SAFE CLOUDS – DISTRIBUTED INFRASTRUCTURE FOR DATA ANALYSIS IN AVIATION

The constantly growing volume of traffic poses major challenges for aviation security organisations, airports and airlines to guarantee the highest possible level of safety. Large amounts of data from various sources such as flight data recorders and radar stations are already being recorded and evaluated.

The EU project SafeClouds aims to bring together existing and new data sources in a Europe-wide infrastructure and then efficiently evaluate them using machine learning methods; the aim is to significantly improve air traffic management. A broad consortium consisting of airlines, aviation safety organisations and authorities as well as research institutions is therefore involved in the project.

Data exchange with GPI-Space

In CC High Performance Computing, we are building a multi-tier hybrid cloud infrastructure based on Amazon AWS. Our GPI-Space software is available for parallel data processing. The focus is on data and failure safety as well as easy scalability in terms of number of users, memory and computing power.

The data of the following scenarios are analyzed as an example:

- Unstable approach: A predefined range for various parameters such as altitude, speed, sink rate etc. is not maintained and can lead to a hard landing, landing abort or similar.
- Off-road safety warnings: The specified minimum amount was not reached due to geographical conditions.
- AIRPROX (Aircraft Proximity Hazard): Safety has been compromised by the minimum distance between aircraft being undercut.

The runways are also considered: the aim is, of course, their optimum capacity utilisation; in doing so, the exits to the terminals must also be taken into account while maintaining the minimum safety distances.