

PowerShell Conference Europe 2019

Hannover, Germany

June 4-7, 2019

Use PowerShell for Prototyping

STEFAN STRANGER



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<https://github.com/stefanstranger>

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5

Video operator, did you start the recording?

4

3

2

1

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Goals

- Learn about PowerShell Frameworks or PowerShell supported Platforms
- Inspire to use PowerShell to test a concept or to act as a thing to be replicated or learned from



Agenda

What is a Prototype?

Why use PowerShell for Prototyping?

Scenario – Self-Service in Azure Active Directory

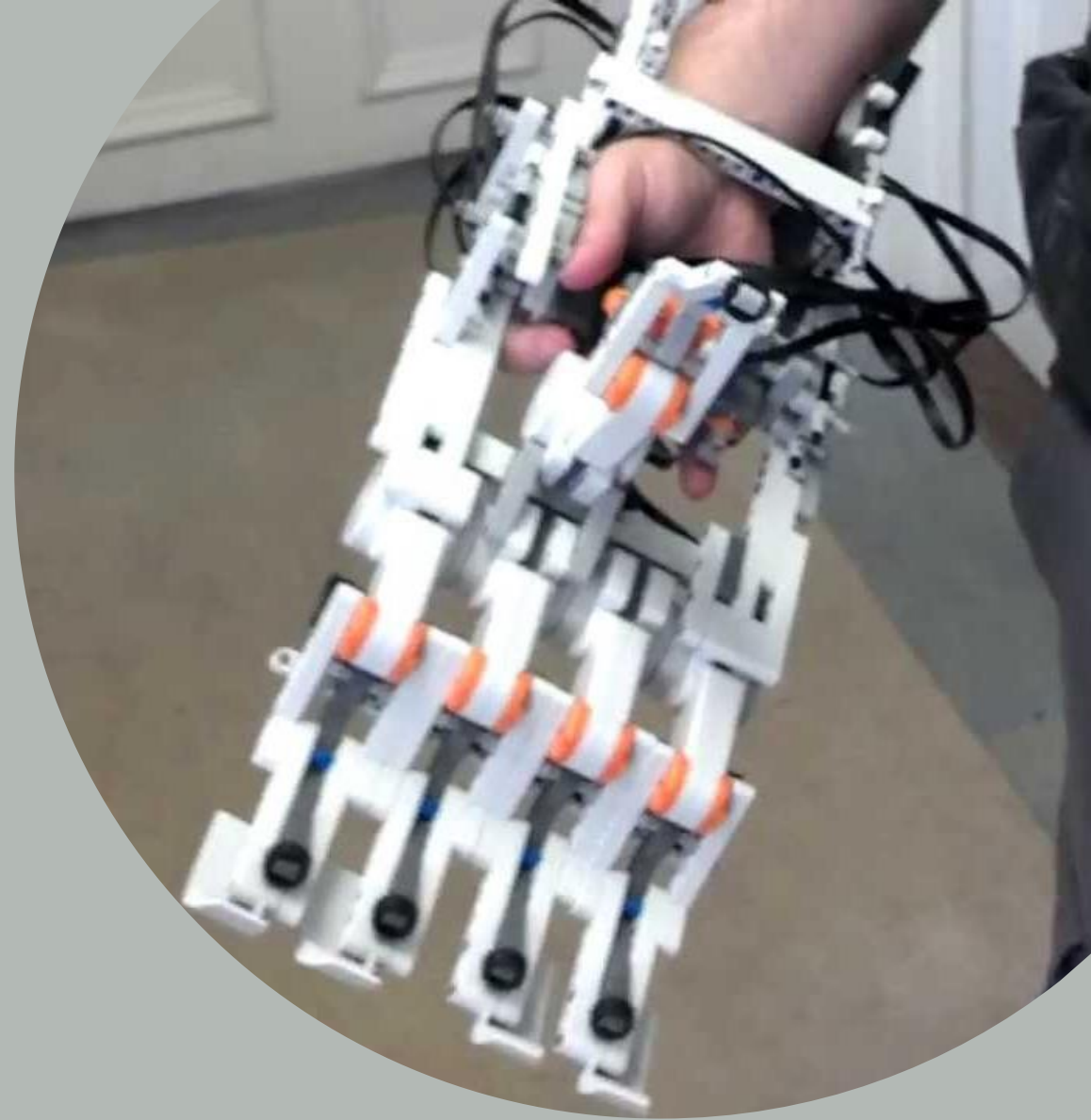
Which Frameworks or Platforms can we use?

