

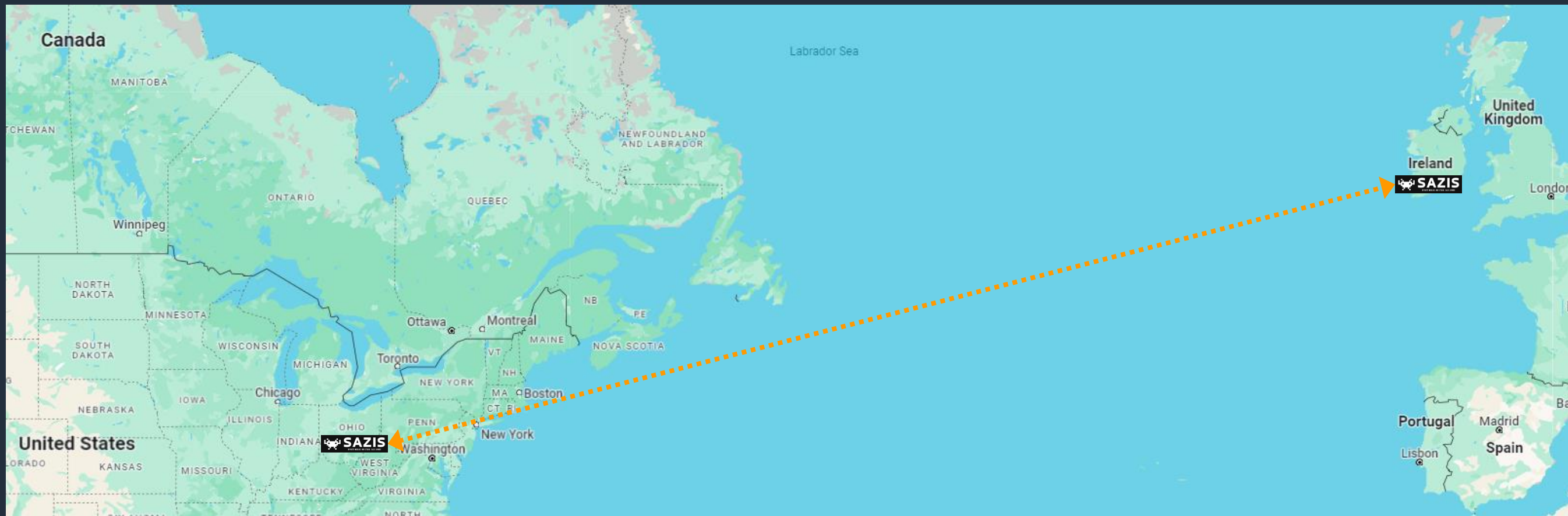
# AWS Solution Architect Final Project

By: Or Sade & Yoav Zis



# Project Overview:

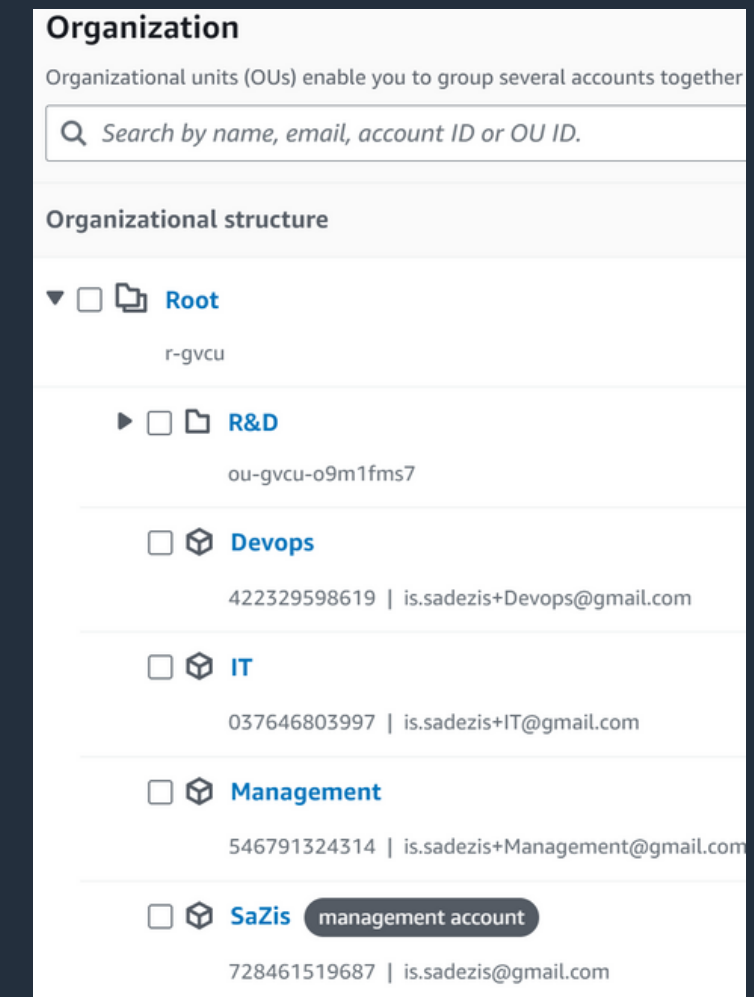
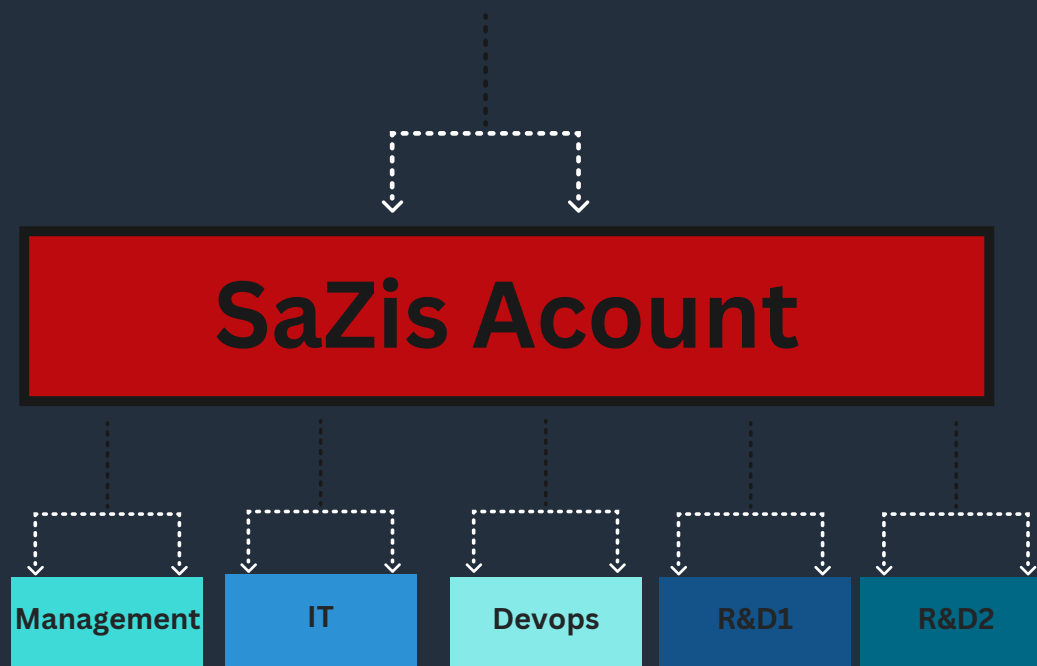
We implemented a robust, resilient, and scalable WordPress website and Emulator-Js for web gaming on the AWS Services Platform. Deployed across two strategic regions, Ireland and Ohio, the project capitalizes on key AWS services, including EC2, RDS, EFS, Route 53, ALB, ACM, Lambda, and more. The project is designed for a game development company called “SaZis”



# AWS Organization

We implemented and desgined “SaZis” Organization With 6 AWS accounts, and assigned each account to an OU.

## SaZis Organization



# Microsoft Entra SSO integration with AWS IAM Identity Center

We created users in Microsoft Entra ID and auto provisioning them via SSO with AWS IAM Identity Center. Each users group was been assainged to AWS Account and granted the nessecry premissions via AWS Premission Set.

