Cisco AssureWave Wireless LAN Controller

Release 7.2.110.0 Test Results

Version History

Version number	Date	Notes
0.1	July 11, 2012	Draft
0.2	July 11, 2012	Final version

Executive Summary

AssureWave is a Cisco initiative that provides Wireless LAN service providers with their Cisco software version of choice.

The AssureWave program collects topology, application, and client information from various sources such as Sales Engineers, TAC and directly from customers to build test networks that simulate particular vertical environments. These test networks run additional scenarios based on this vertical information to better cover various interoperability matrices. The vertical test beds are built upon existing horizontal technologies such as Mobility, Voice, and Routing/Switching. In addition, existing Best Practices and Deployment Guides from the different technologies are referenced and deployed in the networks. This release tested the HealthCare, Retail, Enterprise and Higher Education vertical market scenarios.

The AssureWave program also proactively enlists additional testing from 3rd party partners in addition to any existing Cisco partnerships. This comprehensive testing of client and application interoperability results in a smoother introduction of a complete end-to-end wireless ecosystem.

This document summarizes what was tested for each market segment; in which specific combinations of devices and features were tested; a test summary and recommendation; and relevant open caveats.

Contents

HealthCare Vertical Market

What Was Tested

- Cisco Wireless LAN Controller (5508, WiSM, WISM2 and 3750 Integrated) N-1 and N-2 upgrades (N-2, N-1 being previous major releases and N being current version).

- Cisco Prime NCS (NCS) N-1 Upgrade (N-1 being the previous major release and N being current version).

- Cisco Mobility Services Engine (MSE) Appliance N-1 Upgrade (N-1 being the previous major release and N being current version).

- Simultaneous client encryption methods—Open, WEP, WPA and WPA2.

- Simultaneous client EAP authentication modes—LEAP, PEAP, EAP-FAST, EAP-TLS.

- Layer 2 (inter/intra controller) and Layer 3 roaming scenarios (with voice and data clients).

- High Availability—Controller/AP, access layer failover testing.

- Voice clients including the Cisco 7921/25/9971, Spectralink 8030, Ascom i62/i75 and Vocera badges with one-to-one, one-to-many (as applicable), wireless-to-landline, and PTT.

- Guest Access (wired and wireless) with Open/EAP authentication methods.

- Location tracking with data/voice clients and active RFID tags.

- Interoperability between various data, voice, and RFID devices on both the 2.4 and 5Ghz bands as applicable.

- Radio Resource Management (RRM) functionality

- IPv4/IPv6 Media Streaming and Multicast with Roaming

- Vlan Pooling.

- Wireless Medical Patient Monitoring Systems , IV Pumps , etc. with WEP , WPA2-PSK security with a/b/g radios.
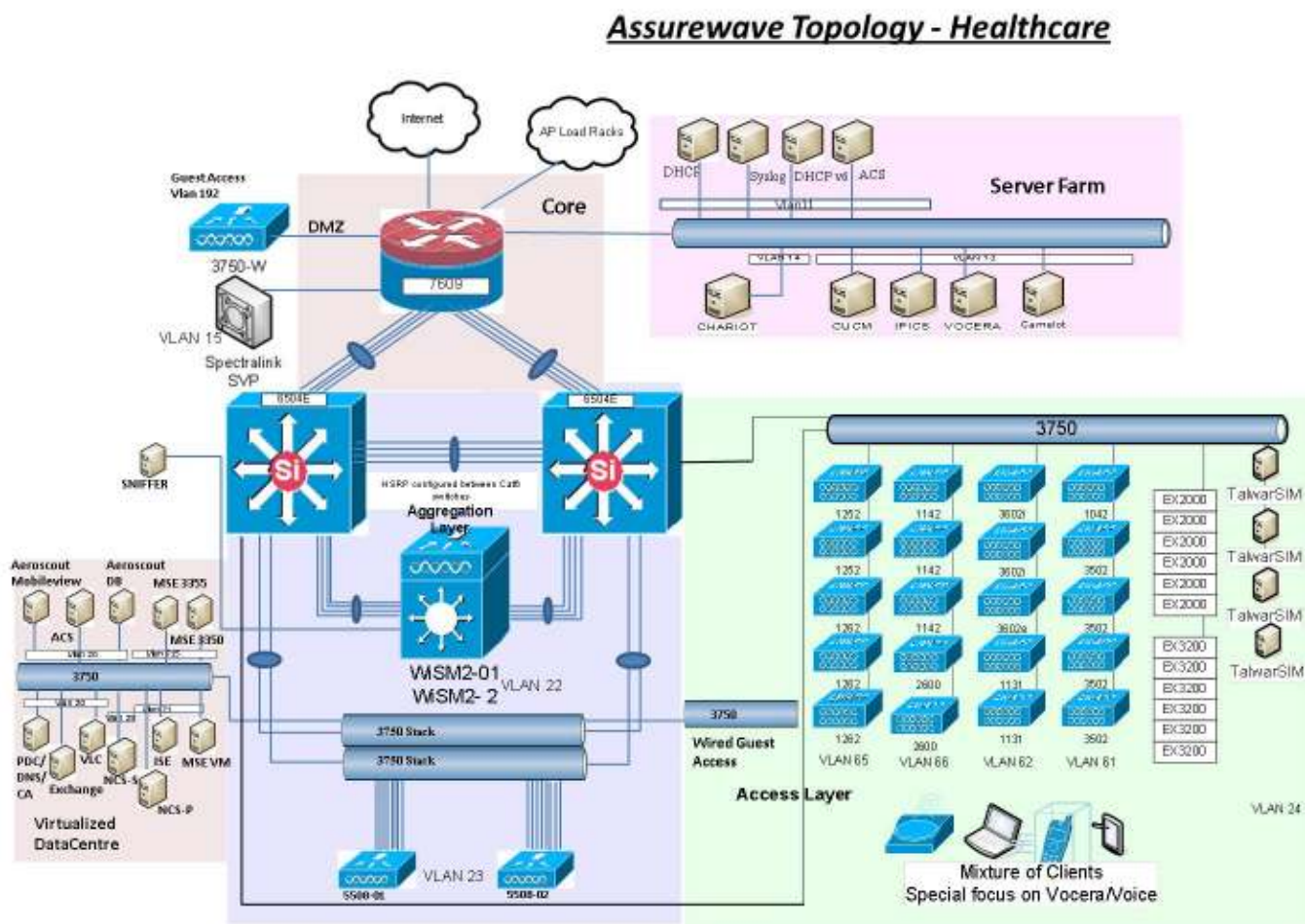
- SNMP stress

Healthcare Test Topology

Figure 1 shows the test topology for the Healthcare vertical market.

Assurewave Topology - Healthcare

Devices and Software Tested

The following devices and software were tested as part of the AssureWave healthcare vertical market.

Table 1   Infrastructure Devices Tested for Healthcare

Infrastructure Device Information	
Device	**Version**
WS-C6504-E w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-WISM-1-K9 w/ WS-SVC-WISM2-K9 WS-C6504-E w/ VS-S2T-10G w/ WS-X6148-GE-45AF w/ WS-SVC-WISM2-K9 WS-C6504-E w/ VS-S2T-10G w/ WS-X6148-GE-45AF	12.2(33)SXJ1 15.0(1)SY1
WS-C3750G-24PS-S WS-C3750G-48PS-S	12.2(44)SE
CISCO7609 w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-FWM-1-K9	12.2(18)SXJ2

Table 2   Controller and Access Point Devices Tested for Healthcare

Controller / Access Point Information	
Device	**Version**
AIR-WLC5508-500	7.2.110.0
WS-SVC-WISM2-1-K9	7.2.110.0
WS-SVC-WISM-1-K9	7.0.220.0
WS-C3750G-24WS-S25	7.0.220.0
AIR-LAP1131AG-A-K9	7.2.110.0
AIR-LAP1142N-A-K9	7.2.110.0
AIR-LAP1242AG-A-K9	7.2.110.0
AIR-LAP1252AG-A-K9	7.2.110.0
AIR-LAP1262N-A-K9	7.2.110.0
AIR-CAP3502E-A-K9	7.2.110.0
AIR-CAP3502I-A-K9	7.2.110.0

Corporate Headquarters:

Controller / Access Point Information	
Device	**Version**
AIR-LAP2600I-A-K9	7.2.110.0
AIR-LAP3602E-A-K9	7.2.110.0
AIR-LAP3602I-A-K9	7.2.110.0
AIR-LAP1042N-A-K9	7.2.110.0
AIR-AP1232AG-A-K9	12.3(8)JEE (as WGB)
AIR-AP1242AG-A-K9	12.4(25d)JA1 (as WGB)
AIR-AP1131AG-A-K9	12.4(25d)JA1(as WGB)

