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Alcatel-Lucent Hardware Sizing Guide OV3600 7.0

Overview

This document provides guidelines for purchasing new hardware which will host the OmniVista Air Manager. Your hardware should incorporate margin for WLAN expansion as well as future OV3600 features and modules. These specifications are formulated to keep OV3600 running on the same hardware platform for two years.

Properly Sizing Processing and Memory for your OV3600 Server

Factors which influence the processing requirements for your OV3600 server:

- How many devices will the server manage?
- How often will OV3600 poll these devices?
- How many wireless clients will the server monitor?
- Will this server detect rogue devices?
- Will this server run VisualRF?

Intel Processor Matrix, see AMD Matrix below

Managed Devices	CPU Class	Clock Speed (GHz)	CPUs	Total Cores	OV3600 Memory	RAPIDS Memory	VisualRF Memory
Pilot 1-25 APs	Quad Core Intel® Xeon **X3430**	2.4	1	4	3 GB	.5 GB	.5 GB
100	Quad Core Intel® Xeon **X3440**	2.53	1	4	4 GB	1 GB	1 GB
200	Quad Core Intel® Xeon **X3460**	2.8	1	4	4 GB	2 GB	2 GB
500	Quad Core Intel® Xeon **X5540**	2.53	1	4	4 GB	2 GB	2 GB
1,000	Quad Core Intel® Xeon **X5560**	2.8	1	4	6 GB	3 GB	3 GB
2,500	Quad Core Intel® Xeon **X5560**	2.8	2	8	16 GB	4 GB	4 GB

These recommendations were built on the following assumptions:

OV3600	Value
Average density of client devices per access point	5
Device configuration auditing interval	Daily
Up/Down status polling period (minutes)	5
User data polling period (minutes)	10
Thin AP discovery period (minutes)	15
Device-to-device link polling period (minutes)	20
Device bandwidth polling period (minutes)	10
802.11 counters polling period (minutes)	15
Rogue AP and device location data polling period (minutes)	30
CDP neighbor data polling period (minutes)	60

Wire Line & RAPIDS	Value
Ratio of switches/routers to access points	20%
Average port density of switches/routers	36
Read ARP polling period (hours)	8
Read CDP table for device discovery polling period (hours)	8
Read bridge forwarding table polling period (hours)	8
Interface polling period (minutes)	10

VisualRF	Value
Average floor plan size (feet)	62,500
Number of access points per floor plan	20
Number of clients per floor plan	100
Number of attenuation grid cells per floor plan	2,500
Number Rogue devices per floor plan	20
OV3600 Synchronization timer (minutes)	15
Rogue location timer (minutes)	30

Intel Nehalem Architecture Notes

- Ensure Memory Node Interleaving is "**Enabled**". By default most vendors disable this setting in their BIOS.
- Ensure Power Management is configured to "**Maximum Performance**". By default most vendors configure BIOS to an eco-friendly setting.
- Ensure Memory Operating Mode is configured to "**Optimizer Mode**" if available.

RAID 10 Notes

- Ensure all disks are configured to "**One Virtual Disk**".
- If the RAID controller has battery-backed cache, ensure the Write Policy is configured to "**Write-Back**", otherwise ensure it is configured to "**Write-Through**".

Operating System Notes

- To ensure hardware capability your server hardware should support Red Hat Enterprise 5 Linux.
- OV3600 includes the CentOS operating system based on Red Hat Enterprise Linux and is installed by default. You may choose to use Red Hat Enterprise Linux.
- Only 32-bit Linux installations are supported. 64-bit operating system installations are not supported

Virtualization Notes

- OV3600 will run in a VmWare and Xen virtual instance.
- AirWave does not test extensively in these environments, but virtualization significantly reduces scalability.

Properly Sizing Disk Storage for your OV3600 Server

OV3600 stores most statistical data in special statistical flat files. This serves two purposes. First, it improves speed, because writing to a statistical flat file is much faster than writing to a relational database. Secondly, it provides for a known, fixed amount of storage per managed device.

Here are some factors which influence storage requirements for your OV3600 server.
- How many devices will the server manage?
- How much historical data will the server retain?
- How many wireless clients will the server monitor?
- Will this Server run VisualRF and RAPIDS?

