



# Observability in Remotingumgebungen

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# Observability vs Monitoring



## Observability vs. Monitoring

Das ist doch dasselbe! Oder?

# Typische Ausgangssituation

„Citrix ist langsam“

„Teams ruckelt“

„Meine Sitzung  
friert sein“

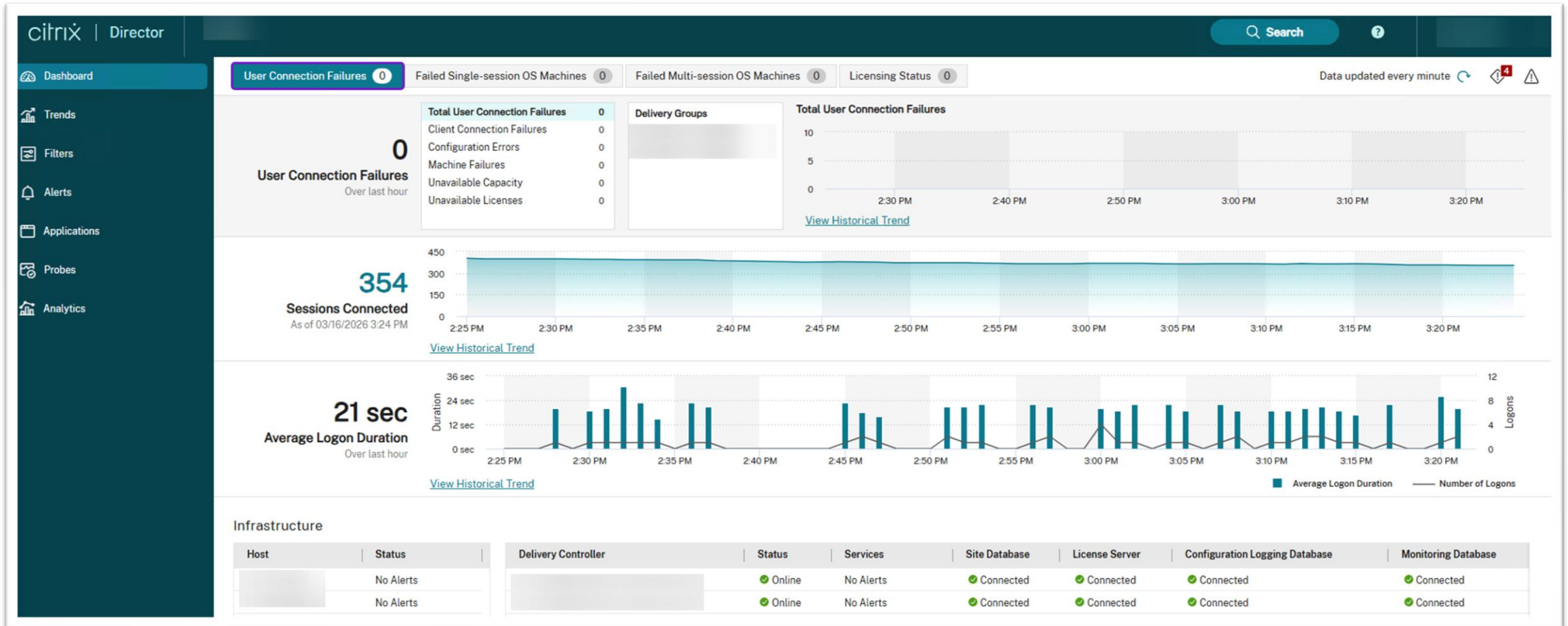
Services of host

Monitor > Overview > All hosts > Services of host

Commands Host Services Export Display Help

Acknowledge problems Schedule downtimes Filter Show checkboxes

State	Service	Icons	Summary	Age	Checked	Perf-O-Meter
OK	Check_MK	☰ 🟡	[agent] Success, [piggyback] Success (but no data found for this host), execution time 1.8 sec	2026-03-16 12:07:34	45.1 s	1.81 s
OK	Check_MK Agent	☰ 🟡	Version: 2.4.0p22, OS: windows, Last update: 2026-03-16 12:07:22, Agent plug-ins: 3, Local checks: 0	2026-03-03 10:50:24	6 m	
OK	Check_MK Discovery	☰ 🟡	Services: all up to date, Host labels: all up to date, execution time 0.0 sec	2026-03-16 12:42:00	30 m	20 ms
OK	Check_MK HW/SW Inventory	☰ 🟡	Found 618 inventory entries, software changes, execution time 0.1 sec	2025-10-10 08:29:01	7 h	80 ms
OK	CPU utilization	☰ 🟡	Total CPU: 3.54%	2024-05-03 08:27:27	45.1 s	3.54 %
OK	Disk IO C:	☰ 🟡	Read: 7.03 kB/s, Write: 118 kB/s, Latency: 700 microseconds	2025-04-03 15:20:15	45.1 s	1.13/s / 11.27/s
OK	Disk IO D:	☰ 🟡	Read: 0.00 B/s, Write: 3.44 kB/s, Latency: 967 microseconds	2025-04-03 15:20:15	45.1 s	0/s / 0.21/s
OK	Disk IO SUMMARY	☰ 🟡	Read: 7.03 kB/s, Write: 122 kB/s, Latency: 518 microseconds	2025-10-02 11:12:52	45.1 s	1.13/s / 11.48/s
OK	Filesystem C:/	☰ 🟡	Used: 33.28% - 19.8 GiB of 59.4 GiB, trend per 1 day 0 hours: -636 MiB, trend per 1 day 0 hours: -1.05%	2024-05-03 08:27:27	45.1 s	33.28 %
OK	Filesystem D:/	☰ 🟡	Used: 67.79% - 40.7 GiB of 60.0 GiB, trend per 1 day 0 hours: +278 MiB, trend per 1 day 0 hours: +0.45%, Time left until disk full: 71 days 1 hour	2024-05-03 08:27:27	45.1 s	67.79 %
OK	Interface vmxnet3 Ethernet Adapter	☰ 🟡	[1], (up), MAC: 00:50:56:9C:AF:DF, Speed: 10 GBit/s, In: 3.79 kB/s (<0.01%), Out: 758 B/s (<0.01%)	2024-05-03 08:26:26	45.1 s	30.34 kbit/s / 6.07 kbit/s
OK	Memory	☰ 🟡	RAM: 28.40% - 8.52 GiB of 30.0 GiB, Virtual memory: 28.33% - 8.50 GiB of 30.0 GiB	2025-08-13 13:25:35	45.1 s	28.33 %
OK	Processor Queue	☰ 🟡	15 min load: 0.04, 15 min load per core: 0.01 (4 logical cores)	2024-05-03 08:26:26	45.1 s	0
OK	Service Summary	☰ 🟡	Autostart services: 104, Stopped services: 5	2024-05-03 08:26:26	45.1 s	
OK	SSL Certificate in 744FEBD3F1D0029820CF1C0CA1C77F2AF443B23D	☰ 🟡	Subject: WinRMCertificate, Lifetime Remaining: 337 days 0 hours	2026-03-02 13:23:04	45.1 s	
OK	SSL Certificate in 425886F31C09A55FFE10A4069F38D26CEC5CC82B	☰ 🟡	Subject: localhost, Lifetime Remaining: 1 year 358 days	2026-03-16 12:42:12	45.1 s	
OK	System Time	☰ 🟡	Offset: -100 milliseconds	2025-10-28 13:45:20	45.1 s	-99.81 ms
OK	Uptime	☰ 🟡	Up since 2026-03-16 12:03:51, Uptime: 7 days 4 hours	2025-12-02 17:27:36	45.1 s	7 d 4 h



# Observability vs Monitoring



**Monitoring zeigt Symptome,  
aber nicht die Ursache**

# Observability vs. Monitoring

**Benutzer/ Endgerät**

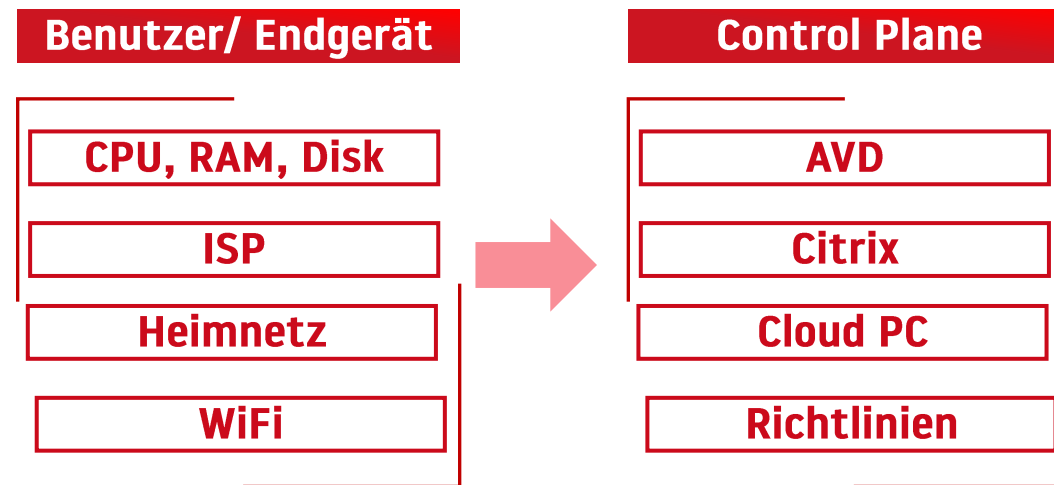
**CPU, RAM, IO**

**ISP**

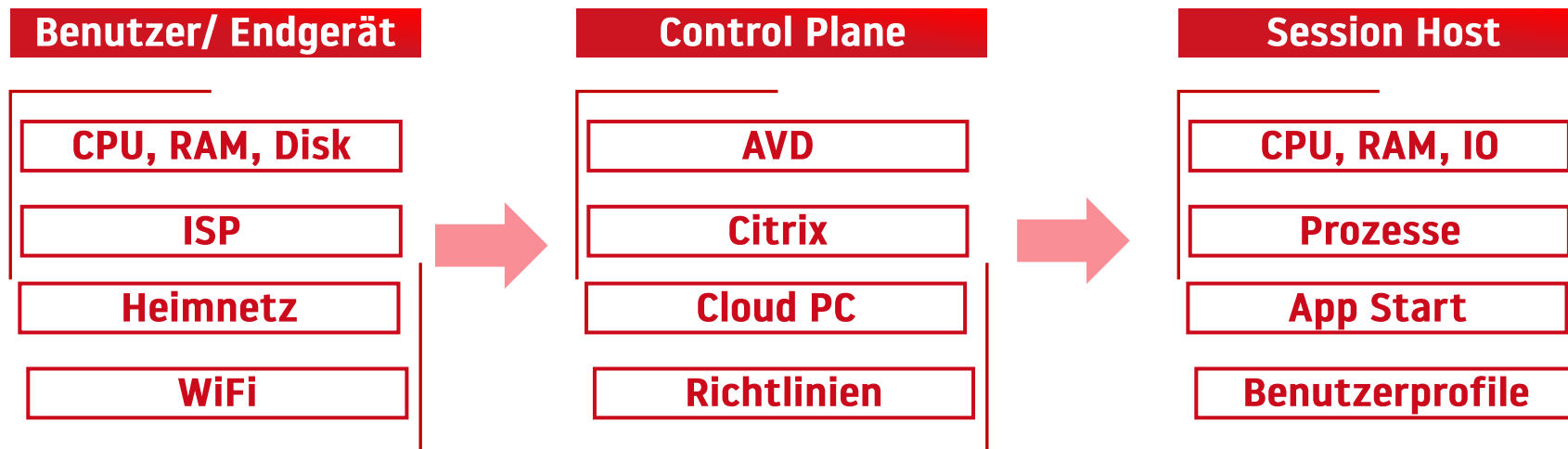
**Heimnetz**

**WiFi**

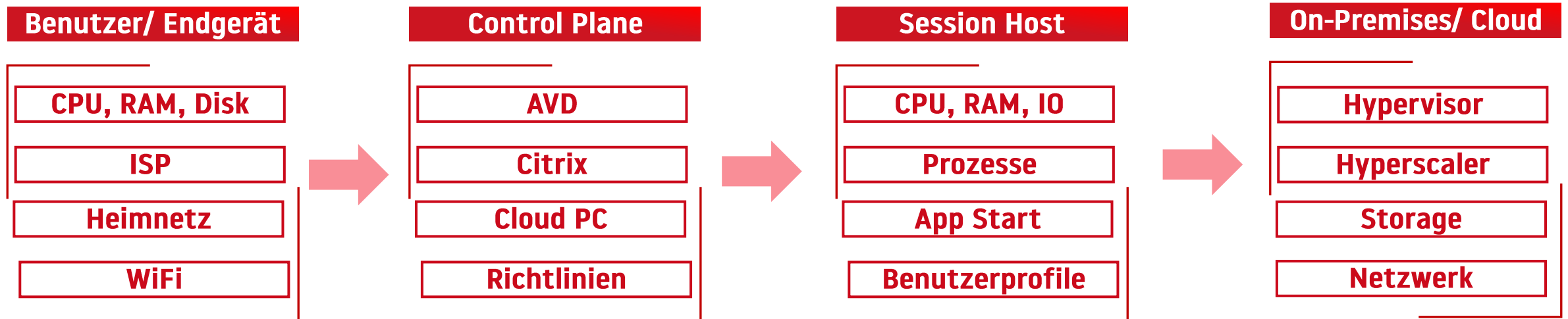
# Observability vs. Monitoring



# Observability vs. Monitoring



# Observability vs. Monitoring



## Session score distribution

Bad scores

4

# Sessions

Medium scores

211

# Sessions

Good scores

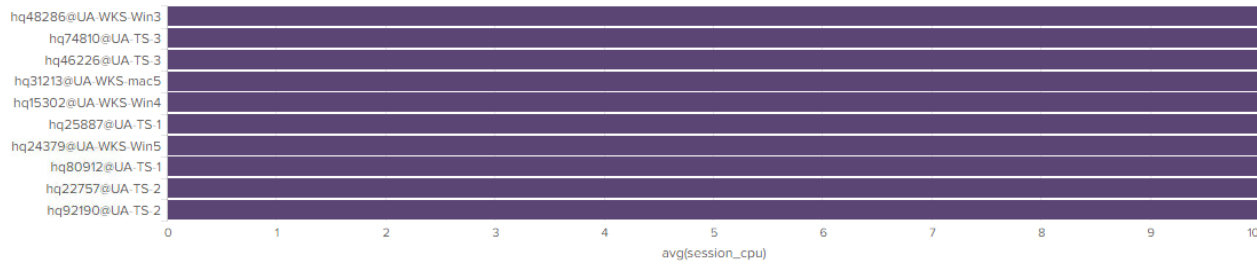
754

# Sessions

## CPU scores (worst 10 sessions)

Function:

