PSCONF.EU

2018

```
PSConfEU:\Day4\BySpeaker\Ravikanth Chaganti> Get-ChildItem | Select-Object Title, StartTime

title                                              startTime
-----                                              ---------
SHiPS: Walk-through a bare-metal system configuration 4/20/2018 8:30:00 AM
```

Ravikanth Chaganti

Agenda

- Providers?
- Introducing SHiPS
- Writing a SHiPS provider
- PS Drive for Bare-metal system configuration

Providers?

- How many of you know/used PowerShell Providers?

- How many of you have done this?

```
Set-Item WSMan:\localhost\Client\TrustedHosts -Value *
```
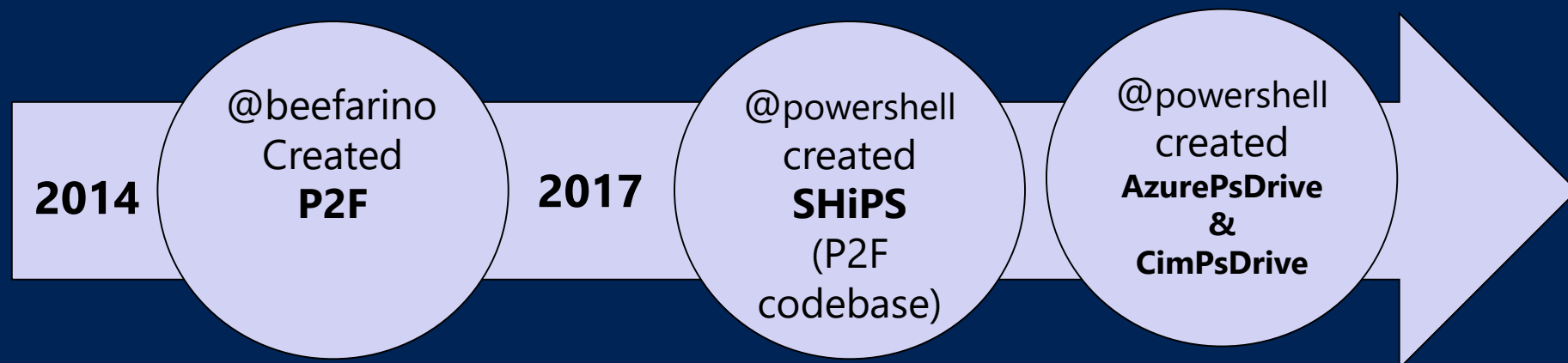
Providers?

- Not a new concept! Existed since v1.

```
PS C:\> Get-PSProvider | ft -AutoSize

Name        Capabilities                          Drives
----        ------------                          ------
Registry    ShouldProcess, Transactions           {HKLM, HKCU}
Alias       ShouldProcess                         {Alias}
Environment ShouldProcess                         {Env}
FileSystem  Filter, ShouldProcess, Credentials {C, D}
Function    ShouldProcess                         {Function}
Variable    ShouldProcess                         {Variable}
WSMan       Credentials                           {WSMan}
```

- Provide a method to **navigate** and **manipulate** data from data stores through a common interface.

- Not easy to develop a provider!

SHiPS

2014 — @beefarino Created **P2F** — **2017** — @powershell created **SHiPS** (P2F codebase) — @powershell created **AzurePsDrive & CimPsDrive** →

- SHiPS – Simple Hierarchy in PowerShell
- Simplifies developing PowerShell providers

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SHiPS

- Writing new providers is easy!
  - Knowledge of PowerShell classes is needed
- Many examples in the community!

```
PS psd:\> ls


        Directory: psd:


GitHubHandle        ProjectCount
------------        ------------
DexterPOSH          2
DungKHoang          1
glennsarti          1
mattmcnabb          1
PowerShell          2
rchaganti           6
SeeminglyScience     1
stefanstranger      1
```

