



CISCO IOS EARLY DEPLOYMENT RELEASE 12.3(8)XW

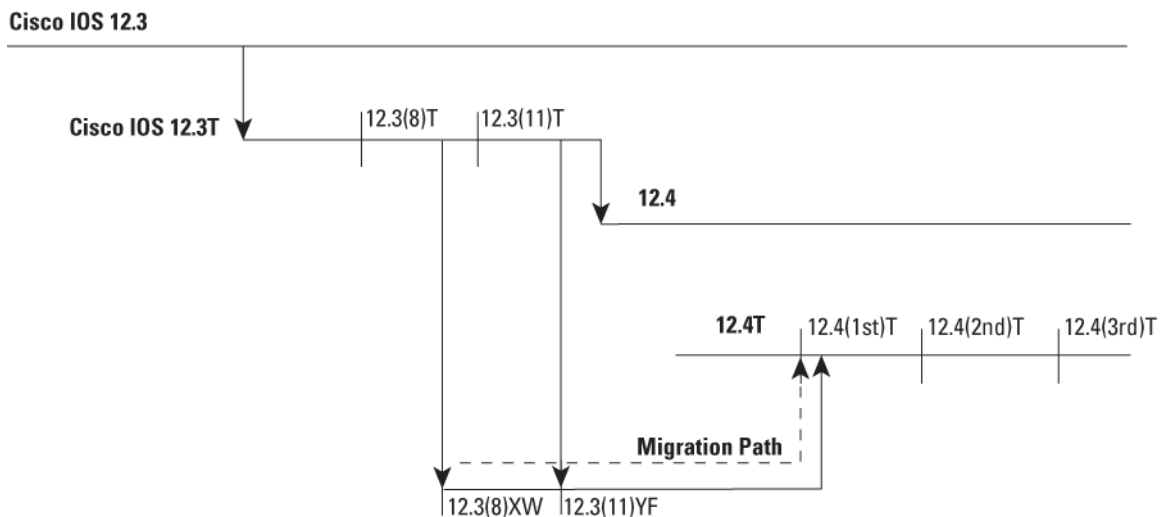
INTRODUCTION

This Product Bulletin describes the content and delivery information concerning Cisco IOS™ software release 12.3(8)XW, the release vehicle for the Packet Data Serving Node Release 2.0, and migration vehicle for the Cisco IOS software release 12.3(7)XJ, the initial release vehicle for Mobile Wireless Home Agent 2.0. This release is focused on the Cisco 7206VXR, 7600, and Catalyst 6500 platforms. The 7600 and 6500 utilizes the Multi-Processor WAN Application Module (MWAM). The features delivered with this release will be incorporated into the 12.4(1st)T release, but 12.3(8)XW represents a release vehicle that provides these features sooner. For more information about the Cisco IOS software release process, please see Product Bulletin #537.

MIGRATION GUIDE

Figure 1 below displays Cisco IOS 12.3(8)XW release functionality relative to the 12.3 and 12.3T releases. This diagram also identifies the migration path.

Figure 1. Cisco IOS Release 12.3(8)XW Migration Guide



This is also the migration path for the previous Early Deployment release 12.3(7)XJ.

FEATURES IN CISCO IOS RELEASE 12.3(8)XW

Cisco IOS Release 12.3(8)XW New Features (PDSN)

The following new features will be delivered in the initial release of 12.3(8)XW.

Table 1. Cisco IOS Release 12.3(8)XW New Features (PDSN)

New Feature	7206VXR	6500 (MWAM)	7600 (MWAM)
On-Demand Address Pools (ODAP)	—	X	X
Prepaid (IS-835C)	X	X	X
Resource Revocation (IS-835C)	X	X	X
Packet of Disconnect (IS-835C)	X	X	X
Always On (IS-835B)	X	X	X

Please see the next section for documents that address details on these new features. Any ED release of software should be utilized first in a test network before being deployed in a production network.

Detailed Information

On-Demand Address Pools (ODAP)

Cisco On Demand Address Pool (ODAP) feature supports the capability of a large IP address pool per chassis. Each separate PDSN processor will request a subnet of IP addresses from the large IP address pool. Local pools per member would not need to be configured at all; one main pool would be configured on a Centralized Server. The benefits include more efficient use of IP addresses, centralized management benefits, and simplified operational procedures.

