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Inteligentno omrežje (IN) – Tretji nabor zmožnosti inteligentnega omrežja (CS3) – Aplikacijski protokol inteligentnega omrežja (INAP) – Specifikacija protokola – 4. del: Jezik SDL za vmesnik SCF-SSF

Intelligent Network (IN); Intelligent Network Capability Set 3 (CS3); Intelligent Network Application Protocol (INAP); Protocol specification; Part 4: SDLs for SCF-SSF interface

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Part 4: SDLs for SCF-SSF interface

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 4 of a multi-part deliverable covering Intelligent Network (IN); Intelligent Network Application Protocol (INAP); Capability Set 3 (CS3); Protocol specification as identified below:

Part 1: "Common aspects";

Part 2: "SCF-SSF interface";

Part 3: "SCF-SRF interface";

Part 4: "SDLs for SCF-SSF interface".

The present document and parts 1 to 3 define the Intelligent Network (IN) Application Protocol (INAP) for IN Capability Set 3 (IN CS-3). The present document and parts 1 to 3 define the INAP for IN CS-3 based upon ETSI Core INAP CS-2 (EN 301 140-1) and ITU-T IN CS3 Recommendation Q.1238 (1999).

The structure of the present document and parts 1 to 3 follows the ITU-T Recommendation Q.1238 rather than that usual for an ETSI deliverable.

The SDL diagrams are contained in archive en_30193104v010102p0.zip which accompanies the present document.

National transposition dates	
Date of adoption of this EN:	31 August 2001
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Date of withdrawal of any conflicting National Standard (dow):	31 May 2002

1 Scope

The present document is part 4 of the multi-part deliverable for IN Capability Set-3. The present document specifies the protocol on the SSF-SCF interface in SDL, and provides an overview of the structure of the SDL model.

2 References

All documents referred to in the present document are identified in EN 301 931-1.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 931-1 apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations and acronyms given in EN 301 931-1 apply.

4 Introduction to the INAP CS3 SDL model

4.1 Scope of the CS-3 model

The SDL model developed for CoreINAP CS-3 is based upon that produced for CS-2. However, there have been extensive revisions to the internals of the CS-2 model:

- the CS-1 and CS-2 models have been combined;
- the InterfaceHandler process has been removed, replaced by the SSME-Control which only handles SSF-SCF communication;
- the BCP has been added to manage all signalling to/from the BCSMs (previously passed through the InterfaceHandler);
- as a consequence, the CS process is updated based on the DPs received from the BCSMs, not on the signalling;
- the Trigger Table has been re-designed, and effort has gone into using RemoteProcedures, refining data structures and ensuring correct initialization and use of data structures, all with the objective of making the SDL model simulate more efficiently;
- the FIMController and FIMAgent have been added to model Multiple Point of Control;
- functionality has been extended to model new behaviour in CS-3.

The normative information provided by the SDL diagrams is the dynamic behaviour at the external interfaces. The internal behaviour and structure have been introduced for modelling purposes. No SDL specification of the SCF is provided; the behaviour of the SCF is specified in clause 9 of EN 301 931-2.

The SDL model specifies precisely and unambiguously the external behaviour and the interworking between the different functional entities: SSME, CSA, CS, SSF-FSM, BCSM. However, the internal behaviour is only for information and the SDL model does not impose any requirements on the internal structure of an implementation. The data structures used are imported from clause 14 of EN 301 931-2 and from clause 12 of EN 301 931-3 (ASN.1 definitions).

The SDLs are a full data model, and therefore can be used for simulation purposes. There are however, some limitations with the SDL model. The model only concerns the SCF-SSF interface. The model s intended to cover call party handling only, it is not a full model of the SCF-SSF interface. It is intended to illustrate the CSCV transitions on signalling events, Detection Points and SCF operations. Where the model does go beyond CPH, in making reference to charging operations etc., then these are not fully modelled, in particular if they have no impact on CPH and on CSCV transitions.

The conformance test suite for Core INAP CS3 has been automatically derived from the model. The model can also be used as a platform for service emulation etc.

4.2 The Information Model used in the CS-3 SDL model

Figure 1 shows the IN CS-3 information model. The various objects in the information model are defined in clause 6.6.2.1 of EN 301 931-2. There are zero, one or many Call Segments in one Call Segment Association. There is a one to one correspondence between Call Segment and Connection Point; a Call Segment contains 0 or 1 ControllingLeg, and 0 or more Passive Legs, and so on. There are two objects of type BCSM, the OriginatingBCSM and the TerminatingBCSM.

