

# ExpertsLive Norway

## Azure Automation in Production

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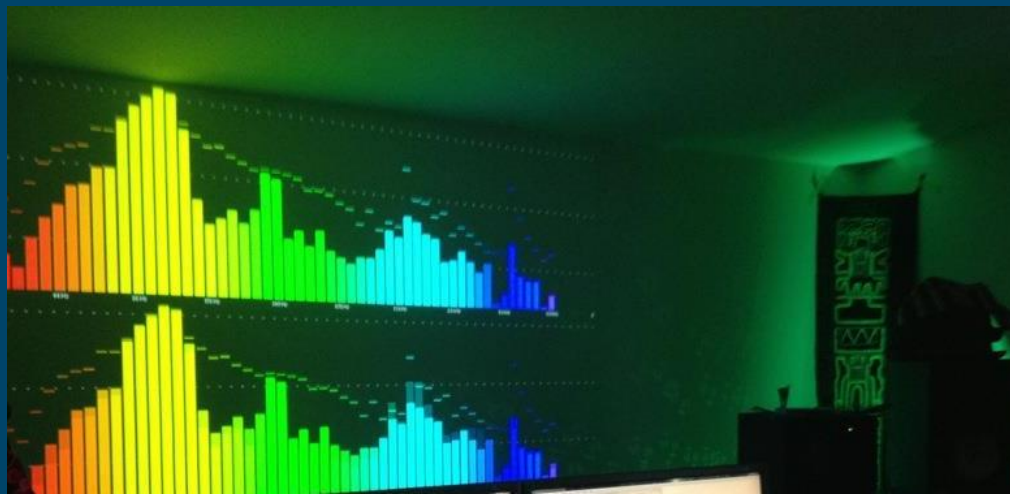
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**Microsoft**

# Jakob Gottlieb Svendsen



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Principal  
Consultant &  
Lead Developer

- 11 years in Automation Consultancy
- 15+ years in IT



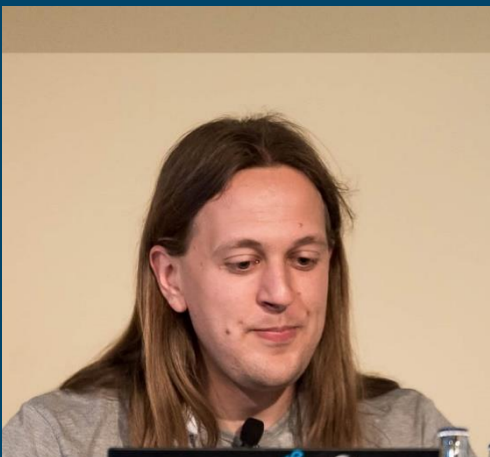
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Datacenter MVP

# Andreas Sobczyk



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Blog:  
CloudMechanic.net



Senior  
Consultant

- Azure
- Azure Stack
- Software-defined Datacenter
- Automation



Co-Founder Cloud  
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Microsoft Azure

# Our Goal

- Complete Lifecycle Management
  - Keep Job logs for up to 2 years.
  - Runbook Development using CI/CD pipelines
  - Better troubleshooting using custom logs
  - Alerts on errors.
  - Increase runbook quality using Templates/framework

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Demo

Our Goal!

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## Authoring

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# Authoring

- **Authoring Toolkit**
  - Stand Alone or ISE
  - Install-Module AzureAutomationAuthoringToolkit
  - On Hybrid Worker Remember –Scope CurrentUser
- **Visual Studio Code**
  - Stand Alone Toolkit
  - Or Community extension: AzureAutomation

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## Runbook Template

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# Structure - Runbook

- Comment Based Help
- Parameters
  - Mandatory / Optional
  - Input Type
- Preferences
  - \$ErrorActionPreference = Stop
  - \$VerbosePreference / -Verbose?
- Catch All Errors
  - Might need more than one try/catch (inside foreach)
- Control Return / Output
  - | Out-Null
  - Use \$null = ....

Use a template!!