OV3600 will utilize 75 megabytes per managed device (AP) with minimal data retention and without VisualRF and Rogue detection. OV3600 will utilize a maximum of 150 megabytes per managed device (AP) with maximum data retention and VisualRF and Rogue detection. This is total disk space including OS, log files, database, and code.

Disk Storage Requirements

Devices	Min. OV3600 Storage	Max. OV3600 Storage	Storage System
100	7.5 GB	15 GB	(1) Drive 15K RPM
200	15 GB	30 GB	(1) Drive 15K RPM
500	38 GB	75 GB	* Multiple 15K RPM RAID Drives
1,000	75 GB	150 GB	* Multiple 15K RPM RAID Drives
2,500	187 GB	375 GB	* Multiple 15K RPM RAID Drives

* RAID configurations require 4 plus SAS/SCSI disks in a RAID-10 configuration supplied via a hardware controller with at least 256 MB of cache.   All disk drives must have 15K RPM spindle speeds.   **Do not** use software raid systems or SATA disk drives.

OV3600 spends much more time writing to the disk subsystem than reading from it. OV3600 100 and 200 models perform well on a single, fast (spindle speed) disk.

Disk Partitioning

OV3600 automatically partitions the disk subsystem upon installation. You can override these values. The table below lists the default partitioning and provides guidance for more advanced scenarios.

OV3600 Default Disk Partitions

Default Partitions	Size
Boot	100 MB
Swap	Twice size of RAM
/	Rest of disk space

Advanced Partitioning Recommendations

Default Partitions	Purpose	Recommended Size
Boot	Boot partition	100 MB
Swap	Swap partition	Twice size of RAM
/	OV3600	25% of total disk space
/alternative	Database backup location	10% of total disk space
/var/log	All log from all services	5% of total disk space
/var/lib/pgsql	PostgreSQL database files	25% of total disk space
/var/airwave/rrd	Statistical flat files	25% of total disk space
/var/airwave-backup	Nightly backup location	10% of total disk space

Note: There could be upgrade or installation issues when manually partitioning your disk subsystem.

OV3600 Appliances

AirWave provides the option of purchasing a specially designed hardware appliance. There are two models listed below. OV3600-HW-PRO is designed for deployments with up to 1,000 devices. OV3600-HW-ENT is designed for deployments up to 2,500 devices.

Appliance Specifications

SKU	CPU Class	Clock Speed (GHz)	CPUs	Total Cores	Memory	Disk Subsystem
OV3600-HW-PRO	Quad Core Intel® Xeon® **X5560**	2.8	1	4	12 GB	(4) 73GB, 15K RPM - Raid 10 146 GB of usable disk space
OV3600-HW-ENT	Quad Core Intel® Xeon® **X5560**	2.8	2	8	24 GB	(6) 146GB, 15K RPM - Raid 10 438 GB of usable disk space

AMD Processor Matrix

Managed Devices	CPU Class	Clock Speed (GHz)	CPUs	Total Cores	OV3600 Memory	RAPIDs Memory	VisualRF Memory
500	Quad Core AMD Opteron™ **8387**	2.8	1	4	4 GB	2 GB	2 GB
1,000	Quad Core AMD Opteron™ **8387**	2.8	2	8	10 GB	3 GB	3 GB
2,000	Quad Core AMD	2.6	2	12	12 GB	6 GB	6 GB

Managed Devices	CPU Class	Clock Speed (GHz)	CPUs	Total Cores	OV3600 Memory	RAPIDs Memory	VisualRF Memory
	Opteron™ 8435						

Note: AirWave does not actively conduct scalability testing for the AMD processor product line. These numbers are based on published performance data versus the Intel product line.

OV3600 Server Reference Sell

AirWave has partnered with the leading server manufacturers to certify specific hardware platforms for capability and scalability.

IBM Servers x3650 M2 – certified on 02/15/2010

Managed Devices	Clock Speed (GHz)	CPUs	Total Cores	Memory	Disk Subsystem
2,500	2.8	2	8	24 GB	(6) 146GB, 15K RPM - Raid 10 438 GB of usable disk space