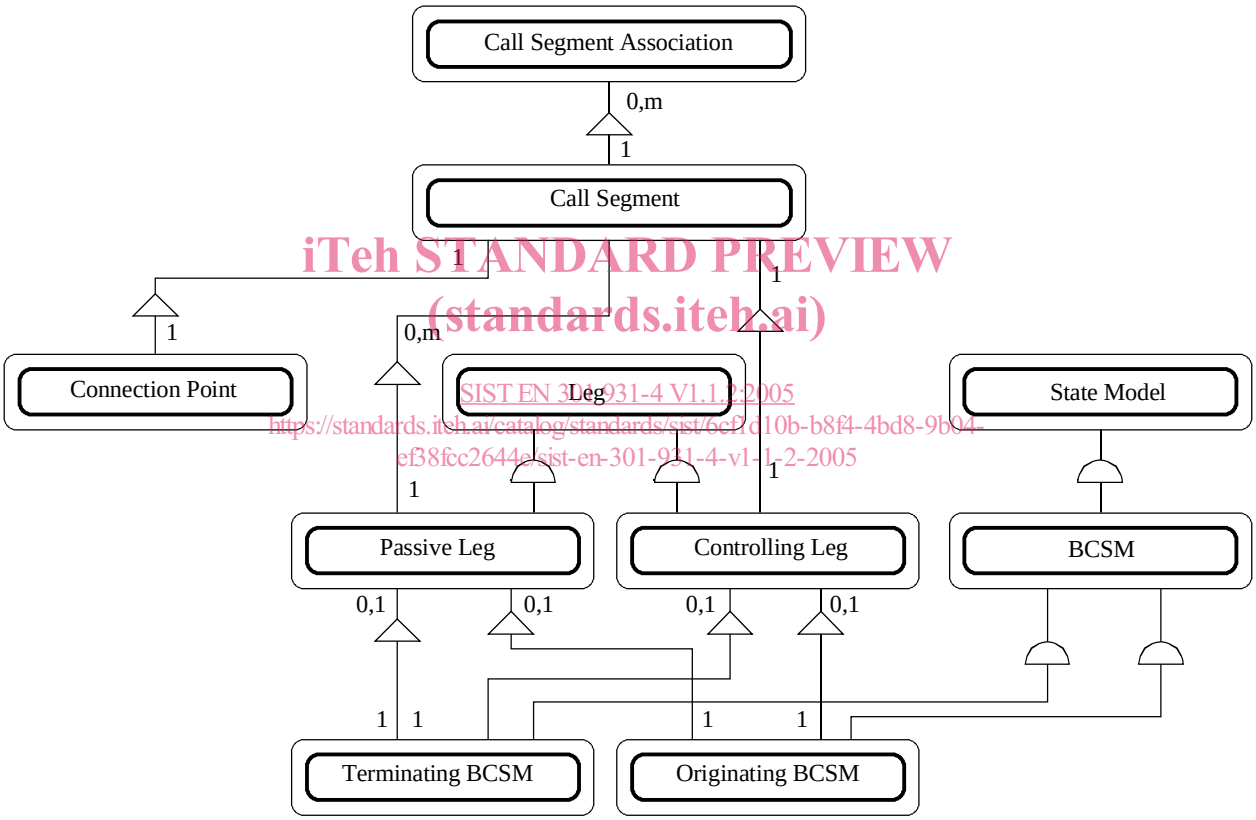

Figure 1: IN CS-3 information model

Figure 2 shows the SDL model of CS3 SSF/CCF. The objects in the information model of figure 1 map to the SDL model of figure 2 in the following way.

The Call Segment Association object is modelled by a process type in the SDL model. The CallSegmentAssociation manages:

- the creation of CallSegments; and
- the dialogue with the SCF (via the SSME Controller and TCAP).

The Call Segment object is modelled using two process types in the SDL model: CallSegment and SSF-FSM.

The SSF-FSM process type corresponds with the FSM for Call Segment described in clause 8.2.2 of EN 301 931-2.

The process type CallSegment manages the:

- IDs of the connected legs (connection view). This data structure models the Connection Point object;
- creation of the SSF-FSM;
- filtering of DPs;
- processing of IN operations changing the connection view (CPH-operations, CON, ICA).

The CallSegment process defines states for the CS. This approach is different from the CVS approach in ITU-T Recommendation Q.1224: the CVS approach explicitly names combinations of associated CSs in a particular state. The number of such combinations is infinite, since the number of CSs in a CSA has no upper bound. Instead, in the SDLs the Call Segment states are given a name (e.g. Stable-2-Party) and the CSA is represented as a set of associated CSs, possibly in different states.

The process type SSF-FSM manages the:

- processing of IN operations;
- handling of DPs (EDPs and TDPs).

The Connection Point object is modelled by a data structure as described above.

The Leg object is also a data structure within the process type CallSegment. It is identical to the data structures of Passive Leg and Controlling Leg. The data structure contains the status of the leg and the type of BCSM associated with the leg. The LegID is used by another process (the FIMAgent) to associate the leg with a particular BCSM.

T-BCSM and O-BCSM are both objects of the class BCSM in the information model. The SDL model is not exactly constructed this way. Since the O-BCSM and T-BCSM significantly differ, they are modelled in two completely independent process types.

The SDL model contains additional process types, more or less related to the various entities described in EN 301 931-2.

The SSME-Control provides:

- Processing of the operations MoveCallSegments and CreateCSA.
- Handling of the dialogue with the SCF.
- The passing of primitives between the SSF-SCF Interface and the CSA.
- The processing of IN CS-3 management operations.
- The handling of static arming of TDPs.
- The "Master" TDP table.
- The processing of ManageTriggerData.

The FIMController provides:

- supervises the creation of FIMAgents.

NOTE 1: Only one FIM_Manager can exist per switch, i.e. two instances of this half process, which are closely linked (not shown).