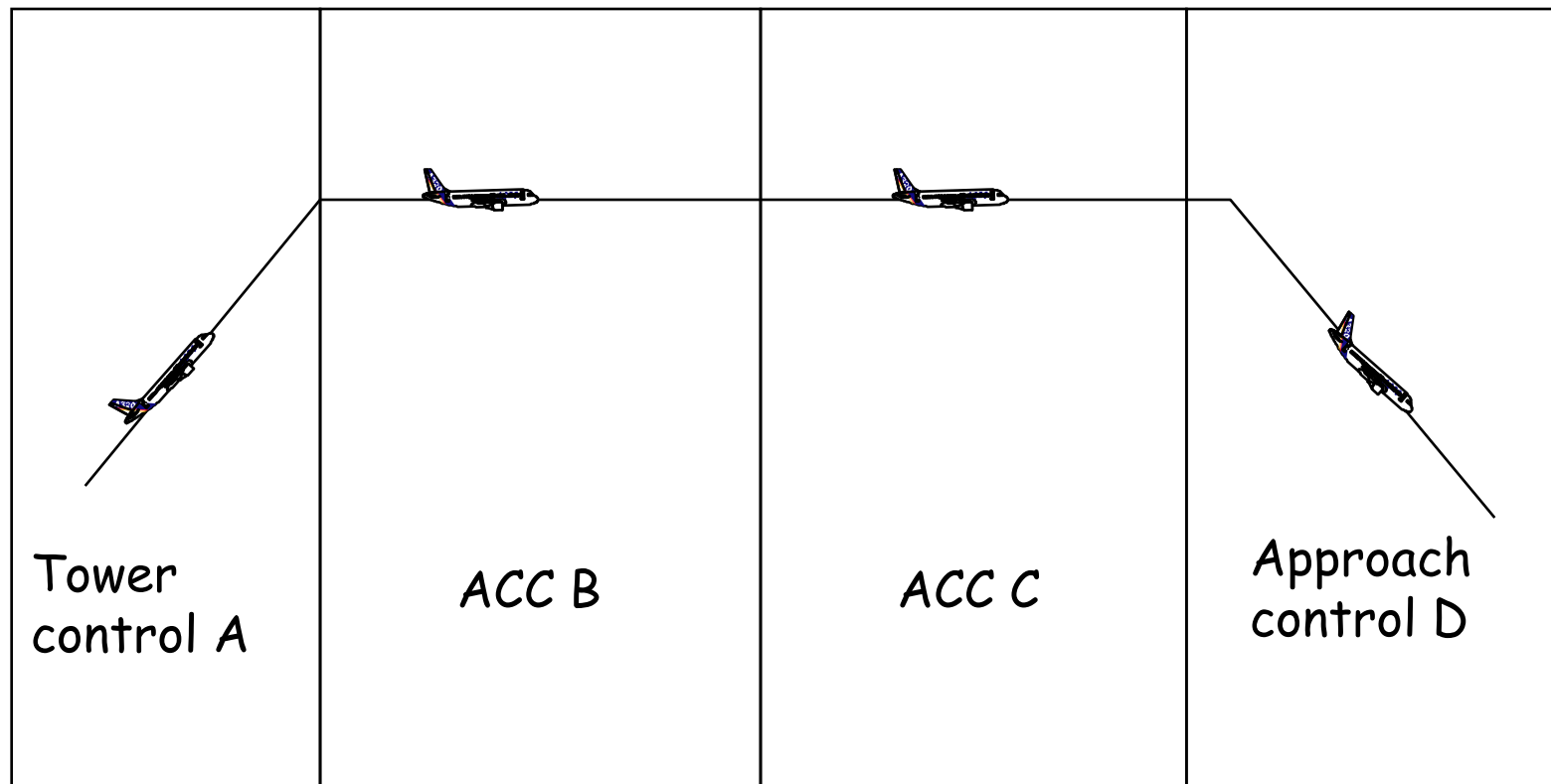


Security and Dependability Perspectives in ATM

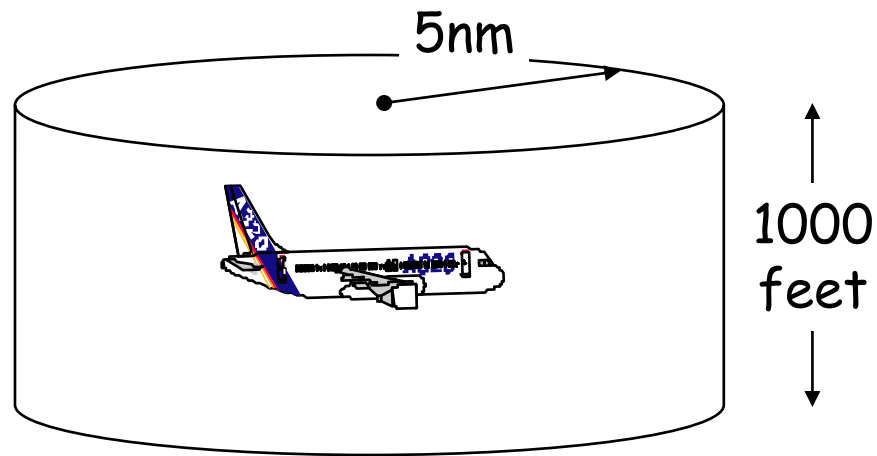
Forward Workshop
Goteborg, 17-18 April 2009

A few words about ATM - I

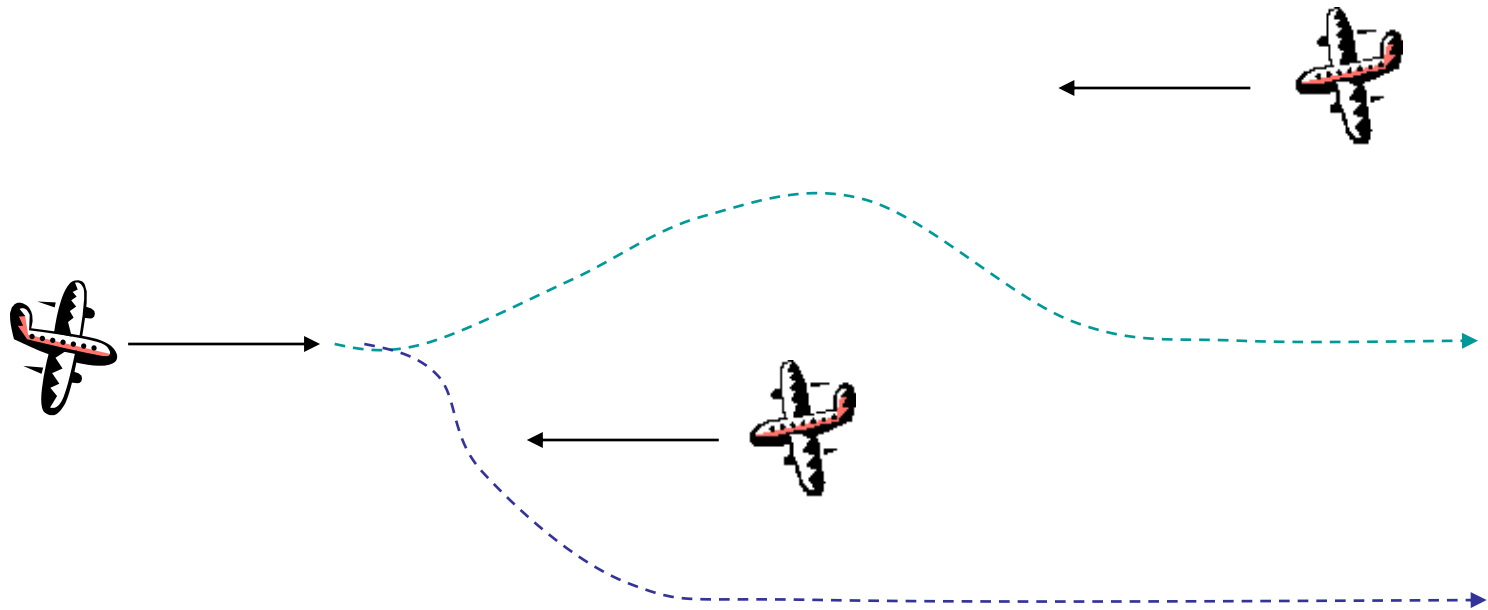
Assistance for the whole duration of the flight



Separation between aircraft



Optimisation of the problem



Air Traffic Control Functions

Air Traffic Management (ATM) is a set of services provided by ground-based Air Traffic Controllers to ensure:

- separation between aircrafts, preventing them from coming too close to each other horizontally and vertically
- flow of traffic, providing information to the pilots (routes to waypoints, weather conditions, etc.)



