Convert your Windows PowerShell module so its compatible with PowerShell Core 6.x

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Agenda

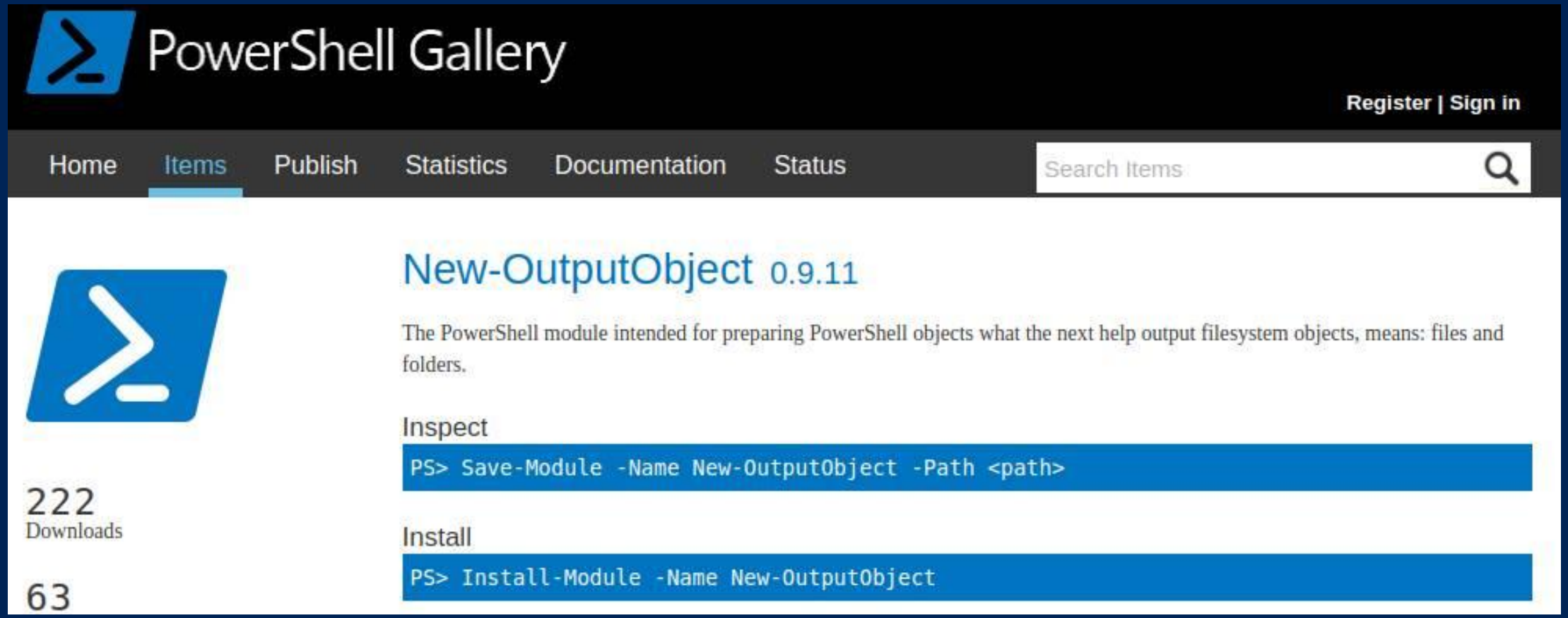
- Why me?
- What does PowerShell Core 6.x compatibility mean?
- Why? Do you really need this?
- Where we are? How to recognize the running environment?
- What are? The main areas of incompatibility
- Does this work? How to test?
- Other gotchas
- Finally!

Why me?

- I have done the work to adapt the Pester PowerShell module to work on PowerShell Core 6.x
  http://bit.ly/2qC7OfH and http://bit.ly/2qD2Qzg
- I have made the New-OutputObject PowerShell module
- I have done some work to adapt the PScribo module to be compatible with PowerShell Core 6.x

Why me?

- I have made the New-OutputObject PowerShell module



Why me?

