



Network Services Report – Verilan Event Services  
Manchester Hyatt, San Diego, USA  
July 8-13, 2018

Verilan provided network infrastructure and audio-visual equipment, personnel and services to the IEEE 802's July, 2018 plenary at the Hyatt Manchester, San Diego, USA

### **Mentor and Drafts synchronization**

WebDAV authentication was broken this session, until Thursday afternoon.

In place of being able to remote mount the mentor drive to synch it locally, Geoffry Glenn put his coding and scripting skills to work.

He built a series of web-scraping scripts to keep the Mentor Files synchronized locally.

He also added automated synching of the drafts files, normally synched by each chair, on the local servers.

It was a non-trivial workaround effort that allowed the plenary to continue in a smooth manner.

IEEE's IT folks managed to work through their WebDAV access issues by Thursday mid-day.

Files in mentor were synching via rsynch, initiated by WebDAV login, by Thursday at 12:30pm.

Geoffry's script for synching the Drafts files is available from him at request.

### **External Connectivity, Routers, Core Switching**

The hotel provided up to a maximum of 1.4 Gigabit of available upload and download capacity (200Mbit burstable to 600Mbit, but expandable at need) during the conference.

We had 4 external IP's readied for a failover across 4 ports on two different routers.

Each router was dual-connected to XO Communications and AT&T on separate links.

This is the second event this year where Verilan has run interconnectivity between Verilan switches and AP's across an untagged hotel VLAN.

Overall it worked well, but it's not something we would be comfortable doing with any IT team.

The Single Digits team who runs the hotel's Ethernet infrastructure is a knowledgeable group, and was 100% available to us, even at 1:30 in the morning when we needed them.

This is something likely to happen more in the future, but not with every property or team.

### **Infrastructure, Internal Connectivity, Servers**

Physical layer connectivity was Cat5 to Verilan and Hyatt switches, then across an untagged VLAN and two tagged VLANs. Hotel switches are link-aggregated between them.

Throughput was great, and the hotel didn't impose any real bandwidth limits on us.

The virtual servers were running under an open-source KVM Hypervisor in a Linux Debian distribution.

One physical server runs DHCP on the hypervisor/host OS, along with primary DNS in a KVM virtual server, and a backup virtual for Griffin should the second server fail.

The second physical server runs DHCP on the hypervisor/host OS, along with Zabbix, Griffin (Drafts & Standards) and Secondary DNS.

They performed excellently and didn't have a hiccup during the show.

The available wall ports stemming from each Intermediate Distribution Frame (IDF) / Wiring Closet were usually plentiful and in excellent repair.

Per usual, the 802 plenary was the impetus for a couple of ports to get repaired and repunched by the Single Digits staff. It's a courteous step on their part to support guest networks.

### **Access Points**

Wireless Access Points with A/B/G/N capability, Cisco 1142's, were used *for the very last time* this round.

They have a known incompatibility with Wireless-N mode when used with the Intel 8260 Wireless chipset, which is getting to be more common on attendee laptops. The workaround is to drop out of Wireless-N mode on the client and be in Wireless B/G mode only.

It'll be important for the IEEE 802 to highlight the need for newer APs with their network providers when they negotiate the next round of contracts. For this reason among others.

### **Wired Cafe**

The "wired cafe" was in the Palm Foyer on the second floor. People used it as a handy spot to sit and get a few things done between sessions. A pre-configured wired switch was available but not installed, 10 feet away at the network help desk. No one asked for it. No one seemed bothered that there was no place to plug in a wire. We checked a couple of times with the folks seated at the tables to see if they were interested in that. They were not. This may not be a priority going forward. The engineering committee may wish to discuss that amongst themselves.

### **Help Desk**

We ran the "Network Operations Center" from the network help desk from at least 8am to 5pm daily.

About 8 attendees with Windows laptops came by to get some help setting their 8260 chipset wifi drivers out of N-mode, making them compatible with the Cisco 1142 APs.

This worked fine for everyone but one attendee (sorry, Ryan Mennecke), who had an Ubuntu-based laptop and the open-source Intel iwl-wifi driver which lacks the option to disable wireless-N mode. Well, it has an option, but it doesn't work. The hotel graciously gave Ryan his own access code for the hotel's Ruckus APs.

All items were successfully resolved.

We handed out dozens of digital video connectors, and more than half of them were returned to us. The whole point was to keep the attendees on quality digital connections and avoid

VGA video connections. We only used 1 instance of a VGA connection to a projector, for one session this round that I know of. Even then, the presenter had a digital output on his device that was just taking too long to work.

Only the most minimal of VGA cabling was shipped in this round.

We loaned out about 6 power supplies, some mice and some general advice. Having the network near the registration desk and the “wired cafe” helped visibility and kept people from having to wait to have any issues resolved.

### **Network Monitoring and Bad Actors**

Zabbix was used for monitoring this plenary. It is an open-source solution that uses multiple monitoring protocols like SNMP and others to track switches, APs and hosts.

There are a number of built-in tools we use on the router as well as various network management and traffic analysis tools on our systems.

A few attendees were detected using file-sharing services like bit-torrent. For short bursts to get system updates and OS downloads, torrenting is a reasonable method of content delivery. It's pretty obvious when extended bi-directional torrenting is going on from a host. One flagrant and obvious actor was removed/MAC address blocked from the network. Two were placed into an *extremely* limited QoS queue. Flagrant bi-directional file-sharing activity ceased after that. The user banned by MAC address did not ask the help desk about their connectivity issue. Busted.

### **Network Outages/Issues**

1. On Tuesday, we inadvertently migrated to a new external IP before placing that external IP into the approved IP list for the IMAT registration tool. Network connectivity was up, but IMAT connectivity was out for about 3 minutes while we switched back and corrected that. After the new permitted IP addresses were input to the IMAT permissions area, we switched onto a new external address and IMAT access continued smoothly.
2. Also on Tuesday, there was about a 2-minute logical connectivity outage as a firewall rule was being put in place for preventing Bit Torrenting attendees from accessing the outbound connection. Firewall rule order matters. It was briefly reversed from where it should have been.  
Thanks, Clint Chaplin, for bringing it to our attention immediately while we still had the configuration dialog open.

### **AV Outages/Issues**

- There were a few HDMI cable replacements this week. HDMI has a much better signal, but aren't all made as sturdily as VGA, so they don't always travel as well. Future AV providers travelling with their cables should be advised to purchase very heavy duty HDMI cabling to prevent fallout.
- One Infocus IN126 seemed to have an interference issue of some sort and was replaced by another projector immediately.
- It's important that all projectors be configured to not auto-seek, and so that the HDMI input comes up active at startup. This prevents hunting for signal and gets everyone

working faster. It also allows connection switching between speakers without re-hunting.

### **Network Usage**

With 1550 active DHCP leases from unique MACs connecting to the network over the week, that comes to about two devices per person, plus some infrastructure equipment.

Usage peaked on Tuesday around 350Mbit. Of that, 25Mbit-50Mbit was from a bit torrent client, which was shut down that day. Some of it was World Cup streaming.

This crowd pulled a really consistent 180Mbit – 200Mbit connectivity during the day, with some peaks into the 250Mbit range during breaks.