Distributed Systems, Advanced Course Project Report

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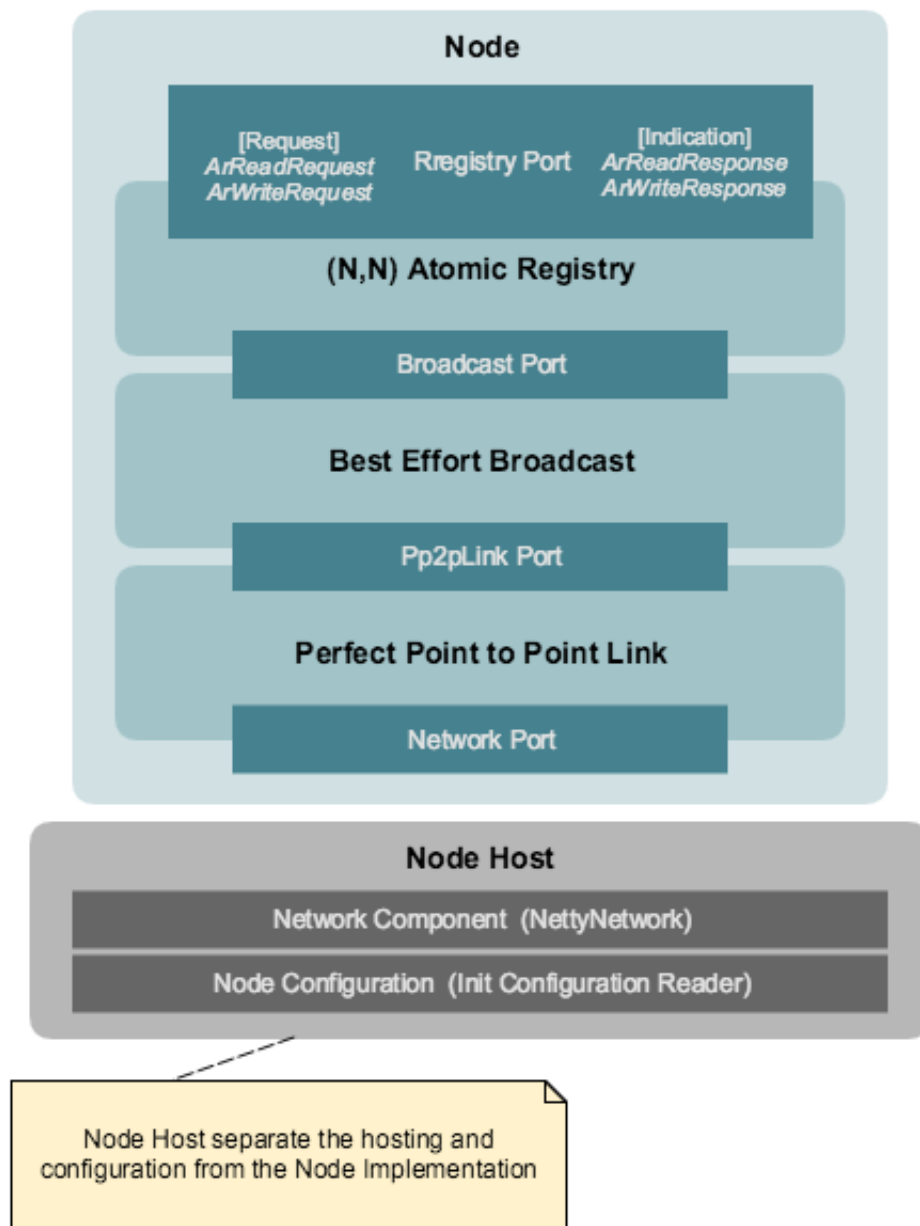
Contents

1   Introduction

The goal of this project is to design and implement a distributed key-value store in Kompics. We have used well known distrubuted abstraction model to achive this task:

