Using Azure Functions and CSOM to master SharePoint development

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About the Speaker

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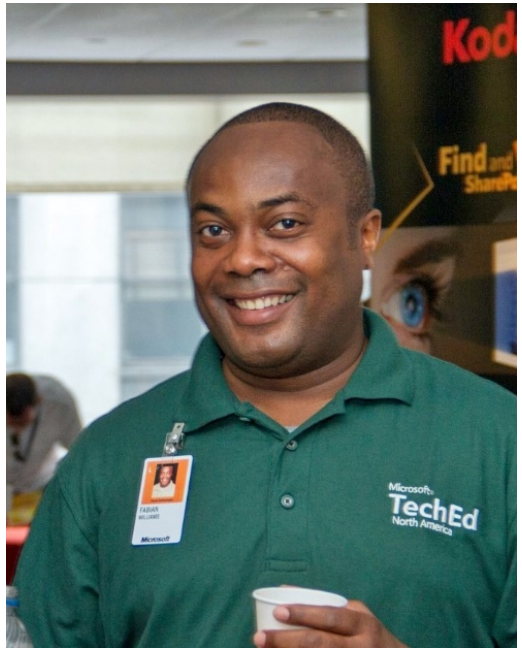


What is this Azure Function you speak of?

How does Azure Function Work

Session Ingredients - High Level

Demo 1 – Runtime Experience

Deconstructing Demo 1

Exploring other Ideas of Azure Functions with SharePoint

Demo 2 – SharePoint Site Provisioning Azure Function

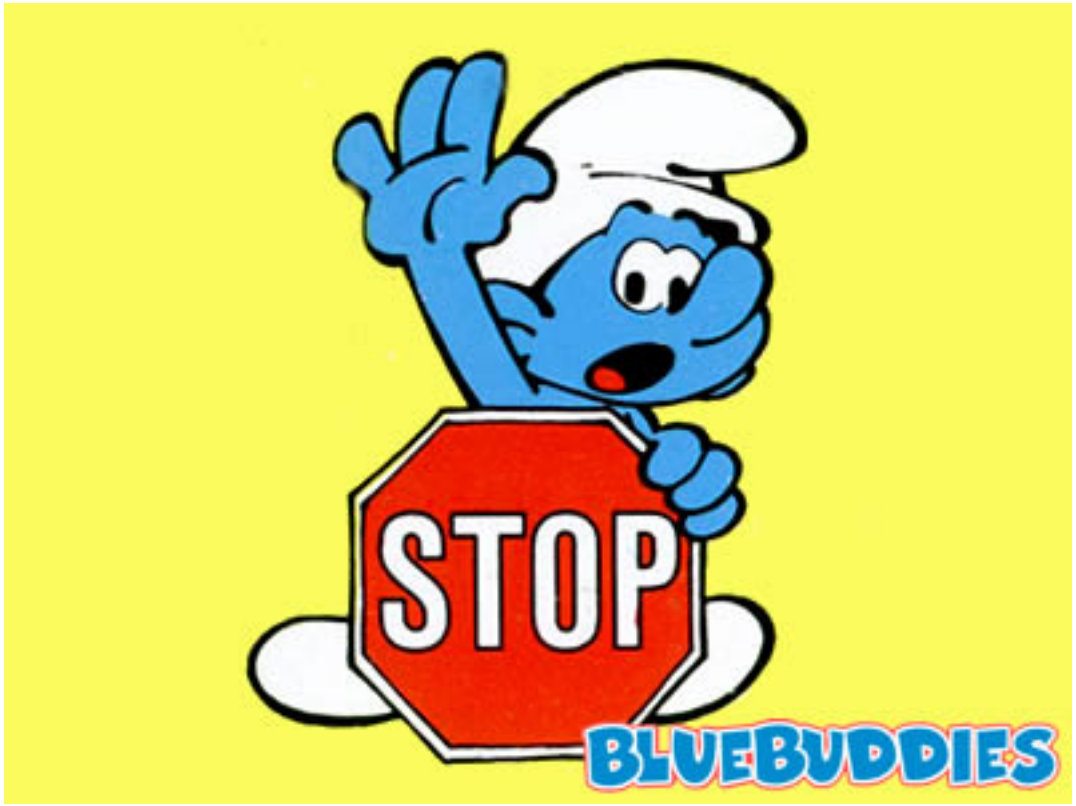
Q&A

Why do this session? Why does this matter? What Problem does it solve?

TL;DR;
So, this is a leave behind /hand out…. If you were not present when I delivered this session this will help frame why I feel this topic is important.

- SharePoint Farm solutions are in the past & even if you have an On Premises environment, you should be writing solutions that are portable i.e. can work both On Prem & In the Cloud – Azure Functions give you that
- There are other options other than writing code to run in the Web Browser aka JavaScript that are available to back end developers [like myself] who for whatever reason or another don't want to keep up with with the cool kids ☺ -- Azure Functions give you that
- Azure Functions are multi faceted. What does that mean? I can use "THE SAME" Azure Faction that I write for my SharePoint solution for my Web Solution, for my Mobile Solution, for whatever else… do you know why? Its event driven. I look out for an interaction, I respond to it. Input/Output

STOP



https://github.com/fabianwilliams/azurefunctionsandcsom

What is an Azure Function? How do you define it?

- Azure Functions is a *serverless* compute service that enables you to run code on-demand without having to explicitly provision or manage infrastructure. Use Azure Functions to run a script or piece of code in response to a variety of events. *https://docs.microsoft.com/en-us/azure/azure-functions*
- Serverless is the abstraction of servers, it is computing in a cloud execution model where you dynamically manage resources and runtime execution rather than on premises capacity

What is an Azure Function? How do you define it?

