

Understand and troubleshoot Cloud PC  
issues



# Agenda

- Introduction
- Physical PC vs Cloud PC
- Performance data
- Gather useful logs
- If all access fails

# About me



- Cloud Architect @ APENTO
- 8+ years as consultant
- Passion for automation
- Primary focus areas:
  - *Windows 365*
  - *Azure Virtual Desktop*



[/in/mortenpedholt](https://www.linkedin.com/in/mortenpedholt)



[@MortenPedholt](https://twitter.com/MortenPedholt)



<https://pedholtlab.com>



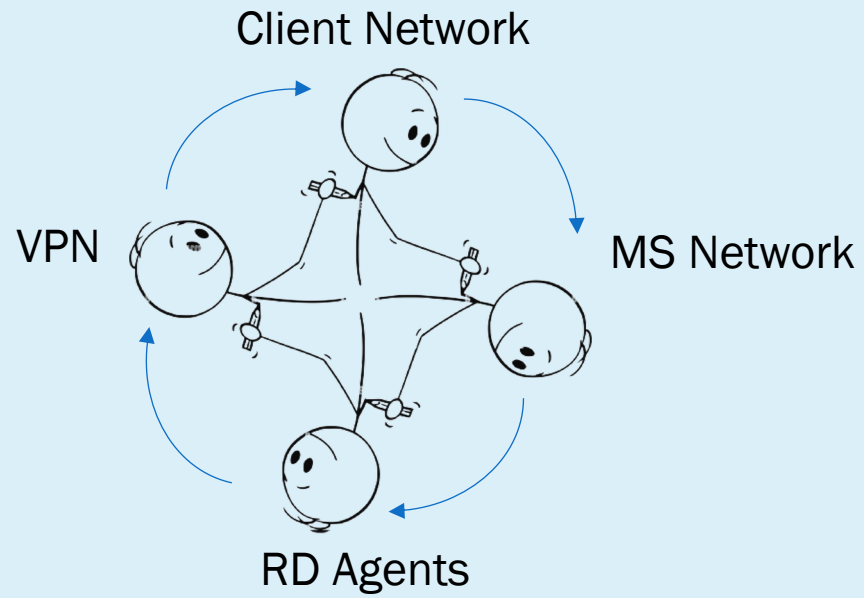
W365 Community

# Physical PC vs Cloud PC

# Physical PC



# Cloud PC

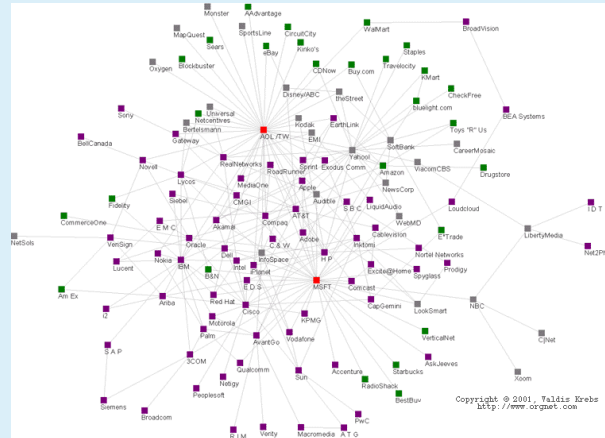


# The things in between

Client Network



MS Network



RD Agents

- Remote Desktop Agent Boot Loader
- Remote Desktop Services Infrastructure Agent
- Remote Desktop Services Infrastructure Geneva Agent
- Remote Desktop Services SxS Network Stack
- Remote Desktop WebRTC Redirector Service
- MsMmrHostMsi

