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SharePoint Saturday North Germany 2019

Microsoft Graph API like a rockstar

Giuliano De Luca / @giuleon

SPS EVENTS

SPS North Germany 2019

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Agenda

- Introduction
- Microsoft Graph in detail
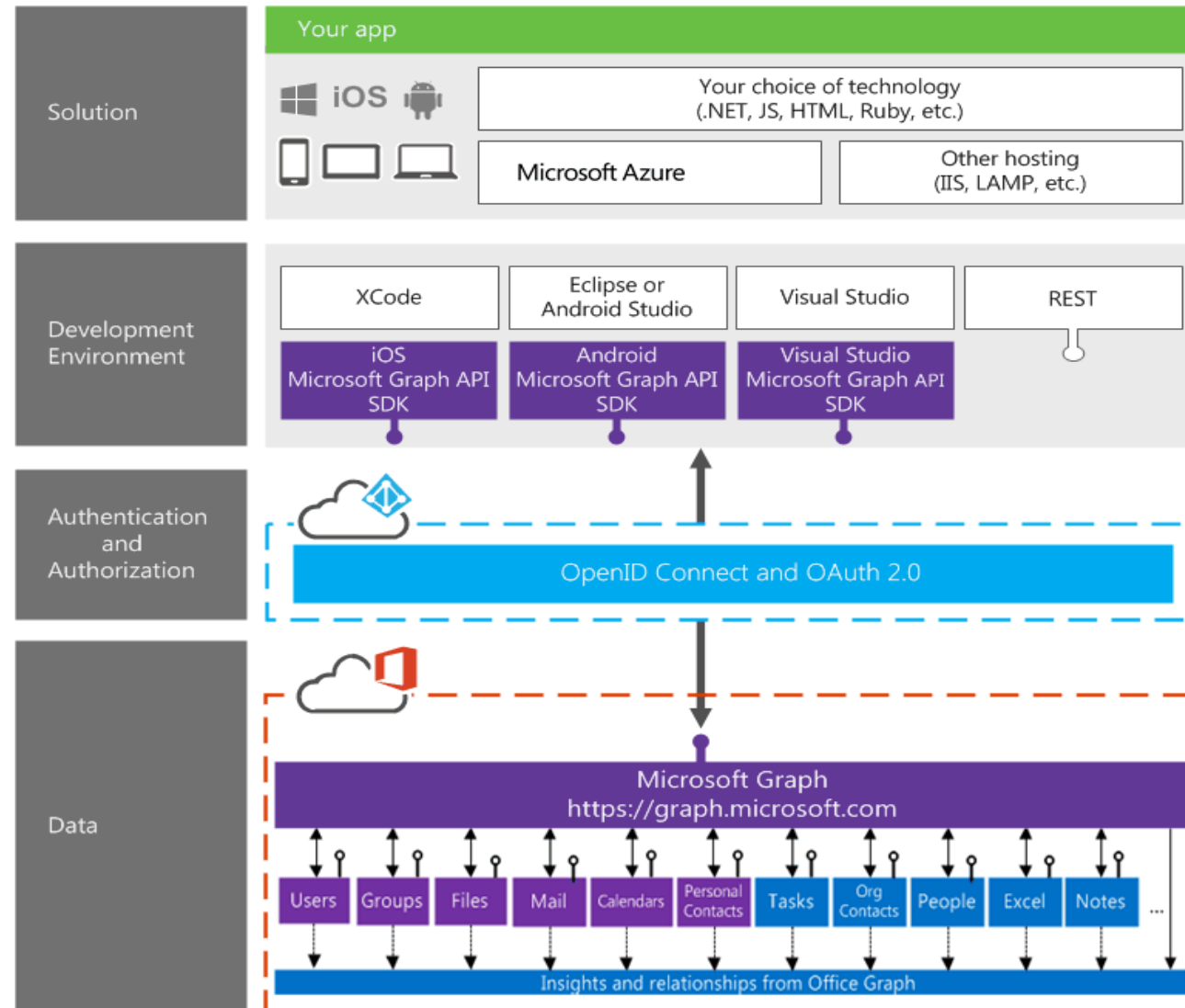- Classic use cases
- Resources

