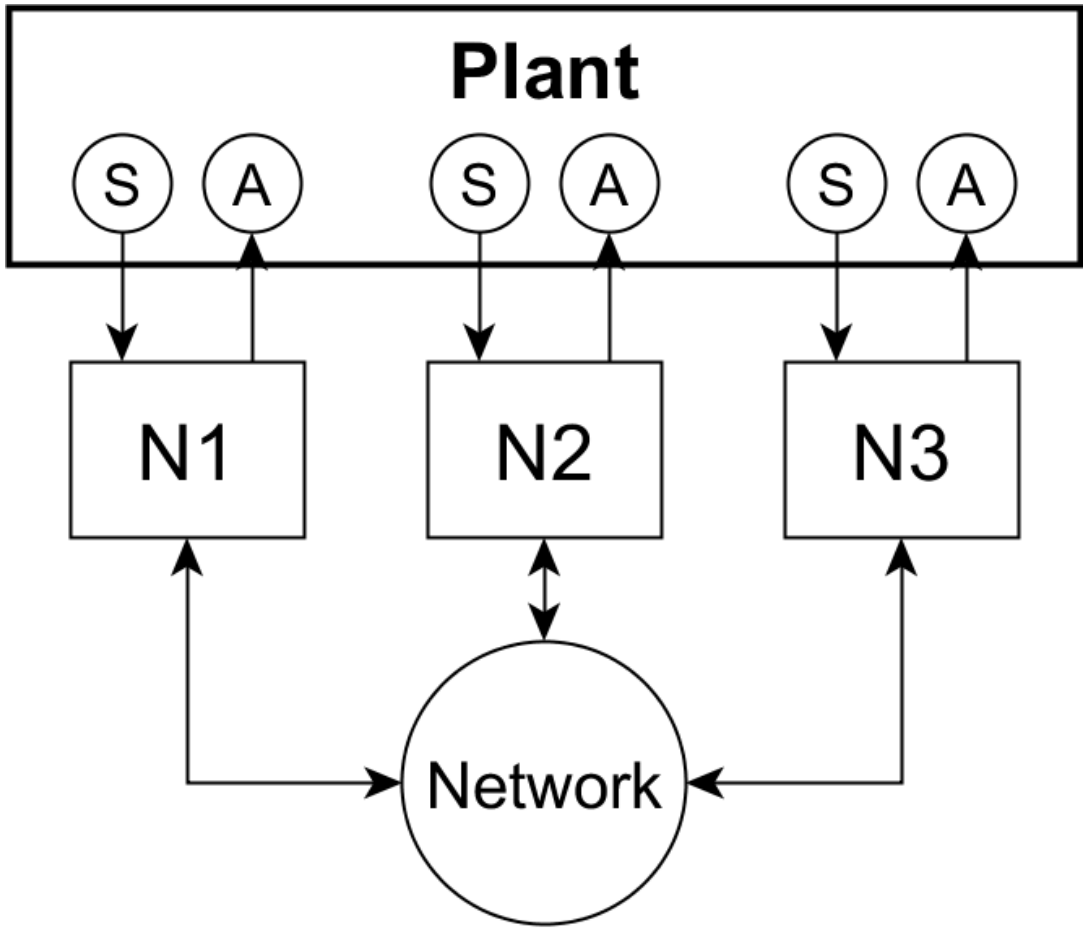
Replication of Nodes and Fault Tolerance in general on top of AVB/TSN

Dynamic Fault Tolerance for Flexible Time-Triggered
Kick-off Meeting

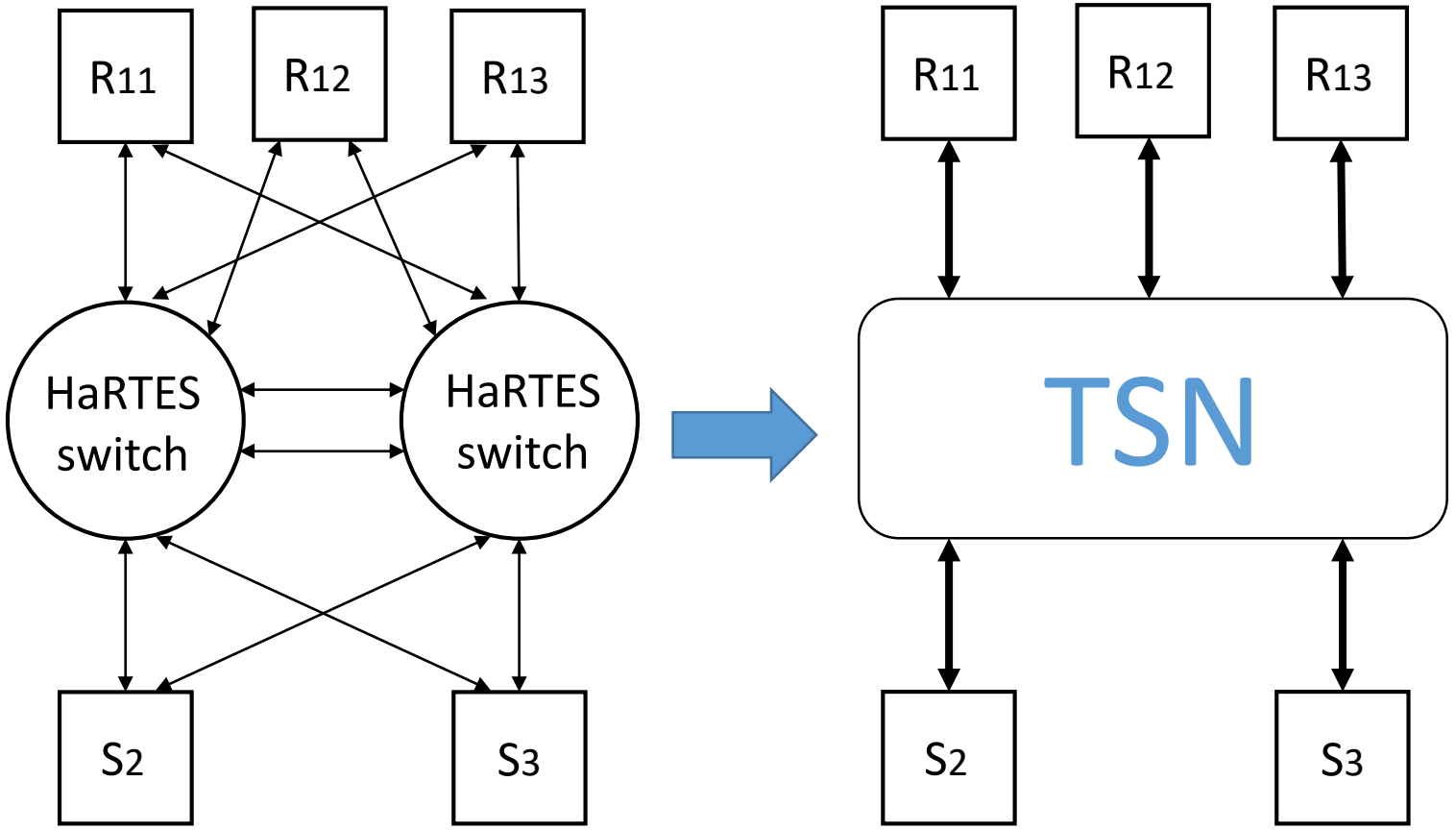
Inés Álvarez, Julián Proenza, David Gessner

Universitat de les Illes Balears

Problem Statement



Problem Statement



Objectives

- TSN is a set of technical standards to provide R-T and reliability services to the network based on Ethernet.
- Each standard describes a service that can be used.
  - Shortest path bridging discovery
  - Traffic policing and filtering
  - Timing and synchronization
  - Traffic shaper (time-aware, cyclic queuing and asynchronous)
  - Message prevention
  - QoS management services (SRP)
  - Path control and reservation for multiple paths
  - Replica radiation management

Analysis

We want to build the most reliable (possible) communication infrastructure based on TSN

To that we want to map services from FT4FTT to tolerate:

- Permanent faults in the communication channel
- Temporary faults in the communication channel
- Permanent faults in the nodes
- Temporary faults in the nodes

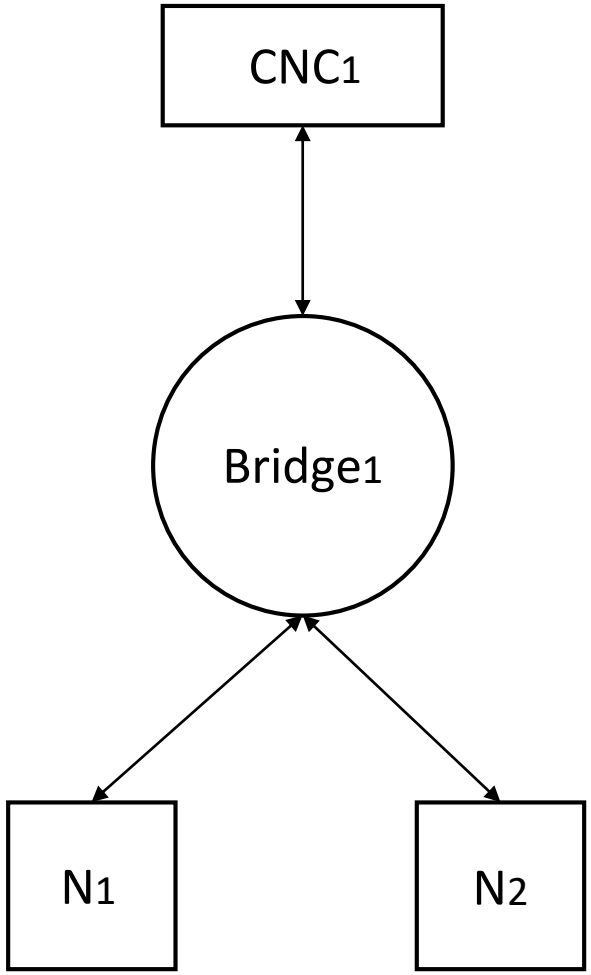
Analysis

We want to build the most reliable (possible) communication infrastructure based on TSN