VPN

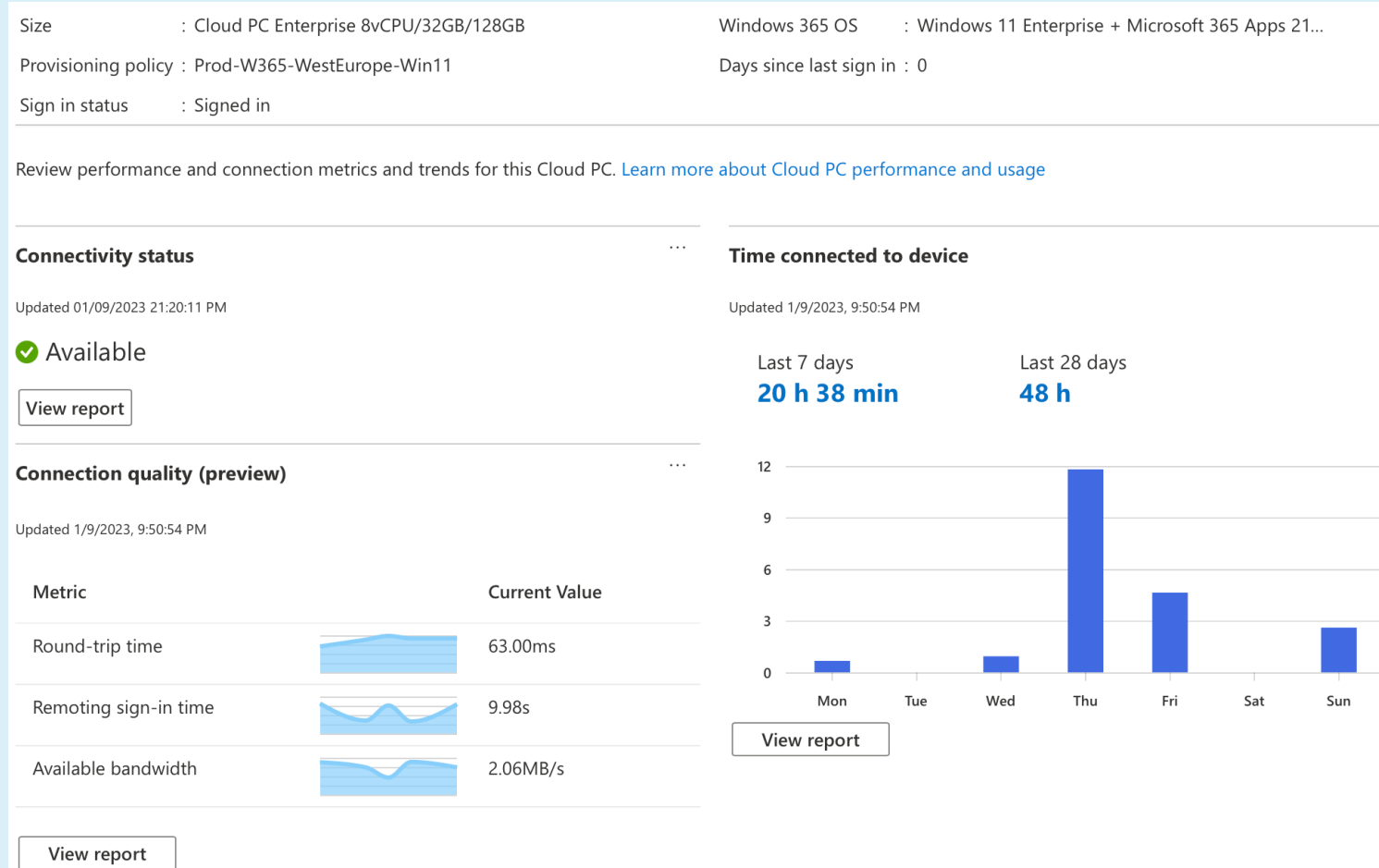


Performance data



# Data overview

- Connectivity status
- Connection quality
- Cloud PC performance
- Service health



Demo

Gather useful logs

# Collect Diagnostics

**CPC-mp-X7EQQ-Y0** ...

Search << Sync Restart Restore Reprovision Resize (preview) **Collect diagnostics** Quick scan Full scan ...

