's Target Generation Facility.
- **Simulation** – VR-Forces, MÄK's simulation scenario generator, is used to develop specific models for non-commercial aviation entities such as UAVs, emergency aircraft, rogue aircraft, people on the ground, ground vehicles, etc. In addition, as an open toolkit, VR-Forces may well be preferred in many labs over the closed ATC simulators.

### About VT MÄK

Based in Cambridge, Massachusetts, VT MÄK has been helping customers deliver compelling 3D simulation environments for over 20 years. We are best known in the aerospace and defense industry, where thousands of clients worldwide, including the world's ten largest defense contractors, use MÄK's products and services. However, our capabilities have been used in applications as diverse as homeland security, commercial aviation, air traffic management, emergency response, and civilian space programs.



MÄK saves our customers time and effort, and reduces risk by applying our distributed simulation expertise and suite of tools to ATM simulation. We provide cost effective, open solutions to help our customers build ATM visualization and simulation systems for:

- Concept Exploration and Validation
- Radar and Control Tower Training
- Human-Machine Interface Research
- System Design, Integration and Test
- Technology Performance Assessment

