

Building Trust in an Untrustworthy World

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Who is this person?

- ▶ PhD from WSU, MS and BS from UIdaho
- ▶ Working at PNNL now, have worked at SEL, MITRE, NASA
- ▶ Owns an alpaca ranch



Who Do You Trust?



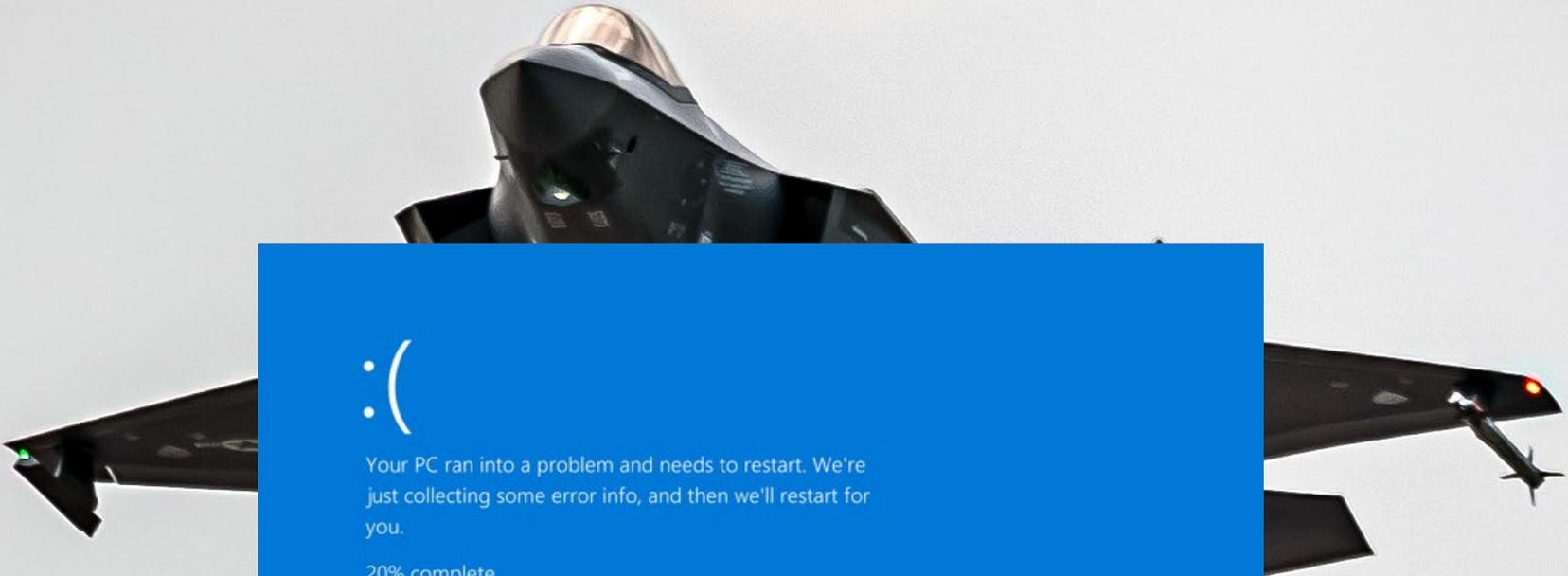


CHASE 

Google

Mission Critical Systems Add Challenges and Complexity

- ▶ Traditional Quality Control Goal:
Ensure that it does what it should
- ▶ Security Goal for Mission Critical Systems:
Prove that it does what it should
and nothing more
no matter what happened or will happen



Your PC ran into a problem and needs to restart. We're just collecting some error info, and then we'll restart for you.

20% complete



For more information about this issue and possible fixes, visit <https://www.windows.com/stopcode>

If you call a support person, give them this info.

Stop code: CRITICAL_PROCESS_DIED

What Do We Do About It???

Applying Security to Supply Chains

Confidentiality

Can I keep information about my suppliers, processes, or devices secret?