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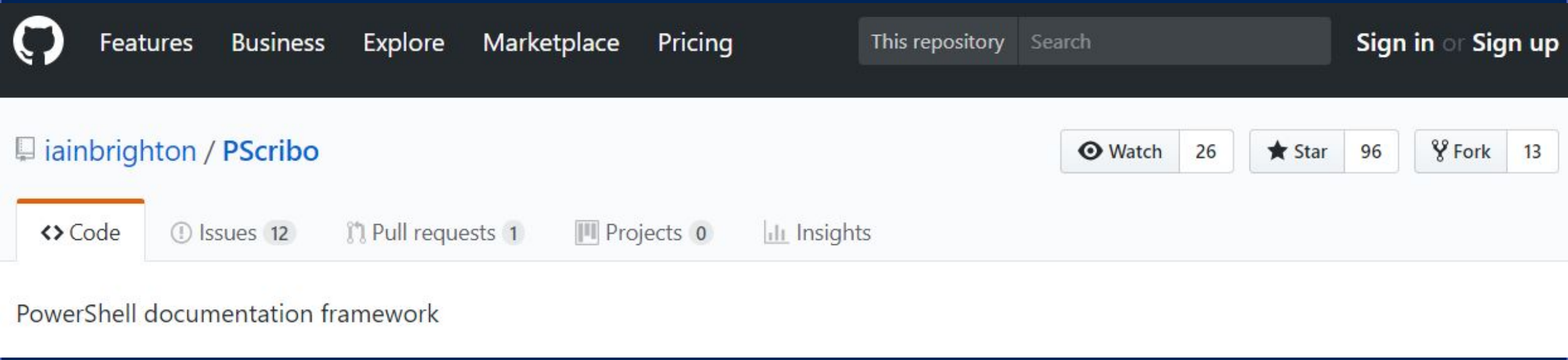


Who else?

- Who else contributed to adapt Pester for PSCore 6.x ?

Felix Becker

felixfbecker

Gavin Eke

GavinEke

Joel Bennett

Jaykul

Edmund Dipple

elmundio87

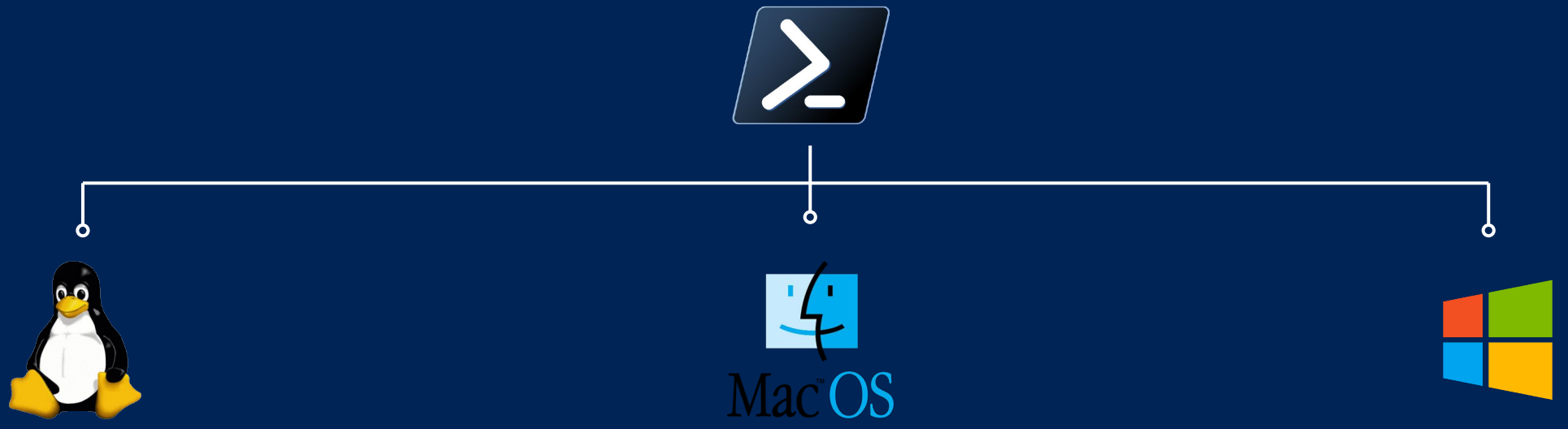
Jakub Jareš

nohwnd

In alphabetical order

What does PowerShell Core 6.x compatibility mean?

