#NVSummit2021

Azure Functions in a Hybrid World

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- Twitter @JanEgilRing
- Microsoft Azure MVP

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Agenda

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- Understand how Azure Functions differs from other automation capabilities in Azure
- Learn how to leverage Azure Functions for hybrid management

Automation

Deploy and operate infrastructure and services in Azure

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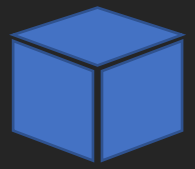
Deploy

Deliver repeatable and consistent infrastructure as code for testing, staging, and production.



Resource Manager

Respond

Create event-based automation on deployed resources to diagnose and resolve issues.

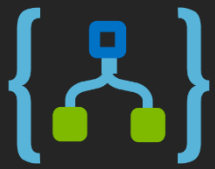
Automation

Event Grid

Orchestrate

Orchestrate your automation across disparate systems in Azure and 3rd party management.

Functions



Logic Apps

PowerShell Standard

Windows PowerShell

PowerShell 7

.NET Framework

.NET Core

Windows

Linux / MacOS / More...

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powershell.exe

Windows PowerShell

pwsh.exe

PowerShell 7

.NET Framework

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PowerShell 7

Azure Functions vs Azure Automation

- Azure Functions uses PowerShell Core/7
- Azure Automation uses Windows PowerShell
- 5.1 marks the completion of Windows PowerShell

	Windows PowerShell	PowerShell Core/7
Cross-Plat Support	Windows only	Windows, macOS and Linux
Side-by-side		SxS and portable
Active development	Servicing only	
Servicing	via Windows Update	via Microsoft Update
Remoting support	WinRM	WinRM and SSH
.NET CLR	.NET Framework	.NET Core 2.x/3.x .NET 5.0
Packaging	Ships in Windows & MSU (for down level)	MSI, RPM/DEB repos, Snap, HomeBrew, ZIP

Performance Improvements

Revamped Invoke-RestMethod and Invoke-WebRequest

Powershell Remoting Over SSH

Temp: PSDrive

New Operators
Pipeline Chain Operators (&&, ||)
Ternary Operator (condition ? true : false)
Null Conditional (??)
Null Coalesce (??=)