Integrity

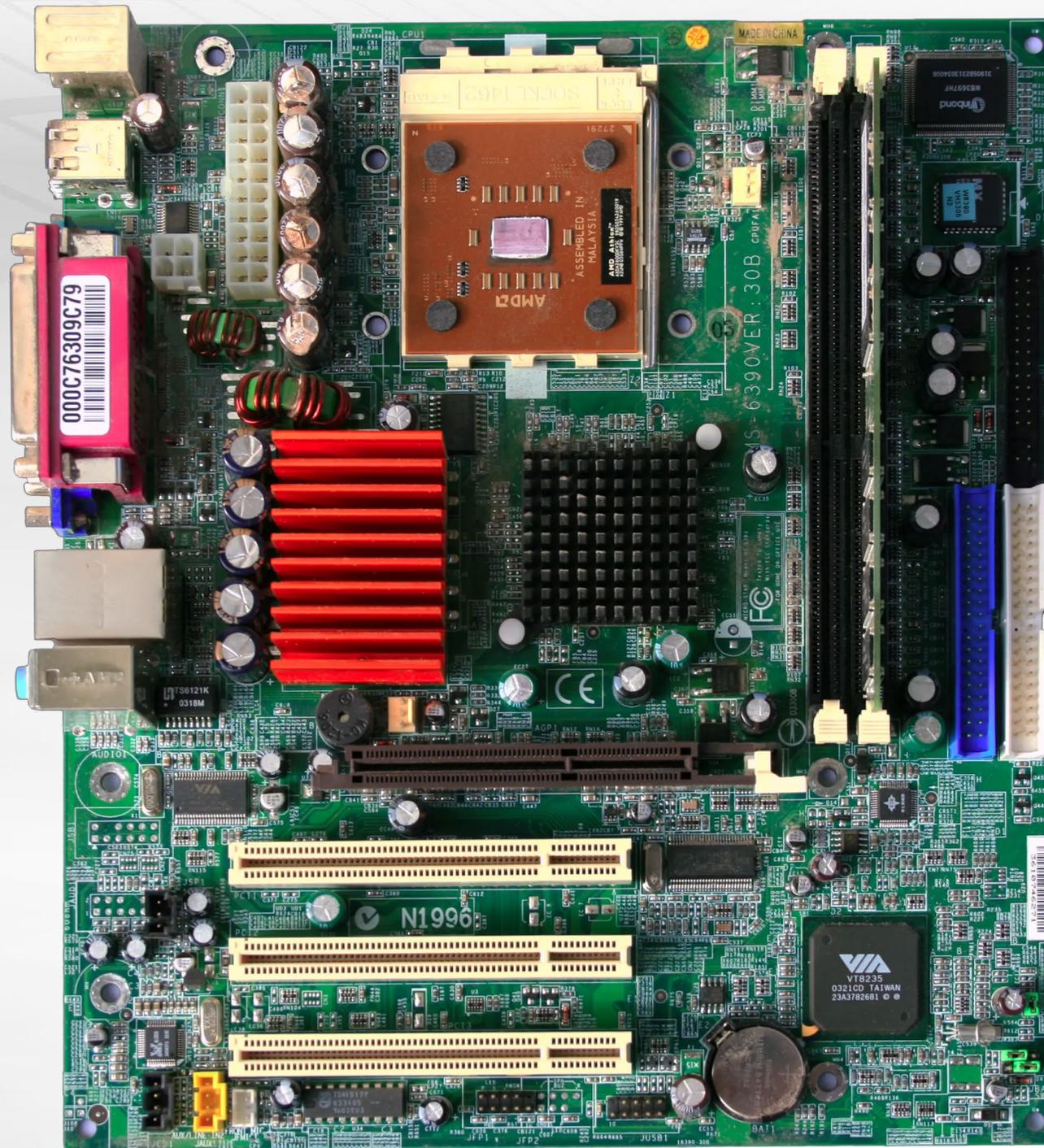
Can I ensure that all stages in my supply chain are implemented correctly so that the end product is what is expected and nothing more?

