



CISCO INTEGRATED SERVICE ROUTERS — 1800/2800/3800 SERIES AT-A-GLANCE

Inside Sales Systems Engineering

COMPARATIVE OVERVIEW

Model	Memory (Std/Max) MBytes	LAN	WIC Slots	NM Slots	AIM Slots	DSP Slots	USB Ports	In-Line Power (Ports)	Form Factor	PS Redundancy	Voice Support	CUE Support ³	Max CCME Phones ⁴	Max SRST Phones ⁴
1711/1712 ⁵	F: 32/32 D: 64/128	5 E/FE	No	No	No	No	No	No	Desk	No	No	No	No	No
1721 ⁶	F: 32/32 D: 64/128	1 E/FE	2 VWIC/WIC (data only)	No	No	No	No	No	Desk	No	No	No	No	N
1751 ⁶	F: 32/32 D: 64/128	1 E/FE	2 VWIC/WIC/VIC 1 VWIC/WIC (voice only)	No	No	2	No	No	Desk	No	DSP	No	24	24
1841	F: 32/128 D: 128/384	2 E/FE	2 HWIC/VVIC/WIC (data only)	No	1	No	1	No	Desk	No	No	No	No	No
1760 ⁶	F: 32/64 D: 64/128	1 E/FE	2 VWIC/WIC/VIC 2 VWIC/WIC (voice only)	No	No	2	No	No	1U	No	DSP	No	24	24
2801	F: 64/128 D: 128/384	2 E/FE	2 HWIC/VVIC/WIC/VIC 1 VWIC/WIC/VIC (voice/data) 1 VWIC/WIC (voice only)	No	2	2	1	120W (16)	1U	No	DSP	AIM	24	24
2611XM	F: 32/48 D: 128/256	2 E/FE	2 VWIC/WIC (data only)	1 NM	1	No	No	No	1U	RPS-600 Conn.Opt.	AIM/ NM	AIM/ NM	36	36
2811	F: 64/256 D: 256/768	2 E/FE	4 HWIC/VVIC/WIC/VIC	1 NME	2	2	2	160W (24)	1U	RPS-675 Conn.Std.	DSP/ NM	AIM/ NM	36	36
2621XM	F: 32/48 D: 128/256	2 E/FE	2 VWIC/WIC (data only)	1 NM	1	No	No	No	1U	RPS-600 Conn.Opt.	AIM/ NM	AIM/ NM	36	36
2821	F: 64/256 D: 256/1GB	2 E/FE/GE	4 HWIC/VVIC/WIC/VIC	1 NME-X 1 EVM-HD	2	3	2	240W (24)	2U	RPS-675 Conn.Std.	DSP/ NM	AIM/ NM	48	48
2651XM	F: 32/48 D: 256/256	2 E/FE	2 VWIC/WIC (data only)	1 NM	1	No	No	No	1U	RPS-600 Conn.Opt.	AIM/ NM	AIM/ NM	48	48
2691	F: 32/128 D: 256/256	2 E/FE	3 VWIC/WIC (data only)	1 NM	2	No	No	No	2U	RPS-600 Conn.Opt.	AIM/ NM	AIM/ NM	72	72
2851	F: 64/256 D: 256/1GB	2 E/FE/GE	4 HWIC/VVIC/WIC/VIC	1 NME-XD 1 EVM-HD	2	3	2	360W (44)	2U	RPS-675 Conn.Std.	DSP/ NM	AIM/ NM	96	96
3725	F: 32/128 D: 256/256	2 E/FE	3 VWIC/WIC (data only)	2 NM One NM can be used for a NMD	2	No	No	360W (52)	2U	RPS-600 Conn.Opt.	AIM/ NM	AIM/ NM	144	144
3825	F: 64/256 D: 256/1GB	2 E/FE/GE 1 SFP ⁷	4 HWIC/VVIC/WIC/VIC	2 NME-X/EVM-HD ⁸ One NME-X can be used for a NME-XD	2	4	2	360W (52)	2U	RPS-675 Conn.Std.	DSP/ NM	AIM/ NM	168	336
3745	F: 32/128 D: 256/256	2 E/FE	3 VWIC/WIC (data only)	4 NM Can be combined horiz. into up to 2 NMD	2	No	No	360W (72)	2U	Internal Red. PS Option	AIM/ NM	AIM/ NM	192	480
3845	F: 64/256 D: 256/1GB	2 E/FE/GE 1 SFP ⁷	4 HWIC/VVIC/WIC/VIC	4 NME-X/EVM-HD ⁹ Can be combined horiz. into up to 2 NME-XD	2	4	2	360W (72)	3U	Internal Red. PS Option	DSP/ NM	AIM/ NM	240	720

