

1 Complementary Services for Microsoft Azure - PaaS & Serverless

1.1 Overview

This service description covers the management of Microsoft PaaS & Serverless services and is an add-on to Managed Azure Core Services. *NTT Public Cloud Management - Managed Azure - Core Services* must also be contracted.

Managed PaaS & Serverless Services cover the following:

- (a) Web Services
- (b) Functions
- (c) Integration Services
- (d) Databases Services
- (e) Analytics

The services listed below are fully supported as part of this Service Description. As Public Cloud technology evolves at such a rapid pace, it is not possible to maintain a fully up-to-date list of supported features and services. This description, therefore, serves as a baseline across common categories.

The exact scope of the solution being delivered to the Client and related charges are clearly stated in the Statement of Work (SOW).

Category	Managed Element	Supported Services
Compute	Cloud PaaS App	. Azure WebApps . Apps Services . Notification Hub
	Cloud Serverless Function	. Azure Function
Integration, Data & Analytics Services	Cloud Data (Integration)	. API Management . Logic Apps
	Cloud Data (Processing)	. Analysis Services . Azure Data Lake Storage . Azure Data Lake Analytics . Azure DataBrick . Azure Synapse Analytics . Azure Data Factory . Event Hub
Database Services	Cloud Database	. Azure Cosmos DB . Azure Database for MySQL . Azure SQL Database . Azure SQL Managed Instance . Table Storage . Azure Cache for Redis . Azure Database for Maira DB . Azure Database for PostgreSQL

1.2 Compute Services

(a) Cloud PaaS Apps

(i) Overview

This element of the service covers the configuration, monitoring, and management of Cloud PaaS Applications. Charges are based on the number of instances present in the environment.

(ii) Supported Technologies

- WebApps
- Notification

Cloud PaaS App /Web Apps	
Overview	Cloud PaaS Apps/Web Apps are HTTP-based services for hosting web applications, REST APIs, and mobile back ends
Setup Activities	. Create and set the deployment credential . Publish application; (this task can be delegated to the Client if required) . Map custom domain

Cloud PaaS App /Web Apps	
	<ul style="list-style-type: none"> <li>. Enable diagnostic logs</li> <li>. Upload SSL certificates</li> <li>. Setup deployment slots</li> <li>. Setup monitoring</li> <li>. Upload Java application</li> <li>. Connect to on-premise resources</li> <li>. Secure app</li> <li>. Scale app</li> <li>. Create a schedule backup plan</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Stop, start, restart and delete web app</li> <li>. Scale app up or down</li> <li>. Scale instance count</li> <li>. Move an app to another App Service Plan</li> <li>. Scale an App Service Plan</li> <li>. Delete an App Service Plan</li> <li>. Modify backup schedule</li> <li>. Restore app service from backup</li> <li>. Clone an existing app</li> <li>. Publish application (this task can be delegated to the Client if required)</li> <li>. Change deployment slots (this task can be delegated to the Client if required)</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Bytes Received. Bytes Sent</li> <li>. Cpu Percentage</li> <li>. Disk Queue Length</li> <li>. Http Queue Length</li> <li>. Memory Percentage. Cpu Time</li> <li>. Requests</li> <li>. Http2xx</li> <li>. Http3xx</li> <li>. Http401</li> <li>. Http403</li> <li>. Http404</li> <li>. Http406</li> <li>. Http4xx</li> <li>. Http5xx</li> <li>. Memory Working Set</li> <li>. Average Response Time</li> <li>. Average Memory WorkingSet</li> <li>. Http101</li> </ul>
<b>Service Limitation</b>	