Prepaid Per IS-835C

The Prepaid feature provides PDSN to AAA server support of the prepaid VSAs, as defined in Is-835C. It provides real time metering of Simple IP, Proxy Mobile IP and VPDN based services. It also provides undifferentiated real time metering of Mobile IP services. “Undifferentiated” means that all the Mobile IP flows for a single user will be rated equally. Metering can be based on data volume or call duration. Note that the AAA server must support the defined VSAs, and be integrated with a Prepaid Billing Server (PBS).

Resource Revocation Per IS-835C

This allows the PDSN to clean up an HA binding (e.g. when call drops) as well as allows HA to clean up a PDSN session, e.g. on handoff. This is the implementation of the standardization of Cisco binding update feature available in HA R1.2 with an additional enhancement.

Packet of Disconnect (PoD) Per IS-835C

This provides a trigger mechanism to cancel sessions on the PDSN and/or HA. The trigger can come from AAA, billing mediation, etc. (whoever is controlling the access). It can be used alone, or in conjunction with Resource Revocation feature, to clean up the session/binding. This means that resources are not wasted.

Always on Per IS-835B

The always-on service maintains a subscriber's packet data session irrespective of ppp inactivity timer value for the user. At the same time, by making use of a finite ppp inactivity timer value, this feature provides a compromised approach to keep a session only as long as the user is reachable.

CISCO IOS RELEASE 12.3(7)XJ FEATURES (HA)

The following features were initially delivered in 12.3(7)XJ and will be maintained in the initial release of 12.3(8)XW.

Table 2. Cisco IOS Release 12.3(7)XJ Features (HA)

New Feature	7206VXR	6500 (MWAM)	7600 (MWAM)
On-Demand Address Pools (ODAP)	—	X	X
HA-SLB	—	X	X
Resource Revocation (IS-835C)	X	X	X
Packet of Disconnect (IS-835C)	X	X	X
HA Redundancy Enhancements	X	X	X
Conditional Debugs for Mobile IP	X	X	X
Hotlining	X	X	X
VRF	X	X	X

Please see the next section for documents that address details on these new features. Any ED release of software should be utilized first in a test network before being deployed in a production network.

Detailed Information

On-Demand Address Pools (ODAP)

Cisco On Demand Address Pool (ODAP) feature supports the capability of a large IP address pool per chassis. Each separate HA processor will request a subnet of IP addresses from the large IP address pool. Local pools per member would not need to be configured at all; one main pool would be configured on Centralized Server. The benefits include more efficient use of IP addresses, centralized management benefits, and simplified operational procedures.

Home Agent Server Load Balancing (HA-SLB)

The Server Load Balancing (SLB) function runs on the Supervisor and front ends a pool of HAs, providing load balancing across a group of HAs running on the MWAMs listed in its server farm. Only one virtual IP address must be known to the FA. Note that the proper option is also required on the Supervisor image to enable this feature. See Ordering section for 6500 and 7600 starting on Page 10 for details.

Resource Revocation Per IS-835C

This allows PDSN to clean up an HA binding (e.g. when call drops) as well as allows HA to clean up a PDSN session, e.g. on handoff. This is the implementation of the standardization of Cisco binding update feature available in HA R1.2 with an additional enhancement.

Packet of Disconnect (PoD) Per IS-835C

This provides a trigger mechanism to cancel sessions on the PDSN and/or HA. The trigger can come from AAA, billing mediation, etc. (whoever is controlling the access). It can be used alone, or in conjunction with Resource Revocation feature, to clean up the session/binding. This means that resources are not wasted.

HA Redundancy Enhancements

This is an enhancement to the existing HA Redundancy feature. It adds support for the feature when local pool IP addressing, or proxy DHCP addressing, is utilized.

Conditional Debugs

Enhancement made to existing conditional debug feature to add support for Mobile IP.

Hotlining

Uses standard IS-835C based CoA messages to change user session profiles at the start of the session or in mid session. Data packets from the subscriber in the upstream can be re-directed to a different server, which will be capable of handling these packets. This provides support for “web steering” statically configured by realm and dynamically configured per user within the realm. Example is a prepaid user who runs out of quota can be redirected mid session.

VRF

HA can have virtual HAs which are using the Virtual Router Function (VRF) to support address overlapping. Thus, one HA can provide connection to different corporate users using a different transport.