Table 3   Network Server Devices Tested for Healthcare

Network Server Information	
Server Type	**Version**
Microsoft AD, DHCP, DNS, TFTP and FTP Services	Windows 2008 R2 Server
Microsoft CA Services	Windows 2008 R2 Server
Cisco ACS Radius Server	4.2(0) Build 124
Microsoft DHCPv6 Server	Windows 2008 Server (Standard)
Cisco ACS Radius Server	5.2.0.26
Microsoft Exchange Server 2010	Windows 2008 R2 Server
Cisco Identity Services Engine (ISE)	1.1.0.665
Cisco Unified Call Manager (CUCM)	7.1.5.33900-10
Vocera Server	4.1/SP5
Vocera Client Gateway	4.1/SP5
AeroScout MobileView Server	4.3.3.12
VLC Media Player	1.0.7 , 2.0.0
Cisco NCS	1.1.1.24
Cisco NCS Virtual Appliance- Secondary	1.1.1.24
Cisco Virtual MSE appliance	7.2.110.0
Cisco MSE 3350 Appliance	7.2.110.0
Cisco MSE 3355 Appliance	7.2.110.0
Linux RH SYSLOG/NTP Server	Linux RH Enterprise AS4
Spectralink SVP-100 Server (SRP)	230.009/071.002/173.037/174.037/175.037
Spectralink PRI GW	213.001/071.005/213.034/171.012/172.012

Table 4   Application Products Tested for Healthcare

Application Information	
Application	**Version**
IPICS	2.0(2)
AeroScout Tag Manager	4.4.2.4

Table 5   Voice Client Devices Tested for Healthcare

Voice Client Information	
Device	**Version**
Ascom i62 Phone	2.5.7 , 3.4.6
Ascom i75 Phone	1.8.0
Cisco 7921 Phone	1.4.2
Cisco 7925 Phone	1.4.2
Cisco 9971 Phone	9.2.4.19
Cisco Cius	9.2.3.143
Spectralink 8030	119.081/131.030/132.030 (SIP)
Spectralink 8450	4.0.0.15769 (SIP)
Vocera Badge B1000A/B2000	4.1/SP5 (Build 1942)
Vocera Smartphone	2.3.4.0119

Table 6   Laptop Client Devices Tested for Healthcare

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
Acer Aspire AO722	Win 7 Pro SP1(32 bit)	Atheros AR5B125	9.2.0.412
Lenovo X120e(AMD)	Win7 Pro SP1 (64 bit)	Lenovo 1x1 11b/g/n Half Mini Adapter	1003.10.1112.2010
Fujitsu Lifebook P701	Win7 Pro (32 bit)	Intel N 6205 AGN	14.0.2.2
Toshiba Tecra R850	Win7 Pro SP1 (32 bit)	Intel N 6230 AGN	14.1.1.3
Acer TravelMate 8481T	Win 7 Pro SP1 (64 bit)	Intel N 6205 AGN	14.1.1.3
HP 3115M	Win 7 Home Premium (64 bit)	Intel N 6230 AGN	14.2.0.10
Acer Aspire 3624WXMi	WinXP/SP3	Atheros AR5005G	4.0.0.14001
Acer Aspire 9500	WinXP Pro (x86)	Atheros 5005G	4.0.0.14001
Apple MacBook Air	MacOS 10.6.7	AirPort Extreme	5.10.131.36.9
Apple MacBook Pro	MacOS 10.5.8	AirPort Extreme	1.4.16.2

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
Asus Eee PC 1016PT	Win7 Pro (x86)	Intel 6200 AGN	13.5.0.6
Asus Eee PC 900	WinXP Home (x86)	Atheros AR5007EG	5.3.0.45
Asus R1F K018E	Win7 Ent (x86)	Intel 3945ABG	13.3.0.24
Dell Latitude E5410	Win7 Pro (x86)	Intel 6200 AGN	13.3.0.24
Dell Latitude E5410	Win7 Pro (x86)	Intel 6300 AGN	13.3.0.24
Dell Latitude E5410	Win7 Pro (x86)	Dell DW1520 AGN	5.60.48.35
Fujitsu Lifebook LH530	Win7 Pro (x64)	Atheros AR9285 GN	8.0.0.258
Fujitsu Lifebook T4215	Win7 Pro (x86)	Intel 3945ABG	13.3.0.24
Fujitsu Lifebook T4410	Win7 Pro (x86)	Intel 5100 AGN	12.4.1.4
Fujitsu Lifebook T580	Win7 Pro (x86)	Atheros AR928X	8.0.0.341
HP EliteBook 6930p	Win7 Ent (x64)	Intel 5300 AGN	13.4.0.9
HP EliteBook 6930p	WinXP Pro (x86)	Intel 5300 AGN	13.4.0.9
HP ProBook 6455b	Win7 Pro (x86)	Broadcom 4313 BG	5.60.350.11
HP ProBook 6550b	Win7 Pro (x86)	Broadcom 43224 AGN	5.60.350.11
HP/Compaq Compaq 6530b	Win7 Ent (x64)	Intel 5100 AGN	13.3.0.24
HP/Compaq Compaq 6530b	WinXP Pro (x86)	Intel 5100 AGN	13.4.0.9
HP/Compaq Compaq 6730b	Win7 Ent (x86)	Intel 5100 AGN	13.3.0.24
HP/Compaq Compaq 6830s	Win7 Ent (x86)	Intel 5100 AGN	13.3.0.24
HP/Compaq Compaq 6910p	Win7 Ent (x64)	Intel 4965 AGN	12.4.1.4
Lenovo N100	WinXP Pro (x86)	Intel 3945 AG	13.4.0.139
Lenovo SL400 2743-89U	Win7 Ent (x86)	Intel 5100 AGN	13.3.0.24
Lenovo T61	WinXP/SP3 (x86)	Intel 3945 AG	13.3.0.137
Motion Computing MC-C5v	Win7 Pro (x86)	Intel 6200 AGN	13.4.0.139
Motion Computing MC-F5	WinXP/Tablet/SP3	Intel 3945 ABG	13.4.0.139
Motion Computing J3400	Win7 Pro (x86)	Intel 5300 AGN	13.3.0.137
Panasonic ToughBook CF-52	Win7 Pro (x86)	Intel 5100 AGN	13.4.0.9
Panasonic ToughBook CF-U1	Win7 Ent (x86)	Intel 5100 AGN	13.1.1.1
Sony Vaio PCG-6Q1L	Win7 Ent (x86)	Intel 3945 ABG	12.4.1.4
Sony Vaio/PCG-7133L	Win7 Ent (x64)	Intel 4965 AGN	13.3.0.137
Sony Vaio/PCG-7X1L	Win7 Ent (x86)	Intel 3945 AG	13.4.0.139

Laptop Client Information			
Device	OS	Chipset	Driver
Toshiba Satellite A135-S2386	WinXP Pro (x86)	Linksys WPC600N	4.150.31.0
Toshiba Satellite A135-S4467	Win7 Ent (x86)	Intel 3945 AG	12.4.1.4
Toshiba Satellite U205-S5034	WinXP Pro (x86)	Intel 3945 AG	13.3.0.137
Toshiba Tecra A9-S9018X	WinXP Pro (x86)	Intel 4965 AGN	13.4.0.139
Toshiba Tecra M10-S3452	Win7 Ent (x64)	Intel 5100 AGN	13.4.0.9

Table 7   Tablet/Smartphone Devices Tested for Healthcare

Tablet/Smartphone Client Information		
Device	OS	Version
Apple iPod Touch	iOS	5.1.0 (9B179)
Apple iPad 2	iOS	5.1.0 (9B179)
Apple iPad 3	iOS	5.1.0 (9B179)
Apple iPhone 4S	iOS	5.1.0 (9B179)
Archos 43 Internet Tablet	Android	2.3.26
Samsung Galaxy Tab 7	Android	2.2.1
Samsung Galaxy Tab 10	Android	3.1
Dell Streak 7	Android	2.2.2
Asus Transformer TF101	Android	3.1
Toshiba THRiVE Tablet AT105	Android	3.2.1.31.5.0002
Sony Tablet S SGPT111US	Android	3.2
Cisco Cius Tablet	Android	2.2.2
Motorola XOOM	Android	3.1 (HMJ37)
Blackberry Playbook	Blackberry	1.0.5.2342

Table 8   Supplicant Devices Tested for Healthcare

Supplicant Information	
Device	Version
Cisco AnyConnect	3.0.5080
Microsoft Windows ZeroConfig	Windows XP Pro, Win7

Table 9 Other Client Devices Tested for Healthcare

Other Client Information	
PDA/Handhelds	**Version/Comments**
Motorola MC75A (Healthcare version)	WM 6.5 Classic/CE OS 05.02.21840
Tags/Exciters	**Version/Comments**
AeroScout Active RFID Tags	T2, T2 w/Call Button, T3, T4, T5h, T6
AeroScout EX2000B Exciters	BOOT 60702/DSP 30811
AeroScout EX3210 Exciters	BOOT 60702/DSP 30811
Ekahau Active RFID Tags (CCX Mode)	T301A, T301B, T301BD, T301Ex, T301i, T301is, T301t, T301W
Medical Devices	**Version/Comments**
CareFusion Alaris PC 8015 Series IV Pumps w/Systems Manager	PCU SW: 9.5.32.2, SM: 9.0
GE DASH 5000 Monitors	Main Sw Rev - 7.0 MULTI / DAS SW Rev– 6.7
Dräger Infinity Delta Monitors w/Central Station	VFW-8.3
Dräger M300 Monitors w/Central Station	VF8.10
Nihon Kohden BSM-6501A/6701A Monitors w/Central Station	IPL: 01-03, CPU: 03-10, CHR: 03-10 Radio – 4.54
Philips IntelliVue X2/MP2 Patient Monitors w/Central Station	H Version H.03.14
Sigma Spectrum Smart IV Pumps	v6.01.00
WelchAllyn Vital Signs Monitor (VSM 6000)	1.70.03
WelchAllyn Propaq LT	Radio FW: 2.30.02
WelchAllyn Micropaq	Radio FW: 2.30.02
Other	**Version/Comments**

Retail Vertical Market

What Was Tested

- Cisco Wireless LAN Controller (4404, WiSM, WiSM2, 5508 and 7510 Integrated) N-1 and N-2 upgrades (N-2, N-1 being previous major releases and N being current version).