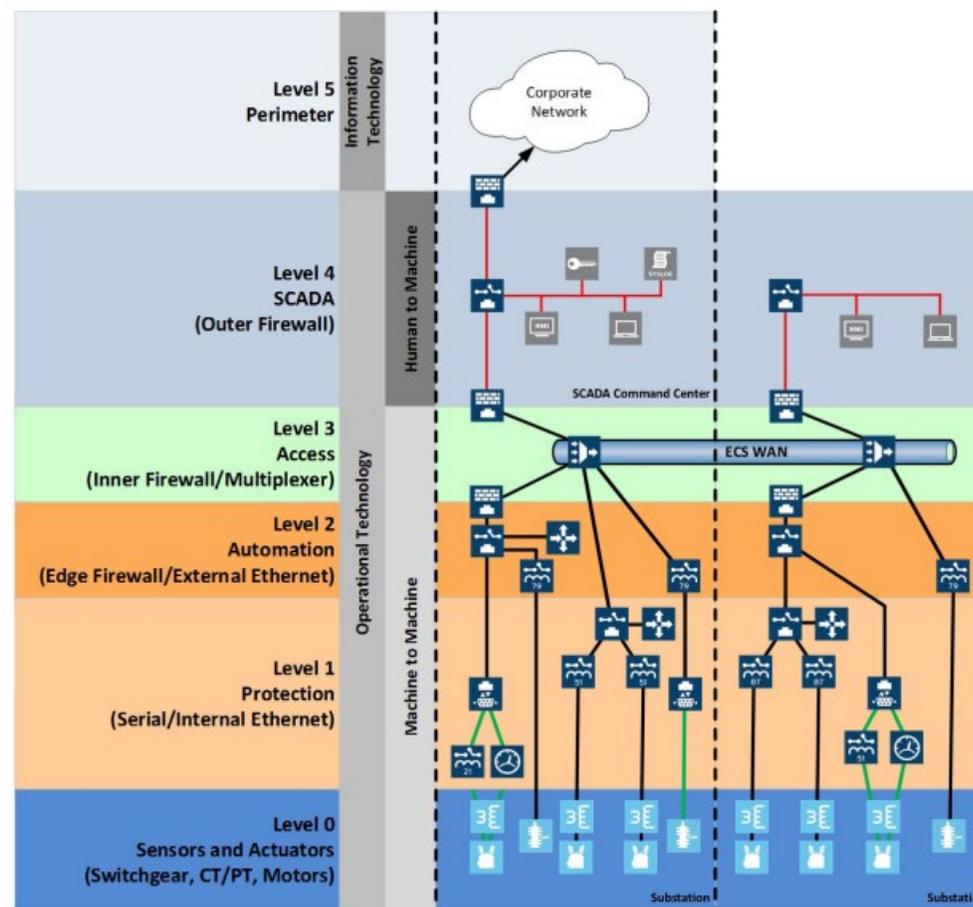
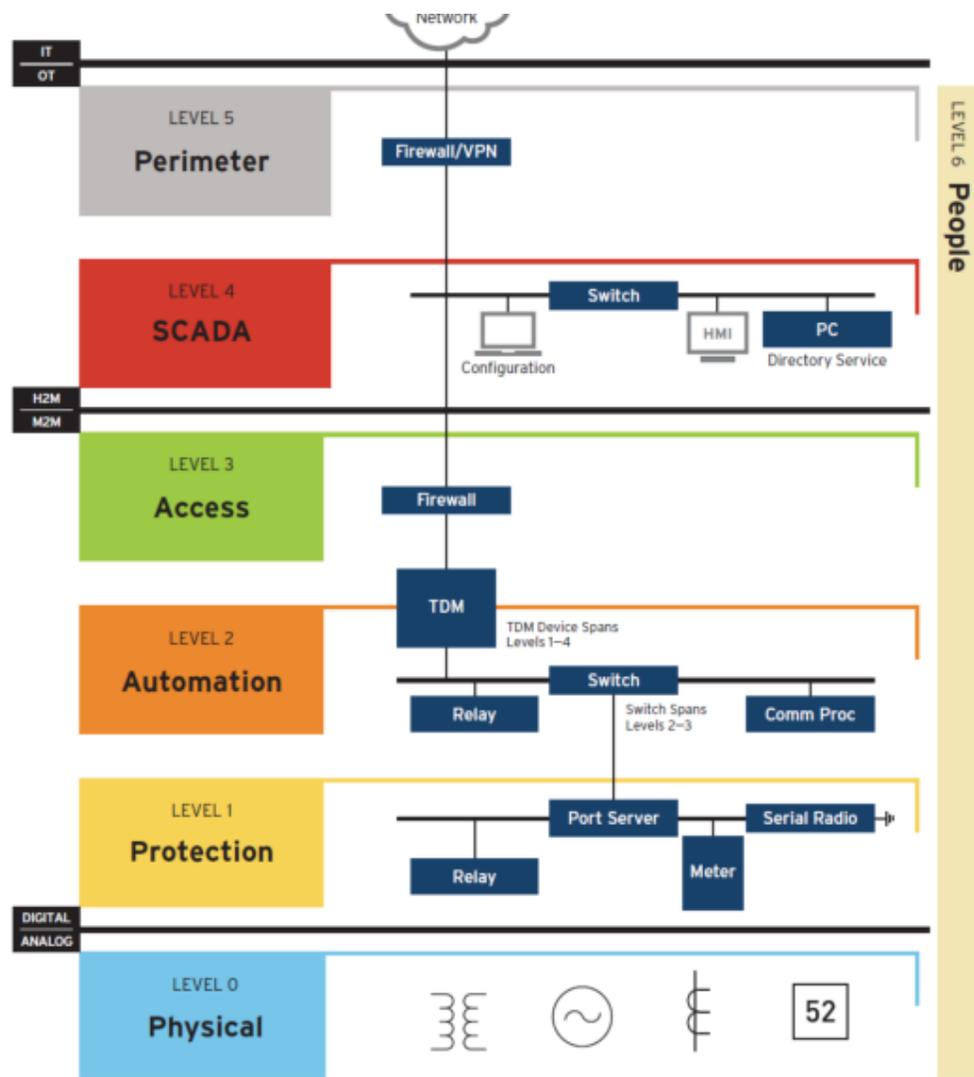
Availability

