Cloud Computing and Virtualization

Practical Lab 3 – Load Balancing

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Practical Lab 3 – nginx as a Load Balancer

- Tasks – Replicate TP class examples
  1. Create a 3 node Vagrant setup (lb01, web01, web02) using Ubuntu 22.04
     1. Install nginx on the 3 nodes
     2. Setup the two web servers to serve a simple HTML page (“Hello, web01”, “Hello, web02”)
     3. Setup the remaining node (lb01) to serve as a load balancer to web01 and web02
     4. Test that the basic setup is working
     5. Test all the balance methods
        1. Q: What is the purpose of each one? (Pros/cons)
        2. Q: What would happen with JSON Web Tokens? What about traditional sessions and cookies?
     6. Check the access logs across nodes. What is the problem?
        1. Customize logs and headers to make them more useful
     7. Set a weight of 3 to node web01 and verify the result
     8. Configure static assets, such as jpg images, to always be served by web02
     9. What happens to requests if one web node is down?
        1. What happens when it gets back up?

Vagrant boxes:
bento/centos-stream-9
generic/ubuntu2204

Challenge: automate provisioning with Ansible and create playbooks + templates to test each step

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- Tasks – Additional challenge
  1. Setup a load balancer in front of your *small app* (2 nodes of simple php script querying a table in a 3rd node with the DB)
     1. Create two endpoints (or php files): 1) CPU intensive task; 2) DB intensive task
     2. Use Vegeta to assess performance when using one versus two php nodes