RELEASE NOTICE

Product Name: 7470 Multiservice Platform

Release 9.1.2.9

PART NUMBER: 3HE 02686 0008 TQZZA Edition 01

Edition 01   3HE 02686 0008 TQZZA
3HE 02686 0008 TQZZA

ISSUE HISTORY OF THIS RELEASE NOTICE

Edition number	Date of issue	Reason for issue
01	2010.04.15	This is the first issue of this document.

APPROVALS

This release notice has been read and approved by the following:

Brian Day *PLM, Product Line Management*
Ken Duesling *Director, Program Management*
Grant Brighten *Director, Customer Support & Quality*
Jovan Krstic *Manager, Customer Support*

This document was signed off electronically. The sign-off form is filed by Document and Data Management.

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1　Introduction

This release notice provides general information for Release 9.1.2.9 of the 7470 Multiservice Platform.

7470 Multiservice Platform Release 9.1.2.9 is based on 7470 Multiservice Platform Release 9.1.2.8.

2　Overview

2.1 Purpose of the Release

This release has been released to provide resolution to known issues and problems.

2.2 New Features and DCRs

For information about the new features of this release, see the Release Description document (31RD0047). The Release Description document can be obtained from

http://www.alcatel-lucent.com/

No additional features or DCR functionality have been added by this load set.

2.3 Features No Longer Supported

All features supported in 7470 Multiservice Platform Release 9.1.2.8 continue to be supported in this release.

2.4 Restrictions, Limitations, and Notable Information

Restrictions

The following table lists restrictions to product and feature functionality.

Restriction number	Restriction
R1	The ABR service category is not supported on the eTM in this release. All existing ABR connections terminating on eTM modules should be removed before upgrading to this release. Further ABR connections should not be made. Refer to PTS 413225 for more information.
R2	The maximum number of streams supported on the T1 CFR and E1 CFR cards is 90. Systems with more than 90 streams per T1 CFR or E1 CFR card must reduce the number of streams to this limit before upgrading to this release.
R3	If upgrading the IP Services card from a release prior to A22R14-F3-28, contact Alcatel-Lucent support. For more information, please refer to TA#2006.
R5	The 16-port E1/T1 FR card may experience ingress congestion and discard frames if a large number of ports carry small sized frames close to full line rate. Refer to TA#2044 for more details.

R12	Circuit emulation point-to-multipoint connections are not supported in this release. Please refer to PTS 509463 for more information.
	Cards Manifesting Problem: 16p T1/E1 MS, 16-port T1/E1 MS with CR/IMA

Notable Information

Reference Number	Notable Information
N1	Section 6 of this document lists the minimum or equivalent minimum bootload generics that are required to support the application loads for each card type in this release. Certain card types support automatic upgrading of bootload generics upon reset. In the event that your card type's minimum bootload generic does not match the bootload generic listed in Section 6, please contact Alcatel-Lucent Technical Support (refer to Section 8).

2.5 Restrictions and Limitations Lifted from this Release

Restrictions Eased or Removed from this Release

No restrictions have been eased or removed between Release 9.1.2.8 and Release 9.1.2.9.

2.6 Compatibility

Compatible Product Software Loads

The following table lists the Alcatel-Lucent products with which Release 9.1.2.9 of the 7470 MSP has been tested for compatibility.

Product	Release
7270 MSC	9.1.2.1
7670 ESE	5.1.2
5620 NM	8.0 (H0 and higher)

3   Closed Problems

This section lists problems that have been closed in this release. For information about all closed problems, contact your Alcatel-Lucent technical support representative.

The following table defines the priority levels used in the problem summaries.

Priority level	Definition
Critical	This priority refers to problems that affect service, with no acceptable workaround available.
Major	This priority refers to problems that affect service, with an acceptable workaround available.
Minor	This priority refers to problems that do not affect service but cause features or functionality to be inoperative.

3.1 Technical Alerts Addressed by this Release

There were no Technical Alerts that were addressed in this release. A complete list of all TAs is accessible from: **http://www.alcatel-lucent.com/wps/portal/SignIn**

3.2 Fixed Problems

Critical Fixed Problems

There are no critical fixed problems in this release.

