

## Communication channel availability

A mobile application can communicate using either 4G or WiFi. 4G connections, is available on the average 20 hours. When it goes down, it requires 2 hours to be established again. Similarly, WiFi is available on the average 3 hours, and requires 8 hours to be established again. To avoid software aging when both technologies are available, the mobile device resets them both every 100 hours, making them both unavailable for the corresponding time previously defined.

Assuming that all times follows the exponential distribution, and that the system starts in a state where both channels are available:

- Draw the Markov Chain of the model
- Compute the infinitesimal generator and solve the corresponding differential equations
- Show the probability of the various states for the time  $T = [0, 300]$  hours