



Case Study – Enterasys Network and Security Solutions for Siemens Enterprise Communications' CeBIT 2011 Booth

Case Study – Enterasys Network and Security Solutions for Siemens Enterprise Communications' CeBIT 2011 Booth

The Challenge

At the CeBIT 2011 show in Hannover Germany, Enterasys was responsible for designing, building and running the wired and wireless networks for the Siemens Enterprise Communications (SEN) booth. The booth network was equivalent to a very dynamic small enterprise or a branch office of a larger enterprise organization. The booth had a permanent working staff of about 70 employees and partners, hundreds of wireless guests per day, more than 70 virtual machines running a diverse set of Unified Communications (UC) and traditional applications, and nearly all of the available SEN fixed, mobile and software UC clients. In addition to the challenges a typical company faces, the booth was also threatened by a huge number of external, non-managed wireless networks and thousands of wireless clients. The wireless network had to sustain a high load of interferences and defend against various types of wireless attacks while providing high performance and consistent availability for the authorized wireless clients running UC applications. And, of course, all this had to be built in a few days.

At the CeBIT 2011 show Enterasys showed the manageability, automation, ease of setup, reliability and performance of its solutions in a diverse and converged environment.

Overview and Setup

The SEN Booth consisted of 12 demonstration stations where advanced technology solutions from SEN and its partners were presented, including;

- Enterasys Networks Network Management Suite (NMS) and Network Access Control (NAC)
- OpenScope LIA Location and Identity Assurance
- OpenScope ILA Identity Lifecycle Assistant
- OpenScope EEM Energy Efficiency Management based on Joulex JEM
- OpenScope Video based on Polycom
- OScAR (formerly DAKS) Alarming system
- Various Unified Communication solutions such as voice and video conferencing, Voice over WLAN, mobile UC clients, branch office solutions

Enterasys was responsible for providing wireless connectivity to the showcases for booth staff and guests. The network needed to provide wired and wireless access for hundreds of users, 70+ virtual machines (VM's) and a diverse set of applications with very different bandwidth and prioritization requirements. The following Enterasys infrastructure delivered uninterrupted wired and wireless access for the converged data, voice and video environment:

- 12 D-Series switches, one for each demo station
- 4 Enterasys WLAN Access Points and 4 WIPS Sensors for connectivity and intrusion detection
- 1 C5 stackable switch as an aggregation switch and router
- 1 S-Series SSA switch (+ 1 as backup) as the data center switch for connecting the virtualized data center (3 ESX hosts running 70+ virtual machines), the NetApp storage solution and the HiPath 3000
- 2 B5 stackable switches and 1 C5 stackable switch for connecting the various VoIP phones at the "device island" and as backup
- NMS/NAC for integrated wired / wireless and data center management and security

