nic X edition
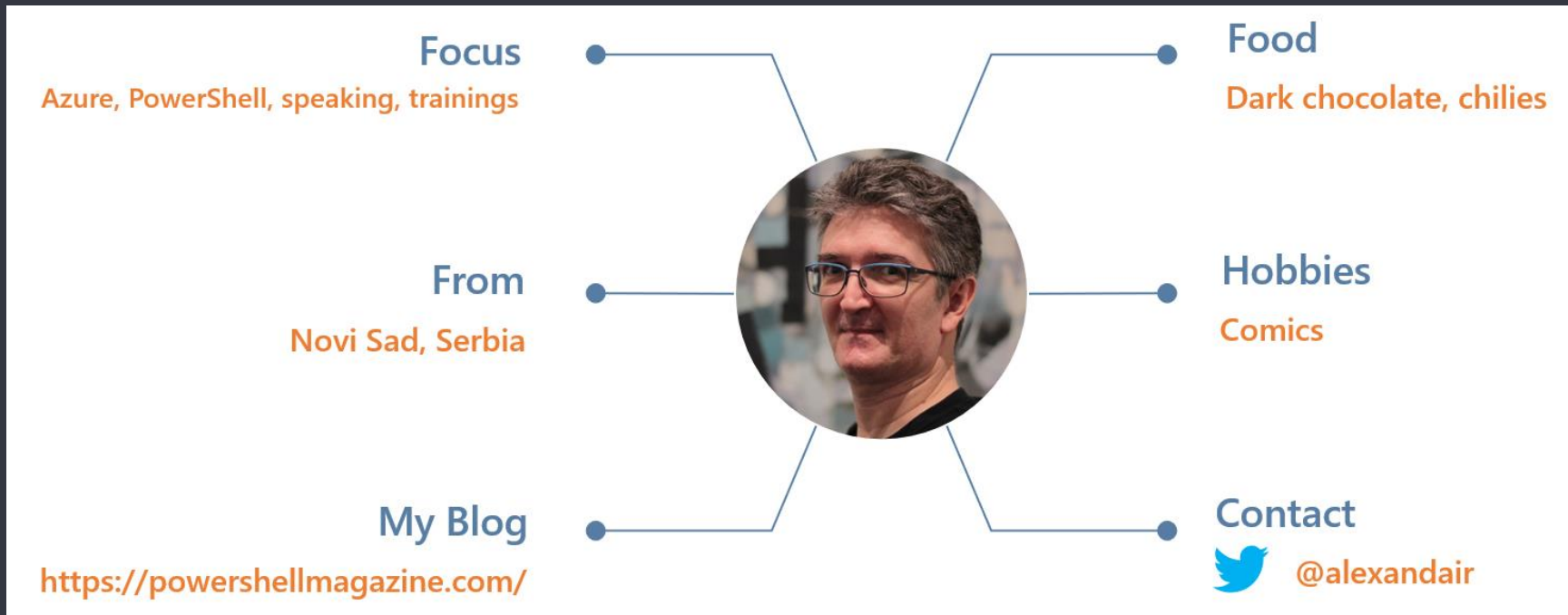
May 31 – June 2, Oslo Spektrum

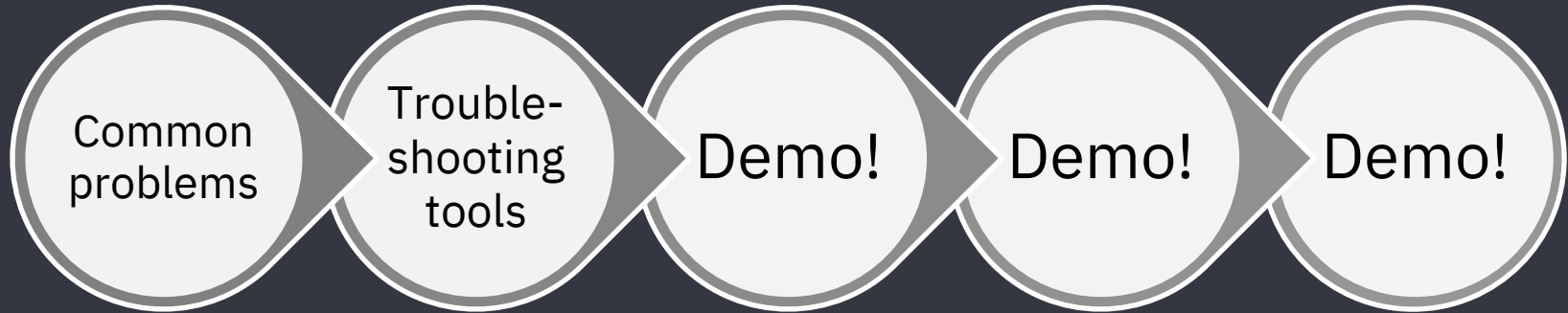10th anniversary

Troubleshooting Azure Virtual Machines

Aleksandar Nikolić | Microsoft MVP

PS> whoami

Focus
Azure, PowerShell, speaking, trainings

From
Novi Sad, Serbia

My Blog
https://powershellmagazine.com/

Food
Dark chocolate, chilies

Hobbies
Comics

Contact
@alexandair

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Agenda

Common problems

Trouble-shooting tools

Demo!