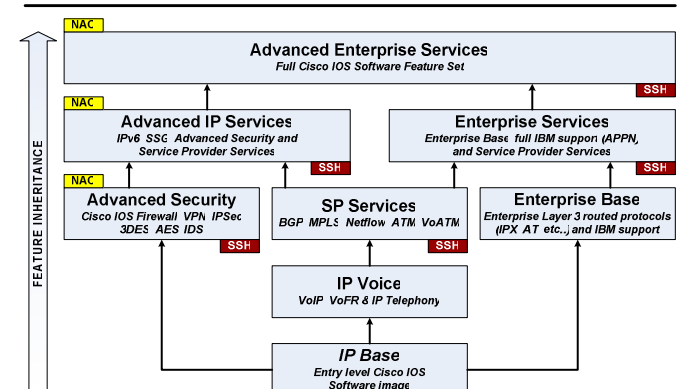
Notes:

- Performance numbers will vary depending on packet size and features. Please contact your account team for more precise performance figures.
- Crypto numbers depend heavily on traffic type, packet size and number of tunnels. Please contact your account team for more precise performance figures.
- 50 VM boxes (up to 8 hours storage) using Cisco Unity Express AIM, 100 VM boxes (up to 100 hours storage) using Cisco Unity Express network module. If more users VM boxes/time is required, a MCS server with Unity VM or UM can be used.
- Phone density numbers indicated are for CCME/SRST 3.2 (available in 12.3(11)T).
- 1711/12 are NOT modular routers. They are there for the sake of comparison but they should not be considered in the same modularity/performance/feature category as the ISRs.
- Always remember that on the 1721/1751/1760, a WIC is likely to be needed and hence, added to the price of the solution if connecting to a WAN, even if all is required is an extra Ethernet port for a broadband connection.

TOP 12 REASONS FOR CHOOSING THE NEW CISCO ISRS

- The ISRs are more cost effective than their legacy equivalents, particularly when the network requirements map to an existing bundle.
- The ISRs are faster (up to five times) and can handle quite a bit more memory than the legacy platforms. The base configurations also have more memory.
- The ISRs are designed with the ability to run multiple concurrent services (FW, NAT, IDS, QoS, etc.) at wire-speed.
- All the ISRs have TWO built-in LAN connections - FE or GE.
- All the ISRs have an embedded HW VPN accelerator - It is always included, it is just a matter of buying a VPN enabled image to turn it on. If that is not fast enough, a VPN AIM can be added to further enhance VPN performance.
- The new HWIC enabled slots provide an impressive 400Mbps of dedicated bandwidth (the old WICs provided up to 8Mbps). This is great news for LAN uplinks and Ethernet Switch HWICs. The new NME slots offer up to 1.2Gbps per module (the standard NM was only 600Mbps).
- The new EVM slot offers high density digital/analog voice ports.
- All the ISRs with voice support have on-board DSP slots. There is no need to use a NM slot for a network module with DSPs for voice applications anymore - the on-board DSP slots can provide enough DSP resources for most common requirements.
- All the ISRs with voice support can provide voice mail functionality with CUE (AIM and/or NM). CUE was not supported on the 1700 family.
- All the ISRs that support voice can provide in-line power to Ethernet switch ports via a HWIC-ESW-POE or a NM-ESW-PWR (optional AC-IP power supply is required for in-line power).
- Most ISRs provide some option for power supply redundancy. The 2811, 2821, 2851 and 3825 have a RPS connector and the 3845 can take a built-in redundant power supply.
- For investment protection, the ISRs support most of the existing WICs, VICs, VWICs and NM modules (check the datasheets for details).

IOS 12.3 Software Packaging



1800/2800/3800 Modules Overview

WIC Slots: WAN Interface Card (data only)

- Current architecture and physical characteristics on existing 1600/1700/2600/3600/3700 to support WIC modules (ex.: WIC-1T).
- A WIC slot cannot provide in-line power or PoE (802.3af) to a WIC card.
- A total of 8Mbps of bandwidth is shared between all WIC slots present in a chassis.

VIC Slots: Voice Interface Card (voice only)

- Current architecture and physical characteristics on existing 1700/2600/3600/3700 to support VIC modules (ex.: VIC2-2FXO).

VVIC Slots: Voice/WAN Interface Card (voice and/or data)

- Current architecture and physical characteristics on existing 1700/2600/3600/3700 to support VVIC modules. (ex.: VVIC-1MFT-T1).
- On the 2600/3600/3700, the WIC/VVIC slots can use the AIM-VOICE for as a DSP resource digital voice capability.