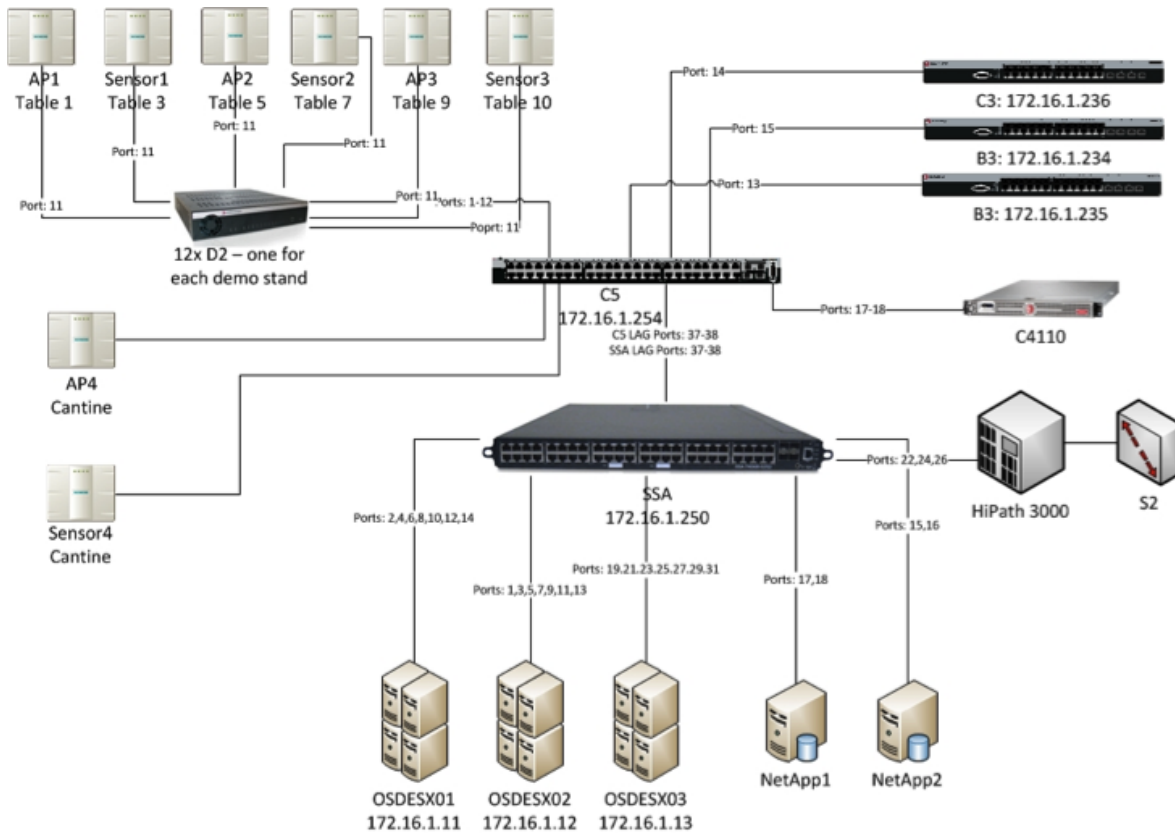


Figure 1: Booth Network Diagram

Wireless

The Enterasys wireless network used four access points (APs) and four sensors for connectivity and intrusion detection in an environment with over 100 simultaneously connected devices on three different SSIDs. Wireless Advanced Services (WAS) was utilized to demonstrate wireless LAN (WLAN) management features that included AP coverage, global location maps, wireless client location, lists of APs/sensors/devices, and reporting.

