# 1 Complementary Services for GCP - PaaS & Serverless

1.1 Overview

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

Managed PaaS & Serverless Services cover the following:

(a) Cloud PaaS App

(b) Cloud Serverless Function

(c) Cloud Database

(d) Cloud Data (Analytics)

(e) Cloud Data (Integration)

(f) Cloud Data (Processing)

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 as such NTT may revise this service description from time to time in its sole and absolute discretion.

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

| Category | Managed Element | Supported Services |
|---|---|---|
| Compute | Cloud PaaS App | . App Engine |
| | Cloud Serverless Function | . Cloud Functions |
| Database Services | Cloud Database | . AlloyDB<br>. Cloud SQL<br>. Firestore<br>. Memorystore<br>. Cloud Spanner |
| Integration, Data & Analytics Services | Cloud Data (Analytics) | . BigQuery |
| | Cloud Data (Integration) | . Cloud Pub/Sub<br>. Cloud Scheduler<br>. Cloud Tasks<br>. Eventarc<br>. Workflows |
| | Cloud Data (Processing) | . Dataproc |

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

- App Engine

| App Engine | |
|---|---|
| **Overview** | Serverless application platform for apps and back ends. |
| **Setup Activities** | . Setup App Environment<br>. Grant access to the app engine to the different roles<br>. Map custom domain<br>. Upload SSL certificates<br>. Configure Scaling Type<br>. Enable security elements<br>. Deploy the App after developer test |

| App Engine | |
|---|---|
| **Client Request** | . Change Scaling Type<br>. Upgrade an app<br>.Traffic Migration from source to target version |
| **Available Monitors** | .CPU Usage & Utilization<br>. Disk read and write bytes<br>. DoS Intercepts<br>.Http raw data<br>. Http Responses<br>.Instances (active, idle, loading)<br>. Sent and Received Memcache ( bytes, operations, utilization)<br>. Memory<br>.Network (bandwidth, sent & received bytes)<br>. Reserved Cores<br>. Status<br>. Denials quota<br>Client, must select the specific Monitors form the above list in order to obtain alerts, otherwise no monitoring will be provided. |
| **Service Limitation** | . App Engine Flexible environment is not supported<br>. Developers activities are not included |

Any other requests other than the Client Requests are out of scope.

(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
- Cloud Functions

| Cloud Functions | |
|---|---|
| **Overview** | Platform for creating functions that respond to cloud events. |
| **Setup Activities** | . Deploy the function (uploading the functions code provided by the customer developers)<br>. Test functions<br>. Set the triggers<br>. Configure Networking and VPC<br>. Secure the function |
| **Service Request** | . Delete temporary files frequently<br>. Retrying event-driven functions |
| **Available Monitors** | . Execution Count<br>. Network egress<br>Client, must select the specific Monitors form the above list in order to obtain alerts, otherwise no monitoring will be provided. |
| **Service Limitation** | . creation of Function code is not part of this service |

Any other requests other than the Client Requests are out of scope.

1.3 Managed Database

(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
- AlloyDB
- Cloud SQL
- Firestore
- Memoristore
- Cloud Spanner




Sensitivity Label: General

| AlloyDB | |
|---|---|
| **Overview** | Fully managed PostgreSQL-compatible relational database service offering high performance, scalability, and availability. |
| **Setup Activities** | Cluster setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope<br>. Resource allocation, scaling and backup |
| **Client Requests** | . Changes to existing cluster configuration<br>. On demand backup and restore<br>. Best practices guidance<br>. Troubleshooting assistance |
| **Service Limitations** | . Business Continuity and Disaster Recovery are not included in the scope and must be quoted separately<br>. Data administration is not included in the scope and must be quoted separately (App Management - Relational Standard Database service) |
| **Client Responsibilities** | . Client must provide NTT with clear data and database requirements, including the PostgreSQL version<br>. Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the data and its analysis, governance and processing |

| Cloud SQL | |
|---|---|
| **Overview** | Managed database for MySQL, PostgreSQL, and SQL Server. |
| **Setup Activities** | . Create cloud SQL instance<br>. Configure the Cloud SQL instance parameters databases, user and access controls, and the specific quantity shall be specified in the SOW as in Scope.<br>. Enable high availability (Mysql)<br>. Configure the backup for instances |
| **Service Request** | . Optimize performance with indexes and query optimization<br>. Clone instances<br>. start, stop and restart instances<br>. Create/ delete databases<br>. Create replicas<br>. Backup / restore instances<br>. Export / Import |
| **Available Monitors** | Client must select the specific Monitors form the list below, otherwise no alerts will be triggered:<br><br>auto_failover_request_count_raw<br>cpu_reserved_cores_raw<br>cpu_usage_time_raw<br>cpu_utilization_raw<br>database_uptime_raw<br>disk_bytes_used_raw<br>disk_quota_raw<br>disk_read_ops_count_raw<br>disk_utilization_raw<br>disk_write_ops_count_raw<br>memory_quota_raw<br>memory_usage_raw<br>memory_utilization_raw |