- No provisioning of Servers
- Fully managed compute platform that's scalable and secure
- Microservices approach to development, scalable and modular
- Triggers (event managing) and Bindings (integration)
- Develop within Azure IDE, Visual Studio, or VS Code

What is this Azure Function you speak of?	How does Azure Function Work	Session Ingredients - High Level	Demo 1 – Runtime Experience
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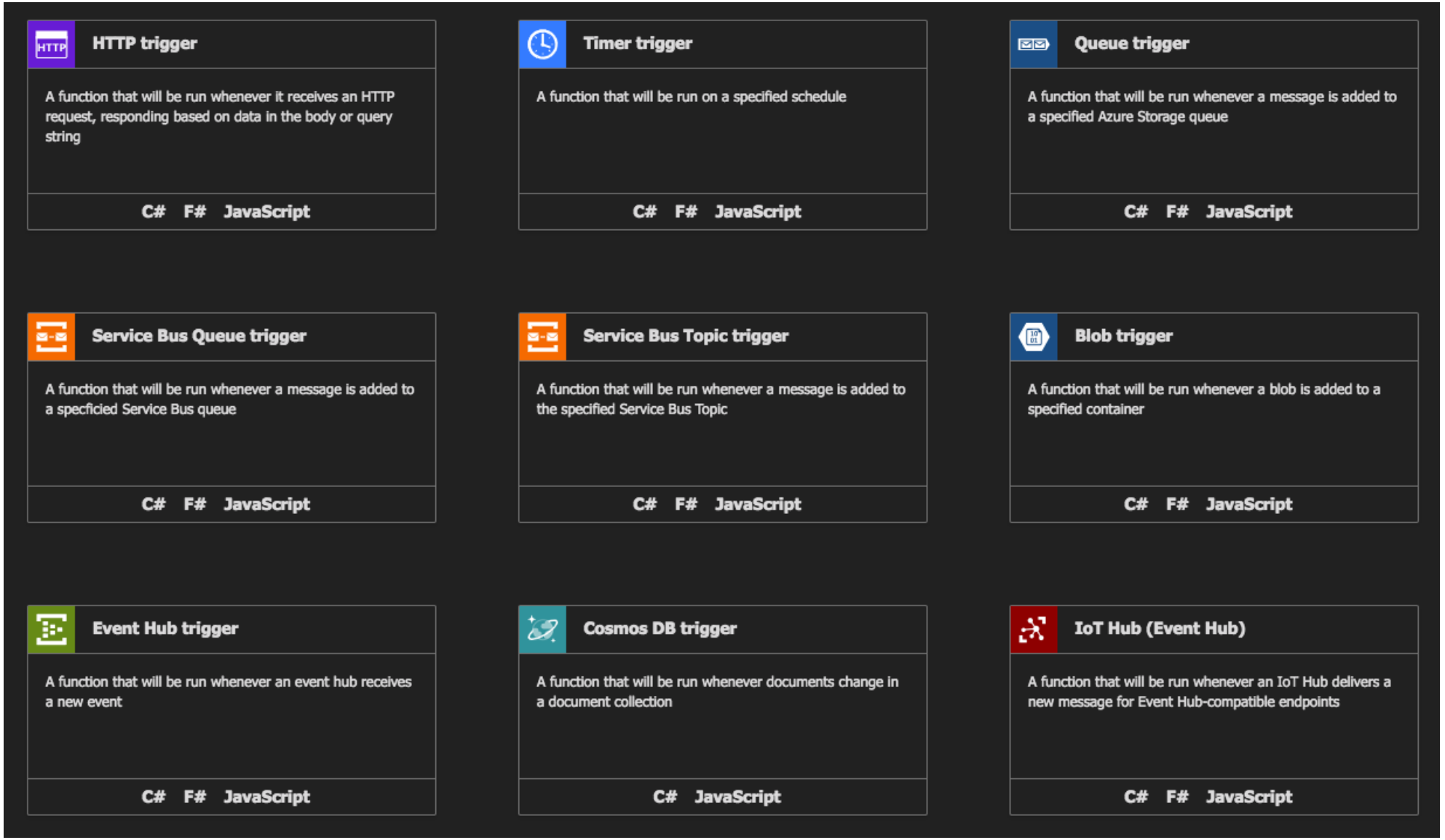
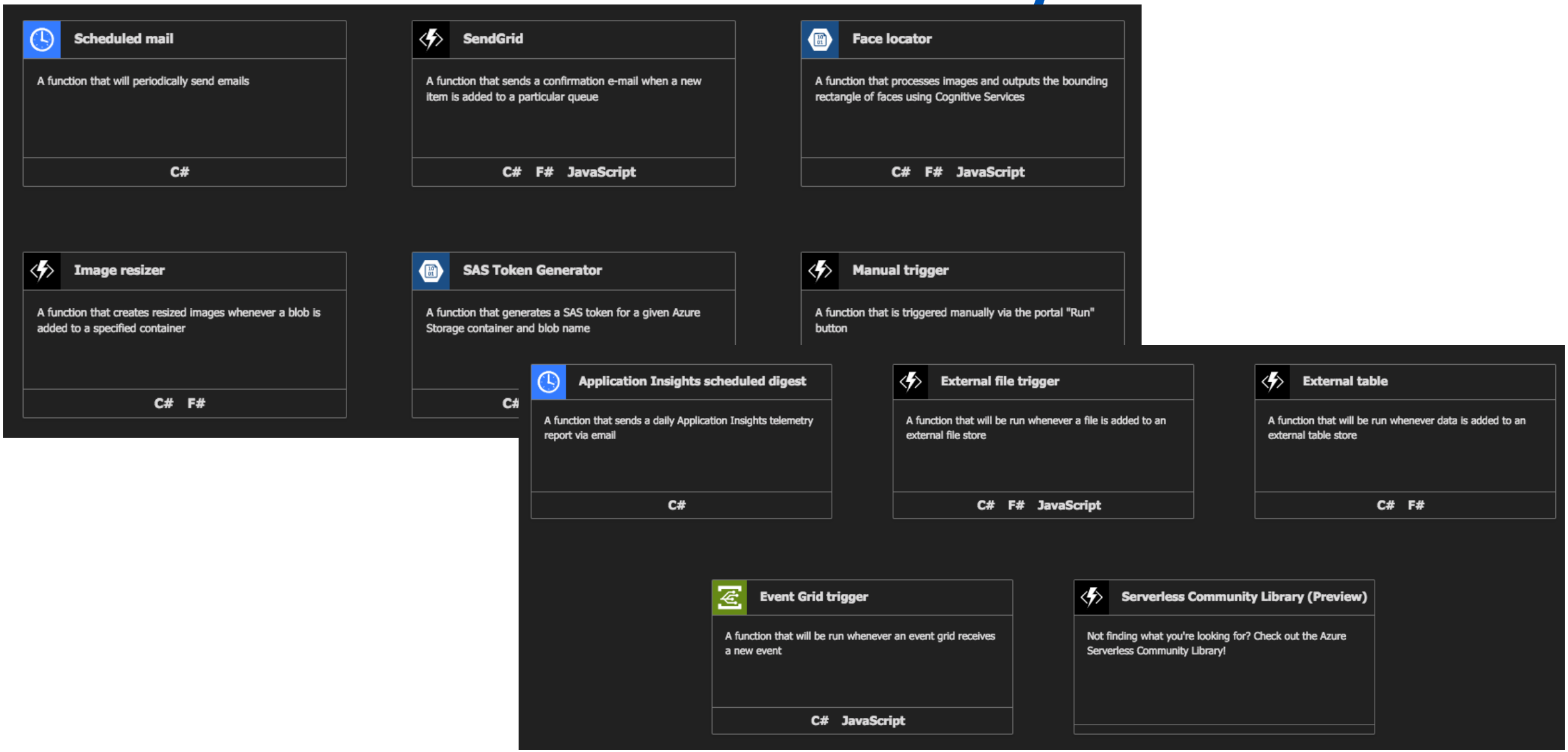
What is an Azure Function? How do you define it?

