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Next Generation Networks – Service aspects: Service
capabilities and service architecture

**NGN service requirements and capabilities for
network aspects of applications and services
using tag-based identification**

Recommendation ITU-T Y.2213

GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT-GENERATION NETWORKS

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NGN service requirements and capabilities for network aspects of applications and services using tag-based identification

Summary

Recommendation ITU-T Y.2213 describes high-level service requirements and NGN capability requirements needed to support applications and services using tag-based identification. Several examples of applications and services using tag-based identification are also described with scenarios. The scope of this Recommendation is limited to applications and services using tag-based identification and they are distinguished by the following three mandatory elements: ID tag, ID terminal and identifier.

Source

Recommendation ITU-T Y.2213 was approved on 12 September 2008 by ITU-T Study Group 13 (2005-2008) under Recommendation ITU-T A.8 procedure.

Keywords

Bar code, capabilities, capability requirements, ID tag, ID terminal, identifier, identifier resolution, RFID, service requirements and tag-based identification.

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Introduction

Numerous applications have already incorporated identifiers to support differentiated services, where identifiers are mainly used for logical identification. Emerging applications, whose examples are described in Appendices II and III, require also that logical identification be associated with physical objects. This Recommendation expects that a relationship between physical and logical objects is maintained and assumes that applications and services using tag-based identification are based on such a relationship. This relationship makes a wide variety of business opportunities available: for example, passport numbers may be applied to physical objects for identification and each physical object, i.e., passport, may be associated with a logical object such as a text content, application program, mobile executable code, or data record.

Applications and services using tag-based identification adopted and deployed widely in various business fields have used identifiers as a means for identifying physical and logical objects. Consequently, their market volume is being expanded dramatically. In addition to use cases of identifier in business fields, physical and logical objects with an identifier can enable applications and services using tag-based identification in consumer fields as well.

Existing applications and services using tag-based identification have been exploited in business-to-business (B2B) fields, but currently they are expanding to business-to-consumer (B2C) and business-to-business-to-consumer (B2B2C) fields as shown in clause II.3. Both B2B and B2C/B2B2C tag-based identification applications and services basically have similar service requirements. Additionally, B2C/B2B2C-specific service requirements and related challenges for NGN are also examined in this Recommendation, such as privacy management, identifier resolution, management, etc.

Identifier information in such applications and services using tag-based identification works as the key information used to retrieve related contents, execute certain application programs, point to a specific information resource, make an association with a specific object, and so on. The identification feature supporting hyperlink-like access will enable NGN applications and services to be performed and provided to consumers in easier and more convenient ways. For example, consumers do not have to type a URL in a phone user interface because the tag-based identification supports that automatically.

Since a number of applications and services using tag-based identification are expected to be deployed widely in NGN, the NGN architecture framework and the NGN functional entities have to support them.

Recommendation ITU-T Y.2213

NGN service requirements and capabilities for network aspects of applications and services using tag-based identification

1 Scope

This Recommendation covers extensions to NGN release 1 capabilities in order to support tag-based identification applications and services in the NGN environment and builds upon [b-ITU-T Y.Sup1] and [ITU-T Y.2201].

The scope of this Recommendation is limited to tag-based identification applications and services distinguished by the following three mandatory elements: ID tag, ID terminal and Identifier. These applications and/or services use identifiers only read from ID tags by ID terminals.

This Recommendation covers:

- description and scope of tag-based identification applications and services with some example scenarios;
- high-level service requirements of tag-based identification applications and services; and
- extended or new NGN capabilities based on the high-level service requirements.

Functional requirements and related NGN architecture extensions for support of the described capabilities are out of scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T X.668] Recommendation ITU-T X.668 (2008) | ISO/IEC 9834-9:2008, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: Registration of object identifier arcs for applications and services using tag-based identification*.

[ITU-T Y.2201] Recommendation ITU-T Y.2201 (2007), *NGN release 1 requirements*.

[ITU-T Y.2701] Recommendation ITU-T Y.2701 (2007), *Security requirements for NGN release 1*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 application network interface (ANI) [b-ITU-T Y.2012]: Interface which provides a channel for interactions and exchanges between applications and NGN elements. The ANI offers capabilities and resources needed for realization of applications.