- Cisco Prime NCS (NCS) N-1 Upgrade (N-1 being the previous major release and N being current version).

- Cisco Mobility Services Engine (MSE) Appliance N-1 Upgrade (N-1 being the previous major release and N being current version).

- Simultaneous client Encryption/Authentication modes (e.g. WEP, WPA, 802.1x with various methods).

- Layer 2 (inter/intra controller) and Layer 3 roaming scenarios (inter/intra controller with voice and data clients).

- High Availability (including Controller/AP, access layer failover testing).

- Voice clients including the Cisco 7920/7921 with PPT.

- Handheld clients including Symbol handhelds(MC9090, MC7090, MC3090, MC5590), Intermec handhelds(CK3, CN3, CK31), Psion 7535 G2, and PSC handhelds(Falcon 4420)

- Application-specific and Point of Sale scenarios with various Symbol, Intermec, HHP, Falcon handhelds, Zebra QL320 plus printers, Hobart wireless scales, Cisco's video surveillance solution.

- Hybrid-REAP with central and local switching, web-auth with roaming, voice, L2 roaming, CCKM, and IGMP snooping

- Guest Access (wired and wireless) with various authentication (open / local account / RADIUS account)

- Location tracking with data/voice clients and active Intermec, tags.

- Client interoperability testing with CCX and non-CCX handhelds, smart phones, laptops.

- Radio Resource Management (RRM) functionality

- IRCM(Inter Release Controller Mobility) with Layer 2 / Layer 3 roaming
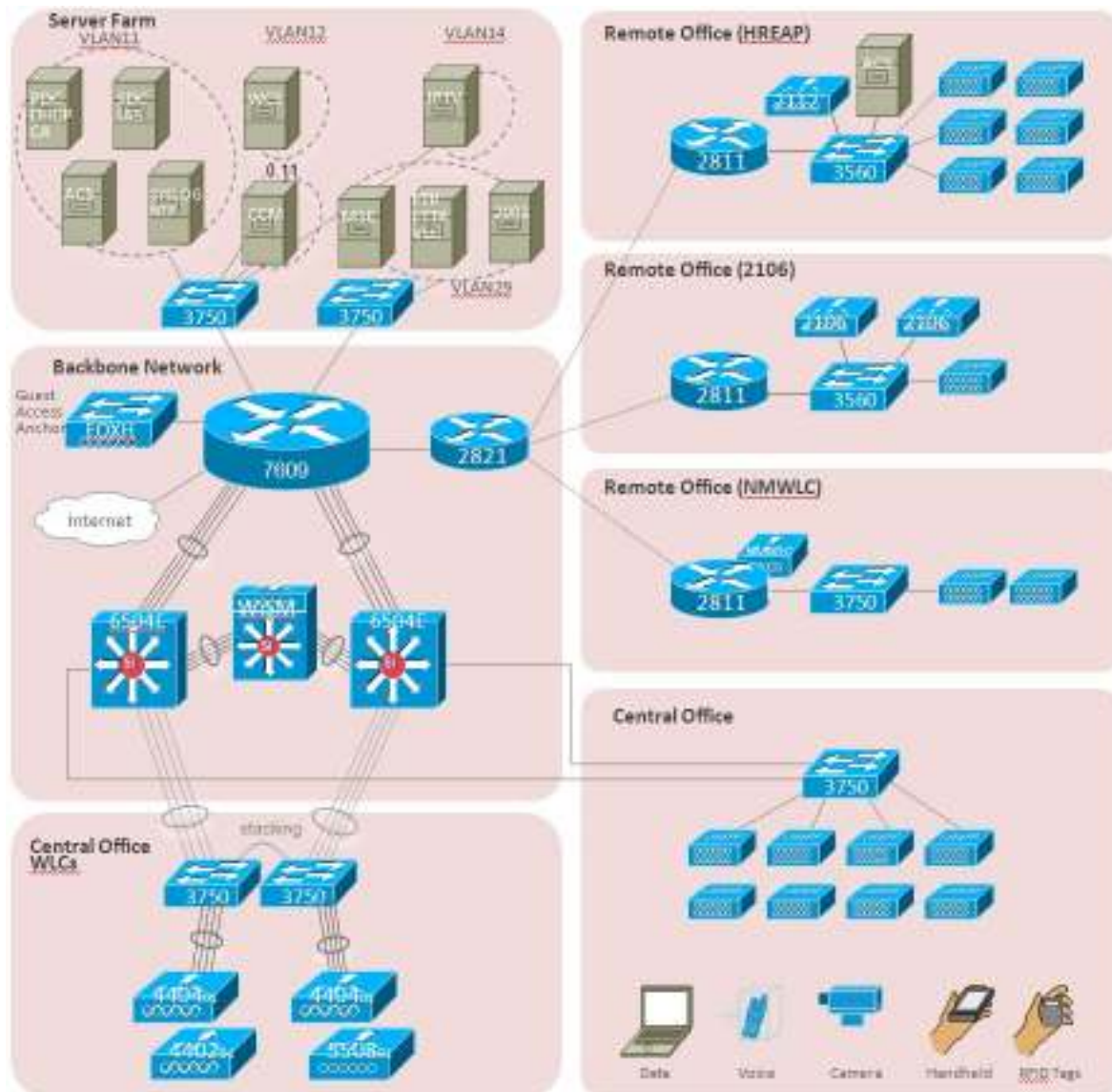
- ClientLink with legacy clients

Retail Test Topology

Figure 2 shows the test topology for the Retail vertical market.

Devices and Software Tested

The following devices and software were tested as part of the AssureWave Retail vertical market.

Table 10 Infrastructure Device Devices Tested for Retail

Infrastructure Device Information	
Device	**Version**
WS-C6504-E w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-WISM-1-K9 w/WS-SVC-WISM-2-K9	12.2(33)SXJ1
WS-C3750G-24PS-S WS-C3750G-48PS-S WS-C3750E-24PS	12.2(25)SEE2, 12.2.(55)
CISCO7609 w/WS-SUP720-3B w/WS-X6548-GE-45AF WS-SVC-FWM-1-K9	12.2(33)SXJ2
Cisco 2611XM Terminal Servers (4)	12.3(6f)
Cisco 2811/2821 ISR	12.4 (24)T

Table 11 Controller and Access Point Devices Tested for Retail

Controller/AP Information	
Device	**Version**
WS-SVC-WiSM2-1-K9	7.2.110.0
AIR-WLC4404-100	7.0.220.0
WS-C3750G-24WS-S25	7.0.220.0
NME-AIR-WLC8-K	7.0.220.0
WS-SVC-WISM-2-K9	7.2.110.0
WS-SVC-WISM-1-K9	7.0.220.0
AIR-WLC2106-K9	7.2.110.0
AIR-LAP1242AG-A-K9	7.2.110.0
AIR-LAP1131AG-A-K9	7.2.110.0
AIR-LAP1252AGN-A-K9	7.2.110.0
AIR-AP1242AG-A-K9	7.2.110.0
AIR-AP1131AG-A-K9	7.2.110.0
AIR-AP1232AG-A-K9	12.3(8)JEB (as WGB)

Controller/AP Information	
Device	**Version**
AIR-AP1242AG-A-K9	12.4(21a)JA1 (as WGB)