Permission sets (6)

Permission sets define the level of access that users have to AWS resources. You can create a permission set, choose an account, and then choose a role that you want to use to access the resources.

Find permission sets by full ARN or prefix

Permission set

RND-Access

Management-Access

Devops-Administrator-Access

IT-Administrator-Access

RND2-Access

SaZis-Access

IAM Identity Center

Managing instance  
ssoins-6804205d9bca1f04

Dashboard

Users

Groups

Settings

Multi-account permissions

AWS accounts

Permission sets

Application assignments

Applications

Related consoles

CloudTrail [Recommended](#)

AWS Organizations [IAM](#)

Users (26)

Users listed here can sign in to the AWS access portal to access AWS resources.

Username

Find users

Username

RD.User01@sazis.click

Devops.User4@sazis.click

Management.User01@sazis.click

RD.User03@sazis.click

RD.User09@sazis.click

RD.User05@sazis.click

RD.User02@sazis.click

Devops.User01@sazis.click

Devops.User03@sazis.click

Management.User02@sazis.click

RD.Admin@sazis.click

Management.User05@sazis.click

RD.User06@sazis.click

Management.User04@sazis.click

Devops.User02@sazis.click

IT.User03@sazis.click

Management.User03@sazis.click

IT.User02@sazis.click

IT.User4@sazis.click

RD.User07@sazis.click

Sign-in logs

Diagnose and solve problems

Manage

Deleted users

Password reset

User settings

Bulk operation results

Troubleshooting + Support

New support request

28 users found

Display name

1

User principal name

11

User type

1

On-premises sy...

1

Identities

1

<input type="checkbox"/>	DA	Devops Admin	Devops.Admin@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	DU	Devops User01	Devops.User01@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	DU	Devops User02	Devops.User02@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	DU	Devops User03	Devops.User03@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	DU	Devops User04	Devops.User4@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	IA	IT Admin	IT.Admin@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	IU	IT User01	IT.User01@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	IU	IT User02	IT.User02@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	IU	IT User03	IT.User03@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	IU	IT User04	IT.User4@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	MU	Management User01	Management.User01@sa...	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	MU	Management User02	Management.User02@sa...	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	MU	Management User03	Management.User03@sa...	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	MU	Management User04	Management.User04@sa...	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	MA	ManagementUser05	Management.User05@sa...	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RA	R&D Admin	RD.Admin@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User01	RD.User01@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User02	RD.User02@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User03	RD.User03@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User04	RD.User04@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User05	RD.User05@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User06	RD.User06@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User07	RD.User07@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User08	RD.User08@sazis.click	Member	No	issadezisgmail.onmicrosoft.com
<input type="checkbox"/>	RU	R&D User09	RD.User09@sazis.click	Member	No	issadezisgmail.onmicrosoft.com

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# Lambda - Cost saving as a code

This Code stop instances in DevOps VPC's ( Ireland & Ohio) at the end of each day.

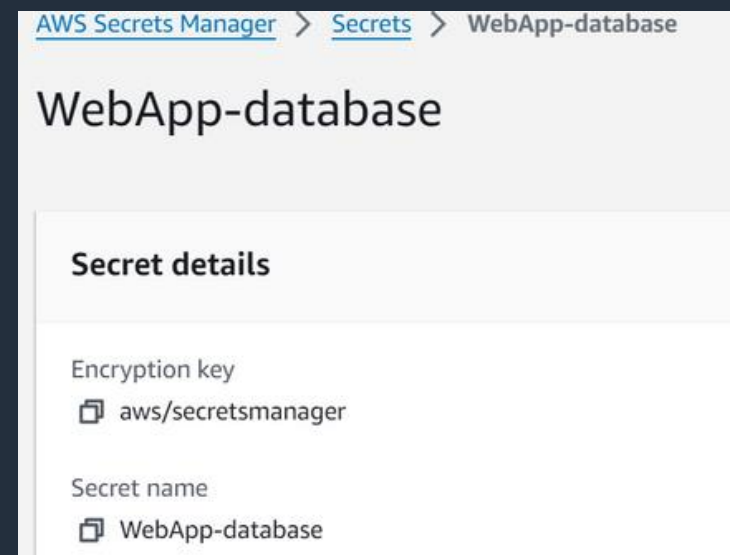
```
lambda_function x Environment Vari x +
1 import boto3
2 region = 'us-east-2'
3 instances = ['i-0fc0521f6b9213a89']
4 ec2 = boto3.client('ec2', region_name=region)
5
6 def lambda_handler(event, context):
7     ec2.stop_instances(InstanceIds=instances)
8     print('stopped your instances: ' + str(instances))
```

```
lambda_function x Environment Vari x +
1 import boto3
2 region = 'eu-west-1'
3 instances = ['i-07224f9f1fe9301bd']
4 ec2 = boto3.client('ec2', region_name=region)
5
6 def lambda_handler(event, context):
7     ec2.stop_instances(InstanceIds=instances)
8     print('stopped your instances: ' + str(instances))
```