3.1.2 end user [b-ITU-T M.3050.1]: The actual user of the products or services offered by the enterprise. The end user consumes the product or service.

3.1.3 identifier [b-ITU-T Y.2091]: A series of digits, characters and symbols or any other form of data used to identify subscriber(s), user(s), network element(s), function(s), network entity(ies) providing services/applications, or other entities (e.g., physical or logical objects). Identifiers can be used for registration or authorization.

NOTE – Identifiers can be either public to all networks, shared between a limited number of networks or private to a specific network (private identifiers are normally not disclosed to third parties).

3.1.4 name [b-ITU-T Y.2091]: The identifier of an entity (e.g., subscriber, network element) that may be resolved/translated into an address.

3.1.5 service [b-ITU-T Z.100]: A set of functions and facilities offered to a user by a provider.

3.1.6 user [b-ITU-T Y.2091]: It can be an end user, a person, a subscriber, a system, an equipment, a terminal (e.g., FAX, PC), a (functional) entity, a process, an application, a provider, or a corporate network.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 associated information: The information which is associated with an identifier.

NOTE – Example associated information instances are URL, URN, IP address, E.164 number, etc.

3.2.2 B2B tag-based identification applications and services: This term refers to tag-based identification applications and services based on business relationships which involve exchanges of identification information between business partners.

3.2.3 B2B2C tag-based identification applications and services: This term refers to tag-based identification applications and services based on integrated business relationships of B2B and B2C which involve exchanges of identification information.

3.2.4 B2C tag-based identification applications and services: This term refers to tag-based identification applications and services based on business relationships which involve exchanges of identification information between business and consumer.

3.2.5 C2C tag-based identification applications and services: This term refers to tag-based identification applications and services based on business relationships which involve exchanges of identification information between consumers.

3.2.6 forward identifier resolution: A function to resolve an identifier into an associated information.

3.2.7 identifier resolution: A function to resolve an identifier into associated information (see "Forward identifier resolution") and vice versa (see "Reverse identifier resolution").

3.2.8 identifier scheme: It is a numbering scheme that specifies the format and structure of the identifiers used within that scheme.

3.2.9 ID tag: A physical object which stores one or more identifiers and optionally application data such as name, title, price, address, etc.

NOTE – It may have a communication capability with an ID terminal depending on implementations.

3.2.10 ID terminal: A device with a data reading and optional writing capability which reads (and optionally writes) identifier(s) and optionally application data from/into an ID tag.

NOTE – The data reading (and optionally writing) capability depends on implementations.

3.2.11 reverse identifier resolution (or backward identifier resolution): A function to resolve an associated information into a corresponding identifier. It is the reverse operation of the forward identifier resolution.

3.2.12 tag-based identification: The process of specifically identifying a physical or logical object from other physical or logical objects by using identifiers stored on an ID tag.

3.2.13 tag-based identification applications and services: Applications and services which use tag-based identification.

3.2.14 tag-terminal interface: A communication interface between ID tag and ID terminal. The ID terminal reads identifier(s) and optionally application data from the ID tag and/or writes them into the ID tag.

NOTE – The interface medium may be infrared, RF, camera, optical scanner, and galvanic current. Communication techniques depend on the interface medium.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

1D	1-Dimension
2D	2-Dimension
ANI	Application Network Interface
B2B	Business-to-Business
B2B2C	Business-to-Business-to-Consumer
B2C	Business-to-Consumer
C2C	Consumer-to-Consumer
DB	Database
DNS	Domain Name System
ENUM	TElephone NUmber Mapping
FAX	Facsimile
GPS	Global Positioning System
ID	Identification
IP	Internet Protocol
IrDA	Infrared Direct Access
ISBN	International Standard Book Number
LAN	Local Area Network
MAC	Medium Access Control
NGN	Next Generation Network
OECD	Organisation for Economic Co-operation and Development
OID	Object Identifier
PC	Personal Computer
PII	Personally Identifiable Information
POS	Point Of Sale
QoS	Quality of Service
RF	Radio Frequency
RFID	Radio Frequency Identification



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