**Overview**

**Collect diagnostics: Completed**

**Manage**

Properties

**Monitor**

Performance (preview)

Hardware

Discovered apps

Device compliance

Device configuration

**Essentials**

Device name	CPC-mp-X7EQQ-Y0	Primary user	<a href="#">Morten Pedholt</a>
Management name	c3aef99f-8c58-4883-8d90-a37879ba3a0c_Windows_8/23/2022_7:58 PM	Enrolled by	<a href="#">None</a>
Ownership	Corporate	Compliance	Compliant
Serial number	0000-0016-4038-5552-8430-2907-98	Operating system	Windows
Phone number		Device model	

results.xml  
Microsoft Edge HTML Document  
4,60 KB

(7) RegistryKey HKLM\_Software\_Microsoft\_Termi...  
Registration Entries

(8) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(9) RegistryKey HKLM\_Software\_Microsoft\_Wind...  
Registration Entries

(20) RegistryKey HKLM\_Software\_Microsoft\_RDMo...  
Registration Entries

(21) RegistryKey HKLM\_SOFTWARE\_WOW6432No...  
Registration Entries

(22) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(23) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(24) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(25) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(26) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(27) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(28) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(29) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(30) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(31) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(32) No Results - Error [0x80070001]  
RegistryKey HKLM\_SYSTEM\_Curre...  
File

(33) No Results - Error [0x80070001]  
RegistryKey HKLM\_SYSTEM\_Curre...  
File

(34) Command programfiles\_windows\_defender\_...  
Text Document

(35) Command windir\_system32\_Dsregcmd\_exe\_...  
Text Document

(36) Command windir\_system32\_ipconfig\_exe\_all...  
Text Document

(37) Command windir\_system32\_mdmdagnostic...  
Text Document

(38) Command windir\_system32\_msinfo32\_exe\_r...  
Text Document

(39) Command windir\_system32\_netsh\_exe\_winh...  
Text Document

(40) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(41) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(42) RegistryKey HKLM\_Software\_Policies\_Micro...  
Registration Entries

(43) RegistryKey HKLM\_Software\_Policies\_Micro...  
Registration Entries

(44) FoldersFiles windir\_Logs\_WindowsUpdate\_etl

(45) FoldersFiles windir\_system32\_winevt\_logs

(46) No Results - Error [0x80070002]  
FoldersFiles windir\_Temp\_ScriptL...  
File

(1) No Results - Error [0x80070001]  
RegistryKey HKLM\_SOFTWARE\_M...  
File

(2) RegistryKey HKLM\_Software\_Microsoft\_RDAg...  
Registration Entries

(10) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(11) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(12) RegistryKey HKLM\_Software\_Microsoft\_Wind...  
Registration Entries

(13) No Results - Error [0x80070001]  
RegistryKey HKLM\_Software\_Micr...  
File

(14) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(15) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(16) RegistryKey HKLM\_Software\_Policies\_Micro...  
Registration Entries

(17) RegistryKey HKLM\_SOFTWARE\_Policies\_Micro...  
Registration Entries

(18) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(19) No Results - Error [0x80070001]  
RegistryKey HKLM\_Software\_Poli...  
File

(4) RegistryKey HKLM\_Software\_Microsoft\_Termi...  
Registration Entries

(5) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Sys...  
Registration Entries

(6) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Tea...  
Registration Entries

(7) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Tea...  
Registration Entries

(8) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(9) RegistryKey HKLM\_Software\_Microsoft\_Wind...  
Registration Entries

(10) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(11) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(12) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Wi...  
Registration Entries

(13) No Results - Error [0x80070001]  
RegistryKey HKLM\_Software\_Micr...  
File

(14) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(15) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(16) RegistryKey HKLM\_Software\_Policies\_Micro...  
Registration Entries

(17) RegistryKey HKLM\_SOFTWARE\_Policies\_Micro...  
Registration Entries

(18) RegistryKey HKLM\_Software\_Policies\_Microso...  
Registration Entries

(19) No Results - Error [0x80070001]  
RegistryKey HKLM\_Software\_Poli...  
File

(20) RegistryKey HKLM\_Software\_Microsoft\_RDMo...  
Registration Entries

(21) RegistryKey HKLM\_SOFTWARE\_WOW6432No...  
Registration Entries

(22) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(23) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(24) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(25) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(26) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(27) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(28) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(29) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(30) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(31) RegistryKey HKLM\_SYSTEM\_CurrentControlSe...  
Registration Entries

(32) No Results - Error [0x80070001]  
RegistryKey HKLM\_SYSTEM\_Curre...  
File

(33) No Results - Error [0x80070001]  
RegistryKey HKLM\_SYSTEM\_Curre...  
File

(34) Command programfiles\_windows\_defender\_...  
Text Document

(35) Command windir\_system32\_Dsregcmd\_exe\_...  
Text Document

(36) Command windir\_system32\_ipconfig\_exe\_all...  
Text Document

(37) Command windir\_system32\_mdmdagnostic...  
Text Document

(38) Command windir\_system32\_msinfo32\_exe\_r...  
Text Document

(39) Command windir\_system32\_netsh\_exe\_winh...  
Text Document

(40) FoldersFiles ProgramFiles\_Microsoft\_RDInfra

(41) FoldersFiles temp\_MDMDiagnostics\_mdmlg...