Our model employs a (static) membership protocol. Data is partisioned using a Hashing function and replicated within each membership nodes. The data consitency among the replicas during in both reads and updates are achived with (N,N) Atomic Register.
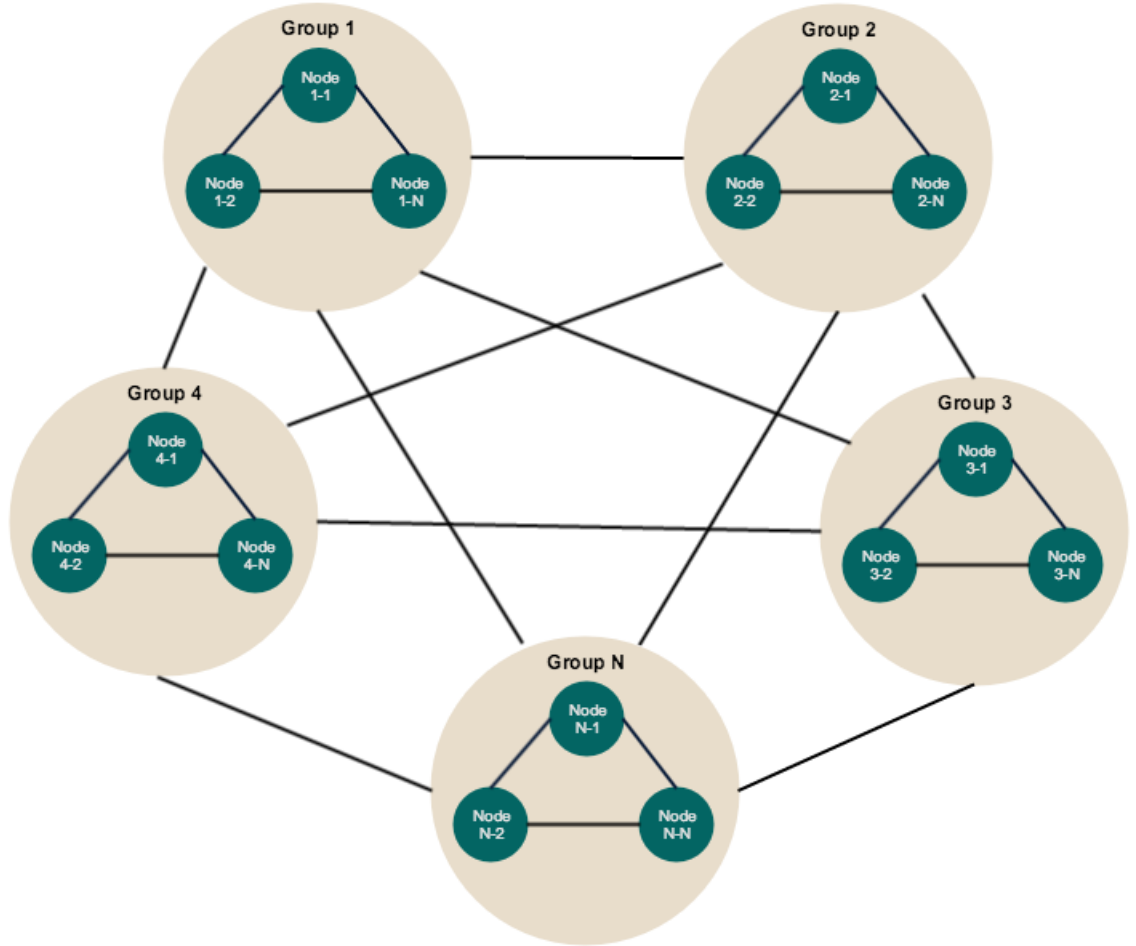
2   Design Overview

2.1   System Component

The following figure depicts the overall design of the system.

Node

[Request]
ArReadRequest
ArWriteRequest

Rregistry Port

[Indication]
ArReadResponse
ArWriteResponse

(N,N) Atomic Registry

Broadcast Port

Best Effort Broadcast

Pp2pLink Port

Perfect Point to Point Link

Network Port

Node Host

Network Component (NettyNetwork)

Node Configuration (Init Configuration Reader)

Node Host separate the hosting and
configuration from the Node Implementation

2.2   Node Toplogy

3   System Abstraction and Implmentation

The report should not be too long (≈ 2-3 pages).

3.1   Perfect Point to Point Link

The report should not be too long (≈ 2-3 pages).

3.2   Best Effort Broadcast

The report should not be too long (≈ 2-3 pages).

3.3   (N,N) Atomic Registry

The report should not be too long (≈ 2-3 pages).

3.4 Reconfiguration

The report should not be too long ($\approx$ 2-3 pages).

4 System Simulations and Scenarios

The report should not be too long ($\approx$ 2-3 pages).

5 Conclusions

The report should not be too long ($\approx$ 2-3 pages).
What have you learnt from the problem presented? Was it useful?