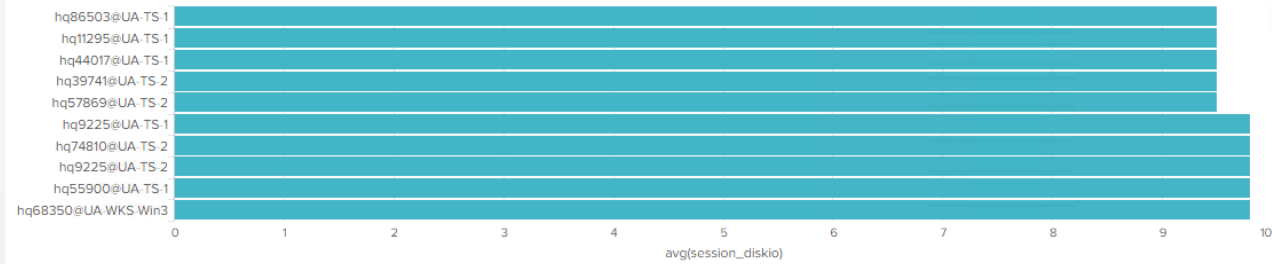
average



## Disk IO scores (worst 10 sessions)

Function:

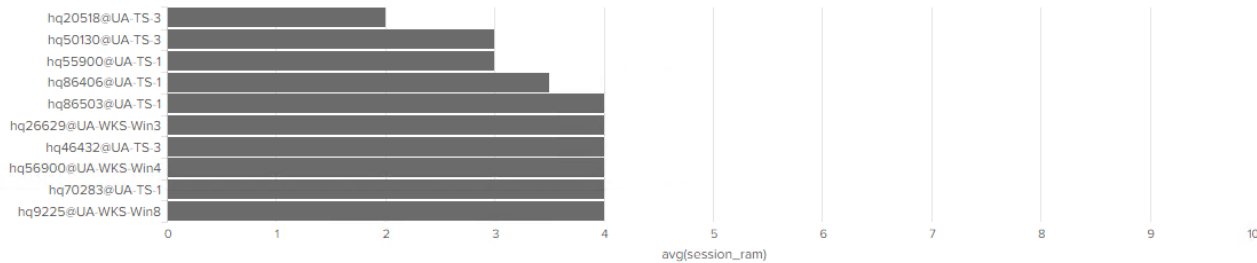
average



## RAM scores (worst 10 sessions)

Function:

average



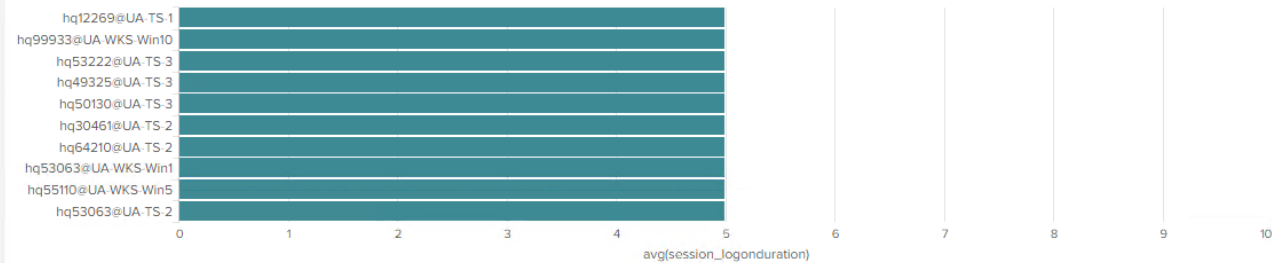
## Other scores per session (worst 10 sessions)

Function:

average

Field:

Logon duration



# uberAgent UXM - Machines



Machine: UA-WKS-Win10    Hw manufacturer: LENOVO    Hw model: ThinkPad X1 Carbon 7th    CPU base speed: 3.50 GHz    Avg. CPU actual speed: 2.10 GHz    CPU cores: 4    RAM: 32.8 GB

#Sessions: 3    #Users: 2    #Logons: 2    #Apps in foreground: 10    #App errors: 0

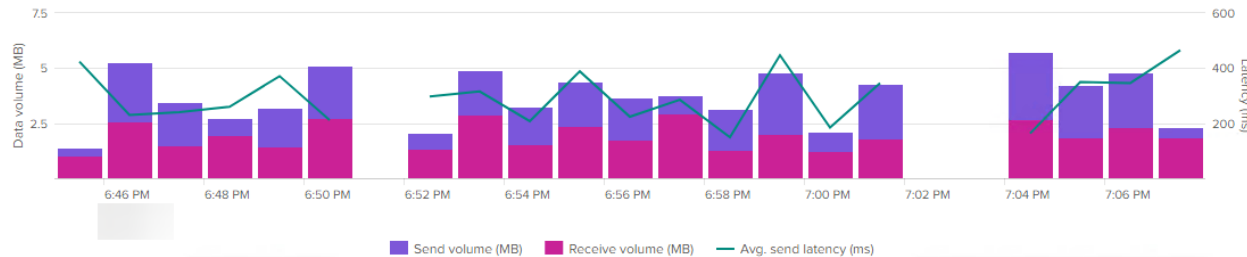
Avg. CPU: 33.2 %    Avg. RAM: 84.0 %    Avg. disk: 18.65 %    Avg. network: 0.0 %    Total UI wait time: 130.8 s    Avg. logon duration: 18.57 s    Avg. page file usage: 5.1 %

## Sessions

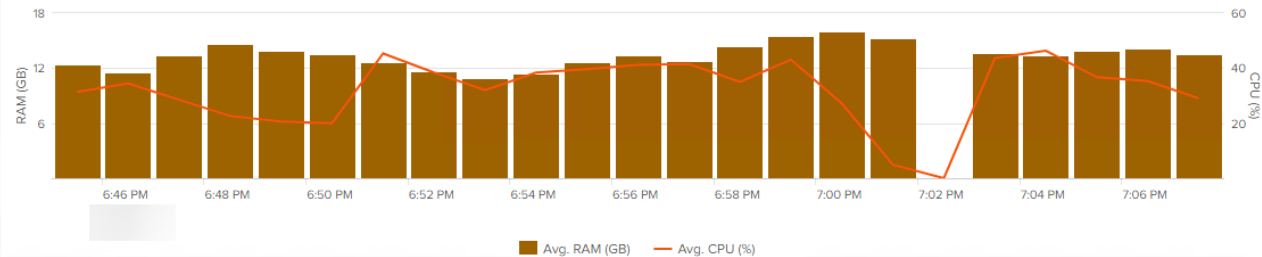
User	ID	Logon time	Logon duration (s)	Last seen	Last state	Protocol	Avg. #processes	Avg. CPU (%)	Avg. IOPS	Avg. IO latency (ms)	Avg. RAM (MB)	Avg. network (KB/s)	Avg. ICA latency (ms)	Remoting clients
CORP\hq84003	1		20.02		active	Console	26	38.6	0.0	6.7	14075	81.8		
CORP\hq84003	1		17.12		active	Console	25	34.4	0.0	3.4	13708	63.6		
CORP\hq36068	1				active	Console	23	26.3	0.0	6.7	13601	49.0		

[Explanation of the data in the table](#)

## Network data volume & latency over time



## CPU & RAM over time



## Applications

App name	Process name(s)	Avg. CPU (%)	Avg. IOPS	Avg. IO latency (ms)	Avg. RAM (MB)	Avg. net thruput (KB/s)	Avg. net latency (ms)	UI unresponsiveness (s)	#Users
Total Commander	TOTALCMD64.EXE	41.8	1.0	4.5	25	0.0	106.2	4.6	1
Notepad++	Notepad++.exe	34.0	1.1	4.4	29	0.0	197.5	12.5	2
IrfanView	i_view32.exe	20.4	1.9	7.5	40	5.7	221.1	2.3	1
SAP logon	saplgpad.exe saplogon.exe	17.2	0.0		142	0.8	240.7	2.2	1

# uberAgent UXM - Sessions

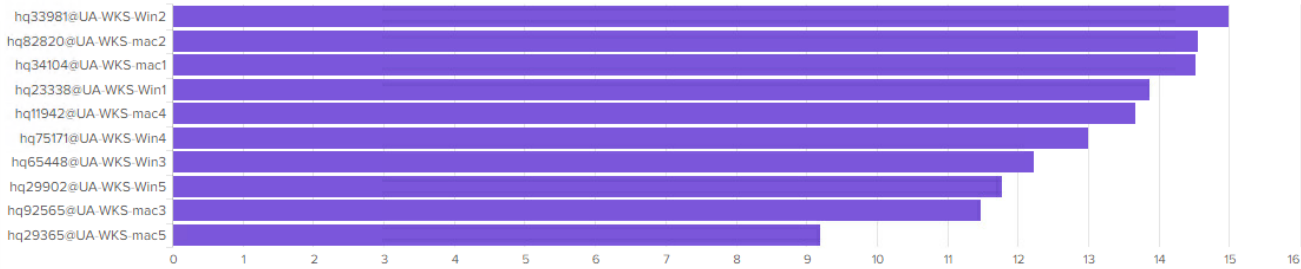
## Averages for all sessions

CPU: 27.9 %    RAM: 9758.1 MB    Disk: 28.38 IOPS    Network: 59.00 KB/s

## CPU time per session (top 10)

Function:

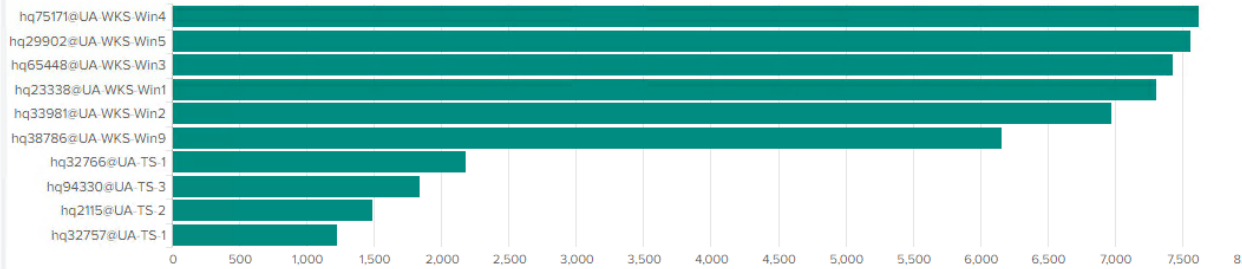
maximum



## IO count per session (top 10)

Function:

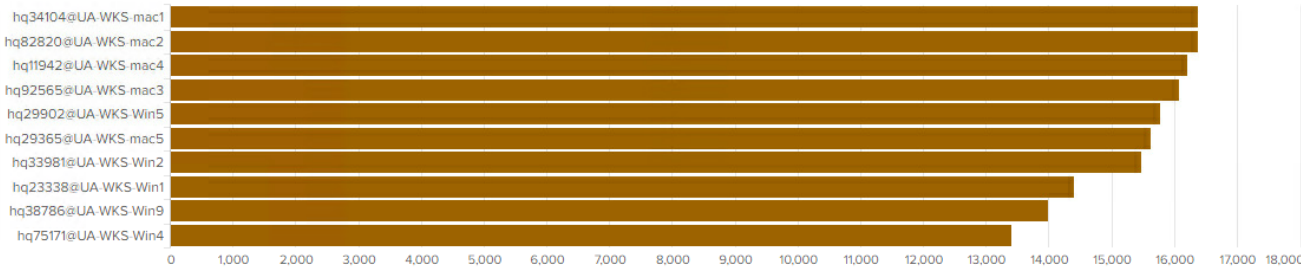
average



## RAM per session (top 10)

Function:

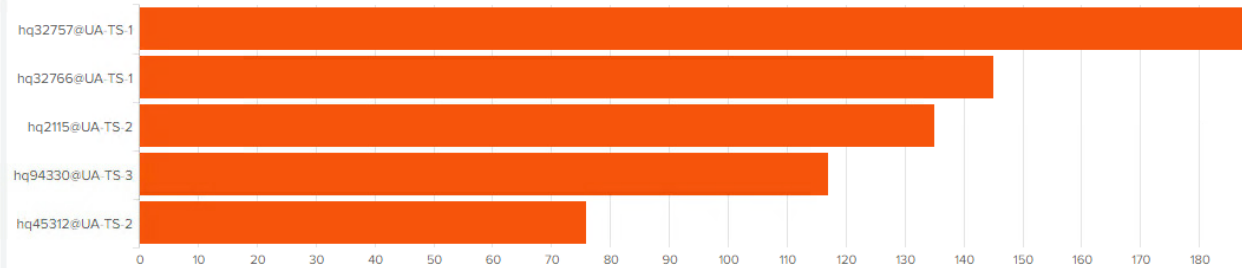
maximum



## Remoting protocol (e.g. ICA) latency per session (top 10)

Function:

maximum



# uberAgent UXM – Process UI Unresponsiveness

## Process UI Unresponsiveness

This dashboard displays information about times of unresponsiveness, i.e. when processes do not react to user input. Events are generated every time processes do not handle window messages for 200 ms (or longer).