(42) FoldersFiles temp\_MDMDiagnostics\_msinfo32...

(43) FoldersFiles windir\_debug\_NetSetup\_log

# IPconfig

(34) Command programfiles_windows_defender_mpcmdrun_exe_-GetFiles output.log	10-01-2023 23:19
(35) Command windir_system32_Dsregcmd_exe_status output.log	10-01-2023 23:19
(36) Command windir_system32_ipconfig_exe_all output.log	10-01-2023 23:19
(37) Command windir_system32_mdmdiagnostics_tool_exe_-area_Autopilot;deviceprovisioning;devi...	10-01-2023 23:19
(38) Command windir_system32_msinfo32_exe_report_temp_MDMDiagnostics_msinfo32_log outp...	10-01-2023 23:19

## Windows IP Configuration

```
Host Name . . . . . : CPC-mp-X7EQQ-Y0
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : nilar0yltxnerm0wqnxsq4tr1c.ax.internal.cloudapp.net
```

## Ethernet adapter Ethernet:

```
Connection-specific DNS Suffix . : nilar0yltxnerm0wqnxsq4tr1c.ax.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 60-45-BD-89-67-E3
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::6af:7e06:20f8:e17a%10(Preferred)
IPv4 Address. . . . . : 10.1.0.5(Preferred)
Subnet Mask . . . . . : 255.255.252.0
Lease Obtained. . . . . : 14. december 2022 07:12:06
Lease Expires . . . . . : 16. februar 2159 04:01:12
Default Gateway . . . . . : 10.1.0.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 106972605
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-96-84-E0-60-45-BD-89-67-E3
DNS Servers . . . . . : 168.63.129.16
NetBIOS over Tcpip. . . . . : Enabled
```

## Ethernet adapter vEthernet (Default Switch):

```
Connection-specific DNS Suffix . :
Description . . . . . : Hyper-V Virtual Ethernet Adapter
Physical Address. . . . . : 00-15-5D-78-9F-BC
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::e4e3:c9c7:f8f5:ee63%18(Preferred)
IPv4 Address. . . . . : 172.22.144.1(Preferred)
Subnet Mask . . . . . : 255.255.240.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 301995357
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-96-84-E0-60-45-BD-89-67-E3
NetBIOS over Tcpip. . . . . : Enabled
```

# Teams AV Redirection Optimization

(6) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Teams export.reg  
(26) RegistryKey HKLM\_SYSTEM\_CurrentControlSet\_Control\_Terminal\_Server\_AddIns\_WebRTC\_Redirector export.reg

(6) RegistryKey HKLM\_SOFTWARE\_Microsoft\_Teams export.reg - Notepad

File Edit View

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\software\microsoft\teams]  
"IsWVDEnvironment"=dword:00000001

(26) RegistryKey HKLM\_SYSTEM\_CurrentControlSet\_Control\_Terminal\_Server\_AddIns\_WebRTC\_Redirector export.reg - Notepad

File Edit View


Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\system\currentcontrolset\control\terminal server\addins\webrtc redirector]  
"CurrentVersion"="1.17.2205.23001"  
"Enabled"=dword:00000001  
"Config"="{\"port\":9500,\"key\": \"4349540D-B856-0B7B-D6D9-C2ABA84CCA45\"}"  
"BaseUri"="https://aka.ms/msrdcwebrtcsvc/"  
"RelativeJsonUri"="json"  
"Heartbeat"="Monday, 09 January 2023 21:12:07"  
"UpdateVersion"="1.1.2106.14001"  
"FullUpdateUri"="https://aka.ms/msrdcwebrtcsvc/msi"