What is Microsoft Graph

https://graph.microsoft.com

Single endpoint => https://graph.microsoft.com/{version}/{resource}?query-parameters

Building cross platform applications with O365

Microsoft Graph SDK to the rescue

Pick your language or platform

Android	Angular	ASP.NET MVC	iOS Swift	iOS Objective-C	Node.js
PHP	Python	Ruby	Universal Windows Platform (.NET)	Xamarin	

Demo

Graph Explorer

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Azure AD – Authentication Supported
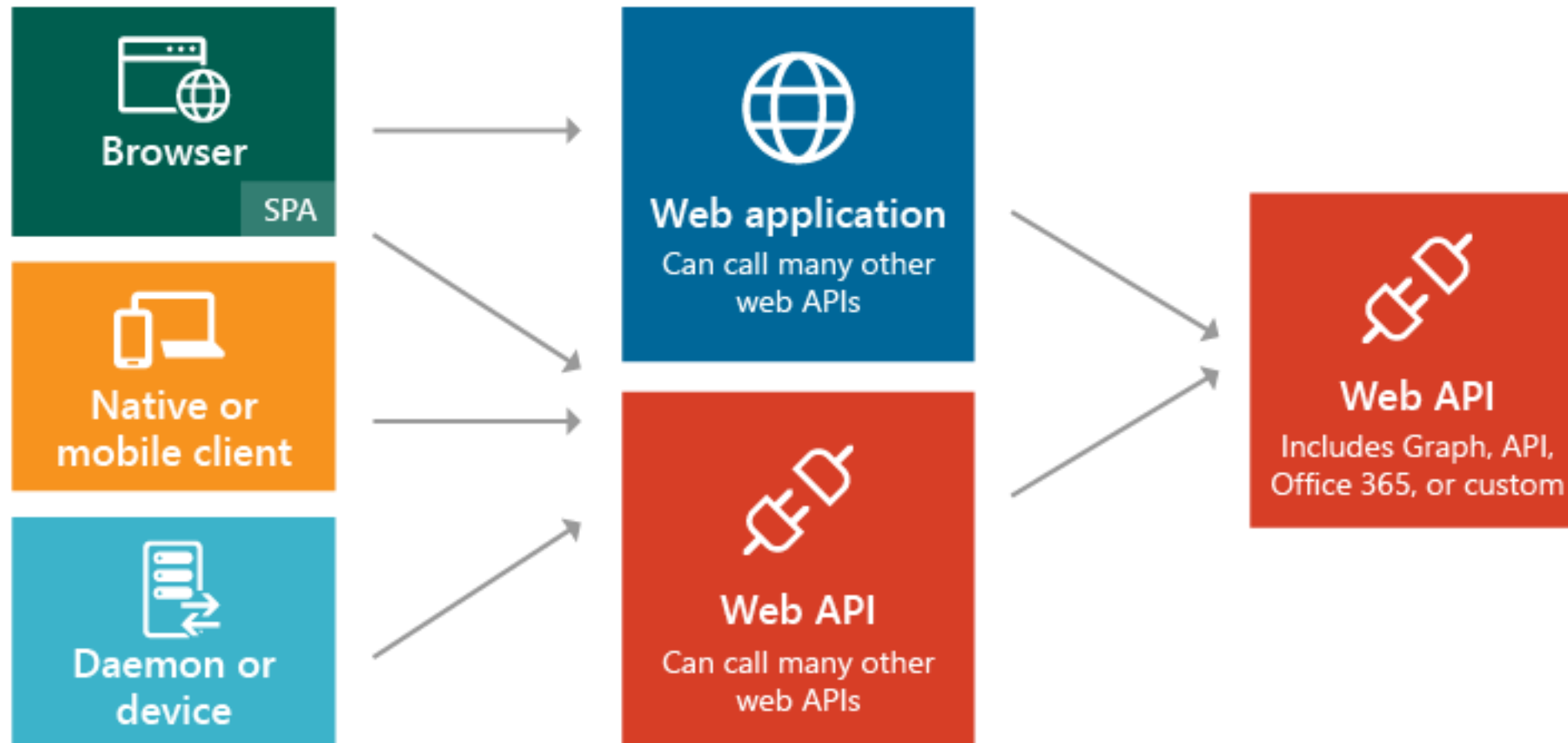
Register your app with the Azure AD

Select Permission

Scope String	User Can Consent ❓	
☐ Member.Read.Hidden	🚫 No	
☐ Reports.Read.All	🚫 No	
☐ User.Invite.All	🚫 No	
☑ User.Read.All	🚫 No	

Allows the app to read user profiles without a signed in user.