For more detailed information about the platforms and features being delivered in 12.3(8)XW, please reference the following documents:

http://www.cisco.com/en/US/products/sw/wirelssw/ps4341/prod_literature.html

<http://www.cisco.com/en/US/products/hw/routers/ps341/>

<http://www.cisco.com/en/US/products/hw/routers/ps368/index.html>

<http://www.cisco.com/en/US/products/hw/switches/ps708/index.html>

Support

Cisco IOS software release 12.3(8)XW follows the standard Cisco support policy as indicated in the following link.

http://www.cisco.com/en/US/products/products_end-of-life_policy.html

Note: Cisco Software Application Support (SAS) must be ordered for the PDSN; it is not covered under Smartnet. See *Product Numbers* section below for details. Cisco SAS includes 24-hour technical assistance from the Cisco Technical Assistance Center (TAC) via telephone and the Web, online tools, plus bug fixes, maintenance, and rebuilds of the same release (R2.0) of PDSN and HA.

Product Numbers

The spare product code is designated with ‘=’ and should be ordered when moving to a different PDSN or HA image, or when the platform hardware is not being ordered in conjunction with the software.

There are two PDSN images available with R2.0: Basic and Premium.

- **Basic**—Includes basic feature set. 10k session capacity on 7206VXR; 20k session capacity on MWAM
- **Premium**—Includes basic feature set plus Prepaid. 20k session capacity on 7206VXR and MWAM

There are two HA images available with R2.0: Basic and Premium.

- **Basic**—Includes basic feature set
- **Premium**—Includes basic feature set plus Hotlining, VRF

There are two options when ordering software for the MWAM:

- Single Image
- Bundled Image

Each single image contains one PDSN image to run on one of the five MWAM processors; each bundled image contains five PDSN images that run on each of five MWAM processors.

When ordering more than one single image, the first one should be ordered as an option to the MWAM. Any subsequent single images, should be ordered as spares.

Table 3. Cisco IOS Release 12.3(8)XW PDSN Product Codes

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
7206VXR	CISCO 7200 IOS PDSN R2.0 BASIC	S72P2B-12308XW S72P2B-12308XW=	c7200-c6is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 BASIC 3DES	S72P2K9-12308XW S72P2K9- 12308XW=	c7200-c6ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 PREMIUM	S72P2X-12308XW S72P2X-12308XW=	c7200-c6is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 PREMIUM 3DES	S72P2K9X-12308XW S72P2K9X-12308XW=	c7200-c6ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 BASIC UPGRD FROM R1.2 BASE OR ENH	S72P2UB-12308XW=	c7200-c6is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 BASIC UPGRD FROM R1.2 BASE OR ENH	S72P2UB-12308XW=	c7200-c6is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 PREMIUM UPGRADE FROM R1.2 ENHANCED	S72P2EX-12308XW=	c7200-c6is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 PREM 3DES UPGRD FROM R1.2 ENH 3DES	S72PI2UK9-12308XW=	c7200-c6ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 UPGRADE (BASIC TO	S72P2UX-12308XW=	c7200-c6is-mz	64MB	1GB

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
	PREMIUM)				
7206VXR	CISCO 7200 IOS PDSN R2.0 UPGRADE (BASIC 3DES TO PREMIUM)	S72P2BK9X-12308XW=	c7200-c6ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS PDSN R2.0 UPGRADE TO 3DES	S72P2UK9-12308XW=	c7200-c6ik9s-mz	64MB	1GB
MWAM	Cisco MWAM Series PDSN R2.0 Basic	SC-SVC-PD20B SC-SVC-PD20B=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series PDSN R2.0 Basic Single Image	SC-SVC-PD20BIM SC-SVC-PD20BIM=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series PDSN R2.0 Premium	SC-SVC-PD20P SC-SVC-PD20P=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series PDSN R2.0 Premium Single Image	SC-SVC-PD20PIM SC-SVC-PD20PIM=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to PDSN R2.0 Basic from R1.2	SC-SVC-PD20B-UP=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to PDSN R2.0 Basic SI from R1.2 SI	SC-SVC-PD20BIM-UP=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to PDSN R2.0 Premium from Basic	SC-SVC-PD20-UP=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to PDSN R2.0 Premium from Basic SI	SC-SVC-PD20IM-UP=	c6svc-5mwam-c6is-b21_11.bin	128MB	512MB

The following Product Codes should be utilized when ordering Cisco Software Application Support (SAS) PDSN R2.0.

