

COSC 6374 Parallel Computation

Message Passing Interface (MPI) - I Introduction

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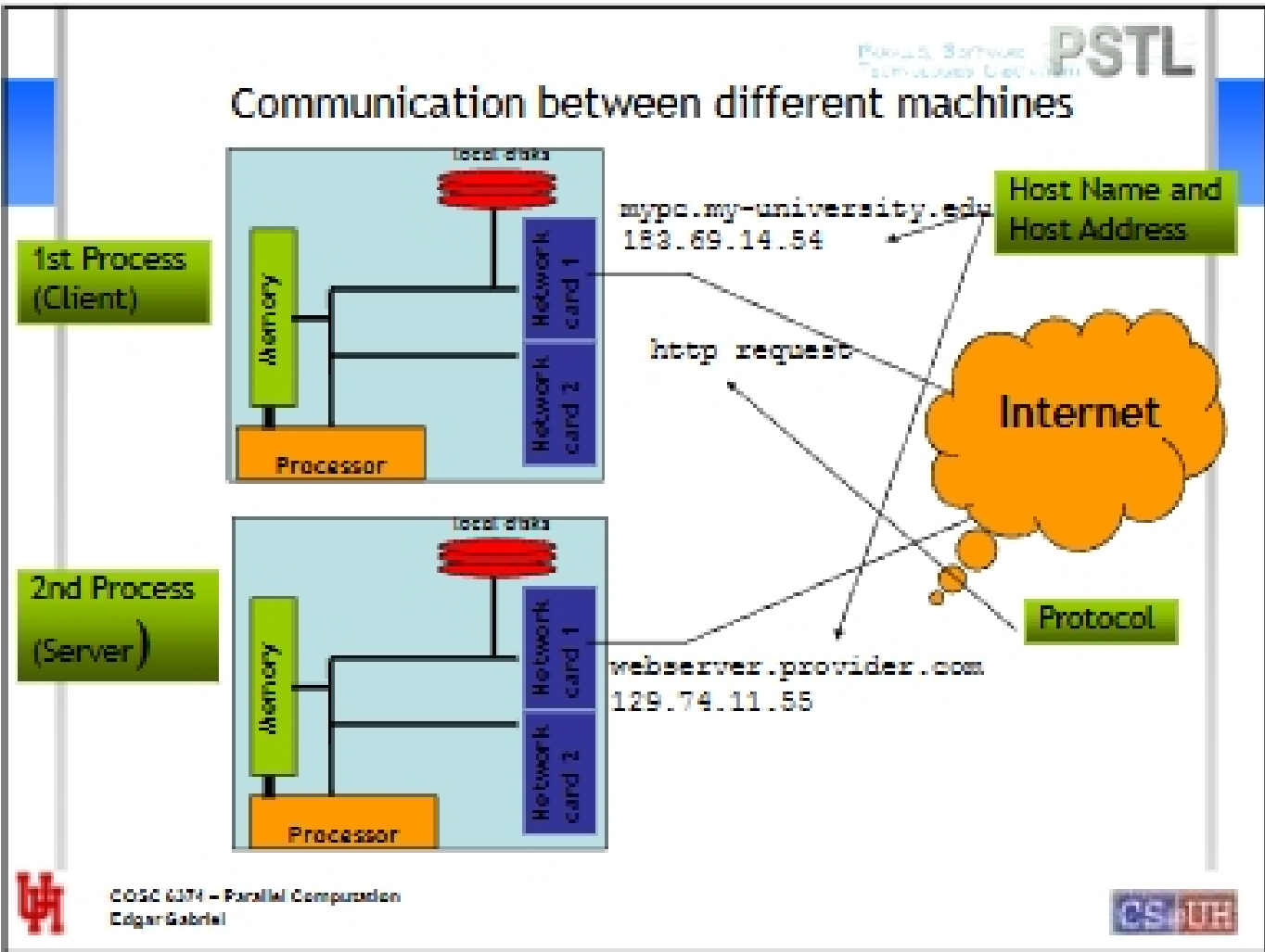
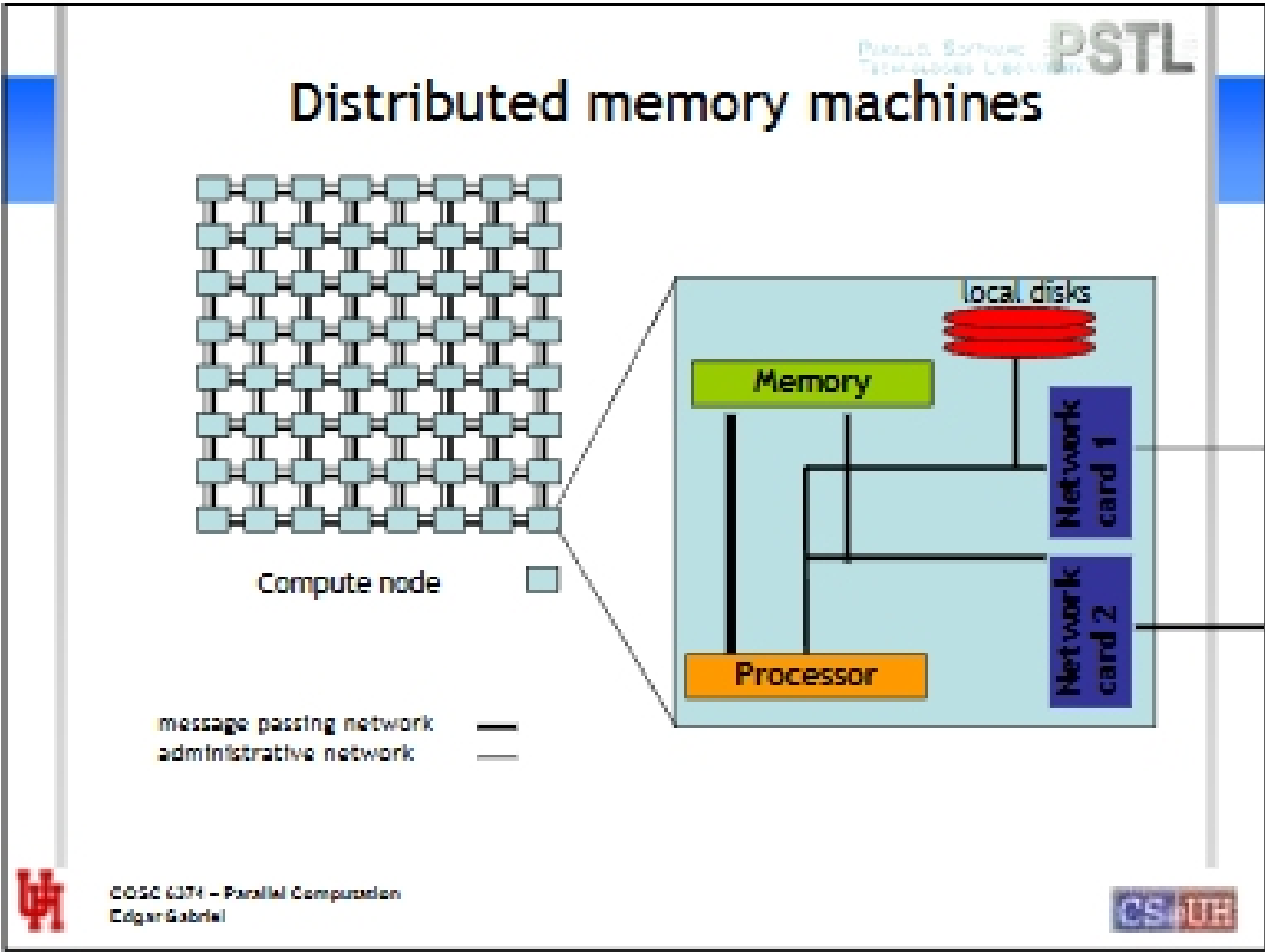
Overview

- Distributed memory machines
- Basic principles of the Message Passing Interface (MPI)
 - addressing
 - startup
 - data exchange
 - process management
 - communication



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Communication between different machines on the Internet

- Addressing:
 - hostname and/or IP Address
- Communication:
 - based on protocols, e.g. http or TCP/IP
- Process start-up:
 - every process (= application) has to be started separately



The Message Passing universe

- Process start-up:
 - Want to start n -processes which shall work on the same problem
 - mechanisms to start n -processes provided by MPI library
- Addressing:
 - Every process has a unique identifier. The value of the rank is between 0 and $n-1$.
- Communication:
 - MPI defines interfaces/routines how to send data to a process and how to receive data from a process. It does not specify a protocol.