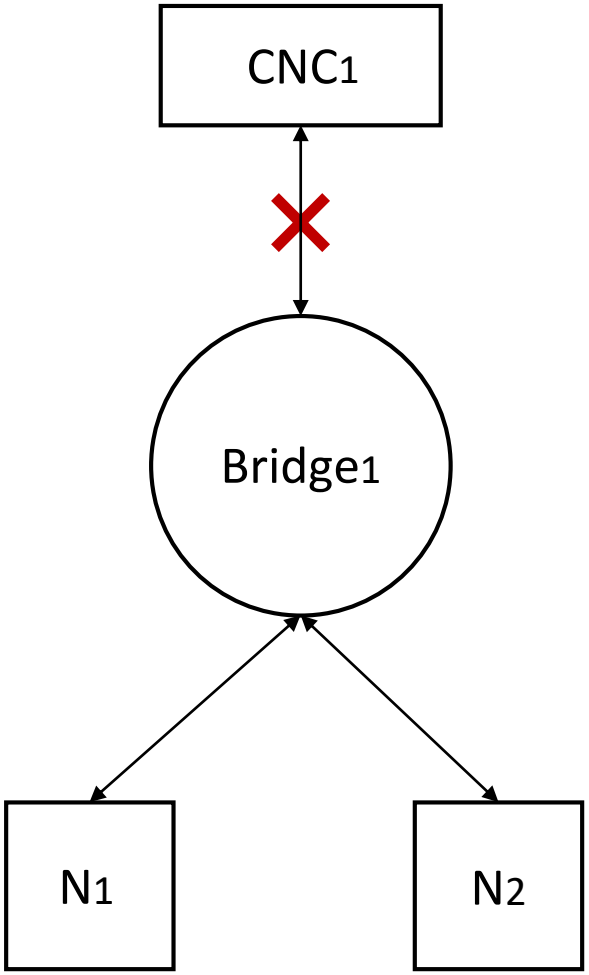
To that we want to map services from FT4FTT to tolerate:

- Permanent faults in the communication channel
- Temporary faults in the communication channel
- Permanent faults in the nodes
- Temporary faults in the nodes