Table 12   Network Server Devices Tested for Retail

Network Server Information	
Device	**Version**
Microsoft DHCP Server	Windows 2003 SE/SP1 Server
Microsoft DNS Server	Windows 2003 SE/SP1 Server
Microsoft TFTP/FTP Server	Windows 2003 SE/SP1 Server
Cisco ACS Radius Server	5.2.0.26
Microsoft CA	Windows 2000 Server/SP4
Cisco Unified Call Manager (CCM)	v7.1.5.33900-10
Cisco NCS	1.1.1.24
Cisco MSE 3350	7.2.110.0
Cisco IPTV Server	3.5.7.1 (on Windows 2000/SP4 Server)
Linux RH SYSLOG Server	Linux RH Enterprise AS4
Linux RH NTP Server	Linux RH Enterprise AS4
Spectralink SVP-100 Server	173.028/174.028/175.028
ACS-Express	5.1
Point Of Sale Server	Windows 2003 SE/SP1 Server
Cisco Video Surveillance Operations Manager	SUSE Linux / Cisco VSOM v6.3.1

Table 13   Voice Client Devices Tested for Retail

Voice Client Information	
Device	**Version**
Cisco 7921 Phone	1.4.2
Vocera Badge	4.0/SP6

Table 14   Laptop Clients Devices Tested for Retail

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
HP Compaq 6910p	WinXP pro/SP3	Intel 4965ABGN	14.3.2.1
IBM T61	WinVistaBus/SP2	Intel 4965AGN	14.3.2.1

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
IBM T61	Win XP pro/SP3	Intel 4965AGN	14.3.2.1
MacBookAir	MacOS 10.5.8	AirPort Exteme ABGN (Broadcom BCM43xx 1.0)	5.10.91.21
Asus Eee Box B202	WinXP home/SP3	Ralink 802.11n wireless	1.1.0
Dell E5410	Win7 pro	Intel 6300AGN	15.1.1.1
Dell inspiron 1525	Win XP pro/SP3	Dell 1505 draft 11n	4.170.25.12
Toshiba	Win Vista home	Intel 3945AG	13.4.0.139
Cisco	CB Adaptor	CB21ag	4.2
Fujitsu	Win 7	Intel Advanced 6205	15.1.1.1
Fujitsu	Win 7	Intel Advanced 6205	14.0.0.113
Sony running and	Win 7	Intel 6200 AGN	13.3.0.24
HP 6450B	Win 7	Broadcom 43224 A/G/N	5.60.48.36
HP mini and a Realtek	Win 7	RT3090 B/G/N version	3.1.16.1
Compaq mini with version	Win 7	Broadcom 4313 B/G/N	5.60.350.11 driver

Table 15   Supplicant Devices Tested for Retail

Supplicant Information	
Device	**Version**
Cisco Secure Services Client	5.1.1.18
Intel ProSet	13.1.1.0, 14.0
Cisco Aironet Desktop Utility	4.5.0.84
Microsoft Windows ZeroConfig	Windows XP Pro, Vista
OAC (Odyssey)	4.52, 4.60
Fusion (windows CE)	2.57.0.0.022B-CE-PHOTON
Fusion (Windows Mobile)	2.55.1.0.010R-WM-PHOTON

Table 16   Other Client Devices Tested for Retail

Other Client Information	
PDA/Handhelds	**Version/Comments**
Intermec CK31 (2), 761 (2)	WinCE 4.20.0/FW 3.00.19.0748
Intermec CK3	WinMobile 6.1
Intermec CN3	WinCE 5.0

Other Client Information	
PDA/Handhelds	**Version/Comments**
Intermec CK30	WinCE.NET
Psion 7535 G2	WinCE 5.0
Psion Workabout Pro Gen II	WinCE 5.0
PSC Falcon 4420 (27)	WinCE 4.20.0/FW 1.80
Symbol MC9060G (4)	WinCE 4.20.0/Version 3.17
Symbol MC9090CR	Windows Mobile 5.0
Symbol MC9060G	WinCE 4.20.0/Version 3.17
Symbol MC7090	Windows Mobile 5.0
Symbol MC3090	WinCE 5.0
Symbol MC5590	Windows Mobile 6.5
Symbol WT4090	WinCE 5.0
Symbol PPT8846	WinCE 4.20
Symbol MK2250	WinCE 4.20/ AirBEAM CE client 2.16
Tags/Exciters	**Version/Comments**
AeroScout Active RFID Tags	T2
AeroScout Active RFID Tags w/Call Button	T2
AeroScout Active RFID Tags	T3
AeroScout EX2000 Exciters	BOOT 50009/DSP 216
AeroScout EX3200 Exciters	BOOT 60300/DSP 303
Datalogic FalconX3	Windows Mobile 6.3 Pro , Summit Client Utility version 3.03.11

Other	Version/Comments
Cisco VTAdvantage w/Camera	2.0.1
Intermec CV60	Mobile Vehicle Computer/WinXP
Intermec CV30	Mobile Vehicle Computer/WinCE 5.0
Motorola VC5090	Mobile Vehicle Computer/WinCE 5.0
Zebra QL320 , QL420	11.71
Cisco CIVS-IPC-2500W	Wireless IP camera v1.1 (802.11bg)
TRENDnet TV-IP410W/A IP Camera	Wireless IP camera (802.11bg)
Hobart QUANTUM	Wireless scale With Symbol Spectrum NIC (802.11b)

Higher Education Vertical Market

What Was Tested

- Cisco Wireless LAN Controller (WiSM and 5508) N-1 and N-2 upgrades (N-2, N-1 being previous major releases and N being current version).

- Cisco Prime NCS (NCS) N-1 Upgrade (N-1 being the previous major release and N being current version).

- Cisco Mobility Services Engine (MSE) N-1 Upgrade (N-1 being the previous major release and N being current version).

- Cisco Mobility Services Engine (MSE) Appliance N-1 Upgrade (N-1 being the previous major release and N being current version).

- Simultaneous client Encryption/Authentication modes (e.g. WEP, WPA, WPA2, WebAuth, and 802.1x with various methods).

- Layer 2 (inter/intra controller) and Layer 3 roaming scenarios, with and symmetric tunneling.

- High Availability (including Controller/AP, access layer failover testing) with HSRP and redundant supervisors for WiSM modules.

- Guest Access (wired and wireless) with various authentication methods.

- Multicast Traffic to Wireless Clients.

- Device profiling

- BitTorrent file sharing traffic to Wireless Clients.

- Networked Gaming Applications between Wireless Clients.

- Rogue Access Point and Rogue Client detection and containment.

- Security applications and appliances scanning/attacking network infrastructure including but not limited to Codenomicon, QualysGuard, NMAP, and Nessus.
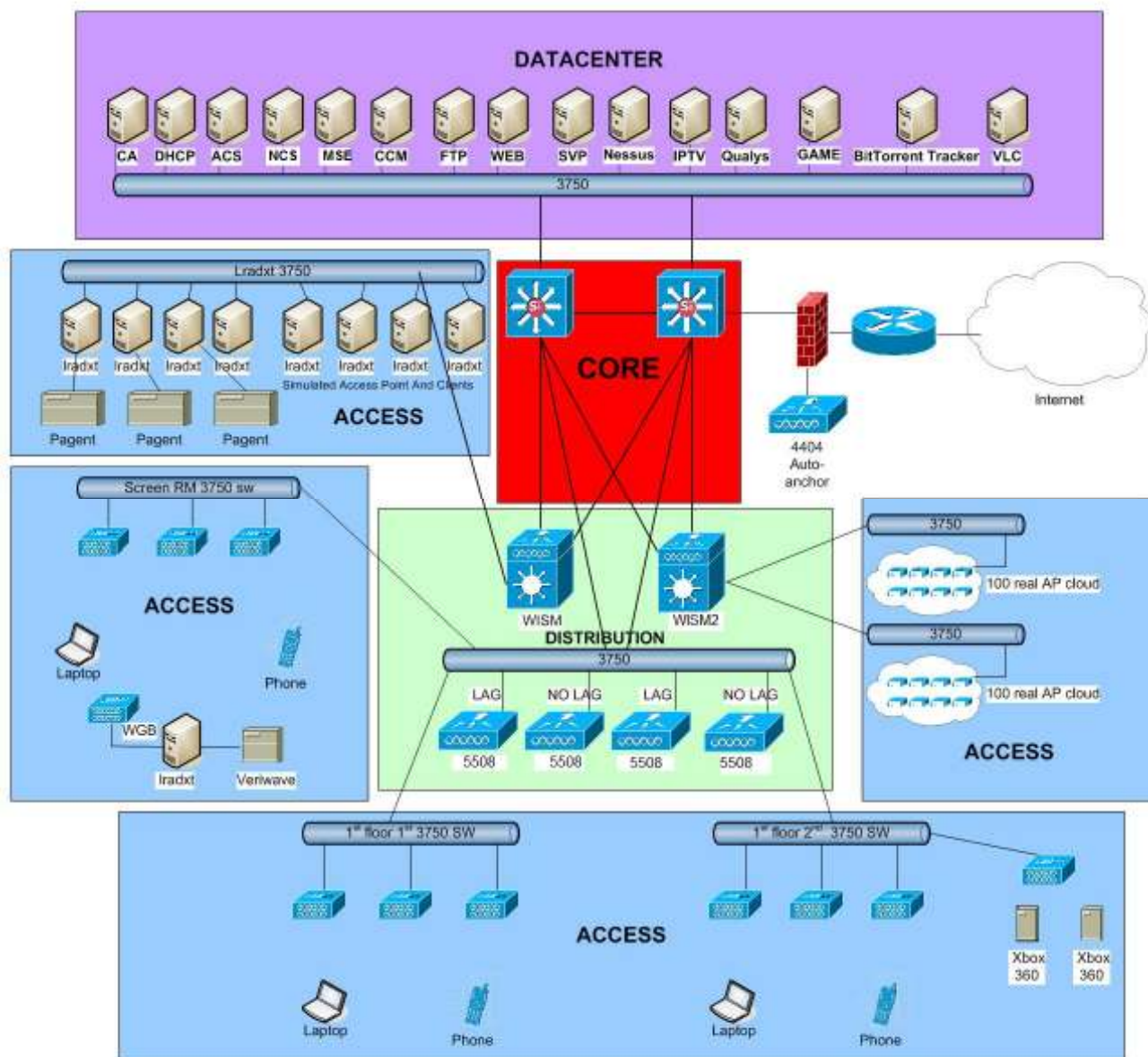
- Radio Resource Management (RRM) functionality

Education Test Topology

Figure 3 shows the test topology for the Higher Education vertical market.