Major Fixed Problems

PTS #	Regional Support Tracking #	Description
539243	1-1862073	A far-end port failure on cards that support far end port status updates may cause the control card to reset if more then 20 updates per second are received. **Cards Manifesting Problem:** 1-port DS3 UFR and 1-port DS3 CFR cards
552036 *558405*	1-2116356 *None*	High priority connections may improperly consume a majority of the card's resources and occasionally limit the resources that are available to handle low priority connections. **Cards Manifesting Problem:** OCTAL T1 UFR, OCTAL E1 UFR, QUAD T1 CFR, QUAD E1 CFR, 1-port DS3 CFR, 1-port DS3 UFR, E3 UFR, and HSSI FR 1-PORT cards

Minor Fixed Problems

PTS #	Regional Support Tracking #	Description
527917	1-1756744	A number of false Software Alarms are raised against several cards in the node after a fabric switch-over occurs. **Cards Manifesting Problem:** OCTAL T1 UFR

4   Outstanding Problems

This section lists outstanding problems in this release of which customers must be aware before deploying the release into a live or lab environment. For information about all outstanding problems, contact your Alcatel-Lucent technical support representative. Some problem reports are classified as Closed-NI, which means that the report is closed and that Alcatel-Lucent has no intent to change the functionality described in the report. In such cases, Alcatel-Lucent has concluded that the overall product functionality is not in jeopardy and that product behaviour, as a result of the problem, is admissible.

The following table defines the priority levels used in the problem summaries.

Priority level	Definition
Critical	This priority refers to problems that affect service, with no acceptable workaround available.
Major	This priority refers to problems that affect service, with an acceptable workaround available.
Minor	This priority refers to problems that do not affect service but cause features or functionality to be inoperative.

4.1 Technical Alerts of Outstanding Problems

There were no Technical Alerts for outstanding problems in this release. A complete list of all TAs is accessible from: **http://www.alcatel-lucent.com/**

4.2 Outstanding Problems

Critical Outstanding Problems

There are no critical outstanding problems in this release.

Major Outstanding Problems

PTS #	Regional Support Tracking #	Description
413225 341478 379090 392849	None	The ABR service category on the eTM is not reliable. A datapath corruption diagnostic test will fail intermittently resulting in a user visible minor alarm. If ABR connections are configured, RM cells will be lost, resulting in improper ABR (VSVD) flow control. **Cards Manifesting Problem:** All cards w/ eTM support. **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.

PTS #	Regional Support Tracking #	Description
508589	None	When an SPVC reroute is performed over an AINI link which is connected between a 7470 MSP and a 7670 RSP, the signalling link may bounce. Refer to TA#3404 for more details. **Cards Manifesting Problem:** INTEG CALLP/PNNI/SPOOLING CARD-2 w/ePM **Preventive Solution:** Enable shaping on the AINI signalling link on the 7670 RSP side. **Recovery Solution:** There is currently no recovery solution for this problem.
509463	None	If a user programs a circuit emulation Point to Multi Point connection, an incorrect CDVT value will be programmed on the root and leaf endpoints. This could render the endpoints unusable for the Point To Multipoint application as well as for subsequent use as endpoints in the Point to Point application. Traffic may not flow through these endpoints. **Cards Manifesting Problem:** 16p T1/E1 MS, 16-port T1/E1 MS with CR/IMA **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** A line card reset will clear the problem on the endpoint.
510352	None	If an inactive control card reset and reconcile is immediately followed by a control card activity switch due to outstanding demerits, then a small number of SPVCs (less than 10) may reroute. **Cards Manifesting Problem:** INTEG CALLP/PNNI CARD-2 w/ EPM, INTEG CALLP/PNNI/SPOOLING CARD-2 w/ EPM **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.
513456	None	If a 1:N protection switch occurs on a card that contains configured signaling links, SPVCs may take up to 30 seconds to begin re-establishing themselves if there are no alternate routes available. This behavior affects planned and unplanned switches in both the working card to protection card, and protection card to working card directions. **Cards Manifesting Problem:** INTEG CALLP/PNNI CARD-2 w/ EPM, INTEG CALLP/PNNI/SPOOLING CARD-2 w/ EPM **Preventive Solution:** If the local port failure feature is disabled, planned switches will decrease the time SPVCs need to begin re-establishing themselves. Unplanned switches will not be improved. **Recovery Solution:** There is currently no recovery solution for this problem.
516889 *516853*	200703010043 *200703009122*	An SPVC that was created while using an older release may prevent the control card from successfully upgrading to Release 8.0 (or later release). This problem is known to happen if the SPVC was created with an older release (Release 5.0 HLS#4 or prior) and it never experiences a re-route while using an intermediate release (a release greater than Release 5.0 HLS#4, and prior to Release 8.0). When this problem occurs, the inactive control card attempting to reconcile to Release 8.0 (or a later release) software will continuously reset with a cause of "CCRed". **Cards Manifesting Problem:** INTEG CALLP/PNNI CARD-2 w/ EPM, INTEG CALLP/PNNI/SPOOLING CARD-2 w/ EPM **Preventative Solution:** Any SPVCs created while using Release 5.0 HLS#4 (or an earlier release) must be disconnected/re-connected or rerouted in an intermediate release prior to upgrading to Release 8.0 (or a later release). **Recovery Solution:** There is currently no recovery solution for this problem.