HWIC Slots: High Speed WAN Interface Card

- The **new** HWIC slot has the same physical form-factor as the existing VIC/WIC/VVIC slots and is backward compatible to support most of the more than 30 existing WICs, VVICs¹ and VICs².
- The HWIC offer greater speeds and higher port density than the current WIC card. Up to 400Mbps (full duplex) of dedicated bandwidth is available for each HWIC slot.
- HWIC slots can use built-in DSP (PVDM) resources for voice applications.
- HWIC slots supports Cisco product-based in-line power and PoE(802.3af)³.
- HWIC slots do not support online insertion and removal (OIR).
 - VVICs are supported in data-only mode on the Cisco 1841.
 - VICs are not supported on the CISCO 1841 (no voice support on that platform).
 - Power is not supported on the HWIC slots on the Cisco 1841.

HWIC-D Slots: High Speed WAN Interface Card Double-wide

- An HWIC-D slot is created when two HWIC slots are combined into one wider slot by removing the center rail between two side-by-side individual WIC slots.
- Note that the way the WIC slots are laid out on an 1841, it is not possible to combine them in a HWIC-D configuration. But the 2800/3800 all support that configuration; their (4) HWIC slots becoming (2) HWIC-D slots.

NM Slots: Network Module

- Current architecture and physical characteristics on existing 2600/3600/3700 NM module (ex.: NM-1HSSI).
- A chassis supports a maximum of 600Mbps BW that is shared between all the NM slots.
- NM slots supports Cisco product-based in-line power but not PoE/802.3af.

NME Slots: Network Module Enhanced

- The **new** NME slot have the same physical form factor as the current NM module slot.
- The NME slot is backward compatible to support most NM modules.
- The NME slot offers greater speed and higher port density than the current NM. A total of 1.2Gbps of maximum BW is shared between all the NME slots in a chassis.
- The NME slots support both Cisco based in-line power and PoE/802.3af.
- OIR of modules in the NME slot is supported on Cisco 3800 Series routers. OIR is used for replacement of like modules only, and limitations apply per module (check the documentation for more details).

NMD Slots: Network Module Double-wide

- Current architecture and physical characteristics of existing 3700 NMs Double-wide (ex.: NMD-36ESW).
- A NMD slot is created by removing the separator between two NM slots adjacent to each other.

NME-X Slots: Network Module Enhanced eXtra-wide

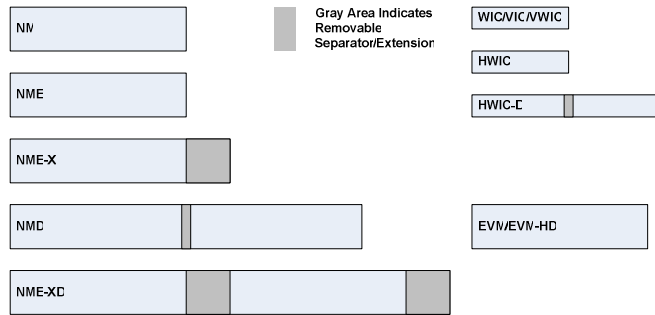
- The **new** NME-X is a wider form of the NME that will enable future services and functions.
- NME-X slot is backward compatible to support the NME and NM modules.

NME-XD Slots: Network Module Enhanced eXtra-Double-wide

- Created when two NME-X slots are combined into one bigger slot by removing the center rail between two side-by-side-individual slots.

EVM Slots: Extension Voice Module

- Although there is mention of it in the documentation, there is no evi-



dence that a pure EVM (non-HD) module will ever exist.

EVM-HD Slots: Extension Voice Module - High-Density

- The **new** EVM-HD has the same form factor as a regular NM¹.
- EVM-HD offers additional voice services and higher density for in a module format.
- EVM-HD slot can take advantage of the PVDMs on the motherboard to provide service to voice interfaces.
 - The dedicated EVM slots on the 2821 and 2851 cannot accept NM/NME modules. On the 3825, 1 EVM module is allowed in either of the 2 NME slots. On the 3845, 2 EVM modules are allowed in either of the 4 NME slots.
 - VVICs are supported in data-only mode on the Cisco 1841.

AIM Slots: Advanced Integration Module

- Current architecture and physical characteristics on existing 2600/3660/3700 to support AIM modules (ex.: AIM-VPN/BPII-PLUS).