AssureWave: Education Vertical

Devices and Software Tested

The following devices and software were tested as part of the AssureWave Higher Education vertical market.

Table 17 Infrastructure Devices Tested for Education

Infrastructure Device Information	
Device	**Version**
WS-C6504-E w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-WISM-1-K9 w/WS-SVC-WISM-2-K9	12.2(18)SXF7 12.2(33)SXJ
WS-C3750G-24PS-S WS-C3750G-48PS-S WS-C3750E-24PD	12.2(25)SEE3, 12.2(44)SE, 12.2(37)SE1, 12.2(25)SEB4,
CISCO7609 w/WS-SUP720-3B w/WS-X6548-GE-45AF	12.2(18)SXF
Cisco 2611XM Terminal Servers (3)	12.4(12)
Catalyst 4506	12.2(40)SG(2.41)

Table 18 Controller and Access Point Devices Tested for Education

Controller/AP Information	
Device	**Version**
AIR-WLC5508-500	7.2.110.0
WS-SVC-WISM-1-K9	7.0.220.0
WS-SVC-WISM-2-K9	7.2.110.0
AIR-LAP1142N-A-K9	7.2.110.0
AIR-AP1131AG-N-K9	7.2.110.0
AIR-LAP1242AG-A-K9	7.2.110.0
AIR-AP1252AG-A-K9	7.2.110.0
AIR-LAP1252AG-A-K9	7.2.110.0
AIR-LAP3602E-A-K9	7.2.110.0
AIR-LAP2602E-A-K9	7.2.110.0
AIR-LAP3502E-A-K9	7.2.110.0
AIR-AP1242AG-A-K9	12.4(10b)JA (as WGB)

Table 19   Network Server Devices Tested for Education

Network Server Information	
Device	**Version**
Microsoft DHCP Server	Windows 2008 SR1 Server
Microsoft DNS Server	Windows 2003 SE/SP1 Server
Microsoft TFTP/FTP Server	Windows 2003 SE/SP1 Server
Cisco ACS Radius Server	4.1 (on Windows 2000/SP4 Server)
Game Server	Valve Steam Half-Life 2 Dedicated Server
Microsoft CA	Windows 2003 Server/SP2
Cisco Unified Call Manager (CCM)	5.1.3.7000-5
BitTorrent Tracker	BNBT EasyTracker 7.7r3.2004.10.27
VLC Media Player	0.9.9a
Cisco NCS	1.1.1.24
Cisco LBS Appliance	7.0.220.0
Cisco MSE Appliance	7.2.110.0
Cisco IPTV Server	3.5.7.1 (on Windows 2000/SP4 Server)
Linux RH SYSLOG Server	Linux RH Enterprise AS4
Linux RH NTP Server	Linux RH Enterprise AS4
Qualys	QualysGuard Enterprise
BitTorrent Server/Client	Azureus 3.0.4.2

Table 20   Laptop Client Devices Tested for Education

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
Apple PowerBook	10.6.7	Airport A/G/N	1.0 5.10.131.36.9
Apple MacBook	10.6.7 10.6.8	Airport A/G/N	1.0 5.10.131.36.9 1.0 5.10.131.42.4
Apple MacBook Air	10.6.7	Airport A/G/N	1.0 5.10.131.36.9
Apple MacBook	10.7 10.7.4	Airport A/G/N	1.0 5.100.98.75.6 1.0 5.106.198.4.2
Apple MacBook	10.6.7	Airport A/G/N	1.0 5.10.131.36.9
Sony VGN-N350E	Microsoft Vista	Intel 3945ABG	13.4.0.139
Sony VGN-N250N	Microsoft Vista	Intel 3945ABG	13.4.0.139
Sony VGN-N1306	Microsoft XP	Intel 3945ABG	13.4.0.139
Compaq Presario C500	Microsoft Vista	Broadcom 802.11BG	4.102.15.56

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
Compaq Presario V6000	Microsoft Vista	Broadcom 802.11BG	4.102.15.56
Compaq 5201US	Microsoft Vista	Broadcom 802.11BG	4.10.40.1
HP Compaq nx9420	Microsoft Vista	Intel 3945ABG	13.4.0.139
HP Mini 1035NR	Microsoft XP	Broadcom 802.11B/G	4.170.77.3
Lenovo T60 ThinkPad	Microsoft Vista	Intel 3945ABG	13.4.0.139
Lenovo X60s ThinkPad	Microsoft XP	Intel 4965AGN	14.3.0.6
Lenovo 3000 N100	Microsoft Vista	Broadcom 802.11BG	4.102.15.56
Toshiba A135-S4427	Microsoft Vista	Intel 3945ABG	13.4.0.139
Toshiba A135-S4447	Microsoft Vista	Intel 3945ABG	13.4.0.139
Toshiba A135-S4467	Microsoft Vista	Intel 3945ABG	13.4.0.139
Toshiba A135-S2386	Microsoft Vista	Atheros AR5006EG	7.1.0.90
Toshiba Satellite A205-S4639	Microsoft Vista	Intel 4965AGN	13.4.0.139
Toshiba Satellite P205-S6267	Microsoft Vista	Intel 4965AGN	12.4.0.21
Toshiba Satellite A205-S4577	Microsoft Vista	Intel 3945ABG	12.4.0.21
Toshiba Tecra A6-EZ6411	Microsoft Vista	Intel 3945ABG	12.4.0.21
Lenovo W510	Windows 7	Intel 6300 AGN	15.1.1.1
Toshiba Satellite A205-S4577	Microsoft Vista	Intel 5100 N	14.3.0.6

Table 21   Supplicant Devices Tested for Education

Supplicant Information	
Device	**Version**
Cisco Secure Services Client	5.1.0.56
Intel ProSet	12.4.0.21, 14.2, 15.1.1.1
ADU	4.4.0.88
ZeroConfig	(with Windows)

Table 22   Other Devices Tested for Education

Other Device Information	
PDA/Handhelds	**Version/Comments**
Microsoft Xbox 360	Microsoft Xbox 360 Wireless Adapters
Apple IPod Touch Gen2	Version 3.1.3(7E18) 802.11G connections
Brother MFC-845CW	Wireless Printer
Apple iPhone 4, 4S	Version 4.3 (8F190), 5.0.1 (9A405)

Apple iPad	Version 4.3, 4.3.1
Apple IPad2	Version 4.3.5
Apple IPad3	5.0.1 (9A405), 5.1.1(9B206)
Lexmark Wireless Printer	Pinnacle Pro 901
Samsung Galaxy Tab 7	2.2.1
Kindle Fire	6.0

Enterprise Vertical Market

What Was Tested

- Cisco Wireless LAN Controller (5508, 4402, 4404, WiSM, WiSM-2 7500 and 3750 Integrated) N-1 and N-2 upgrades (N-2, N-1 being previous major releases and N being current version).

- Cisco Prime NCS (NCS) N-1 Upgrade (N-1 being the previous major release and N being current version).

- Cisco Mobility Services Engine (MSE) Appliance N-1 Upgrade (N-1 being the previous major release and N being current version).

- Controller operation with LAG.

- Controller operation with multiple AP managers to cover different customer flavors (WISM-only support LAG).

- Multicast operation with unicast mode.

- Multicast operation with multicast mode.

- 16 WLANs configured with different types of security and class of service—802.1*x*, WPA/WPA2 (LEAP/PEAP/TLS), web-auth, etc.

- Multicast operation with PIM sparse-dense mode in wired network routing.

- Controller, AP, authentication servers operating across MPLS VPN network.

- Six controllers configured in one roaming domain.

