Distributed System Labwork 3

Group 6 - ICT

University of Science and Technology of Hanoi

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Contents

1 Introduction

1.1 Overview

MPI (Message Passing Interface) is a library that allows users to write programs that can run on most parallel architectures effectively. The processes working in parallel have independent address spaces in the message-passing paradigm of parallel computing. When a piece of one process's address space gets copied into the address space of another process, communication happens. This is a cooperative operation that occurs only when the first process sends data and the second process receives data. In this labwork, we try to build a file transfer system using MPI. We will use Python in this labwork.

1.2 Protocol

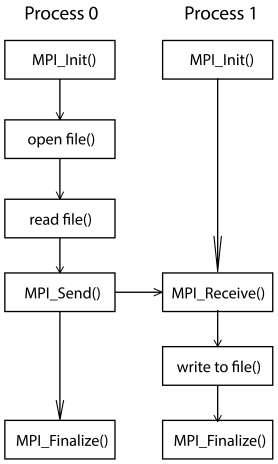

Figure 1: Protocol diagram

1.3 Implementation

This is the implementation of the labwork
To run the program, please type "mpiexec -n 2 python mpi.py"

```
# To run this program
# Install MPI from Microsoft
# Check install successfully in terminal: mpiexec
# Run this program: mpiexec -n 2 python mpi.py
# Done
from mpi4py import MPI
import os
```

```
comm = MPI.COMM_WORLD
size = comm.Get_size()
rank = comm.Get_rank()

fileName = os.path.basename("./filetransfer.txt")
fileContent = open("filetransfer.txt", "r").read()

sentMail = (fileName, fileContent)

if rank == 0:
  comm.send(sentMail, dest=1)
  print("From rank", str(rank), "we sent: ", sentMail)

if rank == 1:
  receivedMail = comm.recv(source=0)
  print("From rank", str(rank), "we received: ", receivedMail)
  f = open("./mailbox/" + fileName, "w")
  f.write(receivedMail[1])
  f.close()
  print("Check mail in mailbox!")
```

1.4 Contribution

Member	**Contribution**
Nguyen Quang Vinh	Send fIle code
Nguyen Tran Nguyen	Receive file code
Mai Xuan Hieu	Design Protocol
Nguyen Anh Quan	MPI concept
Nguyen Tuong Quynh	Report

Table 1: Contribution Table