Table 1 Cloud PaaS App

Notification Hub			
<b>Overview</b>	Azure Notification Hubs provide an easy-to-use and scaled-out push engine that enables you to send notifications to any platform (iOS, Android, Windows, etc.) from any back-end (cloud or on-premises).		
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create a Namespace and Notification Hub</li> <li>. Configure the platform notification system (PNS)</li> </ul>		
<b>Client Request</b>	. Change Tier for notification hub		
<b>Available Monitors</b>	allPNSOutgoingBadOrExpiredChannelErrors allPNSOutgoingChannelErrors allPNSOutgoingExternalNotificationSystemErrors allPNSOutgoingInvalidPayloadErrors allPNSOutgoingSuccesses APNSOutgoingBadChannelErrors APNSOutgoingExpiredChannelErrors	incomingScheduled incomingScheduledCanceled incomingTotal installationDelete installationGet installationPatch installationUpsert MPNSOutgoingAuthenticationErrors MPNSOutgoingBadChannelErrors	registrationUpdate scheduledPendingNotifications totalRequestsIncoming totalRequestsIncomingFailed WNSOutgoingAuthenticationErrors WNSOutgoingBadChannelErrors WNSOutgoingChannelDisconnected WNSOutgoingChannelThrottled

Notification Hub			
	IErrors APNSOutgoingInvalidCredentialErrors APNSOutgoingInvalidNotificationSizeErrors APNSOutgoingPNSuccesses GCMOutgoingAuthenticationErrors GCMOutgoingBadChannelErrors GCMOutgoingExpiredChannelErrors GCMOutgoingInvalidCredentialsErrors GCMOutgoingInvalidNotificationFormatErrors GCMOutgoingInvalidNotificationSizeErrors GCMOutgoingPNSuccesses GCMOutgoingThrottled GCMOutgoingWrongChannelErrors	MPNSOutgoingChannelDisconnectedErrors MPNSOutgoingDropped MPNSOutgoingInvalidCredentialErrors MPNSOutgoingInvalidNotificationFormatErrors MPNSOutgoingPNSuccesses MPNSOutgoingThrottled pushNotifications registrationAll registrationCreate registrationDelete registrationGet	WNSOutgoingDropped WNSOutgoingExpiredChannelErrors WNSOutgoingInvalidCredentialErrors WNSOutgoingInvalidNotificationFormatErrors WNSOutgoingInvalidNotificationSizeErrors WNSOutgoingInvalidTokenErrors WNSOutgoingPNSuccesses WNSOutgoingThrottled WNSOutgoingTokenProviderUnreachableErrors WNSOutgoingWrongTokenErrors
<b>Service Limitation</b>	Client is responsible for providing the certificate for authentication mode and is Out of Scope.		

Table 2 Azure Notification Hub

## (b) Cloud Serverless Function

## (i) Overview

This element of the service covers the configuration, monitoring and management of Cloud Serverless Function. Charges are based on the number of functions present in the environment.

## (ii) Supported Technologies

- Azure Function

Azure Function	
<b>Overview</b>	Azure Function services run small pieces of code without application infrastructure.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create the function project and the resources needed (Resource Group, Serverless plan, and Storage account)</li> <li>. Publish the project to Azure</li> <li>. Connect Azure Services or resources to function (add bindings)</li> <li>. Set up continuous deployment authorization</li> <li>. Add deployment Azure Functions slots</li> <li>. Deploy function app to Kubernetes (if Kubernetes management is contracted )</li> <li>. Add SSL Certificate</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Swap operations between sources and target slot</li> <li>. Remove a function app from Kubernetes</li> <li>. Enable/disable a function</li> </ul>
<b>Available Monitors</b>	Monitoring of Azure Function executions, data throughput and memory. <ul style="list-style-type: none"> <li>. Average Memory WorkingSet: Average memory working set, in bytes</li> <li>. Bytes Received: Number of bytes received, per second, by the web application</li> <li>. Bytes Sent: Number of bytes sent, per second, by the web application</li> <li>. Function Execution Count: Number of executions</li> <li>. Function Execution Units: Number of function execution units</li> <li>. Http5xx: Number of HTTP 5XX responses where the server failed to fulfill an apparently valid request</li> <li>. Memory Working Set: Amount of memory pages touched recently by the threads in the process, in bytes</li> </ul>

## Azure Function

### Service Limitation

Table 3 Cloud Serverless Function

#### 1.3 Integration, Data & Analytics Services

##### (a) Cloud Data (Integration)

###### (i) Overview

This element of the service covers the configuration, monitoring and management of Integration services. Charges are based on the number of number of services present in the environment.

