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Comunidades Microsoft del Ecuador



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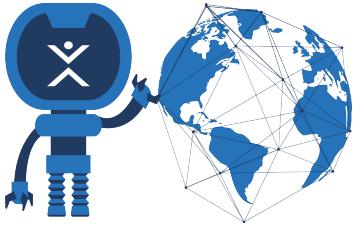
UMC
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CUMBRE VIRTUAL
Comunidades Microsoft del Ecuador

¿Cómo usar la nube para proteger los secretos de tus apps?

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Xamarin, Azure, Inteligencia Artificial

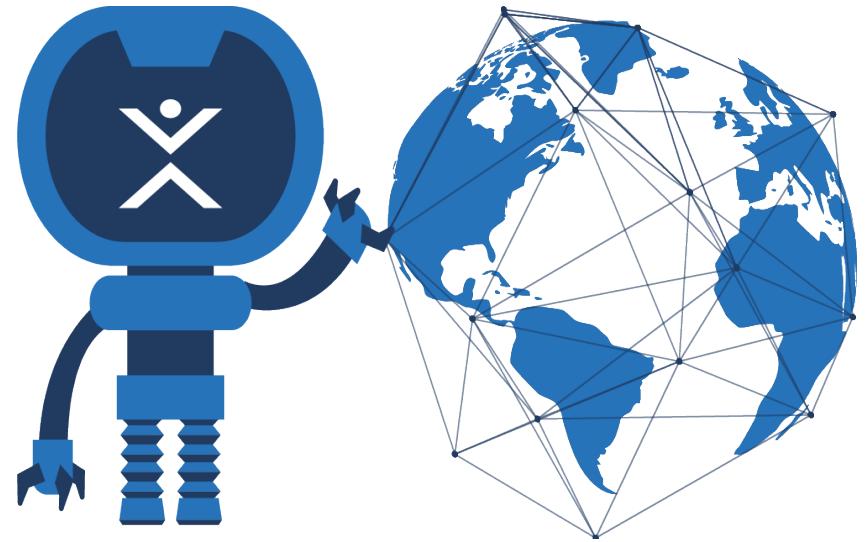
 Univerzita Tomáše Bati ve Zlíně
Fakulta aplikované informatiky



TECNOLOGICO
NACIONAL DE MEXICO



La importancia de la seguridad



La seguridad es importante



Comisiones Electorales de la República de Filipinas

- 340GB de datos
- 228,605 direcciones de correo electrónico
- 1,3 millones de números de pasaporte y fechas de caducidad
- 15,8 millones de registros de huellas dactilares
- Los datos estaban encriptados: la llave estaba en el código PHP de su sitio web

Fuente:

https://en.wikipedia.org/wiki/Commission_on_Elections_data_breach

Sony Entertainment y Sony Pictures

Sony Entertainment en 2011

- Se cayó PlayStation Network
- Datos no encriptados de tarjetas de crédito de los usuarios

Sony Pictures en 2014

- Datos personales de empleados y familias
- Correos electrónicos confidenciales e información salarial
- Algunas películas (The Interview, Annie)

Fuente: https://en.wikipedia.org/wiki/2011_PlayStation_Network_outage ;
https://en.wikipedia.org/wiki/Sony_Pictures_hack

Cruz Roja Australia

- Archivo de 1,74 GB con 1,286,366 registros
- Datos personales de 550, 000 donantes de sangre
- Los datos no se cifraron y se almacenaron en un sitio web no seguro
- Encontrado mediante el escaneo de direcciones públicas en busca de archivos .sql

Fuente: <https://www.troyhunt.com/the-red-cross-blood-service-australias-largest-ever-leak-of-personal-data>

La seguridad
es importante

Mi “amigo” Juan

- Tenía un CryptoLocker (ransomware) instalado
- 350GB de datos personales
- Pagó \$400 para volver a acceder a sus datos

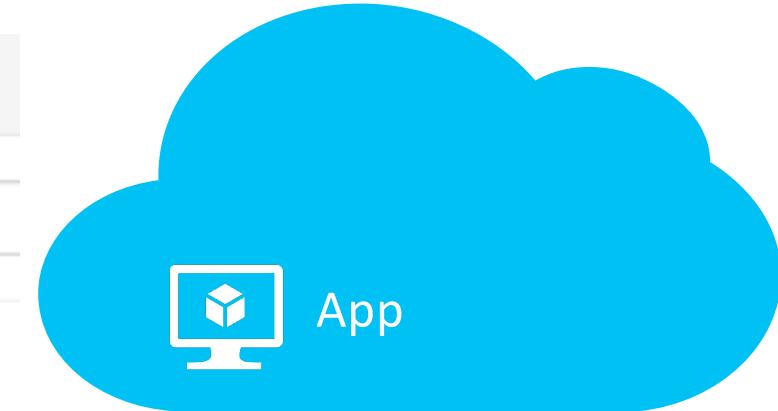
Los desarrolladores construyen una app de negocio...



A screenshot of a GitHub search interface. The search bar contains the query "'BEGIN RSA PRIVATE KEY'". The results section shows "Showing 481,525 available code results". The sidebar on the left indicates there are 1 repository and 49,015 code files. A large orange callout bubble is overlaid on the bottom left, containing the text:

Tus secretos PROLIFERARÁN.
a más lugares de los que puedes
imaginar

Python
Text



- Implementa la app
¡...Y LAS LLAVES Y SECRETOS!



Desarrolladores

Contenido a asegurar



Secretos

Cadenas de conexión

```
Server=myServerName\myInstanceName; Database=myDataBase; User Id=myUsername;  
Password=myPassword;
```

Credenciales

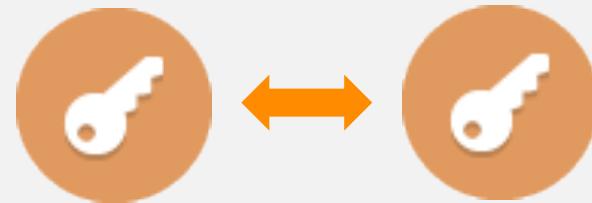


Otros secretos



Llaves

Llaves simétricas



Llaves asimétricas



Llave pública

Llave privada

Certificados

Certificados digitales

Llaves digitales





“Quiero encriptar mis datos y además...