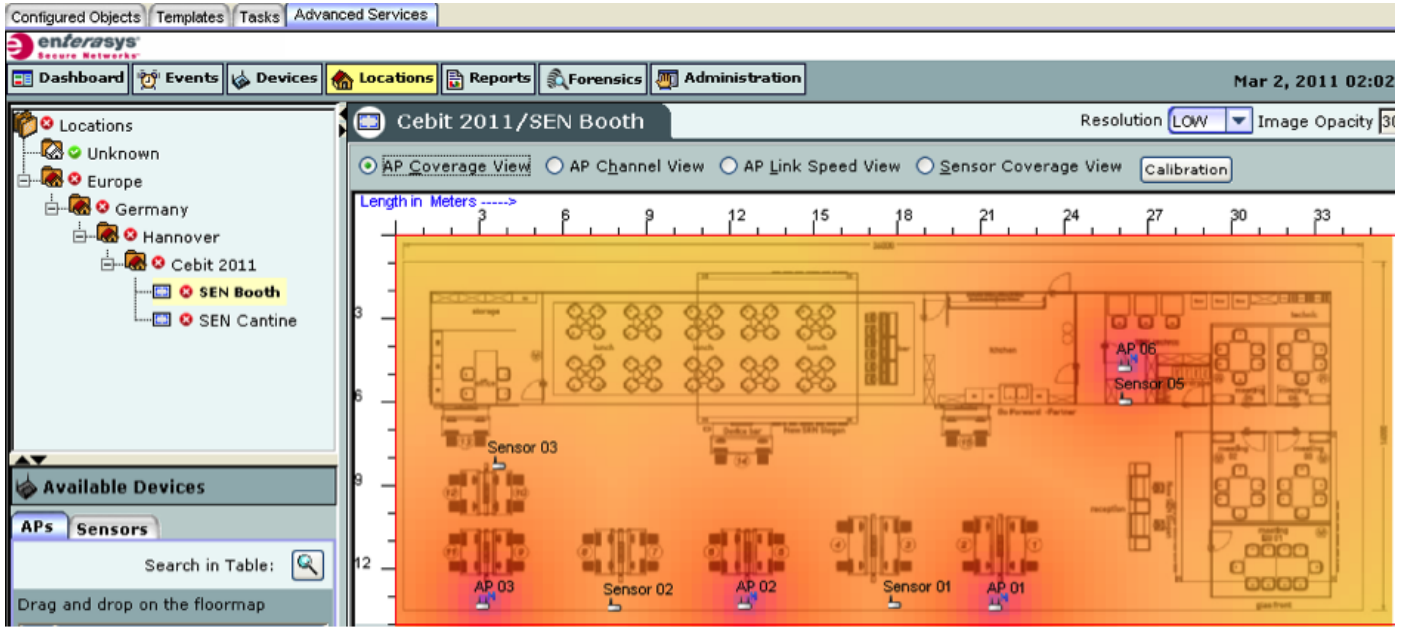


Figure 2: NMS AP Coverage Map

The sensors detected about 300 wireless access points on the show floor that were not managed by Enterasys. Various attacks against the WLAN including DoS tools, MAC spoofing, misbehaving clients and rouge APs were detected and mitigated. All vulnerabilities, attacks and the overall system's status was managed from the dashboard provided within the WAS tool. The wireless LAN was stable and provided the required connectivity and performance throughout the show.

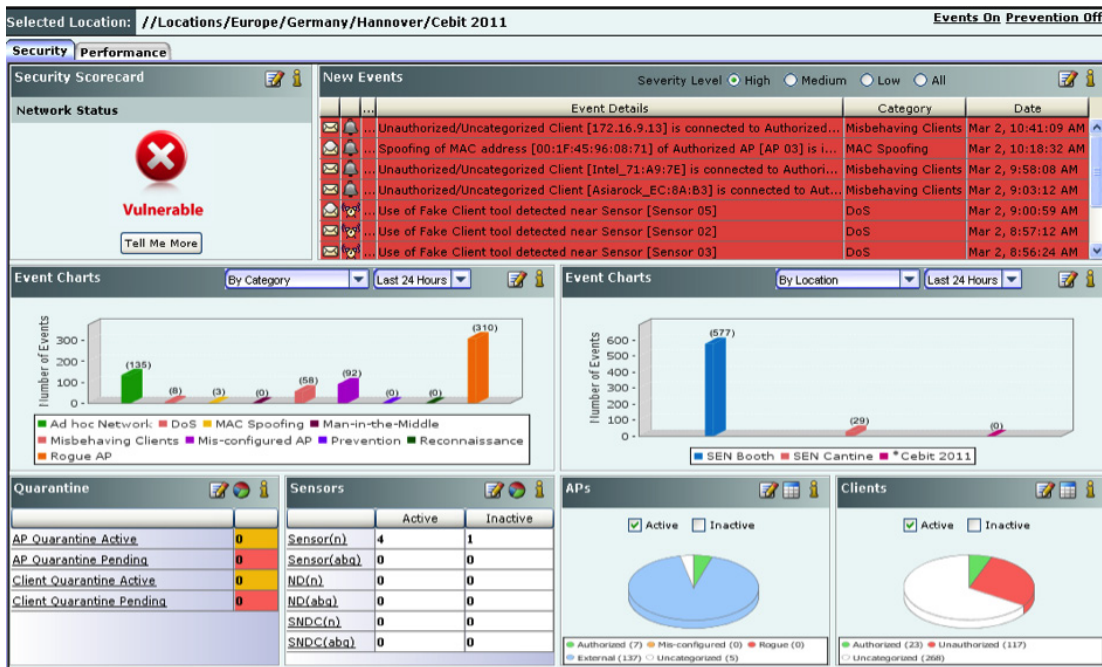


Figure 3: NMS Wireless Security Dashboard

Wireless Guest Access

The front desk team provided booth visitors with wireless login credentials for the SEN Guest WLAN. Visitors were initially assigned a very restricted 'Unregistered' policy that blocked most traffic and automatically redirected them to the guest registration portal. After successful registration they were automatically assigned the "Guest Access" policy that enabled them to access the internet but prohibited them from accessing any of the internal management or server networks. Enterasys NMS was used to design and deploy the access control and prioritization policies used in both the wired and wireless networks.