###### (ii) Supported Technologies

- Azure API Management
- Azure Logic Apps

## Azure API Management

<b>Overview</b>	API Management (APIM) is a way to create consistent and modern API gateways for existing back-end services.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create an Azure API Management Service Instance</li> <li>. Grant access to Client to import and public APIs and use the service</li> <li>. Q testing</li> <li>. Set Api Management Policies</li> </ul>
<b>Client Request</b>	<ul style="list-style-type: none"> <li>. Configuration of the service for the Client to use it</li> <li>. QA testing</li> <li>. Request change policies.</li> <li>. Change the Api Management Limits (quotas)</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Capacity</li> <li>. durationRaw</li> <li>. failedRequestsRaw</li> <li>. otherRequestsRaw</li> <li>. Status</li> <li>. successfulRequestsRaw</li> <li>. totalRequestsRaw</li> <li>. unauthorizedRequestsRaw</li> <li>. Duration</li> <li>. FailedRequests</li> <li>. OtherRequests</li> <li>. SuccessfulRequests</li> <li>. TotalRequests</li> </ul>
<b>Service Limitation</b>	<p>The following are not included and are Out of Scope:</p> <ul style="list-style-type: none"> <li>. Coding of API interactions/calls or resolution/support of API is not included.</li> <li>. NTT does not manage the API Management environment; activities are applicable to the setup only. Management if Client responsibility.</li> </ul>

Table 4 Azure API Management

## Azure Logic App

<b>Overview</b>	Azure Logic App is a cloud service that helps to schedule, automate, and orchestrate tasks, business processes, and workflows.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create Logic App Service</li> <li>. Add Trigger</li> <li>. Add action to the Trigger</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Disable or enable logic apps</li> <li>. Delete Logic App</li> <li>. Promote Logic App Versions</li> <li>. Move logic app resources to other Azure resource groups, regions, or subscriptions</li> </ul>

Azure Logic App	
Available Monitors	Action Latency Action Latency Actions Completed Actions Failed Actions Skipped Actions Started Actions Succeeded Action Success Latency Action Throttled Events Billable Action Executions Billable Trigger Executions Billing Usage Native Operation Billing Usage Standard Connector Billing Usage Storage Consumption Run Failure Percentage Run Latency Runs Cancelled Runs Completed Runs Failed Runs Started Runs Succeeded Run Start Throttled Events Run SuccessLatency Run ThrottledEvents Total Billable Executions Trigger Fire Latency Trigger Latency Triggers Completed Triggers Failed Triggers Fired Triggers Skipped Triggers Started Triggers Succeeded Trigger Success Latency Trigger Throttled Events
Service Limitation	. Creation or modification of code/scripting is Out of Scope.

Table 5 Azure Logic App

- (b) Cloud Data (Processing)
- (i) Overview
- This element of the service covers the configuration, monitoring and management of Cloud Databases. Charges are based on the number of services present in the environment.
- (ii) Supported Technologies
- Event Hub
  - Analysis Services
  - Azure Data Lake Storage
  - Azure Data Lake Analytic
  - Azure DataBrick
  - Azure Synapse Analytics
  - Azure Data Factory

Azure Event Hub	
Overview	Azure Event Hubs is a Big Data streaming platform and event ingestion service that can receive and process millions of events per second. Event Hubs can process and store events, data, or telemetry produced by distributed software and devices.
Setup Activities	. Create NameSpace . Create Event Hub Service . Enable Event Hub Capture to store events on Blob Storage or Data Lake Storage