Sensitivity Label: General

| Cloud SQL | |
|---|---|
| | mysql_innodb_buffer_pool_pages_dirty_raw<br>mysql_innodb_buffer_pool_pages_free_raw<br>mysql_innodb_buffer_pool_pages_total_raw<br>mysql_innodb_data_fsyncs_raw<br>mysql_innodb_os_log_fsyncs_raw<br>mysql_innodb_pages_read_raw<br>mysql_innodb_pages_written_raw<br>mysql_queries_raw<br>mysql_questions_raw<br>mysql_received_bytes_count_raw<br>mysql_replication_seconds_behind_master_raw<br>mysql_sent_bytes_count_raw<br>network_connections_raw<br>network_received_bytes_count_raw<br>network_sent_bytes_count_raw<br>postgresql_num_backends_raw<br>postgresql_transaction_count_raw |
| **Service Limitations** | . Business Continuity and Disaster Recovery are not included in the scope and must be quoted separately<br>. Data administration is not included in the scope and must be quoted separately (App Management - Relational Standard Database service) |
| **Client Responsibilities** | . Client must provide NTT with clear data and database requirements, including the database engine version<br>. Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the data and its analysis, governance and processing |

| Firestore | |
|---|---|
| **Overview** | NoSQL document database for mobile, web, and server development. |
| **Setup Activities** | Database setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope (e.g., Cloud Run)<br>. Backup |
| **Client Requests** | . Changes to existing database configuration<br>. On demand import/export, backup and restore<br>. Troubleshooting assistance |
| **Available Monitors** | By default, none.<br><br>Other available:<br>. connectedClients<br>. documentDeletes<br>. documentReads<br>. documentWrites<br>. requests<br>. ruleEvaluations<br>. snapshotListeners |
| **Service Limitations** | . Business Continuity and Disaster Recovery are not included in the scope and must be quoted separately |
| **Client Responsibilities** | . Client must provide NTT with clear monitoring requirements, including the metric, the threshold, and the incident response runbook, if required by their application and based on its expected behavior |




Sensitivity Label: General

| Firestore | |
|---|---|
| | . Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the data and its analysis, governance and processing |

| Cloud Memorystore | |
|---|---|
| **Overview** | Memorystore automates tasks for open source Redis and Memcached like enabling high availability, failover, patching, and monitoring |
| **Setup Activities** | . Create a Cloud Memorystore instance<br>. Configure the instance; Redis databases, users, access controls, and the specific quantity shall be specified in the SOW as in Scope.<br>. Configure network setting<br>. Setup backup and replication for the memorystore<br>. Setup security measures like SSL encryptions, acccess controls and firewall rules.<br>. Configure high availability (on tiers that allow this configuration)<br>. Set maintenance windows |
| **Service Request** | . Optimize performance based on memory usage and caching<br>. Scale instances<br>. Upgrade redis versions (once a year)<br>. Manual failover<br>. importr and export data |
| **Available Monitors** | cacheHitRatio<br>clientsBlocked<br>clientsConnected<br>commandsCalls<br>commandsTimePerCall<br>commandsTotalTime<br>connectionsAccepted<br>connectionsRejected<br>CPUUtilization<br>keysEvicted<br>keysExpirable<br>keysExpired<br>keyspaceAvgTTL<br>keyspaceHits<br>keyspaceMisses<br>keysStored<br>memoryMaximum<br>memoryUsage<br>memoryUsageRatio<br>networkTraffic<br>pubsubChannels<br>pubsubPatterns<br>replicationBytesLagging<br>replicationBytesPending<br>replicationMasterByteOffset<br>replicationNodeRole<br>replicationReplicaByteOffset<br>serverUptime<br>systemMemoryOverloadDuration<br>systemMemoryUsageRatio |
| **Service Limitation** | |

Any other requests other than the Client Requests are out of scope.