- For layer3 roaming, both symmetric tunnel and un-symmetric tunnel cases are covered. The controllers are configured in the same mode, either symmetric tunnel or un-symmetric tunnel).

- Flex mode controller and AP support

- Layer2 roaming (CCKM and non-CCKM).

- Auto-anchor and auto-anchor N+1.

- WGB (including layer 2 and layer 3 roaming).

- TACACS+ for controller administration and accounting.

- Wired guest access.

- IDS and IPS.

- Radio Resource Management (RRM) functionality

- Voice Calls with Cisco 7920/7921 IP phones and Spectralink.

- Network redundancy with HSRP and controller redundancy with configuring primary/secondary/tertiary controllers.

- Controllers trunked to Catalyst 3750 switches with the management interfaces of the controllers and access points deployed in different subnets.

- Hybrid-REAP support, including central switching and local switching.

- Controller access controller and traffic control via access-list.

- Longevity test with multiple SNMP walk to cause CPU as high as 90%
- Lradxt to simulate 150 APs and 3000 clients.
- Roaming during heavy traffic.
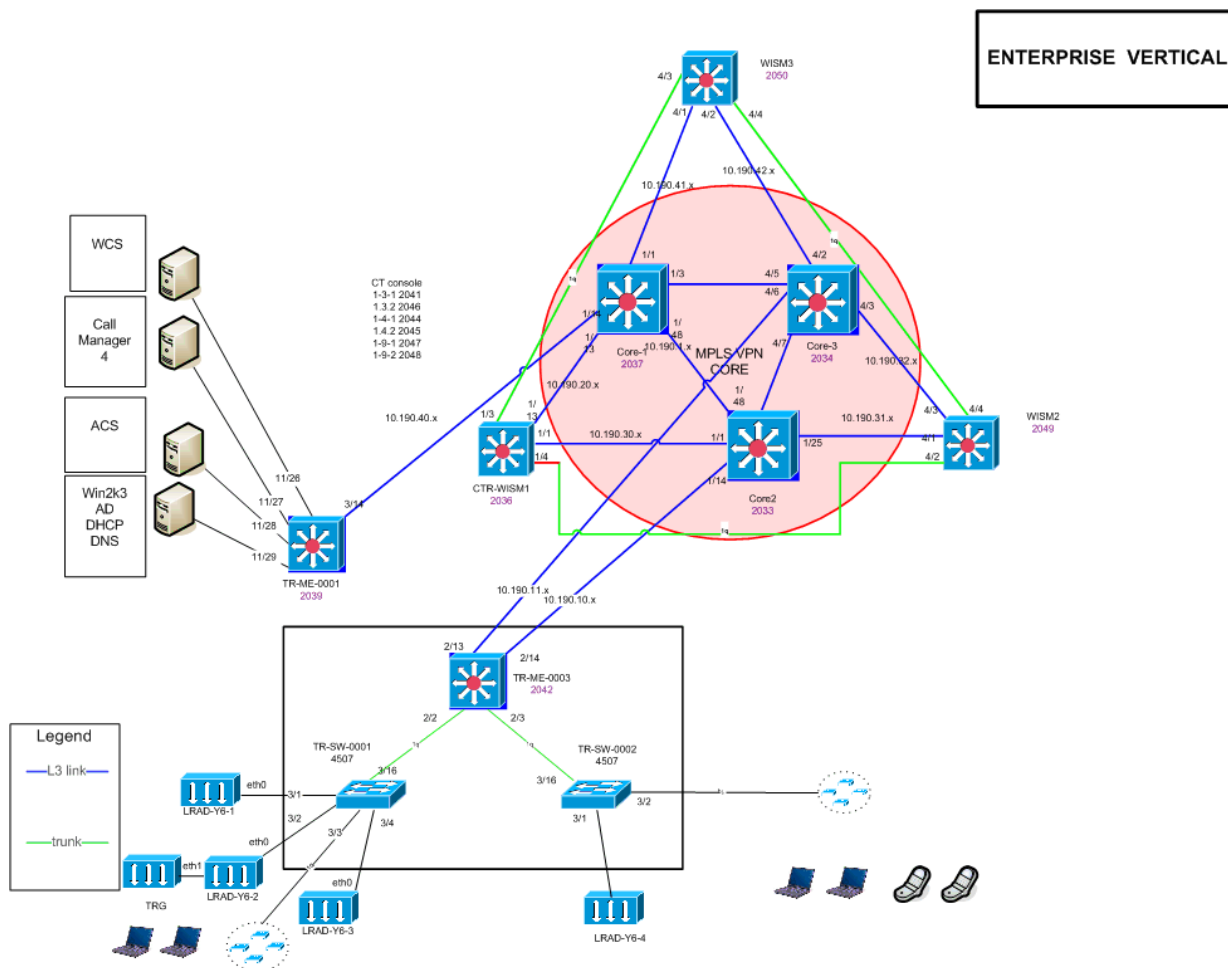- 120 simulated clients with Veriwave.
- Reliable multicast for video

Enterprise Test Topology

Figure 4 shows the MPLS/VPN based core test topology for the Enterprise vertical market.

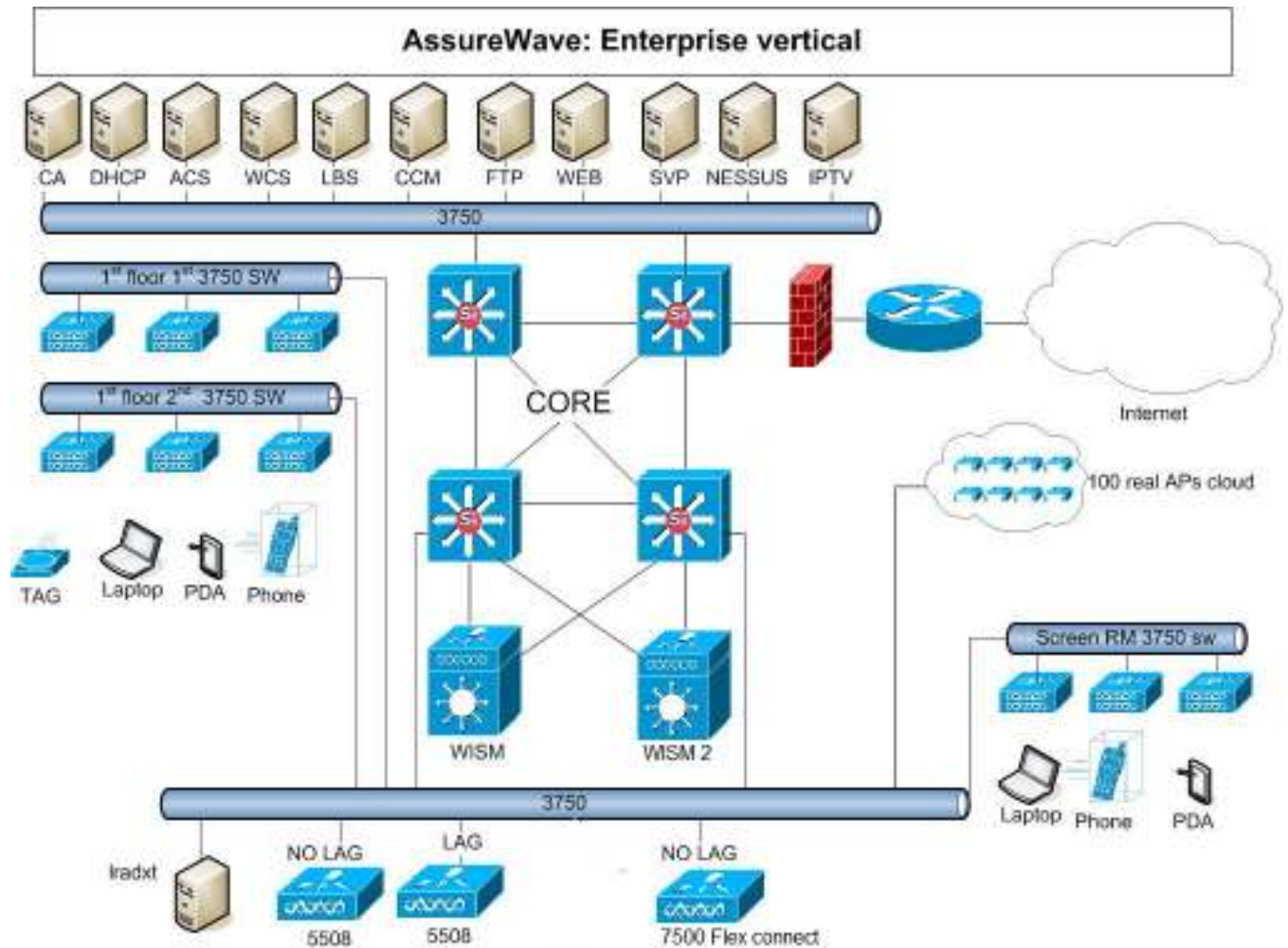Figure 5 shows the standard IP core network.