- Necesito mantener claves de cifrado en **HSMs (FIPS140-2 Nivel 2+)**”
- Necesito controlar el **ciclo de vida** de mis claves de encriptación.”
- Quiero controlar las claves de mis aplicaciones conectadas a la **nube** en **un solo lugar.**”
- Necesito almacenar las claves de encriptación en un servidor **on-premises / de mi país / en HSMs dedicados.**”

Hardware Security Module (HSM)



Un módulo de seguridad de hardware (HSM) es un dispositivo informático físico que protege y administra las claves digitales para una autenticación sólida y proporciona criptoprocesamiento.

Estos módulos vienen tradicionalmente en forma de una tarjeta plug-in o un dispositivo externo que se conecta directamente a una computadora o servidor de red.



Administración de secretos en Azure

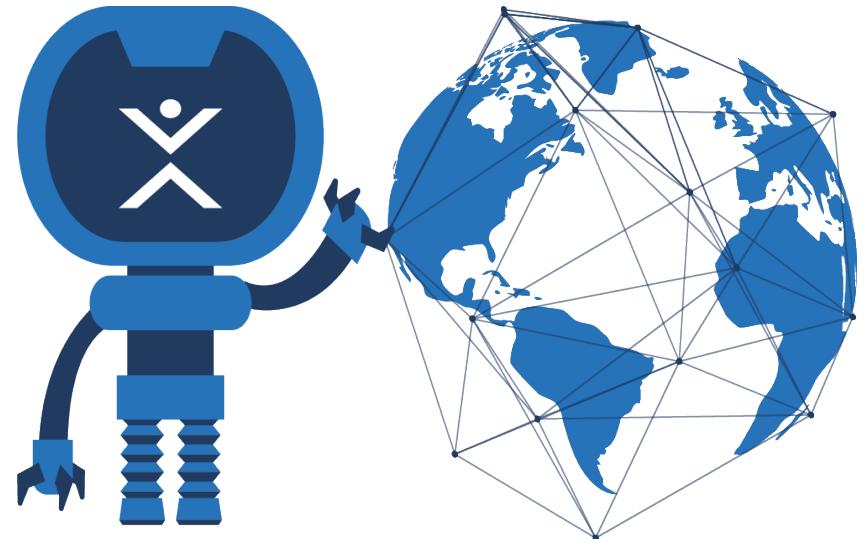


“Mi aplicación en Azure tiene contraseñas y llaves criptográficas, así que...

- Necesito un lugar seguro donde almacenarlas en Azure”.
- Necesito (re)utilizar usuarios y grupos de Active Directory para administrar el acceso a los secretos.”
- No quiero aparecer en las noticias por un error de seguridad”

Solución: Azure Key Vault

Azure Key Vault



Azure Key Vault



- Un servicio alojado en la nube de Azure en sistemas dedicados y HSM
- Potencia la mayoría de los servicios de cifrado proporcionados por Azure
- Disponible para que los desarrolladores lo utilicen en sus propias aplicaciones



Características



Servicio hospedado en la nube, respaldado por HSM para administrar claves criptográficas utilizando estándares certificados FIPS 140-2 Nivel 2

Encripta claves y secretos
Importa o genera tus claves
Simplifica y automatiza tareas para certificados SSL / TLS

Todas las claves permanecen en el límite de HSM
No puedes recuperar la clave privada
Key Vault se implementa en minutos

Viene en dos opciones: Standard y Premium
Con Premium Key Vaults, todos los secretos y claves se almacenan en un HSM

0.03 USD / 10.000 operaciones
Renovación de certificación: 3 USD por solicitud de renovación
Claves protegidas HSM: 1 USD por clave por mes

Conceptos importantes



Secret

- Cualquier secuencia de bytes (máx. 25KB): Cadena de conexión SQL, archivo PFX, llave de encriptación AES).
- Usuarios/apps autorizadas pueden escribir y leer de vuelta el valor secreto.

Key

- Una llave de encriptación RSA 2048.
- Una llave no puede ser recuperada de vuelta. El solicitante debe pedir al servicio desencriptar / firmarse con la llave.

Key Vault

- Contenedor lógico para llaves y secretos relacionados que son administrados juntos.
- Unidad de control de acceso / unidad de facturación.
- Un recurso de Azure, por ejemplo una cuenta de almacenamiento.

Creando una bóveda



Microsoft Azure Search resources, services, and docs (G+/)

Home > New >

Key Vault

Microsoft



Key Vault

 Save for later

Microsoft

Create

Overview Plans

Azure CLI

```
az keyvault create --resource-group <resource-group> --name <your-unique-vault-name>
```

PowerShell

```
New-AzKeyVault -Name <your-unique-vault-name> -ResourceGroupName <resource-group>
```

Creando llaves/secretos; autenticación



PowerShell

```
$key = Add-AzureKeyVaultKey -VaultName 'contoso' -Name 'MyFirstKey' -Destination 'HSM'
```

Autenticación de la bóveda y creación de un cliente en C#

```
string keyVaultName = Environment.GetEnvironmentVariable("KEY_VAULT_NAME");
var kvUri = "https://" + keyVaultName + ".vault.azure.net";
var client = new SecretClient(new Uri(kvUri), new DefaultAzureCredential());
```