Azure Event Hub	
<b>Client Request</b>	<ul style="list-style-type: none"> <li>. Request Management Credential for application to communicates with Event Hub.</li> <li>. Change Capture settings</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Archive Backlog Messages</li> <li>. Archive Backlog Messages_Total. Archive Messages. Archive Messages_Total. Archive MessageThroughput. Archive MessageThroughput_Total. Failed Requests. Incoming Bytes Per Second. Incoming Messages. Incoming Requests. Internal Server Errors. Other Errors. Out going Bytes Per Second. Outgoing Messages. Server Busy Errors. Success full Requests</li> </ul>

Table 6 Azure Event Hub

Azure Analysis Services			
<b>Overview</b>	Enterprise-grade analytics engine as a service		
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create the Analysis Services Server and Firewall</li> <li>. Configure server admin users and roles</li> <li>. Configure Storage setting for backup</li> <li>. Configure the Scale-out options</li> <li>. Install and configure on-premises data gateway (applicable only if OS management is contracted for on-prem services)</li> </ul>		
<b>Client Request</b>	. Restore a database		
<b>Available Monitors</b>	<table> <tr> <td> ProcessingPoolIdleNonIOThreads  ProcessingPoolIdleIOJobThreads  ProcessingPoolBusyNonIOThreads  ProcessingPoolBusyIOJobThreads  MemoryThrashing  MemoryLimitVertiPaq  MemoryLimitLow  MemoryLimitHigh  MemoryLimitHard  Memory  MashupEngineQPU  MashupEngineMemory  LongParsingJobQueueLength  LongParsingBusyThreads  CurrentUserSessions  CurrentConnections  CommandPoolJobQueueLength  CommandPoolIdleThreads  CommandPoolBusyThreads  CleanerMemoryShrinkable  CleanerMemoryNonShrinkable </td><td> VertiPaqPaged  VertiPaqNonPaged  TotalConnectionRequests  TotalConnectionFailures  SuccessfullConnectionsPerSec  Status  ShortParsingJobQueueLength  ShortParsingIdleThreads  ShortParsingBusyThreads  RowsWrittenPerSec  RowsReadPerSec  RowsConvertedPerSec  QuotaBlocked  Quota  QueryPoolJobQueueLength  QueryPoolIdleThreads  QueryPoolBusyThreads  QPU  ProcessingPoolJobQueueLength  ProcessingPoolIOJobQueueLength </td></tr> </table>	ProcessingPoolIdleNonIOThreads ProcessingPoolIdleIOJobThreads ProcessingPoolBusyNonIOThreads ProcessingPoolBusyIOJobThreads MemoryThrashing MemoryLimitVertiPaq MemoryLimitLow MemoryLimitHigh MemoryLimitHard Memory MashupEngineQPU MashupEngineMemory LongParsingJobQueueLength LongParsingBusyThreads CurrentUserSessions CurrentConnections CommandPoolJobQueueLength CommandPoolIdleThreads CommandPoolBusyThreads CleanerMemoryShrinkable CleanerMemoryNonShrinkable	VertiPaqPaged VertiPaqNonPaged TotalConnectionRequests TotalConnectionFailures SuccessfullConnectionsPerSec Status ShortParsingJobQueueLength ShortParsingIdleThreads ShortParsingBusyThreads RowsWrittenPerSec RowsReadPerSec RowsConvertedPerSec QuotaBlocked Quota QueryPoolJobQueueLength QueryPoolIdleThreads QueryPoolBusyThreads QPU ProcessingPoolJobQueueLength ProcessingPoolIOJobQueueLength
ProcessingPoolIdleNonIOThreads ProcessingPoolIdleIOJobThreads ProcessingPoolBusyNonIOThreads ProcessingPoolBusyIOJobThreads MemoryThrashing MemoryLimitVertiPaq MemoryLimitLow MemoryLimitHigh MemoryLimitHard Memory MashupEngineQPU MashupEngineMemory LongParsingJobQueueLength LongParsingBusyThreads CurrentUserSessions CurrentConnections CommandPoolJobQueueLength CommandPoolIdleThreads CommandPoolBusyThreads CleanerMemoryShrinkable CleanerMemoryNonShrinkable	VertiPaqPaged VertiPaqNonPaged TotalConnectionRequests TotalConnectionFailures SuccessfullConnectionsPerSec Status ShortParsingJobQueueLength ShortParsingIdleThreads ShortParsingBusyThreads RowsWrittenPerSec RowsReadPerSec RowsConvertedPerSec QuotaBlocked Quota QueryPoolJobQueueLength QueryPoolIdleThreads QueryPoolBusyThreads QPU ProcessingPoolJobQueueLength ProcessingPoolIOJobQueueLength		
<b>Service Limitation</b>	Managed Operating System must be contracted for on the on-premises data gateway.		