Table 4. Cisco Software Application Support (SAS) PDSN R2.0 by Product Code

Product Code	Description
CON-SAS-S72P2BXW	Support for product codes: S72P2B-12308XW S72P2B-12308XW=
CON-SAS-S72P2K9XW	Support for product codes: S72P2K9-12308XW S72P2K9-12308XW=

CON-SAS-S72P2XXW	Support for product codes: S72P2X-12308XW S72P2X-12308XW=
CON-SAS-S72P2K9X	Support for product codes: S72P2K9X-12308XW S72P2K9X-12308XW=
CON-SAS-S72P2UBXW	Support for product codes: S72P2UB-12308XW=
CON-SAS-S72P2BUKX	Support for product codes: S72P2BUK9-12308XW=
CON-SAS-S72P2EXXW	Support for product codes: S72P2EX-12308XW=
CON-SAS-S72PI2UXW	Support for product codes: S72PI2UK9-12308XW=
CON-SAS-S72P2UXXW	Support for product codes: S72P2UX-12308XW=
CON-SAS-S72P2K9XX	Support for product codes: S72P2BK9X-12308XW=
CON-SAS-S72UK912X	Support for product codes: S72P2UK9-12308XW=
CON-SAS-PD20B	Support for product codes: SC-SVC-PD20B SC-SVC-PD20B=
CON-SAS-PD20BI	Support for product codes: SC-SVC-PD20BIM SC-SVC-PD20BIM=
CON-SAS-PD20P	Support for product codes: SC-SVC-PD20P SC-SVC-PD20P=
CON-SAS-PD20PI	Support for product codes: SC-SVC-PD20PIM SC-SVC-PD20PIM=

Table 5. Cisco IOS Release 12.3(8)XW HA Product Codes

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 BASIC	S72PSH2-12308XW S72PSH2-12308XW=	c7200-h1is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0	S72PH2K9-12308XW S72PH2K9-12308XW=	c7200-h1ik9s-mz	64MB	1GB

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
	BASIC 3DES				
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 PREMIUM	S72PH2X-12308XW S72PH2X-12308XW=	c7200-h1is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 PREMIUM 3DES	S72PH2K9X-12308XW S72PH2K9X-12308XW=	c7200-h1ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 BASIC UPGRADE FROM R1.2	S72PH2-12308XW=	c7200-h1is-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 BASIC 3DES UPGRD FROM R1.2	S72PH2UK9-12308XW=	c7200-h1ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 UPGRADE TO 3DES	S72PI2K9-12308XW=	c7200-h1ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 UPGRD (BASIC 3DES TO PREM)	S72PI2K9X-12308XW=	c7200-h1ik9s-mz	64MB	1GB
7206VXR	CISCO 7200 IOS MW HOME AGENT R2.0 UPGRD (BASIC TO PREMIUM)	S72PI2-12308XW=	c7200-h1is-mz	64MB	1GB
MWAM	Cisco MWAM Series HOME AGENT R2.0 Basic	SC-SVC-HA20B SC-SVC-HA20B=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series HOME AGENT R2.0 Basic Single Image	SC-SVC-HA20BIM SC-SVC-HA20BIM=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series HOME AGENT R2.0 Premium	SC-SVC-HA20P SC-SVC-HA20P=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series HOME AGENT R2.0 Premium Single Image	SC-SVC-HA20PIM SC-SVC-HA20PIM=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
MWAM	Cisco MWAM Series UPGRD to HA R2.0 Basic from R1.2	SC-SVC-HA20B-UP=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to HA R2.0 Basic SI from R1.2 SI	SC-SVC-HA20BIM-UP=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to HA R2.0 Premium from Basic	SC-SVC-HA20-UP=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB
MWAM	Cisco MWAM Series UPGRD to HA R2.0 Premium from Basic SI	SC-SVC-HA20IM-UP=	c6svc-5mwam-h1is-b21_11.bin	128MB	512MB

The following Product Codes should be utilized when ordering Cisco Software Application Support (SAS) HA R2.0.