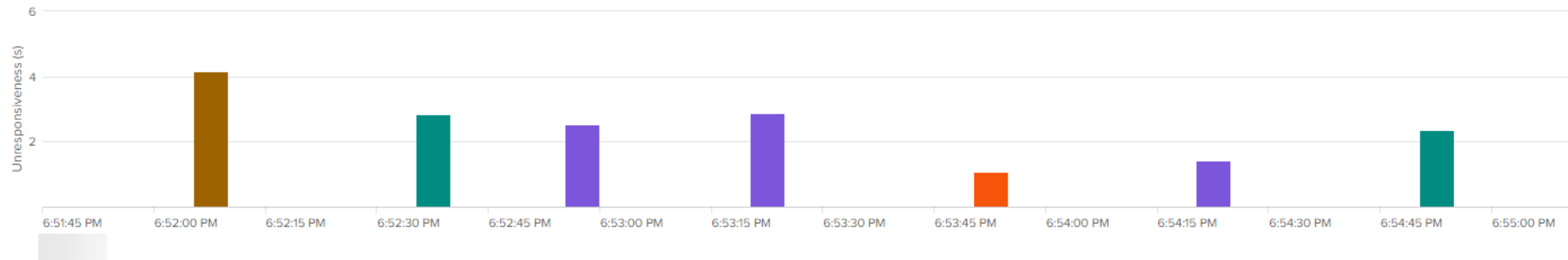
Time range:  Filter field:  Filter operator:  Filter expression:   [Hide Filters](#)

[Add filter](#)

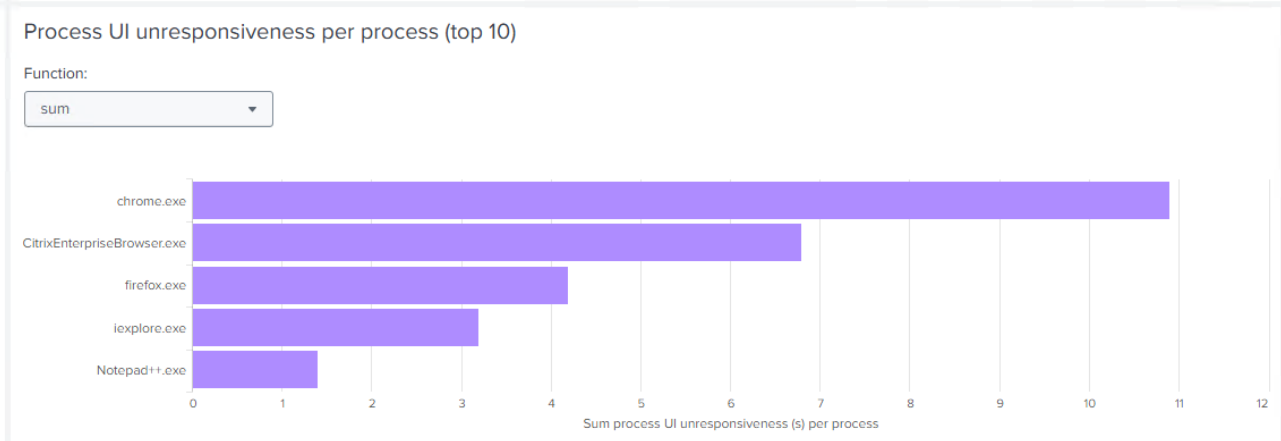
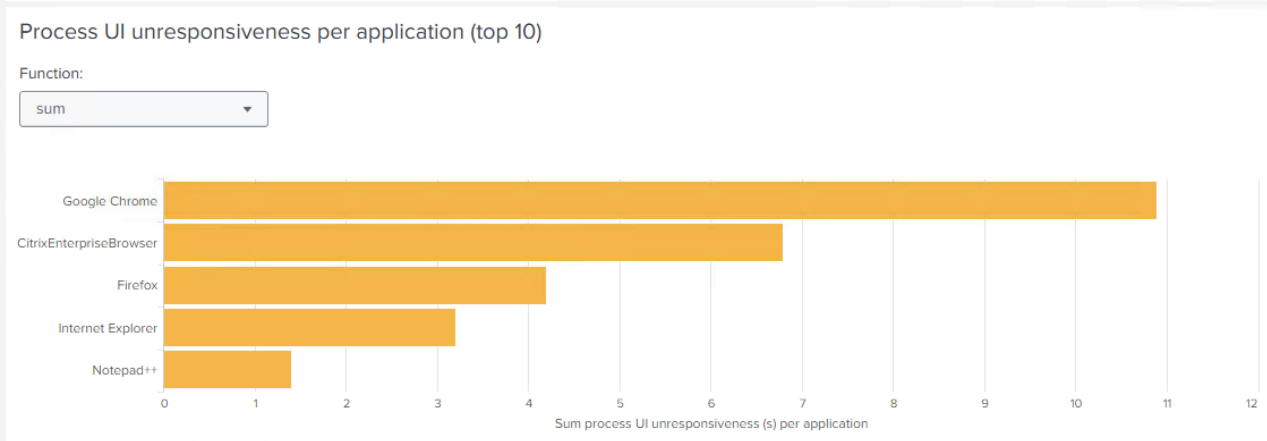
### Wait times for unresponsive processes

Total wait time:	Average wait time:	Wait count:
26.5 s	2.4 s	11

### Process UI unresponsiveness over time



# uberAgent UXM – Process UI Unresponsiveness



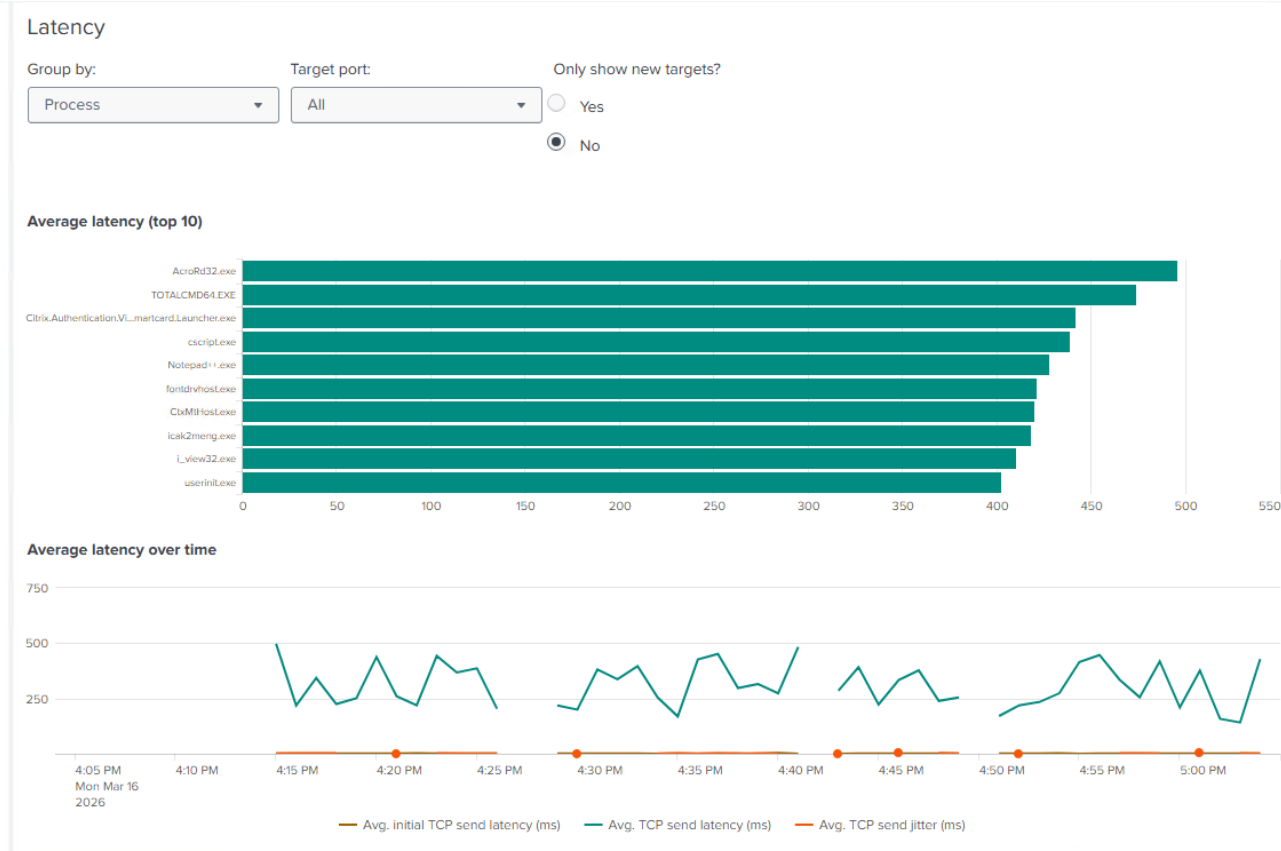
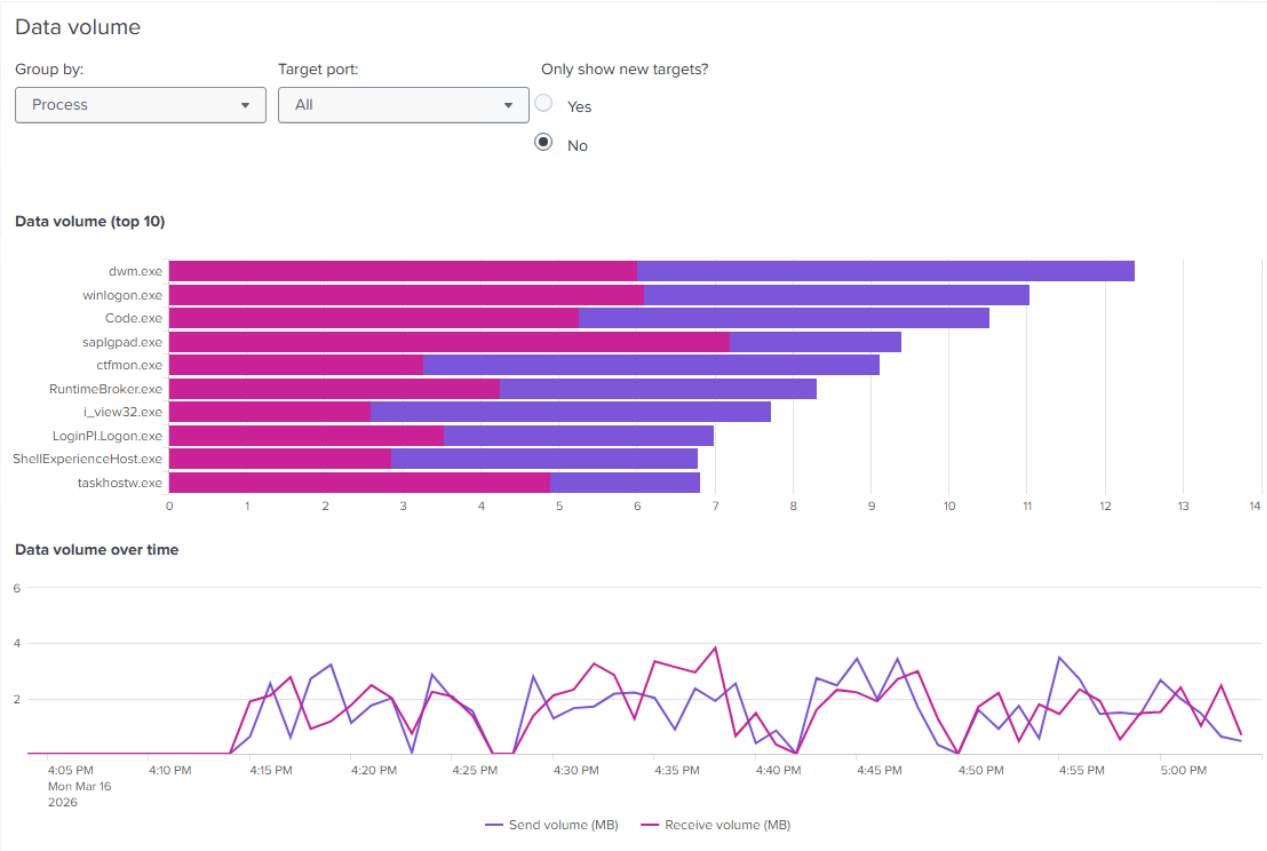
### Data table

Function:

Process name	App name	Sum process UI unresponsiveness (s)	Unresponsiveness count	Focus count	User count	Host count
chrome.exe	Google Chrome	10.9	4	2	1	1
CitrixEnterpriseBrowser.exe	CitrixEnterpriseBrowser	6.8	3	3	1	1
iexplore.exe	Internet Explorer	3.2	2	1	1	1
firefox.exe	Firefox	4.2	1	1	1	1
Notepad++.exe	Notepad++	1.4	1	0	1	1

[Explanation of the data in the table](#)

# uberAgent UXM – Process Network Communication



# uberAgent UXM – Process Network Communication

Network statistics grouped (top 100)

Group by: Process Target port: All Sort by: #Reconnects Only show new targets?  Yes  No

Fields to display:

- #Sends ×
- #Receives ×
- #Connects ×
- #Reconnects ×
- #Retransmits ×
- Send volume (MB) ×
- Receive volume (MB) ×
- Avg. initial TCP send latency (ms) ×
- Avg. TCP send latency (ms) ×
- Avg. TCP send jitter (ms) ×
- TCP send packet loss (%) ×

Process	#Sends	#Receives	#Connects	#Reconnects	#Retransmits	Send volume (MB)	Receive volume (MB)	Avg. initial TCP send latency (ms)
dwm.exe	65	59	15	3	17	6.4	6.0	0.8
taskhostw.exe	49	13	15	3	14	1.9	4.9	1.4
CitrixEnterpriseBrowser.exe	26	28	5	2	10	1.2	3.4	1.7
Code.exe	28	34	17	2	37	5.3	5.3	0.8
LoginPI.Logon.exe	39	47	16	2	18	3.5	3.5	1.0
csrss.exe	13	34	0	2	8	3.4	1.8	2.0
ctfmon.exe	54	44	21	2	5	5.9	3.3	1.3
ctxfx.exe	16	11	10	2	12	3.0	2.7	0.7
emotet.exe	42	41	11	2	3	3.6	1.7	0.9
fontdrvhost.exe	21	35	8	2	19	2.1	3.1	1.1
saplgpad.exe	55	46	28	2	23	2.2	7.2	1.1
wfshell.exe	7	8	9	2	11	1.8	2.3	0.8
winlogon.exe	51	64	15	2	26	4.9	6.1	0.9