The human role in ATM

Predominant Human Role (and responsibility), supported by well structured rules and procedures, graphic presentation tools, conflict detection tools

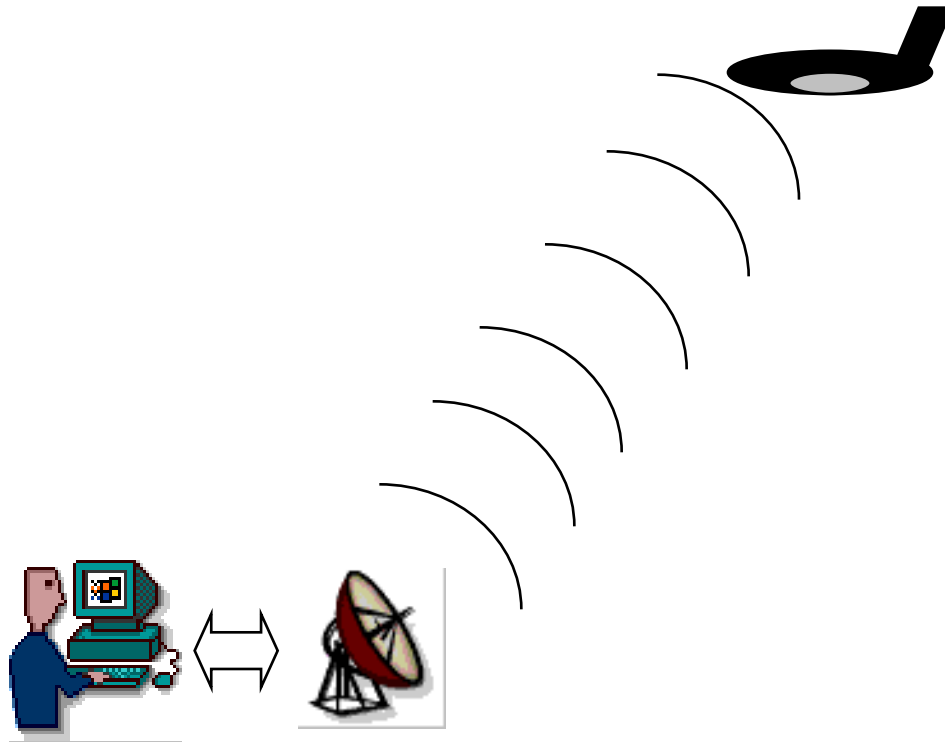


Resilience in ATM

- Limited interaction with external world (data provided by radars serving a local community of controllers)
- Human at the centre of the decision process, with limited role of automated system
- Current safety problems mainly due to human errors, air-ground communication problems and degradation of technical and human services combined with adverse atmospheric conditions
- Limited security problems (in ATM only)



