

## Project 7 – Aerocom system 2

An aero system is composed of  $N$  Aircrafts (ACs). Each AC communicate with a control tower (CT) generating one packet of fixed size every  $k$  seconds, where the latter is a random variable to be described later.

ACs have  $N$  data-link (DL) available for communication with the CT, and can use only one of them at a time as *serving DL*. Each DL has a time-varying capacity: every  $t$  seconds a new target capacity is selected and the capacity will linearly change from the current one to the target one, which is reached after  $t$  seconds.  $t$  is a random variable to be described later.

The system has two modes of operation:

- a) the AC keeps the same serving DL for the whole simulation;
- b) the AC constantly monitors the service time of DLs and before each transmission it selects the DL with the highest actual capacity. Monitoring DL service time gives a  $X\%$  malus to capacity.

Measure at least the response time for various values of  $X$  and  $S$  for both modes of operation, and compare the results.

At least the following two scenarios have to be evaluated:

- Exponential distribution of  $t$
- Lognormal distribution of  $t$

In all cases, it is up to the team to calibrate the scenarios so that meaningful results are obtained.

Project deliverables:

- d) Documentation (according to the standards set during the lectures)
- e) Simulator code
- f) Presentation (up to 10 slides maximum)