ID	MAC Address	MAC OUI/Vendor	IP Address	Switch #	Switch Port	Hosttype	Client
1	VMWARE_AD0053	VMware, Inc.	172.16.1.250	LAG ESX Blade 1 (tag 0.1)	osdfcascade2	opensescape demo	
2	APPLE_13DFA0F	Apple, Inc.	172.16.9.20	172.16.10.42	AP 04 (00-1F-45-96-13-02)	SEN Guest Ceblt	iPhone/iPad/Pod
3	VMWARE_3F0101	VMware, Inc.	172.16.10.201	172.16.1.250	LAG ESX Blade 3 (tag 0.3)		
4	APPLE_A28DCB	Apple	172.16.9.18	172.16.10.42	AP 02 (00-1F-45-96-0E-EA)	SEN Guest Ceblt	osduc1 opensescape demo
5	VMWARE_AD0032	VMware, Inc.	172.16.10.50	172.16.1.250	LAG ESX Blade 3 (tag 0.3)		iPhone/iPad/Pod
6	VMWARE_AD0051	VMware, Inc.	172.16.10.53	172.16.1.250	LAG ESX Blade 3 (tag 0.3)		osdfcascade3 opensescape demo
7	APPLE_1807D0C	Apple, Inc.	172.16.9.30	172.16.10.42	AP 03 (00-1F-45-96-0E-7A)	SEN Guest Ceblt	Oregona-iPhone
8	RM288789	RM	172.16.9.17	172.16.10.42	AP 01 (00-1F-45-96-0E-5A)	SEN Guest Ceblt	BLACKBERRY-3925
9	APPLE_F87409	Apple	172.16.9.22	172.16.10.42	AP 02 (00-1F-45-96-0E-EA)	SEN Guest Ceblt	iPhone/iPad/Pod
10	APPLE_137B69	Apple	172.16.9.13	172.16.10.42	AP 05 (00-1F-45-96-13-BA)	SEN Guest Ceblt	iPhone/iPad/Pod
11	APPLE_F46EA1	Apple	172.16.9.21	172.16.10.42	AP 01 (00-1F-45-96-0E-5A)	SEN Guest Ceblt	iPhone/iPad/Pod
12	APPLE_DC318F	Apple	192.168.2.110	172.16.10.42	AP 06 (00-1F-45-97-02-8A)	SEN Guest Ceblt	pefers-iPhone
13	VMWARE_AD0052	VMware, Inc.	172.16.10.55	172.16.1.250	LAG ESX Blade 1 (tag 0.1)		osdfcascade4 opensescape demo
14	APPLE_1562E11	Apple, Inc.	172.16.9.24	172.16.10.42	AP 05 (00-1F-45-96-13-BA)	SEN Guest Ceblt	Heads-iPhone
15	HTC_C0P0097D	HTC Corporation	172.16.9.56	172.16.10.42	AP 01 (00-1F-45-96-0E-5A)	SEN Guest Ceblt	BS_HTC_HD2
16	APPLE_23AF04	Apple	172.16.9.35	172.16.10.42	AP 02 (00-1F-45-96-0E-EA)	SEN Guest Ceblt	iPhone/iPad/Pod
17	INTEL_CO_C1_22A6	Intel Corporate	172.16.9.34	172.16.10.42	AP 04 (00-1F-45-96-13-02)	SEN Guest Ceblt	DE00064W
18	VMWARE_AD0060	VMware, Inc.	172.16.10.54	172.16.1.250	LAG ESX Blade 3 (tag 0.3)		osdfcascade4 opensescape demo
19	RM_375828	RM	172.16.9.33	172.16.10.42	AP 02 (00-1F-45-96-0E-EA)	SEN Guest Ceblt	BLACKBERRY-0500
20	APPLE_04C847	Apple	172.16.9.32	172.16.10.42	AP 05 (00-1F-45-96-13-BA)	SEN Guest Ceblt	iPhone/iPad/Pod
21	APPLE_74ED04	Apple	172.16.9.29	172.16.10.42	AP 01 (00-1F-45-96-0E-52)	SEN Guest Ceblt	Medias-iPad
22	APPLE_4C3130	Apple	172.16.9.27	172.16.10.42	AP 01 (00-1F-45-96-0E-5A)	SEN Guest Ceblt	LeSMeas-30-2
23	INTEL_CO_53EA5E	Intel Corporate	172.16.9.26	172.16.10.42	AP 04 (00-1F-45-96-13-0A)	SEN Guest Ceblt	Albert-VWS
24	INTEL_5082A358	Intel Corporate	172.16.9.30	172.16.10.42	AP 03 (00-1F-45-96-0E-72)	SEN Guest Ceblt	DE02138V
25	XTROX_CO_000912	XTROX CORPORATION	172.16.9.25	172.16.1.250	LAG ESX Blade 2 (tag 0.2)		Windows
26	APPLE_11509C7	Apple, Inc.	172.16.9.24	172.16.10.42	AP 01 (00-1F-45-96-0E-52)	SEN Guest Ceblt	iPhone/iPad/Pod
27	SAMSUNG_4A5E54	SAMSUNG ELECTRO-MECHANICS	172.16.9.23	172.16.10.42	AP 02 (00-1F-45-96-0E-EA)	SEN Guest Ceblt	Android
28	INTEL_CO_2DFF00	Intel Corporate	172.16.9.19	172.16.10.42	AP 02 (00-1F-45-96-0E-E2)	SEN Guest Ceblt	KSamba-ws
29	OVIC_C0P0097D	OVIC CORPORATION	172.16.9.41	172.16.10.42	AP 05 (00-1F-45-96-13-BA)	SEN Guest Ceblt	MHC03AMC
30	LITEON_88CA08	LITE-ON Technology Corp.	172.16.9.16	172.16.10.42	AP 05 (00-1F-45-96-13-BA)	SEN Guest Ceblt	MHE019VC
31	APPLE_1A5B48	Apple	172.16.9.16	172.16.10.42	AP 01 (00-1F-45-96-0E-5A)	SEN Guest Ceblt	iPad
32	INTEL_CO_90CB02	Intel Corporate	172.16.9.14	172.16.10.42	AP 04 (00-1F-45-96-13-02)	SEN Guest Ceblt	HBusch-ws