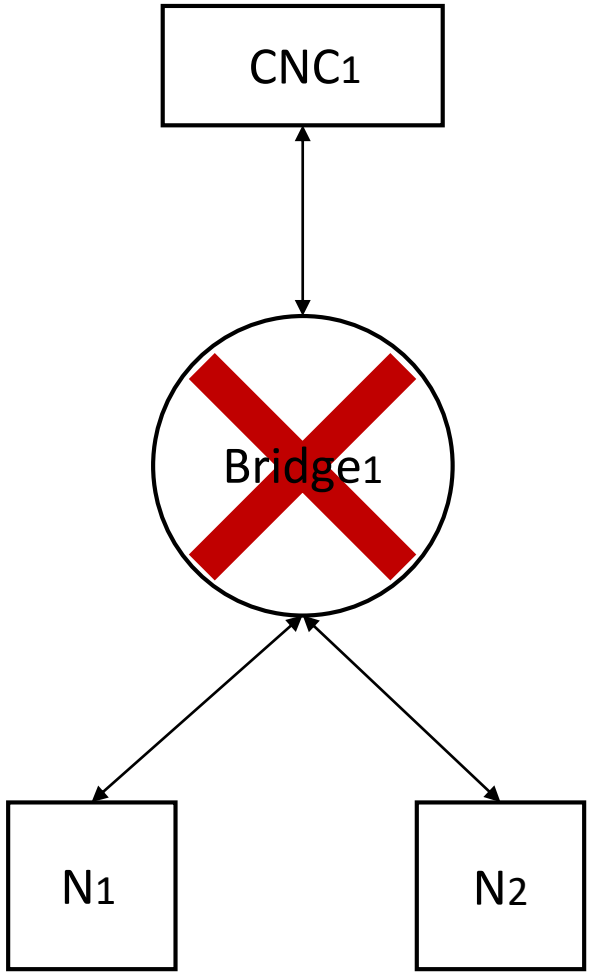
Permanent faults in the channel



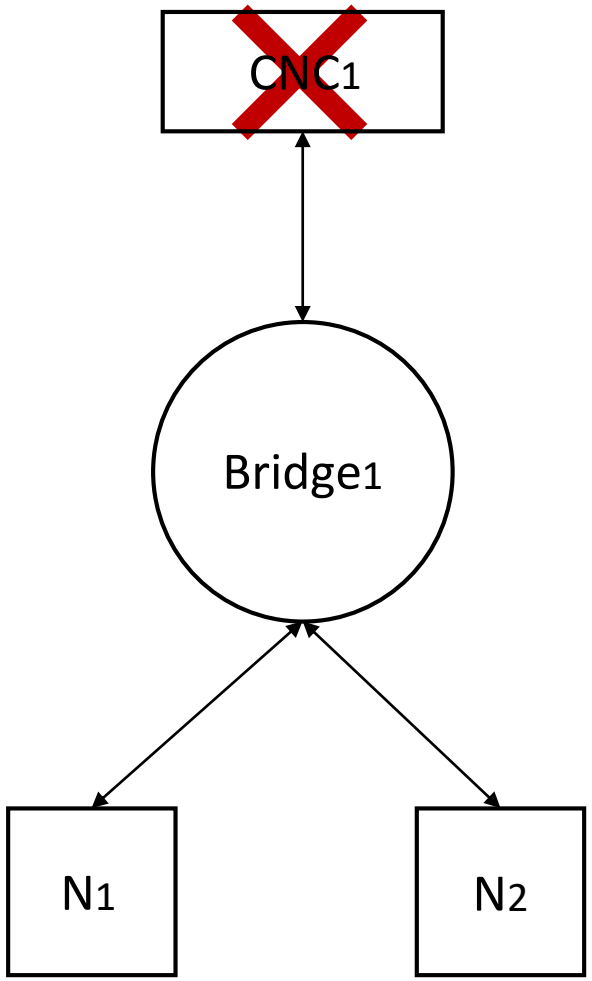
Permanent faults in the channel



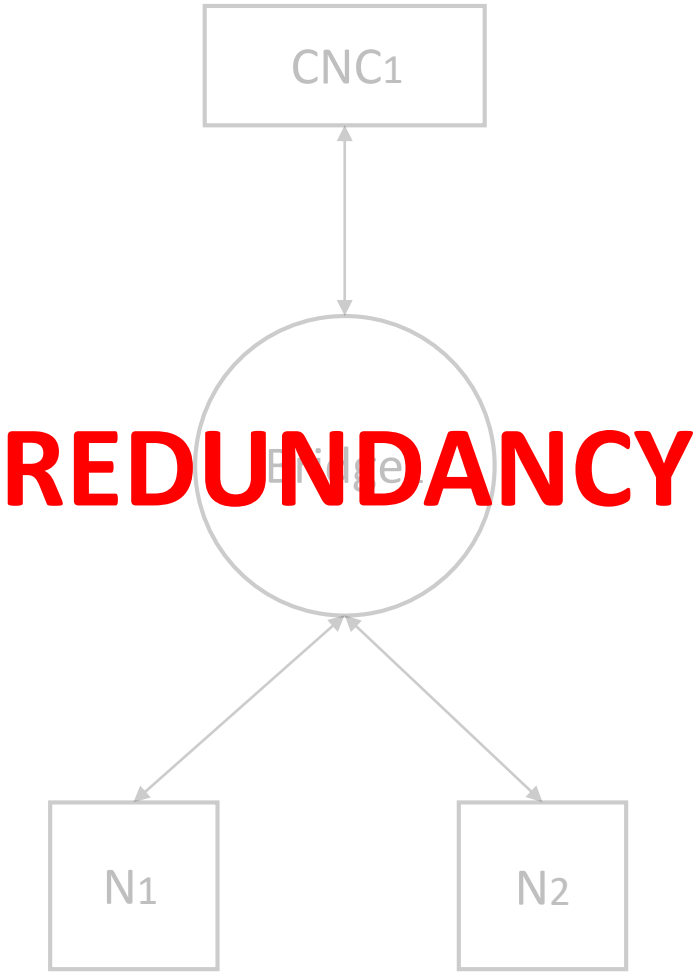
Permanent faults in the channel



Permanent faults in the channel

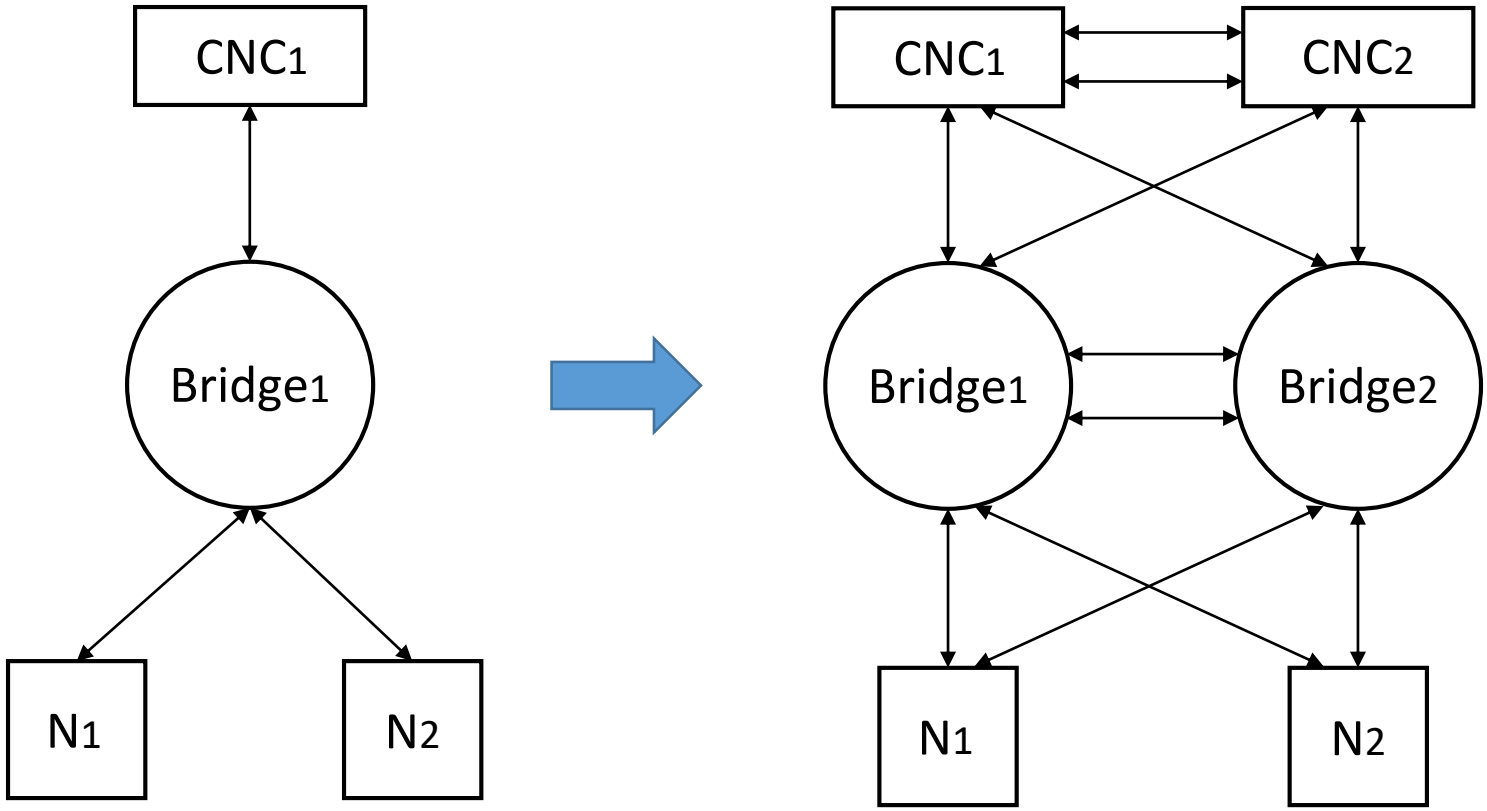


Permanent faults in the channel

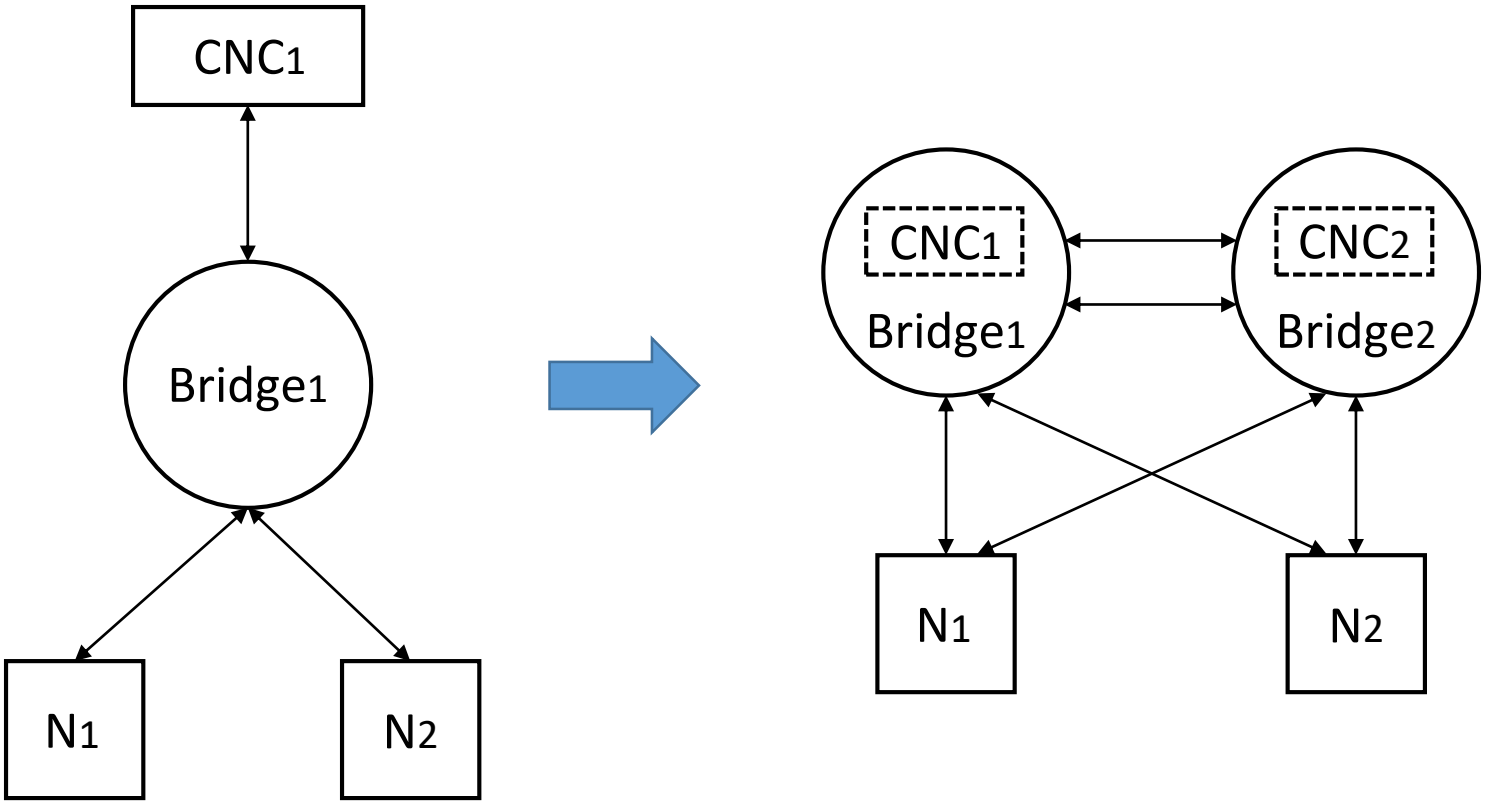


REDUNDANCY

