

1. INTRODUCTION

Ensembles provide a top down view of a particular solution to a management problem. In order to focus on the solution to this management problem, specific restrictions are placed upon particular referenced definitions.

The concepts and format of Ensembles are described in the "NM Forum Ensemble Concepts and Format"[1] specification document.

Each Ensemble contains general text in each section that is common to all Ensembles. By convention this common text is portrayed in bold italic characters.

This Ensemble, wherever possible, references documents which define the components of the Ensemble.

The management problem is identified as a set of requirements and constraints. In defining the solution to this management problem, the resources to be managed, the functions to be applied, and the scenarios describing the interactions are all identified. The Ensemble references base standards and International Standardized Profiles (ISPs). It also references libraries containing definitions expressed by GDMO (Guidelines for the Definition of Managed Objects[2]) templates.

The purpose of this document is to collect management information definitions and profiles, and show how they can be applied to manage the resources identified in this Ensemble.

This document is organized as follows:

- Section 1 "Introduction", provides a high level overview describing the Ensemble and the structure of the document.
- Section 2 "Management context", identifies the managed resources and management capabilities of the Ensemble.
- Section 3 "Management Information Model", specifies all management information components of this Ensemble.
- Section 4 "Ensemble conformance Requirements", provides or references statements of conformance for this Ensemble. The managed Object Conformance Statements (MOCS) Proformas, specific to the Ensemble are provided in Annex B.

1.1 UNIQUE IDENTITY

The unique identity is a registered object identifier used to identify this Ensemble.

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1.2 GENERAL DESCRIPTION OF THE ENSEMBLE

The Leased Circuit Service : Alarm Surveillance Ensemble (LCS-AS) describes how to use the Network Management interoperable interface to send alarm notifications from a telecommunication service provider management system to a service user management system. The specific telecommunication service addressed in this Ensemble is a Leased Circuit Service (LCS).

In this context, Leased Circuit Service is defined as a general telecommunication service providing transport of user information without any regards of protocols and data content being carried.

Leased Circuit Service can refer to a dedicated point to point leased line service as well as more sophisticated services which enable the service user to define and reconfigure a network based on a predefined set of capacities. Reconfiguration includes change of such characteristics of the transport network as endpoints and bandwidth. It also includes the procedures to detect the failures on the circuits, switch exchanges and transmission equipment and to ensure the normal service operation as much as

possible.

As defined in ITU-T Recommendation Q.821, Alarm Surveillance is a set of functions that enable the monitoring or the interrogation (or both) of the telecommunications network concerning alarm-related events or conditions.

Thus, LCS-AS Ensemble specifies how the user of a Leased Circuit Service can monitor the alarms; it also specifies how the service user requests information concerning the alarm-related conditions of the components. These features therefore allow the service user to take appropriate measures to ensure that resources that are deemed to be critical for the service remain operational.

1.3 SCOPE AND PURPOSE

Ensembles represent specific solutions to particular problems. Thus, an Ensemble is the complete description of the problem and the solution to that problem.

This section describes the requirements of the problem. It includes the definition of the information model that represents the solution to a problem. These definitions comprise references to one or more management information libraries which contain definitions of managed object classes expressed in GDMO templates, packages, attributes, name bindings, etc. Also, included in the Ensemble definition are statements of conformance and suitable proformas.

This Ensemble supports Alarm Surveillance on a Leased Circuit Service. The aim of this Ensemble is to enhance reliability of a Leased Circuit Service by allowing the service user a better visibility of the state of the resources allocated to the LCS.

This Ensemble gives the service user the capability to dynamically specify the level of alarm-related information he expects from the service provider. Getting a detailed level of alarm-related information will provide better Quality of Service and more efficient maintenance at lower costs.

This Ensemble also gives telecommunication service providers the opportunity of offering new services, tailored to their customer's needs.

The Leased Circuit Service can be thought of as connections through leased circuit network. The edges of the leased circuit network are points that the service user accesses. A connection through the leased circuit network from one point on the edge to another point on the edge is provided to the service user.

The service user does not have to know all the technical details of the implementation that supports the Leased Circuit Service. The service user only needs a high level view of the static pool of resources underlying the user-defined connections.

This Ensemble defines a model and the management capabilities for the service provider to give information to the service user on the status of those resources.

This Ensemble is intended to aid product developers in the design of management systems, and to help procurers in the specification of system requirements.

1.4 RELATIONSHIPS WITH OTHER ENSEMBLES

This section describes the relationship between this Ensemble and other Ensembles which will be developed by TTC.

For the Leased Circuit Service, following four Ensembles are identified.

The Leased Circuit Service - Configuration Management (LCS-CM)
The Leased Circuit Service - Alarm Surveillance (LCS-AS)

The Leased Circuit Service - Trouble Management (LCS-TM)
The Leased Circuit Service - Security Management (LCS-SM)

Note 1: The later two ensembles are subjects for further study.

This Ensemble can be used in conjunction with the LCS-CM Ensemble in particular implementations. The combination of both Ensembles enables the service user to be notified of urgent failures of the components of the LCS through the Alarm Surveillance Ensemble, and to act on this information, through the Configuration Management Ensemble, so that critical connections can be rerouted.

Note 2: As a rerouting of the critical connections is a subject to be addressed at the phase 2 implementation (see the section 2.2.2), the description for the subject is incomplete in the phase 1.

This Ensemble can also be used in conjunction with the LCS-SM Ensemble. When security of the service is violated or is expected to be violated, an appropriate notification from the service provider enables the service user to take a suitable action at this situation. This may be considered to be an extension of the alarm reporting.

This Ensemble can also be used in conjunction with the LCS-TM Ensemble. When service failures occur, the service user can get the most recent information on the problem resolution status by looking into the related trouble reports produced by the service provider. The service user can also get information on the maintenance schedules planned by the service provider.