Figure 4: NMS End System Table

Enterasys NMS OneView, unified web-based interface, provided the booth staff with a centralized, detailed analysis of the status and performance of the wireless infrastructure. This enabled the team to easily monitor the status of the wireless infrastructure and identify periods of high bandwidth load, top talkers, the number of connected clients and the status of the access points. This information was critical for maintaining a stable wireless network.

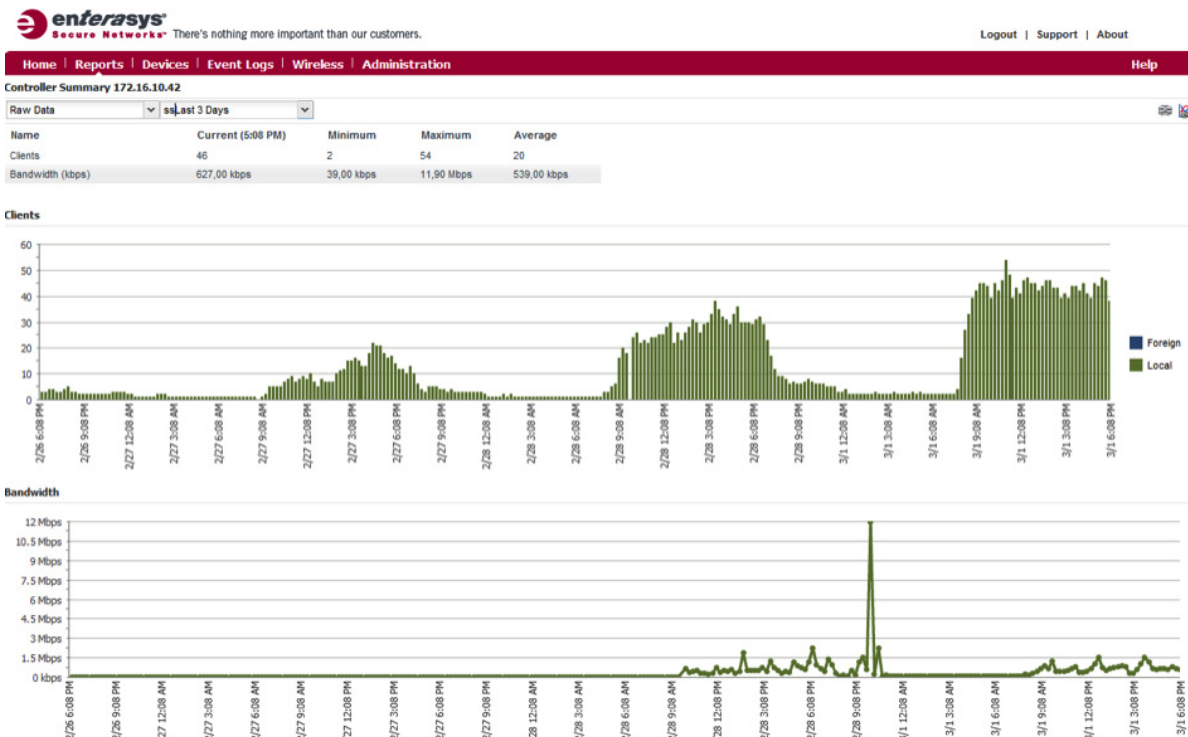


Figure 5: NMS OneView Wireless Controller Summary Dashboard

Wired Network

A high performance Enterasys SSA was used as the data center switch to connect three VMware ESX hosts and two NetApp storage solutions running NFS. The ESX hosts each had seven interfaces connected; three for management and VMotion and four for link aggregation (LACP). The LACP interfaces were used for virtual machine traffic. Using its unique feature set the SSA provided 100% uptime, flawless performance for all VM traffic and dedicated security for each virtual machine. Enterasys Data Center Manager (DCM) automatically identified each VM and assigned it an access control and prioritization policy. If VMotion moved the VM to a different ESX host the access control and prioritization policies automatically followed the VM without the need for manual provisioning. This guaranteed the correct security and connectivity profile was always assigned to each VM, resulting in increased security and improved performance.