Creación de un secreto en C#

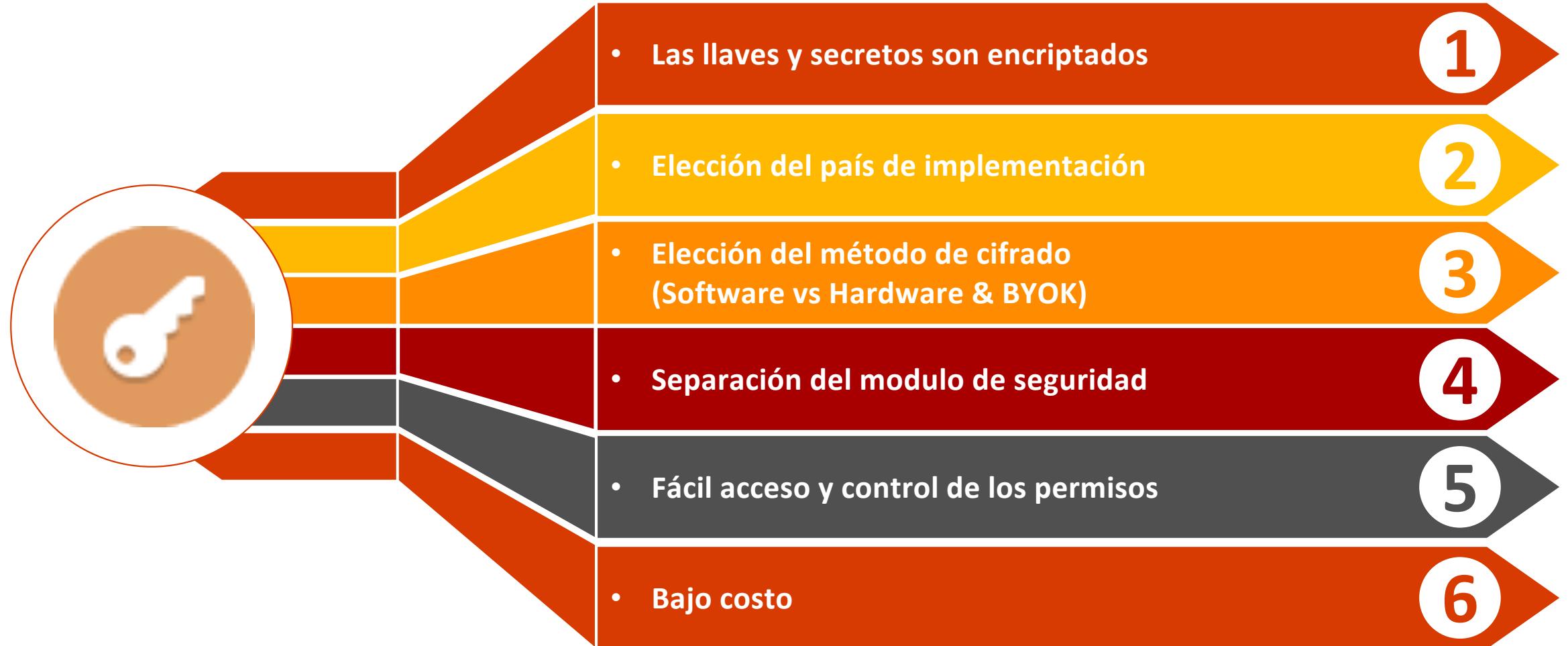
```
client.SetSecret(secretName, secretValue);
```

Borrado de un secreto en C#

```
client.StartDeleteSecret(secretName);
```

Recuperación de un secreto en C#

```
var secret = client.GetSecret(secretName);
```





- Las llaves y secretos son encriptados
- Elección del país de implementación
- Elección del método de cifrado
(Software vs Hardware & BYOK)
- Separación del modulo de seguridad
- Fácil acceso y control de los permisos
- Bajo costo

1

2

3

4

5

6

Toda información en la KeyVault es encriptada

Elige en qué centro de datos y en qué grupo de recursos deseas implementar KeyVault

