IBM 8265 Nways ATM Switch

This release note applies

to

ATM Control Point version

V4.1.2

PNNI and IISP

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1.0 WARNING

- Unless already at **V4.0.1** operational code level, **DO NOT perform any code download** of the controller module : refer to the next page (FIXES point 8) for more details.

- The **V4.1.0 is the pre-requesite CPSwitch 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).***

- 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 exercise 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 (for 8260/8285) and v3.3.5 (for 8265). (See *8265 Installation Guide.*)

- 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 *5.3 Address Scoping for Static Reachable Addresses*).

- PNNI related commands have been modified (see *8265 Command Reference Guide*).

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

- If the 8371 blade associated module is "connected", the activation of a 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 for the LES/BUS function to avaoid unpredictable results..

2.0 New Features and Functions

8265 Release 4.1.2 brings the following new features :

- One-slot Multiprotocol Switched Services (MSS) 3.0 module (FN 5403) with an enhanced hardware version performing an average of 50% faster over MSS 2.5 module and preloaded with microcode V2R2.

- Support of the IBM 8371 multilayer Ethernet Switch blade.

2.1 ATM Connection Snooping new function

① Purpose

Easing PD/PSI by offering the capability to mirror cell traffic over a given connection (P2P or P2M) and in BOTH directions (P2P) .

② Principles

This new function applies to VCCs (Virtual Channel Connections of SVC or PVC types) and to VPC (Virtual Path Connections of SVP or PVP types).
The monitored port or vpc-link can be of any type between UNI, PNNI, IISP or VOID type and in a similar way the monitoring port or vpc-link can be of any type.

- The monitored and the monitoring ports needn't being of the same type. (eg: VPI/VCI : 0/132 of UNI port 5.3 is mirrored by VPI/VCI 4/434 on PNNI port 3.1)

- On the monitoring port the VPI/VCI must not be already used by another connection (standard connection, control connection (0/5, 0/16, 0/18) or already monitored connection)

- The monitoring connection must be defined on a connected module and an enabled port (eg: hereabove module 3 must be connected and port 3.1 enabled)

- If the monitoring port is disabled, or if the monitoring module is disconnected, then the snooping connections running on this port will be deleted. Conversely if the monitoring port gets in "down-establishing" state then the monitoring connections will recover as soon as the port is up again.

- Normal Data and Control connections, i.e Signalling, ILMI, PNNI and internal port (Control Point) connections can be monitored

- Either the receive or the transmit or both directions can be monitored. When both directions are being monitored different VPI/VCI couples must be used for each direction (eg: if both directions of VPI/VCI 0,125 on port 4.3 are to be monitored then one could select VPI/VCI 4/280 on port 14.2 for transmit and VPI/VCI 6/654 on port 5.4 for receive). Note that both directions could be mirrored on the same monitoring port but on different VPI/VCIs.

- Connection snooping is not disruptive as no cell loss occurs on the monitored connection when snooping is enabled or disabled

- The number of snooped connections should not exceed 100 per 8265 and 8260 modules can't be monitored or can't monitor another blade

- Compared with old port snooping, new ATM connection snooping is much more powerful and requires neither a fully snooping dedicated blade nor a snooping blade identical to the snooped blade

- old port snooping function capability is still available

- Case on monitoring port a PVC or a PVP are defined to a remote destination then an external analyser can be installed remotely.(including the monitoring vpi.vci).

③ Details

   To help user's investigation the snooped connections currently built can be checked at any time.The user can ask for a specific module/port/Vpi/Vci snooping connection or the complete list of snooped connections with each time both receive and transmit module/port/Vpi/Vci if exist.

   The following command should be used for connection snooping:

- Enabling Connection:

   snoop_connection|slot.port.vpi.vci |enable|/receive_dir: slot.port.vpi.vci |transmit_dir:slot.port.vpi.vci

   Note that case the snooped connection is an SVP or a PVP , VCI number should be replaced by : vci_none

   /

   vci_none : the connection to be snooped is a VP

- Disabling connection:

   snoop_connection |slot.port.vpi.vci |disable/ *receive_dir*

   Note that here only the receive direction of snooping is deleted

   snoop_connection |slot.port.vpi.vci |disable/ *transmit_dir*

   Note that here only the transmit direction of snooping is deleted

   snoop_connection |slot.port.vpi.vci |disable/

   Note that here both snooping directions are deleted for the given connection

   snoop_connection disable

   Note that here snooping is disabled for all onnections

- Displaying connection:

   show/*snoop_connection |slot.port.vpi.vci*
                              | *all*

3.0 Fixes

1. MSS 8265 ILMI stay in ESTABLISHING state.

2. Abnormal detection of a duplicate pnni node Id

3. Node Ids (should increment the node id counter before expiration time).

4. Secure the interface_type value gived to the CPT when the port is not in AUTO mode.

5. ilmi pb : get next LECS address gave wrong results

6. Default memory profile is the P2M profile on V4 code from Manuf

7. P2M should not be flagged with Frame Discard = NO

8. ILMI robustness improvement

4.0 Known Problems

- 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 recur.

- 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.

- 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 always be followed by a "save pnni" command in order to safely apply a new configuration.

- 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.

5.0 MIB V4

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 v2.3):

- The two following attributes are now R/W:

    - ocPowerOverheatPowerDownMode

    - ocPowerSlotAdminStatus

- The following attribute is new (Ptses Dump):

    - pnniDumpVertex

6.0 8265 Modules FPGA Levels

Module	FeatureCode	Faceplate	Latest FPGA Code
CPSW	6501	CPSW	1D13
CPSW2	6502	CPSW2	2D13
155 Mbps 4P Flex module	6543	A4-MB155	1D23 (1) 2D04 (2) 3D04 (3)
155 Mbps 4P MMF Integrated module	6540	A4-MF155	1D23 (1) 2D04 (2) 3D04 (3)
622 Mbps 1P MMF module	6511	A1-MF622	2D04 (2) 3D04 (3)
622 Mbps 1P SMF Module	6512 6513 6514	A1-SF622	2D04 (2) 3D04 (3)
Carrier 2.0 module	6558	A-CMU2	2D04 (2) 3D04 (3)
Carrier 2.5 module	6559 6560 6561	A-CMU2.5S A-CMU2.5A A-WAN2.5	2D14 2D14 2D14

(1) Applies to modules equipped with Xilinx chips 4020-3
(2) Applies to modules equipped with Xilinx chips 4020-2
(3) Applies to modules equipped with Xilinx chips 4036-2

7.0 Documentation Update

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

7.1 VPI_VCI Parameter of SET PORT Command
The minimum number of VCI bits, as specified with the VPI_VCI parameter of the SET PORT command, is changed to 6 for all ranges. This gives the following values:

VPI Bits	VCI Bits (25 Mbps and E1/T1)	VCI Bits (All Other Ports)
0	**6**-12	**6**-14
1-4	**6**-10	**6**-10
5-6	**6**-8	**6**-8

7.2 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.

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 Intraconnection (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 Recommandations 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 Signalling Protocol (IISP) defines the interface between two 8265s belonging to different ATM Peer Groups in the same subnetwork or in different subnetworks.

- 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.

End of document