PTS #	Regional Support Tracking #	Description
524714	None	When initially connected, some SPVCs with OAM-CC enabled may report the LOC state on their endpoint(s) when no user traffic is passing. **Cards Manifesting Problem:** 16p T1/E1 MS with CR/IMA card **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** The system will self correct the problem at a rate of 1 endpoint per second. Alternatively, the SPVC can be disconnected and reconnected.

Minor Outstanding Problems

PTS #	Regional Support Tracking #	Description
396896	None	When ingress shaping is being performed on an eTM with nrt-VBR3 traffic, the soft-policer is policing at too high of a rate. **Cards Manifesting Problem:** The following cards that support eTM: OC3/STM1-2 , OC3/STM1-2M, DS3/E3-2, DS3/E3-2 CR w/CPU-2, and DS3/E3-2 CR cards w/CPU-2 (13.5K connections) **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.
417851	20091952	When a frame relay endpoint is connected to an endpoint on the T1-2 or E1-2 card, when CLP is set to DE, and when the traffic rate is above CIR such that the egress queuing point on the E1/T1-2 card has a mixture of CLP1 and CLP0 cells, CLP0 cells are getting discarded unfairly, i.e. some CLP0 and some CLP1 cells are discarded when only CLP1 cells should be discarded. Cards Manifesting Problem: E1/T1-2 CR w/CPU-2 cards **Preventive Solution:** Instead of setting CLP to DE, map CLP to 1 or CLP to 0. In this case the cells will have one CLP value. The number of cells that are discarded is reduced by about 4 times. **Recovery Solution:** There is currently no recovery solution for this problem.
445774	None	Equipment loopbacks on E1s from an E3 3/1/0 2-port card when configured as SDT CAS do not perform as expected. Cards Manifesting Problem: E3 3/1/0 2-port cards **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.
492347	200505014426	When a DS3 cell relay card has no physical cabling on a port, the status may be LOF instead of the expected LOS status. **Cards Manifesting Problem:** All DS3 cell relay cards. **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.

PTS #	Regional Support Tracking #	Description
516552	200703003254	When performing the "MAINT SYSTEM INVENTORY" command, there is a chance that FIC inventory information is incorrectly displayed. Additionally, if the High Speed Sub-Unit is configured for 1+1 APS and the OC12/STM4 working card is inactive, the FIC inventory information will be unobtainable using the "MAINT SYSTEM INVENTORY" command. **Cards Manifesting Problem:** INTEG CALLP/PNNI CARD-2 w/ EPM, INTEG CALLP/PNNI/SPOOLING CARD-2 w/ EPM **Preventative Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** View the FIC inventory information from the "MAINT <SlotID>" NMTI screen.
523758	1-1701611	When an activity switch is performed, signalling down/up alarms are raised for all the signaling links on the node, even though the links don't actually bounce. **Cards Manifesting Problem:** INTEG CALLP/PNNI CARD-2 w/ EPM, INTEG CALLP/PNNI/SPOOLING CARD-2 w/ EPM **Preventive Solution:** There is currently no preventive solution for this problem. **Recovery Solution:** There is currently no recovery solution for this problem.

5   Installation and Upgrade Notes

5.1 Installation Notes

The procedures for installing a new 7470 Multiservice Platform are documented in the 7470 Multiservice Platform Technical Practices.

5.2 Upgrade Notes

The procedures for upgrading the 7470 Multiservice Platform to Release 9.1.2.9 are documented in 31NUP0056. Note that restrictions listed in section 2.4 may apply to the upgrade procedure.

5.3 MIBs

MIBS associated with this release can be obtained from:

http://www.alcatel-lucent.com/

6   Software Generics

The 7470 Multiservice Platform Release 9.1.2.9 consists of the following software generics. See 31RD0047 for the complete list of supported part numbers.