Concise Error View and Get-Error

Debug on Exception

Foreach -Parallel

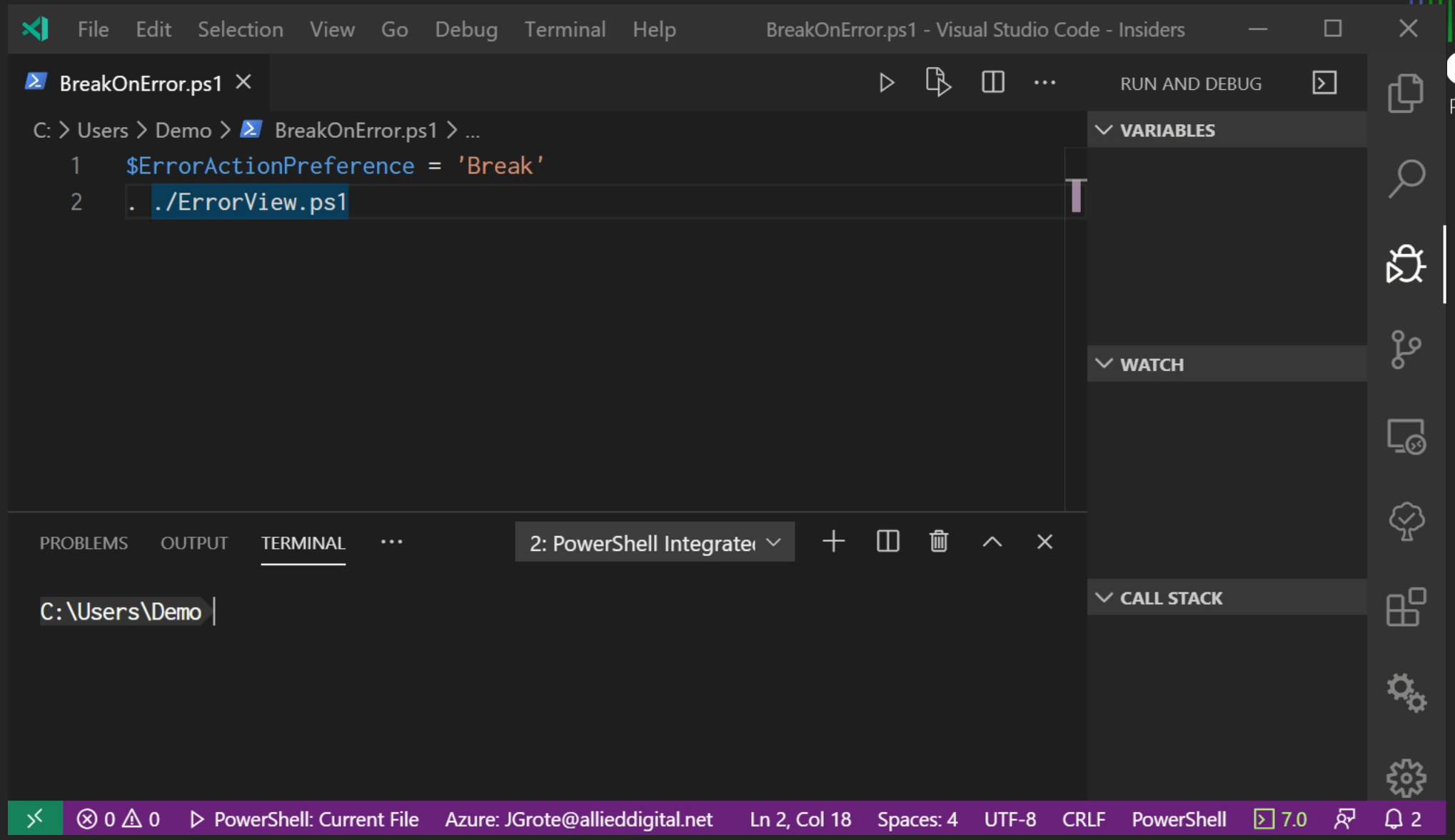
Windows Module Compatibility

Invoke-DSCResource xplat

Revamped Test-Connection

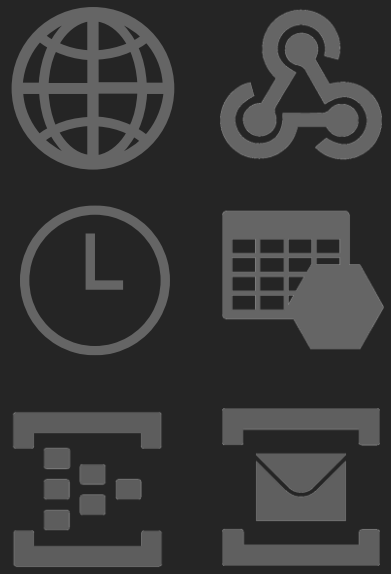
Runs on .NET Core 3.1 LTS

■ Experimental ■ PS7 ■ PS6


File Edit Selection View Go Debug Terminal Help
BreakOnError.ps1 - Visual Studio Code - Insiders
BreakOnError.ps1
RUN AND DEBUG
C: > Users > Demo > BreakOnError.ps1 > ...
1 $ErrorActionPreference = 'Break'
2 . ./ErrorView.ps1
VARIABLES
WATCH
CALL STACK
PROBLEMS OUTPUT TERMINAL
2: PowerShell Integrate
C:\Users\Demo
0 0 PowerShell: Current File Azure: JGrote@allieddigital.net Ln 2, Col 18 Spaces: 4 UTF-8 CRLF PowerShell 7.0 2

Azure Functions Programming Model

Events



React to timers, HTTP, or events from your favorite Azure services, with more on the way

Code

Author functions in C#, F#, Node, Java, Python, PowerShell, and more

Outputs

Send results to an ever-growing collection of services

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Azure Functions – Hybrid networking

