IaaS Hackathon (11/03)

2-Tier Web Application

Leader Guide

1. Create resource group
   1. On left pane click Resource Groups
   2. Click Add
   3. Enter
      1. Name: hackathon1103
      2. Subscription: Select your subscription
      3. Resource group location: East US 2
2. Create VNET
   1. Refresh resource groups and select the previously created group.
   2. Click Add
   3. Search for and select “Virtual Network”
   4. Click Create
   5. Provide
      1. Name: hackathon-vnet
      2. Address space: 10.1.0.0/24
      3. Resource Group: hackathon1103
      4. Location: East US 2
      5. Subnet Name: mgmt
      6. Subnet Address range: 10.1.0.0/27
   6. Click Create
3. Create Subnets
   1. Go back to Resource Group
   2. Click hackathon-vnet
   3. Click Subnets
   4. Click mgmt.
   5. Click + Subnet
   6. Provide
      1. Name: web
      2. Address range: 10.1.0.32/28
      3. Ok
   7. Repeat e-f
      1. Name: sql
      2. Address Range: 10.1.0.48/28
      3. Ok
4. Create Network Security Groups
   1. Return to Resource Group
   2. Click Add
   3. Search and select Network Security Group
   4. Click Create
   5. Provide:
      1. Name: mgmt
      2. Resource Group: hackathon1103 (existing)
      3. Location: East US 2
   6. Create
   7. Repeat e-f for web and sql
   8. Refresh Resource Group
   9. Click mgmt.
   10. Click Inbound security rules
   11. Click Add
   12. Enter
       1. Source: Any
       2. Source port range” \*
       3. Destination: Any
       4. Destination port range: 3389
       5. Name: RDP
       6. Click OK
   13. Repeat I-L for web
       1. Source: Any
       2. Source port range” \*
       3. Destination: Any
       4. Destination port range: 80
       5. Name: HTTP
       6. Click Ok
       7. Click Add
       8. Source: Any
       9. Source port range” \*
       10. Destination: Any
       11. Destination port range: 443
       12. Priority: 110
       13. Name: HTTPS
       14. Click Ok
   14. Repeat I-L for sql
       1. Source: 10.1.0.32/28
       2. Source port range” \*
       3. Destination: Any
       4. Destination port range: 1433
       5. Name: SQL
       6. Click OK
5. Return to Subnets and attach associated NSG’s
   1. Go to resource group
   2. Click hackathon-vnet
   3. Click Subnets
   4. Click on each subnet and choose the appropriate Network Security Group
   5. Save and repeat for each subnet (mgmt/web/sql)
6. Create mgmt. Virtual Machine
   1. In hackathon1103 Resource Group click Add
   2. Search and select Windows Server 2016 Datacenter
   3. Click Create
   4. Provide following
      1. Basics:
         1. Name: mgmt1
         2. VM disk type: ssd
         3. Username: hackathon1103
         4. Password: P@55w0rd12345
         5. Resource Group: hackathon1103
         6. Location: East US 2
         7. Click Ok
      2. Size:
         1. Click DS1\_V2 Standard
         2. Click Select
      3. Settings:
         1. Availability Set: none
         2. Managed disks: Yes
         3. Virtual Network: hackathon-vnet
         4. Subnet: mgmt.
         5. Public IP: (new) mgmt1-ip
         6. Network Security Group: mgmt. (created earlier)
         7. Auto-shutdown: On – 6pm EST
         8. Click Ok
         9. Click Create
7. Create Web Virtual Machine
   1. In hackathon1103 Resource Group click Add
   2. Search and select Windows Server 2016 Datacenter
   3. Click Create
   4. Provide following
      1. Basics:
         1. Name: web1
         2. VM disk type: ssd
         3. Username: hackathon1103
         4. Password: P@55w0rd12345
         5. Resource Group: hackathon1103
         6. Location: East US 2
         7. Click Ok
      2. Size:
         1. Click E2S\_V3 Standard
         2. Click Select
      3. Settings:
         1. Availability Set: (create new)
            1. Name: web
            2. Fault Domains: 3
            3. Update domains: 5
            4. Click ok
         2. Managed disks: Yes
         3. Virtual Network: hackathon-vnet
         4. Subnet: web.
         5. Public IP: none
         6. Network Security Group: web. (created earlier)
         7. Auto-shutdown: On – 6pm EST
         8. Click Ok
         9. Click Create
8. Repeat step 7 for web2. Note availability set is now already created.
9. Create SQL Virtual Machine
   1. In hackathon1103 Resource Group click Add
   2. Search and select SQL Server 2016 SP1 Standard on Windows Server 2016