- Write in the language you know: You know C#, do C#, you know JavaScript do your JavaScript, & more F#, Python, PHP, etc
- Consumption model or App Service Plan model
- Use your own libraries i.e. NuGet, NPM, or upload your own DLL
- Backed by OAuth providers such as AAD, and other Social IDP
- Integrate with other SaaS, Develop simply in the Azure IDE or use full SDLC with CI/CD DevOps

What is an Azure Function? How do you define it?



What is an Azure Function? How do you define it?



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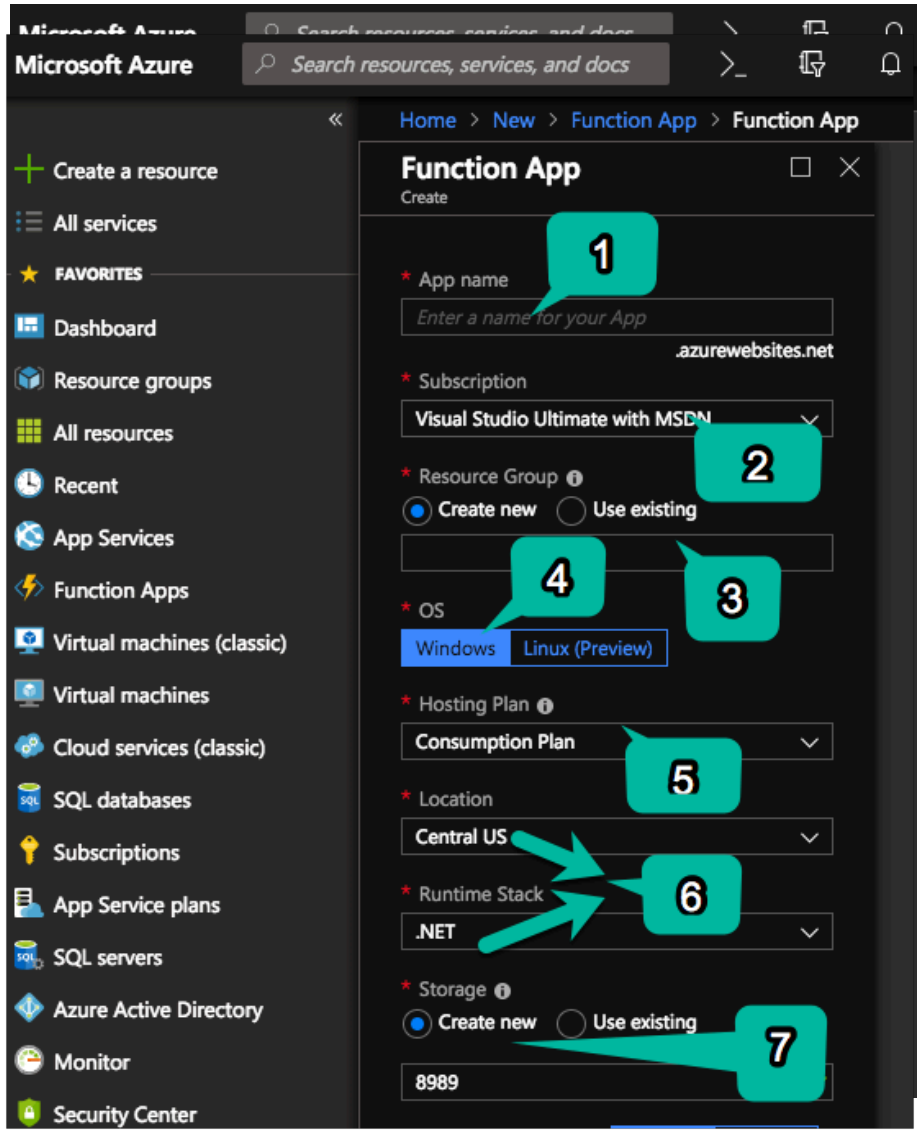
What do you need to do this

1. Set up and create your Azure Function
2. Create a Certificate that you will use for the Authentication in Azure AD. This is the broker that will identify the Azure Function with SharePoint Online
3. Stub out your Azure Function App to get the full URI
4. Register your Application [the Azure Function] in Azure AD
5. Grant the permission to your Application to work within your SharePoint (or other Azure backed workloads) environment
6. Finish Code your solution however you would like to, in the Azure Function IDE, VS, VSCode etc.

What do you need to do this



1. Provide a unique name which will become your endpoint URI for your function
2. Choose the subscription you want to use
3. Choose or create a Resource Group
4. I haven't done a Linux OS one yet TBH
5. This is the choice between FREE & azure will do its best to stay awake & responsive "or" you allocate resource you will pay for & it will be performant and ready
6. Standard stuff
7. The function is backed by a storage account so choose one or create one. I typically will have a resource group already set up with storage so I keep everything easy to find and named similar but unique

