Troubleshooting Hardware, Software &

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About this Session

- Troubleshooting Mindset
- Soft Skills for Troubleshooting
- Best Practice Methodology
- Troubleshooting Tools
- Q & A

What this Session is and is not

- Sharing of My Practices
- My Observations of Common Oversights
- Troubleshooting vs Installation
- Avoid Troubleshooting by Avoiding Trouble

Troubleshooting Mi

"mindset" *{noun}*

a set of beliefs or a way of thinking that determines one's behavior, outlook and mental attitude.

- Proper Diagnosis, then remedy
- Ask lots of questions
- Listen to all your senses
- Gather data with tools, knowledge & "feel"

Troubleshooting Mi

"mindset" *{noun}*

a set of beliefs or a way of thinking that determines one's behavior, outlook and mental attitude.

- Work With a Calm Mind: Be Methodical
- Slow down and avoid overlooking causes
- Look to fix the root causes, not superficial symptoms
- Look for multiple causes and perfect

Soft Skills for Troubleshooting

"soft skills" *{pl noun}*

desirable qualities that do not depend on acquired knowledge: including the ability to deal with people, and a positive flexible attitude

- Let the User Speak to You
- Let everything else speak to you as well
- Speak only when user is listening.
  Speak at the level of the user
- Realize boasting stops flow of clues
- Occam's razor

Best Practice Metho

"methodology" *{pl noun}*

a set or system of methods, principles, and rules for regulating a given discipline, as in troubleshooting.

- Can you reproduce error experienced by user (PEBCAK)?
- Is it a different user or is user using system differently
- Real life common causes and how to check them
  - Electrical, grounding, cabling, connections,

Best Practice Metho

"methodology" *{pl noun}*

a set or system of methods, principles, and rules for regulating a given discipline, as in troubleshooting.

- Things to Assess (What's Changed?)
  - Are other machines having similar issues? What's common?
  - Directory, firewall, dns, dhcp, network services, box changes?
  - Hardware upgrade, damage or recent repair? Intermittent?
  - Clock battery, noises, physical damage?

Best Practice Always

"methodology" *{pl noun}*

a set or system of methods, principles, and rules for regulating a given discipline, as in troubleshooting.

- Assumptions change. Make unknowns known
- Replace suspect things with known working things
- Eliminate ONE variable at a time
- Split-half tests: Reduce and eliminate variables
- Researc h online. Post on lists. Consult with colleagues
- Contact tech support

Troubleshooting To

"tools" *{pl noun}*

anything used as a means of accomplishing a task or purpose.

- Physical Toolkit
  - Service HD, Netboot HD
    - Known clean bootable OS
    - Favorite diagnostics applications collection
    - Common updaters and installers
  - High quality known good cables
  - Clean power (UPS)

Troubleshooting To

"tools" *{pl noun}*

anything used as a means of accomplishing a task or purpose.

Apple Tools

- Command Line Shell: Terminal
  Directory Services Editor: WorkGroup Manager
  Log Reader: Console
  Network Tools: Network Utility
  Server Services: Server Admin
  System Activity: Activity Monitor
  System & Configuration Data: System Profiler

Troubleshooting To

"tools" *{pl noun}*

anything used as a means of accomplishing a task or purpose.

- Third Party
  - Command Line Manuals: ManOpen
    Directory Queries: LDapper
    Files & Permissions: BatChmod, fseventer, Sandbox
    Network Discovery: Bonjour Browser
    Plist Viewer & Editor: PlistEdit Pro, TextMate
    Text Editor: TextWrangler, BBEdit
    Disk Utilities: DiskWarrior, TechTools Pro,

Troubleshooting To

"tools" *{pl noun}*

anything used as a means of accomplishing a task or purpose.

- Command Line
  - DNS & Directory Services: `changeip -checkhostname, dcsl, dscacheutil -flushcache, host, hostname`
  - Files & Permissions: `chmod, chown, fsck, ls -la`
  - Network: `dig, ifconfig , ipconfig, netstat, ping, traceroute`
  - System Activity: `tail, top, ps`

Troubleshooting Pri

"troubleshoot" *{verb}*

trace and correct faults in a mechanical or electronic system.

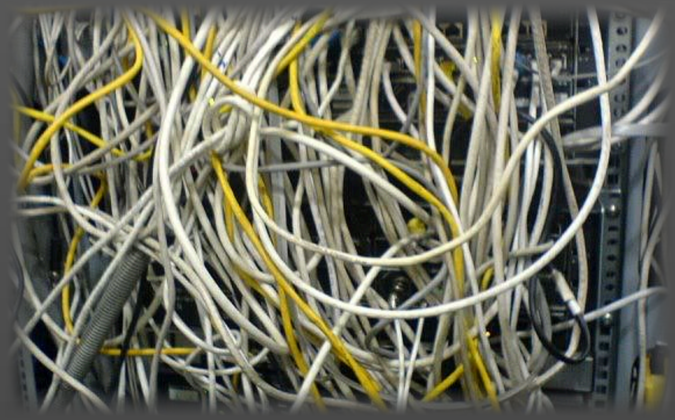
- Direct connect or network printer?
- Is it connectivity, driver, software or physical problem?
  - Simplify connectivity (remove usb hubs, check network settings)
  - Check compatibilty. Verify latest compatible driver installed and in effect

Troubleshooting Eth

"troubleshoot" *{verb}*

trace and correct faults in a mechanical or electronic system.

- Check connections and cabling. Check again and again.
- Check settings. Check again and again.
- Establish stable link, ip settings, ping and dns
- Common problems



Troubleshooting Wi

"troubleshoot" *{verb}*

trace and correct faults in a mechanical or electronic system.

- Check signal strength and interference.
- What has changed?
- Turn of and on AirPort and access point
- Best Practice: Put all networking gear on a UPS
- Know when to seek help (routing, vpn,

Q & A

"Q & A" *{noun informal}*

an exchange of questions and answers.

- **Troubleshooting Mindset:**
  90% Diagnostics + 10% Remedy = Effectiveness
- **Soft Skills for Troubleshooting:**
  Be a Good Doctor
- **Best Practice Methodology:**
  Listen to instinct and intuition along with logic
- **Troubleshooting Tools:**