   3. Click Create
   4. Provide following
      1. Basics:
         1. Name: sql1
         2. VM disk type: ssd
         3. Username: hackathon1103
         4. Password: P@55w0rd12345
         5. Resource Group: hackathon1103
         6. Location: East US 2
         7. Click Ok
      2. Size:
         1. Click DS11\_V2 Standard
         2. Click Select
      3. Settings:
         1. Availability Set: (create new)
            1. Name: sql
            2. Fault Domains: 3
            3. Update domains: 5
            4. Click ok
         2. Managed disks: Yes
         3. Virtual Network: hackathon-vnet
         4. Subnet: sql
         5. Public IP: none
         6. Network Security Group: sql (created earlier)
         7. Auto-shutdown: On – 6pm EST
         8. Click Ok
         9. SQL Connectivity: Private
         10. Port: 1433
         11. SQL Authentication: enable
         12. Click Ok
         13. Click Create
10. Create External Load Balancer for Web
    1. At Resource Group click Add
    2. Search and select Load Balancer
    3. Click Create
    4. Provide Following:
       1. Name: webLB
       2. Type: Public
       3. Public IP Address: Create New
          1. Name: webLB
          2. Assignment: Static
       4. Resource Group: hackathon1103
       5. Click Create
    5. Go to Resource
       1. Click Backend Pools
       2. Click Add
          1. Name: web
          2. Associated to: availability set
          3. Availability set: web
          4. Click + Add a target network IP configuration
             1. Target virtual machine: web1
             2. Network IP configuration: ipconfig1
          5. Click + Add a target network IP configuration
             1. Target virtual machine: web2
             2. Network IP configuration: ipconfig1
          6. Save and close blade
       3. Click Health probes
          1. Click Add
             1. Name: web
             2. Protocol: http
             3. Click Ok
       4. Click Load Balancing Rules
          1. Click Add. Leave defaults except
             1. Name: web
             2. Session persistence: Client IP
          2. Click Ok
11. Create Internal Load Balancer for SQL
    1. At Resource Group click Add
    2. Search and select Load Balancer
    3. Click Create
    4. Provide Following:
       1. Name: sqlLB
       2. Type: Internal
       3. Virtual Network: hackathon-vnet
       4. Subnet: sql
       5. Resource Group: hackathon1103
       6. Click Create
    5. Go to Resource
       1. Click Backend Pools
       2. Click Add
          1. Name: web
          2. Associated to: availability set
          3. Availability set: sql
          4. Click + Add a target network IP configuration
             1. Target virtual machine: sql1
             2. Network IP configuration: ipconfig1
          5. Save and close blade
       3. Click Health probes
          1. Click Add
             1. Name: sql
             2. Protocol: TCP
             3. Port: 1433
             4. Click Ok
       4. Click Load Balancing Rules
          1. Click Add. Leave defaults except
             1. Name: sql
             2. Port: 1433
             3. Backend port: 1433
          2. Click Ok
12. Install IIS on Web Servers via jump mgmt. server
    1. Return to resource group
    2. Open mgmt1
    3. Click Connect
       1. Open the RDP file if prompted
    4. Credentials were: hackathon1103 / P@55w0rd12345
       1. Once connected launch RDP session to web1 (same credentials)
       2. In Server Manager Click Add Roles/Features (if error pops up wait a few moments and try again)
       3. On select server roles choose Web Server (IIS)
       4. Click Add Features in the popup
       5. Click Next until last page and click Install.
    5. Repeat for web2
13. Test Your Work
    1. From jump mgmt server open IE and browse to the below and see if you receive the IIS default homepage
       1. <http://web1>
       2. <http://web2>
    2. If both are successful return to the Resource Group and find the webLB resource.
    3. Click the resource and locate the ‘Public IP address’. Browse from your desktop to this Public ip e.g. <http://52.232.188.15> and see if you can now connect to the load balanced servers.
    4. You can test the load balancers by stopping/starting the World Wide Web Publishing Services service via services.msc, or stopping/starting the virtual machines.