

Contents

Preface	Preface-1
1. Introduction	1-1
1.1 Purpose and Scope	1-1
1.2 Relationship to Other Telcordia Documents	1-1
1.3 Target Audience	1-2
1.4 Structure and Use of This Document	1-2
1.5 Requirements Terminology	1-3
1.6 Requirements Labeling Conventions	1-4
1.6.1 Numbering of Requirement and Related Objects	1-4
1.6.2 Requirement, Conditional Requirement, and Objective Object Identification	1-4
2. VoP Architecture	2-1
2.1 VoP Overview	2-1
2.2 Functional Elements	2-2
2.2.1 Call Connection Agent (CCA)	2-3
2.2.2 Signaling Gateway (SGW)	2-4
2.2.3 Trunk Gateway (TGW)	2-4
2.2.4 Access Gateway (AGW)	2-4
2.2.5 Core Network	2-4
2.2.6 Element Management System (EMS)	2-5
2.3 Interfaces and Protocols	2-5
2.3.1 VoP EMS Interfaces	2-7
3. VoP Network Management Architecture	3-1
3.1 Overview of NGN VoP Network Management Strategy	3-1
3.1.1 TMN Overview	3-2
3.1.2 Functional Management Strategy	3-3
3.1.3 Coordinated Process Management Strategy	3-5
3.1.4 Management Interface Strategy	3-5
4. Configuration Management	4-1
4.1 Capacity Installation	4-2
4.1.1 Software Generic Administration	4-2
4.1.2 FE Configuration	4-5
4.1.2.1 AGW Configuration	4-5
4.1.2.2 TGW Configuration	4-8
4.1.2.3 SGW Configuration	4-8
4.1.2.4 BA Information	4-15
4.1.2.5 CCA Configuration	4-15
4.1.2.5.1 AGW Information Needed by CCA	4-16
4.1.2.5.2 TGW Information Needed by CCA	4-18
4.1.2.5.3 SGW Information Needed by CCA	4-19
4.1.2.5.4 BA Specific Information Needed by CCA	4-20
4.1.3 Assignable Inventory Management	4-21

4.2	Service Activation	4-22
4.2.1	Loading Service Feature Logic and Data	4-22
4.2.2	FE Inventory Query and Notification	4-24
4.2.2.1	Core Network Interfaces	4-24
4.2.2.2	AGW Specific Resources	4-25
4.2.2.3	TGW Specific Resources	4-25
4.2.2.4	CCA Specific Resources	4-26
4.2.3	FE Database Management	4-27
4.2.4	Manage Pending Changes in FEs	4-29
4.3	Status and Control	4-29
4.3.1	VoP FE Configuration Tracking	4-30
4.3.2	VoP FE Status Modification and Control	4-31
4.3.3	VoP FE Status Tracking	4-32
4.3.4	Requests for VoP FE Status	4-33
4.3.5	VoP EMS Status Query	4-34
4.3.6	VoP EMS Status Notification and Reporting	4-34
4.3.7	VoP FE Specific Data Requirements	4-35
4.3.7.1	VoP FE Status Data	4-35
4.3.7.2	SGW Status Data	4-37
4.3.7.3	TGW Status Data	4-40
4.3.7.4	AGW Status Data	4-40
4.3.7.5	BA Status Data	4-43
5.	Fault Management	5-1
5.1	RAS Quality Assurance	5-1
5.2	Alarm Surveillance	5-2
5.2.1	General Alarm Surveillance Requirements	5-2
5.2.2	BA Alarm Surveillance	5-4
5.2.3	CCA Alarm Surveillance	5-5
5.2.4	TGW Alarm Surveillance	5-6
5.2.5	SGW Alarm Surveillance	5-7
5.2.6	AGW Alarm Surveillance	5-13
5.2.7	Alarm Correlation Across VoP FEs	5-15
5.3	Fault Localization	5-16
5.3.1	BA Fault Localization	5-16
5.3.2	CCA Fault Localization	5-16
5.3.3	TGW Fault Localization	5-17
5.3.4	SGW Fault Localization	5-17
5.3.5	AGW Fault Localization	5-17
5.3.6	Fault Localization Across FEs	5-18
5.4	Testing	5-18
5.4.1	General Testing Requirements	5-18
5.4.2	BA Testing	5-19
5.4.3	CCA Testing	5-19
5.4.4	TGW Testing	5-20
5.4.5	SGW Testing	5-20
5.4.6	AGW Testing	5-21