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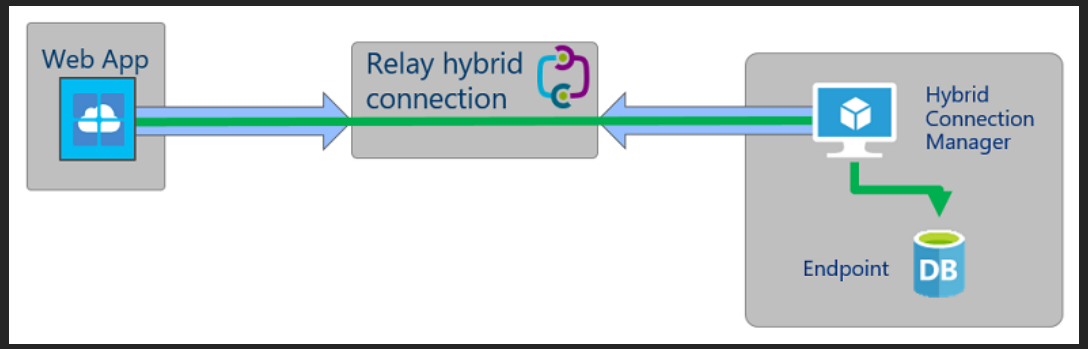
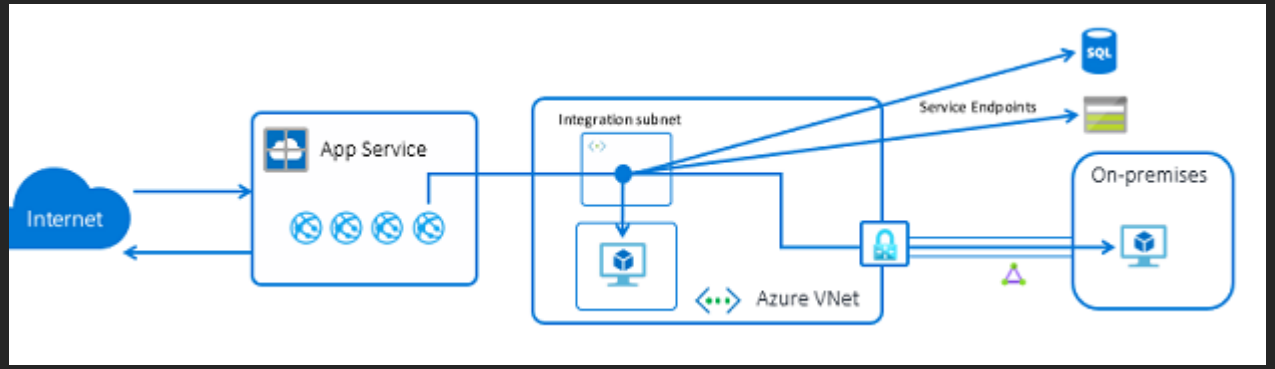
- Two options
  - Hybrid Connections
  - Virtual Network Integration





Bonus tip: Durable Functions

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11 lines (11 sloc) | 459 Bytes

```powershell
using namespace System.Net
param($Context)
$Context
$output = @()
$newResource = Invoke-ActivityFunction -FunctionName 'NewAzResourceGroup' -Input $Context.Input
$output += $newResource
$newStgAcc = Invoke-ActivityFunction -FunctionName 'NewStgAccount' -Input $($newResource | ConvertTo-Json -Depth 5)
$output += $newStgAcc
$newBlob = Invoke-ActivityFunction -FunctionName 'NewBlob' -Input $($newStgAcc | ConvertTo-Json -Depth 12)
$output += $newBlob
$output
```

https://docs.microsoft.com/en-us/azure/azure-functions/durable/quickstart-powershell-vscode

Jeffrey Snover @jsnover · Nov 6, 2019

The team made a promise so important, we called it our sacred vow: Learn PowerShell and we'll do everything we can to make it the best investment you've ever made.

It's 13 years later and I can confidently say that we have kept faith with that vow.