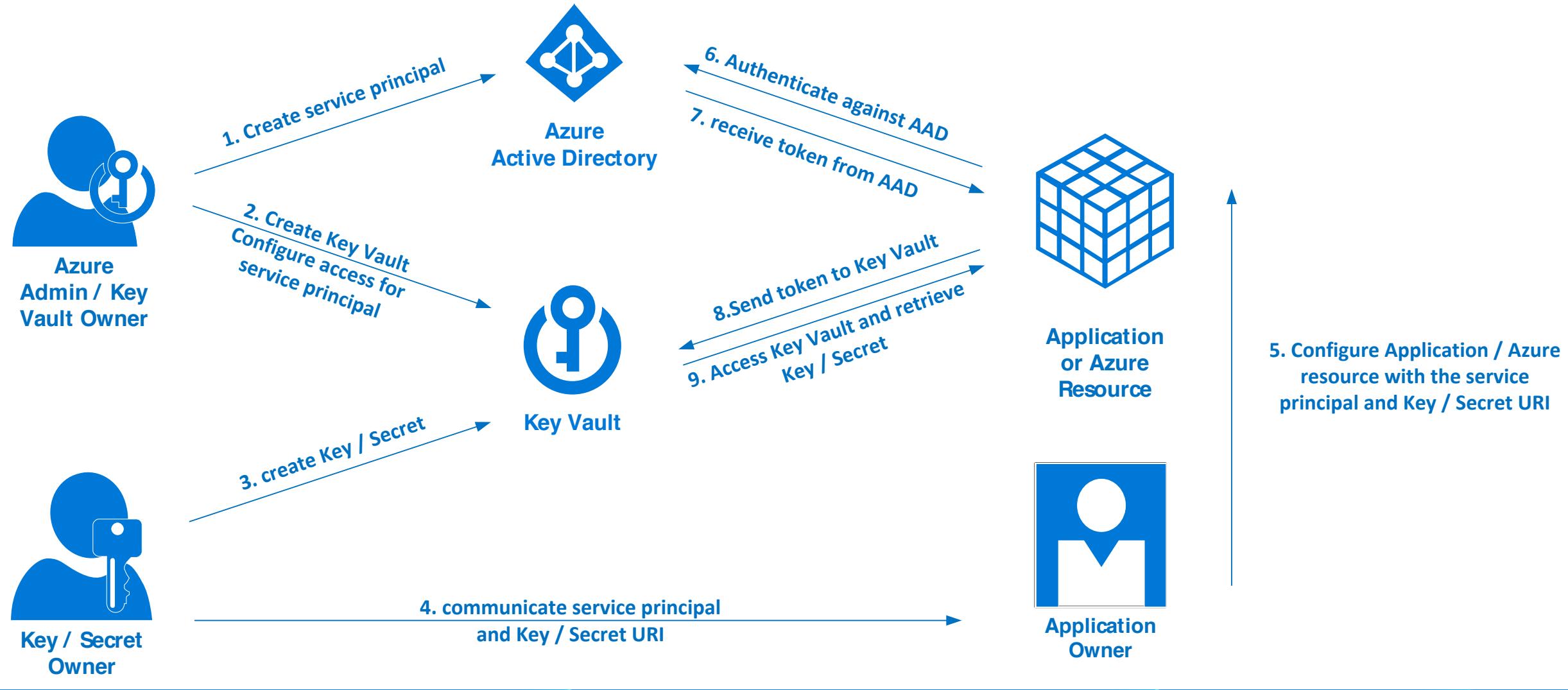
Edición Standard vs Premium
BYOK

Crea tantas Key Vaults como requieras

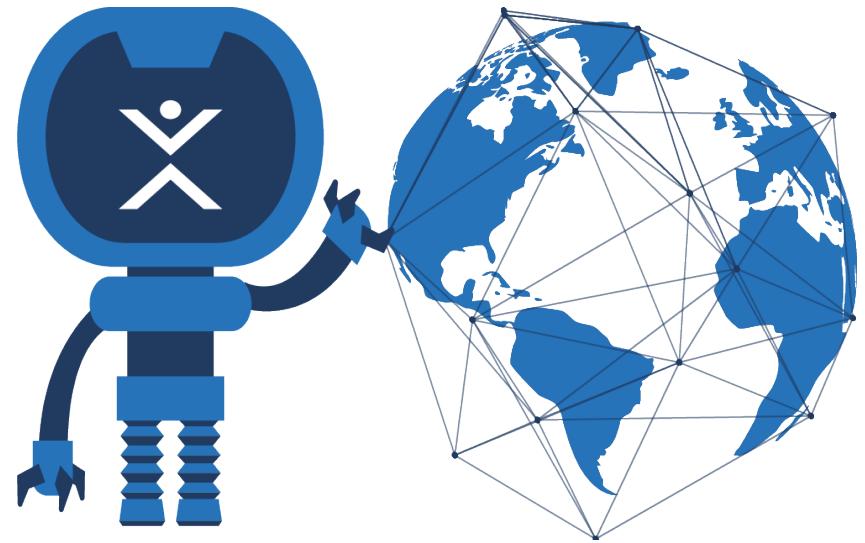
Administración mediante PowerShell /
Azure AD / RBAC

Precio: 0.03\$ / 10.000 transacciones

Flujo en Azure Key Vault



Demo



Creación del recurso que se desea proteger en Azure



Home > Resource groups > keyvaultdemo-rg > New >

Create storage account

Basics Networking Data protection Advanced Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below.

[Learn more about Azure storage accounts](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Demos Subscription

Resource group * keyvaultdemo-rg [Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name * songsstorageluis

Location * (Europe) North Europe

Performance Standard Premium

Account kind StorageV2 (general purpose v2)

Replication Read-access geo-redundant storage (RA-GRS)

Access tier (default) Cool Hot

[Review + create](#)

< Previous

Next : Networking >

Home > keyvaultdemo-rg > **songsstorageluis | Access keys** Storage account

Search (Cmd+ /) Overview Activity log Access control (IAM) Tags Diagnose and solve problems Data transfer Events Storage Explorer (preview) Hide keys

Storage account name songsstorageluis

key1 Key /OGEat3sL23ZExtSiqhC [REDACTED]

Connection string DefaultEndpointsProtocol=https;[REDACTED]

key2 Key

Acceso al recurso protegido – modo inseguro



Storage Explorer (preview)

Search

BLOB CONTAINERS
FILE SHARES
QUEUES
TABLES
SongsTable

PARTITIONKEY	ROWKEY	TIMESTAMP	SONGNAME	SONGALBUM
Katie Melua	1	2020-08-22T11:22:25.1083714Z	Nine Million Bicycles	Piece by Piece
Katie Melua	2	2020-08-22T11:23:04.197Z	Blame It on the Moon	Call Off the Search
Lyn Inaizumi	1	2020-08-22T11:24:36.696Z	The Whims of Fate	Persona 5
The Corrs	1	2020-08-22T11:23:22.171Z	All the Love in the World	In Blue
The Corrs	2	2020-08-22T11:23:35.974Z	One Night	In Blue

```
public class DataService
{
    public static async Task<List<Song>> GetSecretData()
    {
        var apiKey = "REDACTED";
        var creds = new StorageCredentials("songsstorageluis", apiKey);
        var cloudStorageAcct = new CloudStorageAccount(creds, "core.windows.net", true);

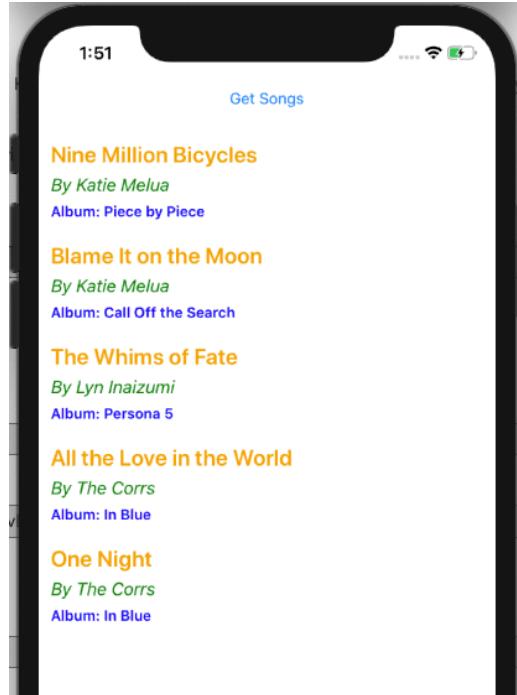
        var tableClient = cloudStorageAcct.CreateCloudTableClient();
        var table = tableClient.GetTableReference("SongsTable");

        var tableQuery = new TableQuery<Song>();
        var tableContents = await table.ExecuteQuerySegmentedAsync(tableQuery, null);
        return tableContents.Results;
    }
}
```

```
private async Task GetSongs()
{
    IsBusy = true;

    var results = await DataService.GetSecretData();
    Songs = new ObservableCollection<Song>(results);

    IsBusy = false;
}
```