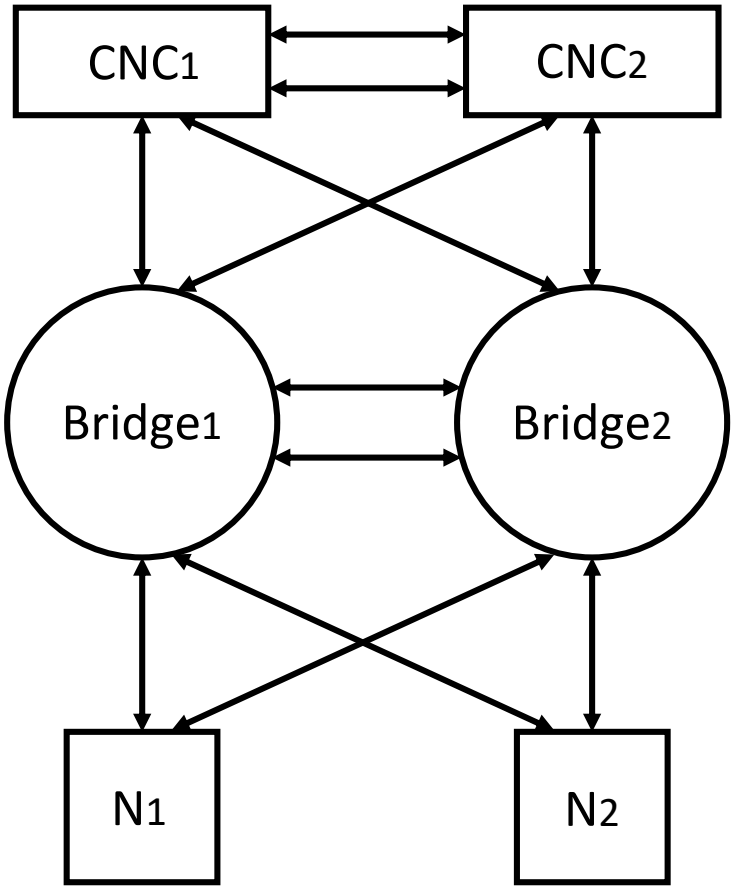
Permanent faults in the channel



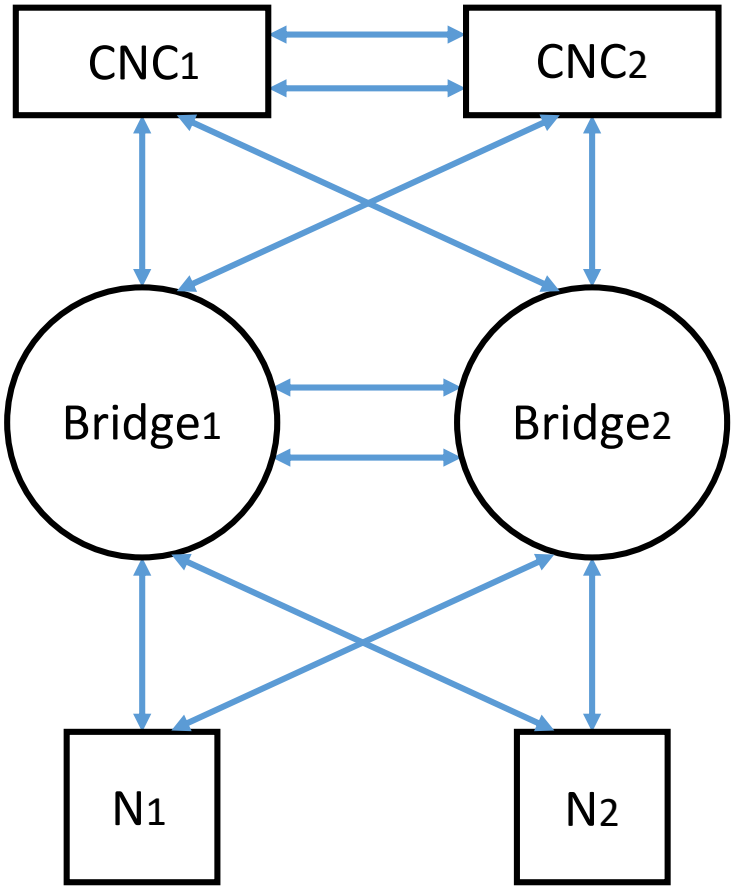
Permanent faults in the channel



Permanent faults in the channel

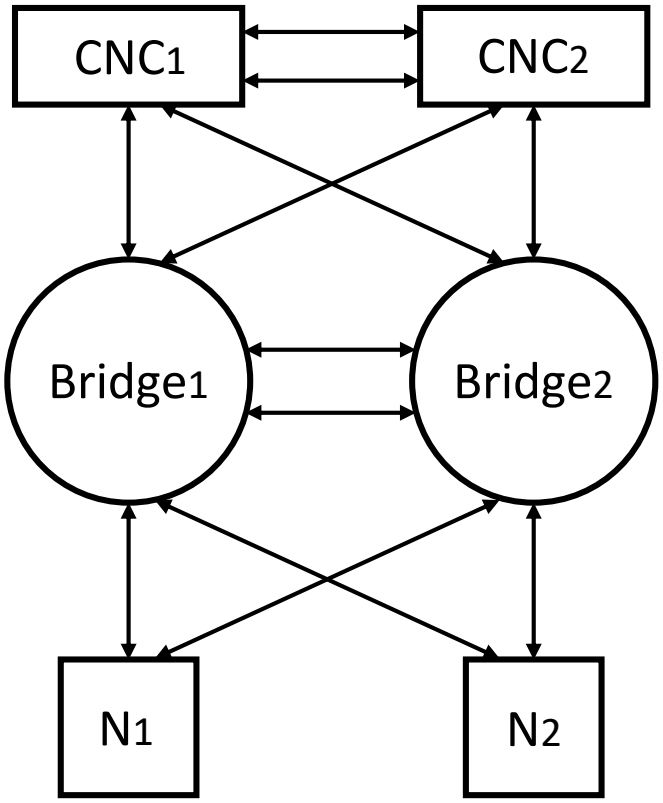


Permanent faults in the links



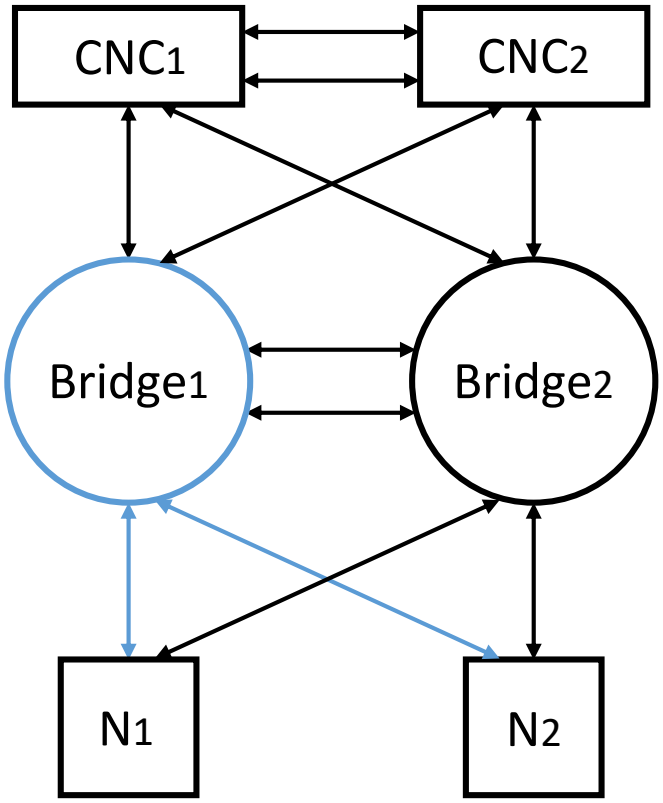
Permanent faults in the links

TSN right now



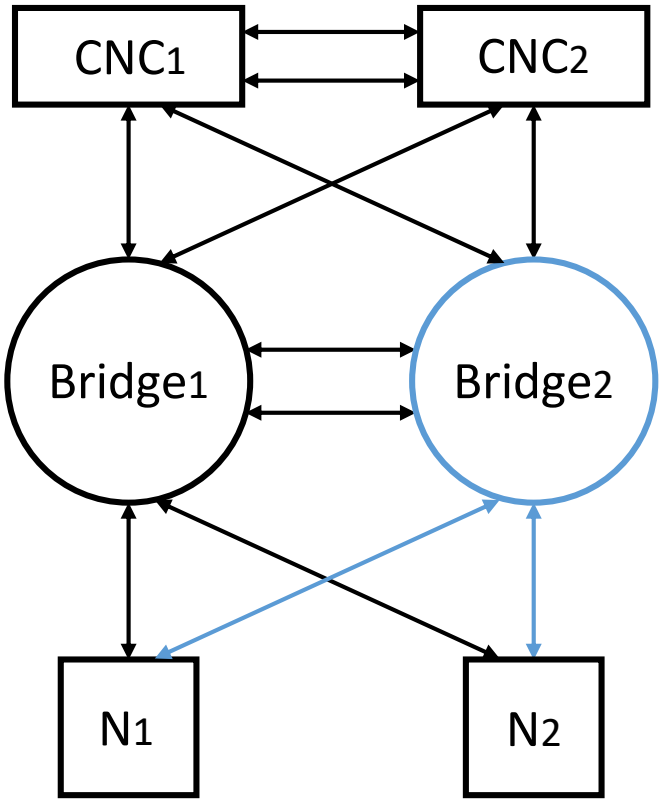
Permanent faults in the links

TSN right now