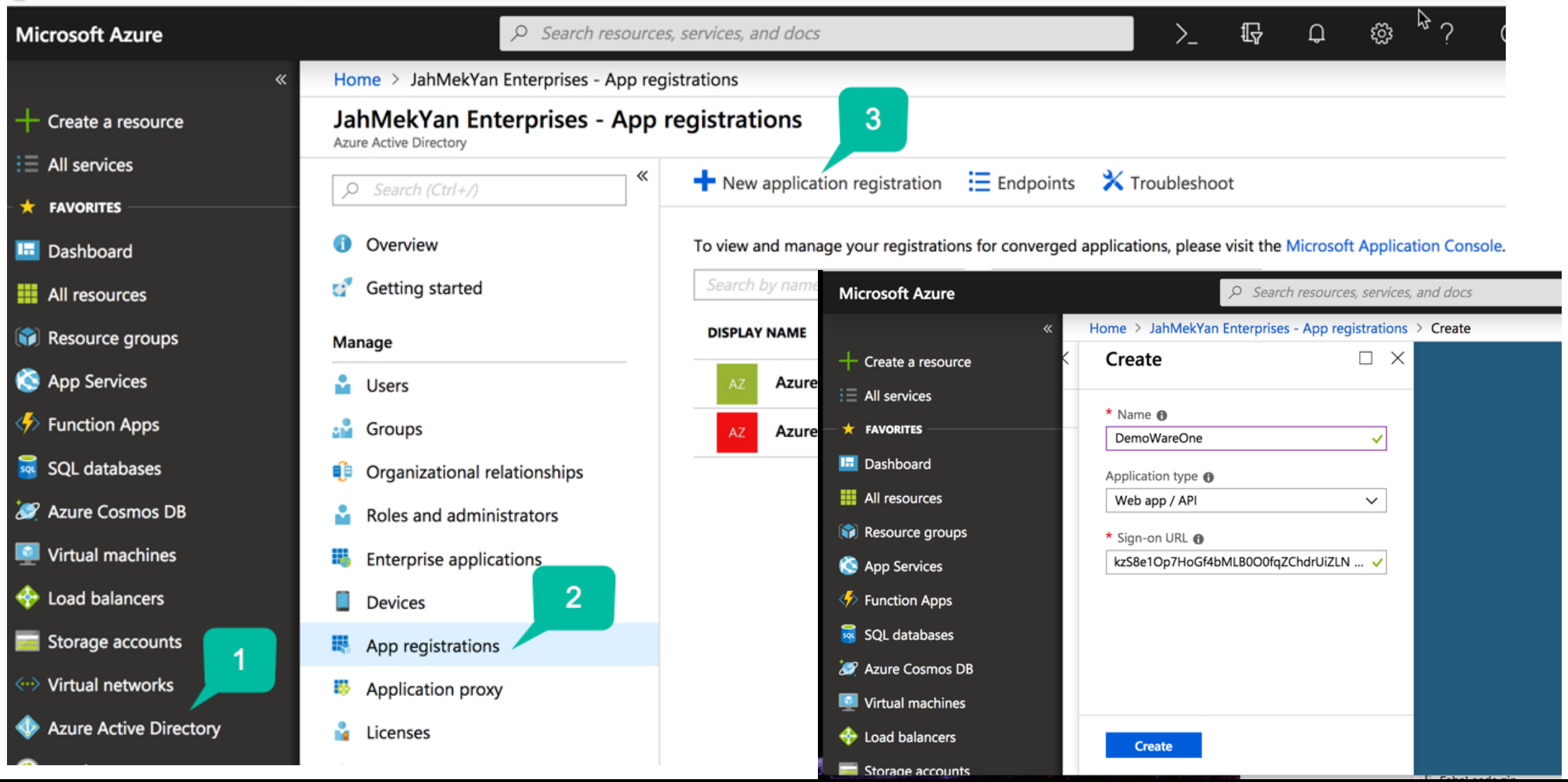
Making of the Cert

```
#From Kirk Evans Blog
 # https://blogs.msdn.microsoft.com/kaevans/2016/08/12/using-powershell-with-certificates/

$cert = New-SelfSignedCertificate -KeyExportPolicy Exportable `
 -Provider "Microsoft Strong Cryptographic Provider" `
 -Subject "CN=FabianSPOOfficeFiles" `
 -NotBefore (Get-Date) `
 -NotAfter (Get-Date).AddYears(2) `
 -CertStoreLocation "cert:\CurrentUser\My" `
 -KeyLength 2048

Export-Certificate -Type CERT -Cert $cert -FilePath "C:\1fabsCert\FabsWillyPrivateCertDemo1.cer"
$cred = Get-Credential
Export-PfxCertificate -Cert $cert -Password $cred.Password -FilePath "C:\1fabsCert\FabsWillyPrivateCertDemo1.pfx"
```