Creación del recurso de Azure Key Vault



Microsoft Azure Search resources, services, and docs (G+)

Home > New > Key Vault > Create key vault

Basics Access policy Networking Tags Review + create

Azure Key Vault is a cloud service used to manage keys, secrets, and certificates. Key Vault eliminates the need for developers to store security information in their code. It allows you to centralize the storage of your application secrets which greatly reduces the chances that secrets may be leaked. Key Vault also allows you to securely store secrets and keys backed by Hardware Security Modules or HSMs. The HSMs used are Federal Information Processing Standards (FIPS) 140-2 Level 2 validated. In addition, key vault provides logs of all access and usage attempts of your secrets so you have a complete audit trail for compliance. [Learn more](#)

Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Demos Subscription

Resource group * (New) keyvaultdemo-rg [Create new](#)

Instance details
Key vault name * KeyVaultLuis

Region * North Europe

Pricing tier * Standard

Recovery options
Soft delete allows you to recover a deleted key vault and its objects within the retention period you specify. Purging triggers immediate and irrecoverable deletion of the key vault. When purge protection is enabled, vault and its object in the deleted state cannot be purged until the retention period has passed. [Learn more](#)

[Review + create](#) [< Previous](#) [Next : Access policy >](#)

Creación de un secreto



Home > KeyVaultLuis | Overview >

KeyVaultLuis | Secrets

Key vault

Search (Cmd+/)

+ Generate/Import

Refresh Restore Backup

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events (preview)

Settings

Keys

Secrets

Name

Home > KeyVaultLuis | Overview > KeyVaultLuis | Secrets >

There are no secrets

Create a secret

Upload options

Manual

Name *

tablestorage-key

Value *

.....

Content type (optional)

Set activation date?

Set expiration date?

Enabled?

Yes

No

Home > KeyVaultLuis | Overview >

KeyVaultLuis | Secrets

Key vault

Search (Cmd+/)

+ Generate/Import

Refresh Restore Backup

The secret 'tablestorage-key' has been successfully created.

Name	Type	Status	Expiration Date
------	------	--------	-----------------

tablestorage-key		✓ Enabled	
------------------	--	-----------	--



Creación de Azure Function para acceso a Key Vault



Home > Resource groups > keyvaultdemo-rg > New > Function App >

Home > Resource groups > keyvaultdemo-rg > **Create Function App**

Function App

Microsoft



Function App

Microsoft

Create

Overview **Plans**

Write any function in minutes – whether to run a simple script or whatever your chosen OS, platform, or development language.

Useful Links

[Documentation](#)

[Solution Overview](#)

[Pricing Details](#)

Basics Hosting Monitoring Tags Review + create

Create a function app, which lets you group functions as a logical unit for easier management, deployment and sharing of resources. Functions lets you execute your code in a serverless environment without having to first create a VM or publish a web application.

Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Demos Subscription

Resource Group *

keyvaultdemo-rg

[Create new](#)

Instance Details

Function App name *

songskeyvault

.azurewebsites.net

Publish *

Code Docker Container

Runtime stack *

.NET Core

Version *

3.1

Region *

North Europe

Basics **Hosting** Monitoring Tags Review + create

Storage

When creating a function app, you must create or link to a general-purpose Azure Storage account that supports Blobs, Queue, and Table storage.

Storage account *

songsstorageluis

[Create new](#)

Operating system

The Operating System has been recommended for you based on your selection of runtime stack.

Operating System *

Linux Windows

Plan

The plan you choose dictates how your app scales, what features are enabled, and how it is priced. [Learn more](#)

Plan type *

Consumption (Serverless)

Review + create

< Previous

Next : Hosting >

Registro de Azure Function con Azure Active Directory



Home > Microsoft.Web-FunctionApp-Portal-99e47185-97da | Overview >

songskeyvault | Identity

Function App

Search (Cmd+/)

Deployment

Deployment slots

Deployment Center

Settings

Configuration

Authentication / Authorization

Application Insights

Identity

Backups

Custom domains

TLS/SSL settings

System assigned

User assigned

A system assigned managed identity enables Azure resources to aut
lifecycle of this type of managed identity is tied to the lifecycle of thi

Save

Discard

Refresh

Got feedback?

Status ⓘ

Off

On

Enable system assigned managed identity

'songskeyvault' will be registered with Azure Active Directory. Once it is registered, 'songskeyvault' can be granted permissions to access resources protected by Azure AD. Do you want to enable the system assigned managed identity for 'songskeyvault'?

Yes

No

Creación de políticas de acceso



Home > keyvaultdemo-rg >

KeyVaultLuis | Access policies

- Search (Cmd+/)
- Save
- Discard
- Refresh
- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Events (preview)
- Settings
 - Keys
 - Secrets
 - Certificates
 - Access policies
- Networking
- Properties

Enable Access to:

- Azure Virtual Machines for deployment ⓘ
- Azure Resource Manager for template deployment ⓘ
- Azure Disk Encryption for volume encryption ⓘ

+ Add Access Policy

Current Access Policies

Name	Email	Key Permissions
USER		
Luis Beltran	[REDACTED]	9 selected

Home > keyvaultdemo-rg > KeyVaultLuis | Access policies >

Add access policy

Add access policy

Configure from template (optional)

Secret Management

0 selected

Key permissions

7 selected

Select all

Secret permissions

Secret Management Operations

- Get
- List
- Set
- Delete
- Recover
- Backup
- Restore

Certificate permissions

Privileged Secret Operations

Select principal *

Authorized application ⓘ

Add

Purge

Asociación de la política de acceso a la Azure Function



Home > keyvaultdemo-rg > KeyVaultLuis | Access policies >

Add access policy

Add access policy

Configure from template (optional)

Secret Management

Key permissions

0 selected

Secret permissions

7 selected

Certificate permissions

0 selected

Select principal *

None selected

Authorized application ⓘ

None selected

Add

Principal

Select a principal

song

 songskeyvault
025da96a-5251-4f60-9fde-8cb9861d8464

Selected items

 songskeyvault
025da96a-5251-4f60-9fde-8cb9861d8464

Remove

Home > keyvaultdemo-rg > KeyVaultLuis | Access policies >

Add access policy

Add access policy

Configure from template (optional)

Secret Management

Key permissions

0 selected

Secret permissions

7 selected

Certificate permissions

0 selected

Select principal *

songskeyvault

Authorized application ⓘ

None selected

Add



Select

Confirmación y registro de la aplicación



Home > keyvaultdemo-rg >

KeyVaultLuis | Access policies

Key vault

Search (Cmd+/)

Save

Discard

Refresh

Please click the 'Save' button to commit your changes.