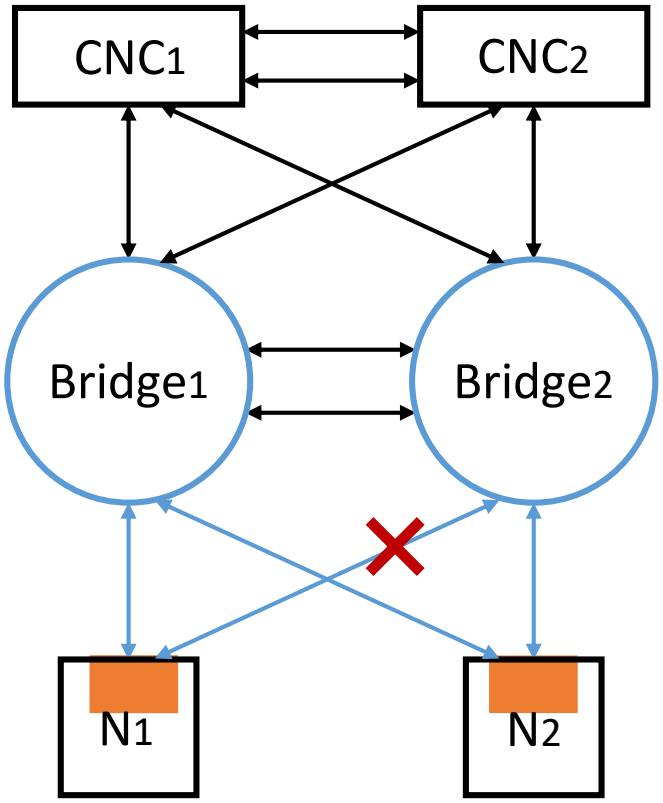
Permanent faults in the links

TSN right now



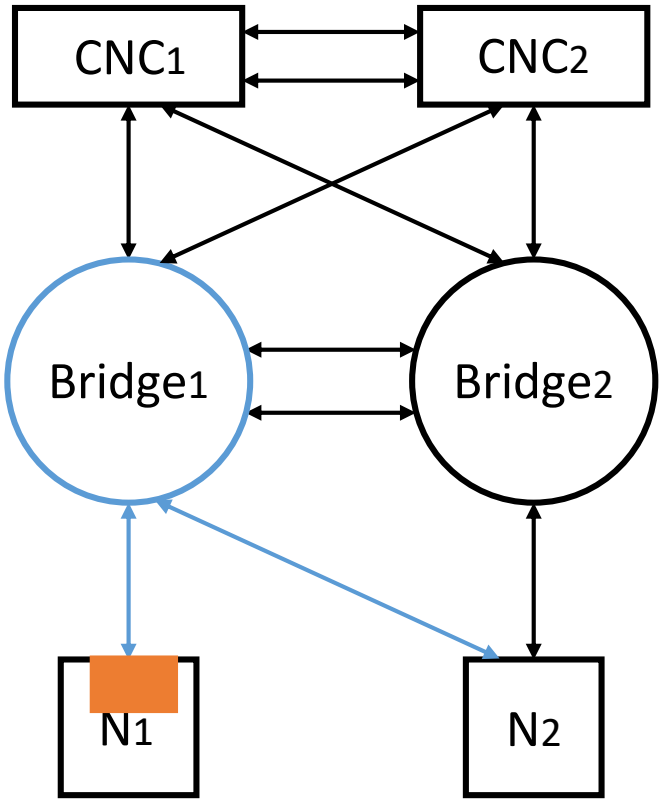
Permanent faults in the links

TSN right now



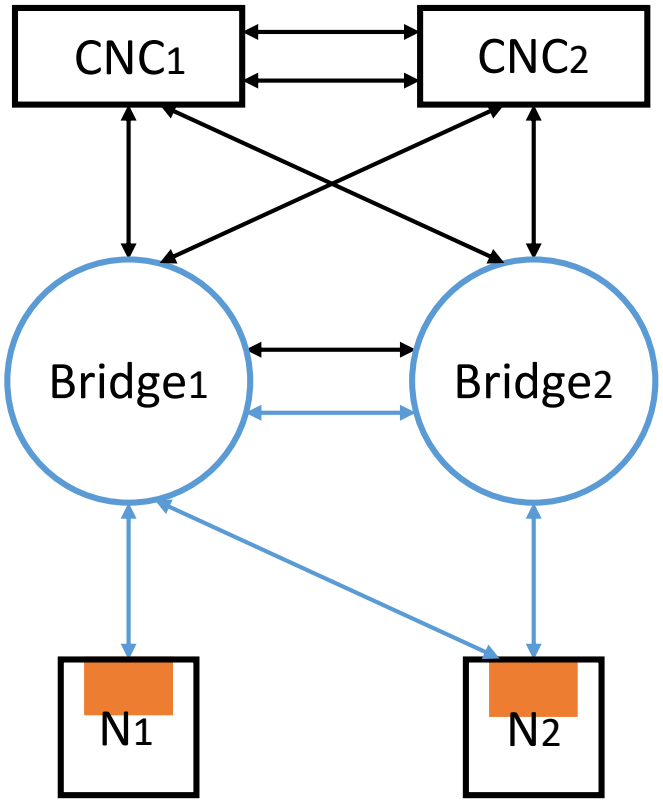
Permanent faults in the links

TSN right now



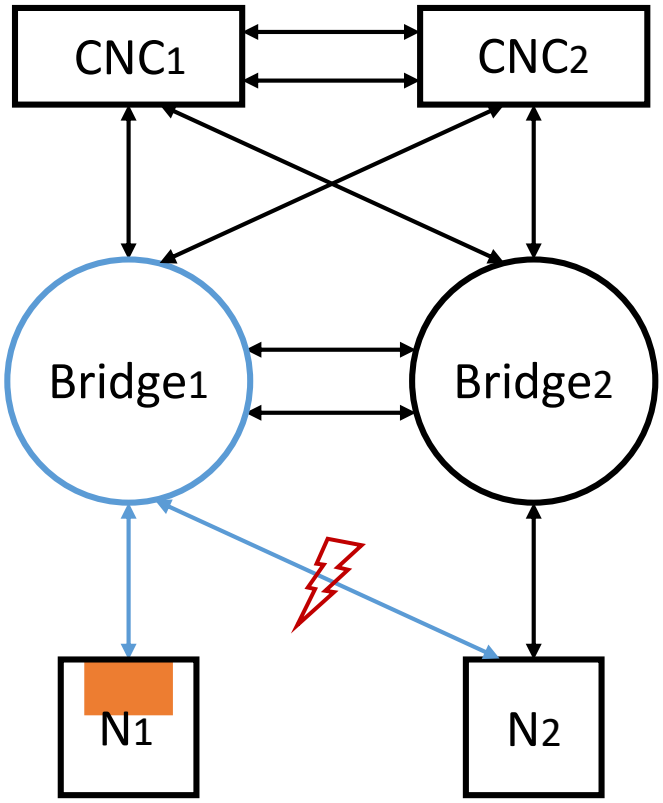
Permanent faults in the links

TSN right now

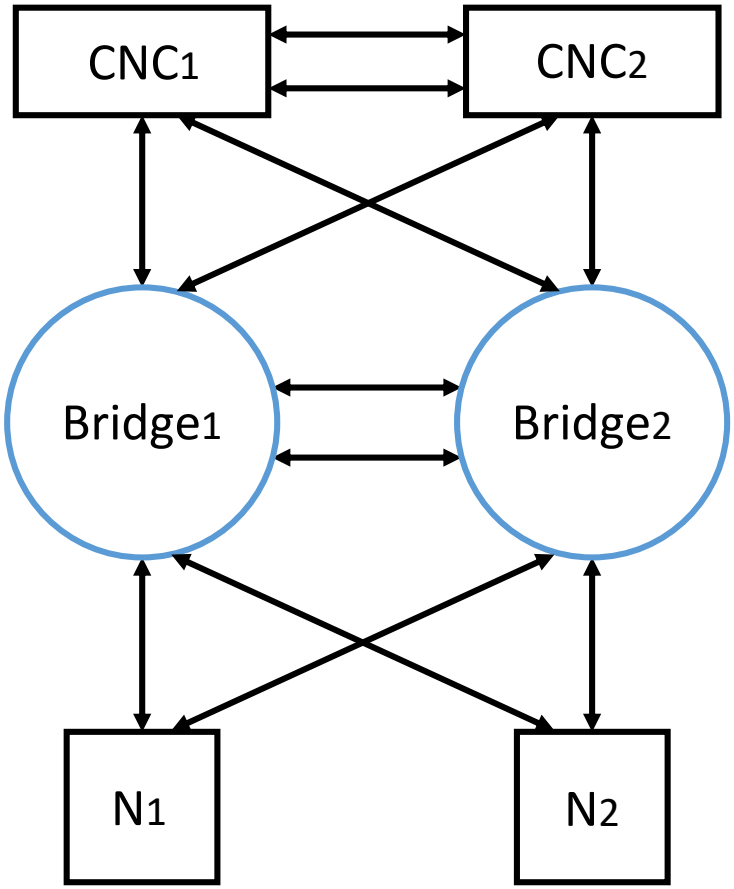


