Background

The limitations of existing air traffic management capacity to handle increasing air traffic raised questions on how to maintain current safety levels without reducing sector sizes manageable to maintain workloads for each ATCO. Hence, the concept of sectorless airspace is introduced.

Objective:

To study the feasibility of the implementation of a Sectorless Airspace.

Approach

- This concept proposes that one controller be responsible for a limited number of aircrafts, from departure to arrival terminal areas.
- This leads to less handovers, no frequent changes and reduces coordination required.
- To achieve this, a transition solution from sectored to sectorless airspace is proposed: SuperSector.
- SuperSector, which is a collection of smaller sectors, would be used to test the feasibility of handling large volume of traffic in an airspace by a team of controllers.

A number of simulations were conducted to test the effectiveness of the transitional solution of Supersector.

Results and Discussion

Key findings:

- SuperSector seems beneficial for absorbing more traffic without sacrificing controller performance.
- SuperSectors have resulted in a more efficient prioritising of workloads as the event horizon was larger, allowing for a bird’s eye view of the situation.

Conclusion:

The concept of Sectorless Airspace is now in its nascent etages. The transitional solution of SuperSectors provides much insight and results are encouraging. Sectorless Airspace offers a promising alternative to airspace control which cuts down on restrictive rules and regulations.