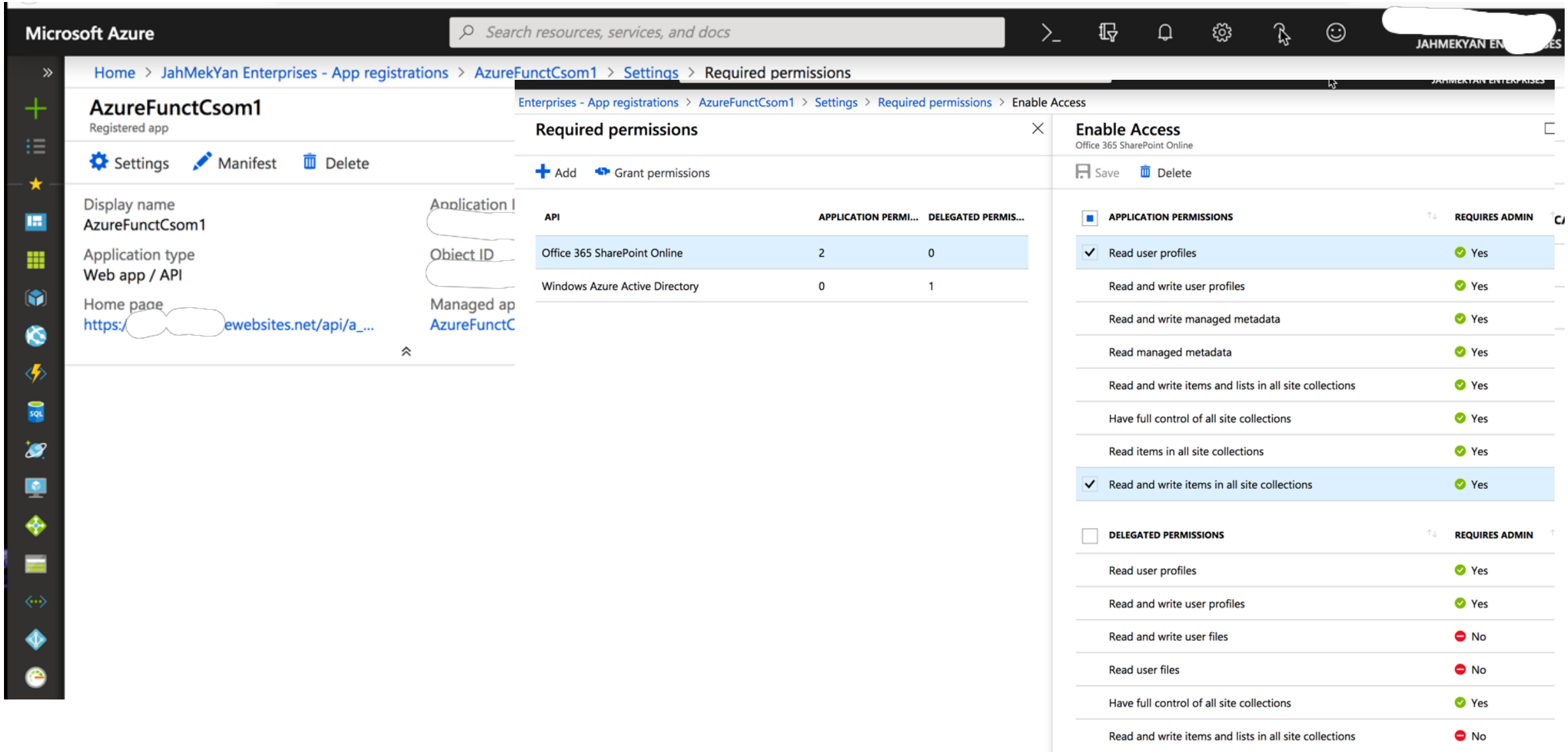
Read back information from the Cert

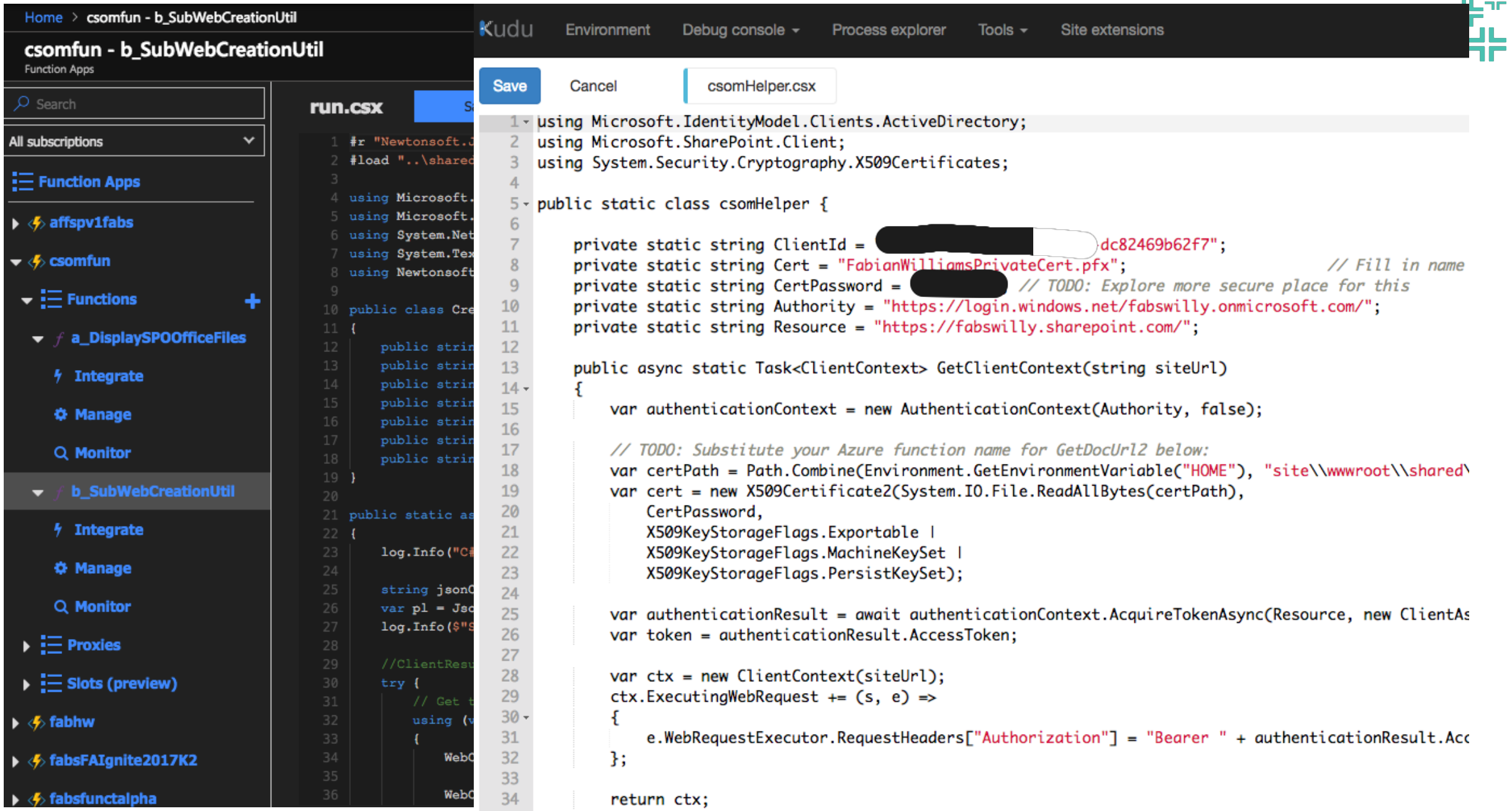
```
Export-Certificate -Type CERT -Cert $cert -FilePath "C:\1fabsCert\FabsWillyPrivateCertDemo1.cer"
$cred = Get-Credential
Export-PfxCertificate -Cert $cert -Password $cred.Password -FilePath "C:\1fabsCert\FabsWillyPrivateCertDemo1.pfx"

$fabswillycer = New-Object System.Security.Cryptography.X509Certificates.X509Certificate2
$fabswillycer.Import("C:\1fabsCert\FabsWillyPrivateCertDemo1.cer")
$bin = $fabswillycer.GetRawCertData()
echo $bin
$base64Value = [System.Convert]::ToBase64String($bin)
echo $base64Value
$bin = $fabswillycer.GetCertHash()
$base64Thumbprint = [System.Convert]::ToBase64String($bin)
echo $base64Thumbprint
$keyid = [System.Guid]::NewGuid().ToString()
echo $keyid
$startDate = $($fabswillycer.NotAfter.ToString("s"))
echo $startDate
```

Register your Application (the Azure Function App)



Set the Required Permissions on the App

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affspv1fabs
csomfun
Functions
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Integrate
Manage
Monitor
b_SubWebCreationUtil
Integrate
Manage
Monitor
Proxies
Slots (preview)
fabhw
fabsFAIgnite2017K2
fabsfunctalpha
run.csx
Kudu
Environment
Debug console
Process explorer
Tools
Site extensions
Save
Cancel
csomHelper.csx
using Microsoft.IdentityModel.Clients.ActiveDirectory;
using Microsoft.SharePoint.Client;
using System.Security.Cryptography.X509Certificates;
public static class csomHelper {
private static string ClientId = [redacted]dc82469b62f7";
private static string Cert = "FabianWilliamsPrivateCert.pfx"; // Fill in name
private static string CertPassword = [redacted] // TODO: Explore more secure place for this
private static string Authority = "https://login.windows.net/fabswilly.onmicrosoft.com/";
private static string Resource = "https://fabswilly.sharepoint.com/";
public async static Task<ClientContext> GetClientContext(string siteUrl)
{
var authenticationContext = new AuthenticationContext(Authority, false);
// TODO: Substitute your Azure function name for GetDocUrl2 below:
var certPath = Path.Combine(Environment.GetEnvironmentVariable("HOME"), "site\\wwwroot\\shared
var cert = new X509Certificate2(System.IO.File.ReadAllBytes(certPath),
CertPassword,
X509KeyStorageFlags.Exportable |
X509KeyStorageFlags.MachineKeySet |
X509KeyStorageFlags.PersistKeySet);
var authenticationResult = await authenticationContext.AcquireTokenAsync(Resource, new ClientAs
var token = authenticationResult.AccessToken;
var ctx = new ClientContext(siteUrl);
ctx.ExecutingWebRequest += (s, e) =>
{
e.WebRequestExecutor.RequestHeaders["Authorization"] = "Bearer " + authenticationResult.Acc
};
return ctx;

