IBM 8265 Nways ATM Switch

This release note applies

to

ATM Control Point version

V4.1.4 PNNI

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1.0 WARNING

- The Release **v4.1.4** is based on the 8265 release **v4.1.3** but mainly include the fix of the "invalid Call reference" problem. Also three other minor problem fixes are integrated. Refer to FIXES chapter for more details

- The 8265 Memory Profile **Mixed-PVC-No_LES (E_64_L)** is not to be used. This user specific profile should be allowed only under hidden command but is not. When using this 8265 profile in a PNNI network, unpredictable behaviours are possible.

- The **v4.1.0 or higher is the prerequisite CP/Switch code to use** the 622Meg 1P SMF module Long Haul (FC 6513) and 622Meg 1P SMF NEBS (FC6514) cards.

- **CPSW2 modules only:** *To prevent unrecoverable hardware damage, do not install a v.3.x PCMCIA card, or download v.3.x code onto the CPSW2 module (FC6502).*

- When multiple IP interfaces are configured on the 8265, it is **strongly** recommended to use the same IP subnet mask for all interfaces (but to have them in different IP subnets).

- This code release supports up to 2 levels of PNNI hierarchy (level 0 and level 1).

- In case of multi-vendor ATM switches interconnection in a PNNI hierarchical network, make sure that other switches are able to operate correctly in a full-PNNI hierarchical network, before connecting it to an 8265 IBM V4 node.

- The CPSW2 module (FC6502) includes an integrated power controller (for fan and inventory management). The module contains a **red switch** located on the bottom left of the circuit board. Before installing the CPSW2 module, check that this switch is correctly set:

    ❖ Switch OFF: Integrated Power Controller is Active.

    ❖ Switch ON: Integrated Power Controller is Inactive.

- To interconnect with 8260s, 8285s, or 8265s that do not support PNNI hierarchies, you must upgrade the code on these switches to code level v3.2.1 or higher (for 8260/8285) and v3.3.5 or higher (for 8265). (See *8265 Installation Guide*.)

- In the current release, in order to change the **pnni peer group ID** of a node keeping the same **pnni level ID**, you must follow the sequence :
    - isolate the switch from the pnni network during the complete sequence
    - change the peer group id (if changing with the node 0, the switch resets)
    - change the atm address (the switch resets)
    - reconnect the switch now reconfigured to the rest of the pnni network
If the level ID is changed with the peer group ID, the regular procedure can be applied.

- The CPSW2 (FC6502) does not support 8260 ATM Media Modules (no backward compatibility).

- Migration limitation from PNNI V3 code to PNNI V4 code (See section *8.5 Address Scoping for Static Reachable Addresses*).

- At migration time from V3 to V4, all ports DEFINED as public UNI will turn to VOID.

- The activation of the internal LES/BUS on the 8265 CP/Switch CAN BE used for configurations with LESS than 1000 broadcast frames per second. For bigger configurations, the use of MSS is mandatory, do not use the 8265 LES/BUS.

2.0 New Features and Functions

The 8265 Release v4.1.4 does not bring any new functions or features from previous release but the Release v4.1.4 brings correction in few known problems on previous 8265 v4.1.3 release.

3.0 Fixes

❍ If large number of PVCs are configured in the 8265, this can cause 8265 system error (ss_Fatal).

❍ When an 8265 CPSW Ethernet or Token Ring LEC is not configured, its reported AdminStatus is UP, when it should be DOWN. This incorrect status causes NWAYS Campus Manager to report the 8265 node as yellow instead of green.

❍ Sometimes 8265 Clear table information are not correct: SVC creation date,...

❍ In a network including a device (such an MSS 8210) which can generate a large amount of call setups and releases, without resetting its SAAL for a long time (without port disable/enable, reboot) the 8265 can wrap its internal call ref counter, and so, reject all the new call setups with UNI clear cause x51 *invalid call reference value*.

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4.0 Known Problems

- The 8265 Memory Profile **Mixed-PVC-No_LES (E_64_L)** is not to be used. This user specific profile should be allowed only under hidden command but is not. When using this 8265 profile in a PNNI network, unpredictable behaviours are possible.

- A module in slot 12 will be powered up by the new CPSW2 module (FC 6502) only if the chassis is a Release 4 chassis (P/N 26L0112 or 02L4093).

- The chassis level (in fact the backplane level) can be displayed at the console, by issuing the command "SHOW INVENTORY VERBOSE". Alternatively, look for a "Release 4" label on the bottom left-hand side of the front of the chassis.

