IEEE 802 Plenary Session

Marina Bay Sands Convention Center, Singapore

Mid-Session Network Services Report

March 16th, 2011

Summary

Verilan, Inc. is providing comprehensive network services for the IEEE 802 March 2011 Plenary meeting at the Marina Bay Sands Convention Center (MBSCC) in Singapore, Singapore. We are pleased to report that after a full infrastructure deployment, the following issues have been identified and resolved. The network is stable and supporting in excess of 800 unique wireless clients (laptops, smartphones, etc.)

Issue: Slow response times and connection time outs to multiple sites in North America.

Resolution: Verilan's NOC team became aware of significant damage to Pacific submarine cables caused by the recent earthquake off the coast of Japan. Verilan consulted with the ISP servicing the MBSCC and requested that our traffic be rerouted to circumvent the damaged cables. All of our data traffic has been successfully rerouted and we are now experiencing normal response times to and from North America

Issue: The IEEE 802 document server (mentor.ieee.org) became non responsive to attendees.

Resolution: The Verilan NOC team contacted the IEEE-SA technical administrator who advised that there were a significant number of bots connecting to mentor and continuously polling for changes to the document system to support remote document synchronization. The number of bots and scripts exceeded the number of available connections to the document server thereby effectively causing a denial of service attack on mentor. The IEEE-SA technical administrator implemented a script on mentor that would identify and

block IP addresses with unusually high numbers of repeated wget requests. Due to the requirement of NAT to support connections during plenary meetings all attendees appear to come from a single public IP address. Unfortunately the large number of attendee document requests coming from the plenary meeting caused the IEEE-SA script to block all traffic from MBSCC to mentor. The Verilan NOC team changed the public IP address of the local router and notified the IEEE-SA technical administrator requesting that the public address space assigned to IEEE 802 at the MBSCC be excepted from the recently implemented blocking script. Access to mentor is currently available to all attendees.

The Verilan Network Help Desk is providing support for all attendees during scheduled meeting hours. All Help Desk support requests have been addressed and fully resolved by the Verilan staff.

The property is fed by a 100Mbps symmetrical fiber connection to the Internet. We were given unrestricted access to 50Mbps of symmetrical bandwidth dedicated to our meeting space. Comprehensive LAN and WLAN infrastructure including managed layer 3 switches were configured and deployed in the MDF, IDFs and 44 meeting rooms located in the convention center. A total of six IDF's were interconnected to the MDF via optical links. Network traffic statistics are shown in Figure 1. Internet usage for the last 24 hour period is shown in Figure 2. Internet usage for the last seven days is shown in Figure 3. Internet usage for the last twelve months is shown in Figure 4.

Traffic statistics - Wed Mar 16 07:55:00 2011

Interface	Period	Direction	Current rate	Hour	Day	Week	Month
EXTERNAL	Current	In	0.0 bit/s	636.0 MB	60.3 GB	279.1 GB	279.1 GB
		Out	0.0 bit/s	378.2 MB	36.2 GB	192.5 GB	192.5 GB
	Previous	In		33.9 MB	141.5 GB	0.0 KB	0.0 KB
		Out		4.5 MB	79.9 GB	0.0 KB	0.0 KB
MANAGEMENT	Current	In	0.0 bit/s	222.8 MB	20.1 GB	86.9 GB	86.9 GB
		Out	0.0 bit/s	103.7 MB	3.7 GB	28.2 GB	28.2 GB
	Previous	In		3.8 MB	41.5 GB	0.0 KB	0.0 KB
		Out		31.2 MB	11.9 GB	0.0 KB	0.0 KB
open	Current	In	0.0 bit/s	141.3 MB	14.4 GB	103.3 GB	103.3 GB
		Out	0.0 bit/s	469.7 MB	52.1 GB	242.8 GB	242.8 GB
	Previous	In		620.0 KB	38.0 GB	0.0 KB	0.0 KB
		Out		1.4 MB	128.3 GB	0.0 KB	0.0 KB
secure	Current	In	0.0 bit/s	15.6 MB	1.8 GB	2.6 GB	2.6 GB
		Out	0.0 bit/s	63.2 MB	4.3 GB	7.8 GB	7.8 GB
	Previous	In		373.0 KB	426.4 MB	0.0 KB	0.0 KB
		Out		1.3 MB	1.2 GB	0.0 KB	0.0 KB