Are the devices, people, or other resources I need available when I need them?

To know thyself is the beginning of wisdom
--Socrates







Legend

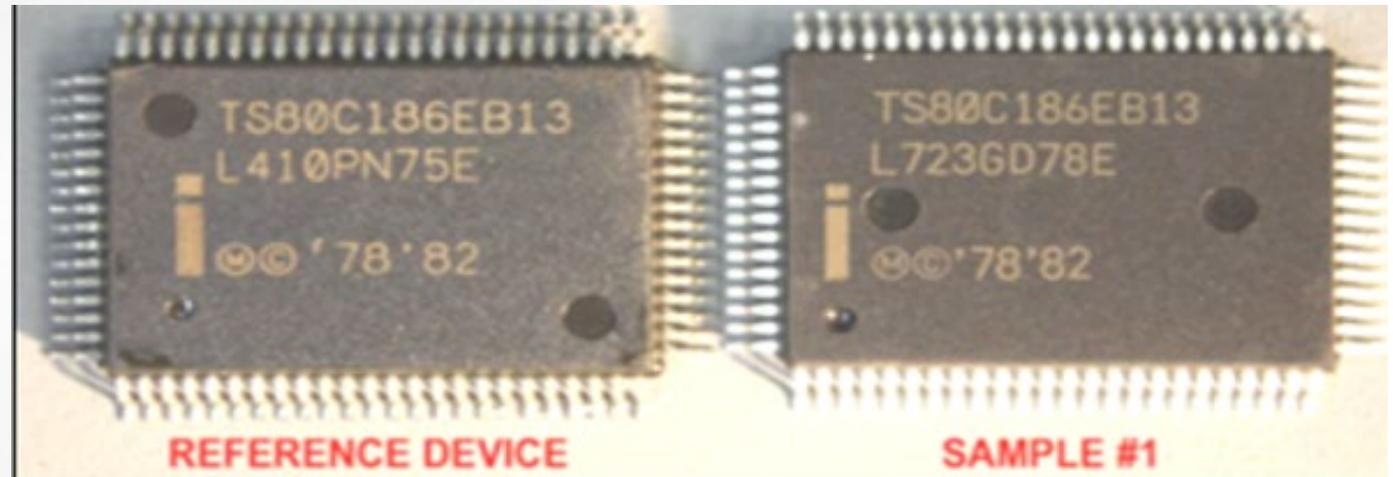
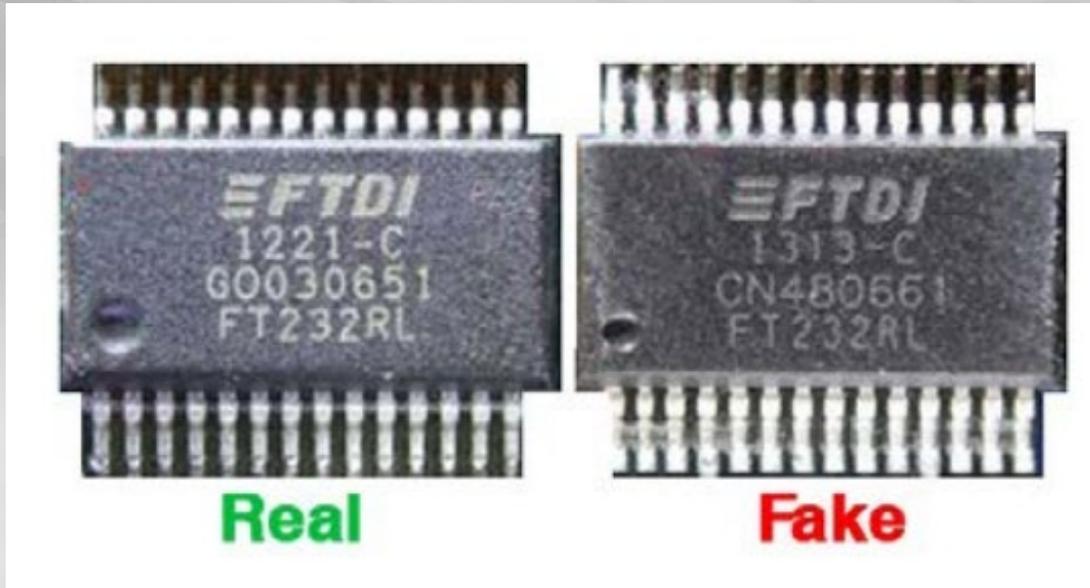
- | | | | |
|----------------|--------------------|--------------------|-----------------------------|
| Authentication | Ethernet Firewall | Distance Relay | Transformer |
| Syslog Server | Ethernet Switch | Overcurrent Relay | Circuit Breaker |
| HMI | Ethernet to Serial | Recloser Relay | Recloser |
| Computer | Multiplexer | Differential Relay | Serial |
| | PAC/PLC | Meter | Machine to Machine Ethernet |
| | | | Human to Machine Ethernet |

But What About the Software?



Just Seeing Isn't Enough, We Have to Understand

Sometimes, it can be obvious!



Software, too

Customer Support : 1-877-360-0485



Microsoft
Windows

Product Key

Please Enter Product Key

Windows Defender prevented an unrecognized and malicious software on your computer. Please enter your Windows Product Key. The Product Key should be on a label or the card inside the box that Windows Disk came in or in the confirmation email you received after buying it. If you have upgraded to Windows 10, you have a digital license instead of a key.

A product key is a 25 character code used to activate Windows. It look like this:
PRODUCT KEY: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