☐ User.ReadWrite.All	🚫 No	

1 Selected

Ok   Cancel

Sample Service App
App publisher website: localhost

Sample Service App needs permission to:

- Sign in and read user profile ❓
- Send mail as any user ❓
- Read all users' full profiles ❓

You're signed in as:
chrisg@mysampleorganization.onmicrosoft.com (admin)

If you agree, this app will be granted the specified application permission(s) to resources belonging to all users in your organization, and delegated permission(s) to resources belonging to the signed-in user. More details

Accept   Cancel

Permissions

Application permissions
Act on the Microsoft Graph as a Deamon

Authentication is certificate-based

Delegated permissions
Act on the Microsoft Graph as an authenticated user

60+ delegated permissions

Does not replace the actual permissions on the data

Authentication flow using OpenID Connect
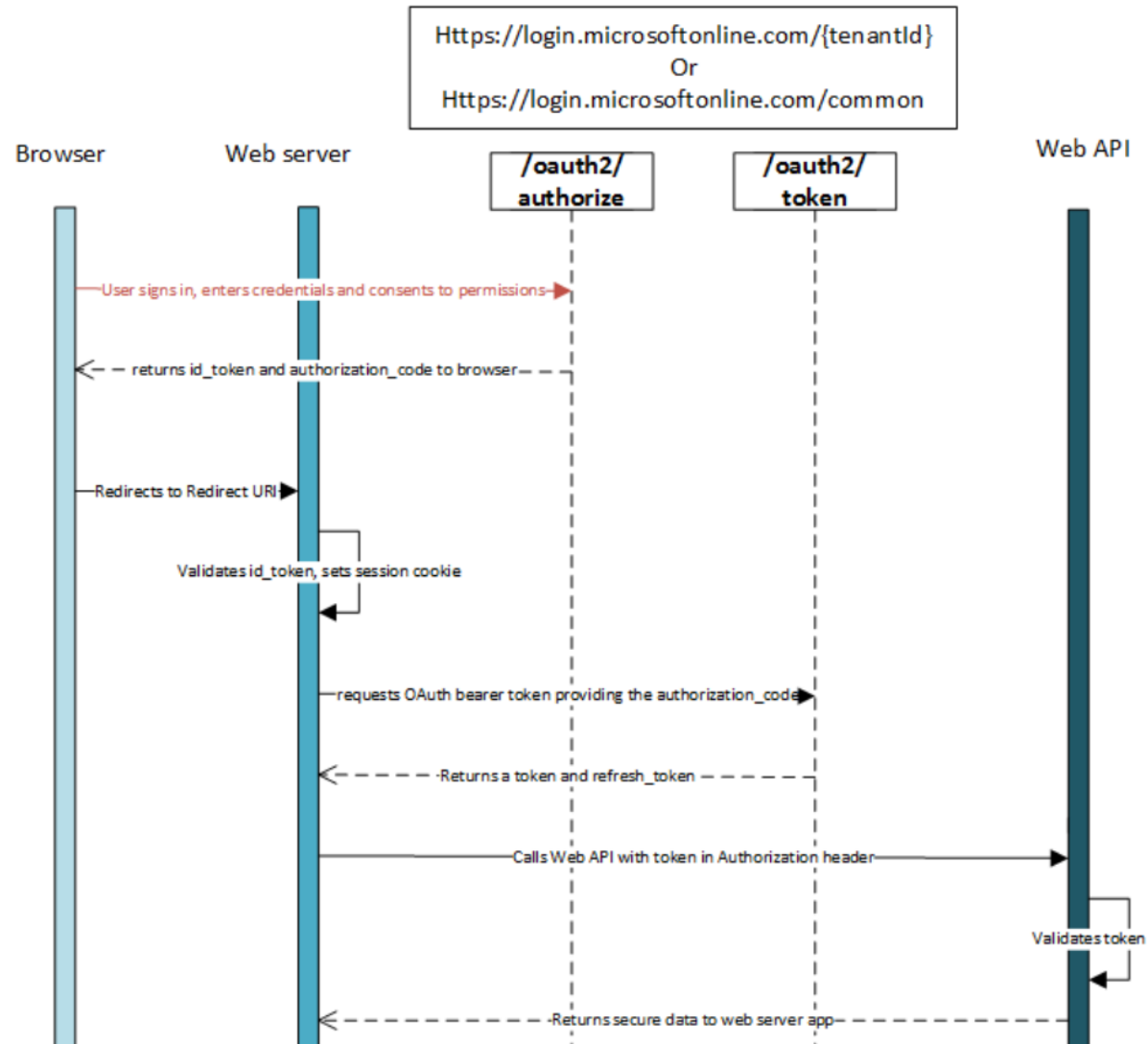
Types of Authentication