Figure 1. Internet Traffic Statistics
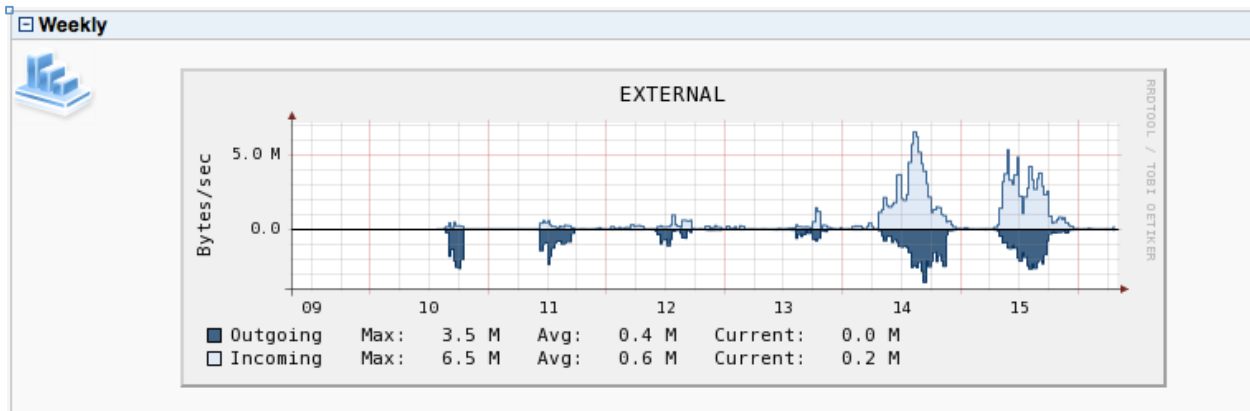
Figure 2. Internet Usage: past 24 hours (CST)

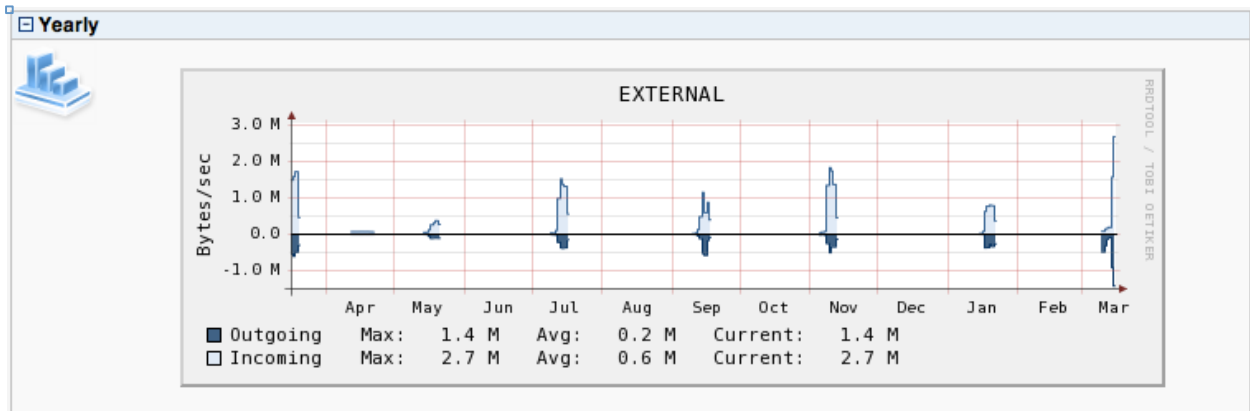**Figure 3. Internet Usage: past 7 days**

Figure 4. Internet Usage: past 12 months

Network Deployment & Coverage

Verilan deployed 64 enterprise grade tri-modal IEEE 802.11a/b/g wireless access points throughout the MBSCC to provide coverage for all meeting spaces. Verilan is providing both Open and Secure (802.1x) networks to registered attendees. Figure 5. illustrates the location of the WAP deployments.

Figure 5. Wireless Access Point Deployment Plan