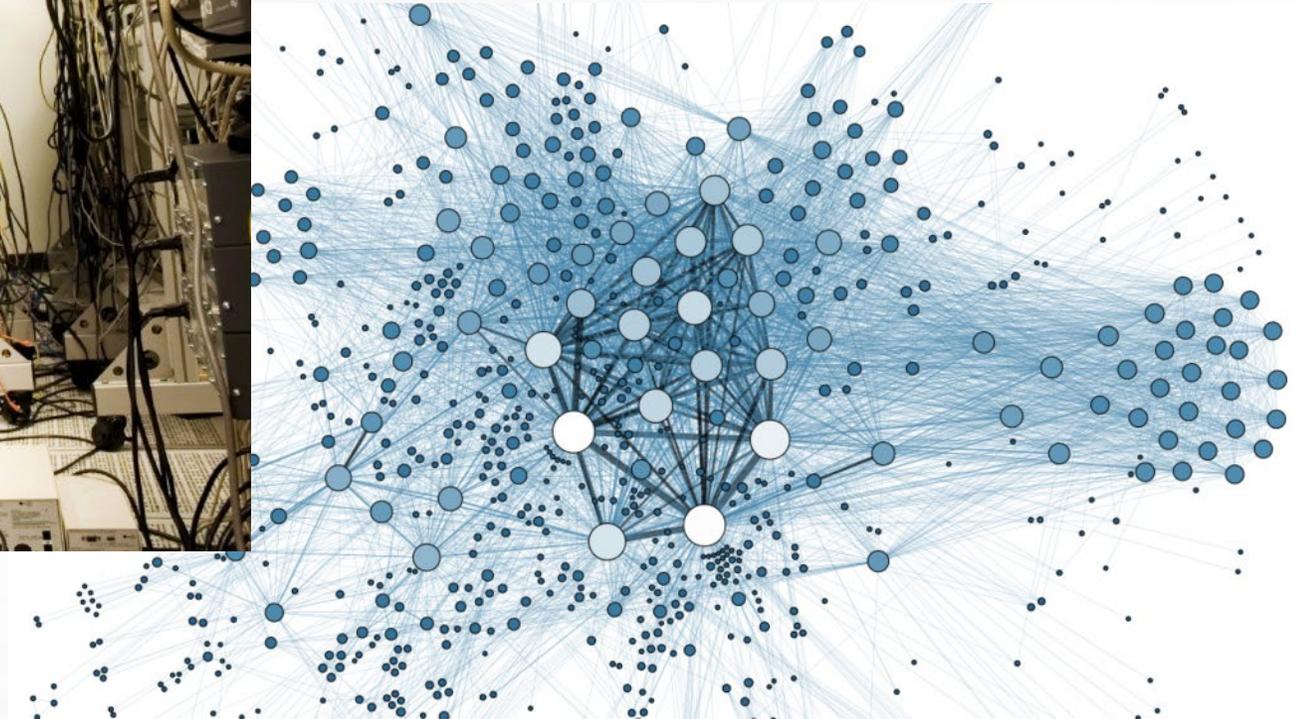