Devices and Software Tested

The following devices and software were tested as part of the AssureWave Enterprise vertical market.

Table 23 Infrastructure Devices Tested for Enterprise

Infrastructure Device Information	
Device	**Version**
WS-C6504-E w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-WISM-1-K9 WS-C6509-E w/WS-SVC-WISM-1-K9 w/WS-SVC-WISM-1-K9 w/WS-SVC-WISM2-K9	12.2(18)SXF12 122(33).SXJ
WS-C3750G-24PS-S WS-C3750G-48PS-S WS-C3750E-24PS-S	12.2(40)SE
CISCO7609 w/WS-SUP720-3B w/WS-X6548-GE-45AF w/WS-SVC-FWM-1-K9	12.2(18)SXF7
Cisco 2611XM Terminal Servers	12.3(6f)

Table 24 Controller and Access Point Devices Tested for Enterprise

Controller/AP Information	
Device	**Version**
AIR-WLC5508-500	7.2.110.0
AIR-WLC7500	7.2.110.0
WS-C3750G-24WS-S25	7.2.110.0
WS-SVC-WISM-1-K9	7.0.220.0
WS-SVC-WISM-2-K9	7.2.110.0
AIR-LAP1242AG-A-K9	7.2.110.0
AIR-LAP1131AG-A-K9	7.2.110.0
AIR-LAP1240AGN-A-K9	7.2.110.0
AIR-LAP1142N-A-K9	7.2.110.0
AIR-LAP1262N-A-K9	7.2.110.0
AIR-LAP3502E-A-K9	7.2.110.0
AIR-LAP1042N-A-K9	7.2.110.0
AIR-LAP3602E-A-K9	7.2.110.0

Controller/AP Information	
Device	**Version**
AIR-LAP2600E-A-K9	7.2.110.0
AIR-AP1242AG-A-K9	7.2.110.0
AIR-AP1131AG-A-K9	7.2.110.0
AIR-AP1232AG-A-K9	12.3(11)JX1 (as WGB)
AIR-AP1242AG-A-K9	12.4(10b)JA (as WGB)
AIR-AP1131AG-A-K9	12.4(10b)JA (as WGB)

Table 25   Network Server Devices Tested for Enterprise

Network Server Information	
Server Type	**Version**
Microsoft AD, DHCP, DNS, TFTP and FTP Services	Windows 2003 SE/SP1 Server
Microsoft CA Services	Windows 2000/SP4 Server
Cisco ACS Radius Server	4.2 (on Windows 2003 SE/SP1 Server)
Cisco ACS Appliance Server	5.0 appliance 5.2.0.26
Cisco Unified Call Manager (CUCM)	8.0.3
Cisco NCS	1.1.1.24
Cisco IPTV Server	3.5.7.1 (on Windows 2000/SP4 Server)
Linux RH SYSLOG Server	Linux RH Enterprise AS4
Linux RH NTP Server	Linux RH Enterprise AS4
Spectralink SVP-100 Server	173.028/174.028/175.028 (SCCP)

Table 26   Application Software Products Tested for Enterprise

Application Software Information	
Application	**Version**
IPTV scheduled and on demand	v3.4
V-brick media appliance	V2.0.0b

27   Voice Client Devices Tested for Enterprise

Voice Client Information	
Device	**Version**
Cisco 7920 Phone	3.0.2
Cisco 7921 Phone	1.4.2
Cisco IP Communicator	2.1.1

Table 28   Laptop Client Devices Tested for Enterprise

Laptop Client Information			
Device	**OS**	**Chipset**	**Driver**
Acer Aspire 3623WXCi	WinXP/SP2	Atheros AR5005G	4.0.0.14001
Acer Aspire 3624WXMi	WinXP/SP2	Atheros AR5005G	5.3.0.35
Acer Aspire 5610-4537	Vista/HP	Intel 3945ABG	13.4.0139
HP Probook 4710s	WinXP/SP2	Intel 5100 AGN	14.3.2.1
Toshiba Satellite A105	WinXP/SP2	Intel 3945ABG	13.4.0.139
Toshiba Satellite A135	Vista/HP	Intel 3945ABG	13.4.0.139
Toshiba Tecra 8000	WinXP/SP2	Cisco CB21ABG	4.5.0.310
HP 6530b	WinXP/SP2	Intel 5100 AGN	14.3.0.6
Toshiba U205	Vista/HP	Intel 3956ABG	13.4.0.139
Compaq 5201US	Microsoft Vista	Broadcom802.11BG	4.10.40.1
HP Compaq nx9420	Microsoft Vista	Intel 3945ABG	13.4.0.139
Lenovo T60 ThinkPad	Microsoft Vista	Intel 3945ABG	13.4.0.139
Lenovo T61 ThinkPad	Microsoft XP	Intel 4965ABG	15.1.1.1
Lenovo X60s ThinkPad	Microsoft XP	Intel 3945ABG	13.4.0.139
Lenovo 3000 N100	Microsoft Vista	Broadcom802.11B	4.102.15.56
Fujitsu Lifebook A-Series	Microsoft Vista	Broadcom802.11BG	7.1.0.90
Lenovo W510 ThinkPad	Windows 7	Intel 6300 N	15.1.1.1

Table 29   Supplicant Devices Tested for Enterprise

Supplicant Information	
Device	**Version**
Cisco Secure Services Client	4.2, 5.0.1
Intel ProSet	13.5.0, 14.2, 15.1.1
Cisco Aironet Desktop Utility	4.5.0.88
Microsoft Windows ZeroConfig	Windows XP Pro, Vista

AssureWave Test Summary and Recommendation

Test Summary

The AssureWave certification for this release is **Pass**.

Please refer to the 7.2.110.0 Release Notes for additional information pertaining to this release. <u>Carefully review the Open Caveats list below to make a determination if any of these issues may affect your installation</u>

We summarize our testing results into three categories:

- Pass—The underlying assumption for certifying and publishing a Cisco AssureWave release is that testing passed because all individual tests passed. Failure of any test has to be properly resolved or closed, or the Cisco AssureWave engineering team must determine that the defect that caused failure will not affect network performance.

- Fail—If a given test fails and the effect on Cisco's customer base is deemed broad enough, the entire release fails. Failed releases are neither certified nor documented. If a test fails and the effect on the customer base is determined to be minor, the release may still be certified, with Distributed Defect Tracking System entries noted so that customers can review the testing to see if they are affected.

Open Caveats

This release contains the following significant open caveats

For the entire list please review the release notes

http://www.cisco.com/en/US/docs/wireless/controller/release/notes/crn7_2_110_0.pdf

- **CSCtl95978 The controller does not respond to SNMP requests if the source address of the request comes from a subnet that is configured as a dynamic interface.**

  Symptom: Unable to get an SNMP response from the WLC.

  Workaround: Remove the dynamic interface from the controller, or change theSNMP hosts source IP address to be in a different subnet.

- **CSCsq14833 Certain IP addresses used for management interfaces result in AP join issues.**

  Symptom: When using VLSM, if the fourth octet of the management IP address is the same as the fourth octet of the broadcast address of another interface on the controller, the controller fails to respond to LAP discoveries.

For example, if the management interface IP address is 10.10.10.15/25 and there is an another interface on the controller with a 172.16.10.9/29 address, 172.16.10.15 would be the broadcast address for the 172.16.10.x/29 subnet.

Workaround: Change the IP address of the management interface.

- **CSCsu54884 Ad hoc rogues are not shown in the controller after their status is changed to internal.**

  Symptom: If the status of the detected ad hoc rogues is changed to internal, users cannot see the MAC address of the ad hoc rogues in the controller.

  Workaround: None.

  Further Problem Description: Unable to locate the MAC address of the ad hoc rogue using the show run-config command and in the configuration XML file of the controller.

- **CSCtt15179 Two clients unable to communicate after inter-AP group roam to the home VLAN.**

  Symptom: When two wireless clients that are associated with APs on the same controller try to communicate, one client may not pass traffic to the other client.

  Conditions: L3 roam within controller. For example:

  1. Associate client to an AP on controller1 in VLAN1.

  2. Roam client to an AP in an AP group in VLAN2 on controller2 so that the client

  is anchored to WLC1.

  3. Roam the client to an AP on controller2 but in an AP group in VLAN1. Even though the client is in VLAN1 and is on an AP on controller2 that is in VLAN1, the client will remain anchored to controller2. This will result in a failure of communication (ARP) between this client and another client that is in VLAN1 but that is local to controller2.

  Workaround: Do not use AP groups for this WLAN.

- **CSCtt96265 Controller might fail to transfer or save configuration and then becomes unresponsive.**

  Symptom: The controller might display the following errors when attempting to transfer or back up the configuration, and eventually reboots without storing a crash file:

  (WiSM) >transfer upload start

  Transfer in progess by another user

  (WiSM) >save config

  Are you sure you want to save? (y/n) y

  Flash write in progress. Cannot save configuration.

