Cognizant CLOUD SERVICES

Blueprint – Azure CDN

Revision History

Date	Version	Author	Reviewer(s)	Comments
23-Aug-2018	1.0	Sudarson	Tressa	Initial Draft

Contents

1.   Scope

This document provides the blueprint for the AZURE CDN offered by AZURE. This contains the below.

1. Service Usage
2. Provisioning Scripts
3. Support Objectives
4. Monitoring metrics
5. Monitoring Setup Scripts

2.   Overview

Content Delivery Network (CDN) helps in delivering the static content for distributed applications to strategic locations known as PoP (Point of Presence). The static contents can be images, documents, video files, HTML files and HTML fragments etc. CDN offers a low latency network for faster delivery of static contents regardless of the geographic locations. Being able to access the static contents from CDN PoPs which are closure to the user's location the applications can offer better user experience in terms of performance.
For more details, see https://docs.microsoft.com/en-us/azure/cdn/cdn-overview

3.   Service Usage

3.1 Best Practices

- Content Origin to be blob storage and access should be through Shared Access Signature
- Consider using custom domains, as there is a possibility of an external site with the corporate domain being blocked by the proxy
- Ensure that the countries supported are restricted based on the customer's presence and application presence requirement
- Configure rule engine to ensure that only https traffic is allowed (by setting up protocol filtering). Similarly configure rule engine to setup URL restriction and URL rewrite options
- Token based authentication to use for sensitive data being served in the CDN
- Diagnostic logging to be enabled for all CDN endpoints
- Look at pre-loading the static content to increase initial load performance. It is recommended to pre-load specific content instead of all. https://docs.microsoft.com/en-us/azure/cdn/cdn-preload-endpoint

3.2 Recommended tiers for enterprise usage

Verizon Premium tier is recommended for production due to below reasons

1. It offers URL redirect / URL rewrite using its rule engine feature. Else, blob origin with the SAS token will be exposed

2. Token authentication feature is offered

3.3 Microsoft SLA

99.9%. Refer https://azure.microsoft.com/en-us/support/legal/sla/cdn/v1_0/

3.4 Additional Notes

- CDN endpoints reside outside Microsoft Azure Network
- Content can't be restricted from travelling to specific POP location

3.5 Technical Limitations

- It may take around 90 minutes for changes to country filtering configuration to take effect
- It may take around 90 minutes for any rule engine changes to take effect

3.6 Service Usage Diagram
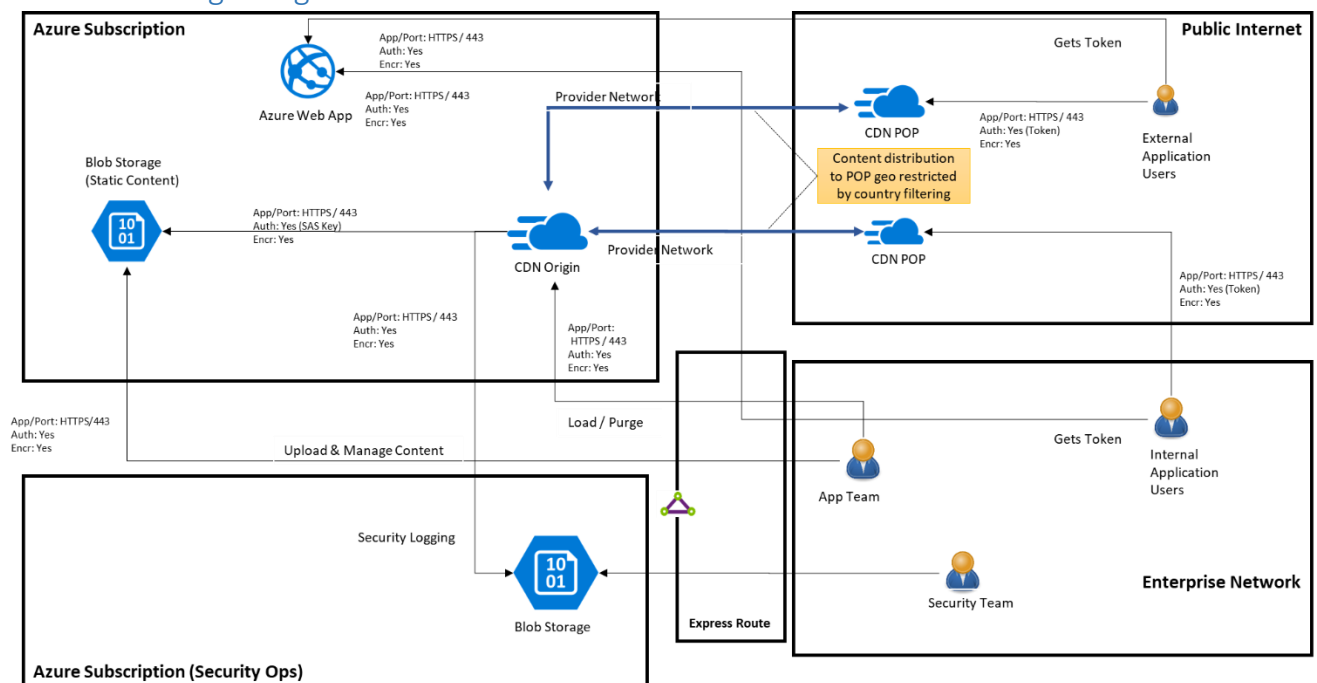
4. Provisioning Script

The below ARM template is to be used to provision an instance of the service.

