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Information technology — Telecommunications and information exchange between systems — Corporate telecommunication networks — Signalling interworking between QSIG and SIP — Basic services

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseaux de télécommunications d'entreprise — Signalisation d'interfonctionnement entre QSIG et SIP — Services de base

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 17343 was prepared by Ecma International (as ECMA-339) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This second edition cancels and replaces the first edition (ISO/IEC 17343:2004), which has been technically revised.

Introduction

This International Standard is one of a series of Standards defining the interworking of services and signalling protocols deployed in corporate telecommunication networks (CNs) (also known as enterprise networks). The series uses telecommunication concepts as developed by ITU-T and conforms to the framework of International Standards on Open Systems Interconnection as defined by ISO/IEC.

This International Standard defines the signalling protocol interworking for basic services between a Private Integrated Services Network (PISN) and a packet-based private telecommunications network based on the Internet Protocol (IP). It is further assumed that the protocol for the PISN part is QSIG and that the protocol for the IP-based network is SIP. Compared with the first edition of ISO 17343, this second edition includes numerous small changes arising during derived work in the IETF on RFC 4497. This second edition is in full technical alignment with RFC 4497.

This International Standard is based upon the practical experience of member companies and the results of their active and continuous participation in the work of ISO/IEC JTC 1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

In this International Standard, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in RFC 2119 [4] and indicate requirement levels for compliant SIP implementations.

Information technology — Telecommunications and information exchange between systems — Corporate telecommunication networks — Signalling interworking between QSIG and SIP — Basic services

1 Scope

This International Standard specifies signalling interworking between QSIG and the Session Initiation Protocol (SIP) in support of basic services within a corporate telecommunication network (CN) (also known as enterprise network).

QSIG is a signalling protocol that operates between Private Integrated services Network eXchanges (PINX) within a Private Integrated Services Network (PISN). A PISN provides circuit-switched basic services and supplementary services to its users. QSIG is specified in other Standards; in particular [2] (call control in support of basic services), [3] (generic functional protocol for the support of supplementary services), and a number of standards specifying individual supplementary services.

NOTE The name QSIG was derived from the fact that it is used for signalling at the Q reference point. The Q reference point is a point of demarcation between two PINXs.

SIP is an application-layer protocol for establishing, terminating, and modifying multimedia sessions. It is typically carried over IP [15], [16]. Telephone calls are considered a type of multimedia session where just audio is exchanged. SIP is defined in [10].

As the support of telephony within corporate networks evolves from circuit-switched technology to Internet technology, the two technologies will coexist in many networks for a period, perhaps several years. Therefore, there is a need to be able to establish, modify, and terminate sessions involving a participant in the SIP network and a participant in the QSIG network. Such calls are supported by gateways that perform interworking between SIP and QSIG.

This International Standard specifies SIP-QSIG signalling interworking for basic services that provide a bi-directional transfer capability for speech, DTMF, facsimile, and modem media between a PISN employing QSIG and a corporate IP network employing SIP. Other aspects of interworking, e.g., the use of RTP and SDP, will differ according to the type of media concerned and are outside the scope of this International Standard.

Call-related and call-independent signalling in support of supplementary services is outside the scope of this International Standard, but support for certain supplementary services (e.g., call transfer, call diversion) could be the subject of future work.

Interworking between QSIG and SIP permits a call originating at a user of a PISN to terminate at a user of a corporate IP network, or a call originating at a user of a corporate IP network to terminate at a user of a PISN.

Interworking between a PISN employing QSIG and a public IP network employing SIP is outside the scope of this International Standard. However, the functionality specified in this International Standard is in principle applicable to such a scenario when deployed in conjunction with other relevant functionality (e.g., number translation, security functions, etc.).

This International Standard is applicable to any interworking unit that can act as a gateway between a PISN employing QSIG and a corporate IP network employing SIP.

2 Conformance

In order to conform to this International Standard, a gateway shall satisfy the requirements identified in the Implementation Conformance Statement (ICS) proforma in Annex A.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[1] ISO/IEC 11571:1998, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Networks — Addressing*

[2] ISO/IEC 11572:2000, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit mode bearer services — Inter-exchange signalling procedures and protocol*

[3] ISO/IEC 11582:2002, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Generic functional protocol for the support of supplementary services — Inter-exchange signalling procedures and protocol*

[4] RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels, BCP 14*, S. Bradner

[5] RFC 793, *Transmission Control Protocol, STD 7*, J. Postel

[6] RFC 768, *User Datagram Protocol, STD 6*, J. Postel

[7] RFC 2246, *The TLS Protocol Version 1.0*, T. Dierks and C. Allen

[8] RFC 2327, *SDP: Session Description Protocol*, M. Handley and V. Jacobson

[9] RFC 2960, *Stream Control Transmission Protocol*, R. Stewart, Q. Xie, K. Morneault, C. Sharp, H. Schwarzbauer, T. Taylor, I. Rytina, M. Kalla, L. Zhang, and V. Paxson

[10] RFC 3261, *SIP: Session Initiation Protocol*, J. Rosenberg, H. Schulzrinne, G. Camarillo, A. Johnston, J. Peterson, R. Sparks, M. Handley, and E. Schooler

[11] RFC 3262, *Reliability of Provisional Responses in the Session Initiation Protocol (SIP)*, J. Rosenberg and H. Schulzrinne

[12] RFC 3264, *An Offer/Answer Model with the Session Description Protocol (SDP)*, J. Rosenberg and H. Schulzrinne

[13] RFC 3323, *A Privacy Mechanism for the Session Initiation Protocol (SIP)*, J. Peterson

[14] RFC 3325, *Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks*, C. Jennings, J. Peterson, and M. Watson

[15] RFC 791, *Internet Protocol, STD 5*, J. Postel

[16] RFC 2460, *Internet Protocol, Version 6 (IPv6) Specification*, S. Deering and R. Hinden

[17] ITU-T Recommendation E.164, *The international public telecommunication numbering plan"*

[18] RFC 3578, *Mapping of Integrated Services Digital Network (ISDN), User Part (ISUP), Overlap Signalling to the Session Initiation Protocol (SIP)*, G. Camarillo, A. Roach, J. Peterson, and L. Ong

[19] RFC 3311, *The Session Initiation Protocol (SIP) UPDATE Method*, J. Rosenberg

[20] RFC 3420, *Internet Media Type message/sipfrag*, R. Sparks