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events (preview)

Settings

Keys

Secrets

Certificates

Access policies

Networking

Properties

Locks

Export template

- Enable Access to:
- Azure Virtual Machines for deployment ⓘ
 - Azure Resource Manager for template deployment ⓘ
 - Azure Disk Encryption for volume encryption ⓘ

+ Add Access Policy

Current Access Policies

Name	Email	Key Permissions	Secret Permissions	Certificate Permissions	Action
APPLICATION					
songskeyvault		0 selected	7 selected	0 selected	<button>Delete</button>
USER					
Luis Beltran	tony_articuno_hotmai...	9 selected	7 selected	15 selected	<button>Delete</button>

Acceso al identificador del secreto



Home > keyvaultdemo-rg >

KeyVaultLuis | Secrets

Key vault

Search (Cmd+/)



+ Generate/Import

⟳ Refresh

↑ Restore Backup

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events (preview)

Settings

Keys

Secrets

Certificates

Access policies

Home > keyvaultdemo-rg > KeyVaultLuis | Secrets >

tablestorage-key

Versions

+

New Version



Refresh



Delete



Download Backup

Version

Status

CURRENT VERSION

623e3cd2

✓ Enabled

Home > keyvaultdemo-rg > KeyVaultLuis | Secrets > tablestorage-key >

623e3cd2d8...

Secret Version

Save Discard

Properties

Created 8/22/2020, 1:58:38 PM

Updated 8/22/2020, 1:58:38 PM

Secret Identifier

https://keyvaultluis.vault.azure.net/secrets/tablestorage-key/623e3cd2d8...

Copy to clipboard

Settings

Set activation date?

Set expiration date?

Enabled? Yes No

Tags

0 tags



Secret

Content type (optional)

(empty field)

Show Secret Value

Secret value

.....



Asociación: Cadena de acceso (secreto) en Azure Function



Home > keyvaultdemo-rg >

songskeyvault | Configuration

Function App

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Security
- Events (preview)

Functions

- Functions
- App keys
- App files
- Proxies

Deployment

- Deployment slots
- Deployment Center

Settings

- Configuration
- Authentication / Authorization
- Application Insights
- Identity
- Backups
- Custom domains
- TLS/SSL settings
- Networking

Search (Cmd+ /) < Refresh Save Discard

Application settings Function runtime settings General settings

Application settings

Application settings are encrypted at rest and transmitted over a secure connection between your application at runtime. [Learn more](#)

+ New application setting Show values Advanced

Filter application settings

Name: APPINSIGHTS_INSTRUMENTATIONKEY
Value: @Microsoft.KeyVault(SecretUri=https://keyvaultluis.vault.azure.net/secrets/tablestorage-key/...)

Name: APPLICATIONINSIGHTS_CONNECTION_STRING
Value: AzureWebJobsStorage

Name: FUNCTIONS_EXTENSION_VERSION
Value: FUNCTIONS_WORKER_RUNTIME
Value: KeyVaultSecretStorageConnection
Value: WEBSITE_CONTENTAZUREFILECONNECTIONSTRING
Value: WEBSITE_CONTENTSHARE

Connection strings

Connection strings are encrypted at rest and transmitted over a secure connection between your application at runtime. [Learn more](#)

+ New connection string Show values Advanced

Filter connection strings

Name:

Add/Edit application setting

Name: AzureWebJobsStorage

Value: @Microsoft.KeyVault(SecretUri=https://keyvaultluis.vault.azure.net/secrets/tablestorage-key/...)

Deployment slot setting

Save changes

Any changes to applications settings and connection strings will restart your application. Are you sure you want to continue?

Continue

Cancel

OK

Cancel

Creación de proyecto Azure Function



New Project

Configure your Azure Functions project

Function Name:

Runtime Version:

Initial Template:

- Http trigger**
A C# function that will be run whenever it receives an HTTP request
- Timer trigger
A C# function that will be run on a specified schedule
- Queue trigger
A C# function that will be run whenever a message is added to a specified Azure Queue Storage
- Blob trigger
A C# function that will be run whenever a blob is added to a specified container.
- EventGrid trigger
A C# function that will be run whenever an event grid receives a new event
- EventHub trigger
A C# function that will be run whenever an event hub receives a new event

Selected Template: **HTTP TRIGGER**

Authorization level:

Previous Next

```
public class Song : TableEntity
{
    public string SongName { get; set; }
    public string SongAlbum { get; set; }
}

public static class GetSongsFunction
{
    [FunctionName("GetSongsFunction")]
    [StorageAccount("AzureWebJobsStorage")]
    public static async Task<IActionResult> Run(
        [HttpTrigger(AuthorizationLevel.Anonymous, "get", "post", Route = null)] HttpRequest req,
        [Table("SongsTable", Connection = "AzureWebJobsStorage")] CloudTable table,
        ILogger log)
    {
        log.LogInformation("Getting information from Songs Table!");

        var tableQuery = new TableQuery<Song>();

        var tableContents = await table.ExecuteQuerySegmentedAsync(tableQuery, null);

        return new OkObjectResult(tableContents.Results);
    }
}
```

Publicación del proyecto en Azure



Solution

GetSongsFunction (master)

GetSongsFunction

- Dependencies (1 update)
- Frameworks
 - Microsoft.NETCore.App (3.1.0)
- NuGet (1 update)
 - Microsoft.Azure.WebJobs.Extensions.Storage (4.0.0)
 - Microsoft.NET.Sdk.Functions (3.0.3)
 - WindowsAzure.Storage (9.3.3)

.gitignore

GetSongsFunction.cs

host.json

local.settings.json

GetSongsFunction.cs

Song SongAlbum

Build GetSongsFunction
Rebuild GetSongsFunction
Clean GetSongsFunction
Unload

Run Project
Start Debugging Project
Run With
Set As Startup Project

Pack

Publish

Publish to Folder...
Publish to Azure...