Table 7 Azure Analysis Services

Data Lake Storage	
<b>Overview</b>	Scalable, secure data lake for high-performance analytics
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create Storage Account</li> <li>. Transfer Data when source data is under management or set permission for Client can transfer data</li> <li>. Provide Access to the Client to manage the data.</li> </ul>
<b>Client Request</b>	. Change Access Control
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. DataRead_Raw</li> <li>. DataWritten_Raw</li> <li>. Read Requests_Raw</li> <li>. StatusCode</li> </ul>

Data Lake Storage	
	<ul style="list-style-type: none"> <li>. TotalStorage_Raw</li> <li>. WriteRequests_Raw</li> </ul>
<b>Service Limitation</b>	

Table 8 Datalake Storage

Data Lake Analytics	
<b>Overview</b>	Data Lake Analytics is an on-demand analytics job service that simplifies big data.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create Data Lake Analytics Account</li> <li>. Add data sources</li> <li>. Add new users or security groups to the Data Lake Analytics account</li> <li>. Grant access to the Client to manage jobs, and monitor pipelines jobs</li> <li>. Apply account policies</li> </ul>
<b>Client Request</b>	<ul style="list-style-type: none"> <li>. Add/ Remove data sources</li> <li>. Adjust quotas and limits for Azure Data Lake Analytics</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. JobAUEndedCancelledRaw</li> <li>. JobAUEndedFailureRaw</li> <li>. JobAUEndedSuccessRaw</li> <li>. JobEndedCancelledRaw</li> <li>. JobEndedFailureRaw</li> <li>. JobEndedSuccessRaw</li> <li>. Status</li> </ul>
<b>Service Limitation</b>	Troubleshooting of U-SQL jobs is not included and is Out of Scope.

Table 9 Datalake Storage

Azure DataBricks	
<b>Overview</b>	<p>Azure DataBricks is a data analytics platform optimized for the Microsoft Azure cloud services platform.</p> <p>Fast, easy, and collaborative Apache Spark-based analytics platform).</p>
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create the Azure DataBricks Workspace and the resources needed (Resource Group and Pricing Tier)</li> <li>. Deploy Azure DataBricks workspace into existing Virtual Network.. Create Azure DataBricks Cluster – Choose Cluster mode, DataBricks Runtime Version, Worker Types, Driver Types etc. Configure RBAC Guardrails.</li> <li>. Ensure LogicMonitor monitoring for Worker Nodes is in place. Ensure Cloud Health Billing is in place for cost management.</li> </ul>
<b>Client Request</b>	<ul style="list-style-type: none"> <li>. Terminate, Restart or Delete Cluster</li> <li>. Set Permission settings on Cluster.</li> <li>. Change Node Instance Type</li> <li>. Change DataBricks Runtime Version</li> <li>. Configure Cluster Access Restrictions</li> <li>. RBAC Permission changes</li> <li>. Opening of Microsoft Support requests</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. CPU Utilization:</li> <li>. Network Throughput.</li> <li>. Disk IOPS</li> <li>. Disk Throughput</li> <li>. Resource Health</li> <li>. Virtual Machine Resource Health</li> </ul>
<b>Service Limitation</b>	<p>The following are not included and are Out of Scope:</p> <ul style="list-style-type: none"> <li>. Creation of new Notebooks</li> <li>. Creation of Tables.</li> <li>. Creation of new Jobs</li> <li>. Creation of new MLFlow Experiments.</li> <li>. Library imports.</li> </ul>