Sensitivity Label: General

| Cloud Spanner | |
|---|---|
| **Overview** | Managed relational database with unlimited scale, strong consistency |
| **Setup Activities** | . Create a spanner instance<br>. Create database<br>. Create schema<br>. Configure access controls<br>. Setups security measures; like SSL encryption, access controls and firewall rules<br>. configure backup |
| **Service Request** | . Optimize performance<br>. Insert and modify data<br>. Import and export data<br>. Create Backup<br>. Restore Backup |
| **Available Monitors** | bytesSent<br>CPUUtilization<br>CPUUtilizationSmoothed<br>queryCount<br>requestCount<br>requestLatencies<br>requestRate<br>sessionCount<br>storageUsed |
| **Service Limitation** | |

Any other requests other than the Client Requests are out of scope.

1.4 Integration, Data & Analytics Services

(a) Cloud Data (Analytics)

(i) Overview

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

(ii) Supported Technologies

- BigQuery

| BigQuery | |
|---|---|
| **Overview** | BigQuery is a fully managed petabyte-scale analytics data warehouse. |
| **Setup Activities** | Dataset and table setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope, including data ingestion/loading jobs or flows (e.g., Cloud Pub/Sub)<br>. Dataset replication<br>. Cloud Billing export<br>. Resource allocation and scaling |
| **Client Request** | . Changes to existing datasets and tables<br>. Troubleshooting assistance (e.g., data ingestion/loading flow issues)<br>. On demand data ingestion/loading jobs, and dataset migration or replication |
| **Available Monitors** | By default, slot allocation:<br>. Slots_Allocated<br>. Slots_Allocated_For_Project<br>. Slots_Total_Available |




Sensitivity Label: General

| BigQuery | |
|---|---|
| | Other available:<br>. Query_Counts<br>. Query_Scanned_Bytes<br>. Query_Scanned_Bytes_Billed |
| **Service Limitations** | . Business Continuity and Disaster Recovery are not included in the scope and must be quoted separately<br>. AI/ML features (BigQuery ML) are not included in the scope and must be quoted separately |
| **Client Responsibilities** | . Client must provide NTT with clear monitoring requirements, including the metric, the threshold, and the incident response runbook, if required by their data processing<br>. Client must provide NTT with clear data resource allocation, integration and lifecycle requirements<br>. Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the data and its analysis, governance and processing. This includes but is not limited to data partitioning, data pipelines, and query logic and performance. |

(b) 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
- Cloud Pub/Sub
- Cloud Scheduler
- Cloud Tasks
- Eventarc
- Workflows

| Cloud Pub/Sub | |
|---|---|
| **Overview** | Google Cloud Pub/Sub **provides messaging between independent applications in GCP** |
| **Setup Activities** | . Create a pub/sub topic; named resource to which messages can be sent by publishers<br>. create Pub/sub subscription<br>. Create schemas<br>. Configure access control<br>. Configure message delivery; setting options such as delivery type, acknowledgement mode, and retry policy.<br>. Create a publisher<br>. Create a subscriber<br>. Configure message encryption<br>. Configure message storage policies<br>The specific quantity shall be specified in the SOW as in Scope. |
| **Service Request** | . Create new topics / subscriptions<br>. configure message delivery<br>. change access controls<br>. optimize resource utilization<br>The specific quantity shall be specified in the SOW as in Scope. |




Sensitivity Label: General

| Cloud Pub/Sub | |
|---|---|
| **Available Monitors** | pub/sub snapshots:<br><br>. backlog_bytes<br>. config_updates_count<br>. num_messages<br>. oldest_message_age<br><br>pub/sub Topic:<br><br>. AckedMessagesOldestRetained<br>. AckedMessagesRetained<br>. AckedMessagesRetainedBytes<br>. ByteCost<br>. ConfigUpdatesCount<br>. SendMessageOperationCount<br>. SendRequestCount<br>. Status<br>. UnackedBytes<br>. UnackedMessages<br>. UnackedMessagesOldestRetained<br><br>pub/sub Subscriptions:<br><br>. byteCost<br>. configUpdateCount<br>. messageCountAck<br>. messageCountModAckDeadline<br>. messageCountOutstanding<br>. messageCountSent<br>. messageOperationCountModAckDeadline<br>. messageOperationCountPull<br>. messageOperationCountPullAck<br>. messageOperationCountStreamingPull<br>. messageOperationCountStreamingPullAck<br>. messageOperationCountStreamingPullModAckDeadline<br>. messageRetainedCountAcked<br>. oldestUnackedMessageAge<br>. requestCountModAckDeadline<br>. requestCountPull<br>. requestCountPullAck<br>. requestCountPush<br>. requestCountSeek<br>. requestCountStreamingPullAck<br>. requestCountStreamingPullModAckDeadline<br>. responseCountStreamingPull<br>. retainedAckedBytes |
| **Service Limitation** | Client must provide all policies, schema, options, controls or any other configuration items. |