- Following a power-on or CPSW module reset, the CPSW module may enter Maintenance mode with code 39 and the following message is displayed on the CPSW module LCD:
  " FAT DIAG ERROR IN RB TRAFFIC MODE"**.**
  If this happens, reset the 8265 (or power off and then on again). The problem should not reoccur.

- When a CPSW2 module is already active in slots 11-12 and a redundant CPSW2 with integrated power control is plugged in slot 9-10, the module must be inserted quickly so as not to disturb current traffic. As the CPSW2 module powers on immediately, the insertion levers must be pressed firmly within 2 seconds of the CPSW module display being lit. Otherwise, the module may start before all connecting pins are properly seated, producing unpredictable results.

- In the current release, in order to change the **pnni peer group ID** of a node keeping the same **pnni level ID**, you must follow the sequence :
  - isolate the switch from the pnni network during the complete sequence
  - change the peer group id (if changing with the node 0, the switch resets)
  - change the atm address (the switch resets)
  - reconnect the switch now reconfigured to the rest of the pnni network
  If the level ID is changed with the peer group ID, the regular procedure can be applied.

- When multiple IP interfaces are configured on the 8265, it is strongly recommended to use the same IP subnet mask for all interfaces (but to have them in different subnets).

- When configuring the Call Pacing function the following filter ATM address can not be set:
  C5.00.79.00.00.00.00.00.00.00.00.00.A0.3E.00.00.01.00

- When a large number of connections (over 1.5K) are set up (ELAN LES/BUS) on a 8265 MSS 8210 port, and a failure occurs in the network leading all connections to be cleared, a congestion problem can occur when all the connections try to be set up again at the same time on the 8265 MSS port. It can then take time for all the connections to recover. One way to limit the problem is to use the Call pacing function with tuned parameters setting.

- CRC errors appearing with high rate and/or regularly and continuously on the ATM network (PNNI or UNI links) are improperly queued in 8265 CPSwitch hardware queues. This can lead to unpredictable behavior of the 8265 functionality going worth and worth until the 8265 resets (CS Poll cell missing,...). In this case, reset the CPSW.

- The REVERT PNNI command may produce umpredictable results :The "revert" command should not be used after a change in the pnni configuration followed by a "commit pnni" command. In this current release a commit pnni command must alwaysbe followed by a "save pnni" command in order to safely apply a new configuration.

- Error log can be filled up with the following msg when a Port is enabled without any daughter card present. The displayed port in the error log (i.e 5.2) must be disable to bypass this problem.This problem can occur with any daughter card like : E1/T1, DS3, E3, STM1...
  1 06|01 14:49:15 atmcshwi.c-1615 e CS Hard minor 05_2032_CS Unexpected Return Code. Write of 0x0 failure in
      hdw reg of slot 5 (CF=0x6,IS=0x10020196): Reading 0x10020101 while expecting 0x0 (mask=0xFF)
  2 06|01 14:49:15 atme3hwi.c-1695 E E3 Hard minor 05_9005_E3 Unexpected Return Code.
      E3_PORT_WRAP_OFF failed on port 5.2
  3 06|01 14:49:15 atme3hwi.c-530 E E3 Soft MAJOR 05_9002_E3 Unexpected Return Code. in Slot = 5 Interrupt
      Enable not yet implemented

- Incorrect times stamp in the SVCs log Table

- Internal system congestion can lead to 8265 reset in watchdog.

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5.0 MIB V4

v4.1.4 Mibs are the same as v4.1.3 ones.

If you are upgrading from v3 code, see paragraph below :

If you manage your 8265 using network management software, update your MIB to level V4 by downloading the corresponding code from Internet web page:

http://www.networking.ibm.com/support/products.nsf/techsupport/(8265)?OpenDocument

Following are the MIB Changes in V4 (compared to 8265 V3):

- The two following attributes are now R/W:

    ◆ ocPowerOverheatPowerDownMode

    ◆ ocPowerSlotAdminStatus

- The following attribute is new (Ptses Dump):

    ◆ PnniDumpVertex

6.0 8265 Modules FPGA Levels

FPGA levels for v4.1.4 are the same as v4.1.3 ones.

According to the following 8265 module compatibility table, upgrade each 8265 module to the latest FPGA picocode.