This consists of the below parameters

Parameter Name	Description
cdnprofileName	Name of the CDN Profile
cdnendpointName	Name of the CDN Endpoint
cdnoriginhostname	Content source (only BLOB storage is allowed)

CDNSku	CDN SKU name
CDNTagValues	Name of the Tag Values

<u>Template Script</u>

```json
{
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {

    "cdnprofileName": {
      "type": "string",
      "metadata": {
        "description": "Name of the CDN Profile"
      }
    },

    "cdnendpointName": {
      "type": "string",
      "metadata": {
        "description": "Name of the CDN Endpoint"
      }
    },

    "cdnoriginhostname": {
      "type": "string",
      "metadata": {
        "description": "Cotent source (only BLOB storage is allowed)"
      }
    },

    "CDNSku": {
      "type": "string",
      "metadata": {
        "description": "CDN SKU name"
      },

      "defaultValue": "Premium_Verizon",
      "allowedValues": [
        "Premium_Verizon"
      ]
    },

    "CDNTagValues": {
      "type": "object",
      "defaultValue": {
        "Tag1Name": "Tag1Value",
        "Tag2Name": "Tag2Value"
      }
    }
```

```json
    },

    "variables": {

      "cdnprofile": "[concat('prefix-',parameters('cdnprofileName'),'-
',parameters('CDNTagValues').environment,'-prof')]",
      "cdnendpoint": "[concat('prefix-',parameters('cdnendpointName'),'-
',parameters('CDNTagValues').environment)]",
      "cdnoriginhost":
"[concat(parameters('cdnoriginhostname'),'.blob.core.windows.net')]"
    },

    "resources": [
      {
        "name": "[variables('cdnprofile')]",
        "type": "Microsoft.Cdn/profiles",
        "location": "[resourceGroup().location]",
        "tags": "[parameters('CDNTagValues')]",
        "apiVersion": "2016-04-02",
        "sku": {
          "name": "[parameters('CDNSku')]"
        },
        "resources": [
          {
            "apiVersion": "2016-04-02",
            "dependsOn": [
              "[resourceId('Microsoft.Cdn/profiles', variables('cdnprofile'))]"
            ],
            "location": "[resourceGroup().location]",
            "tags": "[parameters('CDNTagValues')]",
            "name": "[variables('cdnendpoint')]",
            "type": "endpoints",
            "properties": {
              "originHostHeader": "[variables('cdnoriginhost')]",
              "isHttpAllowed": false,
              "isHttpsAllowed": true,
              "originPath": null,
              "origins": [
                {
                  "name": "Primary-origin",
                  "properties": {
                    "hostName": "[variables('cdnoriginhost')]"
                  }
                }
              ]
            }
          }
        ]
      }
    ]
  }
```

5. Support Objectives

Below are the objectives to be fulfilled while providing support for instances of AZURE CDN.

1. Provision CDN profile
2. Add / manage tags
3. Add / delete endpoints
4. De-provision CDN profile

6. Monitoring Metrics

This section details the metrics which are to be monitored for instances of AZURE CDN.

Note: Monitoring metrics are available only in Verizon Premium tier.

6.1 Recommended Metrics

The following metrics are recommended to be enabled by default:

Metrics	Category	Operator Type	Threshold	Unit	Frequency in Mins/Hrs
Bandwidth Mbps	Performance	<=	3	Mbps	5M
Total Connections	Performance	>=	25	Count	5M
Cache Status : Total Hits per second	Performance	>=	3000	Count	5M
Cache Status : TCP_MISS per second	Performance	>	100	Count	5M
Status Code : 3XX per second	Performance	>=	3	Count	5M
Status Code : 5XX per second	Performance	>=	3	Count	5M
Status Code : Total Hits per second	Performance	>=	20	Count	5M

6.2 Optional Metrics

The following monitoring metrics are optional and can be enabled on a need basis.

Metrics	Category	Operator Type	Threshold	Unit	Frequency in Mins/Hrs
Cache Status : TCP_HIT per second	Performance	>	3000	Count	5M
Status Code : 4XX per second	Performance	>=	3	Count	5M

7.   Monitoring Metrics Setup Script

Currently, there is no support from Azure Monitor for CDN. The metrics mentioned above are to be manually configured on the Verizon CDN portal.