# AWS Secrets Manager

This code take retrieves database credentials from AWS Secrets Manager, enhancing security by avoiding hardcoding sensitive information in the wp-config.php file.

```
<?php
if(file_exists(__DIR__ . '/vendor/autoload.php')) {
require_once __DIR__ . '/vendor/autoload.php';
$dotenv = Dotenv\Dotenv::createImmutable(__DIR__);
$dotenv->load();
}
if(file_exists(dirname(__DIR__) . '/vendor/autoload.php'))
require_once dirname(__DIR__) . '/vendor/autoload.php';
$dotenv = Dotenv\Dotenv::createImmutable(__DIR__);
$dotenv->load();
}
```



```
// ** Database settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', getenv('dbname'));

/** Database username */
define( 'DB_USER', getenv('username'));

/** Database password */
define( 'DB_PASSWORD', getenv('password'));

/** Database hostname */
define( 'DB_HOST', getenv('host'));

/** Database charset to use in creating database tables. */
define( 'DB_CHARSET', 'utf8' );

/** The database collate type. Don't change this if in doubt. */
define( 'DB_COLLATE', '' );
```

# S3 Bucket

We created S3 bucket in Ireland region saved in standard mode.  
Each Account Have Access only to his folder. achieved by Role Policy.

```
1  {
2    "Version": "2012-10-17",
3    "Statement": [
4      {
5        "Effect": "Allow",
6        "Action": [
7          "s3:ListAllMyBuckets",
8          "s3:GetBucketLocation"
9        ],
10       "Resource": "*"
11     },
12     {
13       "Effect": "Allow",
14       "Action": [
15         "s3:ListBucket",
16         "s3:GetObject"
17       ],
18       "Resource": [
19         "arn:aws:s3:::sazis.click",
20         "arn:aws:s3:::sazis.click/Devops",
21         "arn:aws:s3:::sazis.click/Devops/*"
22       ]
23     },
24     {
25       "Effect": "Allow",
26       "Action": [
27         "s3:PutObject",
28         "s3:GetObject"
29       ],
30       "Resource": "arn:aws:s3:::sazis.click/Devops/*"
31     }
32   ]
33 }
```

<input type="checkbox"/>	Name	▲	Type
<input type="checkbox"/>	Devops/		Folder
<input type="checkbox"/>	IT/		Folder
<input type="checkbox"/>	Management /		Folder
<input type="checkbox"/>	RD1/		Folder
<input type="checkbox"/>	RD2/		Folder

# Route 53

We implament Ireland site as main site sets with failover mode with https support.

Publicsazis.clickInfo

Delete zoneTest record

► Hosted zone details

Records (13)

DNSSEC signing

Hosted zone tags (0)

Records (13)Info

Automatic mode is the current search behavior optimized for best filter results. To change modes go to settings.

