TTC STANDARDS

JJ-22.00

The Guideline for the Architecture of the Technical Specifications for Private SIP in TTC

Edition 1.1

December 6, 2007

THE TELECOMMUNICATION TECHNOLOGY COMMITTEE

Introduction

This document provides the TTC original Standards formulated and put into effect by the Technical Assembly. It contains unabbreviated version of 'JJ-' Standards, which have not been defined as international standards.

In case of dispute, the original to be referred is the Japanese version of the text.

We trust that greater understanding of TTC Standards by a wider range of users will further contribute to the development of telecommunications.

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1. Introduction

The Private Network Interface Sub-Working Group of the Private Network Special Committee has implemented the standardization of IP (Internet Protocol; referred to as IP in the remainder of this guideline) based on private networks (line switching networks) between PBXs (Private Branch eXchanges; referred to as PBXs in the remainder of this guideline) and Qsig (Signalling protocol over Q reference). Considering recent trends in markets and international recommendations, it is necessary to study VoIP (Voice over Internet Protocol) technology based on SIP (Session Initiation Protocol; abbreviated as SIP in the remainder of this guideline) within private networks. It has been decided to implement standardization by focusing on the latest technical trends in the new technical field mentioned above and the status of the responses of carriers to them.

This standard contains a guideline for technical specifications for private SIP to clarify the scope of the protocol.

For the reasons described below, it has been decided to create an independent document system for private SIP, instead of making additions and modifications to carrier SIP documents.

(Reasons)

- It is assumed that the users of standards for carrier SIP differ from the users of standards for private SIP, and if those standards are unified into the standards for either one, the resulting standards need to be revised whenever a change is to be made for either carrier SIP or private SIP. This causes unnecessary burden on the users of the other because of a check of the revision and so on.

- In offering future additional service functions for PBXs using SIP, consideration should be given so that recommendations (such as document changes) can be prepared by newly assigning document numbers on private networks, rather than applying the specifications of carriers directly, in order to ensure expandability.

2. Revision History

Edition	Date of establishment	Description
First Edition	August 24, 2006	Established.
Edition 1.1	December 6,2007	Revision.

3. Miscellaneous

(1) Recommendations, standards, etc., referenced

TTC standard: JJ-90.23 The Guideline for the Architecture of the Technical Specifications for SIP in TTC, First Edition, June 2, 2005

(2) Associations with other domestic standards

No associations with other domestic standards.

4. Organizational Unit Preparing Standards

First Edition: Private Network Special Committee

Edition 1.1: Private Network Special Committee

1. General Description

1.1. Purpose of this standard

The purpose of this standard is to summarize and clarify the positioning of interdependence and other relationships between SIP technical documents, the range to be covered by the architecture of the technical specifications for private SIP, guidelines for preparing technical specifications for private SIP, and others, in connection with the standards or specifications for SIP established by or to be established in the future by TTC (referred to as technical specifications for SIP in the remainder of this guideline).

1.2. Terms

<Technical specifications for SIP>

Standards or specifications for private SIP established by TTC or to be established in the future by TTC.

<Architecture of the technical specifications for SIP>

Collection of technical specifications for SIP established by TTC or to be established in the future by TTC.

2. Configuration of the Architecture of the Technical Specifications for SIP

2.1. Scope of the architecture of the technical specifications for SIP

Technical specifications for SIP in TTC that are established in accordance with this standard specify the uses of the SIP technologies for private SIP networks and the technologies for SIP.

2.2. General description of the configuration of the architecture of the technical specifications for SIP

The following serves as the overall base document for the configuration of the architecture of the technical specifications for SIP established by TTC.

Figure 2-1 shows an image of the configuration of the technical specifications for SIP.

