

Contents

Generic Requirements Notice Of Disclaimer	iii
Preface	xi
1 Introduction	
1.1 Background	1-1
1.2 Scope	1-2
1.3 Conventions	1-2
1.4 Document Outline	1-3
1.5 Requirements Terminology	1-3
1.6 Requirement 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 Electronic Bonding Architecture	
3 Communications Architecture	
3.1 Access Topology Options	3-1
3.2 Access Architecture and Standards	3-2
3.3 Configuration Requirements	3-4
3.3.1 Recommended X.25 Facilities	3-4
3.3.2 CCITT Versions of X.25	3-4
3.3.3 Permanent Virtual Circuits (PVCs) vs. Switched Virtual Circuits (SVCs)	3-5
3.3.4 OSI Transport Classes	3-5
3.3.5 Session Layer Capabilities	3-5
3.3.6 Presentation Layer Capabilities	3-6
3.3.7 ACSE Capabilities	3-6
3.3.8 CMIP Capabilities	3-7
4 Security	
4.1 Security Threats	4-1
4.1.1 Threats	4-1
4.1.2 Risks	4-1
4.2 Countermeasures	4-2
4.2.1 Closed User Group	4-2
4.2.2 Authentication	4-3
4.2.2.1 DES Padding	4-6
4.2.2.2 Representation of DES Keys	4-6
4.2.3 Data Origin Authentication	4-7
4.2.4 Key Distribution and Management	4-7
4.2.5 Notifications	4-9

4.3	Future Countermeasures	4-9
4.3.1	Message Sequencing	4-9
4.3.2	Integrity and Nonrepudiation	4-10
4.3.2.1	Strong Authentication Seal	4-10
4.3.2.2	Digital Signature	4-10
4.3.3	Privacy	4-11
4.3.4	Standardized Key Distribution and Management	4-11

5 Information Model

5.1	Trouble Report Format Definition Usage	5-1
5.2	MS Functional Units, Object Classes and Attributes	5-2
5.2.1	Functional Units	5-3
5.2.1.1	Request Trouble Report Format FU	5-3
5.2.1.2	Modify Trouble Administration Information FU	5-3
5.2.2	Telecommunications Trouble Report	5-4
5.2.2.1	Top Attributes	5-4
5.2.2.2	Trouble Report Attributes	5-5
5.2.2.3	Trouble Administration Attributes	5-5
5.2.2.4	Clarification of Attribute Values	5-7
5.2.2.4.1	Trouble Type	5-7
5.2.2.4.2	Trouble Found Code Definitions	5-12
5.2.2.4.3	Trouble Report Status Code Definitions	5-15
5.2.2.4.4	Repeat Report Code Definition	5-16
5.2.2.4.5	Activity Type Definitions	5-17
5.2.2.4.6	Trouble Location	5-19
5.2.2.4.7	Trouble Report State	5-19
5.2.2.4.8	Authorization List Example	5-19
5.2.3	Account	5-25
5.2.4	Trouble History Record	5-26
5.2.5	Trouble Report Format Definition	5-26
5.2.6	Customer's Gateway CNM Service	5-26
5.2.7	Event Forwarding Discriminator	5-27
5.2.8	Log	5-27
5.3	Name Bindings	5-28
5.4	Inheritance Hierarchy	5-29
5.5	MS vs. Current EB	5-29
5.5.1	Object Classes	5-30
5.5.2	Attributes	5-30
5.5.3	Trouble Administration Functions	5-30
5.5.4	Functional Units	5-31
5.6	Future Directions	5-31

Appendix A: References

Appendix B: Best Practices

B.1 Hunt Groups	B-1
B.2 Future Migration	B-1
B.3 NSAP Formats	B-2
B.4 ISO 8878 – Extended Addressing	B-2
B.5 NSAP Address Construction	B-2

Appendix C: Sample Configurations and Timers

C.1 X.25 Link Configuration for ISO Layers 1-3	C-1
C.2 ISO Transport Configuration	C-2
C.3 Comparisons of ANSI T1.204-199x and Service Provider Protocol Timers for Connection Mode Service	C-4

Appendix D: Encoding of Authentication Information

Appendix E: Glossary

Requirement-Object Index

List of Figures

Figure 2-1	Basic EB Architecture	2-1
Figure 2-2	Example of a TMN Physical Architecture	2-1
Figure 2-3	Example of a CNM Physical Interface	2-2
Figure 3-1	Connection Topologies	3-1
Figure 5-1	Suggested Name Binding	5-28
Figure 5-2	Inheritance Hierarchy	5-29
Figure B-1	Hunt Group Operation	B-1

List of Tables

Table 3-1	Connectivity Standards for Electronic Bonding	3-3
Table 3-2	Recommended X.25 Facilities	3-4
Table 5-1	Mandatory Attributes Inherited from the Trouble Report Object	5-5
Table 5-2	Attributes Supplied by Manager	5-6
Table 5-3	Attributes Supplied by Agent	5-6
Table 5-4	Attributes Set to Default by Agent	5-7
Table 5-5	Trouble Type Code Definitions	5-7
Table 5-6	Trouble Found Code Definitions	5-12
Table 5-7	Trouble Report Status Code Definitions	5-15
Table 5-8	Repeat Report Code Definitions	5-16
Table 5-9	Activity Type Attribute	5-17
Table 5-10	Trouble Report State Attribute	5-19
Table C-1	Timer Value Ranges	C-4