

Contents

Telcordia SR-2671-Documentation Information

Special Report Notice of Disclaimer	iii
NOTICE OF DISCLAIMER - CONTINUED	iv
List of Figures	ix
1. Introduction	1-1
1.1 Purpose	1-2
1.2 Scope	1-2
1.3 Audience	1-3
1.4 Document Organization	1-4
2. Motivations and Basic Principles	2-1
2.1 Message Processing	2-1
2.2 Equipment Knowledge	2-2
2.3 Architecture Logic	2-2
2.4 Surveillance Perspectives: Network vs. Subnetwork	2-3
3. Application Description	3-1
3.1 Analysis Functions	3-1
3.1.1 Receiving, Logging, and Understanding NE Messages	3-1
3.1.2 Determining Root Cause	3-2
3.1.3 Characterizing the Severity	3-7
3.1.4 Determining the Impact	3-10
3.2 Supporting Data	3-11
3.2.1 Equipment Hierarchy	3-12
3.2.2 Node Connectivity / Topology	3-15
3.2.3 Transmission Resource Assignments	3-18
3.2.4 Automatic Discovery of Supporting Data	3-20
3.3 Reporting Results	3-24
4. Interface Description	4-1
4.1 Information Model	4-1
4.1.1 EML Application Object Class	4-5
4.1.2 RCAA Application Object Class	4-5
4.1.3 Subnetwork Object Class	4-6
4.1.4 Subnetwork Connection Object Class	4-6
4.1.5 Element Layer Alarm Record Object Class	4-6
4.1.6 RCAA Alarm Record Object Class	4-7
4.1.7 RCAA Event Notification	4-8
4.2 Contract Specification	4-10
4.2.1 Functional Decomposition and Building Blocks	4-12
4.2.2 EML-NML Contracts	4-15
4.2.3 EML-EML Contracts	4-17
4.2.4 Using the Contract Specifications	4-19
5. Open Issues	5-1
5.1 Performance and Computing Platform Criteria	5-2
5.2 Multi-Supplier Subnetworks	5-3

5.3 Intelligent Alarm Filtering - Useful Transition Step	5-4
6. GDMO Specification of Managed Objects	6-1
6.1 Object Class Definitions	6-1
6.1.1 Connectivity	6-1
6.1.2 Element Layer Alarm Record	6-1
6.1.3 EML Applications	6-2
6.1.4 Event Forwarding Discriminator	6-3
6.1.5 Event Log Record	6-3
6.1.6 Log Record	6-3
6.1.7 Network	6-3
6.1.8 RCAA Application	6-4
6.1.9 Root Cause Alarm Analysis Record	6-4
6.1.10 Subnetwork	6-6
6.1.11 Subnetwork Connection	6-6
6.1.12 Trail	6-7
6.2 Packages	6-8
6.2.1 a-TerminalPointPackage	6-8
6.2.2 z-TerminalPointPackage	6-8
6.3 Attribute Definitions	6-9
6.3.1 A-TP Instance	6-9
6.3.2 Affected Transmission Resources List	6-9
6.3.3 Alarm Source Class	6-9
6.3.4 Alarm Type	6-9
6.3.5 Alarm Source Identifier	6-10
6.3.6 Common Management Function	6-10
6.3.7 Component Pointers	6-10
6.3.8 Composite Pointer	6-11
6.3.9 Connection List	6-11
6.3.10 Connectivity Pointer	6-11
6.3.11 Log Record Identifier	6-11
6.3.12 Managed Element List	6-11
6.3.13 Managed Subnetworks	6-12
6.3.14 Perceived Severity	6-12
6.3.15 Physical Resource Identity	6-12
6.3.16 Probable Cause	6-12
6.3.17 RCAA Application Identifier	6-13
6.3.18 Root Cause	6-13
6.3.19 Service Effect	6-13
6.3.20 Subnetwork Connection Identifier	6-14
6.3.21 Subnetwork Identifier	6-14
6.3.22 Subnetwork Type	6-14
6.3.23 z-TP Instance	6-14
6.3.24 z-TP List	6-14
6.4 Notifications	6-15
6.4.1 Root Cause Alarm	6-15
6.5 Notification Parameters	6-15
6.5.1 Affected Transmission Resource List	6-15

6.5.2 Failed Entity	6-16
6.5.3 Service Effect	6-16
6.6 Name Bindings	6-17
6.6.1 currentAlarmSummaryControl-emlApplication	6-17
6.6.2 elementLayerAlarmRecord-log	6-17
6.6.3 eventForwardingDiscriminator-emlApplication	6-17
6.6.4 log-rcaaApplication	6-18
6.6.5 rootCauseAlarmAnalysisRecord-log	6-18
6.6.6 subNetwork-network	6-18
6.6.7 subNetworkConnection-subNetwork	6-19
6.7 Productions	6-19
6.7.1 BCREML Module	6-19
7. Contract Specifications	7-1
7.1 Components of the Contract Specification	7-1
7.2 EML-NML Contract Specifications	7-2
7.3 EML-EML Contract Specifications	7-5
7.4 EML-NML - Contract Instance Examples	7-7
Appendix A: References	A-1
NOTE	A-2

List of Figures

Figure 1-1	Current Work Focus	1-3
Figure 2-1	EML and NML - A Partnership of Perspectives	2-4
Figure 3-1	Examples of Root Cause Failure Types	3-4
Figure 3-2	Example Subnetwork and Client Transmission Resources	3-9
Figure 3-3	Example Linear Chain Architecture (Subnetwork)	3-17
Figure 3-4	Totally Automatic Discovery of NE Connectivity	3-23
Figure 4-1	EML RCAA Inheritance Tree (Surveillance Objects)	4-2
Figure 4-2	EML RCAA Naming Tree (Surveillance Objects)	4-3
Figure 4-3	Sample MIB and EM Application Administration	4-4
Figure 4-4	Alarm Analysis Process at the EML	4-9
Figure 4-5	RCAA Event Notification Format	4-10
Figure 4-6	Example Functional Decomposition of RCAA	4-13
Figure 4-7	Example Building Blocks and Contracts for RCAA	4-14