



Automation in the cloud for the reluctant IT Pro

Thomas Vochten

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Technology Evangelist   

#Microsoft365 #Azure #CommunityRocks

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

Automate what exactly?

- Microsoft Teams creation
- License management
- Reporting & auditing
- Monitoring
- 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





Choices...

- Scheduled Tasks
- Azure Webjobs
- Azure Automation
- Azure Functions
- Azure Logic Apps
- Power Automate
- Azure DevOps / GitHub Actions
- Azure batch

When to use what?

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



But I just want to run some PowerShell?

- Azure Automation
- Azure Functions



Running PowerShell in the cloud

security considerations

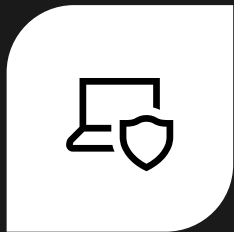


Where do you store credentials?

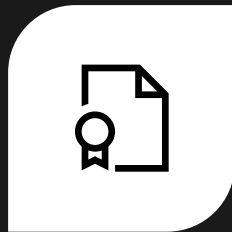


What permissions do you need?

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	...

Azure Automation

- Process automation through Runbooks
- Runbook & PowerShell Gallery support
- Helpers for using variables and other dependencies
- Additional configuration & update management capabilities
- Good integration with IaaS components of Azure
- The “tried & true” approach





Demo 1 - Azure Automation

Creating Teams with PowerShell




`Find-Module MicrosoftTeams`

Azure Functions

- Serverless
- Flexible & scalable
- Many triggers to choose from
- Very good integration with VSCode
- Support for the PowerShell Gallery
- If you need ultimate control
- Can be intimidating at first



PowerShell in a Function App

Publish *	<input checked="" type="radio"/> Code <input type="radio"/> Docker Container
Runtime stack *	PowerShell Core 
Version *	7.0 
Region *	West Europe 

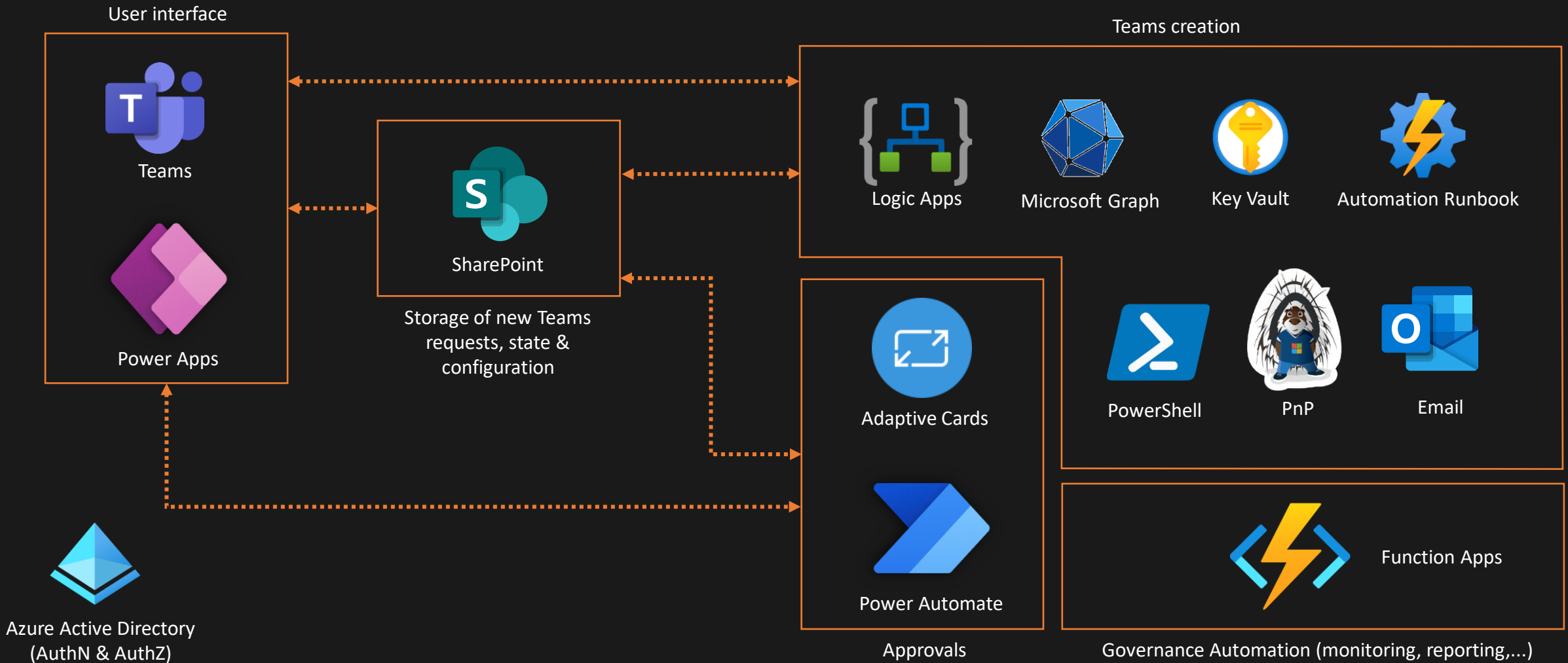
Demo 2 - Azure Functions

Creating and reporting on Teams with PowerShell

```
Find-Module Microsoft.Graph.Teams
```

```
Find-Module PnP.PowerShell
```


Stepping it up!





Demo 3 - Provisioning Engine

Creating Teams using Teams, Power Apps,
Power Automate, SharePoint, Logic Apps and Automation

What about the costs?

Azure costs by product



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://thvo.me/git>

Useful reading

[Background jobs best practices](#)

[Overview of all Azure Services](#)

[Using PnP PowerShell in Azure Functions](#)

[Provisioning engine sample application](#)

Key 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
- Don't forget low-code solutions such as Power Automate
- Consider security aspects such as app permissions & secure storage of credentials (Keyvault)

@thomasvochten

THANK
YOU



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