Table 6. Cisco Software Application Support (SAS) HA R2.0 by Product Code

Product Code	Description
CON-SAS-S72PSH2X	Support for product codes: S72PSH2-12308XW S72PSH2-12308XW=
CON-SAS-S72PH2KW	Support for product codes: S72PH2K9-12308XW S72PH2K9-12308XW=
CON-SAS-S72PH2XW	Support for product codes: S72PH2X-12308XW S72PH2X-12308XW=
CON-SAS-S72PH2K9X	Support for product codes: S72PH2K9X-12308XW S72PH2K9X-12308XW=
CON-SAS-S72PH2	Support for product codes: S72PH2-12308XW=
CON-SAS-S72PH2UK	Support for product codes: S72PH2UK9-12308XW=
CON-SAS-S72PI2K9	Support for product codes: S72PI2K9-12308XW=
CON-SAS-S72PI2KX	Support for product codes: S72PI2K9X-12308XW=

Product Code	Description
CON-SAS-S72PI2	Support for product codes: S72PI2-12308XW=
CON-SAS-HA20B	Support for product codes: SC-SVC-HA20B SC-SVC-HA20B=
CON-SAS-HA20BIM	Support for product codes: SC-SVC-HA20BIM SC-SVC-HA20BIM=
CON-SAS-HA20P	Support for product codes: SC-SVC-HA20P SC-SVC-HA20P=
CON-SAS-HA20PIM	Support for product codes: SC-SVC-HA20PIM SC-SVC-HA20PIM=

BUNDLE PRODUCT NUMBERS

When ordering multiple MWAMs with the Cisco MWAM Series PDSN R2.0 Premium image, there is a bundle available. The following bundle includes:

- Two MWAMs (WS-SVC-MWAM-1)
- Two bundled images of PDSN R2.0 Premium (SC-SVC-PD20P)

When ordering multiple MWAMs with the Cisco MWAM Series HOME AGENT R2.0 Premium image, there is a bundle available. The following bundle includes:

- Two MWAMs (WS-SVC-MWAM-1)
- Two bundled images of HA R2.0 Premium (SC-SVC-HA20P)

Table 7. Bundle Product Numbers

Platform	Software Feature Set	Product Code	Image	Flash	DRAM
MWAM	Cisco MWAM Series PDSN R2.0 Premium 2 Unit Bundle	WS-SVC-MWPD20-BDL WS-SVC-MWPD20-BDL=	c6svc-5mwam-c6is-b21_10.bin	128MB	512GB
MWAM	Cisco MWAM Series HOME AGENT R2.0 Premium 2 Unit Bundle	WS-SVC-MWHA20-BDL WS-SVC-MWHA20-BDL=	c6svc-5mwam-h1is-b21_10.bin	128MB	512GB

Download Information

Customers can download Cisco IOS Release 12.3(8)XW software for the 7206VXR from Cisco Connection Online (CCO) in the Software Image Library.

<http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?majorRel=12.3>

Customers can download Cisco IOS Release 12.3(8)XW software for the MWAM from Cisco Connection Online (CCO) in the Software Image Library.

<http://www.cisco.com/kobayashi/sw-center/sw-wireless.shtml>

Special Note to Customers

The following are additional ordering guidelines and sample configurations for a Home Agent. Note that the configurations are provided for guidance only and do not include hardware Smartnet contracts, or ancillary equipment such as cables, rack mount kits, or high speed fan trays. Please discuss your desired configuration with your Cisco representative prior to ordering.

HA and PDSN R2.0 on 7206VXR

The PDSN and HA images operate on a 7206VXR; it can be used on the NPE-400, providing backward compatibility to R1.2, and on the NPE-G1. All new orders must utilize the NPE-G1.

Following is the *recommended* hardware configuration for a 7206VXR to be ordered as a PDSN or HA R2.0.

Table 8. Recommended Hardware Configuration for Cisco 7206VXR to be Ordered as a PDSN or HA R2.0.

Product	Description	Quantity
7206VXR/NPE-G1	7206VXR with NPE-G1 includes 3GigE/FE/E Ports and IP SW	1
PWR-7200-DC+	Cisco 7200 DC Power Supply Option	1
PWR-7200/2-DC+	Cisco 7200 Dual DC Power Supply Option	1
MEM-NPE-G1-FLD128	Cisco 7200 Compact Flash Disk for NPE-G1, 128 MB Option	1
MEM-NPE-G1-1GB	Two 512MB mem modules (1GB total) for NPE-G1 in 7200	1
PA-2FE-TX	2-Port Fast Ethernet 100Base TX Port Adapter	1
S72Pxx-xxxxxx	HA or PDSN Image	1
CON-SAS-S72Pxxxx	SAS Support for HA or PDSN Image	1

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

HA and PDSN R2.0 on 7206VXR with DES3 Encryption

The HA and PDSN DES3 images operate on a 7206VXR; they can only be used with the NPE-G1 and SA-VAM2. The SA-ISA is End-of-Sale and End-of-Support and thus are not supported.