- Can be run using Windows PowerShell
- Can be run using PowerShell Core 6.x on:



OS's are listed in the alphabetical order :-P

- Work properly (as expected) on all supported operating systems

Why?

- To reuse your or your team skills
- To extend existing workflows (e.g. a continues integration) for Linux or unify used tools
- The use of CI platforms free features e.g. https://travis-ci.org/
- Or to do everything for which PowerShell Core "is optimized for dealing with structured data (e.g. JSON, CSV, XML, etc.), REST APIs, and object models."[1]

1. The quote from the PowerShell project description on GitHub https://github.com/powershell/powershell

Can I?

- Is your module dependent on from other modules and tools?
  - Check the PowerShell Gallery and search using the tag “PSEdition_Core” http://bit.ly/2qBx2e1
  - Examine a project/tool documentation
  - Try find a replacement
- Read “Known Issues” at the PowerShell project site http://bit.ly/2IXiY5l
- Do you really have to reinvent a wheel? Maybe you can use/extend Ansible? ;–) –> please attend my second session on Friday “Use your PowerShell skills to extend Ansible workflows. Create your own Ansible module for Windows platform”.

Where are we?

- PowerShell way – the Get-EnvironmentInformation function http://bit.ly/2qBppDs creates the dedicated variable $Environment
- Pester way – the GetPesterOS function returns the name of the OS run http://bit.ly/2H8tDcE
- Direct check of $PSVersionTable and defined variables values

Demo - 1

How to detect an environment?

What are? The main areas of incompatibility – Filesystem

```
PS C:\Windows\system32> Get-ChildItem c:\

    Directory: C:\

Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        1/22/2018  11:29 AM                PerfLogs
d-r---        4/17/2018   2:25 AM                Program Files
d-r---        1/22/2018  11:24 AM                Program Files (x86)
d-r---        1/22/2018  11:29 AM                Users
d----l        3/10/2018  10:00 AM                vagrant
d-----         4/1/2018   8:03 AM                Windows
```

```
PS /home/wojtek> Get-ChildItem /

    Directory: /

Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d----l         8/3/17   1:32 AM                bin
d-r---        4/15/18  11:21 PM                boot
d-r---        4/17/18  11:00 AM                dev
d-r---        4/17/18  11:00 AM                etc
d-r---         8/3/17   1:32 AM                home
d----l         8/3/17   1:32 AM                lib
d----l         8/3/17   1:32 AM                lib64
d-----        9/30/16   6:40 PM                lost+found
d-r---         8/3/17   1:32 AM                media
d-r---        4/15/18  11:23 PM                misc
```

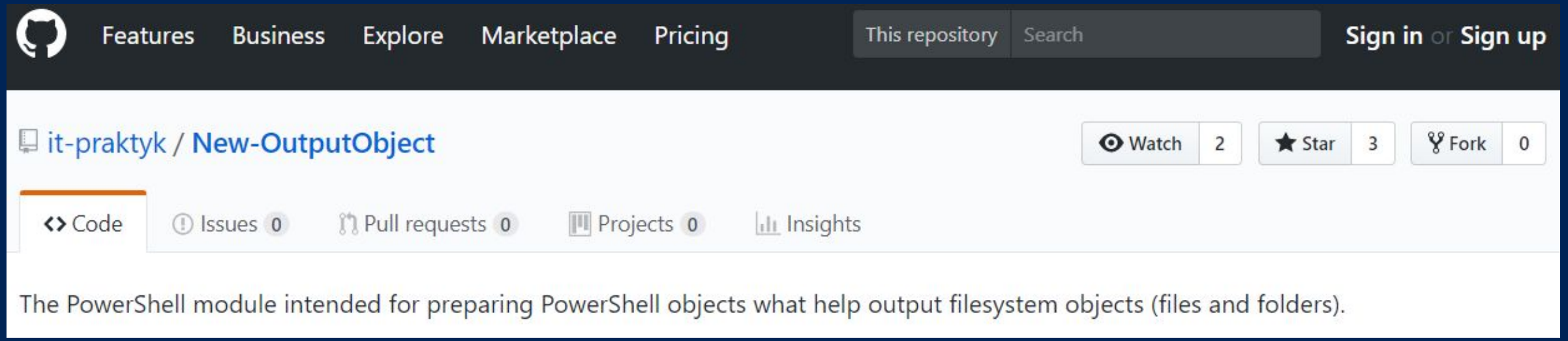
- Use methods provided by .Net Core
- Use declared variables
- Use dedicated cmdlets