Demo!

Demo!

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Common problems

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Common problems

- Diagnose and solve problems in the following categories:

Allocation

Connectivity

Deployment

Management

Performance

Windows Virtual Products

Allocation and Deployment

- Allocation failure

- Troubleshoot Deployment Failures

- Cannot Start or Stop VM

- VM Extension Issues
  - Extension not installing correctly
  - Extension not executing correctly

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Connectivity

- Cannot Connect to VM
  - Troubleshoot NSG
  - Troubleshoot VM firewall
  - Public IP issue

- VM Password Reset
  - Cannot RDP or SSH

- VM is not booting

Management

- Unexpected VM Restart

- Virtual Disk Management Issues

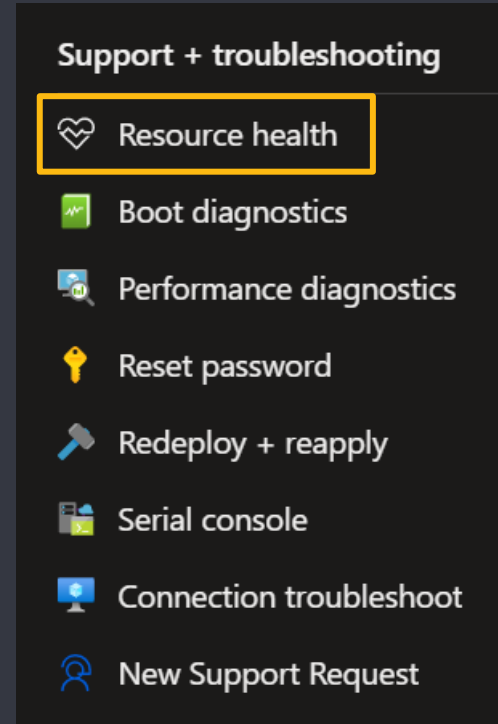- Encryption Issues

- Backup and Restore

Performance

- VM Performance Issues
  - Disk throughput low
  - CPU usage high
  - Network throughput slow
  - Memory usage high
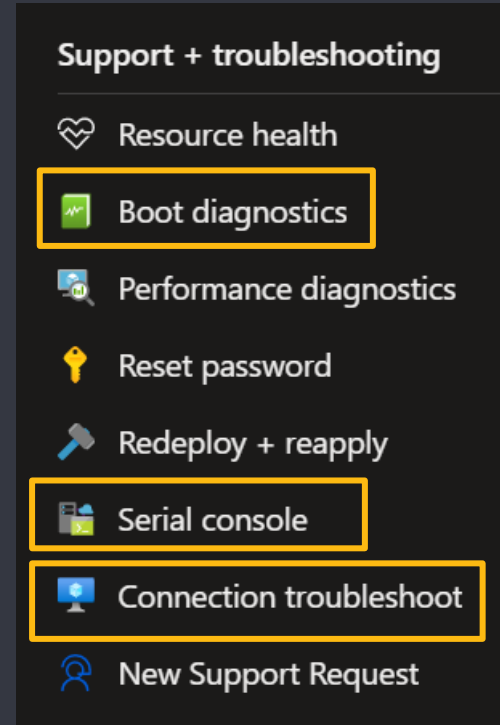 - GPU processing slow

Troubleshooting tools

Management

- *Resource health

- Azure Service Health

- Audit and Activity Log

- Virtual Machine metrics (Monitoring)
- Virtual Machine Insights

Support + troubleshooting

Resource health

Boot diagnostics

Performance diagnostics

Reset password

Redeploy + reapply

Serial console

Connection troubleshoot

New Support Request

Connectivity

- *Serial Console

- *Boot Diagnostics

- Network Watcher's Verify IP flow

- *Connection Troubleshoot

Support + troubleshooting

- Resource health
- **Boot diagnostics**
- Performance diagnostics
- Reset password
- Redeploy + reapply
- **Serial console**
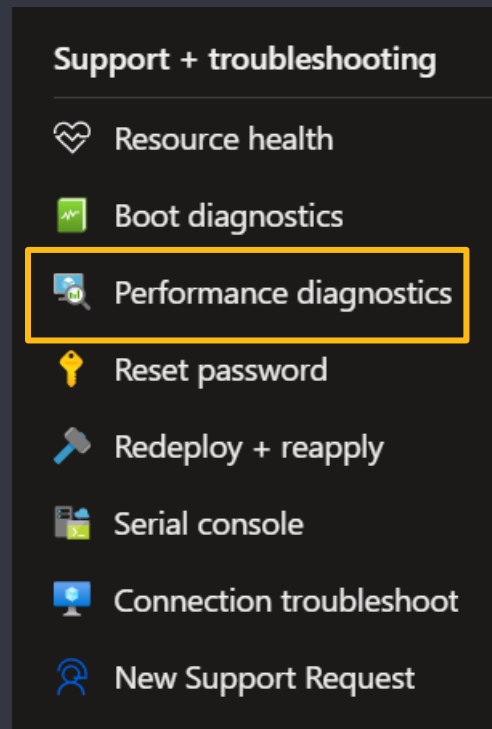- **Connection troubleshoot**
- New Support Request