# RD Agents and RDS config

- Check Terminal server configuration (25)
- Check RD Agent Services ( 27 and 28)
- RD Agent updates and versions (40)

 (25) RegistryKey HKLM\_SYSTEM\_CurrentControlSet\_Control\_Terminal\_Server export.reg

 (27) RegistryKey HKLM\_SYSTEM\_CurrentControlSet\_Services\_RdAgent export.reg

 (28) RegistryKey HKLM\_SYSTEM\_CurrentControlSet\_Services\_RdAgentBootLoader export.reg

 (40) FoldersFiles ProgramFiles\_Microsoft\_RDInfra

agentinstall.txt - Notepad

File Edit View

```
Action start 04:12:23: RegisterProduct.
Action ended 04:12:23: RegisterProduct. Return value 1.
Action start 04:12:23: PublishFeatures.
Action ended 04:12:23: PublishFeatures. Return value 1.
Action start 04:12:23: PublishProduct.
Action ended 04:12:23: PublishProduct. Return value 1.
Action start 04:12:23: InstallFinalize.
Action ended 04:12:31: InstallFinalize. Return value 1.
Action ended 04:12:31: INSTALL. Return value 1.
=== Logging stopped: 15-12-2022 04:12:31 ===
MSI (s) (BC:B4) [04:12:31:675]: Product: Remote Desktop Services Infrastructure Agent -- Installation completed successfully.
```

```
MSI (s) (BC:B4) [04:12:31:675]: Windows Installer installed the product. Product Name: Remote Desktop Services Infrastructure Agent. Product Version: 1.0.5739.9800. Product Language: 1033. Manufacturer: Microsoft Corporation. Installation success or error status: 0.
```

Ln 408, Col 39

100%

Windows (CRLF)

UTF-16 LE



# Event logs

(45) FoldersFiles windir\_system32\_winevt\_logs

remotedesktopservices.evtx

remotedesktopservices Number of events: 1.609				
Level	Date and Time	Source	Event...	Task Category
Information	10-01-2023 10:14:05	Microsoft.RDInfra.RDAgent.Service.AgentHost	0	None
Information	10-01-2023 10:14:05	Microsoft.RDInfra.RDAgent.Service.AgentHost	0	None
Information	10-01-2023 10:14:05	Microsoft.RDInfra.AppAttach.AppAttachServiceImpl	0	None
Warning	10-01-2023 10:14:05	RemoteDesktopServices-MonitoringLogger	0	None

Event 0, Microsoft.RDInfra.RDAgent.Service.AgentHost

General Details

Service stopped.

remotedesktopservices Number of events: 155.633				
Level	Date and Time	Source	Event ID	Task Category
Information	09-01-2023 22:34:15	Microsoft.RDInfra.Messaging.WebSocketTransport	0	None
Information	09-01-2023 22:34:15	Microsoft.RDInfra.Messaging.WebSocketTransport	0	None
Information	09-01-2023 22:34:15	Microsoft.RDInfra.RDAgent.Service.HeartbeatService	0	None

