Report 4 - Groupy: Group Membership Service

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1 Introduction

The main goal of the assignment was to implement a group membership service providing atomic multicasting in view syncrony, while also tolerating crash failures.

2 Main problems and solutions

2.1 Group communication

Group communication is managed using a **leader-based protocol**, which maintains a consistent view of group membership for all participants. The designated **leader** multicasts messages to all group members and coordinates join requests from peers. When a new peer wishes to join, the leader updates the group view and disseminates it to all members, ensuring everyone has the latest membership information. The **view** is structured as a tuple: the first element contains the list of all *process identifiers in the group*, and the second element lists the *process identifiers at the application layer*.

3 Conclusions