

NID (Networked ID) Standardization Activities in ITU-T

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Abstract

Standardization of technologies for managing IDs (identifiers) and ID-related information over the network is now in progress in ITU-T (International Telecommunication Union—Telecommunication Standardization Sector). There has been extensive discussion to clarify the standardization items and a suitable organization for standardization activities for NID (networked ID), especially focusing on networked RFID (radio frequency identification). This article outlines discussions thus far, describes recent progress, and introduces future trends in NID standardization activities in ITU-T.

1. Background

Standardization activities on networked RFID (radio frequency identification) have mainly been carried out by EPCglobal and ISO (International Organization for Standardization) [1]. Within ITU-T (International Telecommunication Union – Telecommunication Standardization Sector), a proposal for promoting the standardization of technologies related to networked RFID (N-RFID) was submitted to the TSAG (Telecommunication Standard Advisory Group) meeting held in March 2005. In response to this proposal, TSAG decided to establish the Correspondence Group of RFID (CG-RFID) to evaluate the need for standardization activities for N-RFID-related technologies in ITU-T and to discuss a suitable organization for the standardization if necessary.

At the following TSAG meeting held in November 2005, CG-RFID presented reports summarizing the items to be standardized by ITU-T from the N-RFID application perspective and the status of standardization activities being performed by other SDOs (standards development organizations). However, strong concerns were expressed over the irrelevance of discussing radio technology in ITU-T. CG-RFID was renamed CG-NID (network aspects of identification (including RFID)) and was told to exclude discussion

of technical points of ID carriers and to continue preparing reports on (1) terms and definitions, (2) business models and service scenarios, and (3) technical issues of standardization. The editorial team for the final reports was nominated chiefly by Japan (Ubiquitous ID Center [2] and Hitachi) and South Korea (ETRI). In the meantime, two workshops on RFID-related topics were organized by ITU-T in April 2005 and February 2006.

CG-NID submitted four final reports, as shown in **Table 1**, to the TSAG meeting in July 2006 and terminated its activities. The following four points were proposed in these final reports.

- (1) NID standardization activities should be promoted in ITU-T, especially technical standardization related to NID services for consumers (business-to-consumer (B2C), business-to-business-to-consumer (B2B2C), consumer-to-consumer (C2C), and government-to-consumer (G2C) services).
- (2) Standardization topics to be taken up by ITU-T should include those on the tentative list shown in **Table 2**.
- (3) Standardization of urgent issues (service and functional requirements analysis, identification code, and ID code resolution protocol) should be started immediately and standards should be developed as quickly as possible. A Focus Group (FG) needs to be established in order to deal with these issues.
- (4) Joint Coordination Activity (JCA) is required

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Table 1. Final reports of CG-NID.

Document number	Title	Summary
TD314	Report for business models and service scenarios for network aspects of identification (including RFID)	Collection of RFID services and fundamental functions
TD315	Review report of standardization issues for network aspects of identification including RFID	Analysis of activities of other SDOs and list of standardization issues for ITU-T
TD316	Proposed ITU-T strategy for standardization issues on network aspects of identification with harmonized standardization cooperation	Tentative list of standardization issues and a proposal for the organization
TD317	Convener's report on the work of the Correspondence Group on network aspects of identification (including RFID)	Summary report of CG-NID activities

Table 2. Tentative list of NID standardization topics (from TD317).

	Topics	SGs	SDOs
1	NID service and functional requirement analysis	SG13, SG16	—
2	Generalized identification code scheme, association between objects and IDs	SG2	—
3	ID code representation, application data encoding	SG16, SG17	ISO/IEC JTC1 SC31
4	One-code multi-use scheme	SG16	ISO/IEC JTC1 SC31
5	Code resolution protocol, directory interoperability	SG17	IETF, ISO/IEC JTC1 SC6
6	Service broker architecture	SG13, SG16	—
7	Traceability data exchange protocol	SG11	EPCglobal, ISO/IEC JTC1 SC31
8	ID service interworking	SG13, SG16	—
9	Security and privacy protection	SG17	ISO/IEC JTC1 SC27
10	Conformance and interoperability	All SGs	—
11	QoS control	SG12, SG13	—
12	Accounting and billing	SG3, SG13	—

QoS: quality of service

to coordinate the work on standardization topics identified across many Study Groups (SGs). Objections to the establishment of the FG were raised, mainly by European countries. As a result, only JCA-NID [3] was established to discuss the future standardization issues and the organization for the standardization.

As to the business models and service scenarios summarized in TSAG TD314, they are limited to IDs assigned to physical and/or virtual objects and locations (especially using RFID as ID carriers). For example, pilot projects done in Japan by Ubiquitous ID Center were described and an information delivery service using IDs attached to objects and readers

incorporated into mobile phones, which was tried in South Korea, was described.

2. Recent discussion in JCA-NID and in SGs

The first meeting of JCA-NID was held in September 2006. Its terms of reference are as follows:

- (1) To examine the proposed deliverables of CG-NID in order to improve them and use them as baselines texts. Comments are invited on the deliverables from ITU-T members and SGs
- (2) To further develop and analyze the list of standardization items and associated roadmap
- (3) To forward specific standardization issues to

- relevant SGs and other SDOs as appropriate
- (4) To act as a single point of contact within ITU-T with other SDOs in order to avoid duplication of work
 - (5) To examine the best way to make available the most urgent deliverables on NID (in particular, proposing the creation of one or more FGs for the most urgent topics with corresponding terms of reference).