Card Type	Application Generic	Bootload Generic	Equivalent Bootload Generic	Supports Automatic Bootload Upgrades
INTEG CALLP/PNNI/SPOOLING CARD-2 w/EPM [1] 90-6226-19	A21519-H1-36	A21403-H1-02 A21403-H1-04	—	No
INTEG CALLP/PNNI CARD-2 w/EPM [1] 90-6226-27	A21519-H1-36	A21403-H1-02 A21403-H1-04	—	No
1.6G DUAL HUB 2 90-5891-11, 12	A23614-H2-AC	A23603-H1-01	A23603-F1-01 A23603-F1-02	No
1.6G DUAL HUB 2 v2 90-5891-13	A23614-H2-AC	A23604-H2-A1	—	No
800M ISL HUB 90-3162-22, 24	A22M14-H2-AC	A22M04-H2-A1	A22M02-H3-01	No
800M ISL HUB v2 90-3162-15	A22M14-H2-AC	A22M04-H2-A1	A22M04-F2-A1	No
SHUB-2 90-6085-21	A23614-H2-AC	A23603-H1-01	A23603-F1-01 A23603-F1-02	No
DSC-1310/NSX 90-3598-33, 34	A22214-H2-A7	A22202-H1-01	A22202-F1-01	No
DSC-1310/NSX v2 90-3598-45	A22214-H2-A7	A22204-H2-A1	—	No
IP SERVICE CARD (ISC) 90-6184-33	A22R14-H3-97	A22R04-F2-01	—	No
QUAD 10/100BASE-T ETHERNET w/O MAU 90-7696-11, 22, 32	A24116-H0-49	A24104-H2-02	A24104-H2-01 A24104-F2-04	No
T1 CR ATM CARD 90-4671-51	A22914-H0-65	A22902-H1-01	A22902-F1-01	No
OCTAL T1-2 PRI CR w/CPU-2 100 OHM 90-6351-41	A24918-H1-21	A24904-H0-01	A24904-F0-02	No
E1 CR ATM CARD 90-4671-52 (120 Ω) 90-4671-53 (75 Ω)	A22E14-H0-64	A22E02-H1-01	A22E02-F1-01	No
OCTAL E1-2 PRI CR w/CPU-2 90-6351-42 (120 Ω)	A24818-H1-21	A24804-H0-01	A24804-F0-02	No

Card Type	Application Generic	Bootload Generic	Equivalent Bootload Generic	Supports Automatic Bootload Upgrades
OC3 90-2188-35, 41, 42, 43, 44	A22313-H1-94	A22301-H3-01	A22302-F0-04	No
OC3-2 UNI/NNI 90-4905-05, 21, 22, 23 ,24	A23X15-H2-56	A22U02-H3-03	A22U02-F3-01	No
OC3-2M w/CPU-2 90-4905-36, 37, 38, 48	A24318-H1-21	A24304-H3-11	A24303-H1-01	No
OC3-2M w/CPU-2 v2 90-4905-3A, 3B, 3C	A24318-H1-21	A24304-H3-61	A24304-F3-62	No
OC3-2M SFP w/CPU-2 90-4905-0E	A24319-H1-21	A24309-H0-06 A24309-H0-0A	—	No
STM1 90-2305-35, 41, 42, 43, 44	A22313-H1-94	A22301-H3-01	A22302-F0-04	No
STM1-2 UNI/NNI 90-4909-05, 21, 22, 23, 24	A23X15-H2-56	A22U02-H3-03	A22U02-F3-01	No
STM1-2M w/CPU-2 90-4909-36, 37, 38, 39, 48, 49	A24318-H1-21	A24304-H3-11	A24303-H1-01	No
STM1-2M w/CPU-2 v2 90-4909-3A, 3B, 3C	A24318-H1-21	A24304-H3-61	A24304-F3-62	No
STM1-2M SFP w/CPU-2 90-4909-0E	A24319-H1-21	A24309-H0-06 A24309-H0-0A	—	No
DS3 ATM UNI/NNI 90-2189-51	A22413-H1-96	A22401-H3-01	A22402-F0-01	No
DS3-2 ATM UNI/NNI w/CPU-1 90-5935-01	A23V15-H0-83	A23503-H1-02 [2] A23503-H1-01	A23503-F1-01	No
DS3-2 ATM UNI/NNI w/CPU-2 90-5935-22	A23P18-H1-21	A23P04-H2-03	—	No
DS3-2 ATM UNI/NNI w/CPU-2 (13.5K connect) 90-5935-23	A25618-H1-21	A23P04-H2-03	—	No
DS3-2 ATM UNI/NNI w/CPU-2 90-5935-05	A25619-H1-05[4]	A23P09-H0-06[4] A23P09-H0-07[4]	—	No
TRIPLE E3 ATM 90-2294-51	A22513-H1-94	A22501-H3-01	A22502-F0-01	No