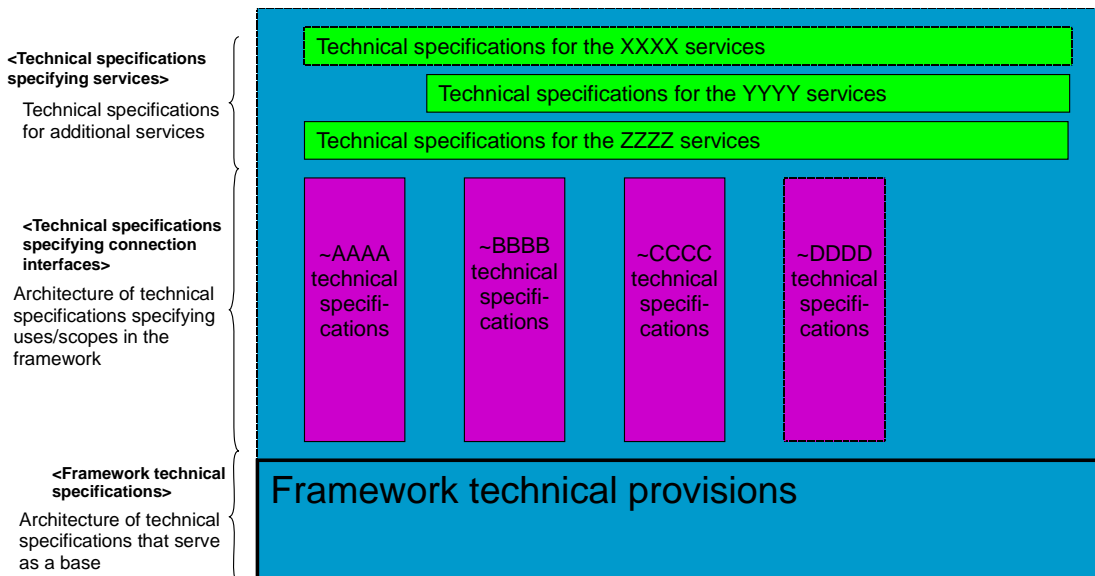As a reference, JJ-90.23, Technical Specifications, is cited.

Figure 2-1/JJ-20.00　Configuration of the technical specifications for SIP

2.3. Category provisions of technical specifications for SIP

Connection references in private networks serve as the connection architecture configuration below.

For connection reference points, points A, B, C, D, E, and F shall be specified. The details of the individual reference points shall be defined in a separate technical document.
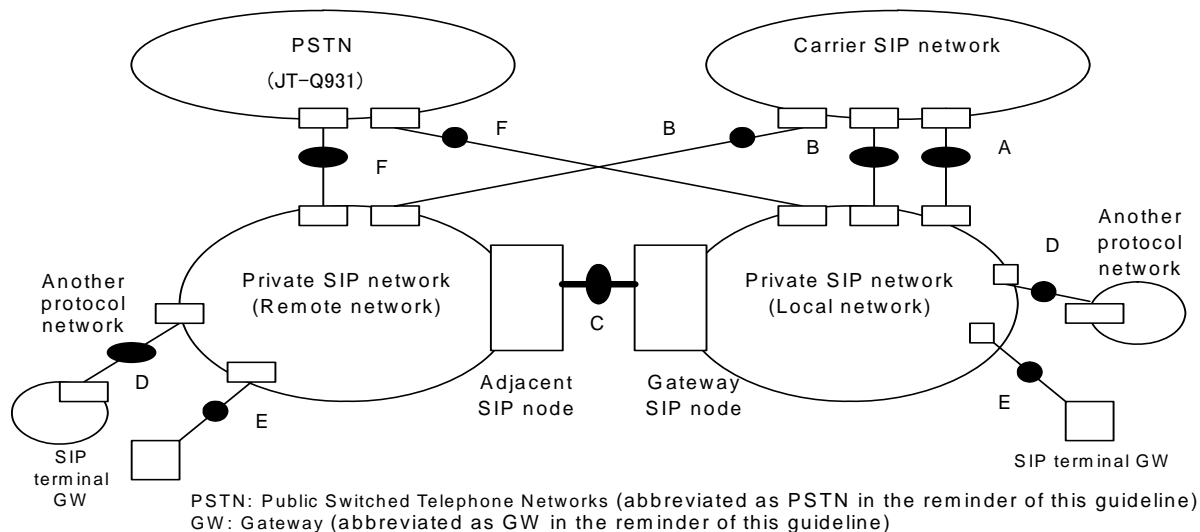