Module	Feature Code	Faceplate	Oldest FPGA level	Latest FPGA level
155 Mbps 4P Flex module	6543	A4-MB155	1D03/DD03/1D23 2D03/2D23/2D04 3D04	**1D24 (1)** **2D05 (2)** **3D05 (3)**
155 Mbps 4P MMF Integrated module	6540	A4-MF155	1D03/DD03/1D23 2D03/2D23/2D04 3D04	**1D24 (1)** **2D05 (2)** **3D05 (3)**
622 Mbps 1P MMF module	6511	A1-MF622	2D03/2D23/2D04 3D04	**2D05 (2)** **3D05 (3)**
622 Mbps 1P SMF Module	6512 6513 6514	A1-SF622	2D03/2D23/2D04 3D04	**2D05 (2)** **3D05 (3)**
Carrier 2.0 module	6558	A-CMU2	2D03/2D23/2D04 3D04	**2D05 (2)** **3D05 (3)**
Carrier 2.5 module	6559 6560 6561	A-CMU2.5S A-CMU2.5A A-WAN2.5	2D14 2D14 2D14	**2D15 (4)** **2D15 (4)** **2D15 (4)**

IMPORTANT NOTE :

> 8265 modules have three implementations involving different families of Xilinx chips. Before downloading FPGA code to an 8265 module, perform a "show module x verbose" and note the current FPGA code level. Apply FPGA code as follows:
>
> **1.** For **4P155** Mbps modules currently running FPGA 1D03, DD03 or 1D23 upgrade with FPGA **1D24**
> **2.** For **4P155**/**1P622** and **carrier 2.0** modules currently running FPGA 2D03, 2D23 or 2D04 upgrade with FPGA **2D05**
> **3.** For **4P155**/**1P622** and **carrier 2.0** modules currently running FPGA 3D04, upgrade with FPGA **3D05**
> **4.** For **carrier 2.5** module currently running FPGA 2D14, upgrade with FPGA **2D15**

7.0 Documentation

No new documentation corresponding to v4.1.4

Information from the Internet :

8265 product information and code updates are available on the Internet at the following URL:

http://www.networking.ibm.com/support/products.nsf/techsupport/(8265)?OpenDocument

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8.0 Networking Rules

This section describes 8265 module performance and lists the rules to follow when building and validating your network.

8.1 ATM Peer Group Intra connection (PNNI)

An ATM Peer Group is a group of ATM hubs or switches interconnected by Private Network-to-Network Interfaces (PNNI). The PNNI protocol supports networking functions such as routing, node failure and recovery, backup and topology management.

- **Number of Switches in the Same Peer Group:**

  Depending on the network topology and complexity, the peer-group can have up to 100 nodes (assuming there are up to 200 foreign addresses and 500 links in the peer group).

- **Network Recommendations for LAN Emulation System:**

① Limit the number of nodes to 50.
② Separate 8265 Network Management functions (internal LECs) from user workstations.

- **Maximum Number of Physical Links and/or PNNI VPCs per 8265:** 32

8.2 ATM Peer Group Interconnection (IISP)

Interim Inter-switch Signaling Protocol (IISP) defines the interface between two 8265s belonging to different ATM Peer Groups in the same sub network or in different sub networks.

- IISP links are supported over both physical links and Virtual Path connections (VP tunneling).

- Parallel IISP links can be enabled between two clusters.

- The following limitations apply when configuring IISP ports:

  ❖ PVCs cannot be defined through IISP links. It is necessary to define a PVC on each individual Peer Group involved in the connection.
  ❖ The maximum number of reachable addresses that can be defined per 8265 is 64.

8.3 IP Over ATM (RFC 1577)

- The CPSW supports an IP client implementation to be managed over ATM (SNMP, Telnet, TFTP, Ping). The supported MTU size is 9188 bytes.

- The IP Over ATM client imbedded in the CPSW supports up to 64 concurrent IP Over ATM connections.

8.4 ATM Forum Compliant LAN Emulation Client

Each 8265 LAN Emulation Client supports up to 30 connections to other LECs.

8.5 Address Scoping for Static Reachable Addresses

New and migrated static reachable addresses are assigned a default SCOPE value of 1-3 (PNNI level 96).
Thus, if you change the level identifier of node:0 to a higher value (for example, 88), the default static reachable addresses will not be advertised outside the node. To ensure that static reachable addresses are advertised outside such a node, use the SCOPE parameter of the SET REACHABLE ADDRESS command to change the scope of each static reachable address to, for example, '4' (PNNI level 80).

Note that there is no other way to change the scope in the current code level.

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