# uberAgent UXM – Browser Web App Performance

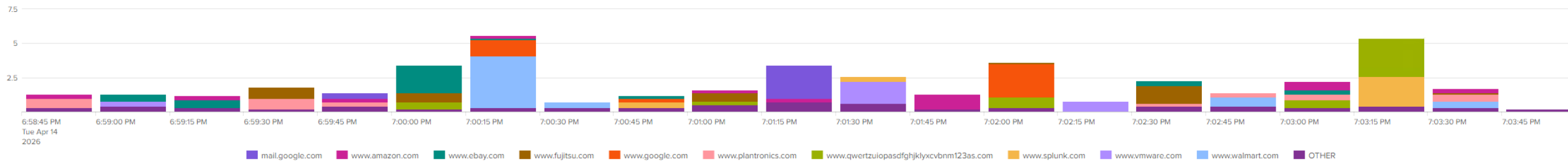
## Overview

#Hosts:	#Users:	#Tab URLs:	#Request URLs:	#Page loads (no frames):	Avg. page load - total (no frames):	Avg. page load - network (no frames):	Avg. page load - render (no frames):	#Background requests:	Avg. background request:
16	42	52	61	908	0.4 s	0.2 s	0.2 s	908	0.4 s

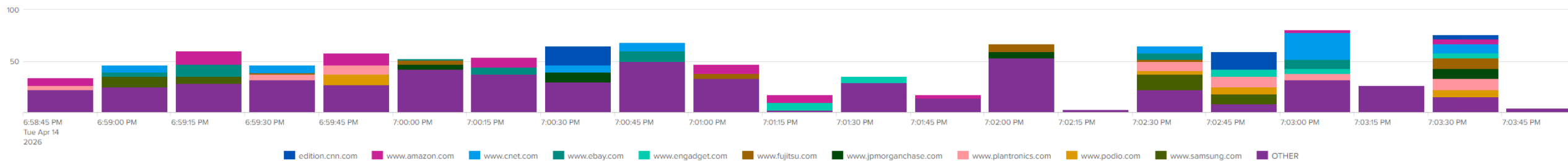
## Requests over time

Show metric: Page load (total) Group by: Request URL Include frames?  Yes  No

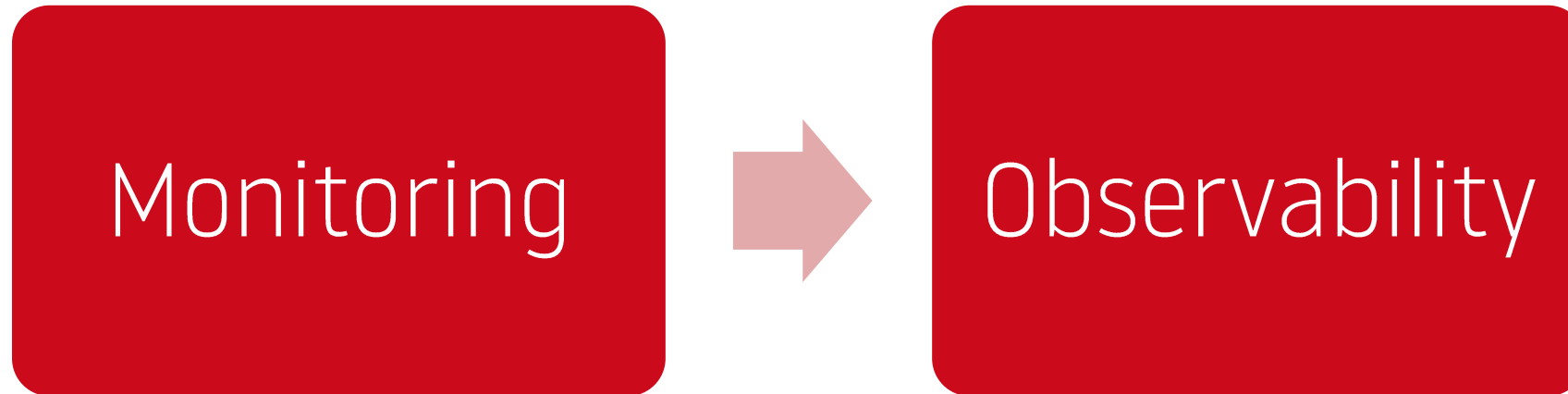
### Average request duration (s)



### Request count



# Monitoring



# Monitoring – Observability - DEX



# Warum ist DEX wichtig?





# ControlUp VDI & DaaS

- Employees
- Dashboards
- Devices
- Applications
- Unified Communications
- Employee Sentiment
- VDI**
- Synthetic Monitoring
- Compliance
- Workflows
- Reports
- Events
- DaaS IQ
- Audit Log
- Settings

VDI Overview Details

All

+ Add widget

Running Hosts **8**

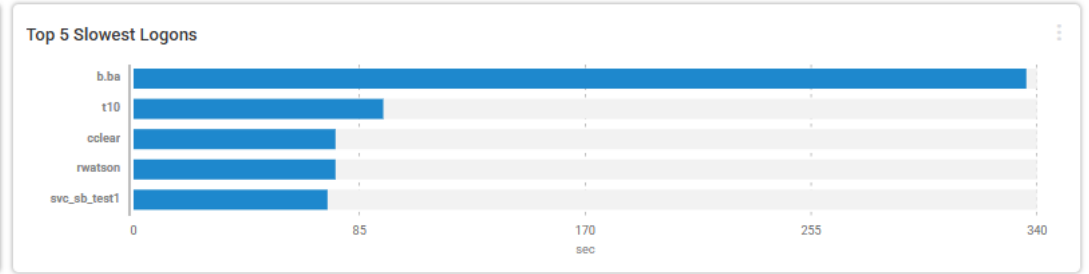
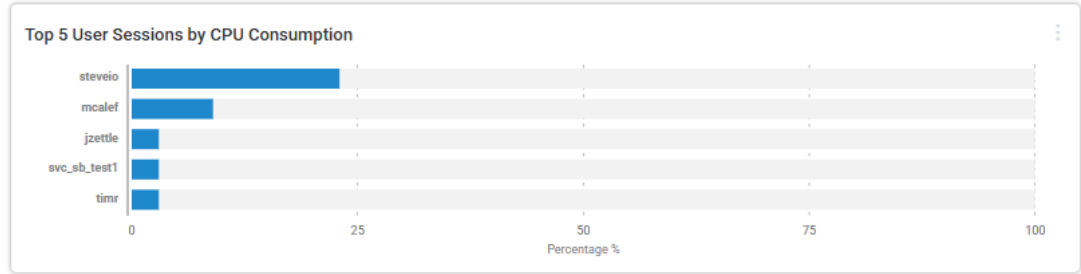
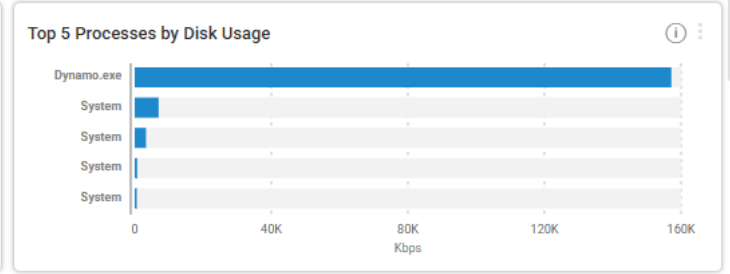
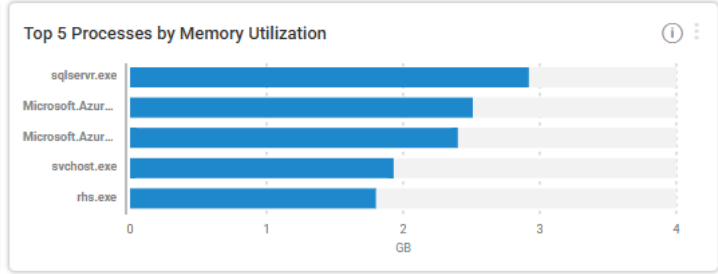
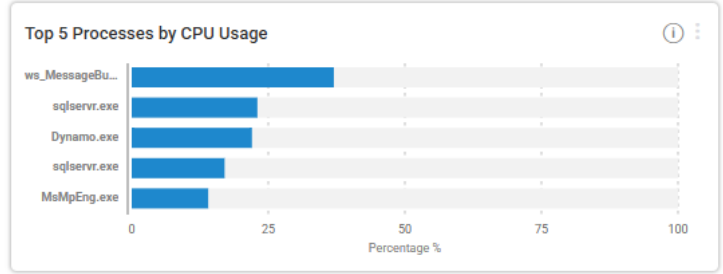
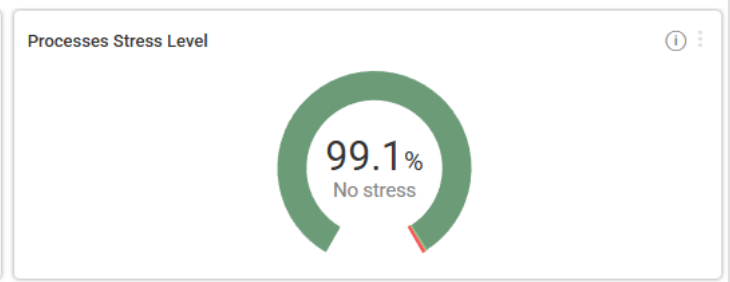
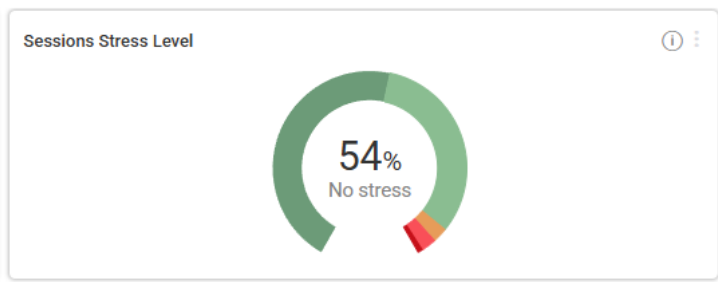
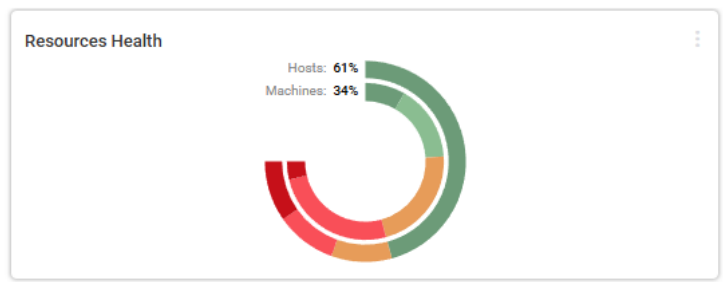
Total Machines **137**

Datastore Free Space **3.55TB**

Active User Sessions **12**

Avg. Logon Duration **26sec**

Running Processes **10154**



Sessions

Avg. Logon Duration **27**

Avg. Protocol Latency **240**

Avg. Protocol Throughput **0.06**

VDI Overview Details

All [Filter Icon] [Refresh Icon]

+ Add widget [Download Icon] [Fullscreen Icon] [More Icon]

Running Hosts

8

Total Machines

137

Datastore Free Space

3.55TB

Active User Sessions

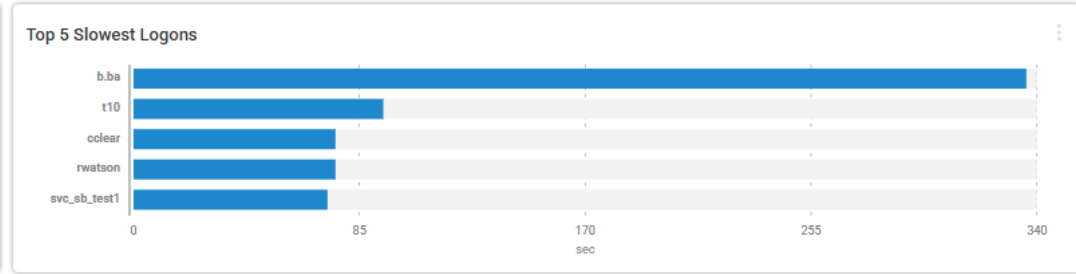
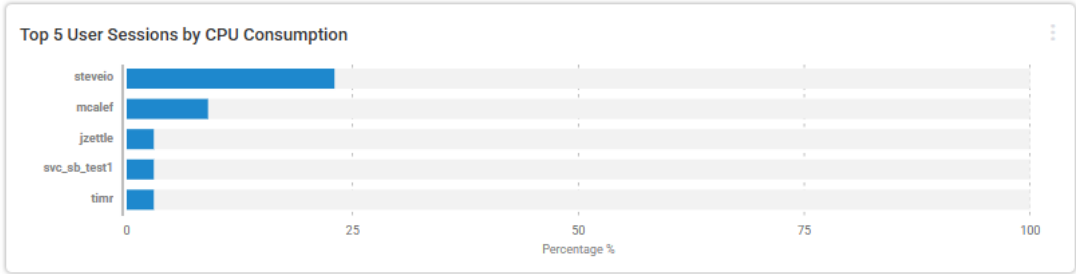
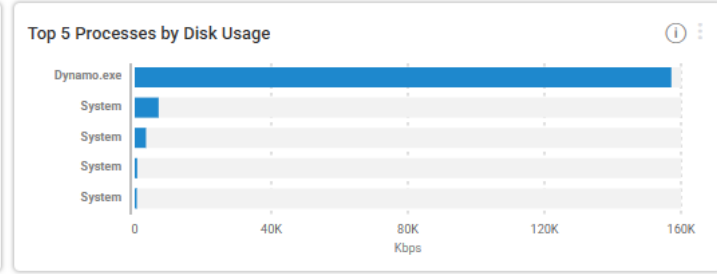
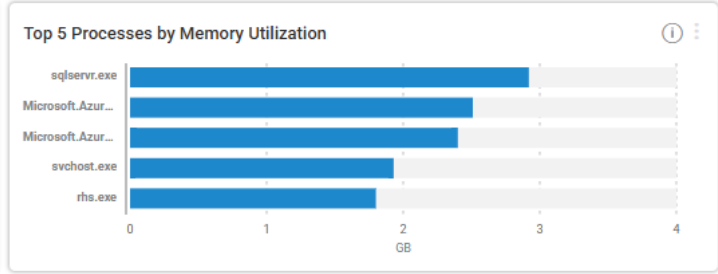
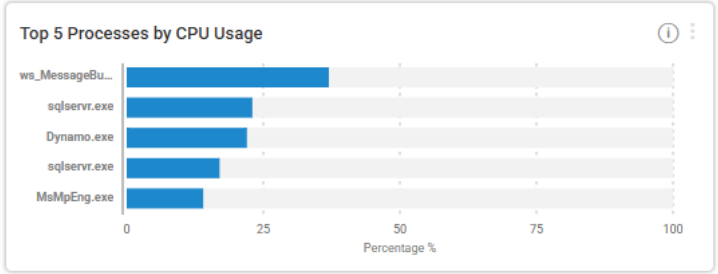
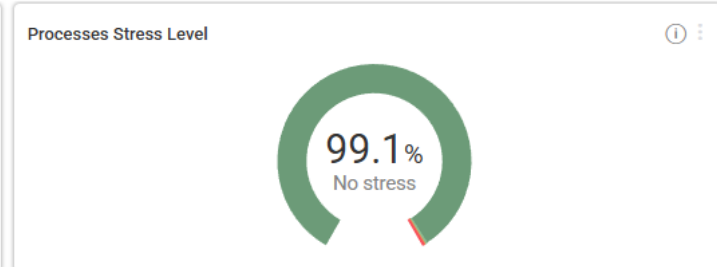
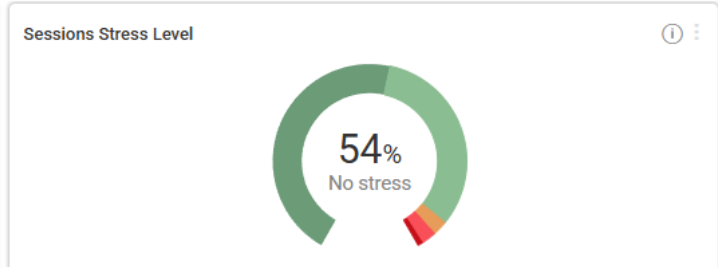
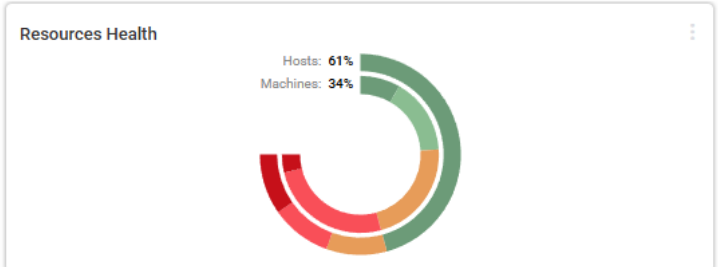
12