Card Type	Application Generic	Bootload Generic	Equivalent Bootload Generic	Supports Automatic Bootload Upgrades
E3-2 ATM UNI/NNI w/CPU-1 90-5947-01	A23W15-H0-83	A23503-H1-01 A23503-H1-02 [2]	A23503-F1-01	No
E3-2 ATM UNI/NNI w/CPU-2 90-5947-22	A23R18-H1-21	A23P04-H2-03	–	No
E3-2 ATM UNI/NNI w/CPU-2 (13.5K connect) 90-5947-23	A25718-H1-21	A23P04-H2-03		No
E3-2 ATM UNI/NNI w/CPU-2 90-5947-05	A25719-H1-05[4]	A23P09-H0-06[4] A23P09-H0-07[4]	–	No
OC12 ATM 90-2304-31, 32, 33	A22613-H1-95	A22603-H1-01	A22603-F1-05	No
OC12-2 90-6197-41, 42, 43, 44	A24418-H1-21	A24404-H0-01	A24404-F0-03	No
STM4 ATM 90-2292-31, 32, 33	A22613-H1-95	A22603-H1-01	A22603-F1-05	No
STM4-2 90-6200-41, 42, 44	A24418-H1-21	A24404-H0-01	A24404-F0-03	No
QUAD OC3/STM1 UNI/NNI 90-8687-11, 12, 13, 14	A25318-H1-21	A25305-H0-22 A25305-H0-23	A25305-F0-11	No
QUAD OC3/STM1 SFP 90-8687-25	A25318-H1-21	A25308-H0-01	A25305-F0-11	No
8 PORT DS3 CR CARD 90-8975-11	A25418-H1-21	A25405-H0-22	–	No
E3 CHAN CE CARD 90-4690-21	A22T14-H0-62	A22T03-H1-01	–	No
E3 3/1/0 2PORT CE 90-7284-12	A24E14-H2-89	A24E04-H2-01	A24E04-F2-01	No
DS3 CES SINGLE PORT 90-3116-51	A22H14-H2-89	A22H02-H2-01	A22H02-F2-01	No
DS3 3/1/0 3PORT CE 90-7282-12	A24T17-H0-16	A24T04-H3-11	–	No
E1 CE 8 PORT 90-2517-72 (120 Ω) 90-2517-53 (75 Ω)	A22K14-H3-97	A22K04-H3-11	A22K04-F3-21 A22K02-H2-01	No
T1 CE 8 PORT 90-2517-61	A22L14-H3-97	A22K04-H3-11	A22K04-F3-21 A22L02-H3-01 A22L02-F3-01	No

Card Type	Application Generic	Bootload Generic	Equivalent Bootload Generic	Supports Automatic Bootload Upgrades
QUAD T1 CFR 100 OHM 90-2544-61	**A22714-H2-92**	A22702-H1-03 [3]	—	No
QUAD E1 CFR 90-2544-62 (120 Ω) 90-2544-63 (75 Ω)	**A22C14-H2-92**	A22C02-H1-03 [3]	—	No
OCTAL T1 UFR 100 OHM 90-2541-51	**A22814-H2-92**	A22802-H1-01	A22802-F0-02	No
OCTAL E1 UFR 90-2541-52 (120 Ω) 90-2541-53 (75 Ω)	**A22D14-H2-92**	A22D02-H1-02	—	No
DS3 UFR 90-3290-51	**A22N14-H2-92**	A22N02-H2-03	—	No
E3 UFR 90-3290-42	**A22P14-H2-92**	A22P02-H3-02	—	No
DS3 CFR 90-3553-21	**A22W14-H2-92**	A22W03-H1-01 A22W03-H1-02 [2]	A22W03-F1-01	No
DS3 FP 90-9254-01	A25D18-H0-35	A25D04-H0-02	—	No
HSSI FR 1-port 90-4908-21	**A22Z14-H2-92**	A22Z03-H1-02	—	No
16 PORT T1 FR 100 OHM 90-7277-54	A24K16-H0-45	A24K04-H3-11	—	No
16 PORT E1 FR 120 OHM 90-7277-55	A24L16-H0-45	A24L04-H3-11	—	No
T1 4P VOICEBAND SERVICES CARD (VSC) 90-6757-11	A24C14-H1-4C	A24B04-H1-03	—	No
E1 120 4P VOICEBAND SERVICES CARD (VSC) 90-6757-12	A24B14-H1-4C	A24B04-H1-03	—	No
16 PORT T1/E1 VOICE OVER PACKET CARD (VoP) 90-9729-01	A25J19-H1-22	A25J07-H0-01	—	Yes
16 PORT T1/E1 MS CARD 90-9782-01	A29H19-H1-22	A25J02-H0-01	—	Yes