Challenges of the future – The current system

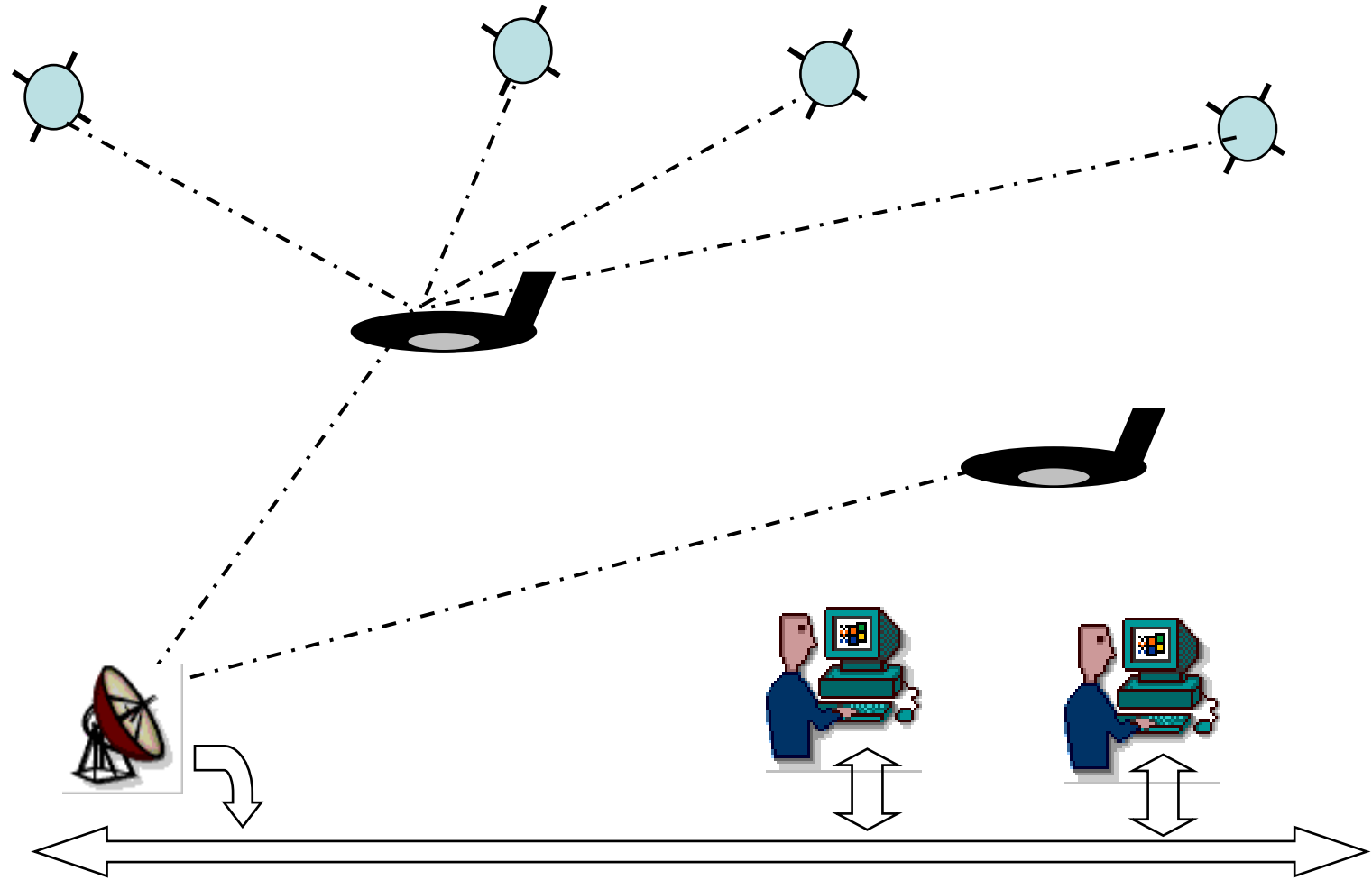


Challenges of the future – The future system - I

- Increase in automation to face growing capacity demand
- Increase in data exchange between aircraft and ground and between ground centres, due to new systems, equipments and ATM strategies
- New centralised air traffic control centres serving large European regions (Single Sky initiative)



Challenges of the future – The future system - II



Challenges of the future – An example

The image shows a screenshot of the Kinetic Avionic Products website. The header features the company logo and name: "KINETIC AVIONIC PRODUCTS INNOVATION FOR AVIATION". A navigation menu includes links for Home, Products, Solutions, Support, How to Buy, About Us, and Contact Us. The main content area is titled "SBS-1 Real-time Virtual Radar" and includes a large image of the device. To the right, there is a "Basestation" section with the text "Explore the SBS-1 application" and a small image of a computer monitor displaying radar data. Below the main title, there is a "product spec" section with a download icon and the text "Download the SBS-1 Product Specification* in PDF Format. E&OE." A "Support" section offers "Support Information for your SBS-1" with a link. A "how to buy" section says "Find your nearest SBS-1 dealer here" with a link. A "need more info?" section says "Contact us with your query and we'll be happy to help". On the left side, there is a sidebar with "SBS-1" navigation links: "sbs-1 overview", "key features", "application areas", "hardware interfaces", "whats included", "related links", "what is mode-s?", "accessories", and "basestation". The main text area contains the following content:

[home](#) > [products](#) > [receivers](#) > [sbs-1](#)