Summary

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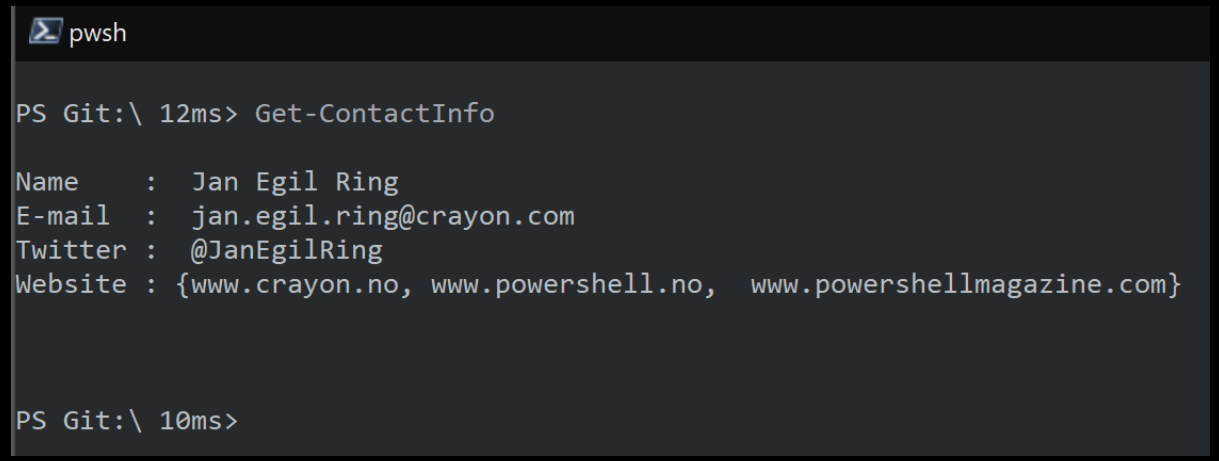
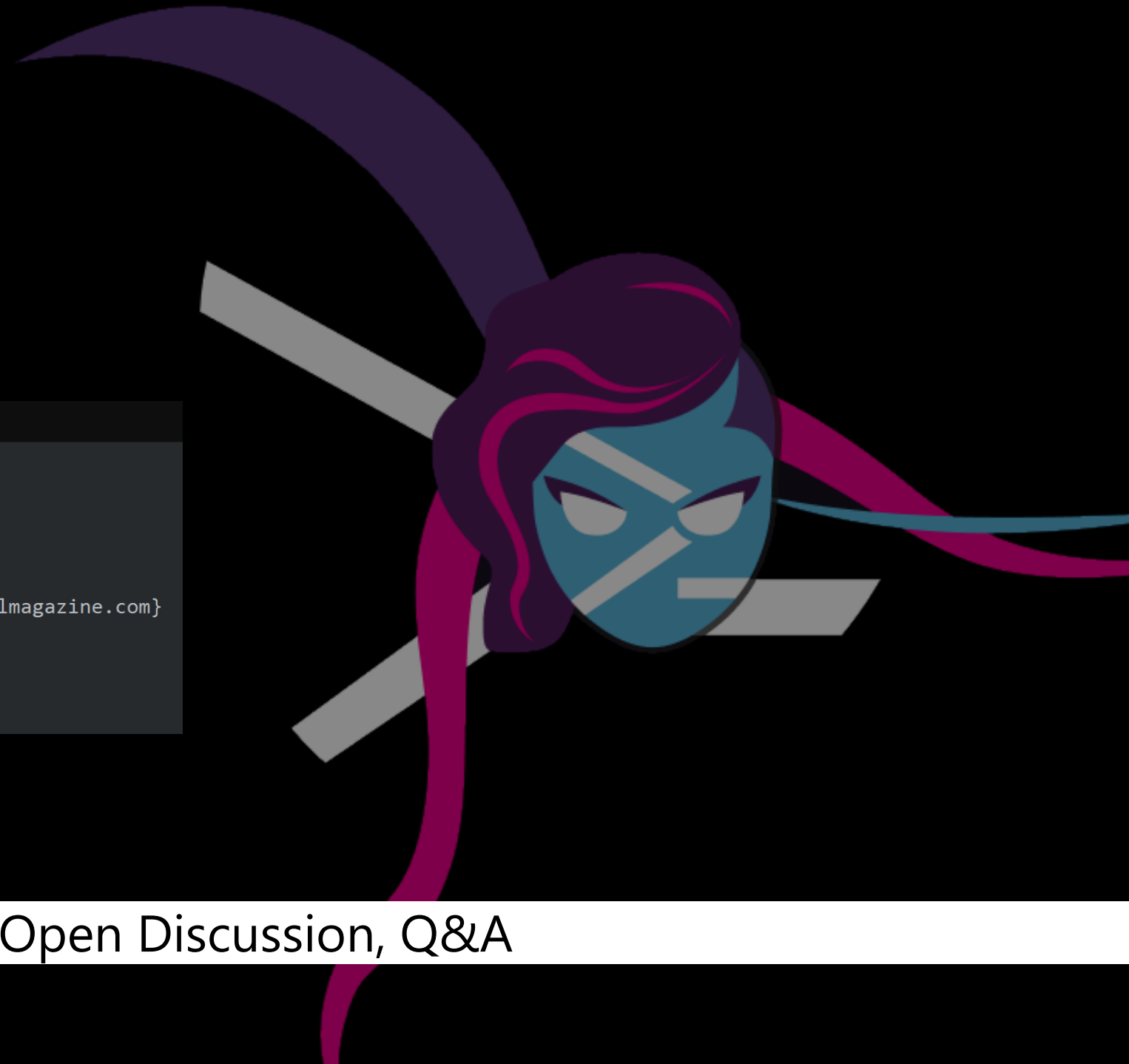
- Azure Functions uses PowerShell Core/7
- Azure Automation uses Windows PowerShell
- Options for Hybrid Management in Azure Functions
  - VNet integration (requires Premium Plan)
  - Hybrid Connections (requires agent)





NEXT: Open Discussion, Q&A

Thank you!

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