Table 10 Azure Databricks

Azure Data Factory	
<b>Overview</b>	Hybrid data integration at enterprise scale, made easy
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create Azure Data Factory v2</li> <li>. Configure Git repository with either Azure DevOps or GitHub using Client provided details.</li> <li>. Enable or Disable Managed virtual network setting</li> <li>. Configure Private Endpoints</li> <li>. Configure Private or Public Self-hosted integration runtime connectivity</li> <li>. Enable Data factory Encryption for Client owned keys (requires Azure Keyvault) - Optional</li> <li>. Assign Tagging Policy</li> <li>. Configure IAM roles and permissions for Client access.</li> <li>. Configure Managed Identities (if required)</li> <li>. Configuration of any network access required for integrations.</li> <li>. Configure New linked service (ie Azure SQL Database/Storage Account) for services that NTT manage via Data Factory Studio</li> </ul>
<b>Client Request</b>	<ul style="list-style-type: none"> <li>. Enable Data factory Encryption for Client owned keys (requires Azure Keyvault) - Optional</li> <li>. Configure IAM roles and permissions for client access.</li> <li>. Configure Managed Identities (if required)</li> <li>. Configuration of any network access required for integrations.</li> <li>. Configure New linked service (ie Azure SQL Database/Storage Account) for services that NTT manage via Data Factory Studio</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. activityCancelledRuns</li> <li>. activityFailedRuns</li> <li>. activitySucceededRuns</li> <li>. factorySizeInGbUnits</li> <li>. factorySizeInGbUnitsMaxAllowed</li> <li>. integrationRuntimeAvailableMemory</li> <li>. integrationRuntimeAvailableNodeNumber</li> <li>. integrationRuntimeAverageTaskPickupDelay</li> <li>. integrationRuntimeCPUPercentage</li> <li>. integrationRuntimeQueueLength</li> <li>. pipelineCancelledRuns</li> <li>. pipelineFailedRuns</li> <li>. pipelineSucceededRuns</li> <li>. resourceCount</li> <li>. resourceCountMaxAllowed</li> <li>. triggerCancelledRuns</li> <li>. triggerFailedRuns</li> <li>. triggerSucceededRuns</li> </ul>
<b>Service Limitation</b>	<p>The following are not included and are Out of Scope:</p> <ul style="list-style-type: none"> <li>. Creation of pipelines, Power Query, Data Flows and Data Sets, Ingestion of data, Transformation of data, Configuration of SSIS packages</li> <li>. Data transformation activities</li> </ul>

Table 11 Azure Data Factory

## 1.4 Database Services

## (a) Cloud Database

## (i) Overview

This element of the service covers the configuration, monitoring and management of Cloud Databases. Charges are based on the number of instances present in the environment.

## (ii) Supported Technologies

- Cosmos DB
- Azure Redis cache
- Azure SQL
- Azure DB For MySQL
- Azure DB for PostgreSQL



Cosmos DB	
<b>Overview</b>	Cloud Database is a fast NoSQL database with open APIs for any scale.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Creation of database account and settings</li> <li>. Creation and addition of database and collection</li> <li>. QA testing</li> <li>. Configuration of consistency level</li> <li>. Configuration of CosmosDB firewall security policies</li> <li>. Delivery of connection string keys to the Client</li> <li>. Enabling turnkey global distribution</li> <li>. Configuration of CosmosDB replication (if applicable) and failover priorities</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Add/remove regions from database distribution</li> <li>. Create/update/delete Cosmos DB accounts</li> <li>. Change tags</li> <li>. Regenerate account key</li> <li>. Modify failover priority</li> <li>. Create/delete resources, databases, collections and documents</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Metadata Requests: Number of metadata requests since the last polling interval</li> <li>. Mongo Request Charge: Number of Mongo request units being consumed</li> <li>. Mongo Requests: Number of Mongo request made since the last polling interval</li> <li>. Total Requests: Total number of requests made since the last polling interval</li> <li>. Total Request Units: Total number of request units being consumed</li> <li>. Available Storage: This metric will take your available storage about the aggregate size from each collection data and index</li> </ul>
<b>Service Limitation</b>	