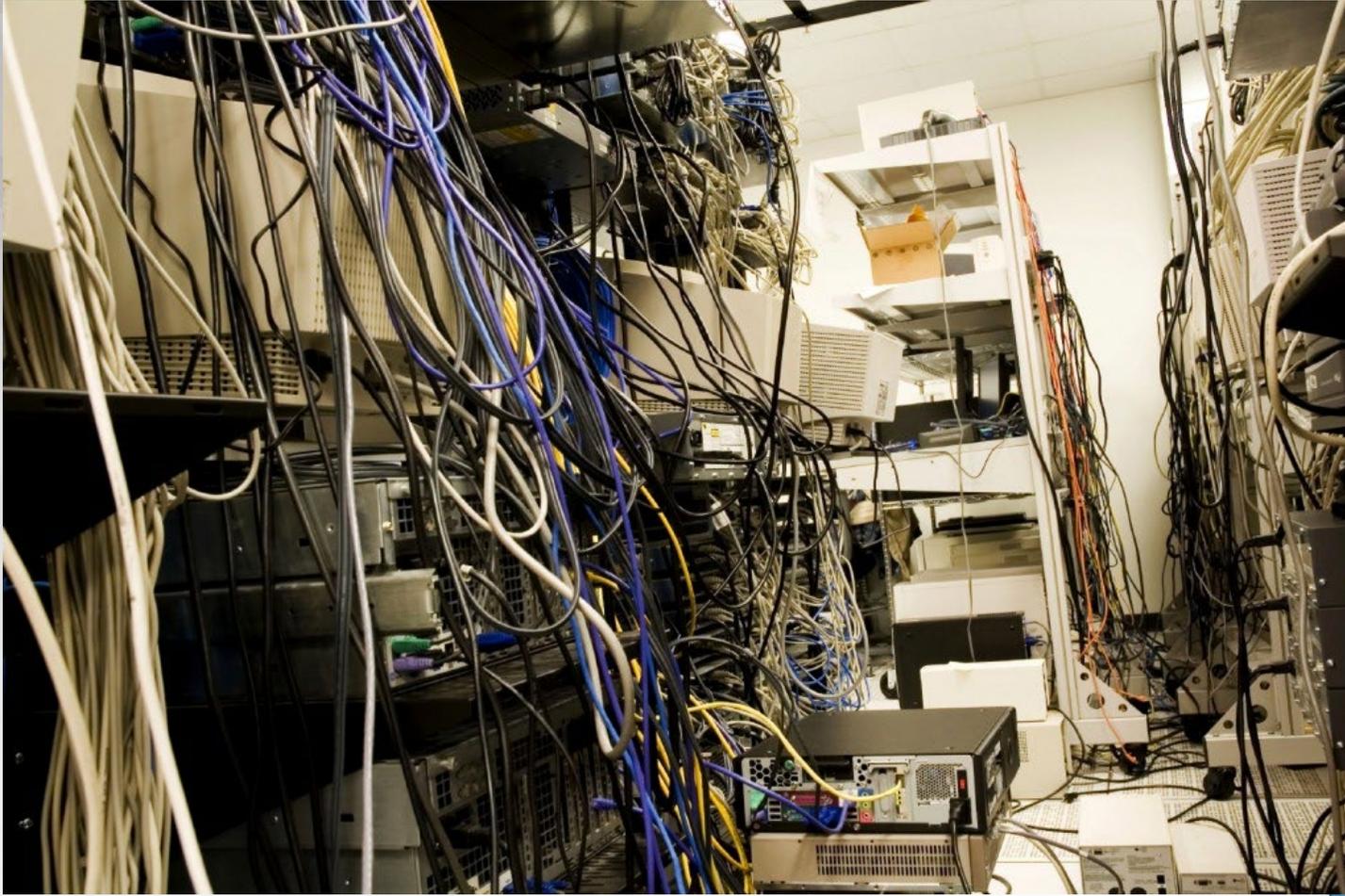
OK