5.4.7	Connectivity Testing Between FEs	5-22
6.	Performance Management	6-1
6.1	General Requirements	6-1
6.1.1	Management of PM Counters	6-1
6.1.2	Management of TCAs	6-2
6.2	Performance Monitoring Requirements	6-2
6.2.1	Physical Layer Protocol Monitoring	6-3
6.2.2	Ethernet Layer Protocol and Traffic Monitoring	6-5
6.2.3	ATM Layer Protocol and Traffic Monitoring	6-7
6.2.4	ATM Adaptation Layer	6-8
6.2.5	Signaling (for Bearer Connection Control Interface)	6-9
6.2.6	IP Layer Protocol and Traffic Monitoring	6-9
6.2.7	UDP Layer Protocol Monitoring	6-10
6.2.8	RTP Layer Protocol Monitoring	6-11
6.2.9	H.248' (Megaco) Protocol and Traffic Monitoring	6-11
6.2.10	Bearer Independent Call Control (BICC) Layer Traffic and Protocol Monitoring	6-14
6.2.11	ISDN Layer 2/Layer 3 Protocol and Traffic Monitoring	6-15
6.2.12	System Totals	6-15
6.2.13	SS7 Monitoring	6-16
6.2.13.1	SS7 Link Measurements	6-17
6.2.13.2	SS7 Link Marginal Performance Reports and TCAs	6-18
6.2.13.3	SS7 Link Set Measurements	6-19
6.2.13.4	SS7 Destination/Route-Set Measurements	6-19
6.2.13.5	SS7 Destination/Route-Set Exception Measurements	6-20
6.2.13.6	MTP3 and Interworking Measurements	6-20
6.2.14	M3UA / IUA and SCTP Monitoring	6-21
6.2.15	Call Related Performance Monitoring	6-24
6.2.15.1	Call Related Procedures Performance Monitoring	6-24
6.2.15.2	Call Processing Related Traffic Monitoring	6-24
6.2.15.3	VoP FE Modules or Components	6-26
7.	Security Management	7-1
7.1	VoP EMS Security Features	7-1
7.2	Prevention	7-2
7.2.1	Identification	7-2
7.2.2	Authentication	7-3
7.2.3	System Access Control	7-4
7.2.4	Resource Access Control	7-4
7.2.5	Security Log (Audit)	7-5
7.2.6	Data and System Integrity	7-6
7.2.7	User Interface	7-6
7.3	Detection	7-7
7.3.1	Security Alarm Reporting	7-7
7.4	Containment and Recovery	7-8
7.4.1	FE Intrusion Recovery	7-8
7.4.2	Administration of FE Revocation List	7-8

7.5	FE Security Administration	7-9
7.5.1	VoP FE and EMS Audit Trail Management	7-9
7.5.2	VoP FE and EMS Security Alarm Management	7-9
7.5.3	Administration of Keys for FEs	7-10
8.	Management Interface Requirements	8-1
8.1	CORBA	8-1
8.2	SNMP	8-5
8.3	CMIP	8-7
8.4	Bulk Data Transfer	8-8
	Appendix A: Configuration Management Scenario	A-1
	Appendix B: Fault and Performance Management Scenario	B-1
	Acronyms	Acronyms-1
	Glossary	Glossary-1
	References	References-1

List of Figures

Figure 2-1.	VoP Functional Architecture	2-1
Figure 2-2.	VoP Interfaces	2-5
Figure 3-1.	TMN Logical Layers	3-2
Figure 3-2.	Functional Management Architecture Example	3-4
Figure 8-1.	CORBA Reference Model	8-2
Figure 8-2.	CORBA ORB Architecture	8-3
Figure 8-3.	CORBA Protocol Stack	8-5
Figure 8-4.	SNMP Protocol Stack	8-7
Figure 8-5.	CMIP Protocol Stack Example	8-7
Figure A-1.	Service Activation for Voice Grade Analog Service	A-2
Figure B-1.	Fault and Performance Management Scenario	B-1

List of Tables

Table 2-1. VoP Interface and Protocol Summary 2-6