



3Clicks to happy customers

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JAPT (Just Another Passionate Techie)



JUNIPER
NETWORKS

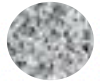
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Troubleshooting Best Practices

User claims a bad MS-Teams call


1. Define the problem.
2. Gather detailed information.
3. Consider probable cause for the failure.
4. Devise a plan to solve the problem.
5. Implement the plan.
6. Observe the results of the implementation.
7. Repeat the process if the plan does not resolve the problem.
8. Document the changes made to solve the problem.

Real Case on LinkedIn





Connecting companies... minds to the Ed...
3h · 🌐

↑ New posts

In the last 2 weeks I started seeing a drop in performance on MS-teams calls, people complained that my video was freezing and screen sharing took ages to load. Also, browsing the web seemed to become cumbersome, with slow responses when interacting with webpages. I first suspected my local network (should have known better, since it is  😞) but never took the time to investigate further. Looking at up- and downlink bandwidths (50/10 Mbps) everything seemed fine, I usually do not need any more than that. Today I decided to go back to my technical roots and look closer into it. I was prepared for some serious troubleshooting, but as you can see in the screenshot below the problem was quite obvious and I could identify it quickly. I had huge delays on my pings to the outside world. Checking the same against my firewall (where I was below 1 ms as expected) I immediately saw that the problem originated somewhere out of my LAN/Wi-Fi. Before calling my provider I ran a simple reboot on my cable-router et voila: look at the bottom part of the screenshot and check out the difference in ping times. 10 minutes troubleshooting time spent well.

What did I learn from this incident?

- 1.) The problem usually does NOT lie in the local network, especially if you use 
- 2.) There is a difference between consumer grade equipment (my C.... cable modem) and Enterprise equipment. I don't even remember when I last rebooted my switch or my access points, I would need to check online in  when this happened, and the reason was a power outage when I installed my photovoltaic system.

```
C:\Users\mayrl>ping www.google.at

Pinging www.google.at [172.217.18.3] with 32 bytes of data:
Reply from 172.217.18.3: bytes=32 time=997ms TTL=119
Reply from 172.217.18.3: bytes=32 time=1009ms TTL=119
Reply from 172.217.18.3: bytes=32 time=540ms TTL=119
Reply from 172.217.18.3: bytes=32 time=1397ms TTL=119

Ping statistics for 172.217.18.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 540ms, Maximum = 1397ms, Average = 985ms

C:\Users\mayrl>ping www.google.at

Pinging www.google.at [172.217.18.3] with 32 bytes of data:
Reply from 172.217.18.3: bytes=32 time=29ms TTL=119
Reply from 172.217.18.3: bytes=32 time=21ms TTL=119
Reply from 172.217.18.3: bytes=32 time=20ms TTL=119
Reply from 172.217.18.3: bytes=32 time=21ms TTL=119

Ping statistics for 172.217.18.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 29ms, Average = 22ms
```

Does this sound familiar?

MTT Success

It is the network!

Minimize the MTT Innocence

What do we need?

A system that:

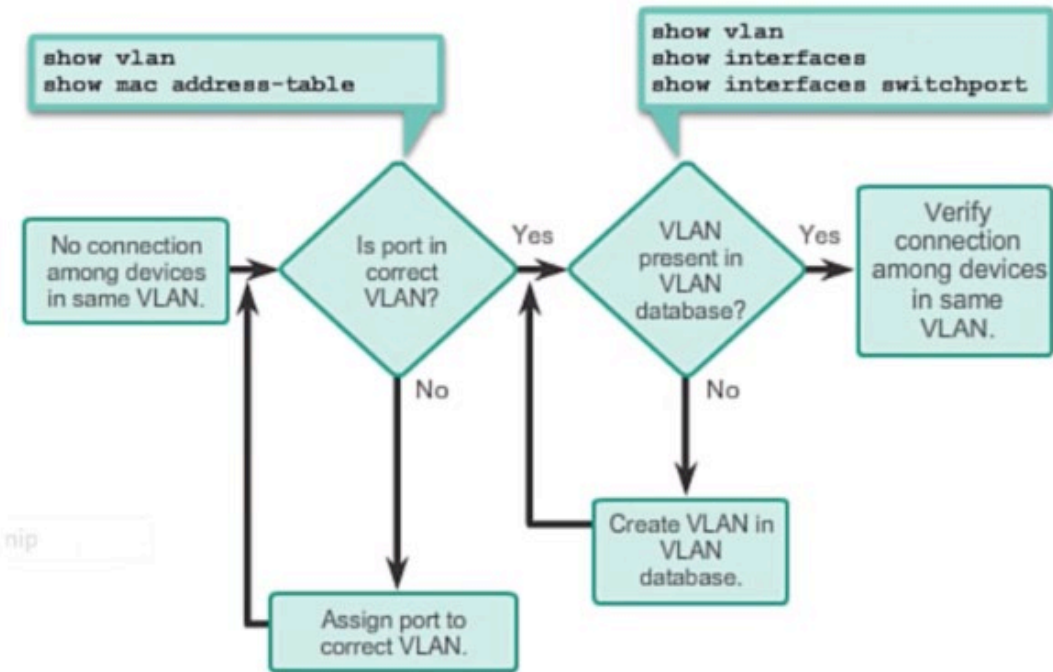
Provides user experience information
Supports Troubleshooting
Leverages AI