Deployment

- *Redeploy virtual machine

- *Reset RDP account and configuration for VM
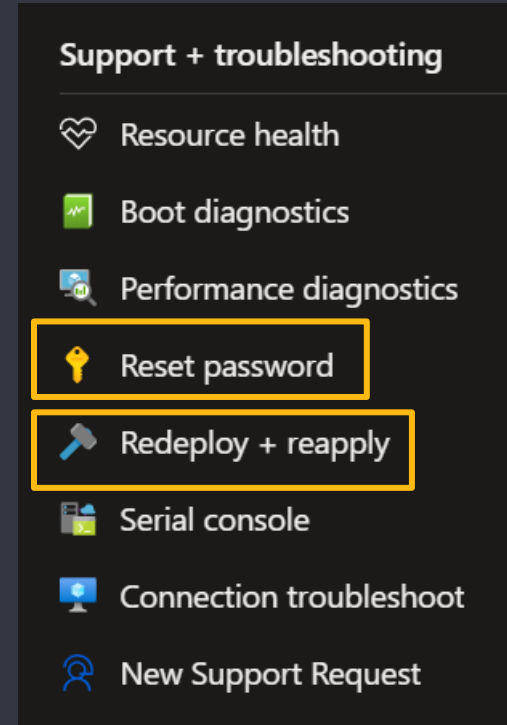
Performance

- *Performance diagnostics

Resource Health
Connection troubleshoot
Reset password
DEMO

Running script in Azure VM

Custom Script Extension (CSE)

- The Custom Script Extension is primarily used for post-deployment configuration and software installation.

- Can be run using ARM templates, PowerShell, Azure CLI, REST API, or Azure portal.

- Script files can be downloaded from Azure storage or GitHub, or provided from your PC when run from the Azure portal.

- Run PowerShell script in Windows VMs and Bash script in Linux VMs.

Hybrid Runbook Worker

- The Hybrid Runbook Worker provides management with user's custom scripts stored in an Automation Account.

- Run scripts in Azure and non-Azure machines.
- Can be run using Azure portal, Azure CLI, REST API, PowerShell, and webhook.

- Multiple scripts can run concurrently.
- Job history available for 90 days.
- Scripts can run as Local System or with user-supplied credentials.

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Serial console

- The Serial console provides direct access to a VM, similar to having a keyboard connected to the VM.

- Run commands in Azure VMs.

- Can be run using a text-based console to the machine in the portal.

- Login to the machine with a local user account.

- Useful when access to the virtual machine is needed regardless of the machine's network or operating system state.

Serial Console

DEMO

Run Command (Action and Managed)

- The original set of commands are action orientated.
    - A small script to get a content from a VM
    - A script to configure a VM (set registry keys, change configuration)
    - A one time script for diagnostics

- The updated set of commands are management orientated.
    - Script needs to run as part of VM deployment
    - Recurrent script execution is needed
    - Multiple scripts needs to execute sequentially
    - Bootstrap a VM by running installation scripts
    - Publish custom script to be shared and reused

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Action Run Command

- Run Command uses the VM agent to run a script inside an Azure VM.

- To function correctly, the Run Command requires connectivity (port 443) to Azure public IP addresses.

Restrictions

- Output is limited to last 4096 bytes
- The minimum time to run a script is about 20 seconds
- Scripts run as System on Windows
- One script at a time may run
- Scripts that prompt for information (interactive mode) are not supported.
- You cannot cancel a running script
- The maximum time a script can run is 90 minutes, after which it will time out.

Managed Run Command

- Enhancements over the original action orientated Run Command:

- Support for updated Run Command through ARM deployment template
- Parallel execution of multiple scripts
- Sequential execution of scripts
- RunCommand script can be canceled
- User specified script timeout
- Support for long running (hours/days) scripts
- Passing secrets (parameters, passwords) in a secure manner

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Run Command

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Repair a VM by attaching OS disk to a recovery VM

The troubleshooting process is as follows:

1. Stop the affected VM.

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The troubleshooting process is as follows:

1. Stop the affected VM.

2. Take a snapshot from the OS disk of the VM.

3. Create a disk from the OS disk snapshot.

4. Attach and mount the new OS disk to another VM for troubleshooting purposes.

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5. Connect to the troubleshooting VM. Edit files or run any tools to fix issues on the new OS disk.

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6. Unmount and detach the new OS disk from the troubleshooting VM.

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4. Attach and mount the new OS disk to another VM for troubleshooting purposes.

5. Connect to the troubleshooting VM. Edit files or run any tools to fix issues on the new OS disk.

6. Unmount and detach the new OS disk from the troubleshooting VM.

7. Change the OS disk for the affected VM.

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Boot diagnostics

DEMO

THANK YOU.

Slides and demos from the conference will be available at

https://github.com/nordicinfrastructureconference/2022