Service Level Agreement (SLA)

BestBank

Document details and Change History		
Version	Date	Description
1.0	December 2024	Initial SLA contract

Document Approvals			
Name	Role	Signature	Date
Jafar Obeidat	Site Reliability Engineer	JOBEIDAT	December 4th, 2024
David Adeakin	Site Reliability Engineer	DADEAKIN	December 4th, 2024
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Last Review: December 7th, 2024
Next Scheduled Review: December 31st, 2024

Agreement Overview

This is a Service Level Agreement (SLA) between **BestBank** (Customer) and **BestBank Site Reliability Engineering Team** (Service Provider). This document identifies the services required and the expected level of services between November 2024 and January 1st, 2025

Subject to review and renewal scheduled by December 31st, 2024.
Signatories: Jafar Obeidat, Farah Orfaly, Alexandra Khreiche, Jose Izzara, Saleh Abdelrahman

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Objectives of the SLA

The agreement is set cover three main aspects:

- **Reliability**: Ensure consistent availability of the BestBank web application for users and administrators.
- **Performance**: Guarantee the desired response times for critical user and administrative actions.
- **Error Tolerance**: Minimise errors and failed requests to provide a seamless experience for users and administrators.

Service Levels Objectives (SLOs)

The SLOs defined for this application are summarised in the following table:

Service Level Objectives		
Number	Category	Description
1	Uptime - Uptime - Database & Key Vault	Maintain 99% uptime for the database and Key Vault services over the monitoring period.
2	Response Time - HTTP Requests	Ensure the average HTTP response time remains below 2 seconds for all requests.
3	Request Volume Tracking	Track the number of HTTP requests processed hourly to ensure steady traffic flow.
4	Failed Connection Rate	Limit failed database connections to less than 10% of total connection attempts.
5	Error Rate - HTTP Requests	Limit failed requests (5xx errors) to less than 1% of the total number of requests.

Service Level Indicators (SLIs)

As a way to ensure that the SLOs are always achieved and never violated, some measures or metrics (at least one per Service Level Objective) need to be defined and implemented. These measures, also known as Service Level Indicators (SLIs), are summarised in the following table:

Service Level Indicators		
Number	SLO	Corresponding SLI(s)
1	99% Uptime for Database & Key Vault	**Uptime Percentage**: The ratio of time the database and Key Vault services are available over the monitoring period.
2	Average HTTP Response Time	**Response Time Measurement**: Tracks the average response time for HTTP requests, ensuring it remains below 2 seconds.
3	Request Volume Tracking	**Request Volume**: Monitors the number of HTTP requests processed hourly to identify traffic patterns.
4	Failed Connection Rate	**Connection Reliability**: Tracks the percentage of failed database connections relative to the total connection attempts.
5	Less than 1% failed requests	**Error Rate**: Measures the percentage of failed HTTP requests (5xx errors) relative to the total number of requests.

Responsibilities and Dependencies

As per the Service Level Agreement for Microsoft Online Services (November 1, 2024), Azure App Services guarantee a 99.95% uptime without availability zone configuration and 99.99% uptime when deployed across multiple availability zones. BestBank's site reliability team aims for a slightly lower yet realistic target of 99% uptime, aligned with infrastructure constraints and business needs.

Additionally, Azure Application Insights guarantees 99.9% query availability for data within its resource, ensuring reliable tracking of performance and error metrics. Azure Monitor's availability tests and Log Analytics provide robust tools to monitor uptime, response times, and error rates, aligning directly with BestBank's SLOs. These tools enable consistent measurement of key SLIs, such as uptime percentage, response time, and error rate, critical for achieving defined objectives.

External dependency: The SLA depends on the performance guarantees provided by Azure App Services, Application Insights, and other services. These services ensure high availability and accurate metrics tracking, essential for meeting the defined objectives.

Monitoring and Reporting

The site reliability team at BestBank will be using Azure workbooks to track the selected SLIs and assure none of the SLOs is at risk of being violated.

Alerts are set-up to send warnings to the team via Slack where the site reliability engineers will determine how severe the warning is and take action and call corresponding team-members accordingly. This is done leveraging Azure Logic App and webhook url to the slack channel.

Review and Update Process

This SLA contract is to be reviewed after 40 days of its initial release to review and evaluate the application's performance in this interval and check whether any of the SLOs need to be redefined or any modifications need to be made to code of the application to try and meet these requirements. This will be collectively determined by the team of BestBank.

After these 40 days, this agreement contract will be reviewed quarterly. Changes to the contract might be also needed if the infrastructure choices and decisions change or updates from Azure, or other modifications in the application design.

Note: all modifications have to be approved by SRE team and other relevant parties and stakeholders

Aspects of Monitoring Strategy	
Data needs	To implement the monitoring strategy, we will need **metrics** on uptime, response time, and error rates. Logs will also be needed for failed requests and latency issues
Collection points	**Azure logs**: these will capture system-level metrics and activity logs. **Application insights**: these will collect application performance data, response times, and user interactions.
Analysis processes	Use the **Azure monitor** and log analytics to query and analyse logs. **Application Insights Analytics** for in-depth analysis of user and admin page performance and response times.
Management controls	There will be role based access control rules (RBAC) to determine who will have access to monitoring dashboards
Decision Approaches	These will be based on alerts. Once an alert comes up, the site reliability engineer will review them and determine how severe it is, they will take action accordingly and call corresponding members of the team to address the problem.
Automation Orchestration	This will be implemented in **infrastructure as code** to automate setup and configuration of monitoring resources. As mentioned earlier, alerts will also be set up via Azure monitor to Slack