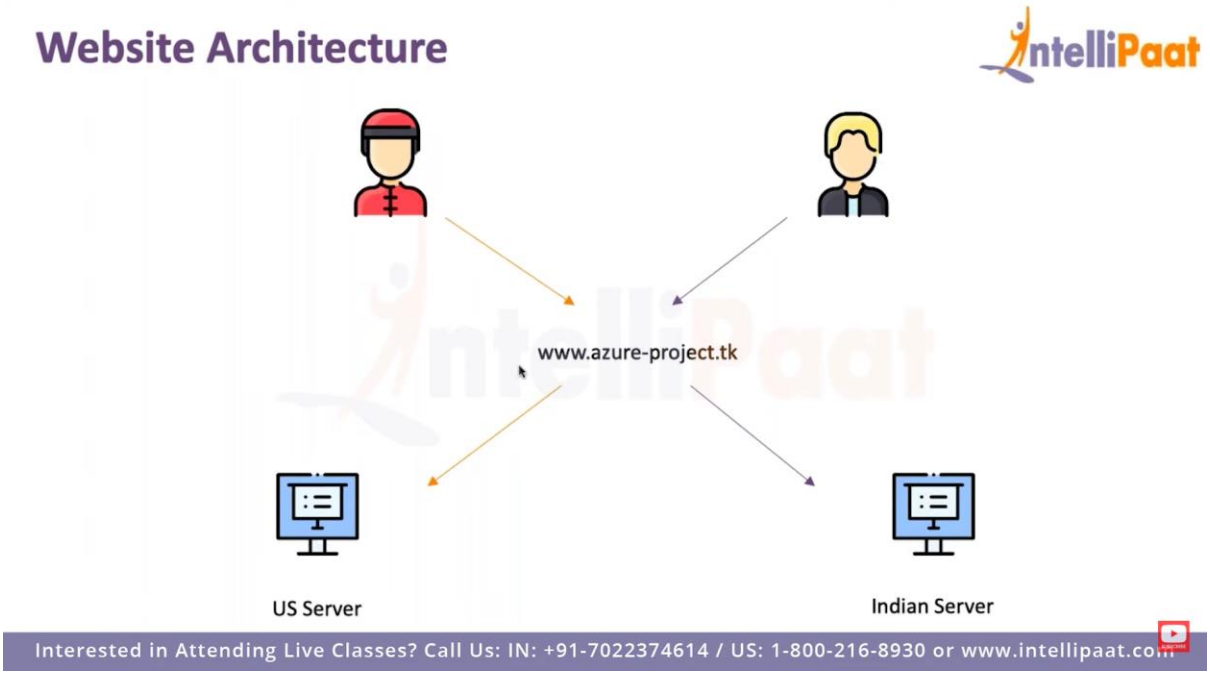
Website architecture:



- We will have 2 sets of server – In us region, in India region .
- We will have lb above servers.
- If Indian users access lb –> request is to be routed to Indian server, in Indian server we will have lb which will route request to specific Indian server .
- If Us users access lb –> request is to be routed to u.s server and traffic to be divided among us servers
- We will deploy some server to us and some server to india and we will have lb above servers .
- How redirection happens between regions ? We will have a traffic manager , which can see according to which region the request is coming from and which of these servers either Indian or us which can deal with the request faster based on distance and it will route request to nearest region .

1. Launch 2 ubuntu server – authentication type - password , 1 cpu 1 gb ram – inbound – 22 , - region – india.
2. Turn off booth diagnostics for vms .
3. Both Indian servers -> in 1 subnet and Indian lb -> in 1 subnet ; noth in 1 vnet
4. Both us servers -> in 1 subnet and us lb -> in 1 subnet ; noth in 1 vnet
5. Create resource group for us server and deploy 2 ubuntu server in us region .
6. Login to Indian servers and install apache2 .
   sudo apt-get update
   sudo apt-get install apache2
7. Open firewall for http port and try accessing ips from browser , apache should be accessible .
8. Networking > add inbound rules > port 80
9. To replace apache server with our web app change /var/www/html/index.html file .
   cd /var/www/html
   rm index.html
   vi index.html
10. Do same for both Indian servers and us servers (in index.html replace with server1 serve2 etc to test load balancing).
11. Add lb on top of both Indian servers .
12. We will deploy application gateway (a type of load balancer) as lb .
13. Us servers and us app gateway should be in same vnet but different subnet.
14. Deploy app gateway for us server in us region –> max scale unit – 10 –> subnet (subnet can only have app gateway ip) -> vnet > us server vnet > add subnet – (check subnet range in address space of vnet and update subnet range to – 10.3.0.0/16 .) Now add subnet for app gateway – 10.3.5.0/24 . – select app gateway subnet > add frontend ip for app gateway > add public ip for frontend – add new > backend –

now add backend pool – target type – vm (add both vm as backend pool in app gateway) > configuration – add routing rule –> Listener – frontend ip (public) – http (80) – listener type (basic) – error page url (no) > Backend targets – target type – backend pool – http settings (new) – protocol – http – port 80 > deploy

15. Deploy app gateway for Indian servers also using above steps. For Indian server autoscaling to be off
16. Try accessing us app gateway with ip – (check in backend pool whether us servers are added to backend pool or not – if app gateway not accessible)
17. Check backend health in app gateway – both servers should be listed . if servers are not listed then deleted server from pool and add it again
18. Try accessing Indian app gateway also . – refresh and check whether its routing to both servers in regular interval or not – if boths servers are redirected that means app gateway is working with backend pool servers fine .
19. In traffic manager we need dns name for our app gateway ip to configure endpoint .
20. Go to Indian app gateway – configuration – add dns name
21. Traffic manager -> deploy in us -> routing method(geographic) -> create
22. Configure traffic manager to connect to load balancer – >add endpoint –
    - Endpoint for Indian server : target resource type – public ip ; add public ip address of Indian app gateway . ->geo-mapping – region – asia ; country – india
    - Try to access traffic manager url : Indian servers should be accessible from traffic manager .
23. Goto freenom – we can configure domain for free – create a domain .
24. Freenom > Services > register new domain >
25. DNS ZONES > Create custom url that will connect to traffic manager . – in name specify domain we created from freenom .> create
26. Configure dns zone to connect to traffic manager .
27. In dns zone we will get named servers – these name servers we have to configure in website which is giving us dns name .
28. Go to freenom – your created domain – manage domain – management tools- named servers – replace the name servers with the 1 in azure dns name .
29. SO now our domain is configured to connect to azure dns zone ,
30. Now we have to point – DNS ZONE -> TRAFFIC MANAGER
31. Add record set -> Type (cname) ->yes-> azure resource – select indian traffic manager .
32. Now check us app gateway is accessible or not .
33. Configure us app gateway > dns name .
34. Traffic manager > add endpoint for us server > Region – all world > add
35. Traffic manager > endpoint > monitor status to be online . for successful configuration .
36. Now try accessing traffic manager url it will route to all servers based on location
37. Now check freenom domain and try accessing it – it should also route .