Public Cloud Management - Common Operations

The complete service is defined by the combination of the following items for which the specific elections shall be identified as In Scope in the SOW otherwise they are out of scope:
Client Service Description–service delivery operations that are common to all NTT Managed Services
Common Operations – service delivery operations that are common to all services within the category of Public Cloud Management (the following section)
Service-Specific Operations – service delivery operations that are specific to each service. These operations are additive to the *Client Service Description* and Common Operations

1 Overview of the Service

NTT's Managed Public Cloud is a suite of end-to-end services designed to assist with public cloud management and operations.

2 Cloud Computing Deployment Models

2.1 Infrastructure as a Service (IaaS) Manual Scale

This form of cloud computing delivers fundamental compute, network, and storage resources to consumers on-demand on a consumption billing model, which specifics of how billing can be changed are determined by this SOW and the agreement for public cloud services
All deployment and management activities are performed against an individual component specified in the SOW. For instance, any Client requested changes (code release, patching, configuration change, etc.) are performed against the active server.
The charge for such systems is based on the quantity of unique configuration items per environment (q x server + q x operating system, q x application middleware).
In this model, NTT is responsible for:

(a) Defining and maintaining a baseline template or image (common reusable components)

(b) Defining and maintaining the cloud provider service layer to support such an application, including networking and security etc.

(c) Defining and maintaining tool-driven provisioning of the solution using infrastructure as code practices

(d) Agreeing to, defining, and supporting the Client with a process to support code releases; most commonly, includes NTT installing packaged files on behalf of the Client, or providing the Client with temporary elevated permissions to complete this themselves

2.2 Infrastructure as a Service (IaaS) – Auto Scale

In this cloud compute model, all deployment and management activities are performed against an underlying template or image. For instance, any Client requested changes (code release, patching, configuration change, etc.) are performed against the image and not the individual server. Scaling up or down of servers within the scaling group will be configured and automated based on the Client's specific requirements to meet demand. A 'golden' template or image will include the operating system and application middleware with Client code typically injected during the bootstrapping process using a combination of NTT or Client preferred tooling (CI/CD pipeline, etc.). Notwithstanding the forgoing, the option to scale is fully determined by the Agreement or the specifics of the SOW and the Clients Public cloud billing agreement, not all agreements allow for reduced costs when scaled down.
The charge for such systems is based on the software defined in the image per environment (1 x scaling group + 1 x operating system + 1 x application middleware) regardless of how many servers are deployed from it, thus it is a charge per image for n servers.
In this model, NTT is responsible for:

(a) Defining and maintaining the required golden template or images

(b) Defining and maintaining the cloud provider service layer to support such an application, including networking, scaling groups, security etc.

(c) Defining and maintaining tool-driven provisioning of the solution using infrastructure as code practices

(d) Agreeing, defining, and maintaining scaling policies for the Client's application

(e) Agreeing, defining, and supporting the Client with a mechanism to support code releases; this may also leverage NTT tooling for application release automation (ENZiME) following a blue/green release strategy

2.3 Platform as a Service - PaaS

PaaS refers to the products and services that do not require management of the underlying infrastructure, but may still require configuration and administration. These services range from fundamental platform functions that don't require any additional management (ie: network, security, snapshots, S3) to cloud native tools that do require configuration and management (File Storage, CloudEndure, WAF, etc).
The PaaS platform functions that do not require configuration are included in the NTT base offer. There is no separate monthly management fee for these services.
NTT architects leveraging Cloud Native tools. Configurable items that NTT manages are billed based on the level of effort to optimise and manage.

2.4 CI/CD Platform - Pipeline

NTT provides two (2) levels of pipeline Managed Services which must be specified as in Scope in the SOW:

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Sensitivity Label: General

(a) Platform Management: NTT manages CI/CD tooling while the Client retains the responsibility of managing their own code pipeline. NTT will manage permissions and access, providing the Client with the least privileged access to CI/CD tools needed by the Client to perform setup and management activities.

(b) Pipeline Management: NTT provides setup and full management of the Client's code pipeline solution, allowing the Client to focus solely on development activities. Client must supply the accompanying unit and integration tests to be part of the pipeline.

2.5 Containerization

NTT supports the deployment and management of a full range of cloud provider container technologies.
NTT offers two (2) levels of service for Kubernetes which must be specified as in Scope in the SOW:

(a) Basic Tier: NTT manages only the hosts and/or Orchestrator deployed; there is no management of the containers or applications within

(b) Advance Tier: in which NTT provide support for the Application As the above but including the provisioning of NTT managed container images (i.e., management of the underlying Dockerfiles)

2.6 Infrastructure as Code:

NTT may deploy and operate infrastructure and platform services using IaC (Infrastructure as Code) based on modules and templates that can be reused across multiple clients. Such code will not be shared. In case Client requests the code, a copy of the IaC representation of the infrastructure and platform services can be generated and shared with the Client. The generated code will differ from that used by NTT to deploy and operate the infrastructure and platform services and will not contain NTT IP tools, automations or other any other code in NTT's sole and absolute discretion.