Table 12 Cosmos DB

Azure Cache for Redis	
<b>Overview</b>	Azure Cache for Redis provides an in-memory data store based on open-source Redis software.
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Configuration of the FQDN server name</li> <li>. Configuration of instance type</li> <li>. Delivery of connection string key to the Client</li> <li>. QA testing</li> <li>. Enabling cache diagnostics</li> <li>. Configure memory policies</li> <li>. Configure updates schedule</li> </ul> <p>If Premium instance is contracted:</p> <ul style="list-style-type: none"> <li>. Configuration of clusters</li> <li>. Configuration of data persistence</li> <li>. Configuration of virtual network</li> <li>. Configuration of scheduled updates</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Change basic parameters like name, ports, pricing tier and selected cache metrics</li> <li>. Add/change/remove tags</li> <li>. Regenerate access keys</li> <li>. Enable/disable keyspace notifications</li> <li>. change updates schedule</li> <li>. Import/export data</li> <li>. Reboot services</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Connected Clients: Current number of connected clients</li> <li>. TotalCommandsProcessed: Total number of commands processed</li> <li>. Cache Hits: Total number of cache hits</li> <li>. Cache Misses: Total number of cache misses</li> <li>. Cache Read: Number of bytes/sec read from cache</li> <li>. Cache Write: Number of bytes/sec written to cache</li> <li>. Evicted Keys: The number of items evicted from the cache during the specified reporting interval due to the maximum memory limit</li> <li>. Expired Keys: The number of items expired from the cache</li> <li>. Get Commands: The number of GET operations from the cache</li> </ul>

Azure Cache for Redis	
	<ul style="list-style-type: none"> <li>. CPU: Percent CPU utilization.High CPU</li> <li>. Server Load: The percentage of cycles in which the Redis server is busy processing and not waiting idle for messages</li> <li>. Set Commands: The number of SET operations from the cache</li> <li>. TotalKeys: Total number of keys</li> <li>. Used Memory: Amount of memory used, in bytes</li> <li>. Used Memory Rss: Amount of RSS (Resident Set Size) memory used, in bytes</li> </ul> <p>for Cluster Configurations extra monitors are available:</p> <ul style="list-style-type: none"> <li>. Cache Hits: Total number of cache hits</li> <li>. Cache Misses: Total number of cache misses.</li> <li>. Cache Read: Number of bytes/sec read from cache.</li> <li>. Cache Write: Number of bytes/sec written to cache.</li> <li>. Connected Clients: Current number of connected clients.</li> <li>. Evicted Keys: The number of items evicted from the cache during the specified reporting interval due to the maximum memory limit.</li> <li>. Expired Keys: The number of items expired from the cache.</li> <li>. Get Commands: The number of GET operations from the cache.</li> <li>. CPU: Percent CPU utilized by the specified shard.</li> <li>. Server Load: The percentage of cycles in which the Redis server is busy processing and not waiting idle for messages.</li> <li>. Set Commands: The number of SET operations from the cache.</li> <li>. Total Commands Processed: Total number of commands processed .</li> <li>. Total Keys: Total number of keys.</li> <li>. Used Memory: Amount of memory used, in bytes.</li> <li>. Used Memory Rss:Amount of RSS (Resident Set Size) memory used, in bytes.RSS memory is the amount of space used by the memory pages consumed by the process.</li> <li>. Cache Hit Ratio: Percent cache hit ratio / total Cache</li> <li>. Cache Miss Ratio: Percent cache miss ratio/ Total Cache</li> </ul>
<b>Service Limitation</b>	<ul style="list-style-type: none"> <li>. Scale down (from higher tier to lower tier) is not possible and is Out of Scope</li> </ul>

