Title

Discussing and implementing serverless with azure functions.

Business context and problem

Company, Greentech billing solutions has a retail billing solution that can be sold to retail chains so all aspects of billing and pos can be managed for a retail business.

Business Requirement

- Greentech has recently signed a sales agreement with Retail chain XYZ
- Team of Greentech's BA had gone through a series of business requirement discussions and finalised a FDS document.
- One of the specific requirements for Retail chain XYZ, is if a customer purchases a sum of more than 10k in a retail store bill, the customer will by default get a deluxe membership which will have different benefits from the discount side later.

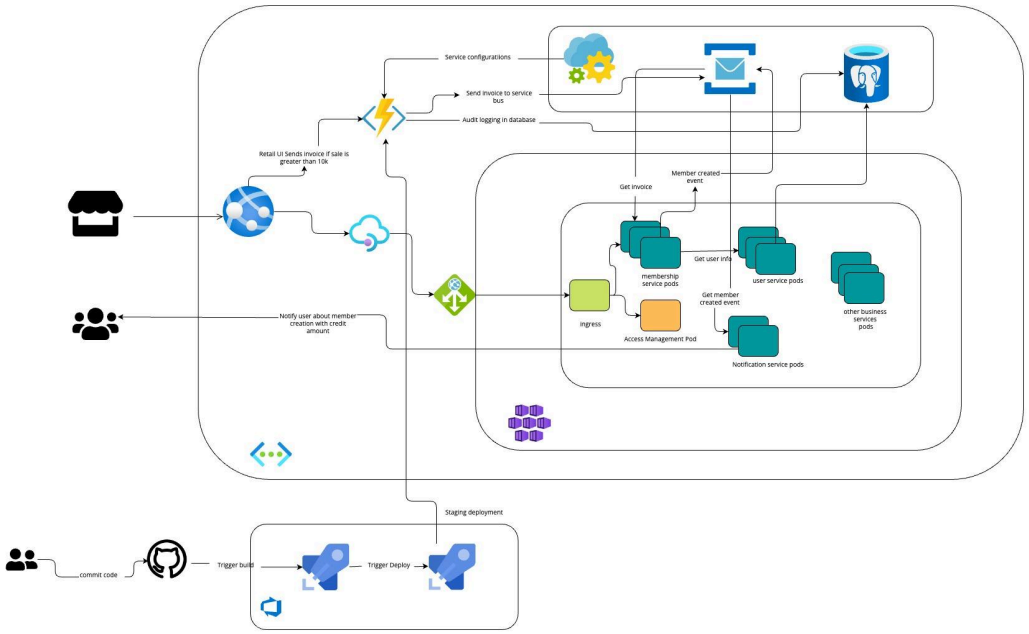
Infrastructure Requirement

- Overall Operational expenditure should be less, Retail chain XYZ will own the infrastructure.
- Retail XYZ is not willing to pay for all day costs for the features that will not be running/used 24x7 in a day.

Proposed Solution

- Greentech has decided to provide a full solution on Azure Cloud as they have this expertise in.
- To implement the above specific feature, the Engineering architects team has **decided to go serverless on Azure Cloud** as "default deluxe feature" will not be used all day as only few of the customers do a purchase of more than 10k. As per data given by Retail XYZ only 1:28 customers are eligible for deluxe membership.

Architecture



Implementation

- UI App is developed on angular framework.
- UI will be deployed on app service in Azure.
- membership, users and other business services will be following a microservice architecture and will be deployed in Azure kubernetes service as these services are full time running services.
- API management is done via API management service which is integrated with Azure application gateway.
- For implementing the default deluxe member feature a spring boot based java service has been deployed in azure functions.
- Azure function will perform the logging of the database and will send an invoice request to azure service bus to be further consumed by membership service.
- Azure function will get its configurations from App config service.
- Deployment of azure functions will be done using Azure devops CI CD pipeline.

Deployed Solution

Cost Estimation

Microsoft Azure Estimate						
Your Estimate						
Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
Compute	Azure Functions		West US	Consumption tier, Pay as you go, 128 MB memory, 99,99,998 milliseconds execution time, 0 executions/mo	$ 0.00	$ 0.00
Integration	Service Bus		East US	Basic tier: 0 million messaging operations	$ 0.00	$ 0.00
Developer Tools	App Configuration		West US	Free tier	$ 0.00	$ 0.00
Databases	Azure Database for PostgreSQL		East US	Flexible Server Deployment, General Purpose Tier, 1 D2ds v5 (2 vCores) x 730 Hours (Pay as you go), 5 GiB Storage, 0 Provisioned IOPS, 0 GiB Additional Backup storage - LRS redundancy, without High Availability	$ 12.99	$ 0.00
Compute	App Service		West US	Basic Tier; 1 B1 (1 Core(s), 1.75 GB RAM, 10 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections; 0 Custom Domains; 0 Standard SLL Certificates; 0 Wildcard SSL Certificates	$ 54.75	$ 0.00
Developer Tools	Azure DevOps			5 Basic Plan license users, 0 Basic + Test Plans license users, Paid tier - 1 Microsoft Hosted Pipeline(s), 1 Self Hosted Pipeline(s), 0 GB Artifacts	$ 40.00	$ 0.00
Support			Support		$ 0.00	$ 0.00
			Licensing Program	Microsoft Customer Agreement (MCA)		
			Billing Account			
			Billing Profile			
			Total		$ 107.74	$ 0.00
Disclaimer						

Outcome

- Azure functions can be used for features that are not supposed to be up and running all the time; this also makes you save operational cost as you only pay for what you use.
- Also, service owners should not worry about maintenance aspects of the server as it is being taken care of internally by cloud infra.
- Infra can be scaled automatically based on traffic reaching services deployed.