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## DEMO: Structure

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# Structure - Modular Runbooks

- **Initiation**
  - Used by: Jobs/Triggering
  - Output: Human readable or JSON
- **Control**
  - Used by: Other runbooks
  - Output: Standardized object (CTReturnObject)
  - Complete a complete or part of a flow.
    - i.e. New-CTEmployee
- **Component / Cmdlets**
  - Generalized Runbook
  - For one specific job, i.e. New-CTServiceAccount (New-ADUser)
  - Returns standard objects such as ADUser
  - Should not rely on outside resources such as AA Shared Resources

# Runbook Toolkit

- Use

- PowerShell Gallery

- <https://www.powershellgallery.com/packages/CTToolkit/>

- Contribute

- GitHub

- <https://github.com/TeamCTGlobal/CTToolkit>



Administration

Continuous Delivery

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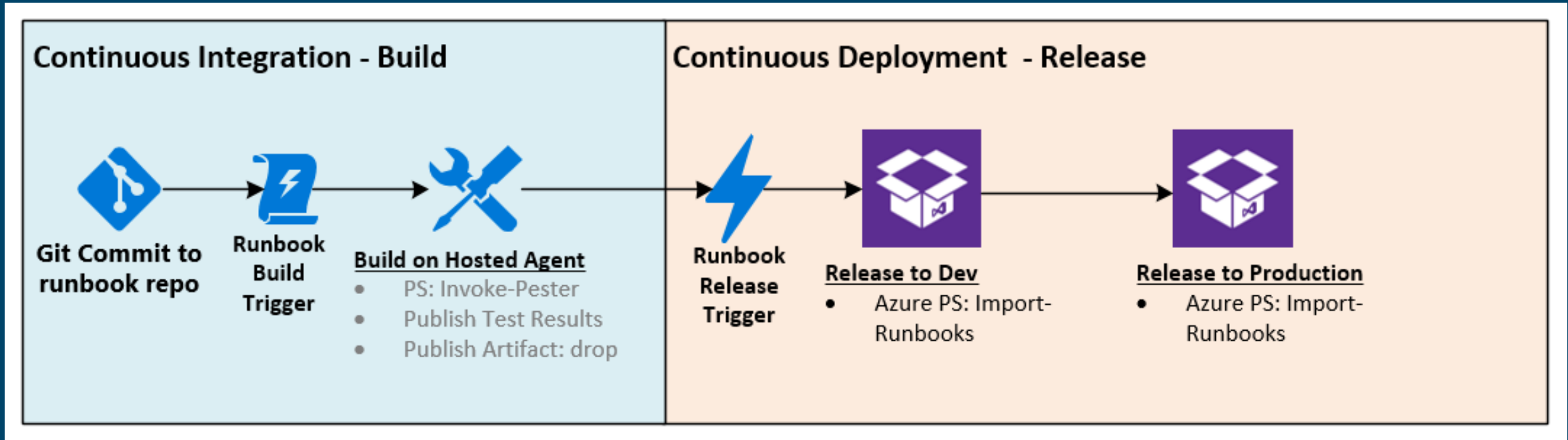
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# Administration – Source Control

- Use a script repository!
- Git is great! (p.s. Git is not only GitHub and it does not have to be hard or advanced).
- We use Azure DevOps
- Setup a release pipeline



# Continuous Delivery - Pipeline



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## DEMO: Continuous Delivery!

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## Logging

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# Logging - Code

- Log before actions!
  - Optional: Log after actions!
- Why not just use Write-Verbose?
- Use Custom TraceLog
  - Collect Log entries in \$TraceLog
  - Write-Verbose \$Tracelog in the end
  - Send \$TraceLog with runbook output

# Logging – Log Analytics

- Forward logs to Azure Log Analytics
- Retention up to 2 years at low cost
- Advanced query language
- Categories from Automation
  - JobLogs = Job Result/Status
  - JobStreams = Job outputs
  - DscNodeStatus = DSC Node Status

Setup: <https://docs.microsoft.com/en-us/azure/automation/automation-manage-send-joblogs-log-analytics>

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## Monitoring

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# Alerting

- Azure Monitor
- Alerts trigger
  - Notifications (Email, SMS etc.)
  - Automation
  - ITSM
  - and more

# Alerting – Azure Monitor

- 2 ways
- Metrics
  - Triggers in a few minutes
  - Trigger on job result
  - Limited source data available
    - Runbook name but not Job Id
- Log Analytics Query
  - Triggers in about 15 minutes (Our test result)
  - Full source data available
  - Advanced query rules
    - combine with data from other sources

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## PowerBI / Our Goal!

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# Reporting

- Azure Dashboard
  - Integrate to Azure Dashboard
  - Basic Visualizations
- PowerBI
  - Great Visualization Tool
  - Advanced Manipulation & Visualization
  - Use JSON to output and show objects! (PowerBI can convert json back to objects!)

