Cluster Computing: High-Performance, High-Availability, and High-Throughput Processing on a Network of Computers

The motivation behind this document is to provide an overview of cluster computing, its history, development, and applications. The purpose is to educate readers on the benefits and advantages of cluster computing in comparison to traditional supercomputers. The aim is to provide a comprehensive understanding of cluster computing and its components.

The contribution of this document is to provide a detailed analysis of cluster-specific components such as interconnection technology, operating system, middleware, and programming model. It also presents various parallel programming models and concepts of single system image and its realization at the cluster resource management level.

The methodology used in this document is a literature review of various research papers, technical reports, and conference proceedings related to cluster computing. The authors have analyzed and synthesized the information to provide a comprehensive understanding of cluster computing.

In conclusion, this document highlights the benefits and advantages of cluster computing, including cost-effectiveness, high performance, availability, and scalability. It also presents various applications of cluster computing in scientific and commercial domains.

The first limitation of this document is that it focuses mainly on the technical aspects of cluster computing and does not provide a detailed analysis of the economic and social implications of cluster computing.

The second limitation is that the document does not provide a comparative analysis of different cluster computing technologies and their performance in different applications.

In synthesis, this document provides a comprehensive understanding of cluster computing and its components. It highlights the potential applications and future scopes of cluster computing in various domains, including scientific research, data analysis, and artificial intelligence.