

1. Title :- Microservices Using Docker Swarm

2. Project Description

Purpose of this project is to deploying the clients services like webpage hosting having web server with database as a suite of independently deployable, small, modular services in which each service runs a unique process and communicates through a well-defined, lightweight mechanism to serve a goal using dockers containers.

3. Installation / Usage Instructions

MasterNode :IP	192.168.0.13	piyush.expert.com
Node 1 :	IP 192.168.0.9	piyushcl1.example.com
Node 2 :	IP 192.168.0.4	piyushcl2.example.com
Node 3 :	IP 192.168.0.14	piyushcl3.example.com

NOTE:- Steps and Commands in separate files attached.
Dockermanager.pdf ; Node1.pdf ; Node2.pdf ; Node3.pdf
(Please refer these files attached in mail)

4. Use Cases and Edge Conditions

I have developed a swarm cluster in which customers or clients come to swarm manager with their request to which service they wants to deploy. Like one container for WordPress and one more container as Mariadb for back end, that Mariadb container is linked to the wordpress container. And one more container for PhpMyadmin that is linked to Mariadb database, basically, it is used to access Mariadb database.

Usecase 1 : deployment of wordpress mariadb phpmyadmin

Usecase 2 : deployment of webserver nginx

Edge Conditions are:-

1. Very difficult to manage the linking of services.
2. Dependency on the swarm manager.

5. Workflow

I have used the docker containers for the implementation. Like I have built cluster of nodes an docker is running on these nodes. Out of which One is main node on which DockerSwarm is running which handle all other nodes. All the services images files must be loaded in all docker nodes. So when client come to us for deployment of his/her services like wordpress , phpmyadmin, mariadb, nginx etc. Then I will create a service as no. of replicas of it like for database service more than replicas for recovery in case of crash. As a result a container is launched in any of dockers Nodes dependings upon availability of resources like ram, cpu,

hardisk etc. and which docker is picked is dependent on the algorithms which is used by Docker Swarm. All this dockers are linked internally by docker swarm.

Input :- Docker images, No of instances, User, Password.

Output:- Services launched in dockers containers linked with each other internally.

6. Data Formates and Reportings

NOTE:- Data formates and logs are mentioned in separate files.

Output.pdf ; Log.pdf (Please refer these files attached in mail)

7. Performance and Scaling

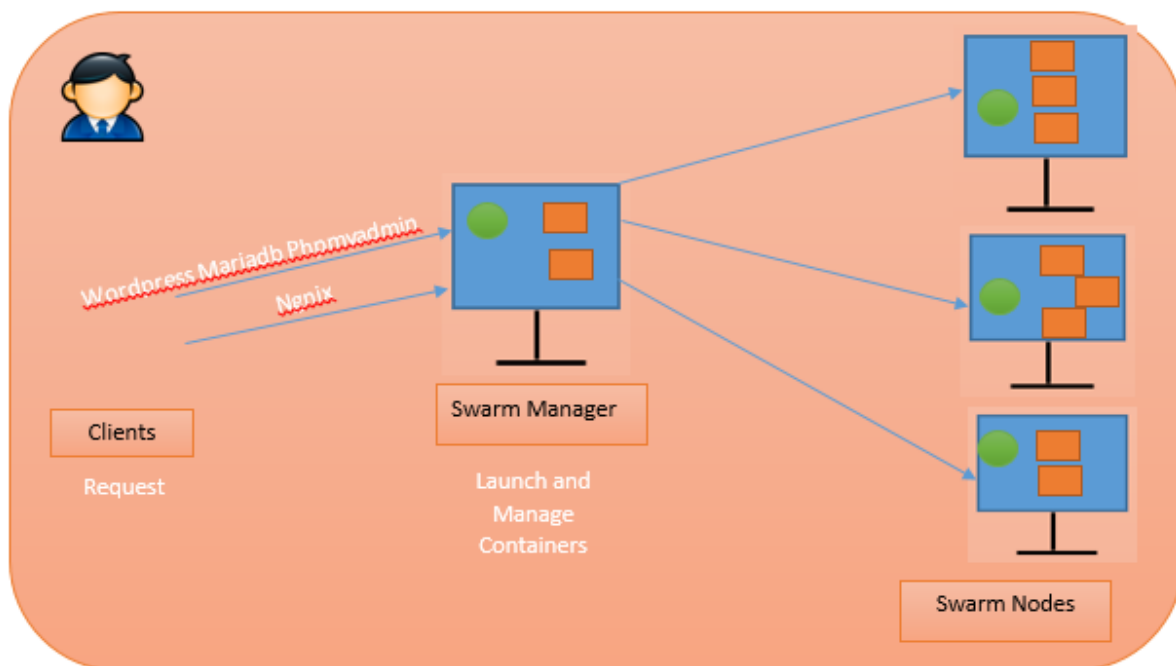
For better performance and scalability of cluster we can use Docker-compose or Docker stack Deploy methods.

8.Unresolved issues

I am unable to linked mariadb with phpmyadmin as when I fail to login the database using root accounts as show in image in Output.pdf File attached in mail.

But I tried this also by docker stack deploy method using docker-compose.yml file there is issue of linking the wordpress with mariadb and mariadb with phpmyadmin.

But This can be easily resolved using docker-compose method as there is method of linking using `--link` . When i use same with docker stack deploy there is error not to identify link keyword.



- Discovery Service
- Containers