Demo's



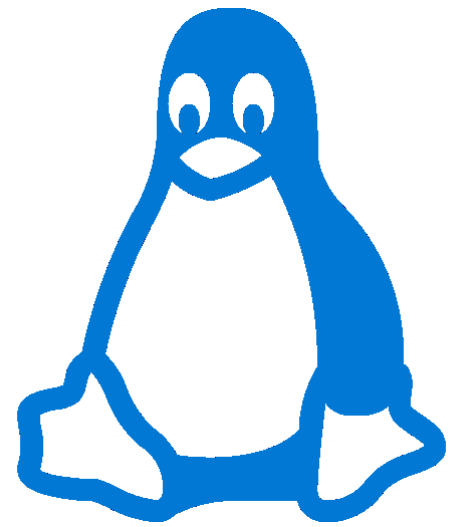
What is a prototype?

- Brings designs to life for:
 - Designers
 - Users
- Allows for exploring ideas
- May evolve into final product, or be replaced by an idea that worked better
- Is about the presentation of ideas



Why use PowerShell for Prototyping?

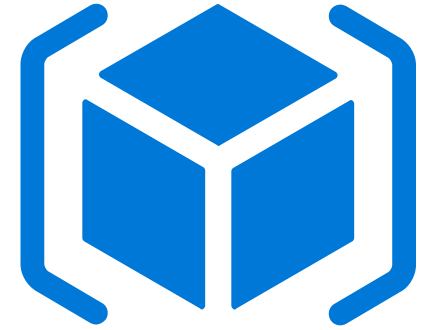
- Experience
- Integration
- Cross Platform
- Fun



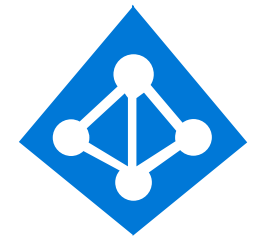
Scenario – Self-Service in Azure Active Directory

Example:

- DevOps team request an Azure Resource Group and requestor wants contributor permissions for itself and members on Resource Group.



Resource group



Azure Active Directory





POWERSHELL + DEVOPS
GLOBAL SUMMIT 2019



Call to Action

- Convert your 1.x functions to 2.x
- File issues at github.com/Azure/azure-functions-powershell-worker
- [Serverless Library](#)
- Possible ideas
 - VM deleted → remove it from monitoring
 - Resource group created → look up cost center for region and add tag with number
 - SQL Server created → give AD groups access
 - VM VPU spikes > 90% → send Teams message
 - Storage account latency > 50% → open GitHub issue
 - Certificates expiring < n days → send email notification

