

This year's problem (1/6)

“A communication system for “Avancez Cruises”

Imagine that you have finished your master's education at Chalmers successfully and now start a job as a consultant in the area of Satellite Communications.

You are contacted by the shipping company "Avancez cruises" to develop a company-internal satellite communication system for their fleet of cruise liners which operate between Europe, the Caribbean and around South America, and around Africa (see Fig. 1).

This year's problem (2/6)

Avancez cruises operates a fleet of >10 ships.

Each ship should be able to communicate with the company's headquarter in Göteborg, independent from its current position on the cruise network.

Each of the ship should also be able to communicate with the other ships operating on the cruise route network.

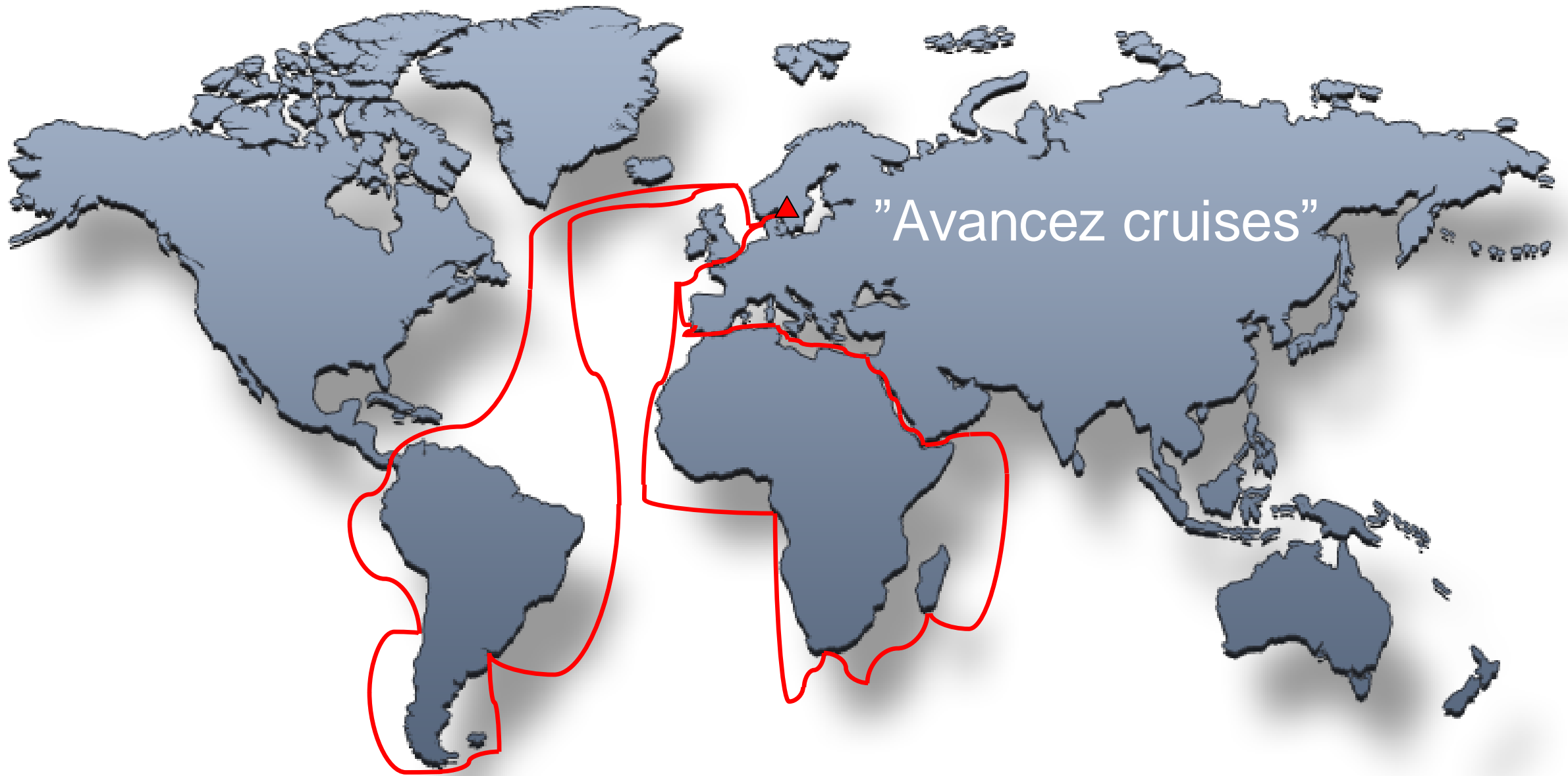


Fig. 1 Example of "Avancez cruises" possible route lines.

This year's problem (4/6)

Each ship should provide basic internet service for their guests as well as for the on-board staff. Note: "Avancez cruises" operates in the high-price market and their ships have usually less than 500 passengers (incl. staff).

The headquarter should be able to send information such as weather charts and software updates to any of the ships.

This year's problem (5/6)

Your task is to design a complete satellite communications system for this purpose, assuming that all aspects of the infrastructure needed (e.g. launching of satellites and financial issues) have been taken care of already.

The system must meet the requirement of a very high availability. It must be duplex and the data transfer must be working for more than 99.999 % of the time, and allow high data rates (several Mbps).

This year's problem (6/6)

This (rather vague) problem is meant as a red thread to help you formulating your acquired knowledge on the application of satellites in communications.

Thus, you are encouraged especially to include simulations and a thorough discussion of your preferred approach as well as alternative solutions in your written examination report.

Make use of extensive discussions with your group members.

OBS: The examination reports are individual reports!