Avg. Logon Duration

26sec

Running Processes

10154



- Employees
- Dashboards
- Devices
- Applications
- Unified Communications
- Employee Sentiment
- VDI

AcmeOrg

VDI Overview Details

All

Dashboards

Shared Dashboards

All

User Experience



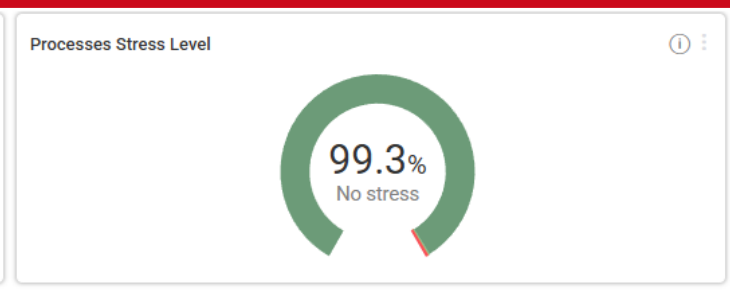
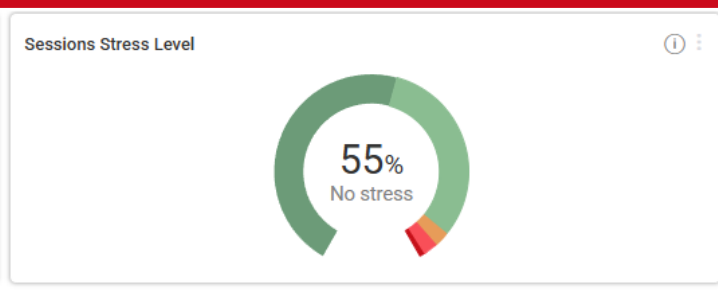
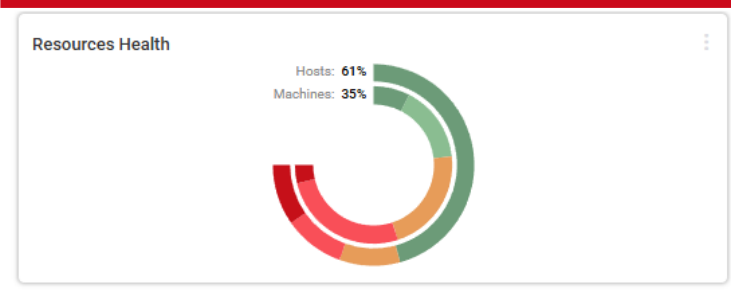
- Employees
- Dashboards
- Devices
- Applications
- Unified Communications
- Employee Sentiment
- VDI**
- Synthetic Monitoring
- Compliance
- Workflows
- Reports
- Events

VDI Overview Details

User Experience

+ Add widget

<p>Active User Sessions</p> <p>12</p>	<p>Avg. Logon Duration</p> <p>26sec</p>	<p>Running Processes</p> <p>10244</p>
---------------------------------------	---	---------------------------------------



Blurred dashboard content showing various charts and data visualizations.

- Employees
- Dashboards
- Devices
- Applications
- Unified Communications
- Employee Sentiment
- VDI**
- Synthetic Monitoring
- Compliance
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VDI Overview Details

User Experience

+ Add widget

Active User Sessions

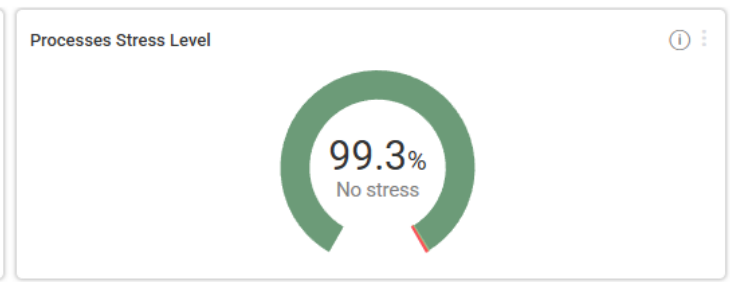
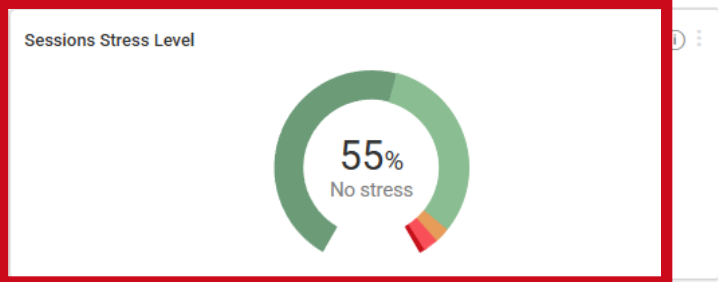
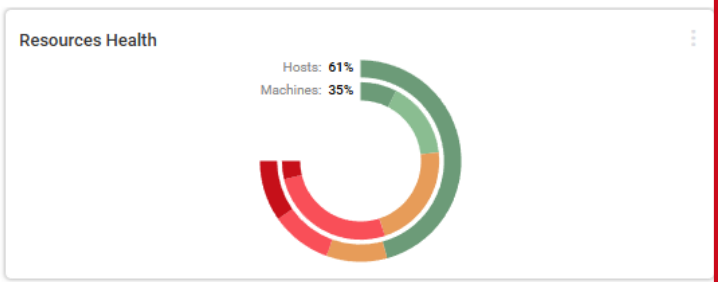
12

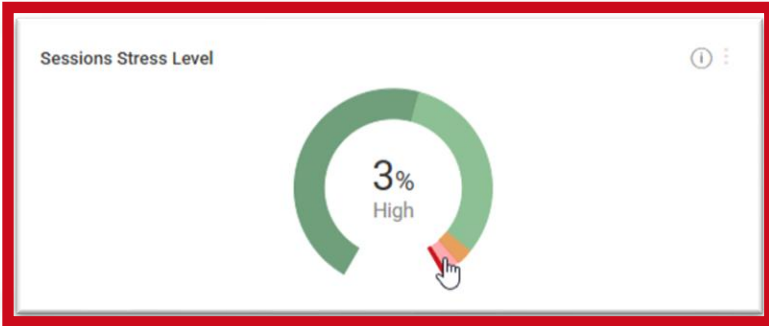
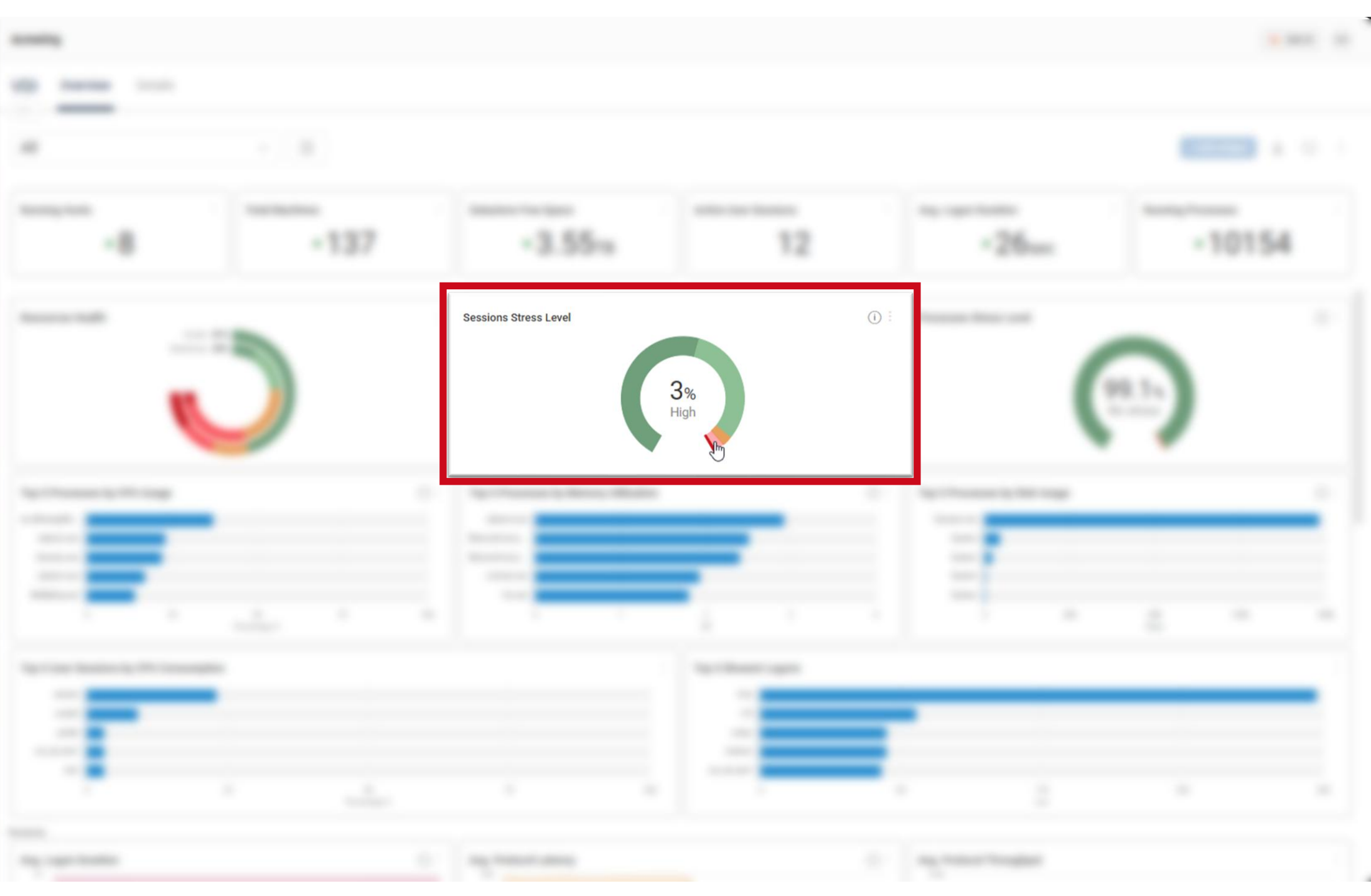
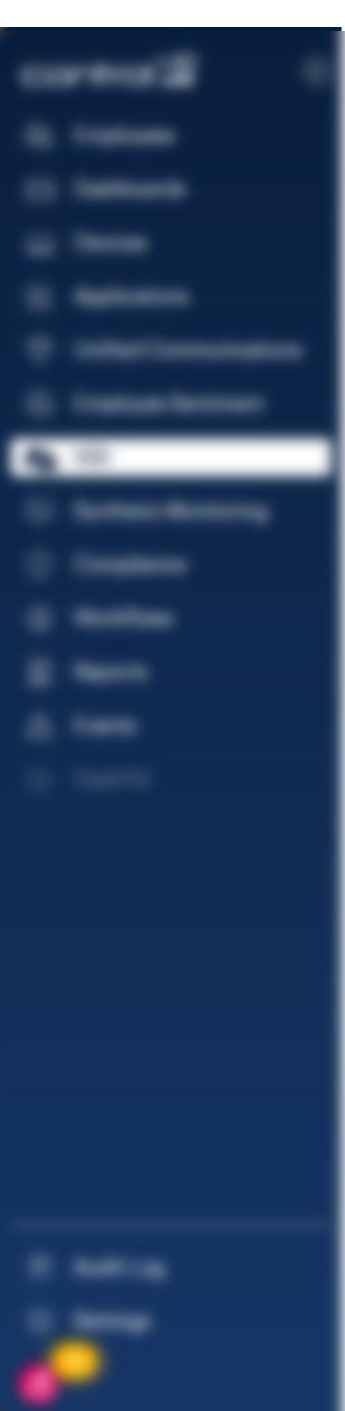
Avg. Logon Duration