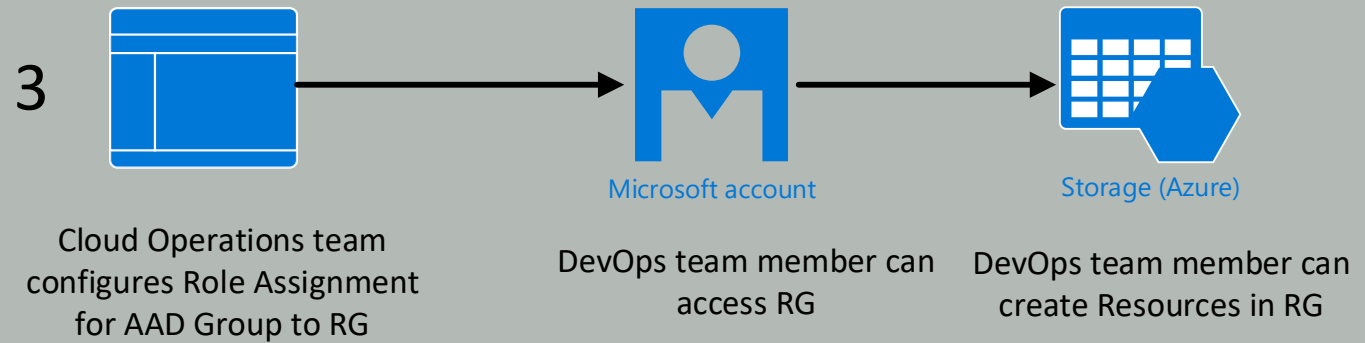
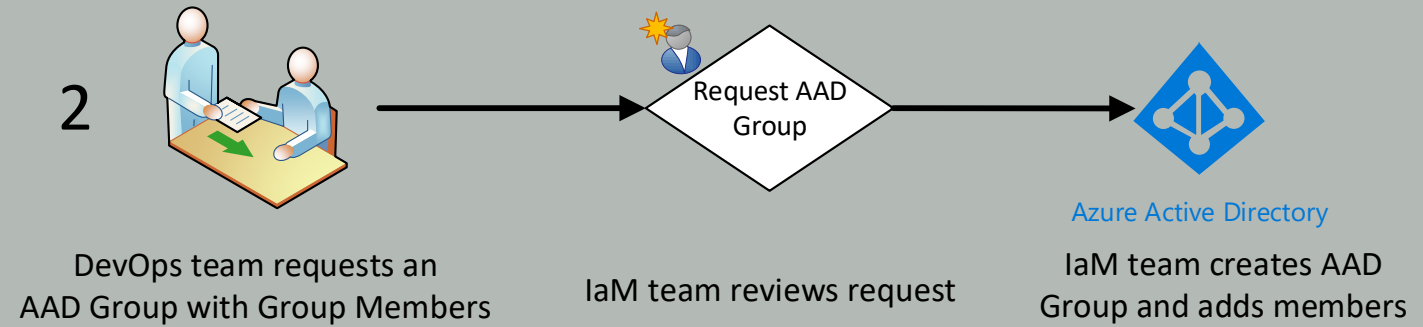
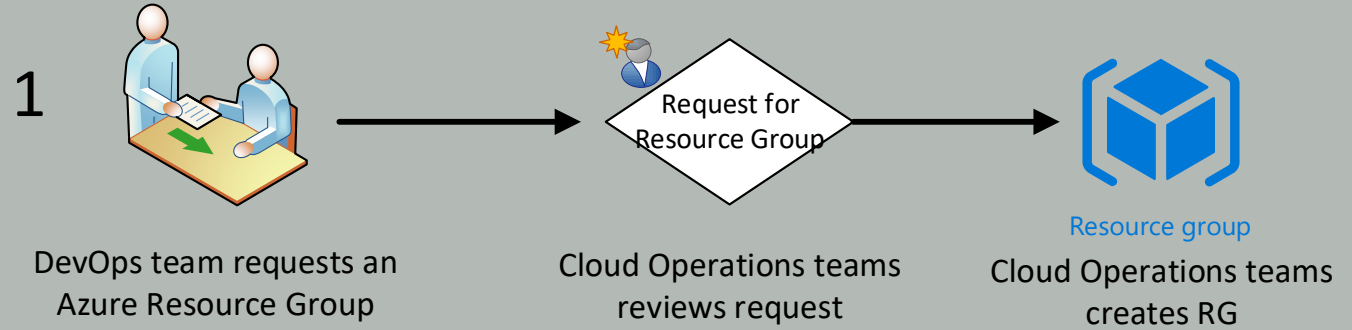
Dongbo Wang & Joey Aiello: Powershell in Azure Functions



44:32 / 48:15



Current process flow



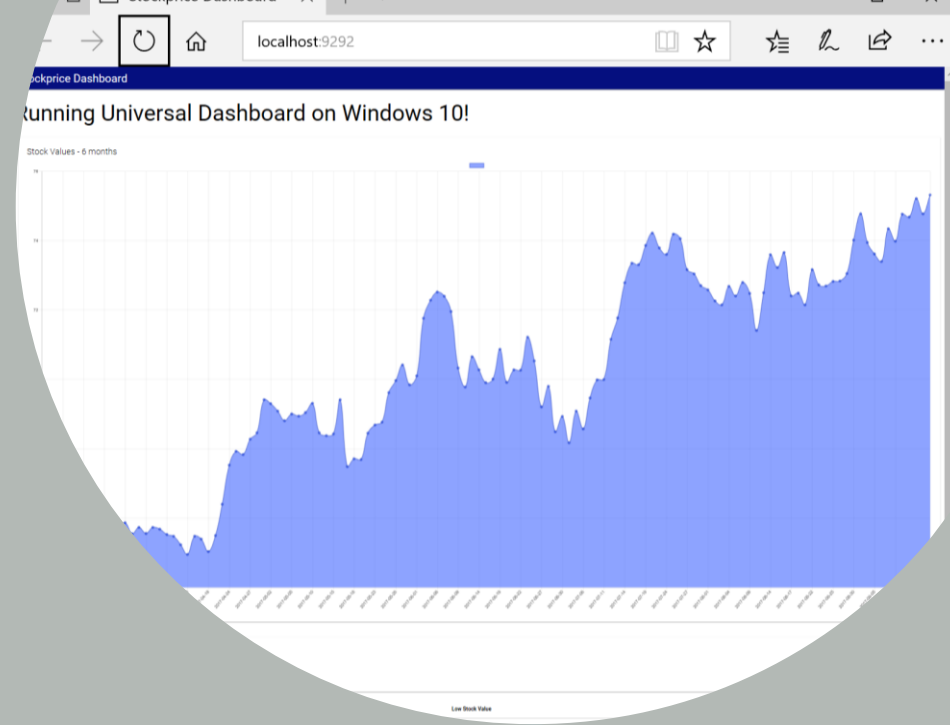
Prototype for Self-Service in AAD

- REST API endpoints for AAD Group:
 - Creating
 - Retrieving
 - Removing
- Running under context of Service Principal
- Leveraging the Graph API



Which Frameworks and Platforms can we use?

