Automating administrative tasks in Microsoft 365

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If you find yourself doing something more than once: automate it!

Automate what exactly?

- License management
- Reporting
- Auditing
- Monitoring
- Change management
- Operational service management

More advanced business scenarios:

"When a user leaves the company, let other users know which shared documents they will lose access to"

Need to run something on a schedule?

Task Scheduler in Windows?

Cron jobs in Linux?

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Choices

- Scheduled Tasks
- Azure Webjobs
- Azure Automation
- Azure Functions

- Azure Logic Apps
- Power Automate
- Azure DevOps / GitHub Actions
- Azure batch

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When to use what?

flexibility • cost • complexity • resilience • orchestration • security • triggers • scaling • output needs

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But I just want to run some PowerShell?

- Azure Automation
- Azure Functions

Running PowerShell in the cloud
security considerations

Where do you store credentials?

What permissions do you need?

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Register your app in Azure AD

Authentication

Authorization

API / Permissions name	Type	Description	Admin consent req...	Status	
∨ Microsoft Graph (8)					···
Directory.ReadWrite.All	Application	Read and write directory data	Yes	✓ Granted for thvo.net	···
Group.ReadWrite.All	Application	Read and write all groups	Yes	✓ Granted for thvo.net	···
Team.Create	Application	Create teams	Yes	✓ Granted for thvo.net	···
Team.ReadBasic.All	Application	Get a list of all teams	Yes	✓ Granted for thvo.net	···
TeamMember.ReadWrite.All	Application	Add and remove members from all teams	Yes	✓ Granted for thvo.net	···
TeamSettings.ReadWrite.All	Application	Read and change all teams' settings	Yes	✓ Granted for thvo.net	···
User.Read	Delegated	Sign in and read user profile	-	✓ Granted for thvo.net	···
User.ReadWrite.All	Application	Read and write all users' full profiles	Yes	✓ Granted for thvo.net	···

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Azure Automation

- Process automation through "Runbooks"
- Runbook & PowerShell Gallery support
- Helpers for using variables and other dependencies
- The "tried & true" approach

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Demo

Demo 1 - Azure Automation

Creating Teams with PowerShell

Find-Module MicrosoftTeams

Azure Functions

- Serverless

- Flexible & scalable

- Very good integration with VSCode

- Support for the PowerShell Gallery

PowerShell in a Function App

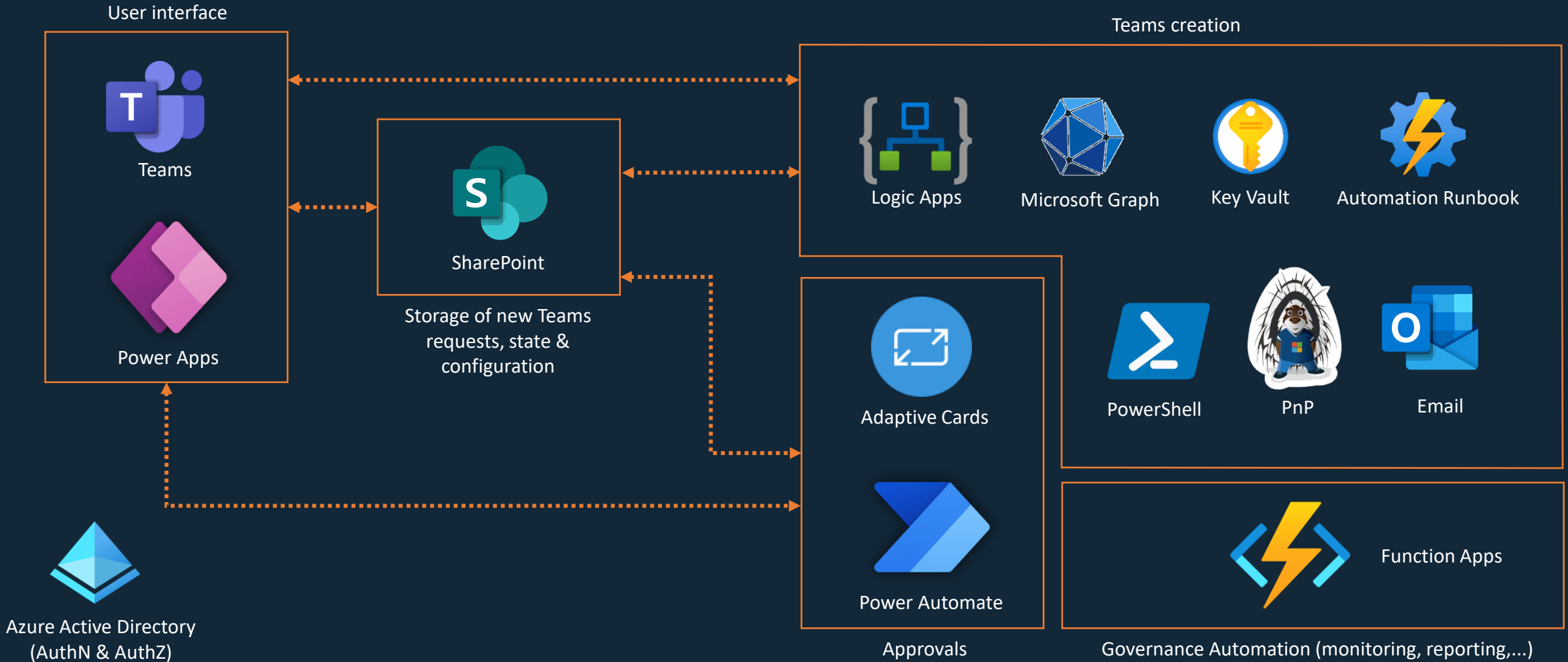**Demo**

Demo 2 - Azure Functions

Creating and reporting on Teams with PowerShell

Find-Module Microsoft.Graph.Teams

What about the costs?

Justin Grote
@JustinWGrote

My @AzureFunctions #Powershell, which processed 496,000 tickets last month, including a peak of 14,000 tickets a second, georedundant across 8 azure regions, cost $8 to run last month (which was absorbed by our partner credit)

Serverless is the future.

1:43 AM · Mar 10, 2020 · Twitter Web App

Other important considerations

- Security

- Orchestration

- Resiliency

- Scale

- Performance

- Conflicts

- Logging & output

- …

Maintainability of your scripts

- Have you thought about version control?

- Git is the de facto standard, and it's free!

- You don't have to be a developer to use git and GitHub

 https://git-scm.com/

Useful reading

Background jobs best practices

Using PnP PowerShell in Azure Functions

Provisioning engine sample application

Overview of all Azure Services

Takeaways

- Use the simplest tool that could possibly work

- Balance cost, flexibility & complexity when making a choice

- Most common choices for running PowerShell in the cloud: Azure Automation & Azure Functions

- Consider security aspects such as app permissions & secure storage of credentials

- Keep on building!

Thank you

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