Solution

Vagrant

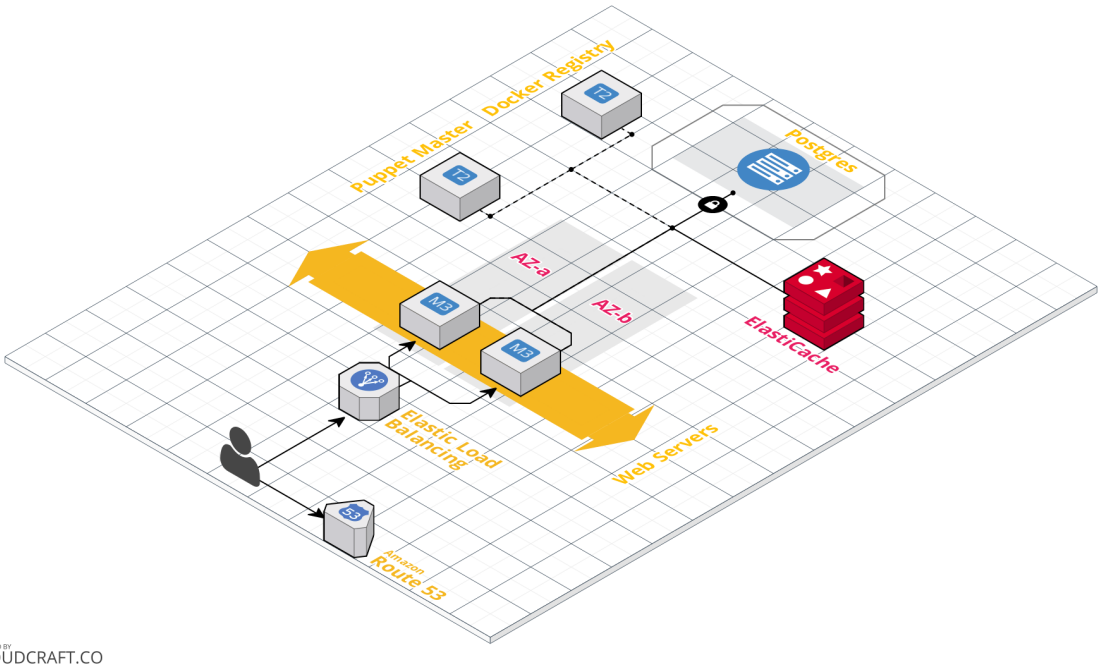
- `./Vagrantfile`
    - Build docker image of guestbook
    - Run `bootstrap.sh` which will instal puppet agent, and puppet modules
    - Run puppet provisioning
    - Run `postbootstrap.sh` which will run `rake db:migrate` and reboots
- `./manifests/default.pp`
    - Install/configure redis, postgres
    - Run guestbook container with defined `REDIS_HOST` and `DATABASE_URL` parameters.

Use `vagrant up --provision` to run/provision guestbook application. When done demo web should be reachable at: http://192.168.30.30/

P.S: in case of nic related errors, please upgrade vagrant to latest version.

AWS

Link



Posgres server[s] assumed located in different data center connected to AWS VPC with VPN in HA mode.

For all ELB/EC2 security groups, by default all inbound ports are filtered and allowed only ones required, such as port 80 from outside to ELB, port 80 from ELB to web applications, etc.

ELB

Both web application instance will be added in ELB with health check configured.

Route 53

New DNS record creating alias for ELB.

Web Applications

Guestbook application by itself will be built as docker container. This will provide easier way to create and package whole application in commit stage tests of CI/CD which will be added later to the application. We will be able to test application after commits, and if it passes build container and push to registry for further testing (Acceptance, Manual) or deploying in production. CI/CD should version containers so that we should be always aware of which version is being tested, is deployed or is release candidate.

For HA will be running 2 EC2 instances in two AZ both attached to the same ELB.

`Cloud-init` script installs puppet agent and sets `facter` role attribute to string such as `guestbook`.

For this role puppet will install docker daemon, and runs `guestbook` container, pulling from registry.

Adding new instance for web application would require create new EC2 instance with the same `cloud-init` script. Puppet will do the whole configuration/provisioning. When done we can than add new instance to ELB to place in production.

Puppet Server

Dedicated EC2 instance running open source puppet master. Using `Code Manager` to deploy forge or custom module on puppet master. Using `hiera` for configuration values separating from puppet modules.

Docker Registry

Separate EC2 instance, provisioned by puppet master to run docker registry as container mounting data volume separately.

ElastiCache

For web application, new ElastiCache redis will be running with Multi AZ and failover configured. In case of failure, application should be able to switch to new master node promoted automatically by ElastiCache.