Implicit grant flow

Auth code grant

On-Behalf-Of flow

Client credentials grant

Consuming Microsoft
Graph API in SharePoint
Framework

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Webhooks

Use the Microsoft Graph API to get notified

Using the Microsoft Graph API, an app can subscribe to changes on the following resources:

- Messages
- Events
- Contacts
- Users
- Groups
- Group conversations
- Content shared on OneDrive, including drives associated with SharePoint sites
- Users' personal OneDrive folders
- Security alerts

Creating a webhook with Graph API

```
POST https://graph.microsoft.com/beta/subscriptions

{
"changeType": "Created",
"notificationUrl": "https://<url>/api/webhookCallback",
"resource":    "me/messages"
}
```

Webhook notification how looks like

```
POST https://<url>/api/webhookCallback

{
    "value":[
      {
        "subscriptionId":"7f105c7d-2dc5-4530-97cd-4e7af6534c07",
        "subscriptionExpirationDateTime":"2015-11-20T18:23:45.9356913Z",
        "changeType":"Created",
        "resource":"Users/<user-id>/messages/<message-id>",  "resourceData":{
          "@odata.type":"#Microsoft.Graph.Message",
          "@odata.id":"Users/<user-id>/messages/<message-id>",
          "@odata.etag":"W/\"CQAAABYAAACoeN6SYXGLRrvRm+CYrrfQAACvvGdb\"",
          "Id":"<message-id>"
        }
      }
    ]
}
```

Extending Microsoft Graph
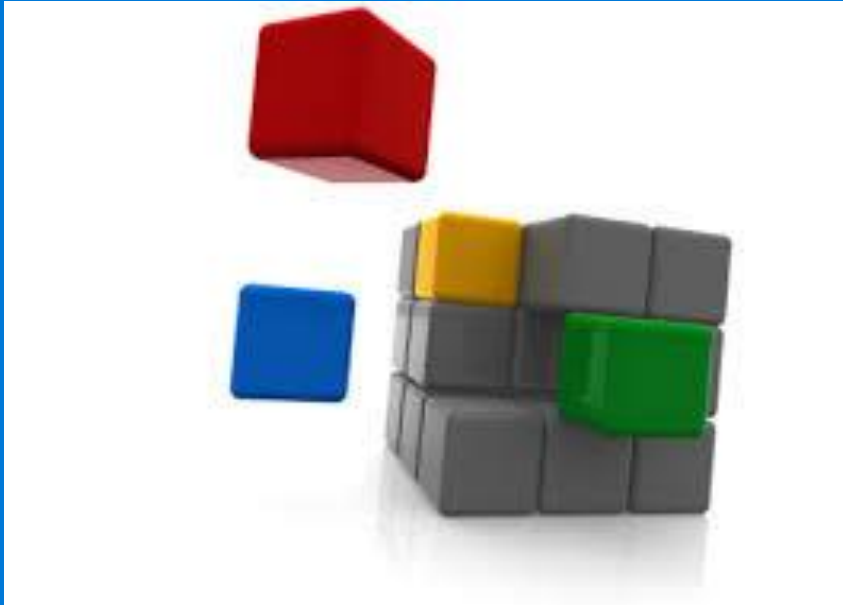
- Open Type Extensions