  Conditions: Cisco WiSM running Controller software Release 7.0.116.0.

  Workaround: None.

- **CSCtu07081 Unable to reboot Cisco Flex 7500 Series Controller after predownloading the AP image.**

  Symptom: The 'AP Software being upgraded, please try again later' message is displayed. After shutting down the controller ports, the same message is displayed even when there is no AP associated with the controller.

  Conditions: Unknown.

  Workaround: Unknown.

- **CSCtu19860 Cisco 5508 Controller does not set 802.1p marking for downstream CAPWAP packets.**

  Symptom: Cisco 5508 Controller does not set the configured 802.1p marking for downstream CAPWAP to CAPWAP packets. The controller only sets the 802.1p marking for downstream wired to wireless packets to the AP. Downstream wireless to wireless traffic on the same controller (CAPWAP to CAPWAP) traffic has an 802.1p marking of 0.

  When trusting CoS on the controller port, this causes the switch CoS to DSCP map to remark the packet to 0. When the AP receives the packet and sends it over the air, the 802.11e UP value is 0 causing one-way QoS.

  Conditions: Configure WLAN for platinum QoS and configure the platinum QoS profile for an 802.1p value of 6. Wireless to wireless traffic on the same controller does not have a proper downstream marking.

  Workaround: Trust DSCP on the switchport connecting to the controller instead of trusting CoS.

- **CSCtu28535 APs unresponsive due to unexpected exception to CPUvector.**

  Symptom: AP1142 on 12.4(23c)JA2 are randomly become unresponsive on a controller software Release 7.0.116.0.

  Conditions: Under heavy multicast traffic, the AP has this issue while trying to clean up multicast packet queue. Packet buffers are freed more than once to cause this issue. This can occur randomly with different APs at different times.

  Workaround: Avoid heavy multicast traffic.

- **CSCtx56334 H-REAP client does not experience a successful intercontroller L2 roam.**

  Symptom: After a web authenticated client roamed from LAP1 (associated with controller1) to LAP2 (associated with controller2), the client required web authentication again. This appears to be a regression of another caveat with ID CSCtj02816.

  Conditions:

  • Controller software releases 7.0.116.0 and 7.0.220.0

  • LAP configuration: H-REAP local switching/central authentication

  • Controller software Release 7.0.98.0 was not affected

  • AP Local mode (no H-REAP)

  • H-REAP client roamed from a LAP associated with a controller to another LAP associated with the same controller (Intracontroller roaming)

Workaround: Changing LAP mode as Local (not H-REAP) might resolve this issue.

- **CSCtx52965 Cisco WiSM2 may reset under prolonged and very high client roaming conditions.**

  Symptom: Crash file has an output similar to the following:

  Analysis of Failure:

  Software Failed on instruction at : pc = 0x11301158 (eap_peer_receive_event+392), ra = 0x10bae188 (eap_peer_receive_event+392), Software Failed while accessing the data located at :0x6c6f62fd

  Conditions: 1000 APs with 15000 clients associated to the Cisco WiSM2 with 1000 client roams per second on WLANs configured with 802.1X (WEP 104) and LEAP.

  Workaround: Avoid use of local authentication in large deployments. We recommend that you use external AAA server for large deployments.

  Further Problem Description: This condition occurred under prolonged, high client roaming conditions (approximately 25 to 30 minutes) with the maximum number of clients (15000) associated with the controller. This is not a supported deployment scenario in which local authentication is configured for use by 15000 clients and roaming is simulated at the rate of 1000 roams per second.

- **CSCtx69189 Cisco WiSM2 multicast IGMP proxy delay under load.**

  Symptom: Wireless multicast message delivery delay of around 5 to 10 seconds.

  Conditions: Controller software Release 7.0.116.0 in multicast-multicast mode.

  Workaround: Unknown.

- **CSCty29908 AP1252s in Local mode reboot; watchdog timer expired.**

  Symptom: AP1252s restart and return with the following message:

  ------------------ show stacks ------------------

  Minimum process stacks:

  Free/Size Name

  4736/6000 soap_flash init

  5468/6000 Clock Update Proc

  5536/6000 dot11 platform init

  5904/12000 Init

  5360/6000 RADIUS INITCONFIG

  3728/6000 RAC I/F Conf.

  5480/6000 CDP Protocol

  2444/3000 Rom Random Update Process

  3892/6000 Hickory Sys Init

  Interrupt level stacks:

Level Called Unused/Size Name

4 22807426 7312/9000 SEC Interrupt

5 0 9000/9000 M8349 GTM8 interrupt

6 5395 8952/9000 NS16550 VECTOR

7 27687684 8912/9000 M8349 PIT interrupt

Spurious interrupts: 4788700

System was restarted by watchdog timer expired

System returned to ROM by watchdog timer expired

Conditions: Controller software Release 7.0.116.0.

Workaround: None.

- **CSCty47582 Controller unresponsive when executing the show ap eventlog ap-name command.**

  Symptom: Controller reboots with crash file created while executing the show ap eventlog ap-name command.

  Workaround: None.

- **CSCty91749 High parallel QoS traffic streams cause radio transmission watchdog resets and radio coredumps.**

  Symptom: High parallel QoS traffic streams cause radio transmission watchdog resets and radio coredumps.

  Workaround: None.

- **CSCtz05016 Problem receiving multicast on wireless clients on WiSM2.**

  Symptom: Multicast and unicast traffic between controller and AP fails.

  Conditions: When the 'Recover-config' command is entered to download the config file from the TFTP server there is likely race condition that does not occur always and when it does happen the "replication group tunnels" are not getting plumbed to the DP and hence the communication between the WLC and AP is lost. This issue is only observed during 'Recover-config' and not always.

  Workaround: Changing the mode to "multicast-multicast" mode resolves the issue and further reverting to "multicast-unicast" mode also resolves the issue because this explicitly cleans the replication group tunnels to the DP.

- **CSCtz07676 Controller failed to bring up SXP connection with N7k.**

  Symptom: SXP connection from controller to N7k report "On" on the controller side while N7k reports "Waiting for response."

  Conditions: Establishing SXP connection between controller and ASA.

  Workaround: Add an intermediate device that supports SXP v2 between controller and N7k.

- **CSCtz23878 RADIUS queue exhaustion on a per WLAN RADIUS interface scenario.**

  Symptom: 802.1x authentications stop on specific WLANs. The following errors are seen on client troubleshooting:

  *Dot1x_NW_MsgTask_0: Apr 05 17:13:39.122: 00:17:23:XX:XX:XX Entering

  Backend Auth Response state for mobile 00:17:23:XX:XX:XX

  *Dot1x_NW_MsgTask_0: Apr 05 17:13:39.122: 00:17:23:XX:XX:XX Processing

  AAA Error 'Out of Memory' (-2) for mobile 00:17:23:XX:XX:XX

  Other WLANs continue to work as expected.

  Conditions: RADIUS per WLAN feature is enabled.

  Workaround: Options include the following:

  • Reconfigure the RADIUS key.

  • Reboot the controller.

- **CSCtz48004 APs seen to dissociate from the controller when sysname is 31 characters long.**

  Conditions:

  • AP1261 and AP1142

  • Cisco 5508 Controller

  • Controller software Release 7.2.103.0

  Workaround: Restrict the controller system name length to 30 characters.

- **CSCtz50719 Cisco WiSM unresponsive due to out of memory.**

  Symptom: Controller unresponsive due to out of memory issue with logs such as the

  following:

  Out of Memory: Killed process 1044 (switchdrvr)

  Conditions: Very high CPU utilization.

  Workaround: None.

Caveats resolved after release of 7.2.110.0

These are additional open caveats that were resolved via an engineering special. If you are impacted by any of these issues, please contact Cisco TAC on how to obtain the special.

- **CSCua27246**   **CV reports: Can't Reset CM command sent via CMTS from AP to reset CM**
- **CSCty32206**   **Dlink Guest Mode SSID incorrectly detected as a adhoc ssid**
- **CSCua18540**   **SNMP get returns null - conflicting attribute**
- **CSCtz31572**   **HREAP local switching - ARP , broadcast key on standalone transition**
- **CSCua18971**   **RA client display page causes memory corruption for > 256 clients listed**
- **CSCtz17483**   **Webauth redirect fails in wired guest when HA is enabled**
- **CSCtz28357**   **Accounting traffic statistics counters are unreliable with webauth**
- **CSCua83334**   **MESH ap is not initiating a capwap discovery request to primary WLC**
- **CSCua95089**   **Knob to turn off IPv6 on WLC**
- **CSCua22875**   **HREAP local switching client can show wrong vlan on NCS**
- **CSCua93936**   **Broadcast Key rotation doesn't use rotated index 1&2, but stick to slot0**
- **CSCua29504**   **M1 of 4-way shake with "Key Info Desc Ver" field = 3 should be 2**
- **CSCua78847**   **Accounting stats deleted on client roaming**
- **CSCua08891**   **Crash on SMWLC**