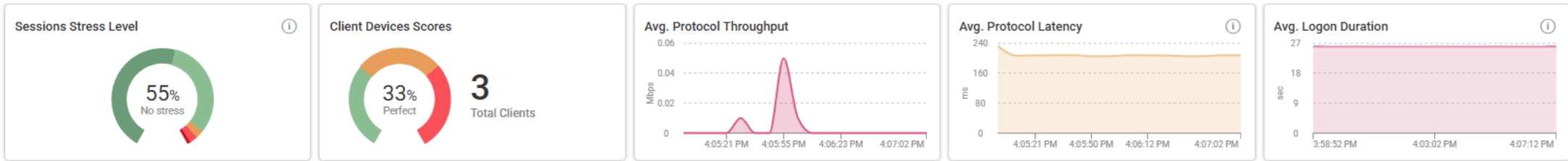
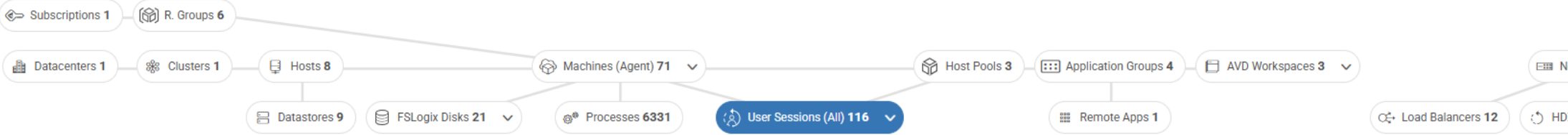
26sec

Running Processes

10244





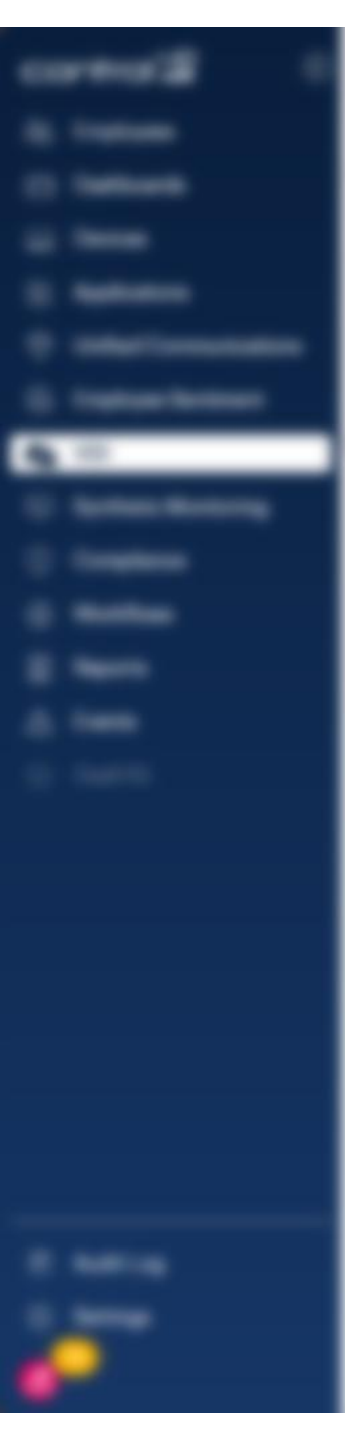


Pause Grid

User	Machine	State	Idle Time	Stress Level	Client Device S...	CPU	Memory (Privat...	Memory (Worki...	I/O Read Opera...
ACMEORG\kschmidt	FLL2-W11AVD-0	Disconnected	0:06 hours	Critical	None	9%	797 MB	1.75 GB	2.6
ACMEORG\cclear	FLL2-W11AVD-0	Active	3 days, 0:46 hours	Critical	None	0%	457 MB	1.24 GB	2.3
ACMEORG\sperusat	AVD-11multi-1	Disconnected	3:47 hours	High	None	0%	303 MB	735 MB	7.2
ACMEORG\sperusat	FLL2-W11AVD-0	Disconnected	3:47 hours	High	None	0%	278 MB	930 MB	0.3
ACMEORG\timr	FLL2-W11AVD-0	Disconnected	2 days, 21:15 hours	High	None	4%	2.7 GB	3.42 GB	3.3
ACMEORG\steveio	RDSTOOLS22	Disconnected	19 days, 7:51 hours	High	None	23%	277 MB	386 MB	19473.3
ACMEORG\b.ba	CTX-PVS191	Active	3 days, 20:57 hours	High	Perfect	0%	79 MB	261 MB	2.6
ACMEORG\mcalef	FLL2-MCWIN11	Disconnected	3:18 hours	High	None	3%	6.63 GB	5.93 GB	4.6

**Stress Level Contributor**

- LAN Latency** 115 ms  
Contribute 50.00% of stress
- Client CPU** 89%  
Contribute 25.00% of stress
- Latency Last** 369 ms  
Contribute 12.50% of stress
- Logon Duration** 76 sec  
Contribute 12.50% of stress

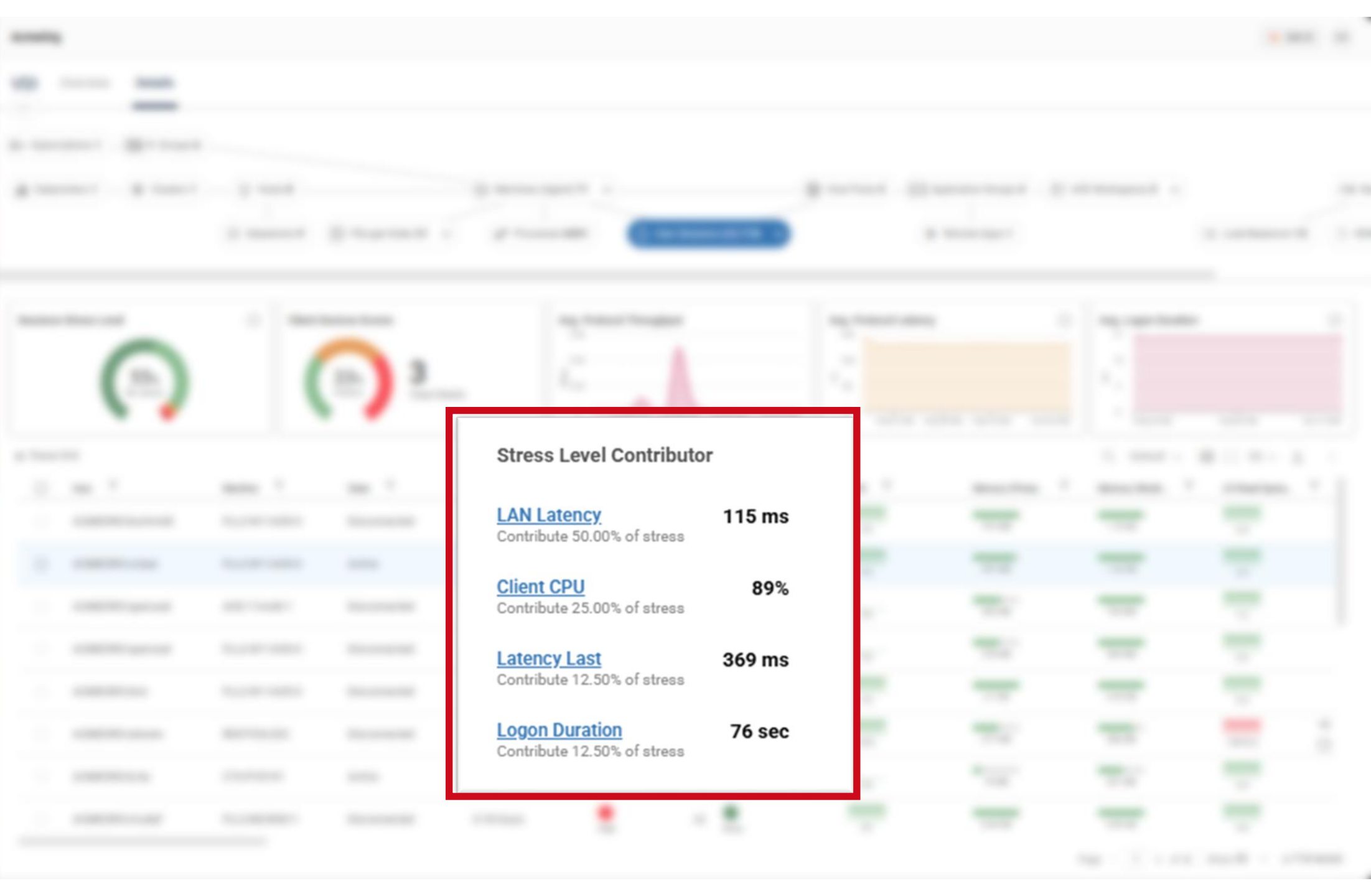
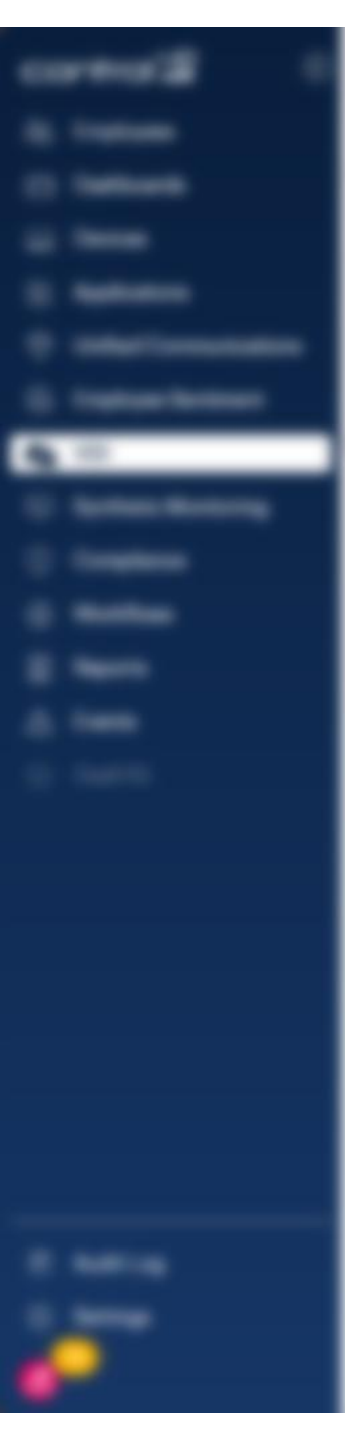


ACMEORG\cclear FLL2-W11AVD-0 Active 3 days, 0:46 hours

0% 457 MB 1.24 GB 2.3

Stress Level Contributor	
<a href="#">LAN Latency</a>	115 ms
Contribute 50.00% of stress	
<a href="#">Client CPU</a>	89%
Contribute 25.00% of stress	
<a href="#">Latency Last</a>	369 ms
Contribute 12.50% of stress	
<a href="#">Logon Duration</a>	76 sec
Contribute 12.50% of stress	

High Perfect





ACMEORG\cclear



CCLEAR01-LT  
192.168.1.246



91%

RigNet  
192.168.1.1



115 ms

Comcast Cable Com...



13 ms

8.8.8.8

22 ms



FLL2-W11AVD-0



48 ms

#### Client

CPU:

89%

Location:

Madison, Tennessee, United States

NIC Name:

Intel(R) Wireless-AC 9461

NIC Speed:

325 Mbps

NIC Type:

IEEE 802.11 Wireless

Packet Loss:

0%

Inactive Time:

0:17 hours

OS:

Microsoft Windows 11 Pro

Remote DX Version: 2.4.2.136

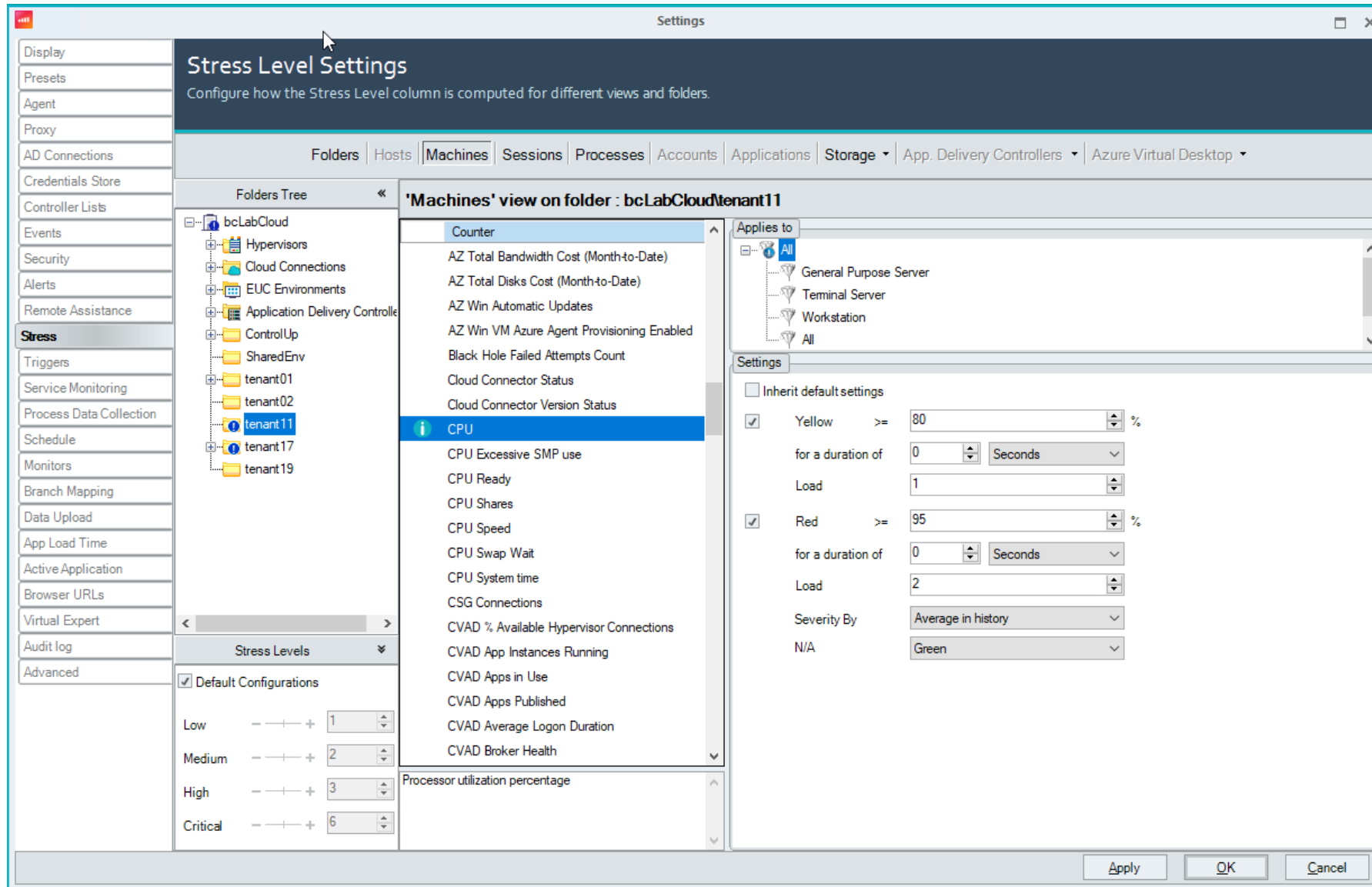
#### Session

State:

Active

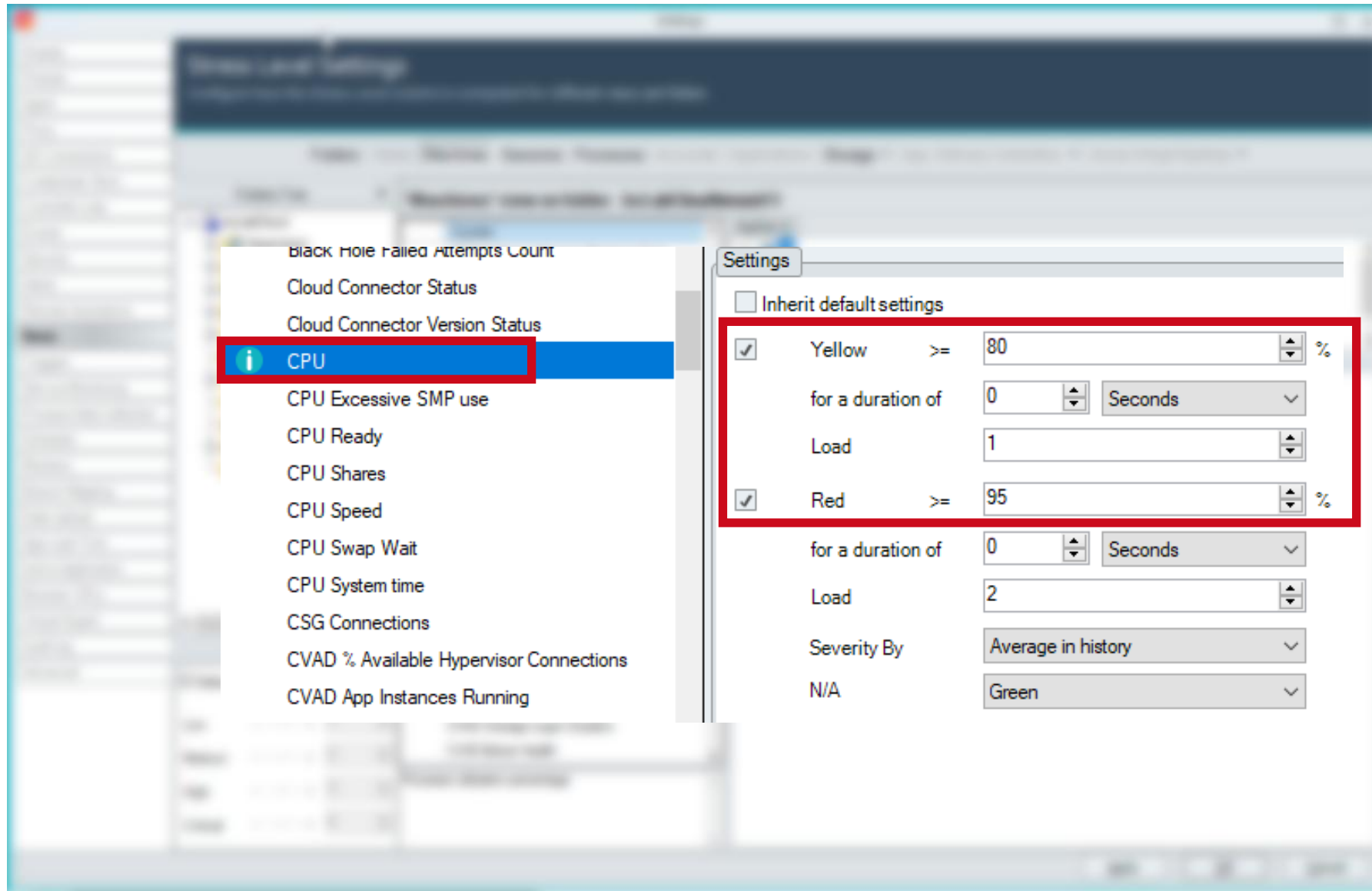
Apps In Use:

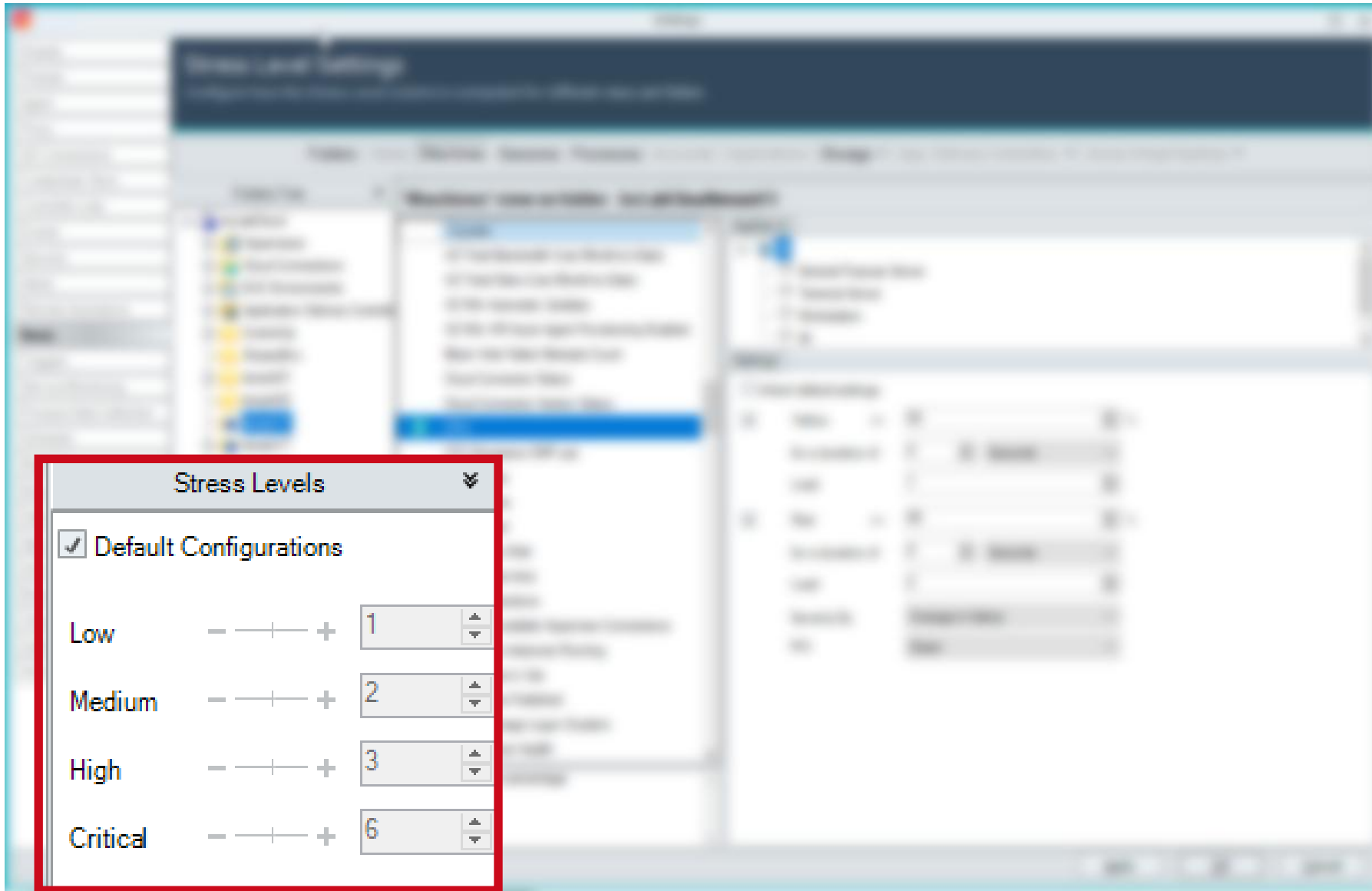
N/A



The screenshot shows the 'Settings' window in ControlUp, specifically the 'Stress Level Settings' section. The window title is 'Settings' and the subtitle is 'Stress Level Settings'. Below the subtitle, it says 'Configure how the Stress Level column is computed for different views and folders.' The main area is divided into several sections:

- Navigation:** A vertical sidebar on the left contains various settings categories like Display, Presets, Agent, Proxy, AD Connections, etc. The 'Stress' category is currently selected.
- Folder Selection:** A 'Folders Tree' on the left shows a hierarchy starting with 'bcLabCloud', containing 'Hypervisors', 'Cloud Connections', 'EUC Environments', 'Application Delivery Controller', 'ControlUp', 'SharedEnv', and several 'tenant' folders (tenant01 to tenant19). 'tenant11' is selected.
- Counter List:** A central list of counters is shown, with 'CPU' selected. Other counters include 'AZ Total Bandwidth Cost (Month-to-Date)', 'AZ Total Disks Cost (Month-to-Date)', 'AZ Win Automatic Updates', 'AZ Win VM Azure Agent Provisioning Enabled', 'Black Hole Failed Attempts Count', 'Cloud Connector Status', 'Cloud Connector Version Status', 'CPU Excessive SMP use', 'CPU Ready', 'CPU Shares', 'CPU Speed', 'CPU Swap Wait', 'CPU System time', 'CSG Connections', 'CVAD % Available Hypervisor Connections', 'CVAD App Instances Running', 'CVAD Apps in Use', 'CVAD Apps Published', 'CVAD Average Logon Duration', and 'CVAD Broker Health'.
- Settings Configuration:** On the right, there are 'Applies to' and 'Settings' sections. The 'Applies to' section shows a tree with 'All' selected. The 'Settings' section includes an 'Inherit default settings' checkbox (unchecked) and two threshold rules:
  - Yellow:** CPU usage  $\geq 80\%$  for a duration of 0 seconds, with a load of 1.
  - Red:** CPU usage  $\geq 95\%$  for a duration of 0 seconds, with a load of 2.The 'Severity By' is set to 'Average in history' and the 'N/A' color is 'Green'.
- Stress Levels:** At the bottom left, there are 'Default Configurations' checked and four stress level thresholds: Low (1), Medium (2), High (3), and Critical (6).
- Buttons:** 'Apply', 'OK', and 'Cancel' buttons are at the bottom right.

















citrix™



	<b>Citrix Monitor uberAgent</b>	<b>ControlUp ONE</b>
<b>Remoting</b>	Citrix	Multi-Plattform

	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>		

	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>		
<b>SaaS-Plattform</b>		

	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>		
<b>SaaS-Plattform</b>		
<b>Echtzeit Reporting</b>		

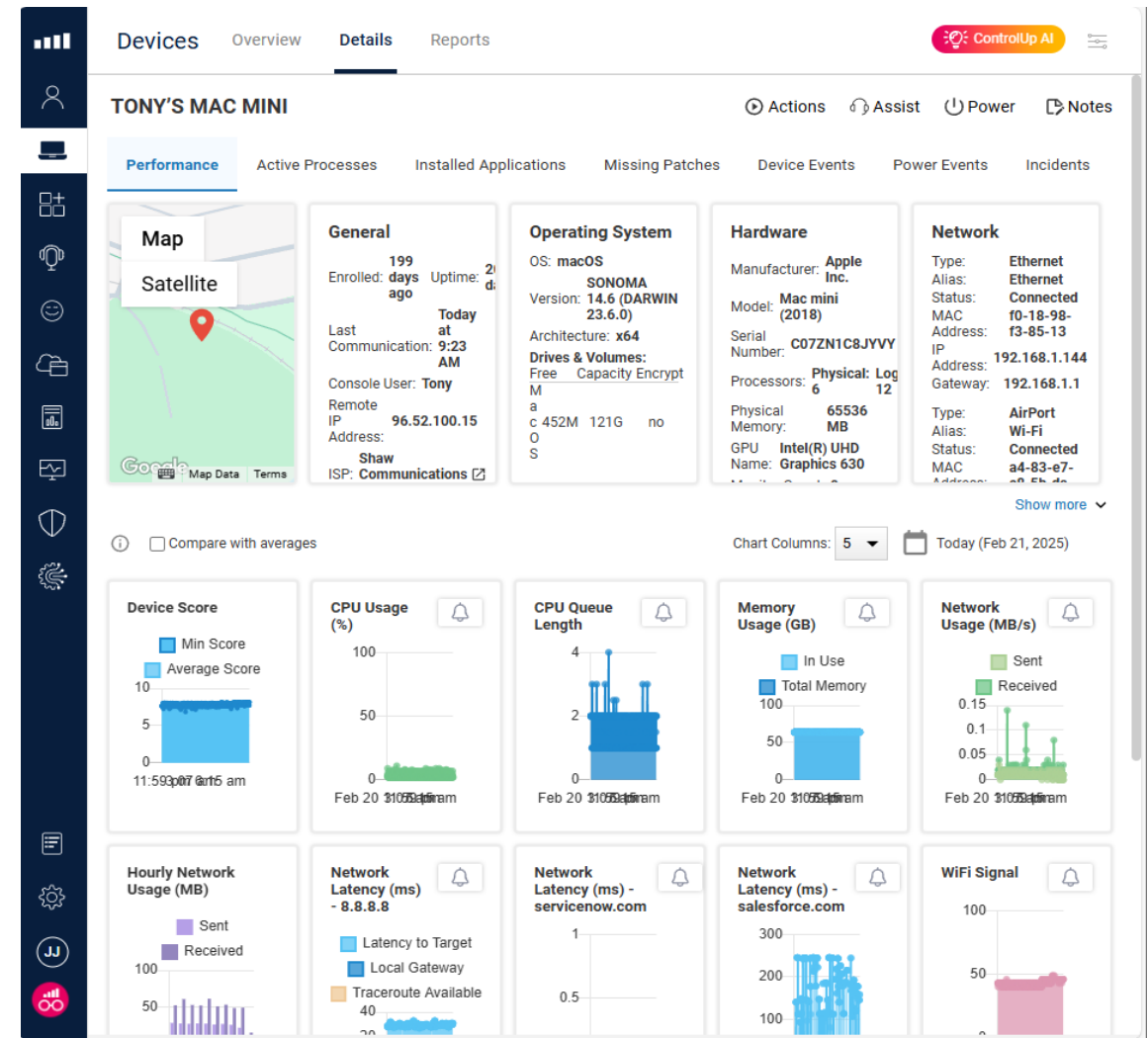
	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>	☐	✓
<b>SaaS-Plattform</b>	☐	✓
<b>Echtzeit Reporting</b>	☐	✓
<b>Historisches Reporting</b>	✓	✓