Permanent faults in the links

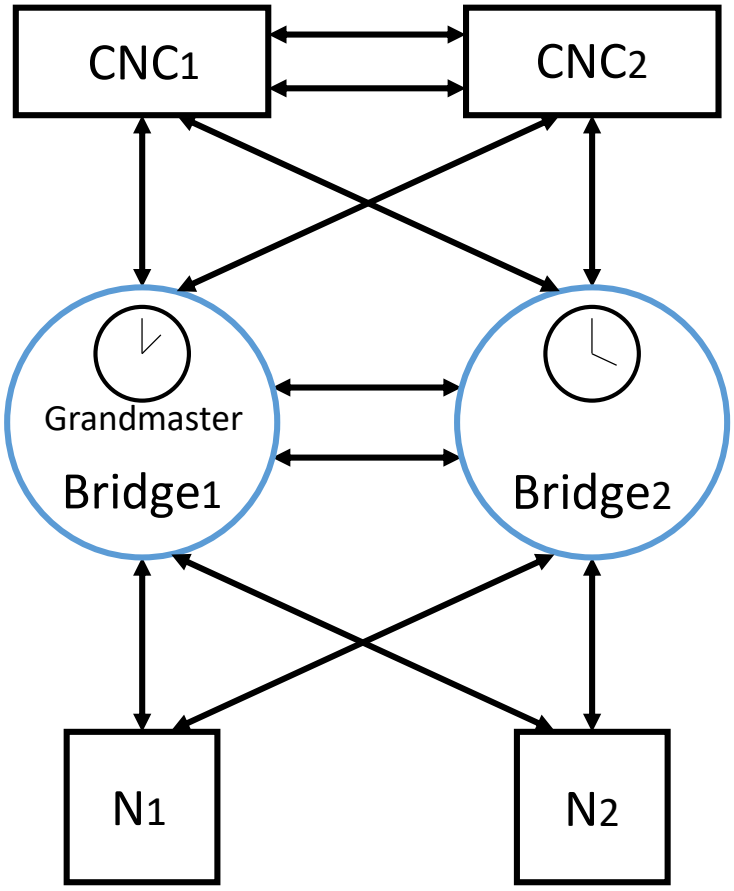
TSN right now



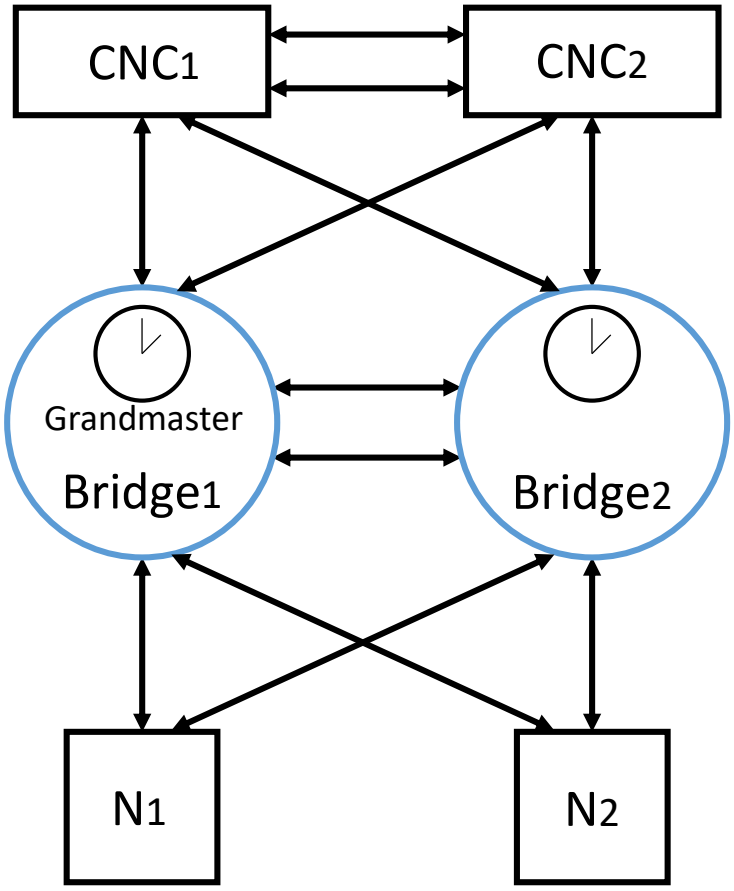
Permanent faults in the bridges



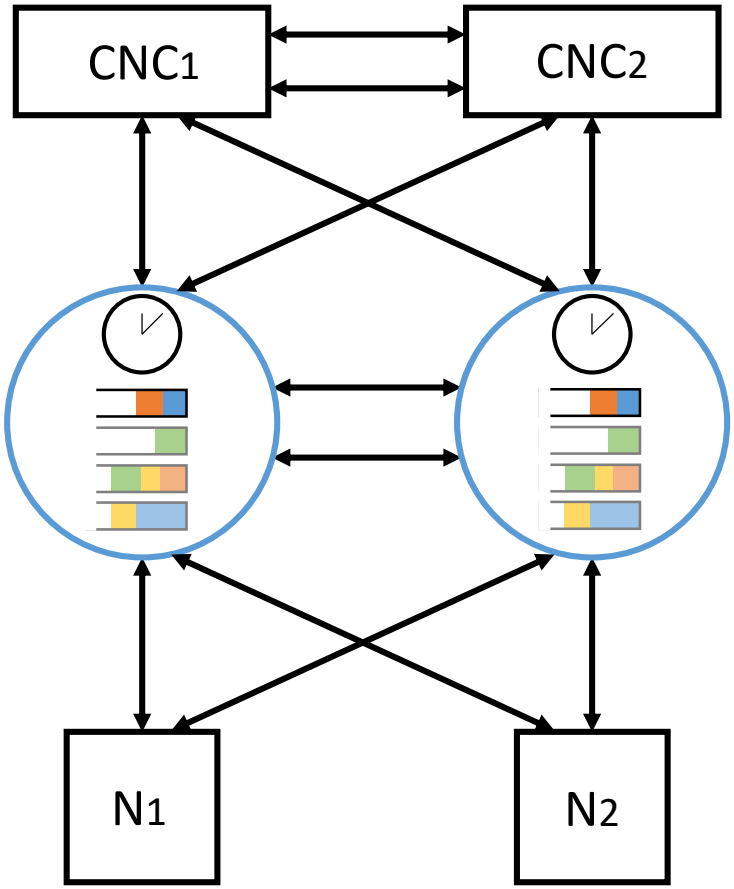
Permanent faults in the bridges



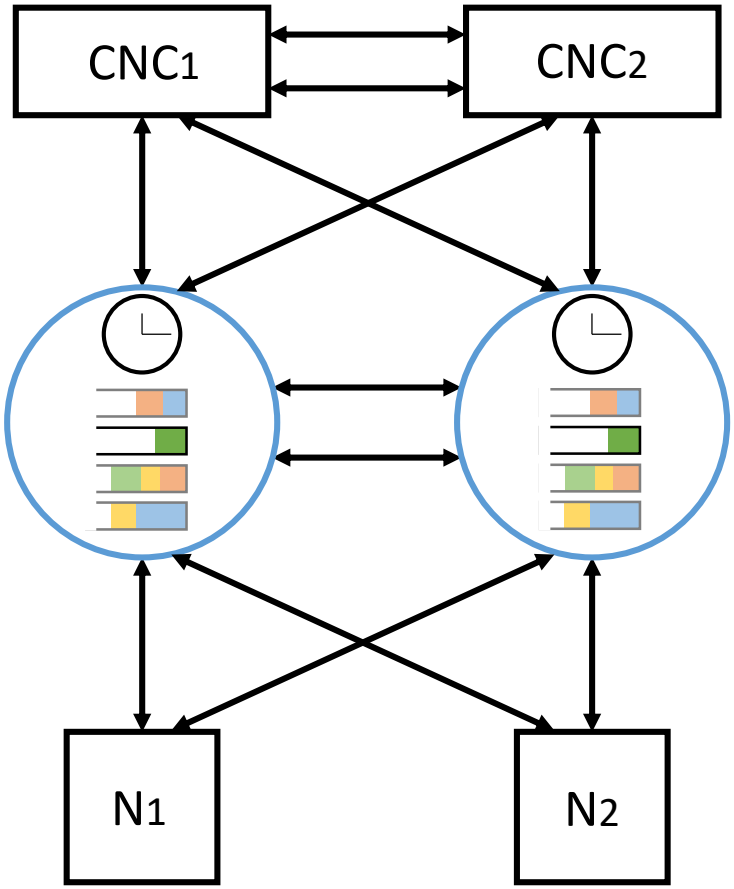
Permanent faults in the bridges



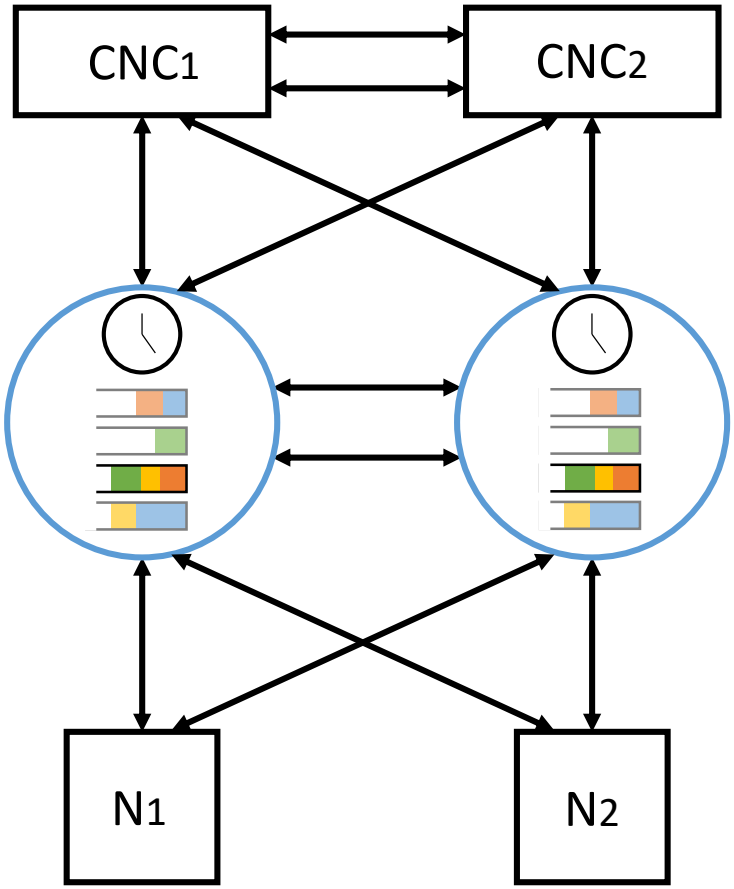
Permanent faults in the bridges



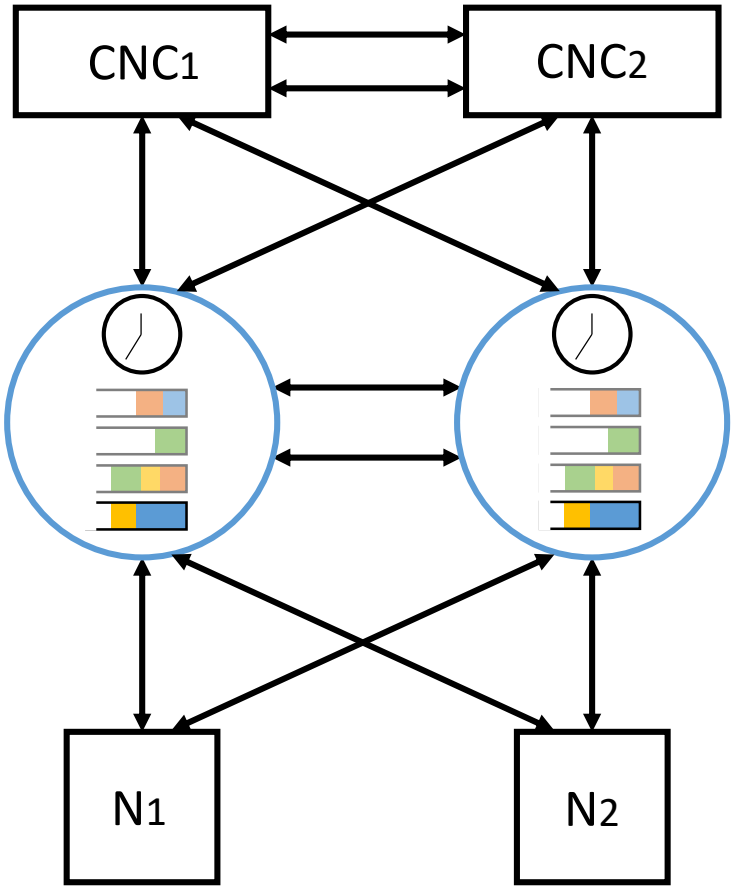