# Reporting - PowerBI

- Author and Test Query in Log Analytics
- Get PowerBI query code
  - Export -> PowerBI
- JSON Outputs

# Reporting – Log Analytics Query

- Query Example:

- AzureDiagnostics |
  - where ResourceProvider == "MICROSOFT.AUTOMATION" | where TimeGenerated > ago(730d)



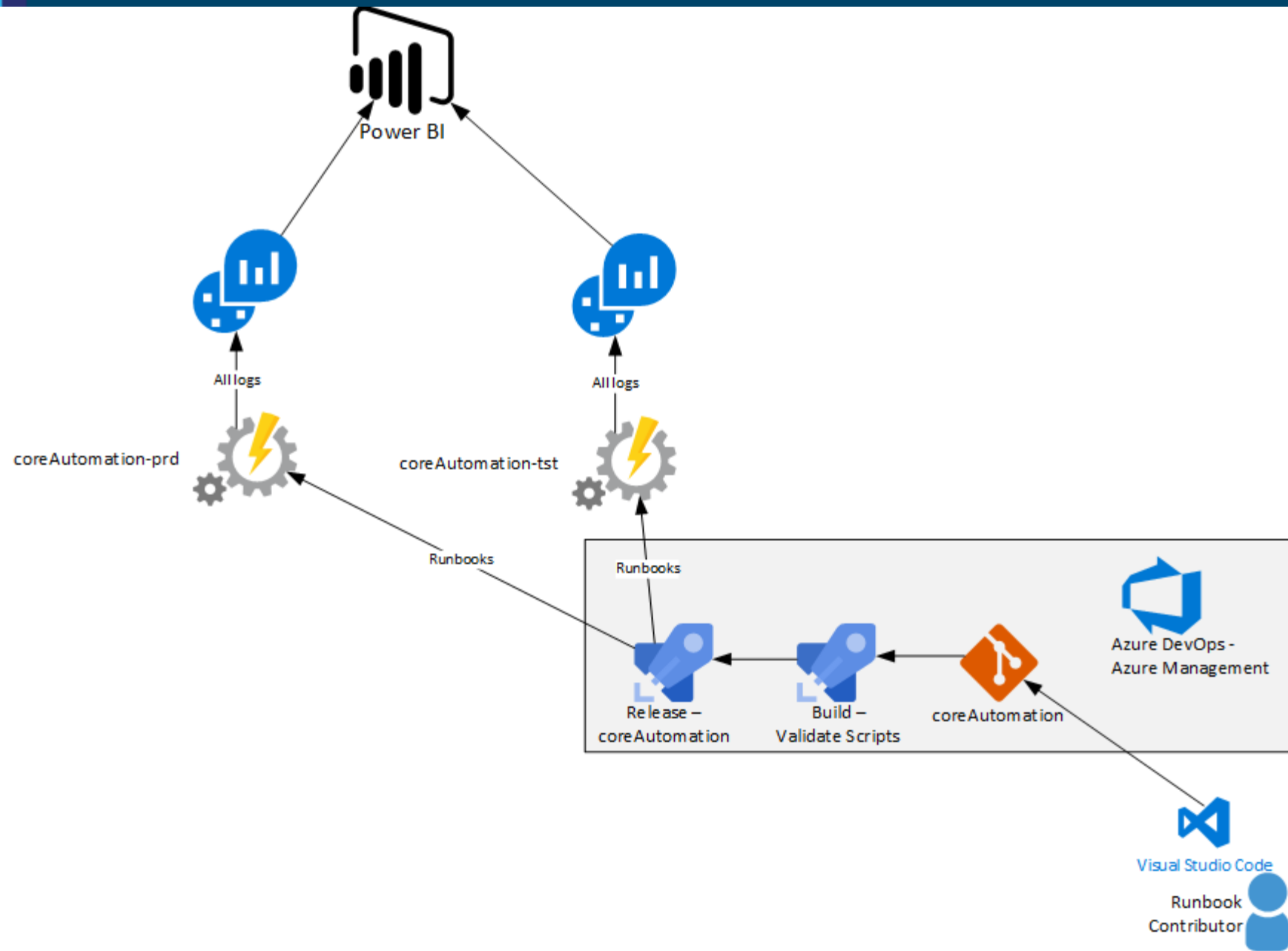
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DEMO:  
PowerBI / Our Goal!

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# Summary

- Our Goal!
- Authoring – VS Code Rules!
- Structure – Use Templates!
- Continuous Delivery - Azure DevOps
- Logging – Log Analytics rule!
- Monitoring – Azure Monitor – Metrics or Log Analytics
- Reporting – PowerBI!



# Thank You!

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