Notes:

1. The ePM module is required on the Integrated Control Card as of release 5.0. Note that the Integrated Control Card is required as of release 8.0.
2. See TA #519.
3. See TA #535.

4. For the most current loads of the DS3-2 (90-5935-05)/E3-2 (90-5947-05) Cell Relay Line Cards, see the latest version of the following Release Notice: "DS3-2 (90-5935-05)/E3-2 (90-5947-05) Cell Relay Line Cards for 7470 MSP Releases 6.0/7.0/8.0/9.x and 7670 ESE Releases 2.2/3.0/4.0/5.x".

7 Release History

7.1 Releases

Release	Date
9.1	2007.04.20
9.1.1	2007.10.10
9.1.2	2007.12.14
9.1.2.1	2009.03.19
9.1.2.7	2009.11.26
9.1.2.8	2010.03.05
9.1.2.9	2010.04.15

8 Obtaining Technical Support

Technical Support Engineers are available to assist you 24 hours a day, 7 days a week. For the list of regional contact telephone and fax numbers, visit:

http://www.alcatel-lucent.com/

9 Product Documentation

9.1 Customer User Documentation

The OnLine Customer Support Service (OLCS) gives customers online access to the latest Alcatel-Lucent customer user documentation. For a wide range of documentation, including product manuals and documentation updates, visit:

http://www.alcatel-lucent.com/

9.2 Customer Feedback

We value your feedback. Please direct questions or comments about Alcatel-Lucent documentation to: **olcshelp@alcatel-lucent.com**

10   Documents Referenced

[1] 7470 MSP Release 9.1 Release Description, 31RD0047

[2] 7470 MSP Release 9.1 Upgrade Procedures, 31NUP0056

11   Glossary

Term	Expansion
ABR	Available Bit Rate
AINI	ATM Inter Network Interface
AIS	Alarm Indication Signal
APS	Automatic Protection Switching
ATM	Asynchronous Transfer Mode
CALLP	Call Processing
CAS	Channel-Associated Signaling
CDVT	Cell Delay Variation Tolerance
CE	Circuit Emulation
CFR	Channelised Frame Relay
CIR	Committed Information Rate
Closed-NI	Closed No Intent
CLP	Cell Loss Priority
CR	Cell Relay
DCR	Design Change Request
DE	Discard Eligibility
DSC	Dual Switching Card
EPM	Enhanced Processor Module
ESE	Edge Services Extender
eTM	Enhanced Traffic Management
FIC	Fabric Interface Card
FP	Frame Processor
FR	Frame Relay
HLS	Hardened Load Set
HSSI	High-Speed Serial Interface
IMA	Inverse Multiplexing for ATM
INTEG	Integrated
IP	Internet Protocol
ISC	IP Service Card
ISL	Inter-Shelf Link
LOC	Loss of Continuity
LOF	Loss Of Frame
LOS	Loss Of Signal
MAU	Media Attachment Unit
MIB	Management Information Base
MS	Multi-service

MSC	Multiservice Concentrator
MSP	Multiservice Platform
MSWAN	Multiservice Wide Area Network
NM	Network Manager
NMTI	Node management terminal interface
NNI	Network Node Interface
nrt-VBR	Non-real-time Variable Bit Rate
NUP	Network Upgrade Procedure
OAM-CC	Operations, Administration, Maintenance Continuity Check
OC	Optical Carrier
PNNI	Private Network-To-Network Interface
PRI	Primary Rate Interface
PTS	Problem Tracking System
RD	Release Description
RSP	Routing Switch Platform
SDT	Structured Data Transfer
SFP	Small Form-factor Pluggable
SPVC	Soft-Permanent Virtual Circuit
STM	Synchronous Transfer Mode
TA	Technical Alert
TG	Trunkgroup
UFR	Unchannelised Frame Relay
UNI	User-Network Interface
VoP	Voice over Packet
VSVD	Virtual Source Virtual Destination

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