Virtuelle Maschinen / Telefoninformationen		Authorization
1	vmName=osdwas;vmGuestFullName=Anders Linux-System (32-Bit);vmLuid=4220838-9e3d-bab5-6c6c-3bf12568c5b8;vmmor=VirtualMachine:vm-421	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
2	vmName=osdsvr70;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422da06-7039-fc82-1261-5f65dfb717fa;vmmor=VirtualMac...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
3	vmName=osdsvr60_accounting;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422d956b-264e-fb15-759e-798be80b20d5;v...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
4	vmName=osdsvr43_joulex;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=42200e9f-87ae-f729-4b1b-b55b48838363;vmmor...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
5	vmName=osdsvr40_netsight;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422d5dbb-fa2e-bf5c-d6c8-855191194811;vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
6	vmName=osdsvr31_blackberryenterprise;vmGuestFullName=Microsoft Windows Server 2008 (64-Bit);vmLuid=422dc33b-ba21-9166-01d5-9a...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
7	vmName=osdsvr28_connect;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422d78b6-1cb0-0c7b-dc51-77b237e18d7d;vmmor...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
8	vmName=osdsvr27_concierge;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422d414f-96d2-453c-0509-5fcd50ac604;vmmo...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
9	vmName=osdsvr26_cds;vmGuestFullName=Suse Linux Enterprise 11 (32-Bit);vmLuid=422d8391-9fae-9a5a-cc6e-96721a1897fb;vmmor=VirtualMac...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
10	vmName=osdsvr25_oscc;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422d4078-6da6-a41e-5411-f5ccea8cdc1d;vmmor=Vi...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
11	vmName=osdsvr25_oscc;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422d4078-6da6-a41e-5411-f5ccea8cdc1d;vmmor=Vi...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
12	vmName=osdsvr22_phoneapps;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422dca0d-595c-8b80-96dd-a170a7cb5404;vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
13	vmName=osdsvr21_dis;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dda71-34cc-9a8e-d666-787978574154;vmmor...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
14	vmName=osdsvr19_ucma;vmGuestFullName=Microsoft Windows Server 2008 (64-Bit);vmLuid=422d83ab-2644-a9c3-0327-c5550e452e61;vmmor=V...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
15	vmName=osdsvr18_lync2010;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dba08-6762-f3a2-7027-a596949a8e75;vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
16	vmName=osdsvr16_sametime 8.5.1;vmGuestFullName=Microsoft Windows Server 2008 (32-Bit);vmLuid=422df0b2-a793-89f5-05c3-4e0dcfb6f51c;v...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
17	vmName=osdsvr15_domino 8.5.2;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dcc85-96c6-4cf8-864d-77765ccc28bb...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
18	vmName=osdsvr14_exchange2010;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dc877-4243-b0f9-a311-e77ddd13e4...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
19	vmName=osdsvr13_wsus;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dd568-58ce-45e1-8a72-a86d21f66689;vmmo...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
20	vmName=osdsvr12_dc2;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422dc07c-3fd2-1f03-9bd5-2a923ed32be0;vmmor...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
21	vmName=osdsvr11_dc1;vmGuestFullName=Microsoft Windows Server 2008 R2 (64-Bit);vmLuid=422d2fa3-1965-3959-754d-c647b0ee2530;vmmor...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
22	vmName=osduc5_UC_V6;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d5717-d849-f71e-a85c-ed365e2d0673;vmmor=VirtualMac...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
23	vmName=osduc4_hp4k;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422db3ba-e913-5bf7-87db-fb462b3638e8;vmmor=VirtualMachin...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
24	vmName=osduc3_sametime;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d09d3-f80e-d565-a727-125aaaf3c767;vmmor=VirtualMa...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
25	vmName=osduc2_lync;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d6ce2-cf9c-e75f-1964-16f17a1fba68;vmmor=VirtualMachine...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
26	vmName=osduc1_standalone;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422dd176-1741-6465-363c-6d446ac50e15;vmmor=Virtual...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
27	vmName=osdocb;vmGuestFullName=Suse Linux Enterprise 11 (32-Bit);vmLuid=422dab7d-e871-dba0-3d84-e6ab18ce7142;vmmor=VirtualMachine:vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
28	vmName=osdnode2;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d8671-680a-36fd-f60f-07fa8a72a5f9;vmmor=VirtualMachine:vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
29	vmName=osdnode2;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d8671-680a-36fd-f60f-07fa8a72a5f9;vmmor=VirtualMachine:vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
30	vmName=osdnode2;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d8671-680a-36fd-f60f-07fa8a72a5f9;vmmor=VirtualMachine:vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
31	vmName=osdnode2;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d8671-680a-36fd-f60f-07fa8a72a5f9;vmmor=VirtualMachine:vm...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'
32	vmName=osdnode1;vmGuestFullName=Suse Linux Enterprise 10 (64-Bit);vmLuid=422d1532-7df8-deeb-0d98-df06926f0392;vmmor=VirtualMachine:v...	Filter-Id=Enterasys:version=1;policy=VMWARE Server'

Figure 6: NMS - Policies applied to Virtual Machines

The reporting capability of NMS OneView provided visualization of the number of virtual machines, their operating systems, their assigned NAC profile and the switch they were connected to (the screenshot was taken before all VMs were active in the network).