1. Define the problem. ✓
2. Gather detailed information. ✓
3. Consider probable cause for the failure. ✓
4. Devise a plan to solve the problem. ✓
5. Implement the plan.
6. Observe the results of the implementation. ✓
7. Repeat the process if the plan does not resolve the problem. ✓
8. Document the changes made to solve the problem. ✓

Let's go Live

MIST Live Demo

Not all AI is equal



MISSING VLAN



Detection

No Traffic != Missing
 No Traffic: 33,680
 Actual Missing: 607

Machine Learning Tools:

K-Means Clustering, PCA

Diagnosis / Root Cause:

Identify type of each VLAN

Actions:

Juniper Switch: self driving option
 3rd Party Switch: inform admin

33,680 versus 607

AI-outcomes

Juniper Mist is
Fundamentally Different:

Lowest TCO

Better User Experiences

Better IT Outcomes

“...MTTR down 96% on average per ticket”

“...85% reduced site visits”

“...90% reduction in user opened support tickets”

“...fastest most efficient technology roll out in our history”

“...since Marvis, escalated cases are down by factor of 10”

“...Mist showed persistently failing clients, we didn't know about”



Industry Recognition

AIDE Portfolio



AI-Driven Cloud Services

Virtual Network Assistant

Marvis

- AI-driven Problem Solver
- Conversational Assistant



Marvis Actions

- Proactive Network Insights & Remediations
- All Encompassing Network Visibility



Wi-Fi Assurance



Premium Analytics



User Engagement



Asset Tracking



IoT Assurance



Wired Assurance



WAN Assurance

Wireless Infrastructure



Mist Edge



AP Series



BT11 (BLE)

Improve experiences and revenue with Indoor Location Services

Wired Infrastructure



EX Series



QFX Series

WAN Infrastructure



SRX Series



SSR Series

Analyst Recognition Across Our Portfolio

A LEADER



Gartner

2021
MAGIC QUADRANT

**Wired & Wireless
LAN Access
Infrastructure**

A LEADER



Gartner

2021
MAGIC QUADRANT

**Data Center &
Cloud
Networking**

A VISIONARY



Gartner

2021
MAGIC QUADRANT

**WAN Edge
Infrastructure**

A CHALLENGER



Gartner

2021
MAGIC QUADRANT

**Network
Firewalls**

A LEADER



Gartner

2022
MAGIC QUADRANT

**Indoor Location
Services**

Gartner Magic Quadrant for Data Center Networking, Andrew Lerner, Jonathan Forest, Evan Zeng, Joe Skorupa, 30 June 2020.

Gartner Magic Quadrant for WAN Edge Infrastructure, Jonathan Forest, Andrew Lerner, Naresh Singh, 23 September 2020.

Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure, Bill Menezes, Christian Canales, Mike Toussaint, Tim Zimmerman, 4 November 2020.

Gartner Magic Quadrant for Network Firewalls, Rajpreet Kaur, Adam Hills, Jeremy D'Hoinne, 9 November 2020.

Gartner Magic Quadrant for Indoor Location Services, Tim Zimmerman, Annette Zimmermann, 15 February 2021.

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THANK YOU

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Backup info

The Story: does it sound familiar?

- At home wife mentions “the internet doesn’t work”
- Answer: “did you check the wifi on you smartphone?”, “Mine does work”, “visiting kids’ devices don’t work either”, reboot all wifi devices
- If we translate to the office environment:
 - Internet -> can’t connect or the performance is poor
 - Wife -> CEO
 - Kids -> CEO’s secretary
 - Reboot NW devices -> ????
- If something doesn’t work -> NW is to blame, you to keep the MTTI as low as possible
- MTTI = Mean Time To Innocence
- So you need an environment that shows the state of the wifi (NW in general) in an objective manner

The Story: does it sound familiar? Cont'd

- What if you had a system that:
 - Monitors your network constantly
 - Is supported by AI engines to provide meaningful NW state information, not just syslog messages
 - Provides support beyond your network control span
 - Eases TS by asking questions in natural language or just clicking options
- This system exists today and is called MIST
- Explain:
 - SLE's and show how they support TS
 - Insights and how quickly the root cause analyses can be executed
 - Marvis:
 - Using the conversational interface: TS ms-teams
 - Using natural language to ask questions: what is wrong with denali
 - Actions to prevent future performance issues or problems (missing Vlans, STP loop, ...) , including issues not related to the NW (DHCP, DNS, bad cable, ...)