Storage Structure and Server Management sub-system APIs

Group 1 Team 1

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Sub System APIs

1. ServerLCManager

Name: getAvailableHostName()
Input: Void
Output: List of available hostnames

Name: startVM(hostname)
Input: Host machine IP Address
Output: hostIp

Name: stopVM(hostname)
Input: Host IP Address
Output: Response (True/ False)

2. ServiceLCManager

Name : StartService(serviceName)
Input : host machine ip
Output : Notify deployment service

Name : StopService(servicename)
Input : ip where service is running
Output : Notify deployment service

Name : getServiceStatus(servicename)
Input : service name
Output : status of service

Name : getServiceStatusAll()
Input : void
Output : status of all services.

3. TopologyManager

Name: getInstanceOfService(serviceName)
Input : Service Name
Output: URL of available Service

Name: getAllInstancesOfService(servicename)
Input: servicename
Output: All running instances of a service

Name: registerService(ServiceId, Servicename, serviceURL)
Input: ServiceId, ServiceName, serviceURL
Output: True/False

Name: unregisterService(ServiceId, ServiceName, ServiceURL)
Input: serviceId, servicename, serviceurl
Output: True/False

4. RequestManager

Name: login()
Input: credentials
Output: success/failure

Name: deployRequest()
Input: zip containing model file, config file.

ConfigFile Details:

- Model name
- Schedule Start Time
- Schedule End time
- Scheduling Type
- DeployLocation: Gateway/Cloud
- GatewayURL: “10.2.23.45”

Output: Successful Deployment/Error message

Name: logout()
Input: None

Output: “Log out successful”

Name: InferenceRequest()
Input: model, request parameter (e.g. image or video or stream), action/notification details
Output: Notification or action performed accordingly to rules engine

Name: SchedulingRequest()
Input: ModelName, StartTime, EndTime, ScheduleTime,Location(Edge/Cloud)
Output: Success/Error message

Name: RegisterIoTStream()
Input: DeviceLocation, DeviceType, StreamTopic, StreamIP, StreamPORT
Output: Success/Error message

Name: viewModelStatus(modelname)
Input: ModelName
Output: Running status, deployment status of the model

Name: viewAllModels()
Input: None
Output: List of all models with their running status, deployment status

5. LoadBalancer

Name: getLoadOfServer(IP Address)
Input: IP Address
Ouptut: Server Load

Name: calculateLoadOfServer(cpu_utilization, ram_usage, no_of_connections)
Input: CPU utilization, ram_usage, active_connections
Output: load (floating point number)

Name: handleRequest(virtualAddress)
Input: Virtual IP
Output: Redirect to server

Name: checkHeartBeat()
Input: None
Output: None

6. ServerStats

Name: initialize(url, username, password)
Input: RabbitMQURL, username, password
Output: None

Name: getCPUUsage()
Input: None
Output: CPU Usage percent

Name: getMemoryDetails()
Input : None
Output: Returns available, total and free RAM memory

Name: updateStatus()
Input: None
Output: None

Name: sendDetailsToQueue()
Input: None
Ouptut: Success/Error message

Storage Structures

1. Sensor Information

- Sensor Type
- Sensor Location
- Sensor ID
- Gateway ID in which sensor is deployed

2. Gateway Information

- Gateway ID
- Gateway Name
- Gateway IP
- Gateway PORT
- Sensor Lists

3. Server Information

- Server ID
- Server Instance Name
- Server IP
- Server PORT
- Services information

4. Service Information

- ServiceID
- Service-to-server mapping
- ServiceName
- Dependencies
- ThresholdMinRAM
- MAX_RAM Threshold
- MinCPUThreshold
- MaxCPUThreshold

4. Scheduling Information

- Schedule Type
- Schedule Start Time
- Schedule Stop Time
- Model to schedule

5. User Information

- User name
- User Id
- User Password Salt
- Registered Gateways

- Models uploaded

6. Network Topology

- Service Location
- Number of services running
- Server Instances
- Server-Service mapping

7. Server Stats

- ServerID
- CPU Usage
- Ram usage
- Service ID

8. Logging Information

- Log Type (DEBUG, ERROR, INFO)
- TimeStamp
- Message
- ServerIP
- ServiceName