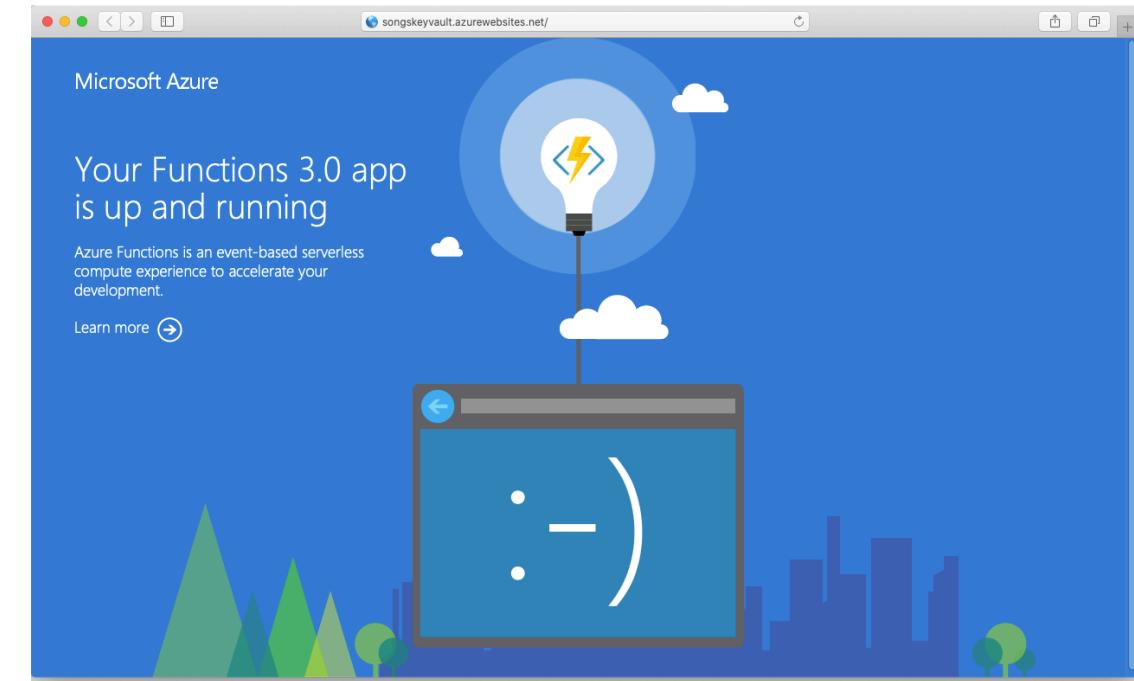
Publish to Azure App Service

Azure App Service:

Service	Resource Group	Location	Subscription
AdvientoXamarin2019	ComunidadXamarinEspanol-RG	Central US	Demos Subscription
predictionslib	Lightup-RG	North Europe	Demos Subscription
ServerlessWeatherBot-07	ServerlessWeatherBot-RG	West Europe	Demos Subscription
songskeyvault	keyvaultdemo-rg	North Europe	Demos Subscription
vivi-live-stream	vivi-live-stream-rg	Central US	Soluciones TC

New Refresh

Cancel Publish



Prueba de Azure Function y acceso a la URL



Home > keyvaltdemo-rg > songskeyvault | Functions >

GetSongsFunction | Code + Test

Function

Search (Cmd+ /) Save Discard Refresh Test/Run

Overview

songskeyvault \ GetSongsFunction \ function.json

Developer

Code + Test (selected)

Integration

Monitor

Function Keys

Get function URL

Key: default

URL: https://songskeyvault.azurewebsites.net... [Copy to clipboard](#)

Input Output

HTTP response code: 200 OK

HTTP response content:

```
[{"songName": "Nine Million Bicycles", "songAlbum": "Piece by Piece", "partitionKey": "Katie Melua", "rowKey": "1", "timestamp": "2020-08-22T11:22:25.1083714+00:00", "eTag": "W/\"datetime'2020-08-22T11%3A22%3A25.1083714Z\""}, {"songName": "Blame It on the Moon", "songAlbum": "Call Off the Search", "partitionKey": "Katie Melua", "rowKey": "2", "timestamp": "2020-08-22T11:23:04.1977629+00:00", "eTag": "W/\"datetime'2020-08-22T11%3A23%3A04.1977629Z\""}, {"songName": "The Whims of Fate", "songAlbum": "Persona 5", "partitionKey": "Lyn Inazumi", "rowKey": "1", "timestamp": "2020-08-22T11:24:36.6962113+00:00", "eTag": "W/\"datetime'2020-08-22T11%3A24%3A36.6962113Z\""}, {"songName": "All the Love in the World", "songAlbum": "In Blue", "partitionKey": "The Corrs", "rowKey": "1", "timestamp": "2020-08-22T11:23:22.1713595+00:00", "eTag": "W/\"datetime'2020-08-22T11%3A23%3A22.1713595Z\""}]
```

Logs

Filesystem Logs Log Level Stop Copy Clear Maximize Leave Feedback

Change the timeout with the App Setting `SUM_LOGSIKEAM_TIMEOUT` (in seconds).

```
2020-08-22T14:08:55.393 [Information] Loading functions metadata
2020-08-22T14:08:55.422 [Information] 1 functions loaded
2020-08-22T14:08:55.723 [Information] Executing 'GetSongsFunction' (Reason='This function was programmatically called via the host APIs.', Id=c64bb19a-fc36-43e7-8493-ab06c149e98d)
2020-08-22T14:08:55.723 [Information] Getting information from Songs Table!
2020-08-22T14:08:55.728 [Information] Executed 'GetSongsFunction' (Succeeded, Id=c64bb19a-fc36-43e7-8493-ab06c149e98d, Duration=42ms)
2020-08-22T14:10:54 No new trace in the past 1 min(s).
2020-08-22T14:11:54 No new trace in the past 2 min(s).
```

