Motivation of the **DFT4FTT** project

- There is always **a tradeoff** between flexibility and reliability
- However the **FT mechanisms** developed **in FT4FTT are static**, so flexibility can be improved by introducing **dynamic FT**
- Additionally **some parts of FTT** (the a-window) **were out of the scope** of FT4FTT!

Goal of the **DFT4FTT** project

- **The design, implementation and validation of a highly-dependable communication infrastructure based on FTT-Ethernet with a higher flexibility than FT4FTT.**

Specific Set of Objectives (1)

- **Objective 1:** Achieve an increased level of flexibility for highly-reliable Ethernet infrastructures based on FTTEthernet by means of the incorporation of fault tolerance mechanisms for the asynchronous messages, which are responsible in FTT for providing most of the flexibility to the system.

- **Objective 2:** Achieve an increased level of flexibility for highly-reliable Ethernet infrastructures based on FTTEthernet by means of the incorporation of dynamic fault tolerance mechanisms for the replication of nodes and of messages

Specific Set of Objectives (2)

- **Objective 3:** Thoroughly evaluate the correctness of the design (qualitative evaluation) and the achieved level of reliability (quantitative evaluation), which ideally should be equivalent to the level reached in the less flexible design of project FT4FTTEthernet.

- **Objective 4:** To **develop a prototype** of our infrastructure in order to obtain experimental results.
  - This is vital to definitively validate the designs proposed for the whole infrastructure and for its various parts.
  - Once the prototype is finished, the tests to be performed would include a thorough **fault injection campaign (quantification of the various coverages)**.

List of tasks (1)

- **Task 1:** Specifying and partitioning the system.
  - **Involved Researchers:** Julián Proenza, Manuel Barranco, Ignasi Furió, David Gessner, Luís Almeida, Paulo Pedreiras and the Technician
  - **Deliverable:** a conference paper
  - **Task Duration:** 6 months (during the first year of the project).
- **Task 2:** Tolerating transient faults in the asynchronous traffic.
  - **Involved Researchers:** Manuel Barranco, Julián Proenza, David Gessner, Paulo Pedreiras and the Technician
  - **Deliverable:** one conference paper and one journal paper.
  - **Task Duration:** 18 months (during first and second year of the project).

List of tasks (2)

- **Task 3:** Guaranteeing data consistency for the asynchronous traffic.
  - **Involved Researchers:** Manuel Barranco, Julián Proenza, Luís Almeida, Guillermo Rodríguez-Navas and the Technician
  - **Deliverable:** one conference paper and one journal paper.
  - **Task Duration:** 18 months (during the first and second year of the project).
- **Task 4:** Making the network-level FT and data consistency mechanisms dynamic
  - **Involved Researchers:** Julián Proenza, Manuel Barranco, Guillermo Rodríguez-Navas, Michael Short and the Technician
  - **Deliverable:** two conference papers and one journal paper
  - **Task Duration:** 12 months (during the second and third years of the project).

List of tasks (3)

- **Task 5:** Making the node replication mechanisms dynamic
  - **Involved Researchers:** Julián Proenza, Ignasi Furió, Pere Palmer, Michael Short and the Technician
  - **Deliverable:** two conference papers and one journal paper
  - **Task Duration:** 24 months (during the first, second and third years of the project)
- **Task 6:** Improving error containment in the FTT-enabled switch
  - **Involved Researchers:** Manuel Barranco, Julián Proenza, Paulo Pedreiras and the Technician
  - **Deliverable:** two conference papers and one journal paper
  - **Task Duration:** 24 months (during the first and second years of the project).

List of tasks (4)

- **Task 7:** Systemwide integration and design of the overall architecture
  - **Involved Researchers:** Ignasi Furió, Julián Proenza, David Gessner, Pere Palmer and the Technician
  - **Task Duration**: 36 months (during all three years of the project).

- **Task 8:** Implementing a final prototype for the complete architecture
  - **Involved Researchers:** Technician, Julián Proenza, Ignasi Furió and Pere Palmer
  - **Deliverable:** a technical report and one conference paper
  - **Task Duration:** 12 months (final year of the project).

List of tasks (5)

- **Task 9: Validating** the complete architecture
  - **Involved Researchers:** Julián Proenza, Technician, Manuel Barranco, Ignasi Furió
  - **Deliverable:** two conference papers and one journal paper.
  - **Task Duration:** 12 months (final year of the project).

Project Chronogram