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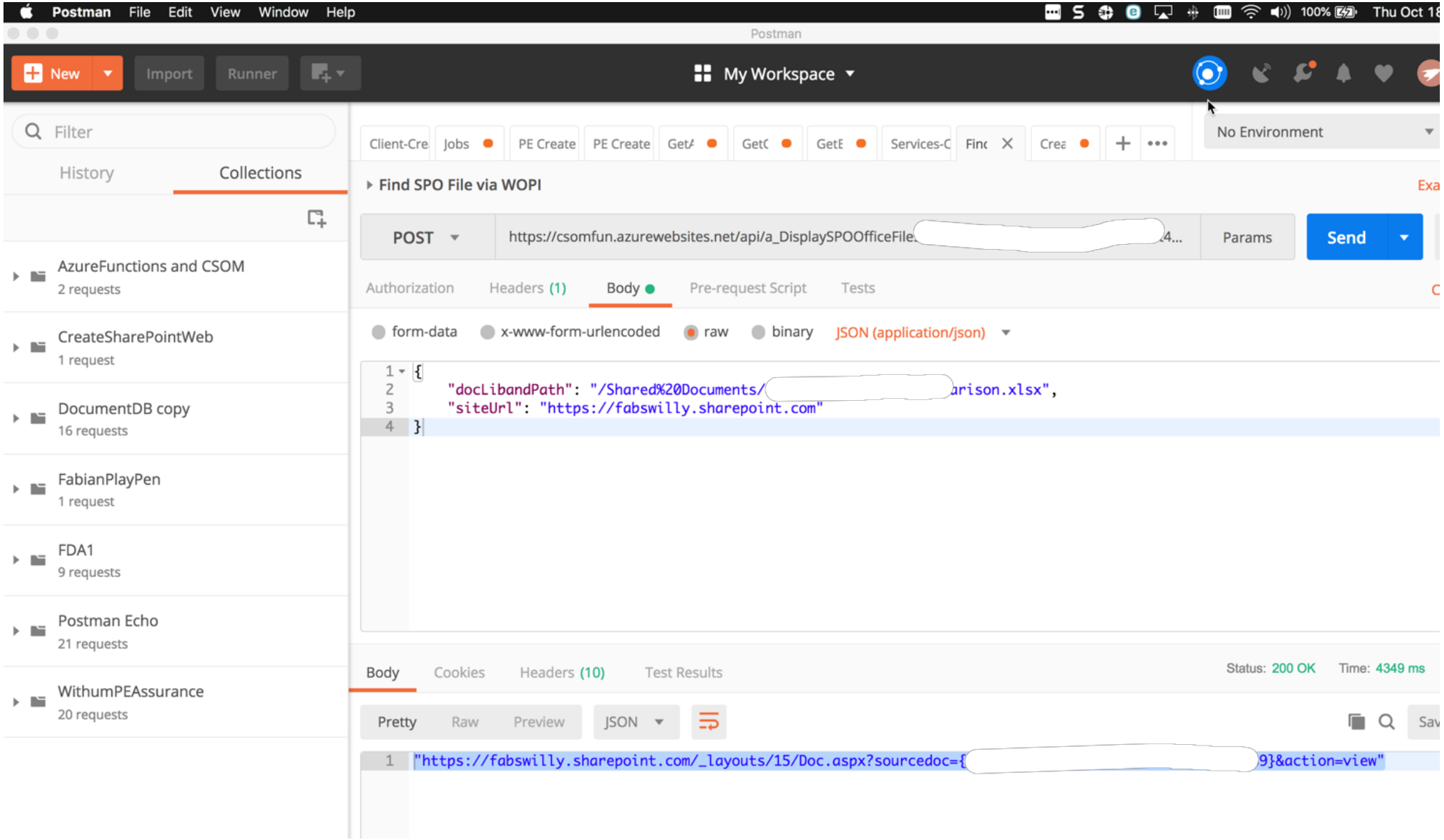
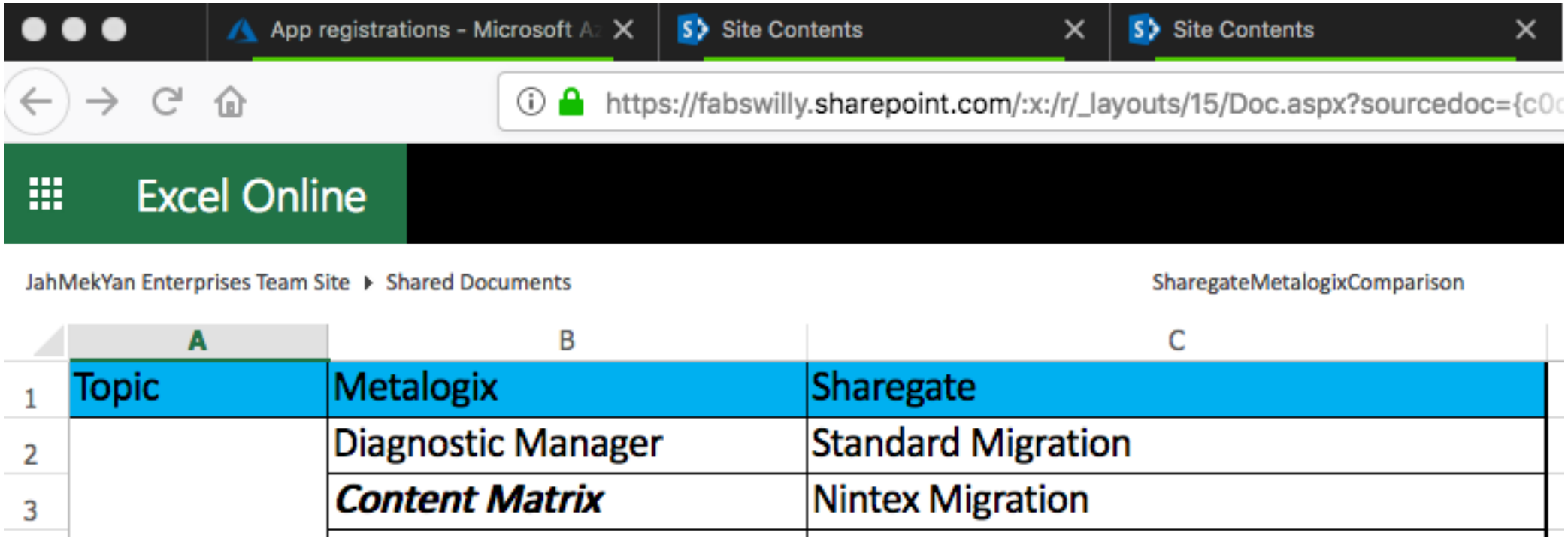
DEMO 1

