1 INTRODUCTION

1.1 Product overview

This project takes as input

- Physical machines and their capacities

- Virtual machines and their capacity requirements

It computes the residual capacity in each physical machine after adding the virtual machines. The physical machines are sorted in ascending order of their residual capacity. The project provides the feature of consolidating the virtual machines in different physical machines into minimum number of physical machines. Another feature provided by this project is to shutdown a physical system by migrating the virtual machines in that physical machine into other physical machines. This project uses greedy bin packing algorithm for this purpose.

2 SPECIFIC REQUIREMENTS

2.1 External Interface Requirements

2.1.1 User Interfaces

The GUI displays

- All the physical machines

- Virtual Machines in each physical machine

- Buttons for adding a vm, deleting a vm, for consolidation and turning off the physical machine

2.1.2 Hardware Interfaces

No specific hardware module is being used for this project

2.1.3 Software Interfaces

No specific hardware module is being used for this project

2.1.4 Communication Protocols

This project doesnt use any communication protocols

2.2   Software Product Features

- Displays the details of which vm is in which pm

- Provides the ability to add or delete a vm

- Provides the ability to switch of a physical machine by migrating all the vms in that pm to other pms.

- Provides the ability to consolidate all vms in minimum number of physical machines

3   SOFTWARE SYSTEM ATTRIBUTES

Performance

Performance is an indication of the responsiveness of a system to execute any action within a given time interval. It can be measured in terms of latency or throughput. Latency is the time taken to respond to any event. Throughput is the number of events that take place within a given amount of time.

Reliability

Reliability is the ability of a system to remain operational over time. Reliability is measured as the probability that a system will not fail to perform its intended functions over a specified time interval.

Availability

Availability defines the proportion of time that the system is functional and working. It can be measured as a percentage of the total system downtime over a predefined period. Availability will be affected by system errors, infrastructure problems, malicious attacks, and system load.

Security

Security is the capability of a system to prevent malicious or accidental actions outside of the designed usage, and to prevent disclosure or loss of information. A secure system aims to protect assets and prevent unauthorized modification of information.

Maintainability

Maintainability is the ability of the system to undergo changes with a degree of ease. These changes could impact components, services, features, and interfaces when adding or changing the functionality, fixing errors, and meeting new business requirements.

Portability

Portability in high-level computer programming is the usability of the same software in different environments. The prerequirement for portability is the generalized abstraction between the application logic and system interfaces. When software with the same functionality is produced for several computing platforms, portability is the key issue for development cost reduction.