Please reference http://www.cisco.com/en/US/products/hw/modules/ps2957/prod_eol_notice09186a00801ca863.html for further information on the SA-ISA.

One SA-VAM2 is required per chassis. IPSec operation is supported only with hardware acceleration.

Following is the *recommended* hardware configuration for a 7206VXR to be ordered as a PDSN or HA R2.0.

Table 9. Recommended Hardware Configuration for Cisco 7206VXR to be Ordered as a PDSN or HA R2.0.

Product	Description	Quantity
7206VXR/NPE-G1	7206VXR with NPE-G1 includes 3GigE/FE/E Ports and IP SW	1
PWR-7200-DC+	Cisco 7200 DC Power Supply Option	1
PWR-7200/2-DC+	Cisco 7200 Dual DC Power Supply Option	1
MEM-NPE-G1-FLD128	Cisco 7200 Compact Flash Disk for NPE-G1, 128 MB Option	1
MEM-NPE-G1-1GB	Two 512MB mem modules (1GB total) for NPE-G1 in 7200	1
PA-2FE-TX	2-Port Fast Ethernet 100Base TX Port Adapter	1
SA-VAM2	Cisco VPN Acceleration Module 2	1
S72PxxK9x-xxxxxx	HA or PDSN Image	1
CON-SAS-S72Pxxxx	SAS Support for HA or PDSN Image	1

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

HA and PDSN R2.0 on 7600

HA and PDSN operate on separate MWAMs. They can be licensed by MWAM (5 processors), or by processor (single image). Note that PDSN and HA images can not coexist on the same MWAM, though an HA MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.17d-SXB1 software version must run on the supervisor. The HA and PDSN on MWAM are only supported with the SUP2/MSFC2.

Following is the *recommended* hardware configuration for a 7613 to be ordered as an HA and/or PDSN R2.0. Recommended supervisor software is also included.

Table 10. Recommended Hardware Configuration for Cisco 7613 to be Ordered as an HA and/or PDSN R2.0

Product	Description	Quantity
CISCO7613	7613 Chassis Bundles	1
7613-DC-BUN	7613 Chassis, Sup2, 4000WDC, 512M memory	1
PWR-4000-DC	4000W DC Power Sup for CISCO7609/13, Cat6509/13 chassis	1
S762Z-12217SXB	Cisco 7600-SUP2/MSFC2 IOS IP	1
WS-X6K-S2U-MSFC2/2	Cat6K Red. Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1
WS-SVC-MWAM-1	Multi-Processor WAN Application Module	1...10
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

If the HA-SLB feature is desired, the following must also be ordered as an option to the supervisor image, S762Z-12217SXB1.

Table 11. Supervisor Image Option

Product	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a GE Interface card can be ordered instead of FE interface. In this case the following would be ordered instead of WS-X6548-RJ45.

Table 12. Gigabit Ethernet Options

Product	Description	Quantity
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)	8

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

HA and PDSN R2.0 on 7600 with DES3 Encryption

HA and PDSN operate on one MWAM. They can be licensed by MWAM (5 processors), or by processor (single image). Note that PDSN and HA images can not coexist on the same MWAM, though an HA MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.17d-SXB1 DES3 software version must run on the supervisor; this is different than the non-DES3 image. The HA and PDSN on MWAM are only supported with the SUP2/MSFC2.

One IPSec VPN security module is required per chassis. IPSec operation is supported only with hardware acceleration.

The same HA and PDSN images support both non-IPSec and IPSec.

Following is the *recommended* hardware configuration for a 7613 to be ordered as an HA and/or PDSN R2.0. Recommended supervisor software is also included.

Table 13. Recommended Hardware Configuration for Cisco 7613 to be Ordered as an HA and/or PDSN R2.0.

Product	Description	Quantity
CISCO7613	7613 Chassis Bundles	1
7613-DC-BUN	7613 Chassis, Sup2, 4000WDC, 512M memory	1
PWR-4000-DC	4000W DC Powr Sup for CISCO7609/13, Cat6509/13 chassis	1
S762ZK9-12217SXB	Cisco 7600-SUP2/MSFC2 IOS IP W/SSH/3DES	1
WS-X6K-S2U-MSFC2/2	Cat6K Red. Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1
WS-SVC-IPSEC-1	IPSec VPN Security Module	1
WS-SVC-MWAM-1	Multi-Processor WAN Application Module	1...9
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

If the HA-SLB feature is desired, the following must also be ordered as an option to the supervisor image, S762Z-12217SXB1.

