
**Information technology —
Telecommunications and information
exchange between systems — Corporate
telecommunication networks — Mobility
for enterprise communications**

*Technologies de l'information — Téléinformatique — Réseaux de
télécommunication d'entreprise — Mobilité pour les communications
d'entreprise*



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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.

In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

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 TR 26927 was prepared by Ecma International (as ECMA TR/92) 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 TR 26927:2006), which has been technically revised, taking into account more recent information and identifying requirements and standardization gaps.

Introduction

This Technical Report identifies key mobility issues for IP-based enterprise communications. It defines terms for different types of mobility, describes basic functionality in support of mobility, and lists common deployment scenarios. For each scenario, it identifies functional requirements and standardization gaps related to the management of mobility, identity, terminals and reachability.

This Technical Report is based upon the practical experience of Ecma member companies and the results of their active and continuous participation in the work of ISO/IEC JTC1, ITU-T, ETSI, IETF and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

Information technology — Telecommunications and information exchange between systems — Corporate telecommunication networks — Mobility for enterprise communications

1 Scope

Mobility for enterprise communications is the ability for persons and objects (e.g. vehicles, sensors and other machines) belonging to the enterprise to use communication and information services regardless of changes in their physical location. This includes also the ability to be reached by other persons or objects for communications.

This Technical Report encompasses the mobility of enterprise users connecting to enterprise and public IP networks using wired and wireless terminals for voice, data and converged services. It defines terms for different types of mobility, describes basic functionality in support of mobility, and lists common deployment scenarios. For each scenario, it identifies functional requirements and standardization gaps with the main focus on the management of mobility, identity, terminals and reachability. However, it does not provide technical solutions but lays the foundations for triggering standardization projects in areas where gaps have been identified.

More general aspects of enterprise communications based on Next Generation Corporate Networks (NGCN) and interconnection with Next Generation Networks (NGN) are covered by the companion series of Technical Reports on NGCN [1], [2], [3] and [4].

2 Normative references

No normative references are cited.

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1

access network

network entity that provides connectivity between a user's terminal and an enterprise or a public core network

3.2

accounting

process of collecting resource usage measurements and apportioning charges for services provided by a network operator or service provider

3.3

authentication

proof that an identity is genuine, e.g. the user is as claimed

3.4

authorization

process or result of assigning certain execution rights or a role to an authenticated user or entity

3.5

availability

property of being accessible and usable upon demand by an authorized entity

3.6

core network

portion of a communication system composed of networks, system equipment and infrastructures providing services and connections between access networks, service provider networks and other networks

3.7

corporate network

telecommunication network serving a corporation

NOTE 1 A corporation is a single organization, an extended enterprise, or an industry application group as defined by the International Chamber of Commerce (ICC).

NOTE 2 Sets of equipment [Customer Premises Equipment (CPE) and/or Customer Premises Networks (CPN)] are typically located at geographically dispersed locations and are interconnected to provide networking services to a defined group of users. A corporate network can employ connection-oriented and connectionless technology.

3.8

domain

collection of physical or functional network entities belonging to a restricted geographical area, a topological IP area or owned/administered by an enterprise, a public carrier or a service provider

3.9

enterprise network

corporate network comprising session layer capabilities and optionally application layer capabilities hosted on one or more infrastructures

NOTE Infrastructures can include the enterprise's own infrastructure (dedicated NGCN), the infrastructure of one or more hosting NGNs, the infrastructure of one or more hosting NGCNs or any combination of these.

3.10

end-to-end security

security (including privacy and information integrity) for the exchange of information between two or more end points that relies on protocols and mechanisms that are implemented exclusively on those endpoints

3.11

enterprise-grade service

performance level for security, availability and service perception that is comparable to PBX-based services

3.12

firewall

security means to shield an enterprise IP network from unwanted traffic by blocking certain IP addresses and port numbers or certain application data content

3.13

fixed-line network

WAN or MAN provided by a fixed-line operator (e.g. enterprise) which provides in general wired access, which may be extended locally by wireless access networks (DECT, WLAN, etc.)