3 Common Operations

NTT architects, deploys and supports cloud-native tools whenever possible. This approach leverages the continuous and dynamic development cycles prevalent in public cloud. This commitment also future-proofs solutions, keeping them standard while making them portable. There are exceptions to this standard, based on Client specific requirements, generally related to security and compliance.

3.1 Core Services

As part of the Service, the following Tasks are included:

Task	Description
Build	Design and deploy an architecture specific to Client workload(s) following industry best practices and a Well Architected Framework that is consistent with the Public Cloud's unique services.
Configure	Solution is tuned from the 'OS-down' to optimize the infrastructure for supporting the workloads that they have been engineered to support.
Monitor	Monitoring for health, availability and risk; this includes trends and analysis and requires a higher level of awareness into Client systems.
Cloud Provider Management	. NTT will act as the single point of contact for all environments where NTT manages Client accounts or subscriptions. NTT will open, work and resolve cloud vendor support tickets on-behalf of the Client, pending Client authorization with the cloud vendor for Client owned accounts. . Clients that subscribe to an NTT reseller program will receive invoices for the Public Cloud provided infrastructure directly from NTT. NTT will also request and process credits if the cloud vendor breaches published SLAs.
Cloud Infrastructure Management	Deployment, configuration, maintenance, and restoration of in-scope Client systems.
Backup and Restore	Schedule, automate and monitor backup jobs using cloud native tools based on Client business requirements.
Operational Governance	Provide clients with a single partner for platform and application management. Clients call a single support telephone number, view inventory and incident management from a single portal, and are supported by an engineering pod.
Cost Optimization	Deliver quarterly cost optimization reviews. These reviews provide visibility into cloud spend including consumption, utilization, reserved instance coverage, forecasting and trends. The reviews include analysis and recommendations.

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Sensitivity Label: General

	*Periodic Cost Optimization and Health check requires the use of specialized cloud optimization software, charged at a percentage of the public cloud spend. See Statement of Work for details.

*Note: Some Core Services are measured and quoted as separate line items. See Statement of Work for a detailed breakout of service charges.

4 Service Specific Operations

(a) NTT Public Cloud Management - Core Services for Microsoft Azure (Azure)

(b) NTT Public Cloud Management - Core Services for Amazon Web Services (AWS)

(c) NTT Public Cloud Management - Core Services for Google Cloud Platform (GCP)

(d) NTT Public Cloud Management - Core Services for Oracle Cloud Infrastructure (OCI)

4.2 Complementary Services

The following complementary services can be added based on Client requirements. See Statement of Work for details.

Technologies	Service Description
PaaS & Serverless	Optional services including WebApps, Serverless, Integration Services and Database Services. See *Public Cloud Management - Complementary Services - PaaS & Services (AWS/Azure/GCP)* for details.
Managed Containers	Support for container image and/or platform management. See *Public Cloud Management - Complementary Services - Containers (AWS/Azure/GCP)* for details.
CI/CD Pipeline	Managed CI/CD Pipeline services. See *Public Cloud Management - Complementary Services - CI/CD (AWS/Azure)* for details.

4.3 Limitations

(a) Patching services are limited to IaaS elements managed by NTT.

(b) Patching of vendor platform services or 'PaaS' elements is the responsibility of the public cloud vendor; while some aspects of patch management may be configurable, NTT is not responsible for a failure of the vendor to deploy PaaS patches.

4.4 Service Description Specific Terms

By selecting this service and any related service as in Scope in the SOW Client and its End User explicitly agreeing to abide by the terms and conditions of any Open Source software selected by NTT in its sole and absolute discretion, which are Open Source Software. All Open Source Software is provided "as is", without warranty of any kind, express or implied, including but not limited to the warranties of merchantability, fitness for a particular purpose and non-infringement. In no event shall the NTT be liable for any claim, damages or other liability, whether in an action of contract, tort or otherwise, arising from, out of or in connection with the Open Source Software or the use or other dealings in the Open Source software. All AWS, Azure and GCP services are subject to the terms and conditions provided by AWS, Azure and GCP through the method by which the Client obtains AWS, Azure and GCP, and Client Agrees to abide by those terms. Client is responsible for all costs, charges and fees for the operation of these services on AWS, Azure and GCP as incurred by the AWS, Azure and GCP provider.

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