Load Balancing

Functionality of load balancing is divided into three methods

1. get_host_domains_ID(host_ip) : This function is called with the "host_ip" parameter. This parameter is the IP address of the HOST. This function returns the List of IDs of all the VMs running in the host.

2. get_migration_vector(HMAX,HMIN) : This function is called with HMAX and HMIN (MAX and MIN cpu usage among all the hosts). It returns the average of the HMAX and HMIN.

3. load_balance() : This is the main function where load balancing actually executes. It uses above two methods. Working of this method is as follows:
   - It lists all the active hosts.
   - Searches the host with MAX cpu usage and put its cpu usage in HMAX.
   - Simultaneously while searching MAX cpu usage, it makes a list of all the hosts with host ids and cpu usage in ascending order (on the basis of cpu usage).
   - It lists all the VMs ids by calling function (1).
   - It takes out ID of VM from list one by one in a loop.
   - Calculates the cpu usage of the VM.
   - It takes out ID of host from list(created above with host id and host cpu usage) one by one in a loop.
   - Calculates the "migration_vector" which is the return value of the function (2).
   - Checks if migration_vector is closed to the VM cpu usage or not.
   - Finds the VM from the list of VM (of host with MAX cpu usage) which has cpu usage value closest to the migration_vector.
   - When found that VM, it checks the host if it is having adequate RAM for the new VM.
   - If host has adequate RAM then this VM is migrated to the host with minimum cpu
   - When no such VM or host found then load this methods exits

get_host_domains_ID

get_migration_vector

returns the migration
vector, which is the
average of MAX and
MIN host cpu usage

returns the list of VM ids
hosted under host

load_balancer()

when VM created or deleted,
load_balancer function is called

mysql DB

task scheduler [VM
creation or deletion]