PSTN: Public Switched Telephone Networks (abbreviated as PSTN in the reminder of this guideline)
GW: Gateway (abbreviated as GW in the reminder of this guideline)

Figure 2-2/JJ-20.00   Configuration of the technical specifications for SIP

Summaries of reference points shall be provided in the documents below.

Reference point A   :   Specifications on Interface between Private SIP Server and Carrier SIP Server
(This connection reference point shall conform to inter-carrier network-to-network SIP interface specifications (JJ-90.25).)

Reference point C   :   Specifications on Interface between Private SIP Server (or IP-PBX) ⇔ Private SIP Server (or IP-PBX)
(This connection reference point is an inter-server linkage connection in a private network, but should be considered together with the services currently defined in the line switching network (private JS interface), as much as possible.)

Reference point D   :   Specifications on Interface on Private SIP Server (or IP-PBX) ⇔ Existing PBX (GW)
(The protocol for the portion beyond this connection reference point D assumes JS-11572. Interworking with a channel associated signaling interface may be possible, but partial provisions shall be provided in the range of basic connections.)

Reference point B   :   Specifications of Interface between Private SIP Server (or IP-PBX) ⇔ Carrier SIP Network
(This connection reference point shall conform to the Specifications on Interface in SIP-UA (User Agent) with Carrier Network. This means that the operation of the private SIP server and the operation on the client are to be shown.)

Reference point E　:　　Specifications of Interface between Private SIP Server (or IPX) ⇔ SIP Terminal/GW

(This connection reference point shall conform to the Specifications on Interface for Connection to Private Network Server and SIP Terminal/GW (TA(Terminal Adapter)). This means that the operation of the private SIP server is to be shown.)

Reference point F　:　　Specifications on GW Having Interface between Private SIP Server (or IPX) ⇒ Existing PSTN

Interwork linkages

Reference point D:　Inter-work Specifications between SIP-NNI (Network-to-Network Interface) ⇔ JS-11572

Reference point B:　SIP-UA Interface to SIP Carrier Network

Reference point E:　Inter-work Specifications between (SIP-UA: Server Operation) ⇔ JT-Q931 （Terminal Interface)

Reference point F:　Inter-work Specifications between (SIP-UA: Client Operation) ⇔ JT-Q931 （Network Interface)

<Technical specifications specifying connection interfaces>

In the architecture in Figure 2-2, specified in the framework technical specifications, technical specifications to be applied to basic connections in a specific interface shall be defined.　Types of technical specifications include inter-work provisions specifying inter-protocol mapping, interconnection provisions specifying inter-node interconnection specifications, and operation provisions specifying the operation of the nodes to be connected.

In technical specifications specifying connection interfaces, technical specifications to be applied only under the specific conditions for each interface category (interfaces C, D, and E) shall be established as well.　For the targets of basic connections, because specific conditions are assumed for each connection interface, technical specifications shall be established for each connection interface and each assumed condition.　For technical specifications to be applied under specific conditions, the conditions for their application shall be clearly specified in their documents. Also, for interfaces A and B, carrier network interface specifications have been clarified, and are not specified for this private network.

<Technical specifications specifying services>

In the architecture in Figure 2-2, specified in the framework technical specifications, technical specifications necessary for offering the same services in private SIP networks as the specific communication services offered in PISNs (Private Integrated Services Networks) and those necessary for offering equivalent services between other networks including PISNs shall be defined.　At connections to PSTNs, services may differ from one carrier network to another and, therefore, services shall be basically clarified in the range of TTC JT-Q931.