  Provide an easy way to directly add untyped properties to a resource

- Schema Extensions

  Schema extensions allow you to define a schema to extend and add strongly-typed custom data to a resource type

Open Type Extension

```
{
  "extensionName": "string",
  "id": "string (identifier)"
}
```

Create Open Type Extension

```
POST https://graph.microsoft.com/v1.0/me/messages

{
  "subject": "Annual review",
  "body": {
    "contentType": "HTML",
    "content": "You should be proud!"
  },
  "toRecipients": [
    {
      "emailAddress": {
        "address": "rufus@contoso.com"
      }
    }
  ],
  "extensions": [
    {
      "@odata.type": "microsoft.graph.openTypeExtension",
      "extensionName": "Com.Contoso.Referral",
      "companyName": "Wingtip Toys",
      "expirationDate": "2015-12-30T11:00:00.000Z",
      "dealValue": 10000
    }
  ]
}
```

Get Open Type Extension

Request:

GET
https://graph.microsoft.com/v1.0/me/messages/AAMkAGE1M2IyNGNmLTI5MTktNDUyZi1iOTVl===/extensions/Com.Contoso.Referral

Response:

HTTP/1.1 200 OK

Content-type: application/json

```
{
    "@odata.context":
"https://graph.microsoft.com/v1.0/$metadata#Me/messages('AAMkAGE1M2IyNGNmLTI5MTktNDUyZi1iOTVl===')/extensions/$entity
",
    "@odata.type": "#microsoft.graph.openTypeExtension",
    "@odata.id": "https://graph.microsoft.com/v1.0/users('ddfc984d-b826-40d7-b48b-57002df85e00@1717f226-49d1-4d0c-
9d74-709fad6677b4')/messages('AAMkAGE1M2IyNGNmLTI5MTktNDUyZi1iOTVl===')/extensions
('Microsoft.OutlookServices.OpenTypeExtension.Com.Contoso.Referral')",
    "extensionName": "Com.Contoso.Referral",
    "id": "Microsoft.OutlookServices.OpenTypeExtension.Com.Contoso.Referral",
    "companyName": "Wingtip Toys",
    "dealValue": 500050,
    "expirationDate": "2015-12-03T10:00:00Z"
}
```

Schema Extension

```json
{
    "description": "String",
    "id": "String (identifier)",
    "owner": "String",
    "properties": [{"@odata.type":
"microsoft.graph.extensionSchemaProperty"}],
    "status": "String",
    "targetTypes": ["String"]
}
```

Create Schema Extension

```
POST https://graph.microsoft.com/v1.0/schemaExtensions
Content-type: application/json

{
    "id":"graphlearn_courses",
    "description": "Graph Learn training courses extensions",
    "targetTypes": [
        "Group"
    ],
    "properties": [
        {
            "name": "courseId",
            "type": "Integer"
        },
        {
            "name": "courseName",
            "type": "String"
        },
        {
            "name": "courseType",
            "type": "String"
        }
    ]
}
```

Get Schema Extension

Request:
GET https://graph.microsoft.com/v1.0/schemaExtensions/graphlearn_test

Response:
HTTP/1.1 200 OK
Content-type: application/json
Content-length: 201

{
    "id":"graphlearn_test",
    "description": "Yet another test schema",
    "targetTypes": [
        "User", "Group"
    ],
    "status": "InDevelopment",
    "owner": "24d3b144-21ae-4080-943f-7067b395b913",
    "properties": [
        {
            "name": "testName",
            "type": "String"
        }
    ]
}

Consuming Graph API from a Bot

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Resources

- https://dev.office.com
- https://graph.microsoft.io
- https://channel9.msdn.com/Events/Connect/2016/213
- https://techcommunity.microsoft.com/t5/Microsoft-Ignite-Content/BRK4016-Access-SharePoint-files-and-lists-using- SharePoint-API/td-p/10403
- https://mva.microsoft.com/product-training/office-development

Samples

- https://github.com/SharePoint/PnP-PowerShell
- https://github.com/microsoftgraph/msgraph-sdk-javascript
- https://github.com/microsoftgraph/aspnet-webhooks-rest-sample

Thank You for attending me!

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