Permanent faults in the bridges



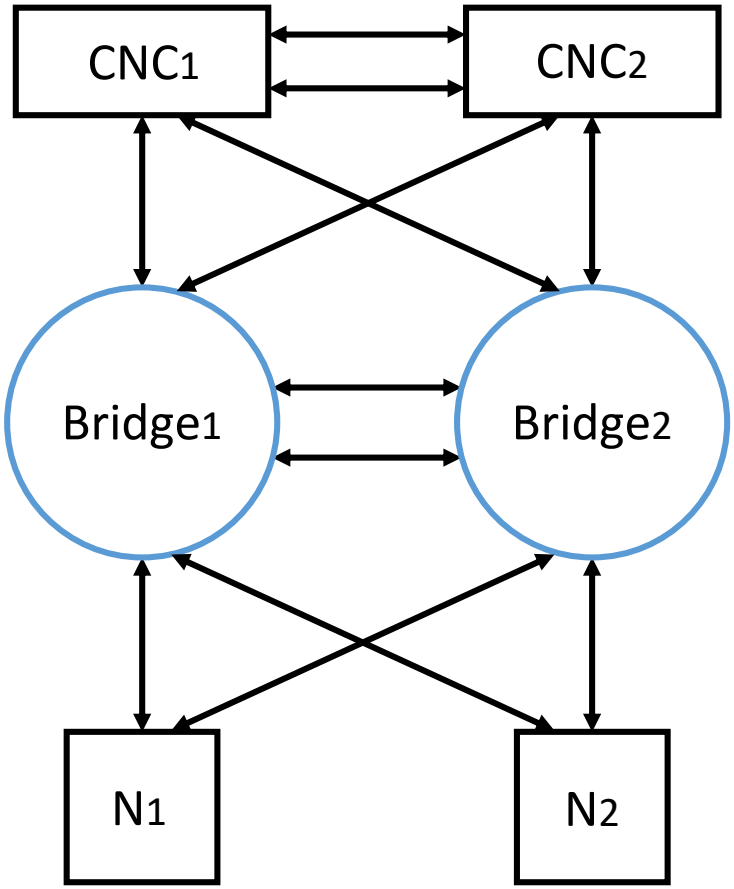
Permanent faults in the bridges



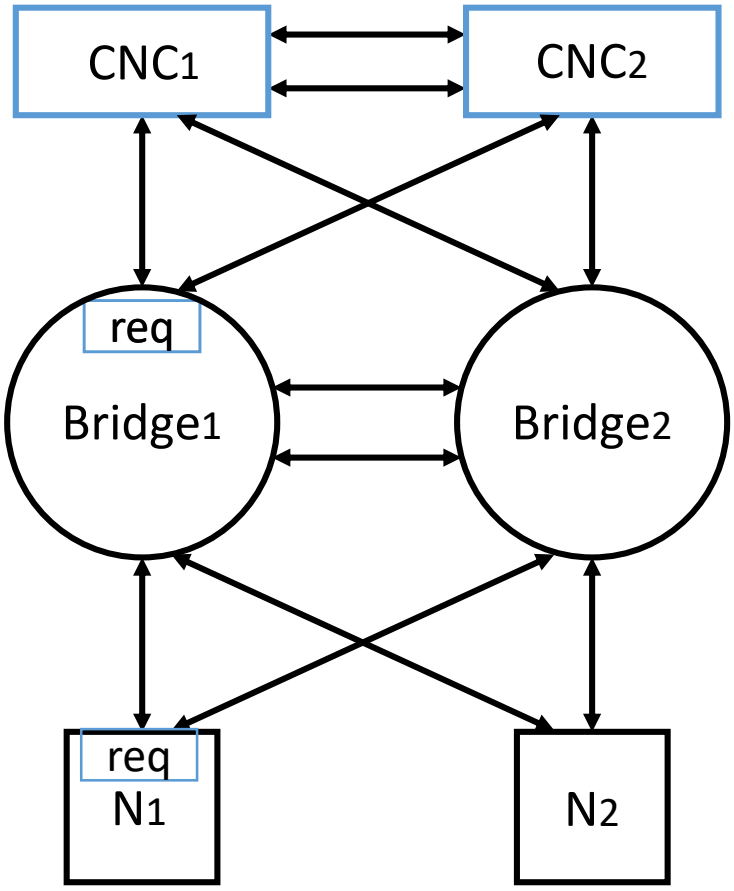
Permanent faults in the bridges



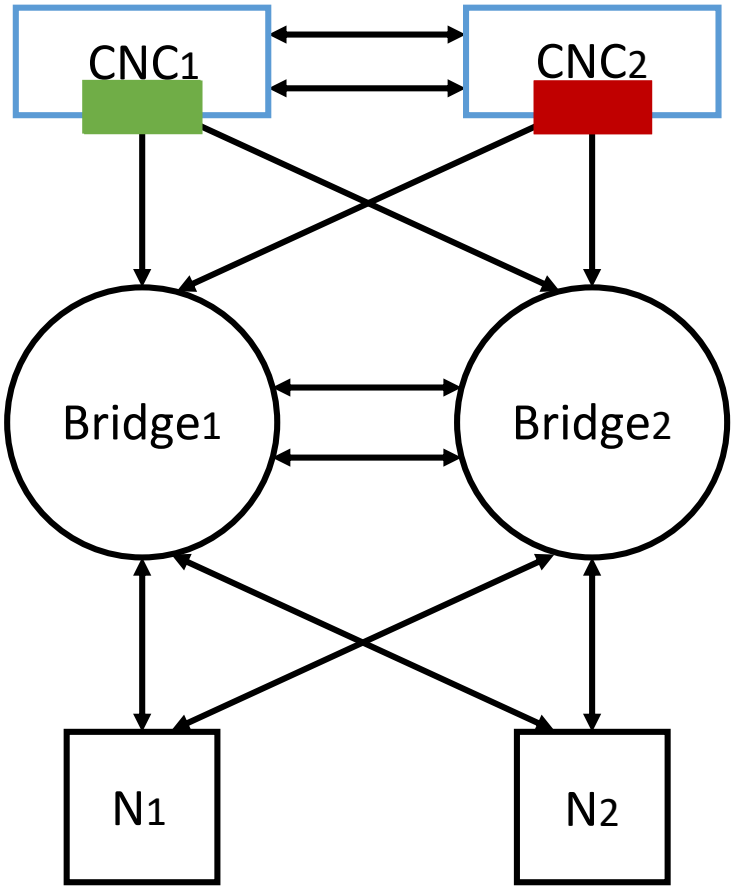
Permanent faults in the bridges



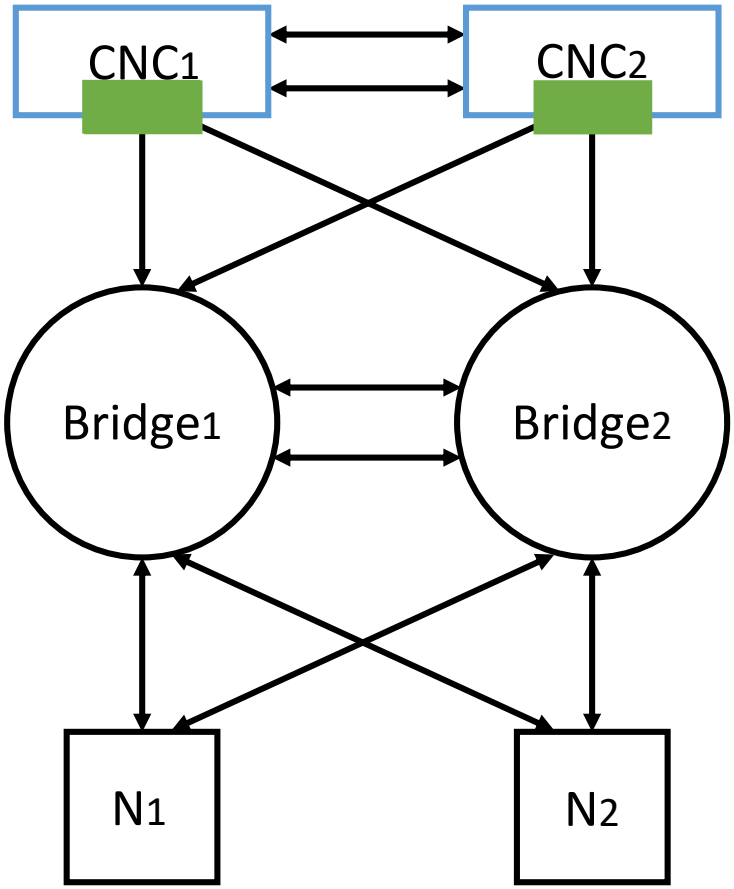
Permanent faults in the CNCs



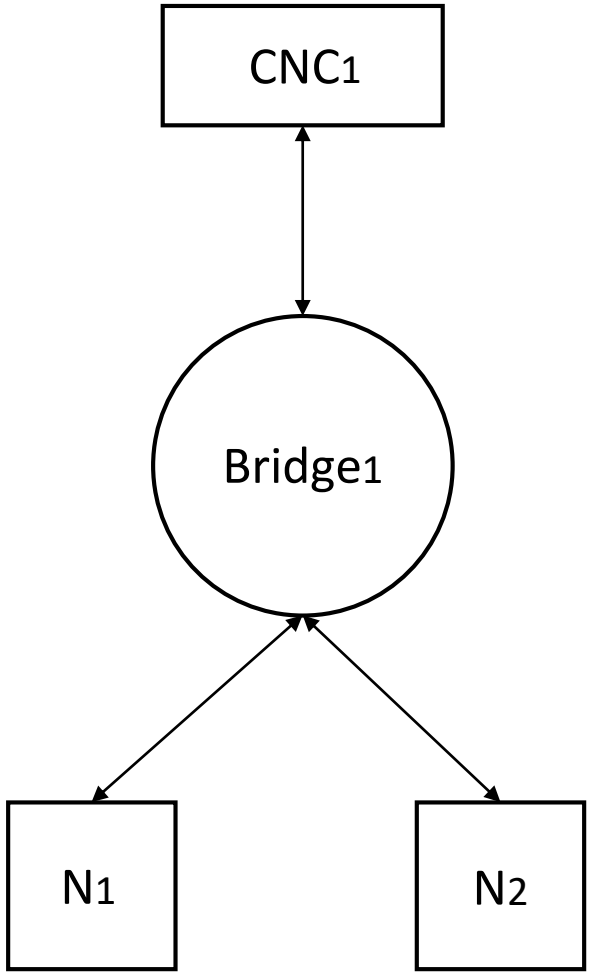
Permanent faults in the CNCs