3. Contents of Each Document of Technical Specifications

3.1. Technical specifications specifying connection interfaces

3.1.1. Guideline for assigning titles

It is recommended that the titles of technical specifications for connection interfaces be in the format of "Technical Specifications on Connection Interface for ...". In principle, the name of an interface must be assigned to clarify that it is for connecting basic calls and to clarify the type of technical specifications that specifies it.

3.1.2. Configuration of chapter 1

In establishing technical specifications specifying connection interfaces, it is necessary to clearly specify which connection interface in the network connection architecture in the framework technical specifications the technical document for SIP to be established is to be applied.

In principle, if technical specifications for connection interface are to be established, the contents below shall be included in Chapter 1 in each document of technical specifications for SIP.

1.1 Scope of this document

This section shall briefly describe the contents of the technical specifications. It shall also clearly specify the scope of the technical specifications, the connection interfaces covered, and the application conditions in accordance with the framework technical specifications. This section shall also clearly contain the relationships with the framework technical specifications and the category of the technical specifications.

1.2 Purpose and provisions of the specifications

This section shall clearly specify the purpose of establishing the technical specifications and the provisions for achieving the purpose.

1.3 Contents of the specifications

This section shall provide an abstract of the configuration of the contents of the technical specifications for the purpose of facilitating the understanding of the technical specifications. If appendixes and annexes are to be prepared, it shall clarify their positioning.

1.4 Terms

This section shall describe the terms used in the technical specifications that are specified in the framework technical specifications.

3.2. Technical specifications specifying services

3.2.1. Guideline for assigning titles

It is recommended that the titles of technical specifications specifying services be in the format of "Technical Specifications for the ... Services". In principle, the name of a service shall conform to its name in the document that specifies the service definition. If the aforementioned name is not appropriate because, for example, what is specified is not a specific service but a functional element for implementing a service, an appropriate expression that represents what is specified shall be used.

3.2.2. Configuration of chapter 1

In establishing technical specifications specifying services, it is necessary to clearly specify the service levels of the services to be implemented. It is also necessary to clearly specify which connection interfaces and which interface combinations in the network connection architecture in the framework technical specifications the technical provisions to be established are to be applicable.

In principle, if establishing technical specifications specifying services, the contents below shall be included in Chapter 1.

1.1 Scope of this document

This section shall briefly describe the contents of the technical specifications. It shall also clearly specify the scope of the technical specifications, the types or combinations of connection interfaces covered, and the application conditions in accordance with the framework technical specifications. This section shall also clearly contain the relationships with the framework technical specifications and the category of the technical specifications.

1.2 Purpose and provisions of the specifications

This section shall clearly specify the purpose of establishing the technical specifications and the provisions for achieving the purpose. In this category, it shall provide a general description of the services to be implemented.

1.3 Contents of the specifications

This section shall provide an abstract of the configuration of the contents of the technical specifications for the purpose of facilitating the understanding of the technical specifications. If appendixes and annexes are to be prepared, it shall clarify their positioning.

1.4 Terms

This section shall describe the terms used in the technical specifications that are specified in the framework technical specifications.

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4. Policy for the Establishment of Technical Specifications for SIP

4.1. Categories of technical specifications for SIP

In principle, it is assumed that technical specifications for SIP are established as TTC standards.   This does not, however, preclude their initial establishment as TTC specifications because SIP is a new technology and implementation and protocol provisions are still in the middle of development.   Those documents established as TTC specifications shall be immediately judged to determine whether they should be turned into TTC standard at stages where feedback on certain implementation results and continuous discussions on their provisions is obtained.

4.2. Relationship between technical specifications for SIP and related standard provisions of other organizations

In principle, in technical specifications established by TTC, TTC-specific headers and messages not conforming to the technical specifications established by other standard organizations shall not be defined.   Those RFC (Request For Comments) whose uses must be specified in the architecture of the technical specifications for SIP shall be specified in TTC simple standards.

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