

# Network storage

This example has 2 pumps that are connected by pipeline with a buffer in the middle:

pump 1 → buffer → pump 2.

The details are:

- the model has only 2 items, pump 1 and pump 2, they are mutually independent and both have:
  - maximum capacity 17 (ton/day)
  - exponential lifetime, with scale 0.001, that is MTTF = 8.766 (hour), 1/1000 of a year
  - exponential downtime, with MTTR = 8.766 (hour)
- the pipeline is modelled as a single edge, with infinite capacity and no downtime
- the buffer size corresponds to 1 period of average downtime at full production capacity, it equals  $1 * 17 * 8.766 = 149$  (ton/day hour)

The long-term average reliability of this simple network has a known exact solution, it's 3/8, see [Enginarlar\\_Li\\_Meerkov\\_buffer\\_2002.pdf](#).

The steps to run the ARTIS simulation of this network are:

- in your web browser:
  - visit [fifty-fifty.html](#)
- in the ARTIS user interface:
  - select the whole diagram (Ctrl + A)
  - open the run form (Ctrl + R)
  - hit OK
  - hit Submit, and wait until the results download is ready
- in your file browser:
  - find results.zip, in your default download location
  - extract it
  - open results.html

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