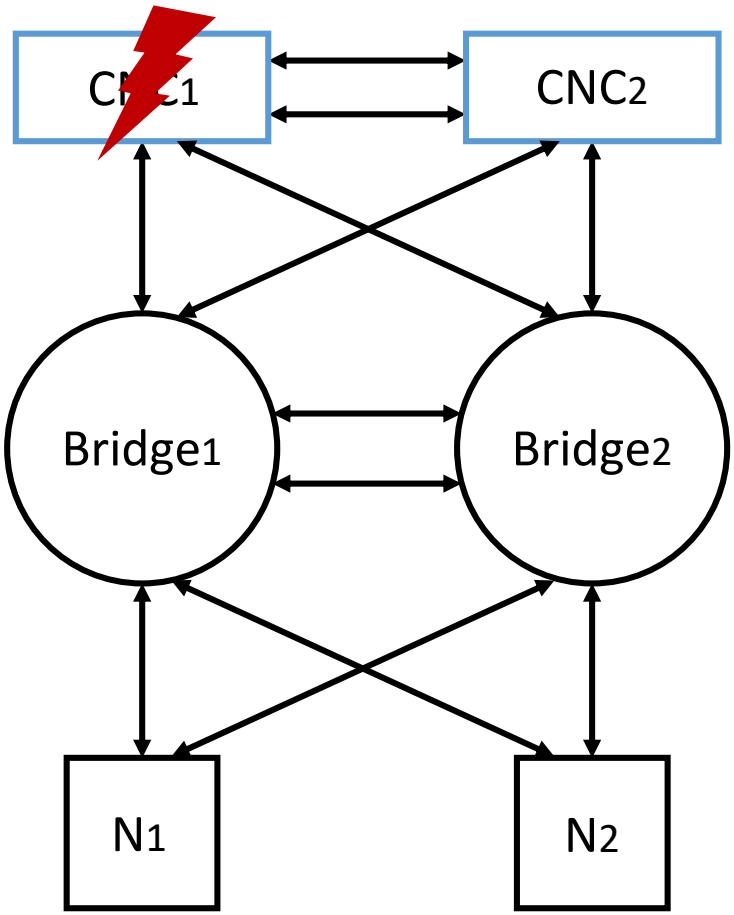
Permanent faults in the CNCs



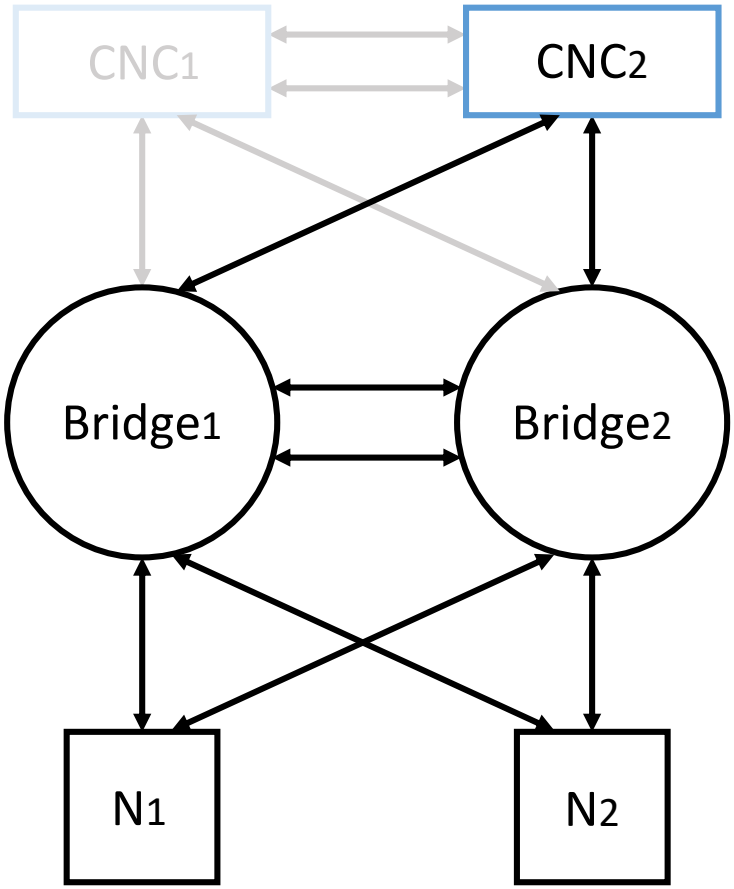
Temporary faults in the channel



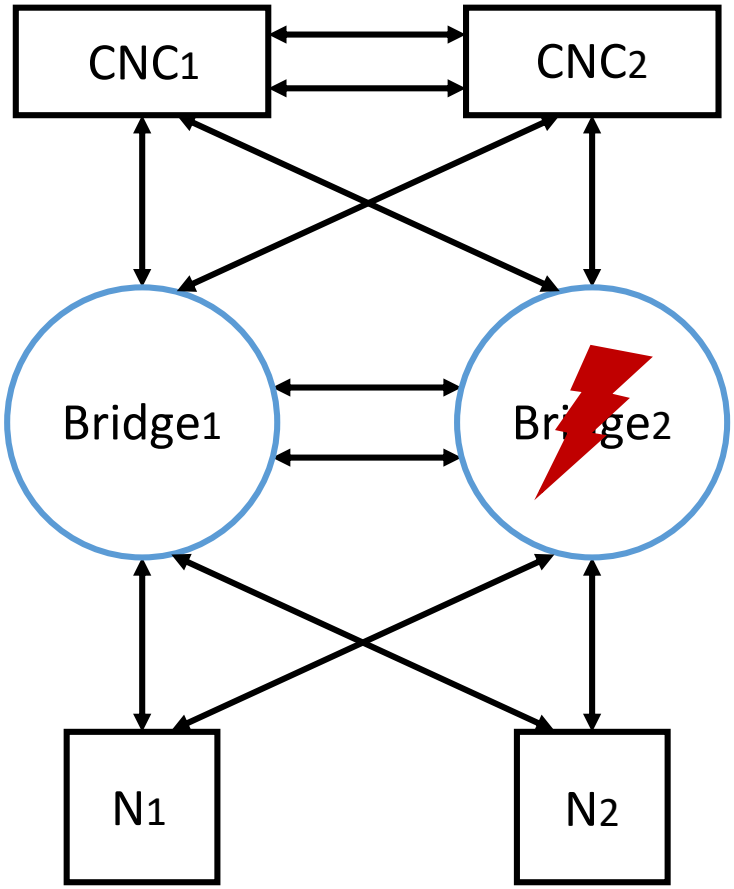
Temporary faults in the CNCs



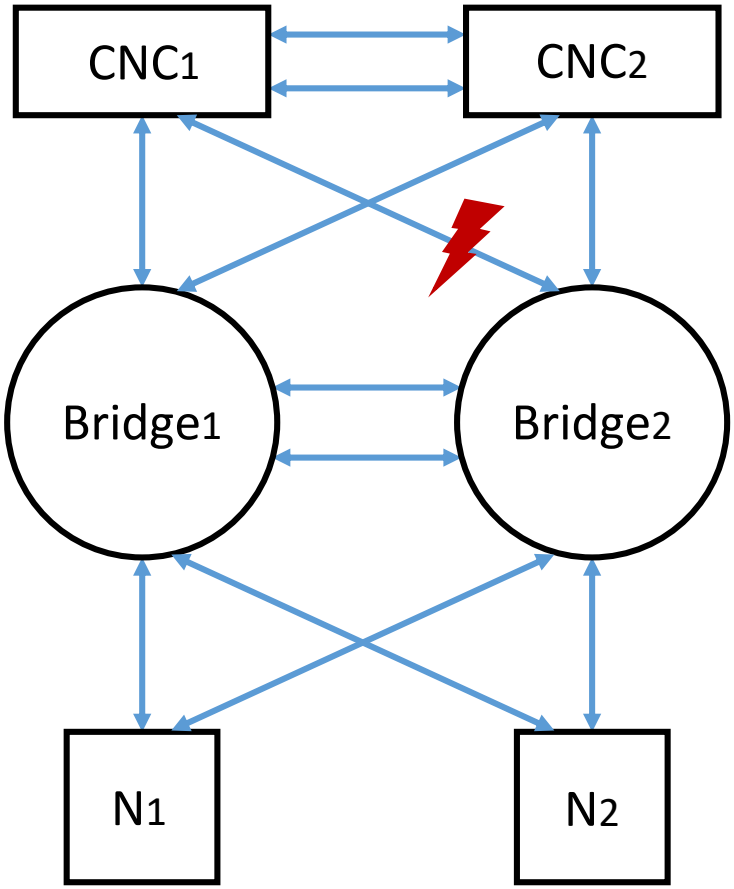
Temporary faults in the CNCs



Temporary faults in the bridges



Temporary faults in the links



Analysis

Deployment in Ca Ses Llúcies?