

Chapter 12: Multiprocessor Architectures

Lesson 14:

Cluster Computing and issues in Cluster Computing

Objective

- Understand the cluster computing and issues to resolve in it by using operating system, algorithms and security of network
- Learn that a cluster network gives an integrated resource to solve highly intensive single application computations, for example a genetic code problem

Cluster computing

- A cluster can be defined as a set of processing elements (PEs)
- A processing element means a processor plus memory
- The network can have many clusters to compute for a single target application

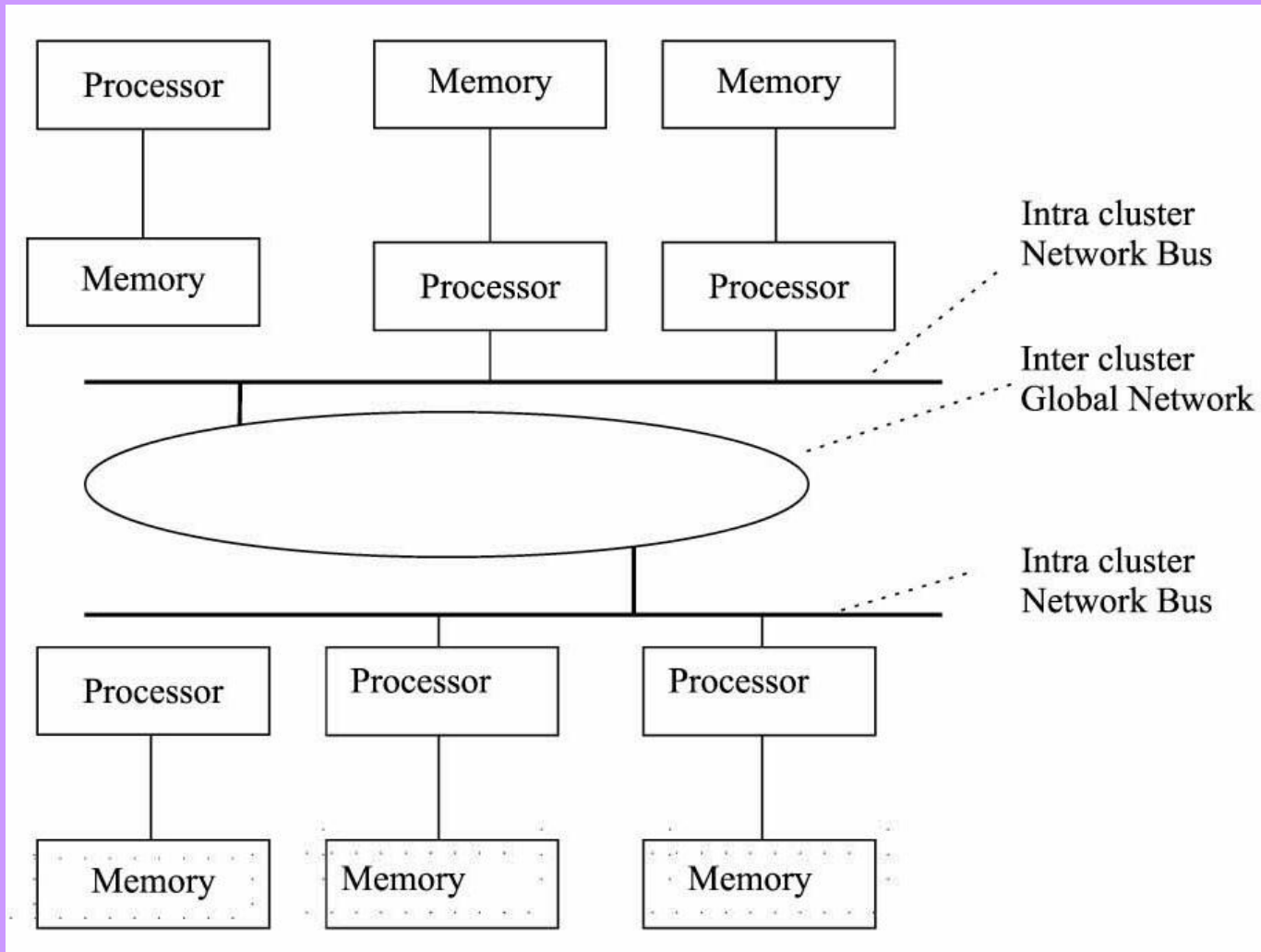
The advantage of cluster computing

- Throughput can be increased in massive computations
- The idle storage and processing capacities at remote machines can be used for a big application

Cluster computing or grid computing

- Clusters are connected on a network
- A cluster network gives an integrated resource to solve highly intensive single application computations, for example a genetic code problem

Two clusters on a global network



Issues computing

Issues

1. Operating systems for the clustered machines in a cluster
2. Appropriate algorithms for minimizing latencies and inter-cluster communications
3. Performance tuning and optimization
4. Security threats and use of firewalls

Summary

We learnt

- Clusters are connected on a network
- A cluster network gives an integrated resource to solve highly intensive single application computations, for example a genetic code problem

End of Lesson 14 on
**Cluster Computing and issues in
Cluster Computing**