- Polaris PowerShell Module
- Universal Dashboard PowerShell Module
- Azure Functions
- ?...



DEMO

Creating REST
API's

Graph API bonus

Polaris

- Cross-platform, minimalist web framework for PowerShell
- (Install-Module -Name Polaris)

Universal Dashboard

- Cross-platform PowerShell module for developing and hosting web-based interactive dashboards.
- (Install-Module -Name UniversalDashboard.Community)

Service Principal – Graph API

psconfeu-prototype-sp - Permissions

Enterprise Application

Overview

Getting started

Manage

Properties

Owners

Users and groups

Provisioning

Application proxy

Self-service

Security

Conditional Access

Permissions

Token encryption (Preview)

Activity

Sign-ins

Usage & insights

Audit logs

Refresh Review permissions Got feedback?

Permissions

Applications can be granted permissions to your directory by an administrator, either by enabling self-service access or assigning users directly to the application. As an administrator you can grant consent on behalf of all users in this directory by clicking the Grant admin consent for sstranger button.

Grant admin consent for sstranger

Admin consent User consent

Search permissions

API NAME	PERMISSIONS	TYPE	STATUS	BY
MICROSOFT GRAPH				
Microsoft Graph	View users' basic profile	Delegated	Admin consent	An administrator
Microsoft Graph	Read and write all groups	Delegated	Admin consent	An administrator
Microsoft Graph	Read all groups	Application	Admin consent	An administrator
Microsoft Graph	Read and write all groups	Application	Admin consent	An administrator
Microsoft Graph	Read directory data	Application	Admin consent	An administrator

aud : https://graph.microsoft.com

iss : https://sts.windows.net/496f0b27-4fa4-4c3d-8bbe-19c4b6875c81/

iat : 1556965282

nbfiat : 1556965282

exp : 1556969182

aio : 42ZgYMisa3l5eNnW2twLIZPNU7YXAQA=

app_displayname : psconfeu-prototype-sp

appid : a6e00d89-360e-40c6-a7de-3ad29d733fc7

appidacr : 1

idp : https://sts.windows.net/496f0b27-4fa4-4c3d-8bbe-19c4b6875c81/

oid : 5c8aed76-9f02-4906-92ff-411760f667bb

roles : {Group.Read.All, Group.ReadWrite.All, Directory.Read.All}

sub : 5c8aed76-9f02-4906-92ff-411760f667bb

tid : 496f0b27-4fa4-4c3d-8bbe-19c4b6875c81

uti : i8EG5ALCMkeRHBhf6ooJAA

ver : 1.0

xms_tcdt : 1426761588

Group.Read.All

Group.ReadWrite.All

Directory.Read.All



Public Preview of PowerShell in Azure Functions 2.x

- [Azure Functions](#) is an event-based *serverless* platform
- Use the HTTP (webhook) triggers to easily create REST API endpoint
- PowerShell Core 6.2 worker
- Supports all triggers and bindings
- Support for func CLI
- Managed Identity and Service Principal support



DEMO

Creating REST
API's

Azure Functions

- ARM Template deployment
- ManageAADGroup Module
- PowerShell Azure Function



Summary

- Explore PowerShell Frameworks and Platform like Azure Functions
- PowerShell Modules can easily be used in different Frameworks and Platforms



References

- [Public Preview of PowerShell in Azure Functions 2.x](#)
- [Create your first PowerShell function in Azure \(preview\)](#)
- [Azure Functions PowerShell developer guide](#)
- [Serverless automation using PowerShell in Azure Functions | Azure Friday](#)
- [Event-Driven Serverless Containers with PowerShell Azure Functions and Azure Container Instances](#)
- [Polaris](#)
- [Universal Dashboard](#)
- [Pode](#)



References

- [PowerShell Universal Dashboard from Start to Finish \(Youtube\)](#)
- [Serverless—from the beginning, using Azure functions \(Azure portal \)](#)
- [PowerShell in Azure Functions by Dongbo Wang & Joey Aiello](#)



Questions?

Use the conference app to vote for this session:

<https://my.eventraft.com/psconfEU>

about_Speaker



I'm Stefan Stranger



I work at Microsoft as a Consultant
You can find some my open source projects on
Github.

I like to share my knowledge about Azure,
PowerShell and DevOps