3.14

foreign domain

administrative domain of a visited network

3.15**handover****handoff**

process of transferring an ongoing network association of a mobile terminal/user from one point of attachment to another in case of crossing a cell or network boundary

3.16**home domain**

domain that administers the account of a mobile user/terminal

3.17**home network**

network that is in a mobility architecture the central source for mobility services to the mobile user/terminal and which interacts with the visited network

3.18**hotspot**

wireless access point to the public internet based on WLAN technology

3.19**identity**

name by which the user of a network is known

3.20**internet**

public IP network

3.21**intranet**

closed IP network of an enterprise used for data or converged communication services by members of the enterprise

3.22**IP network**

public or private network offering connectionless packet-mode services based on the Internet Protocol (IP) as the network layer protocol

3.23**IP-PBX**

PBX capable of IP-based communications between users

3.24**location**

information identifying the network point of attachment (PoA) through which a user/terminal is currently accessing a network or the user's terminal's geographical position

3.25**mobile network**

wireless WAN or MAN that provides continuous connectivity to mobile terminals

3.26**mobile terminal**

device which is able to access the enterprise network from different locations

3.27**mobile user**

user who accesses ICT resources of the enterprise from different locations

3.28

multihoming

(property of a device) able to use more than one IP address at any given point of time

3.29

moving network

LAN or WLAN that is installed in a moving vehicle, e.g. train, and connected to a mobile network

3.30

Next Generation Network

packet-based public network able to provide telecommunication services, able to make use of multiple QoS-enabled transport technologies and in which service-related functions are independent of underlying transport-related technologies

3.31

Next Generation Corporate Network

self-contained corporate network designed to take advantage of emerging IP-based communications solutions and that can have its own applications and service provisioning

NOTE A Next Generation Corporate Network can be an entire enterprise network if none of that network is based on public network infrastructure.

3.32

portal

web-based interface that provides a single access point to dispersed information

EXAMPLE Corporate portals provide enterprise-wide information to employees.

3.33

presence

set of data representing the status and availability of a person/object or a group of persons/objects for communication

3.34

privacy

right of individuals to control or influence what information related to them may be collected and stored and by whom that information may be disclosed

3.35

private cloud

server farm for a closed user group

3.36

profile

total set of user- or terminal-related information, preferences, rules and settings

EXAMPLE Access rights.

3.37

quality of service

level of performance for the transport of data

3.38

roaming

service that enables users/terminals to use access networks and mobility services of a network operator which is different from the operator of the user's home domain

3.39

session

temporary interactive information interchange between two or more nodes in a network architecture

3.40**single sign-on**

access control mechanism where a user logs on once and gains access to a number of applications and services without being prompted to log in again at each of them

3.41**terminal**

device enabling users to access services via an access network

3.42**transit network**

network that provides interconnection between networks

3.43**user**

person, organization or technical object that accesses a network in order to communicate using the services provided by that network

3.44**Virtual Private Cloud**

private cloud provided by a third party service provider

3.45**Virtual Private Network**

virtual network that can deliver ubiquitous and secure connectivity over a shared network infrastructure (e.g. public carrier networks) using the same access policies as an enterprise network

3.46**visited network**

network that interacts with the home network to provide mobility services to the mobile enterprise user/terminal at PoAs in a foreign network

4 Abbreviations

AAA	Authentication, Authorization and Accounting
AN	Access Network
AP	Access Point (WLAN)
API	Application Program Interface
ASA	Access Service Authorizer
ASP	Access Service Provider
CN	Correspondent Node
CoA	Care of Address
CPE	Customer Premises Network
CRM	Customer Relation Management
DECT	Digital Enhanced Cordless Telecommunications
DHCP	Dynamic Host Configuration Protocol
DM	Device Management
DSL	Digital Subscriber Line
ERP	Enterprise Resource Planning
FA	Foreign Agent
GSM	Global System for Mobile communication

HA	Home Agent
HIP	Host Identity Protocol
HO	HandOver
IAM	Identity and Access Management
ICA	Independent Computing Architecture
ICT	Information Communication Technology
IM	Instant Messaging
IMEI	International Mobile Equipment Identity
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISP	IP-Service Provider
IVR	Interactive Voice Response
LAN	Local Area Network
LTE	Long Term Evolution
MAC Address	Media Access Control Address
MIP	Mobile IP
MN	Mobile Node
MM	Mobility Management
MSA	Mobility Service Authorizer
MSP	Mobility Service Provider
NAT	Network Address Translator
NGCN	Next Generation Corporate Network
NGN	Next Generation Network
NIC	Network Interface Card
OAM	Operation, Administration and Maintenance
OSI	Open Systems Interconnection reference model
PAN	Personal Area Network
PBX	Private Branch Exchange
PKI	Public Key Infrastructure
PoA	Point of Attachment
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RDP	Remote Display Protocol
RFC	Request For Comment
SIM	Subscriber Identity Module
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SMB	Small Medium Business
SOA	Service Oriented Architecture
SOHO	Small Office Home Office
SSL	Secure Socket Layer protocol
SSO	Single Sign-On