

Unfoiling VoIP Installation Problems

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A network upgrade we recommended back in 2001, finally got approved, installed and debugged- for now.

Here's a snap shot of what we did, some issues we found and how we found them.

We installed fiber between three switch locations (1 GIG) and connected the new switches and fiber first. Before connecting anything existing- we monitored the new network infrastructure first to check our work. Next, we powered down all affected locations then moved the devices over to the new switches one segment at a time.



The purpose of the fiber was to solve several pre-existing conditions. First to remove latency issues since the distance between two switches was 276 feet. Another issue was with the ongoing power issues in one switch location that impacted other switch locations when spikes traversed the mostly copper network. The third was to flatten out the latency issues by removing copper from all switch-to-switch locations and using multi-mode fiber.

We were able to identify trouble spots using the statistics provided by the new switches and upon further investigation- we were only too happy to correct what had been creating dodging issues for the customer.

Network Slow Downs

Symptom: The network appears to slow down at odd times and days. The network monitoring appliance would show packet delay climbing from 2 percent to 8, 9 and even 10 percent and only for an hour or less.

Find: Ports on the switches were found in the blocking mode. Identify the offending ports and remove attached devices.

Cause: Removed devices (retail consumer Access Points with built in switch/router/firewall).

Cure: These particular access points are something you would find being used at home or even a very small office, but not on a campus network. We provided an alternative solution to the customer for consideration.

(Legacy) IP Telephones Lockup

Symptom: Phones don't work! No dial tone, but will start working again.

Find: By wandering around counting the total devices then trying to figure out why they total less than what's plugged into the switch. Next, we viewed statistics and errors for each port in the new switch serving these users.

Cause: Removed one device at a time to verify location and link light off on switch. Narrowed issue down to two switch ports connecting to two patch cables on the mini-patch panel. Removing either patch cable would cause last device (IP telephone and connected PC to stop working). Since the PC is connected to the IP telephone's port (convergence) there is one too many patch cables. So which switch port do we disconnect since the last two ports each have link lights?

Cure: When the first patch cable was removed- the IP telephone for the secretary went dead (no power- PoE) and PC lost LAN connectivity. So we reconnected this patch cable. When the last patch cable was removed- the secretary phone stopped working but did not power down but the PC lost LAN connectivity (no data). The only thing between the copper and the LAN switch was the mini-patch panel and since it has a backplane (circuitry) we removed it from service, replaced it, and retested. Just because you've never had a patch panel go bad doesn't mean it won't/can't happen.

Nothing short of uncomplicated was used to find these issues. Maybe we were lucky and maybe you haven't been so lucky. It was almost a game of hide and seek and the managed switches made our job so much easier by revealing issues through **Spanning Tree Protocol (STP)** and port blocking. Viewing the status of each switch one at a time view - was tricky. We could see the fiber link from one switch connecting to another switch go into the blocking mode but then only momentarily. It was if the network was experiencing a rolling blackout. At the end of the day, the customer happily agreed to keep the Access Points off the network - since they suspected they were self inflicted issues before we started. But whatever can go wrong, will. Never assume too much and don't be afraid to unplug things and ask "why?" The defective patch panel is on my desk as a token reminder of good ol' Murphy and his laws. The prize award for the job was when the customer commented "now I see the value of these switches and the fiber."

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