Demo – 2

What are? The main areas of incompatibility – Filesystem

What? - Output - I

The New-OutputObject PowerShell module



Demo – 3

What are? The main areas of incompatibility – Output

What are? The main areas of incompatibility – Output – II

- End of Lines (EOL)
  - CR (Linux), CRLF (Windows)
  - can/should be converted? http://bit.ly/2vjGszB
  - you can use the unix2dos tool
- Control characters
  - `n , `r
  - special cases ? – PSCribo

What are? The main areas of incompatibility – Output – II

```
Describing OutText.Internal\OutTextTOC
  [-] outputs TOC name and section break 238ms
    Expected regular expression '^Table of contents\r
    -+' to case sensitively match 'Table of contents
    ----------------------------------------------------------------------------------------------------
    Heading 1
     Heading 2
    ', but it did not match.
    359:              $result | Should MatchExactly $expected;
    at Invoke-LegacyAssertion, /usr/local/share/powershell/Modules/Pester/4.3.1/Functions/Assertions/Should.ps1: line 188
    at <ScriptBlock>, /home/wojtek/Scripts/PScribo/Tests/Plugins/OutText.Tests.ps1: line 359
  [-] adds section numbers when "EnableSectionNumbering" is enabled (#20) 194ms
    Expected regular expression '^Table of contents\r
    -+\r
    1\s+Heading 1\r
    1.1\s+Heading 2\r
    $' to match 'Table of contents
    ----------------------------------------------------------------------------------------------------
    1    Heading 1
    1.1   Heading 2
    ', but it did not match.
    379:              $result | Should Match $expected;
    at Invoke-LegacyAssertion, /usr/local/share/powershell/Modules/Pester/4.3.1/Functions/Assertions/Should.ps1: line 188
    at <ScriptBlock>, /home/wojtek/Scripts/PScribo/Tests/Plugins/OutText.Tests.ps1: line 379
```

Demo – 4

What are? The main areas of incompatibility – Output – control characters

What are? The main areas of incompatibility – OS specific functions and tools or lack of them

- Do inaccessible feature everything?
  - replace them
  - use “hacks”
  - skip if the feature is not critical

Demo – 5

What are? The main areas of incompatibility
OS specific functions and tools or lack of them

Does this work? How to test?

- If you don't have tests yet write them now
- Tests also have to be update for compatibility!
- Test using CI solutions – you can use Travis-CI to tests your open source code on Linux and macOS for free
- Read Doug's Finke blog post "PowerShell – How to test your scripts for Windows, Linux and macOS" http://bit.ly/2H9jWPw

Other gotchas

- Case sensitivity http://bit.ly/2qG3ZVT
- .gitconfig http://bit.ly/2qH69Fm or not http://bit.ly/2H8g3WN
- A direct sharing of the repository folder between OS's can be tricky you can modify the setting ' filemode = false' in the file .git/config

Demo – 6

Gotchas

Finally!

- Update tags in the module manifest and add
  - 'PSEdition_Core'
  - 'PSEdition_Desktop'
- Find modules with the ‘PSEdition_Core’ tag in the PowerShell Gallery
  http://bit.ly/2qBx2e1

Demo – 7

Run some tests

Summary

- Adapting of the existing code is possible
- That work requires
  - tests
  - knowledge about
    - the code
    - operating systems
  - brain work - as an opposite to manual ;-)

Next Steps

- Now: 30 min break (if we are on time)
- Next: Workshops (17:00 - 20:00)
  - The Power of the Dark Side: Offensive PowerShell - Track 1
  - PlatyPS: From 0 to 1 and beyond - Track 2
  - Bring Existing Infrastructure under Code Control - Track 3

Questions?

about_Author

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