Give Access to a SharePoint Online Document based on Input from the user

Demo 1 Leave Behind



Demo 1 Leave Behind



	A	B	C
1	Topic	Metalogix	Sharegate
2		Diagnostic Manager	Standard Migration
3		***Content Matrix***	Nintex Migration

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Questions you may have

- What is csomHelper.csx and why do you need it?
  - Answer in session
- What are the use cases for a function like this?
  - Think mobile app or web app something where SPO is an external resource
- Note that I am using ‘QueryString’ in one example and ‘POST” with message body payload in the other.
  - Oversimplified??? Yes. But it illustrates the point of making CSOM Calls.. The next demo we will be creating a Web Site so that’s a bit more meaningful & we will use a complex object

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What else can I do? What is available to me?

- Lets take a look in the portal for the Triggers and Bindings in ways Ive used it before
- Lets take a look at Advanced Kudu Options and the other Areas I have not even touched yet

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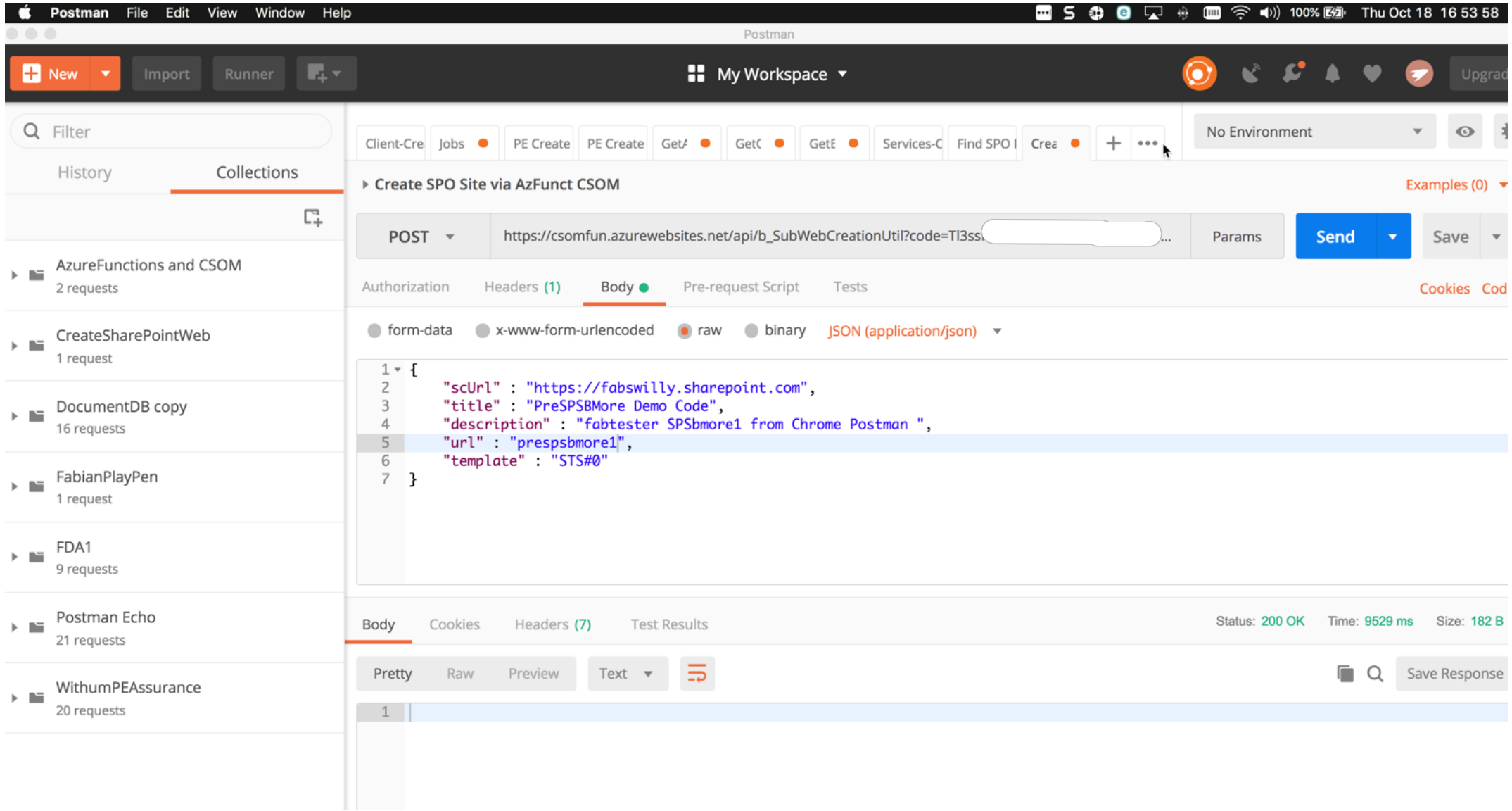
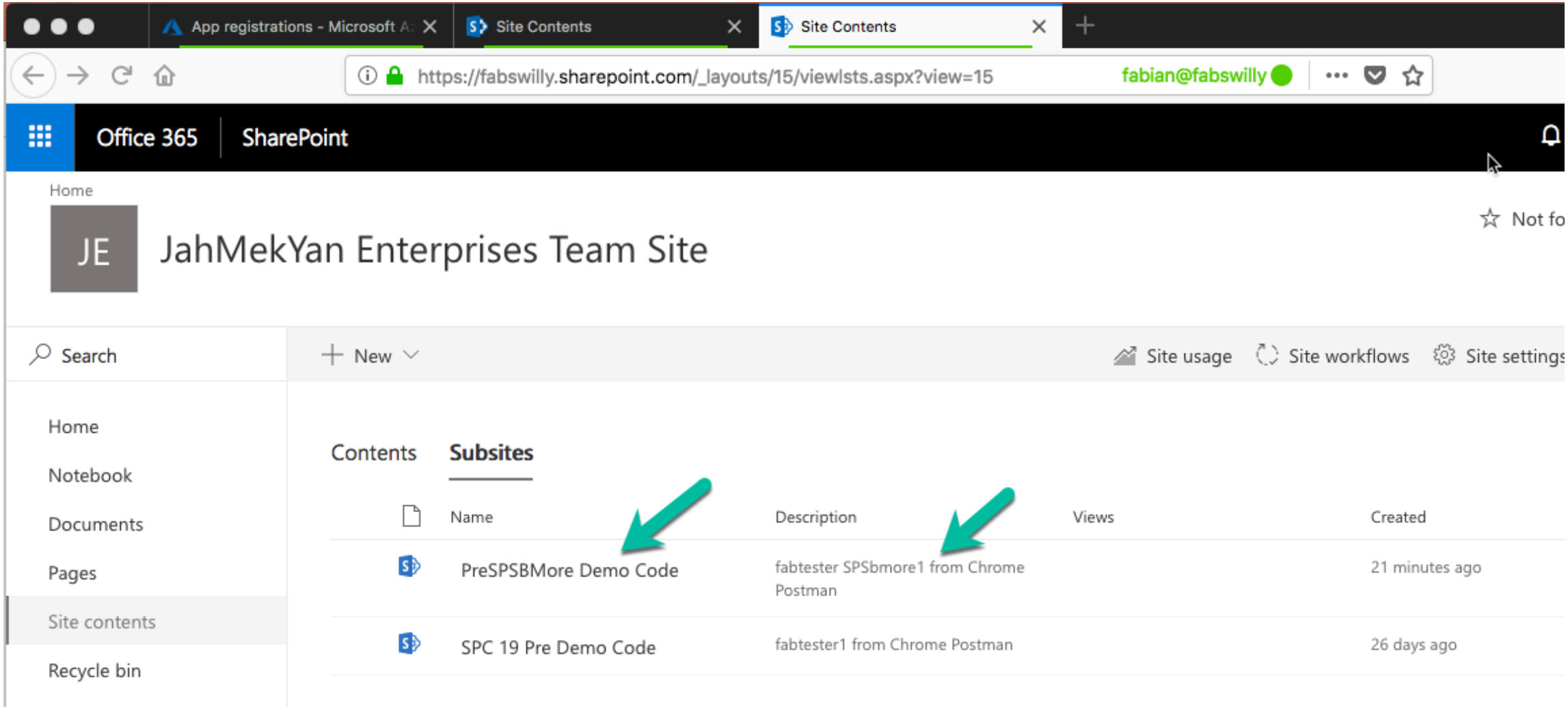
Demo 2 – Leave behind