	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>	☐	✓
<b>SaaS-Plattform</b>	☐	✓
<b>Echtzeit Reporting</b>	☐	✓
<b>Historisches Reporting</b>	✓	✓
<b>Remediation und Automation</b>	☐	✓

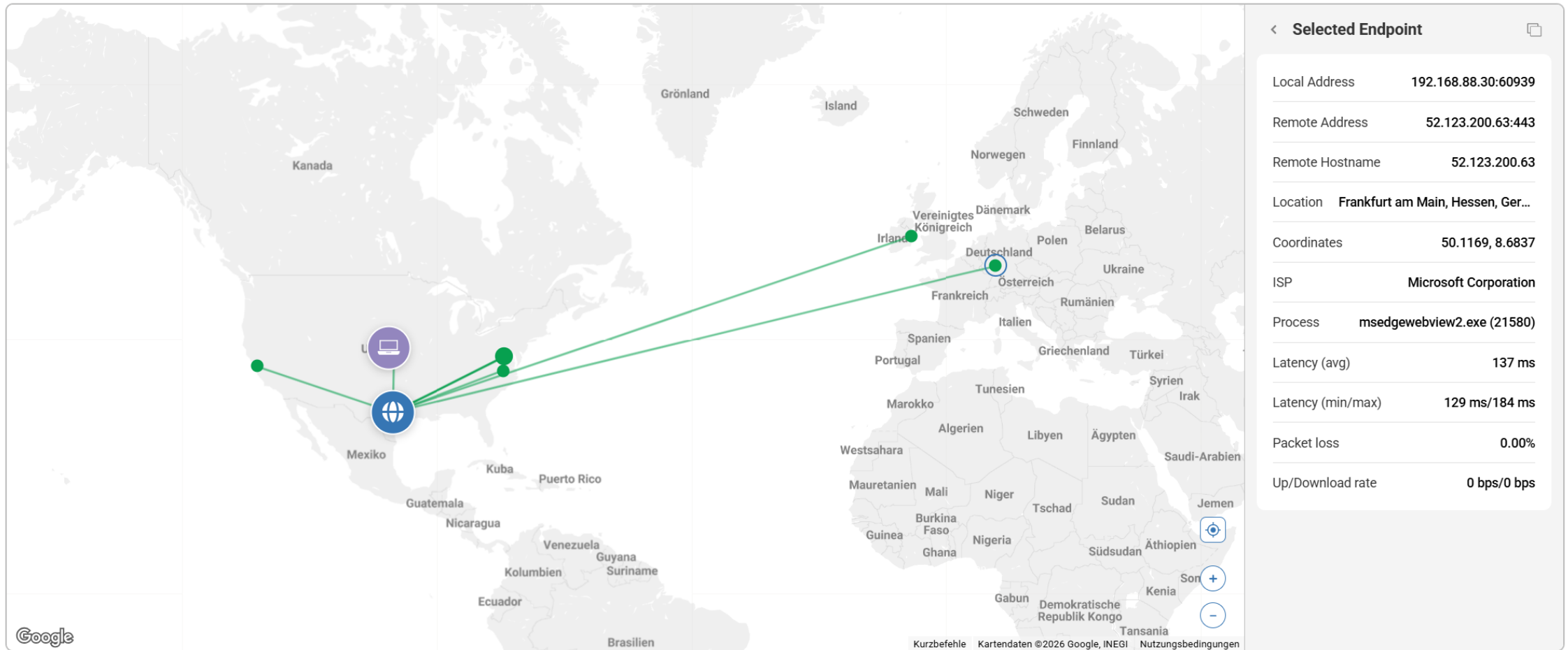
	Citrix Monitor uberAgent	ControlUp ONE
<b>Remoting</b>	Citrix	Multi-Plattform
<b>Physische Endgeräte</b>	☐	✓
<b>SaaS-Plattform</b>	☐	✓
<b>Echtzeit Reporting</b>	☐	✓
<b>Historisches Reporting</b>	✓	✓
<b>Remediation und Automation</b>	☐	✓
<b>AI-Integration</b>	Citrix Aidrien für Citrix Monitor	ControlUp AI in Verbindung mit Workflows

# ControlUp ONE für Endgeräte

- Geräte Performance
- Netzwerk Insights
- Anwendungsübersicht
- Monitoring Unified Communications
- Automatische Fehlerbeseitigung



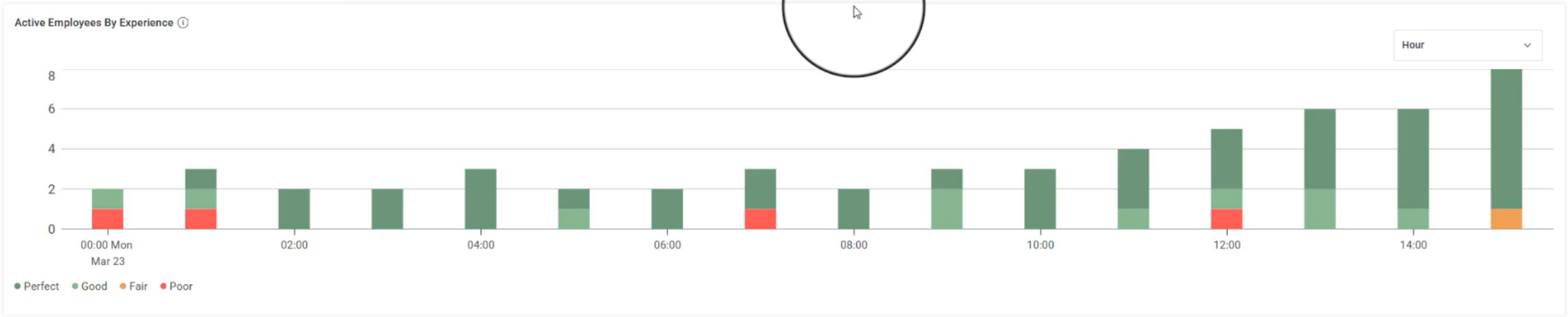
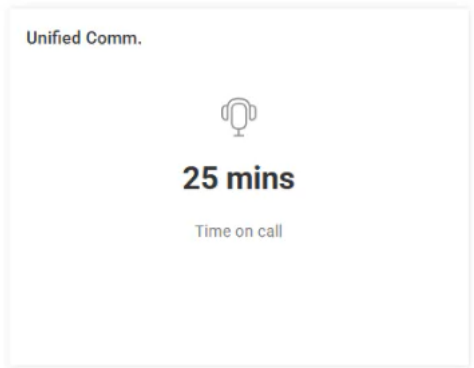
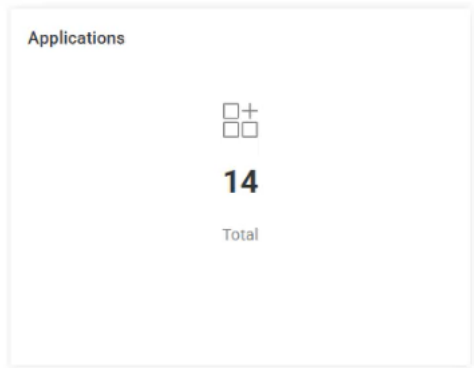
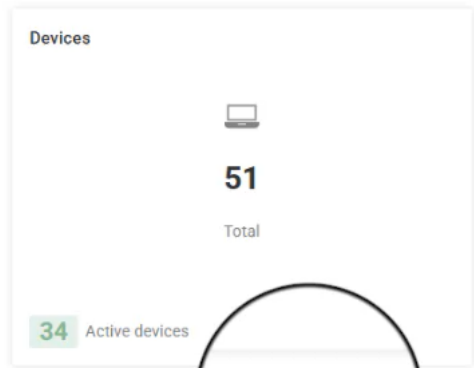
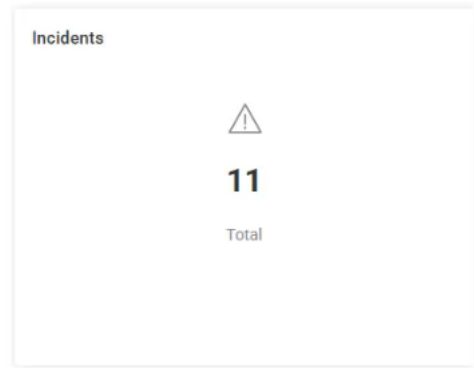
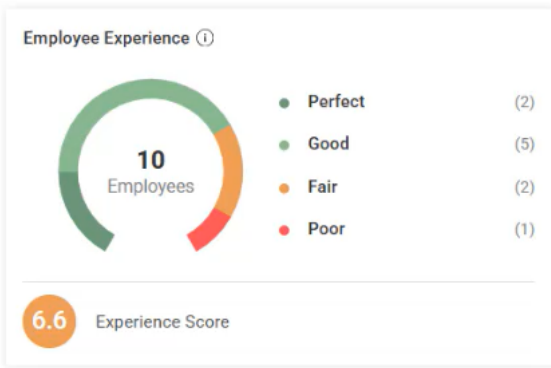
# ControlUp ONE Netzwerk Geo-Location



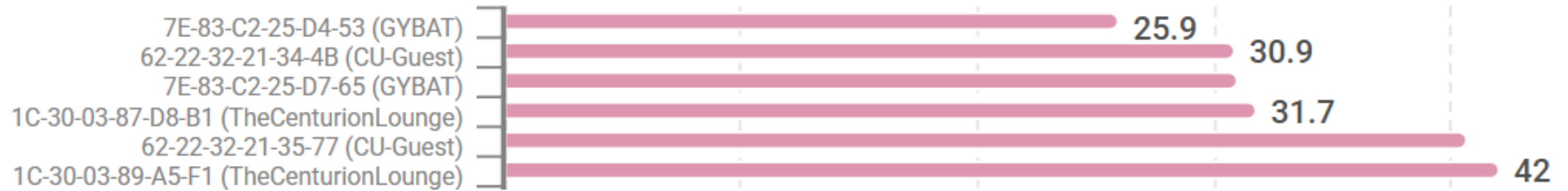


# ControlUp – Ask AI – WLAN AccessPoint

Liste die WLAN-Signalstärke aller Access Points der letzten 180 Tage auf.



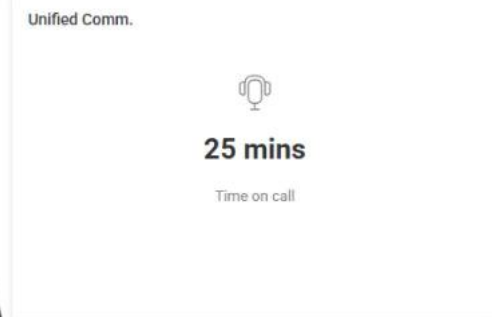
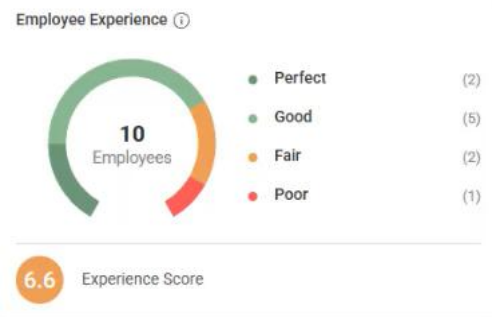
# ControlUp – Access Points - AI Zusammenfassung



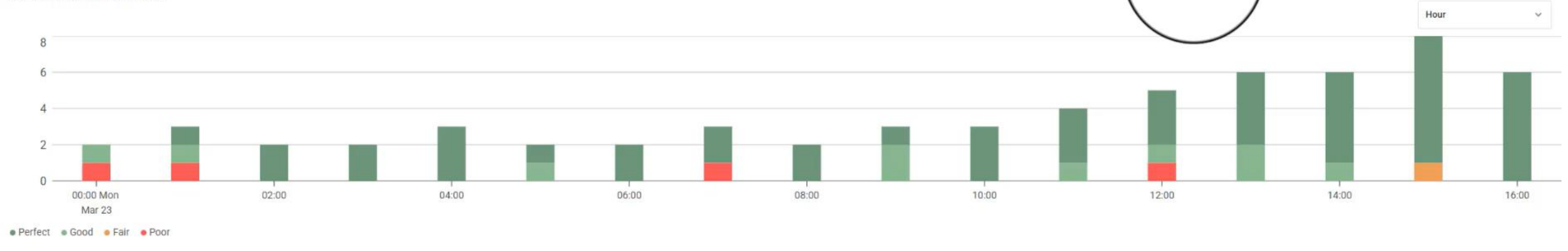


## ControlUp – Ask AI – CVE-Score

Ermittle die Top-3 Anwendungen mit dem schlechtesten CVE-Score.



Active Employees By Experience



Employees affected by events



Endgeräte-name	Betroffene Anwendungen	Top CVEs (pro App)
<b>RWATSON-WIN11</b>	Google Chrome, Windows Defender Microsoft .NET Runtime 6.0/8.0	<b>Chrome:</b> CVE-2026-4463 ( <b>8.8</b> ) <b>Defender:</b> CVE-2023-36422 ( <b>7.8</b> ) <b>NET 6.0:</b> CVE-2024-43483 ( <b>7.5</b> )
<b>LAPTOP-74EFOGIA</b>	Microsoft Office 365	<b>Office 365:</b> CVE-2025-47162 (8.4)
<b>IB-LT-13</b>	Microsoft Office 365, Wireshark, Microsoft Visual Studio Code	<b>Office 365:</b> CVE-2025-54904 (7.8) <b>Wireshark:</b> CVE-2026-3203 (7.5) <b>VS Code:</b> CVE-2026-21518 (8.8)

## Szenario

Störung eines Citrix Workers



### Erkennung

Citrix VDA verliert Registrierung

## Szenario

Störung eines Citrix Workers



# ControlUp Auto-Remediation

**Szenario** → Störung eines Citrix Workers



# ControlUp Auto-Remediation

**Szenario** → Störung eines Citrix Workers



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