SBS-1

Real-time Virtual Radar

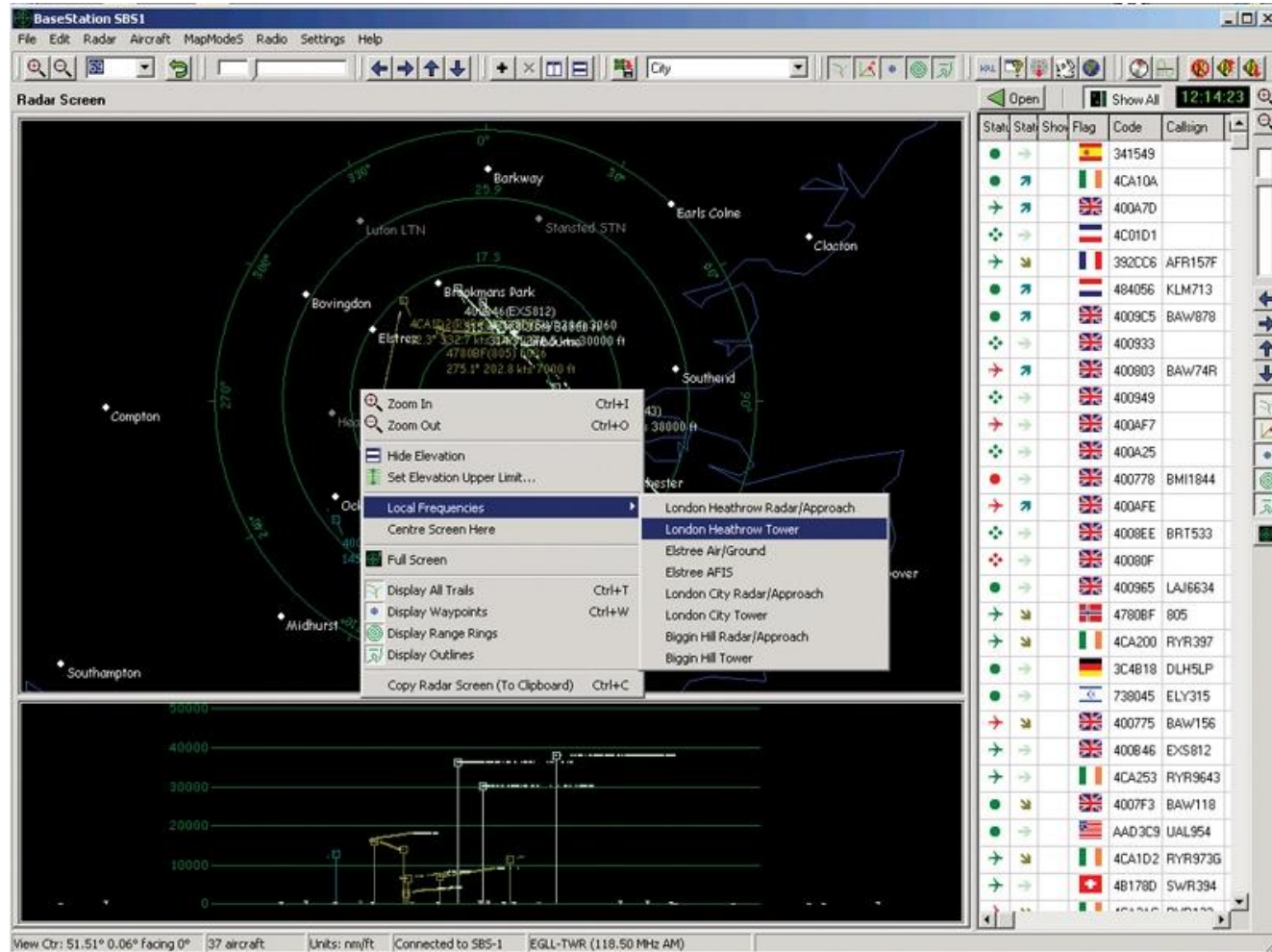
Combining state-of-the art electronics and new technological advances has enabled Kinetic Avionic Products Limited to produce the revolutionary SBS-1.



The SBS-1 is a portable low-cost Mode-S/ADS-B Receiving Station designed for training and the aviation enthusiast. It is supplied complete with antenna and Basestation Virtual Radar software. The SBS-1 allows you to



Challenges of the future – An example



Challenges of the future – The problem

- Intrinsic vulnerability due to both dependability and security problems
- Problems evidenced at the Best Practice workshop of the ReSIST NoE
- Limited awareness of problem and possible solutions between Providers of Air Traffic Services



However (and to conclude)

Dont' be too worried for your flight back:
To fly is (still) 10 to 100 times safer than
changing a light bulb of your roof chandelier