SHiPS – Get Started

- Install-Module –Name SHiPS
- Or download from https://GitHub.com/PowerShell/SHiPS
- Implements:
  - Get-Item
  - Get-ChildItem
- No support yet for:
  - Get-ItemProperty
  - Set-Item
  - Set-ItemProperty
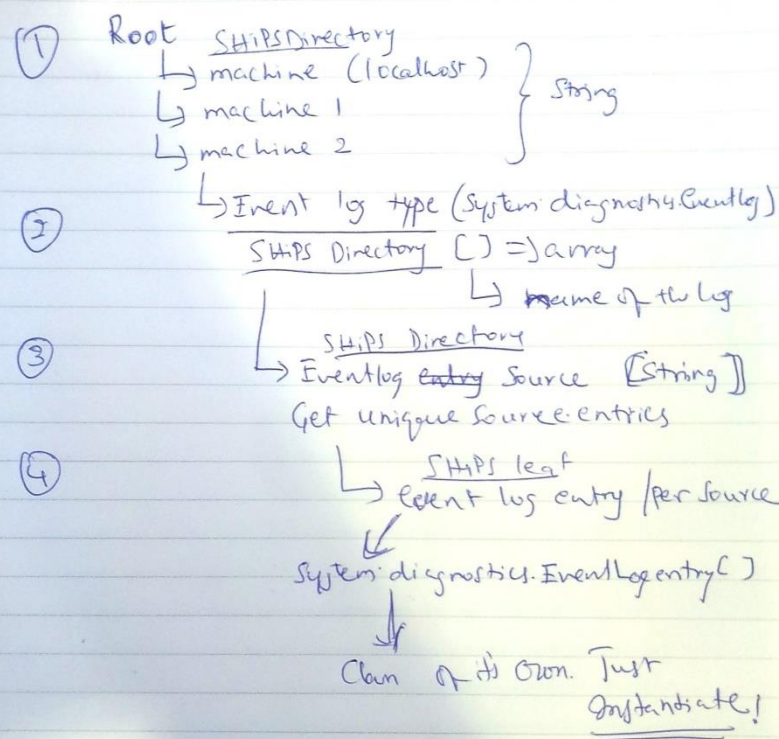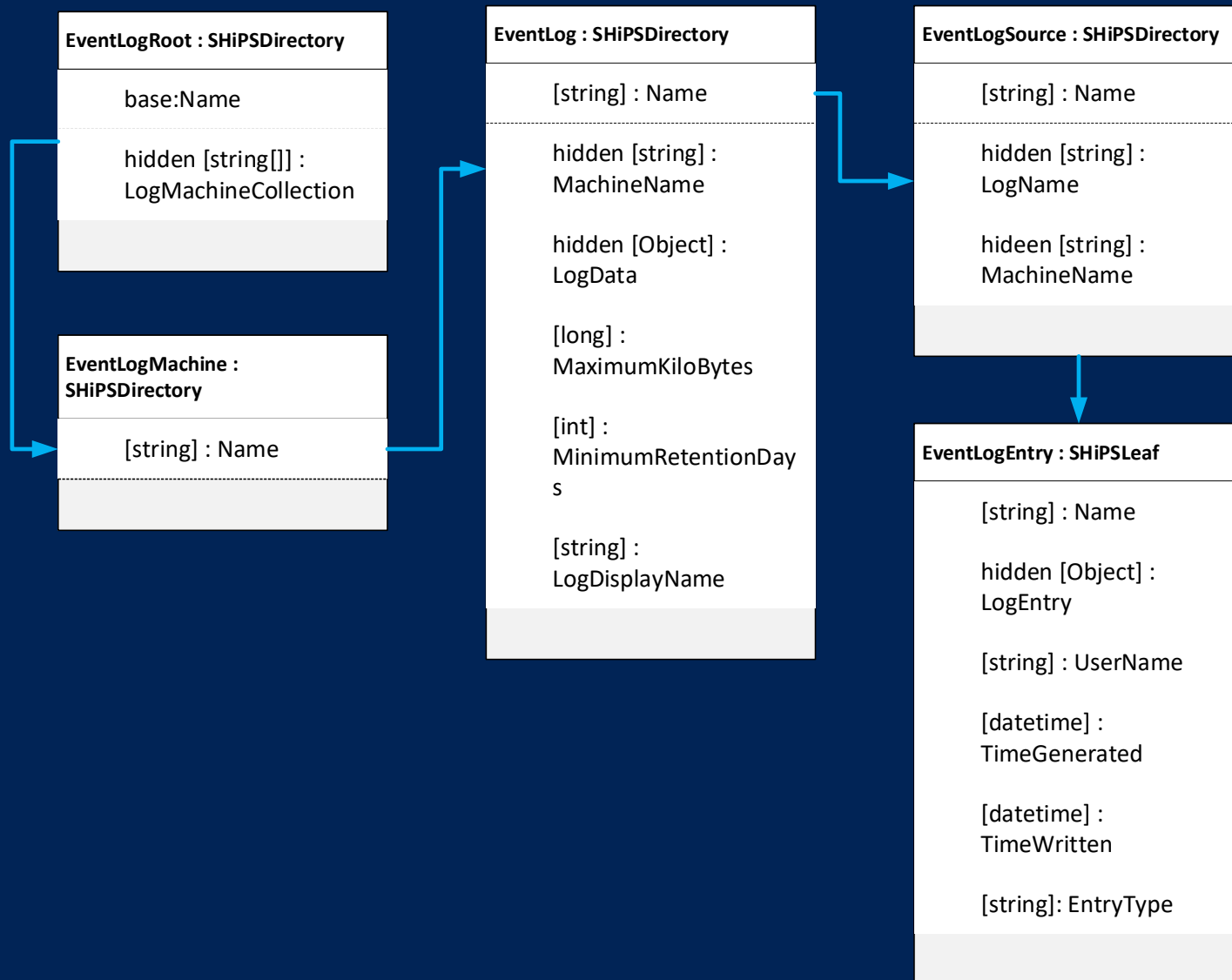
DEMO

PS Drive of PS Drives!

Writing a SHiPS provider

- Requires
  - Knowledge of PowerShell Classes!
  - Some level of structured data
    - Understand the data!
  - Some thoughts on what/how you want to implement the provider
- Let's write one!
  - An EventLogDrive

Writing a SHiPS Provider

Writing a SHiPS Provider

PowerShell Conference EU 2018

EventLogRoot : SHiPSDirectory

base:Name

hidden [string[]] : LogMachineCollection

EventLogMachine : SHiPSDirectory

[string] : Name

EventLog : SHiPSDirectory

[string] : Name

hidden [string] : MachineName

hidden [Object] : LogData

[long] : MaximumKiloBytes

[int] : MinimumRetentionDays

[string] : LogDisplayName

EventLogSource : SHiPSDirectory

[string] : Name

hidden [string] : LogName

hideen [string] : MachineName

EventLogEntry : SHiPSLeaf

[string] : Name

hidden [Object] : LogEntry

[string] : UserName

[datetime] : TimeGenerated

[datetime] : TimeWritten

[string]: EntryType

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Writing an Event Log PS Drive

SHiPS – Bare-metal System Configuration

- Enables browsing system configuration as PS drive
- Available at
  https://github.com/rchaganti/DellPESCPDrive
- Use Cases:
  - Validate system configuration against a reference configuration
  - Compare two systems for difference in attributes
  - When Set-* are available
    - Batch set attributes on remote servers!
    - Upgrade/Downgrade firmware!

Summary

- SHiPS makes it easy to implement PS Drives
- Identify the data source and understand it!
- Identify use cases and start with design!

Questions?

Next Steps