GoToAssist

TeamViewer

Supremo

Systems are harder



Just Understanding Once Isn't Enough, We Have to Continuously Manage

Continuous Improvement Is Critical



But I am mortal, and liable to fall!
-- Charles Dickens, A Christmas Carol

Tools are Critical!

- ▶ Designed Security
 - Defense in Depth

- ▶ Endpoint Security
 - Antivirus

- ▶ Network Monitoring
 - SIEMs

- ▶ Analytics
 - AI?

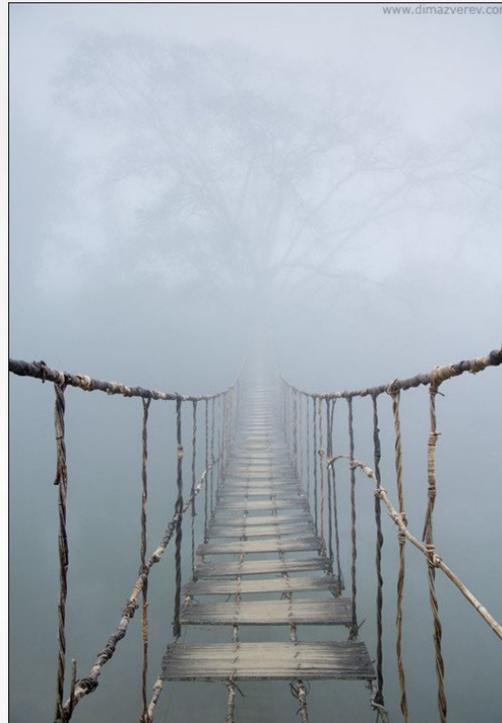
But do you trust your tools?

**I am but mad north-north-west. When the
wind is southerly, I know a hawk from a
handsaw.**

-- Hamlet

The Missing Piece

All of this depends on the acceptable level of risk



Questions?
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