USB Ports

- Can be used for USB Flash (Cisco Branded only) and an optional USB token for secure configuration distribution and off-platform storage of VPN credentials.
- Cannot be used as a console and/or auxiliary port.

AC-IP: In-line power enabled power supply

- Optional AC power supply with support for in-line power distribution. It is required to provide PoE (802.3af) an/or Cisco pre-standard in-line power¹ to NM and HWIC slots.
 - PoE/802.3af support depends on module implementation.

MARKETING TIDBITS

- IOS support at FCS: 1800/2800 - 12.3(8)T and 3800 - 12.3(11)T. ISRs feature sets use the new software naming and packaging introduced in IOS 12.3.
- The 1721/51/60 Series are not expected to EOS for at least 18-24 months.
- The 2600XM/3700 Series are not expected to EOS for at least 18-24 months.
- The ISRs are advantageously competing with other vendors' offerings. For example, the ISRs support more security features, more IP services (QoS, NAT, etc.), more voice features, and have more connectivity options.
- There is a new Linksys to Cisco trade-up program that can be used for the ISRs.
- Like with other Cisco equipment purchases, the Cisco Technology Migration Program (TMP) can be used to migrate from legacy platforms to ISRs.

USEFUL LINKS

Public CCO Website (ISR)
 Public CCO Website (1800)
 Public CCO Website (2800)
 Public CCO Website (3800)

<http://www.cisco.com/go/isr>
<http://www.cisco.com/go/1800>
<http://www.cisco.com/go/2800>
<http://www.cisco.com/go/3800>

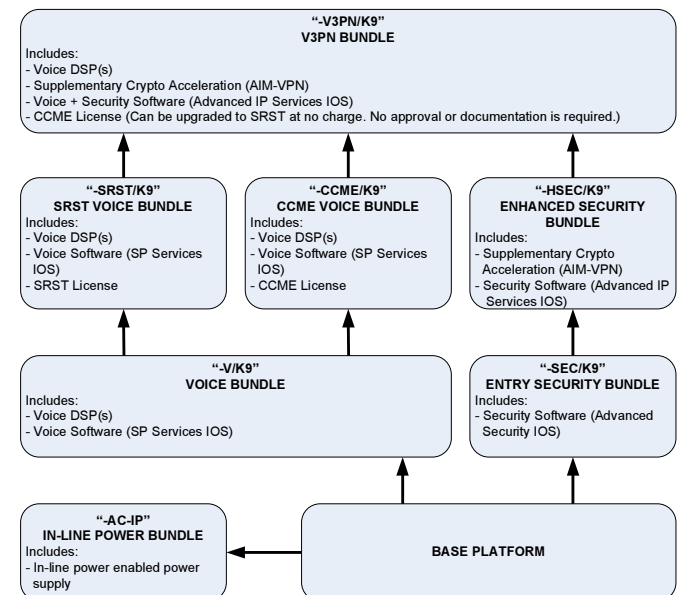
IMPORTANT TECHNICAL CONSIDERATIONS

- The ISRs are marketed as a wire-speed (WAN speed) integrated service routers but they are not to be positioned as L3 switches or LAN routers. The positioning for wire-speed services is as follows: 1841-1xT1/E1/xDSL, 2801-1xT1/E1/xDSL, 2811-2xT1/E1/xDSL, 2821-4xT1/E1/xDSL, 2851-6xT1/E1/xDSL, 3825 ½xT3/E3, 3845-1xT3/E3.
- On power redundancy - 1841 and 2801 have NO RPS capability. The 2811/2821/ 2851/3825 have an integrated RPS connector (for RPS-675). The 3845 can take a redundant internal PS.
- Not all existing WICs, VVICs, VICs, NMs, and AIMS are supported on the new platforms. Make sure you verify to prevent compatibility issues. Notably incompatible modules are the WIC-1DSU-T1 (use WIC-1DSU-T1-V2), WIC-1ENET (from the 1700 family), NM-1V and NM-2V (EOS) and the AIM-VOICE-30 and AIM-ATM-VOICE-30. (check the documentation and release notes for more details).
- If you use an AIM card to further enhance the crypto performance, the internal crypto module will be disabled.
- An AC-IP Power Supply is required to provide in-line power to an ESW module inserted in a NM and/or HWIC slots.
- At this time, only the HWIC-4ESW-POE and HWIC-D-9ESW-POE support 802.3af (IEEE standard PoE) compliant in-line power. The old NM-16ESW-PWR and NMD-36ESW-PWR do not support 802.3af due to design limitations.
- A maximum of TWO ESW modules supported in a chassis. It is recommended to stack the two modules for VLAN database consistency.
- On the HWIC-D-9ESW-POE, all 9 ports can be used as switch ports but only 8 ports can provide in-line power concurrently.
- On the ISRs, DES, 3DES and AES256 performance numbers are the same.