Run Close

Acceso seguro al recurso protegido vía Azure Function



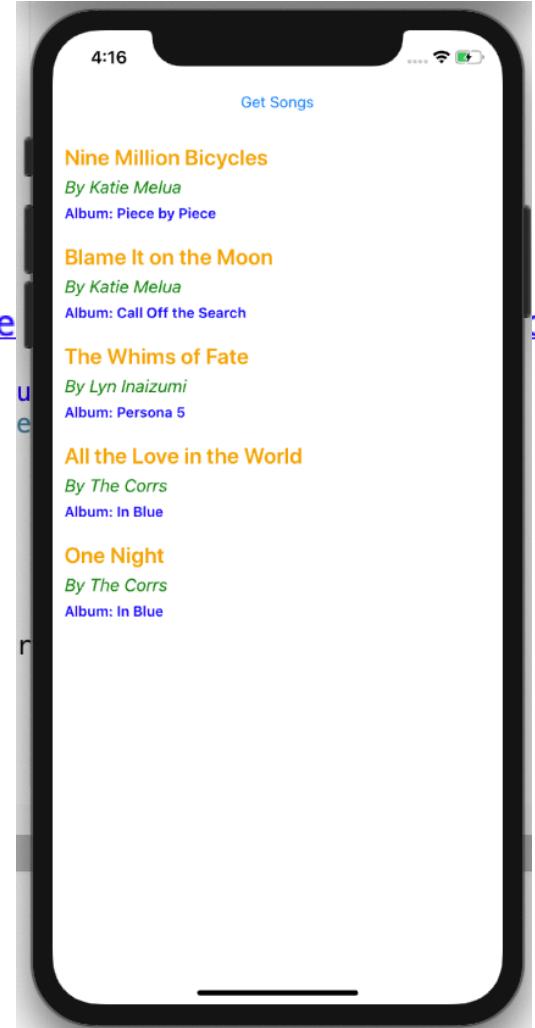
```
public static class KVDataService
{
    static HttpClient httpClient = new HttpClient();

    public static async Task<List<Song>> GetSecretData()
    {
        var secretJson = await httpClient.GetStringAsync("https://songskeyvault.azurewebsites.net/api/secrets");
        return JsonConvert.DeserializeObject<List<Song>>(secretJson);
    }

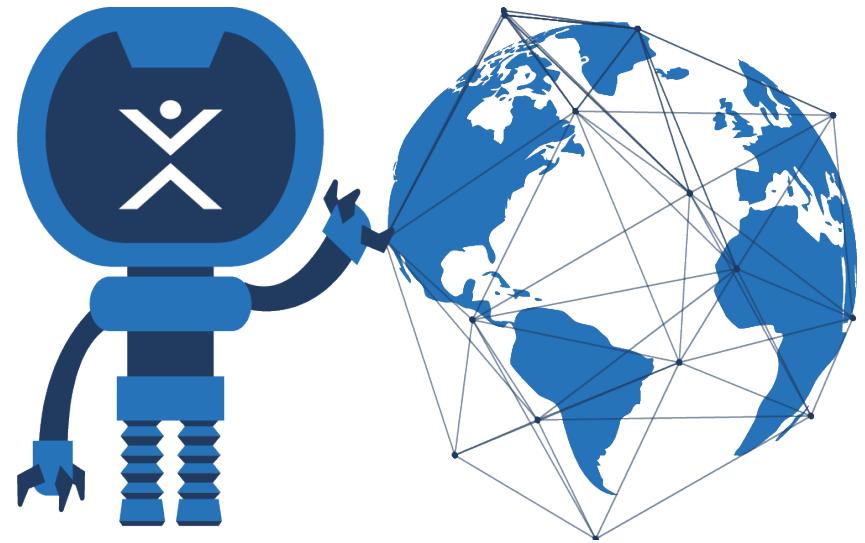
    private async Task GetSongs()
    {
        IsBusy = true;

        var results = await KVDataService.GetSecretData();
        Songs = new ObservableCollection<Song>(results);

        IsBusy = false;
    }
}
```



Cierre





Standard y Premium

- Secretos: USD 0.03 / 10,000 transacciones
- Certificados: USD 3 por renovación + USD 0.03 / 10,000 transacciones
- Llaves RSA 2048-bit: USD 0.03 / 10,000 transacciones
- Llaves avanzadas: USD 0.15 / 10,000 transacciones

Premium

- Llaves protegidas por HSM USD 1 / llave (mes) + USD 0.03 / 10,000 transacciones
- Llaves avanzadas Varios precios / llave (mes) + USD 0.15 / 10,000 transacc

<https://azure.microsoft.com/en-us/pricing/details/key-vault/>



Azure Key Vault

<https://azure.microsoft.com/es-mx/services/key-vault/>

Documentación

<http://aka.ms/kvdocs>

Blog

<http://aka.ms/kvblog>

Mobile apps + Azure Key Vault ... don't do it!

<https://codemilltech.com/mobile-apps-azure-keyvault-dont-do-it/>

Q & A



¡Gracias por tu atención!



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<https://youtube.com/user/darkicebeam>



<https://slideshare.net/icebeam>



@darkicebeam



icebeam7



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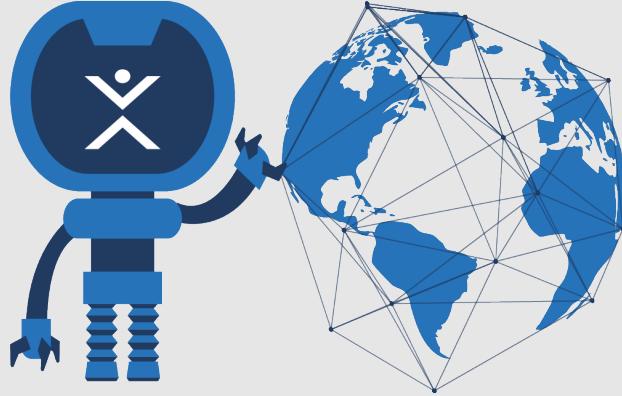


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Fakulta aplikované informatiky



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