Table 14. High Availability Software Load Balancing Option

Product	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a GE Interface card can be ordered instead of FE interface. In this case the following would be ordered instead of WS-X6548-RJ45.

Table 15. Gigabit Ethernet Option

Product	Description	Quantity
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)	8

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

HA and PDSN R2.0 on 6500

HA and PDSN operate on one MWAM. They can be licensed by MWAM (5 processors), or by processor (single image). Note that PDSN and HA images can not coexist on the same MWAM, though an HA MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.17d-SXB1 software version must run on the supervisor. The HA and PDSN on MWAM are only supported with the SUP2/MSFC2.

Following is the *recommended* hardware configuration for a 6513 to be ordered as an HA and/or PDSN R2.0. Recommended supervisor software is also included.

Table 16. Recommended Hardware Configuration for Cisco 6513 to be Ordered as an HA and/or PDSN R2.0

Product	Description	Quantity
WS-6513	Cat 6513 Chassis, 13slot, 19RU, No Pow Supply, No Fan Tray	1
PWR-4000-DC	4000W DC Powr Sup for CISCO7609/13, Cat6509/13 chassis	2
S222A-12217SXB	Cisco CAT6000-SUP2/MSFC2 IOS ENT W/IPV6	1
WS-X6K-S2U-MSFC2	Cat6K Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1
WS-X6K-S2U-MSFC2/2	Cat6K Red. Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1
WS-SVC-MWAM-1	Multi-Processor WAN Application Module	1...10
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

If the HA-SLB feature is desired, the following must also be ordered as an option to the supervisor image, S762Z-12217SXB1.

Table 17. High Availability Software Load Balancing Option

Product	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a GE Interface card can be ordered instead of FE interface. In this case the following would be ordered instead of WS-X6548-RJ45.

Table 18. Gigabit Ethernet Option

Product	Description	Quantity
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)	8

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

HA R2.0 on 6500 with DES3 Encryption

HA and PDSN operate on one MWAM. They can be licensed by MWAM (5 processors), or by processor (single image). Note that PDSN and HA images can not coexist on the same MWAM, though an HA MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.17d-SXB1 DES3 software version must run on the supervisor; this is different than the non-DES3 image. The HA and PDSN on MWAM are only supported with the SUP2/MSFC2.

One IPSec VPN security module is required per chassis. IPSec operation is supported only with hardware acceleration.

The same HA and PDSN images support both non-IPSec and IPSec.

Following is the *recommended* hardware configuration for a 6513 to be ordered as an HA and/or R2.0. Recommended supervisor software is also included.

Table 19. Recommended Hardware Configuration for Cisco 6513 to be Ordered as an HA with 3DES Encryption

Product	Description	Quantity
WS-6513	Cat 6513 Chassis, 13slot, 19RU, No Pow Supply, No Fan Tray	1
PWR-4000-DC	4000W DC Powr Sup for CISCO7609/13, Cat6509/13 chassis	2
S222AK9-12217SXB	Cisco CAT6000-SUP2/MSFC2 IOS ENT W/IPV6/SSH/3DES	1
WS-X6K-S2U-MSFC2	Cat6K Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1
WS-X6K-S2U-MSFC2/2	Cat6K Red. Sup2 w/ 256MB DRAM, PFC2, MSFC2	1
MEM-C6K-ATA-1-64M	Cat 6500 Supervisor ATA Type1 Flash Mem Card, 64MB	1

Product	Description	Quantity
WS-SVC-IPSEC-1	IPSec VPN Security Module	1
WS-SVC-MWAM-1	Multi-Processor WAN Application Module	1...9
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

If the HA-SLB feature is desired, the following must also be ordered as an option to the supervisor image, S762Z-12217SXB1.

Table 20. High Availability Software Load Balancing Option

Product	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a GE Interface card can be ordered instead of FE interface. In this case the following would be ordered instead of WS-X6548-RJ45.

Table 21. Gigabit Ethernet Option

Product	Description	Quantity
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode Only)	8

Note: The above is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.



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