ISR BUNDLES EXPLAINED

Notes:

- "/K9" in the part number of a bundle doesn't necessarily mean that security/VPN is included in that bundle. It is just an indication that this SW image has some crypto feature that is subject to export control. So, for example, "CISCO2801-V/K9" is a voice bundle and doesn't have anything to do with VPNs but, because it has SSH (Secure Encrypted Shell) for management purposes, it received the "/K9" appellation.



CISCO INTEGRATED SERVICE ROUTERS — 850/870/1801,2,3,11,12 SERIES AT-A-GLANCE

(ISR Phase II) Inside Sales Systems Engineering

Comparative Overview

Model	Memory (Std/Max) MBytes	LAN	WAN Port	4/8 port Managed Switch	Integrated ISDN Dial Backup	V.92 Analog Modem Dial Backup	USB Ports	802.11 Wireless Model	Aux and console Ports	PoE	Diversity Antennas	Dual Mode Antennas	Replaceable Antennas	No. of Broadcast SSIDs /VLANs
1801	F: 32/128 D: 128/384	1 E/FE	ADSL over POTS	8	Yes	No	0	802.11 a/b/g	Yes	Optional	Yes	Yes Simultaneous a/b/g	Yes	8 SSID/8 VLANs
1802	F: 32/128 D: 128/384	1 E/FE	ADSL over ISDN	8	Yes	No	0	802.11 a/b/g	Yes	Optional	Yes	Yes Simultaneous a/b/g	Yes	8 SSID/8 VLANs
1803	F: 32/128 D: 128/384	1 E/FE	G.SHDSL (4 wire)	8	Yes	No	0	802.11 a/b/g	Yes	Optional	Yes	Yes Simultaneous a/b/g	Yes	8 SSID/8 VLANs
1811	F: 32/128 D: 128/384	2 E/FE	No	8	No	Yes	2	802.11 a/b/g	Yes	Optional	Yes	Yes Simultaneous a/b/g	Yes	8 SSID/8 VLANs
1812	F: 32/128 D: 128/384	2 E/FE	No	8	Yes	No	2	802.11 a/b/g	Yes	Optional	Yes	Yes Simultaneous a/b/g	Yes	8 SSID/8 VLANs
871	F: 24/52 D: 128/256	1 FE	No	4	No	Yes	2	802.11 b/g	Yes (Virtual Aux Port)	Optional (external adapter)	Yes	No	Yes	4 SSID/3 VLANs
877	F: 24/52 D: 128/256	No	ADSL over POTS	4	No	Yes	No	802.11 b/g	Yes (Virtual Aux Port)	Optional (external adapter)	Yes	No	Yes	4 SSID/3 VLANs
876	F: 24/52 D: 128/256	No	ADSL over ISDN	4	Yes	Yes	No	802.11 b/g	Yes (Virtual Aux Port)	Optional (external adapter)	Yes	No	Yes	4 SSID/3 VLANs
878	F: 24/52 D: 128/256	No	G.SHDSL (4 wire)	4	No	Yes	No	802.11 b/g	Yes (Virtual Aux Port)	Optional (external adapter)	Yes	No	Yes	4 SSID/3 VLANs
851	F: 24/24 D: 64/64	1 E	No	4	No	No	No	802.11 b/g	Yes (Virtual Aux Port)	No	No (Single Antenna)	No	No	1 SSID
857	F: 24/24 D: 64/64	No	ADSL over POTS	4	No	No	No	802.11 b/g	Yes (Virtual Aux Port)	No	No (Single Antenna)	No	No	1 SSID

Security Features

- 1) Cisco IOS FW for 1800 (Fixed), 870s, and 850s
- 2) HW VPN Acceleration for 1800s, 870s, 850s
- 3) Advance VPN features (DMVPN, EasyVPN, Remote Access) only for the 1800s and 870s
- 4) Cisco IPS 1800s, and 870s
- 5) NAC 1800s and 870s
- 6) 802.1x 1800s, 870s, 850s
- 7) One of the switch ports on the 870s can be designated as the DMZ port

Wireless Security Features

- 1) PEAP, 802.1x, LEAP, static and dynamic WEP, TKIP/SSN, MAC authentication/filter, user database for survivable local authentication, RADIUS accounting
- 2) PSK, WPA, WPA2/802.11i (software upgradeable in future software release), EAP-FAST (future) on all Platforms