Event 0, Microsoft.RDInfra.RDAgent.Service.HeartbeatService

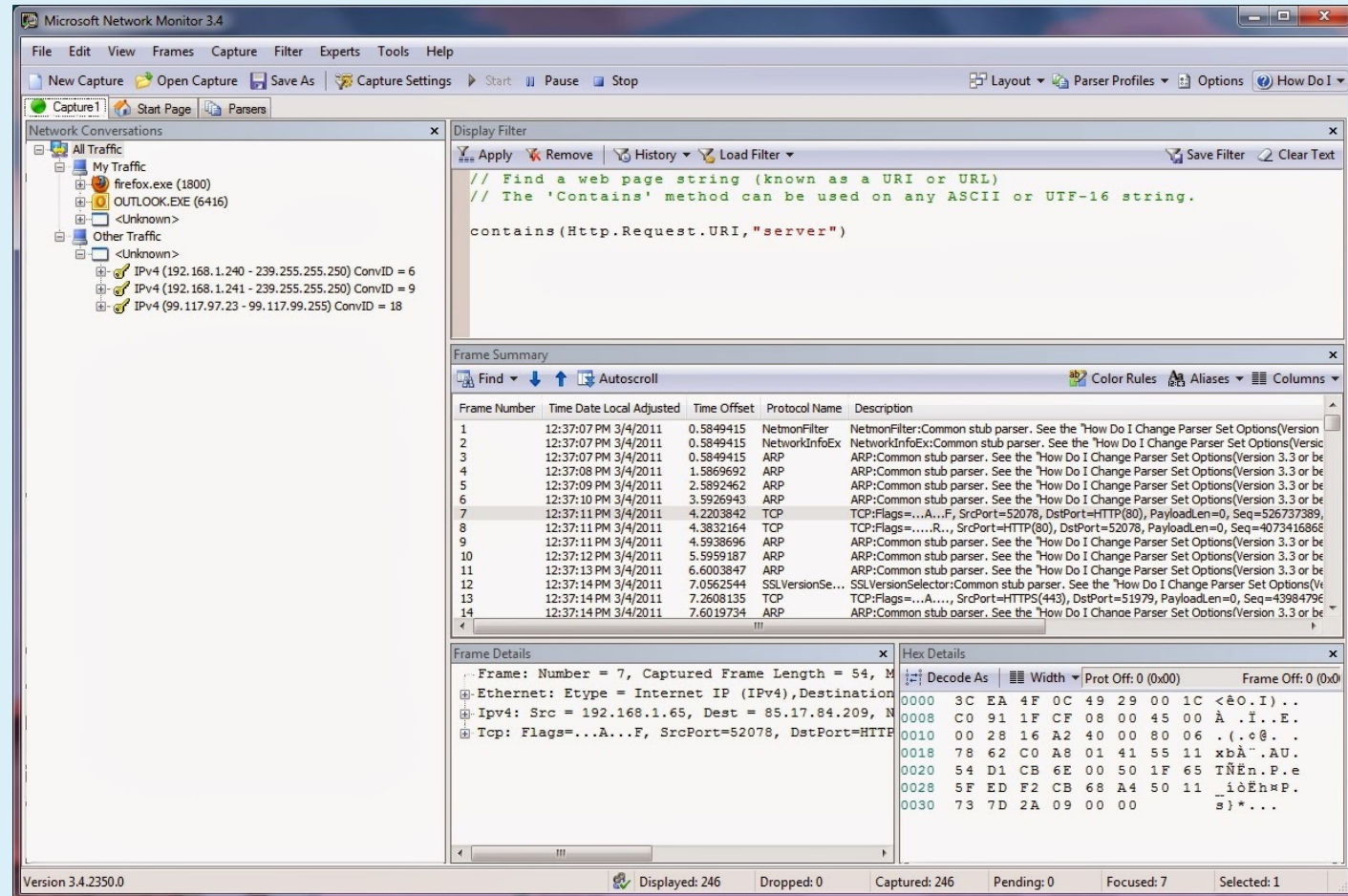
General Details

HeartbeatService sending to broker [{"HealthCheckName":0,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":1,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":2,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":3,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":4,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":5,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":6,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":7,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":8,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":9,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":10,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}, {"HealthCheckName":11,"HealthCheckResult":1,"AdditionalFailureDetails":{"Message":"","ErrorCode":0,"LastHealthCheckInUTC":"2023-01-09T21:12:41.51189Z"},"IsProvisioningHealthCheck":false}]]