Any other requests other than the Client Requests are out of scope.

| Cloud Scheduler | |
|---|---|
| **Overview** | Fully managed cron job scheduler. |
| **Setup Activities** | Job setup. This may include:<br><br>. RBAC using IAM<br><br>. Integrations with other services in scope (e.g., Cloud Run) |
| **Client Requests** | . Changes to existing jobs<br><br>. Troubleshooting assistance (e.g., failed executions) |
| **Service Limitations** | |
| **Client Responsibilities** | . Client must provide NTT with clear job schedule and integration requirements<br><br>. Client must execute the changes in out-of-scope services required by any integration they request |

| Cloud Tasks | |
|---|---|
| **Overview** | Fully managed, serverless queue service for asynchronous processing of a large number of jobs. |
| **Setup Activities** | Queue setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope (e.g., Cloud Functions) |
| **Client Requests** | . Changes to existing queues<br>. Troubleshooting assistance (e.g., pause or purge queue) |
| **Available Monitors** | By default:<br><br>Other available:<br>. depth<br>. requestCount<br>. taskAttemptCount<br>. taskAttemptDelays |
| **Service Limitations** | |
| **Client Responsibilities** | . Client must provide NTT with clear queue requirements<br>. Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the task logic definition and creation<br>. Client is responsible for development, testing and deployment of the applications that interact with the service |

| Eventarc | |
|---|---|
| **Overview** | Cloud Eventarc is a fully-managed event ingestion |
| **Setup Activities** | . Create a trigger<br>. Create a target<br>. Configure access controls<br>. Test the trigger and target |
| **Service Request** | . Scaling event resources |

| Workflows | |
|---|---|
| **Overview** | Fully managed serverless workflow orchestration service. |
| **Setup Activities** | Workflow setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope (e.g., Cloud Functions) |
| **Client Requests** | . Changes to existing workflows<br>. Troubleshooting assistance (e.g., failed executions) |
| **Service Limitations** | |
| **Client Responsibilities** | . Client must provide NTT with clear workflow and integration requirements<br>. Client must execute the changes in out-of-scope services required by any integration they request |

(c) Cloud Data (Processing)




Sensitivity Label: General

(i) Overview

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

(ii) Supported Technologies

- Dataproc

| Dataproc | |
|---|---|
| **Overview** | Fully managed Hadoop and Spark service. |
| **Setup Activities** | Cluster setup. This may include:<br>. RBAC using IAM<br>. Integrations with other services in scope<br>. Resource allocation, scaling and lifecycle |
| **Client Requests** | . Changes to existing cluster configuration<br>. On demand scaling and restarts<br>. Troubleshooting assistance |
| **Available Monitors** | By default, failures and resource utilization:<br>. JobFailedCount<br>. OperationsFailedCount<br>. YarnAllocatedMemoryPercentage<br>. YarnPendingMemory<br>Other available:<br>. HDFSDataNodes<br>. HDFSStorageCapacity<br>. HDFSStorageUtilization<br>. HDFSUnhealthyBlocks<br>. JobRunningCount<br>. JobSubmittedCount<br>. OperationsRunningCount<br>. OperationsSubmittedCount<br>. YarnAppsCount<br>. YarnContainersCount<br>. YarnMemorySize<br>. YarnNodeManagerCount<br>. YarnVirtualCores |
| **Service Limitations** | |
| **Client Responsibilities** | . Client must provide NTT with clear monitoring requirements, including the metric, the threshold, and the incident response runbook, if required by their data processing<br>. Client must provide NTT with clear data resource allocation, integration and lifecycle requirements<br>. Client must execute the changes in out-of-scope services required by any integration they request<br>. Client is responsible for the data and its analysis, governance and processing |




Sensitivity Label: General