This file explains the purpose of each file in this project.

# Administrator

1. **cluster1, cluster2**- 2 clusters as defined by user. Format- clusterName, number of Virtual Machines, RAM size of each VM
2. **physicalInfrastructure**- defines number of nodes available physically and IP address of each node

## Migration-

* 1. **destIp**- For migration of a VM from Source Ip machine to destination IP machine, destination IP is written by migration.cpp program in file destIp and this file is sent remotely to source IP machine.
  2. **finalUsageStat**- CPU usage statistics of all the nodes given in file physicalInfrastucture is written here, so as to compute from which machine to which machine VM should be migrated
  3. **usageStat**- a temporary file in which CPU usage of a physical node is overwritten.
  4. **usageStat.sh**- a script file that uses usageStat text file to make a file finalUsageStat
  5. **migration.cpp**- source code

output filename- migration

/\*ALGORITHM

1. compute usage statistic of all the CPUs
2. sort the CPU in descending order of their CPU usage
3. Repeat-

migrate highest CPU using VM of CPU[start] to CPU[end]

until CPU usage of CPU[start]<threshold \*/

## Scheduling-

1. **roundRobin.cpp** - source code of scheduling algorithm round robin

each physical node is allotted nodes in round-robin fashion. variable quantum is user defined. so, each node is allotted quantum nodes on it's turn, and this process goes on till required number of VMs are allotted.

Output filename- roundRobin

/\*ALGORITHM-

1. Calculate how much VMs are allotted to each physical node individually.
2. create those VMs in the nodes remotely\*/
3. **minLoadedNode.cpp** - source code of a customised scheduling algorithm minLoadedNode

Output filename- minLoadedNode

/\*ALGORITHM-

Let m be minimum # of nodes alloted to a physical node Pm, and M be maximum # of nodes alloted to a physical node PM.

1. Find an integer k=(M-m)/numberOfNodes.
2. Now allot VMs equally to k such physical nodes which are allotted minimum nodes till now.\*/
3. **VMsAllottedTillNow** - keeps a count of how many VMs have been allotted to each physical node till now

# Physical Infrastructure

1. **cluster1, cluster2**- List of Machine and Domain name VMs allotted to each.
2. **configLocation.txt**- To change parameters in createVM\_XML.xml, it keeps location of those parameters. This location is calculated in init.cpp.
3. **createVM.cpp**- source code for creating n VMs on a machine.
4. **createVM\_XML.xml**- this xml file is copied and copied files are modified to create VMs.
5. **domainID**- a text file to keep domain names of all the virtual machines running on a particular node
6. **domainID.sh**- to find domainID of VMs
7. **domainNameFile**- a text file that keeps the domain name of VM with maximum CPU utilization.
8. **findCPUtime.cpp-** source code that finds CPU usage time of each VM

output file name- findEachVMTime

1. **init.cpp**- to find location of parameters –name, uuid, currentMemory, image file location, mac address.

Output file name- init

1. **mac.txt**- In our lab, DHCP server is used to allot IPs to the physical machines. We took mac ID of some of other physical machines. We will allot these mac IDs to our VMs so that they could be assigned a publically visible IP address by DHCP server itself.
2. **rsysinfo**- a script file to install application rsysinfo in each physical node.

Also, do chmod +x "filename" for all .sh files