Demo 2 – Leave behind



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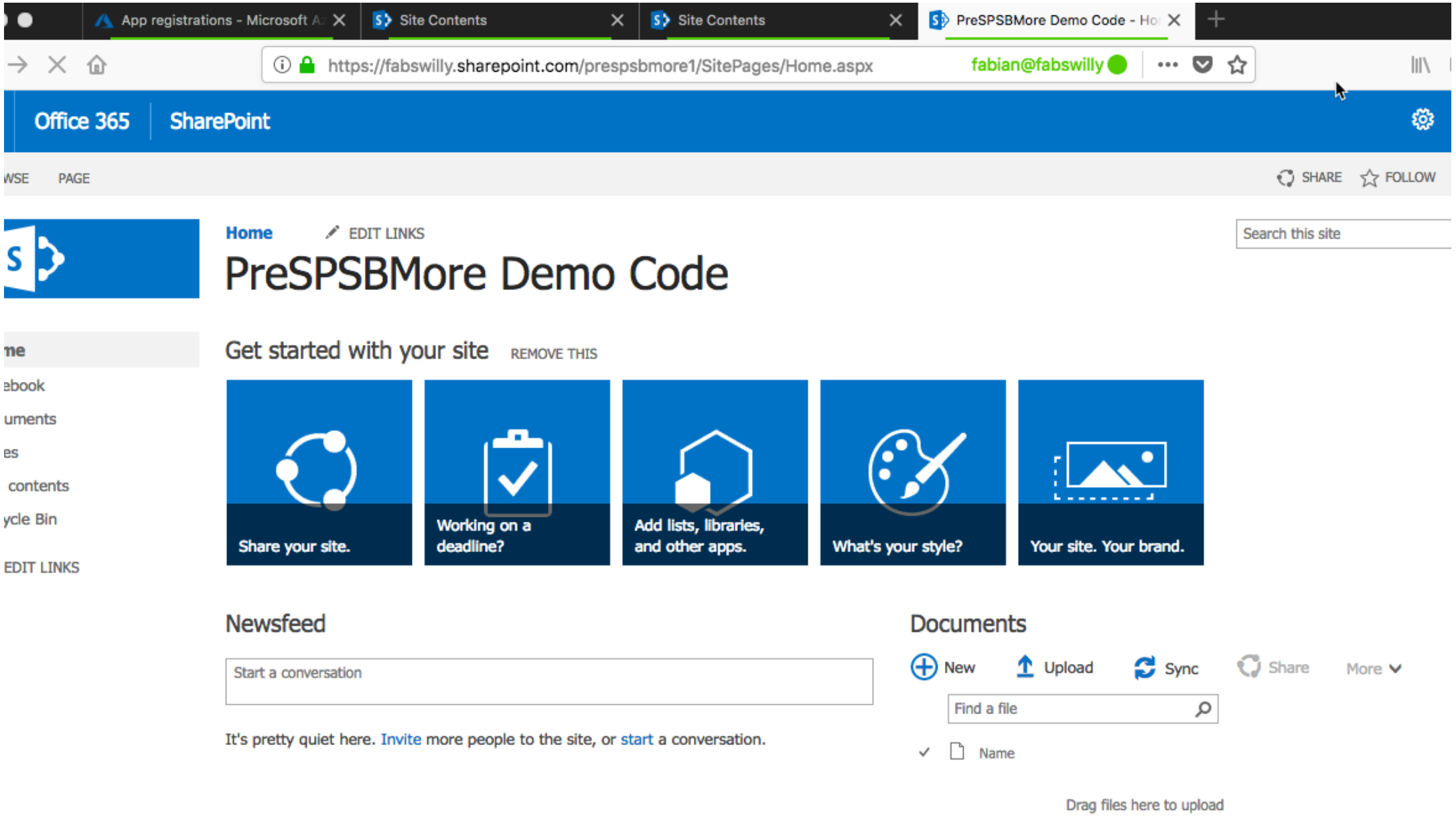

DEMO 2

Auto Provisioning a SharePoint Site using Azure Functions. Use Case is a Tweet, a Slack Message, a MS Flow, tons of reason you want outside influence to manipulate internal protected resources

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