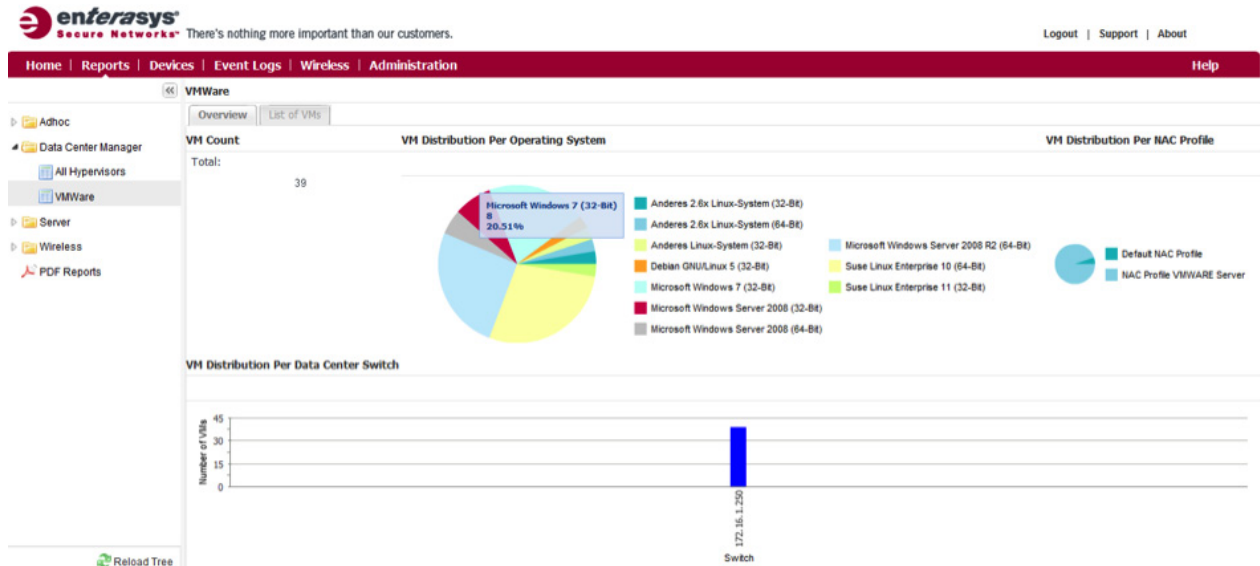


Figure 7: NMS OneView Data Center Manager – Virtual Machine Dashboard

The Enterasys C5 switch was used as the central router to connect all of the wired and wireless clients, voice phones, datacenter VM's, and the UC infrastructure with each other and with the Internet. Each demo stand had its own D-Series desktop switch to connect PC's, laptops, phones, WLAN access points and other demo equipment to the network.

NMS Mobile

Finally, the new NMS Mobile application was demonstrated using an iPhone 3. Guests to the booth could view details about their wireless mobile devices and see an administrator's high-level status view of the entire wired and wireless network.

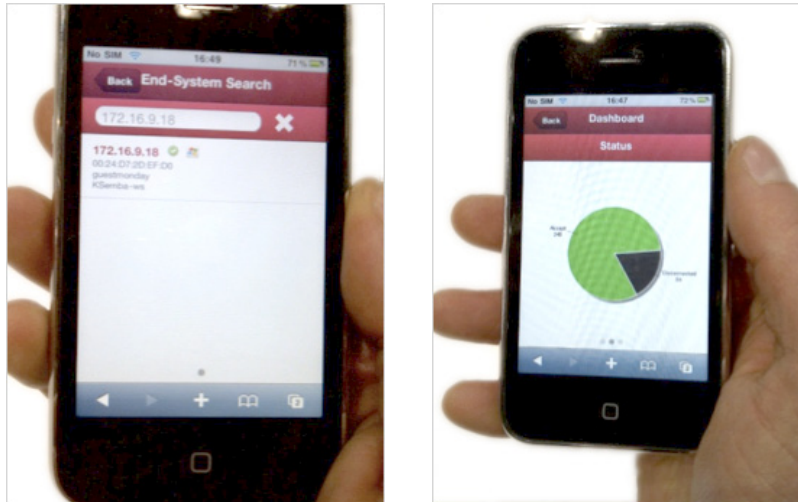


Figure 8: NMS Mobile Apps

Summary

Enterasys was able to quickly build and manage a complete wired and wireless network for SEN's CeBIT 2011 booth. Customers were very interested in seeing Enterasys NMS's integrated management capabilities, which included wired and wireless network configuration, security, status information, performance analysis and reporting – all under one central management suite. The Wireless Advanced Services, Network Access Control and Data Center Manager solutions drew a lot of attention and were key to managing the converged network. Authenticating, authorizing and managing both wired and wireless end-systems and users from a single management tool provided cost-effective, centralized visibility and control for the entire converged environment.

The CeBIT booth infrastructure demonstrated flawless performance under uniquely demanding conditions. Dynamic small enterprises or branch offices of large enterprises typically have similar networks. Enterasys CeBIT booth's wired and wireless network performance demonstrated a level of performance, efficiency and security that any organization can achieve today.

Contact Us

For more information, call Enterasys Networks toll free at **1-877-801-7082**, or +1-978-684-1000 and visit us on the Web at enterasys.com



© 2011 Enterasys Networks, Inc. All rights reserved. Enterasys Networks reserves the right to change specifications without notice. Please contact your representative to confirm current specifications. Please visit <http://www.enterasys.com/company/trademarks.aspx> for trademark information.