# Microsoft Network Monitor

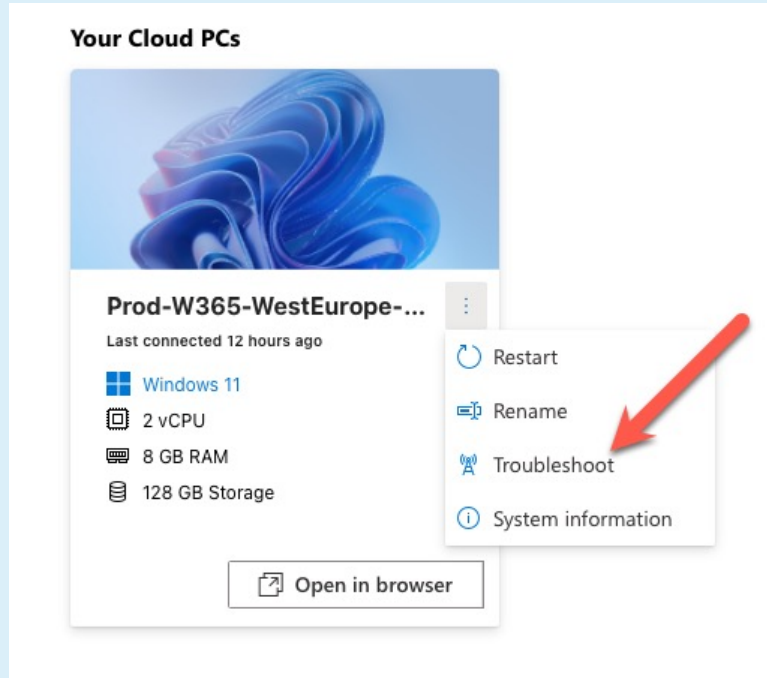
- Capture network packets
- Network performance issues
- Alternatives:
  - Wireshark
  - NetworkMiner
  - Fiddler



Troubleshoot action

# Troubleshoot action

- User action
- Administrator action



Home > Devices | Windows > Windows | Windows devices > CPC-cn-GZQZNS7B

## Connectivity history (preview) ...

Refresh

Review the results of ongoing connectivity health checks for this Cloud PC. Health checks i [health checks](#).

**Current status:** ❌ **Unavailable**

Search ⓘ Time span : Last 7 days Add filter

Showing 1 to 20 of 29 records

Activity	Status
Unknown Error	❌ Failure
Connection Started	✅ Success
Unknown Error	❌ Failure
Connection Started	✅ Success
Connection Finished	✅ Success
Health Check	❌ Failure

### Connectivity status

**Status**  
❌ Unavailable

**Failed check**  
Unknown

**Details**  
This device might not be running or the netw  
run the troubleshooting tool to get more info

⌵ Troubleshoot

This can take up to 20 minutes to complet  
until the process completes. You can leave

**Troubleshoot this connection**

### Resources

- [Cloud PC connectivity status](#)
- [Troubleshooting Cloud PCs](#)

If all access fails

# Live response session

- Cloud-based Interactive Shell
- Features
  - *Run commands (limited)*
  - *Download files*
  - *Upload a file and run it*
- Required permissions
  - *Security Administrator*

The screenshot shows the 'Live response on cpc-mp-x7eqq-y0' interface. The top bar indicates 'Connected' status. The left sidebar contains 'Entity summary' with sections for 'Device details', 'Session Information', and 'Device Information'. The main area is split into 'Command console' and 'Command log'. The 'Command console' shows a list of services and their status, while the 'Command log' shows a list of commands and their output.

Command console	Command log
BcastDVRUserService_7d25ee	GameDVR and Broadcast User Service_7d25ee
BluetoothUserService_7d25ee	Bluetooth User Support Service_7d25ee
CaptureService_7d25ee	CaptureService_7d25ee
cbdhasvc_7d25ee	Clipboard User Service_7d25ee
CDFUserService_7d25ee	Connected Devices Platform User Service_7d25ee
ce_7d25ee	ConsentUX User Service_7d25ee
ConsentUxUserService_7d25ee	CredentialEnrollmentManagerUserService_7d25ee
CredentialEnrollmentManagerUserService_7d25ee	DeviceAssociationBrokerSvc_7d25ee
DeviceAssociationBrokerSvc_7d25ee	DevicePicker_7d25ee
DevicePickerUserService_7d25ee	DevicesFlow_7d25ee
DevicesFlowUserService_7d25ee	MessagingService_7d25ee
MessagingService_7d25ee	NPSMSvc_7d25ee
NPSMSvc_7d25ee	OneSyncSvc_7d25ee
OneSyncSvc_7d25ee	P9RdrService_7d25ee
P9RdrService_7d25ee	PenService_7d25ee
PenService_7d25ee	PimIndexMaintenanceSvc_7d25ee
PimIndexMaintenanceSvc_7d25ee	PrintWorkflowUserService_7d25ee
PrintWorkflowUserService_7d25ee	UdkUserService_7d25ee
UdkUserService_7d25ee	UnistoreSvc_7d25ee
UnistoreSvc_7d25ee	

Demo



Thank you!