Filter records by property or value

Type▼

Routing policy▼

Alias▼

<input type="checkbox"/>	Record name▼	Type▼	Routin...▼	Differ...▼	Alias▼	Value/Route traffic to▼	TTL (s...▼	Health ...▼	Evalua...▼	Record ID
<input type="checkbox"/>	sazis.click	A	Failover	Primary	Yes	webapp-alb-1539444601.eu...	-	-	Yes	Ireland-eu-west-1-WepAppALB
<input type="checkbox"/>	sazis.click	A	Failover	Secondary	Yes	webapp-alb-1280457183.us-...	-	-	Yes	Ohio-WebApp
<input type="checkbox"/>	sazis.click	NS	Simple	-	No	ns-1293.awsdns-33.org. ns-560.awsdns-06.net. ns-135.awsdns-16.com. ns-1943.awsdns-50.co.uk.	172800	-	-	-
<input type="checkbox"/>	sazis.click	SOA	Simple	-	No	ns-1293.awsdns-33.org. aws...	900	-	-	-
<input type="checkbox"/>	sazis.click	TXT	Simple	-	No	"MS=ms79895474"	3600	-	-	-
<input type="checkbox"/>	_535f092b46e9c695707dd1858aa07b4e.sazis.click	CNAME	Simple	-	No	_d8bac947173c18f20f58936...	300	-	-	-
<input type="checkbox"/>	_e149003a3653afd008b2197330931206.sazis.click	CNAME	Simple	-	No	_9c0cc47654596eb19248ed...	300	-	-	-
<input type="checkbox"/>	play.sazis.click	A	Failover	Primary	Yes	webapp-emulator-js-alb-893...	-	-	Yes	eu-ireland-WebApp-emulator-js-ALB
<input type="checkbox"/>	play.sazis.click	A	Failover	Secondary	Yes	webapp-emulator-js-alb-143...	-	-	Yes	us-Ohio-WebApp-emulator-js-ALB
<input type="checkbox"/>	_8ac0a4b8d693ef06662ce3bd813bb002.play.sazis.click	CNAME	Simple	-	No	_a56452d91f83350dd79f79...	300	-	-	-
<input type="checkbox"/>	_d0fd67ac71d8855a4d37af5e2b0128f0.play.sazis.click	CNAME	Simple	-	No	_2a00b790d8656d9359ae1b...	300	-	-	-
<input type="checkbox"/>	_98592b496df4f24cbc70a632463e1ed8.www.sazis.click	CNAME	Simple	-	No	_e9597995eaa16d8a295258...	300	-	-	-
<input type="checkbox"/>	_e93115a5813dcaa1769558cde98275b1.www.sazis.click	CNAME	Simple	-	No	_ca6638b6bc3f31aeb53a91...	300	-	-	-