Table 13 Azure Cache for Redis

Azure SQL	
<b>Overview</b>	Azure SQL Database is a fully managed Platform as a Service (PaaS) Database engine
<b>Setup Activities</b>	<ul style="list-style-type: none"> <li>. Create Azure SQL instance</li> <li>. Creation and configuration of the users/databases/permissions required</li> <li>. Create server-level firewall rules</li> <li>. Database configuration (static or elastic)</li> <li>. Data import using native Azure SQL tools</li> <li>. Configuration of database geo-replication</li> <li>. Configuration of elastic pool</li> <li>. Create a master key (if applicable)</li> <li>. Create or obtain a certificate protected by the master key (if applicable)</li> <li>. Create a database encryption key and protect it by certificate (if applicable)</li> <li>. Set the database to use encryption (if applicable)</li> </ul>
<b>Service Request</b>	<ul style="list-style-type: none"> <li>. Change tier size</li> <li>. Data import and export using native Azure SQL tools</li> <li>. Management of elastic pool settings</li> <li>. Management of database users and permissions</li> <li>. Management of security and server-level firewall rules</li> <li>. Changes to SQL geo-distribution, activation of geo-replicated failover database (if applicable)</li> <li>. Restore to any point in time within the retention period</li> <li>. Execution of End User provided scripts</li> <li>. Turn on/off SQL Database Auditing</li> <li>. Enable/disable SQL database threat detection notification</li> <li>. Enable Always Encrypted feature</li> </ul>
<b>Available Monitors</b>	<ul style="list-style-type: none"> <li>. Batch Req:</li> <li>. Buffer Cache Hit Ratio:</li> <li>. Buffer Cache Hit Ratio Base:</li> <li>. Compilations:</li> </ul>

Azure SQL	
	<ul style="list-style-type: none"><li>. Connections:</li><li>. Deadlocks</li><li>. Full Scans</li><li>. Index Searches</li><li>. Latch Waits</li><li>. Latch Wait Time</li><li>. Lock Timeouts</li><li>. Lock Waits</li><li>. Lock Wait Time</li><li>. Logouts Sec</li><li>. Page Life</li><li>. Page Reads</li><li>. Page Splits</li><li>. Page Writes</li><li>. Recompilations</li><li>. Status Transactions</li><li>. Work Files</li><li>. Work Tables</li><li>. Buffer Cache Hit Ratio Perc</li><li>. New Connection Ratio</li><li>. Page Life Non Zero</li></ul>
Service Limitation	

Table 14 Azure SQL

Azure DB for MySQL	
Overview	Azure Database for MySQL is a relational database service based on MySQL Community Edition
Setup Activities	<ul style="list-style-type: none"><li>. Create a MySQL single server</li><li>. Configure a server-level firewall rules</li><li>. Configure SSL connectivity</li><li>. Configure server parameters</li><li>. Create databases and users</li><li>. Create the service endpoint or Private Link</li><li>. Configure local or geo-redundant backup</li><li>. Configure Data-in replication (for hybrids solutions)</li></ul>
Service Request	<ul style="list-style-type: none"><li>. Restore a database (point- in-time or Geo-restore)</li><li>. Create a read replica</li></ul>
Available Monitors	<ul style="list-style-type: none"><li>. Active Connections</li><li>. Compute Consumption Percent</li><li>. Compute Limit</li><li>. Connections Failed</li><li>. CPU Percent</li><li>. IO Consumption Percent</li><li>. Memory Percent</li><li>. Storage Limit</li><li>. Storage Percent</li><li>. Storage Used</li></ul>
Service Limitation	

Table 15 Azure DB for MySQL