



Thomas Vochten

Automation in the cloud  
for the reluctant IT Pro

#ScottishSummit2021

# *Our Sponsors*



**ScriptRunner**<sup>®</sup>  
The #1 for PowerShell Management



**GLOBAL**  
DRIVING **DATA** QUALITY



**PROXIMO 3**  
Microsoft Consulting Specialists



**Redspire**

**Agilisys**

 **Hitachi Solutions**

# Thomas Vochten

Cronos Groep

technology evangelist

@thomasvochten

BIVVUG



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

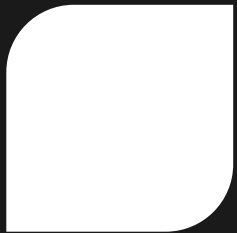


Where do you store credentials?



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)					
<a href="#">Directory.ReadWrite.All</a>	Application	Read and write directory data	Yes	✔ Granted for thvo.net	...
<a href="#">Group.ReadWrite.All</a>	Application	Read and write all groups	Yes	✔ Granted for thvo.net	...
<a href="#">Team.Create</a>	Application	Create teams	Yes	✔ Granted for thvo.net	...
<a href="#">Team.ReadBasic.All</a>	Application	Get a list of all teams	Yes	✔ Granted for thvo.net	...
<a href="#">TeamMember.ReadWrite.All</a>	Application	Add and remove members from all teams	Yes	✔ Granted for thvo.net	...
<a href="#">TeamSettings.ReadWrite.All</a>	Application	Read and change all teams' settings	Yes	✔ Granted for thvo.net	...
<a href="#">User.Read</a>	Delegated	Sign in and read user profile	-	✔ Granted for thvo.net	...
<a href="#">User.ReadWrite.All</a>	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 *	<div>PowerShell Core</div>
Version *	<div>7.0</div>
Region *	<div>West Europe</div>

# Demo 2 - Azure Functions

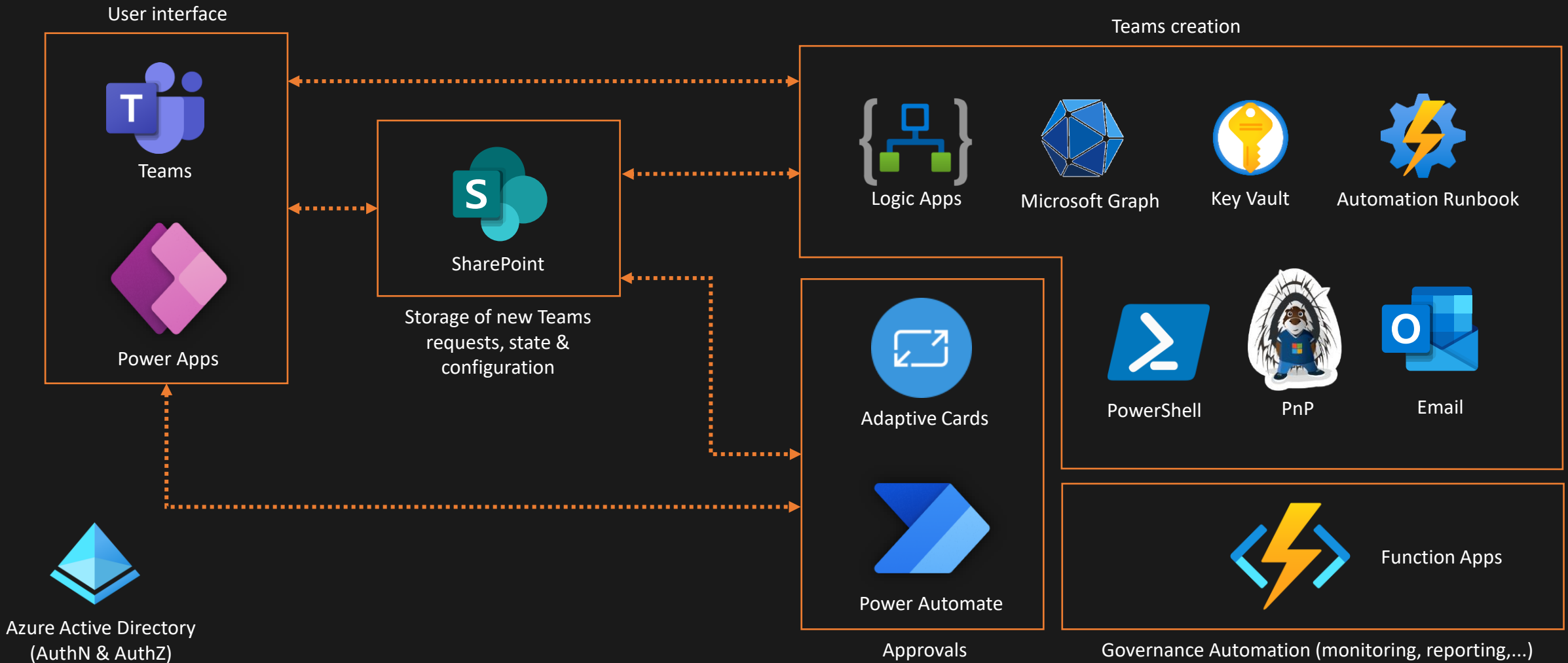
Creating and reporting on Teams with PowerShell

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

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



# Stepping it up!



# 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)

#ScottishSummit2021



*Thank You*