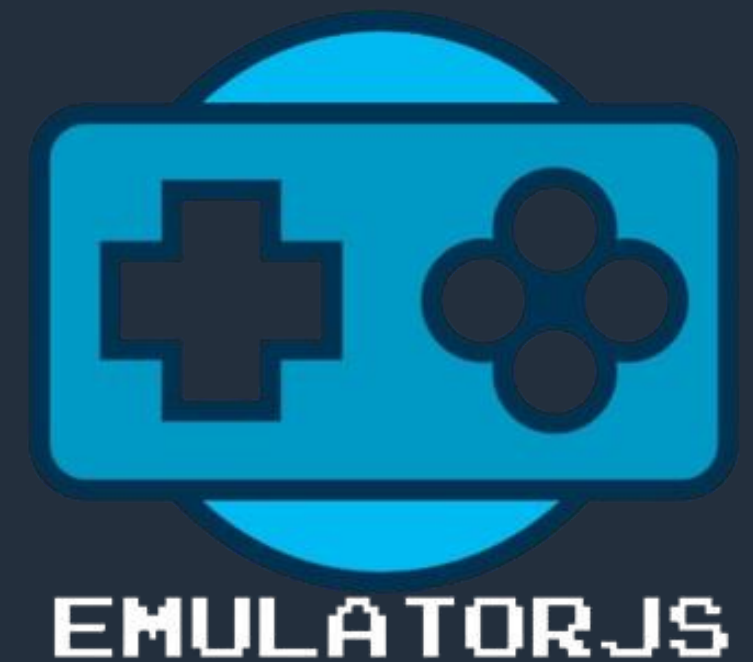
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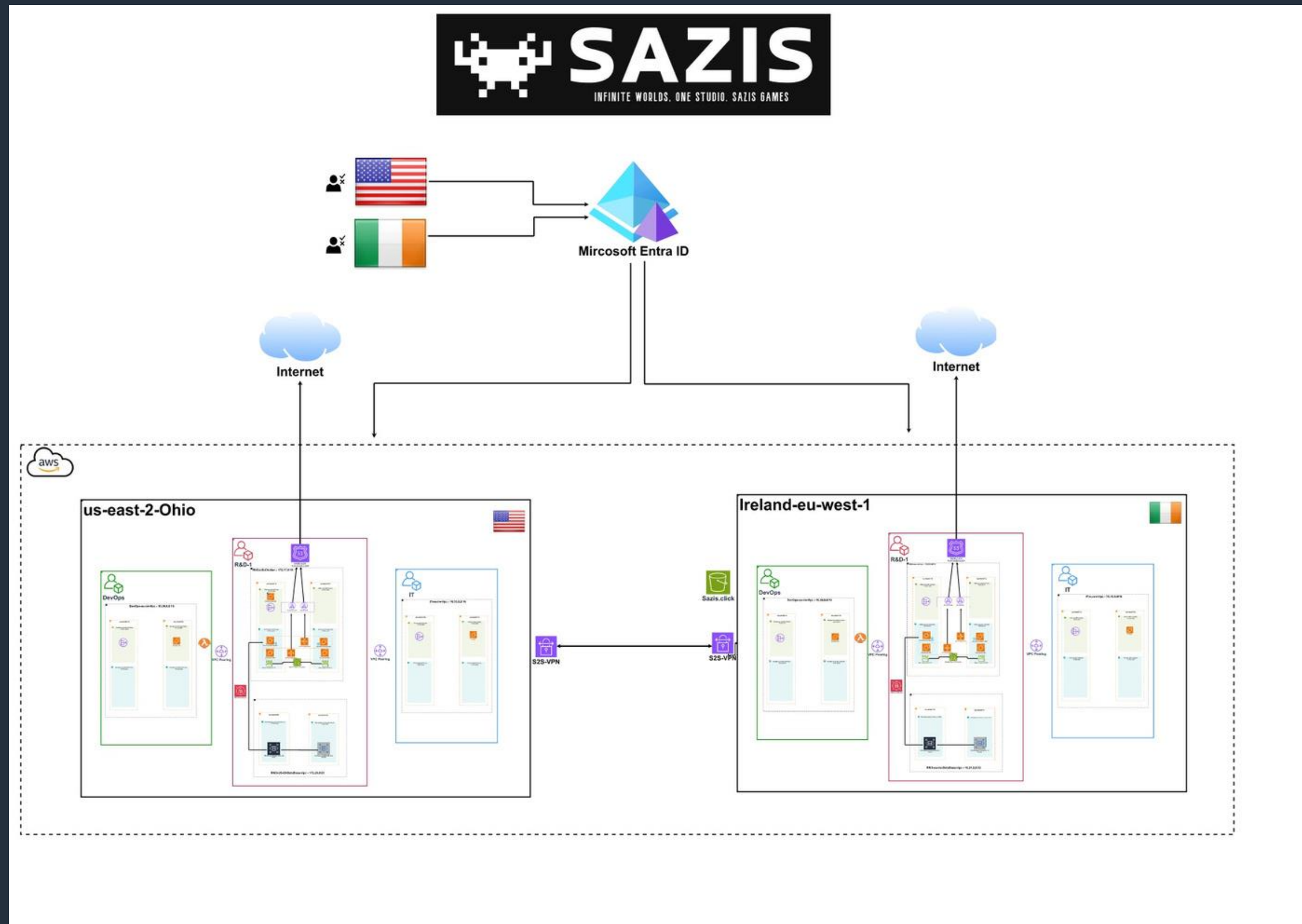
# EmulatorJS

For our Retro Gaming Web App, we have choose to deploy "EmulatorJS" using Docker

```
root@ip-10-20-4-222:~# sudo docker ps
CONTAINER ID    IMAGE
d0c1b7ad6700    linuxserver/emulatorjs:latest
```



# Project LLD



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# Thank you