The principal role of JCA is to coordinate the standardization activities carried out in many SGs. For this purpose, it requires the attendance of the chairpersons of the relevant SGs. However, only the chair-

man of SG16 attended the first JCA-NID meeting and the total number of attendees was about 15. Active participants were limited to Japan, South Korea, France, and Germany.

Originally, the discussion in CG-NID started on the supposition of RFID standardization, but technical issues related to ID carriers (like radio technology) were excluded in due course. This caused a lack of consensus among participants about the definition of NID and the scope of discussions in JCA-NID. Many attendees from Japan and South Korea regarded NID as the ID assigned to physical and/or virtual objects and location, while topics on ID carriers (RFID, bar-

Table 3. List of contributions related to NID.

SG	Q.	Meeting	Doc. number	Title	Source
SG6	Q.4	Under AAP	L.64	ID tag requirements for infrastructure and network elements management	—
SG 11	Q.7	2005 May	TD115	Network attachment aspect of networked RFID system	Q.7/11 Rapporteur
		2005 Sep.	D58	Signaling architecture and requirements of networked RFID systems	South Korea
		2006 Jan.	D113	Classification of networked RFID services and approach for consideration of impacts on network	NTT Comware
SG 13	Q.2	2005 Sep.	D196	Review of network-based RFID standardization activity for B2C RFID applications	ETRI
		2006 Jan.	D451	Initial draft Recommendation on NGN service requirements for ID-based applications (Y.idservreqs)	ETRI
		2006 Jul.	D759	Proposal of detail description texts and some new items for NGN service requirements for ID-based applications (Y.idserv-reqts)	ETRI
	Q.3	2005 Sep.	D195	Impact of network-based RFID on NGN with regard to B2C RFID applications	ETRI
		2006 Jan.	D450	Initial draft Recommendation on functional requirements and architecture of the NGN for ID-based applications and services (Y.idarch)	ETRI
SG 16	Q.22	2006 Apr.	D317	Proposed principle and service to be standardized based on the use of networked identification (including RFID)	Japan
		2006 Aug.	AVD-2906	A proposal for studying the presence service using RFID	Huawei Technologies
			AVD-2907	Some service scenarios of one-code and multi-uses on network aspects of identification	Huawei Technologies
			AVD-2935a	Proposal of next steps of networked ID standardization activity in SG16 based on the analysis of information delivery applications	Ubiquitous ID Center
SG 17	Q.2	2006 Apr.	D153	A new work item proposal for directory service in ID-based application	ETRI
	Q.9	2005 Oct.	D116	Proposal for the study on a security framework for mobile RFID applications as a new work item on mobile security	ETRI, South Korea
			D117	Consideration for the guideline on the protection of personal information and privacy for RFID	ETRI
	Q.10	2006 Apr.	D150	Proposal for the profile based privacy protection framework for the RFID application services	ETRI
			D146R1	New work item proposal on multi-Ulls resolution architecture for ID-based applications including RFID	ETRI
				D152	A new work item proposal for URN representation for identification codes

AAP: alternative approval process
 Ull: unique item identifier
 URN: uniform resource name

code, ID itself, etc.) should not be touched in the discussion. On the other hand, participants from France and Germany, who had not been engaged in the CG-NID activity, were thinking primarily of unified management of various IDs (not only the IDs assigned to objects and locations, but also human IDs, network terminal IDs, IP addresses, telephone numbers, and so on) over the network.

As to the examination of the deliverables of CG-NID, attendees from South Korea objected because this resulted in repetition of work already done by CG-NID. They strongly proposed moving on to more detailed and concrete discussion.

The conclusions of the first meeting of JCA-NID were as follows:

- (1) Develop a generic model of the relationship between NID and the network and ask for comments on it from relevant SGs and SDOs
- (2) Develop high-level requirements for NID standardization and ask for comments on them from relevant SGs and SDOs
- (3) Request input on the NID-related standardization items in each SG and develop a roadmap for NID standardization in ITU-T
- (4) Ask for the assignment of contact persons to relevant SGs and SDOs

Liaison Statements to relevant SGs and SDOs were published and inquiries requesting appropriate input from them have been sent out. During this time, many contributions related to ID (especially RFID) were already being submitted to SG6, SG11, SG13, SG16, and SG17 mainly from South Korea, Japan, and China, as shown in **Table 3**. JCA-NID was primarily obliged to coordinate these discussions in different SGs in order to eliminate the duplication of standardization activities among different SGs.

3. Future trends of NID standardization in ITU-T

As JCA-NID has to report to TSAG, the second meeting of JCA-NID is being planned to be held just before the next TSAG meeting in February 2007. Tasks to be done before that JCA-NID meeting include preparing a generic model of the relationship between NID and the network, high-level requirements of NID standardization, a list of standardization issues, and a roadmap of NID standardization, in conjunction with inquiries made to relevant SGs. Meanwhile, the convener of JCA-NID attended the SG2, SG11, SG13, and SG17 meetings in order to introduce the activities of JCA-NID to each SG and to ask each SG to submit their inputs to JCA-NID.

References

- [1] M. Tsukada, "Recent Activities for RFID Standardization," NTT Technical Review, Vol. 4, No. 1, pp. 56–60, 2006.
- [2] <http://www.uidcenter.org/>
- [3] <http://www.itu.int/ITU-T/jca/nid/index.html>



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