3-people groups

Assignment: Use netsquid to implement the topology shown in Figure 2. The quantum repeater uses two separate instances of the Midpoint Source (MS) protocol to generate entanglement on both quantum links attached to “q0” and “q1” respectively. As soon as both qubits are entangled, the quantum repeater performs entanglement swapping and sends the measurement result to either one of the end nodes, which applies the required correction. Print the initial fidelity F_0 of short-range entanglements and the final fidelity F_1 of the end-to-end entangled pair.

The candidates may use the work done in the last laboratory session (09/12/2022) as a starting point.

Suggestion: To perform entanglement swapping, you can use a *QuantumProgram* with a single instruction called INSTR_MEASURE_BELL. The end node that receives the measurement result applies X, Z or both as explained in theory lectures.

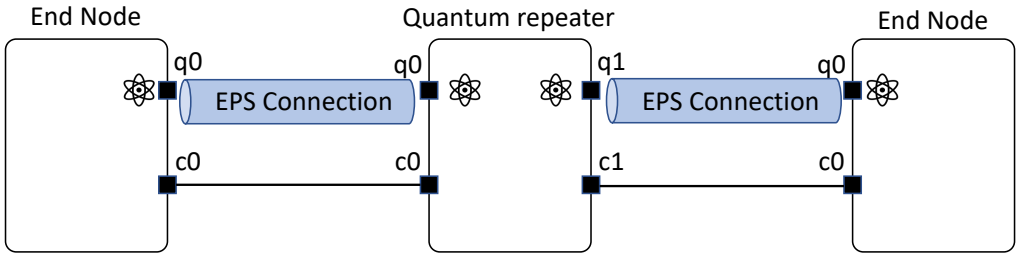

Figure 2