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Abstract of document:

3rd Generation Partners 
**Technical Specification Group Services and system
Aspects;
IP Based Multimedia Services Framework;
Stage 0
(Release 5)**

The present document has been developed within the 3rd Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP.

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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

Specifications are being developed within 3GPP, and co-operatively with other organizations (i.e. IETF) that will enable the deployment of IP based multimedia services. A variety of mechanisms are under consideration to provide the capabilities needed to meet the requirements of envisioned services.

This framework report provides a high level end to end systems engineering perspective that provides consideration of how the diverse mechanisms (enablers) being standardized will collectively integrate to effectively meet service requirements and enable the deployment of envisioned services. Additionally, this specification serves to document the collective vision of 3GPP, helps to ensure end-to-end service issues aren't overlooked, and may be useful in focusing the work initiative.

As a framework report the scope of this document is broader than that of the existing Stage 1, 2, or 3 specifications. It serves as an "umbrella" specification that conceptually pulls together at a high level the work of the other specifications and indicates how the pieces fit together. It would therefore contain extracts and reference to other specifications. While this specification provides "the big picture", the referenced specifications should be consulted for more detailed information. If a discrepancy exists between the content of this specification and the referenced specifications, the content of the referenced specifications supersedes the contents of this specification.

Note that the purpose of this specification includes verification that there is an adequate set of Generic Requirements, enabling 3GPP to define the required Service Enablers.

A sufficient set of Service Enablers will allow network operators and service providers to

- create new services without service standardisation
- obtain enough information to charge for these services
- offer roamers access to selected Service Enablers, thereby assuring desired service interoperability

Note: it is an individual choice of an operator, which Service Enablers a network will support. Similarly, it is an individual choice of a terminal vendor which Service Enablers a particular terminal will support.

Scope

This TR provides an umbrella framework report that provides a high level end to end systems engineering perspective that provides consideration of how the diverse mechanisms (enablers) for the provision of IP based Multimedia services being standardized will collectively integrate to effectively meet service requirements and enable the deployment of envisioned services. Additionally, this specification serves to document the collective vision of 3GPP, helps to ensure end-to-end service issues aren't overlooked, and may be useful in focusing the work initiative.

In this TR, it is the intent to provide guidance by

- establishing a set of complete, basic and advanced service examples, described from network operator and/or service provider perspective, and by
- breaking these examples down into Generic Requirements.

These examples and Generic Requirements will be used for verification of completeness and adequateness of the defined set of Service Enablers, where the basic examples will define a minimum set of Service Enablers and the advanced examples will define a desirable set of Service Enablers for inclusion in 3GPP Release 5.

This Technical Report is intended solely for verification of ability to fulfil requirements stated elsewhere, e.g. in the TS 22.228.

Consideration of CS domain based services is not within the scope of this specification. Interworking between CS and PS based services is within the scope of this specification.

References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [01] 3GPP TS 21.905: 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications.
- [02] 3GPP TS 22.101: "UMTS Service Principles"
- [03] 3GPP TS 23.107: "Quality of Service, Concept and Architecture"
- [04] 3GPP TS 22.115: "Service Aspects Charging and Billing"
- [05] 3GPP TR 23.955: "Virtual Home Environment (VHE) Concepts"
- [06] 3GPP TS 33.800: "Principles for Network Domain Security"
- [07] 3GPP TS 22.121: "Provision of Services in UMTS - The Virtual Home Environment; Stage 1"
- [08] 3GPP TS 22.038: "SIM application toolkit (SAT); Stage 1"
- [09] 3GPP TS 22.057: "Mobile Station Application Execution Environment (MExE); Stage 1"
- [10] 3GPP TS 22.078: "CAMEL; Stage 1"
- [11] 3GPP TS 22.071: "Location Services (LCS); Stage 1"

- [12] 3GPP TR 22.928: “IP-based multimedia services examples”
- [13] 3GPP TS 22.228: “IP Multimedia Subsystem; Stage 1”
- [14] 3GPP TS 22.141: “Presence Service”
- [15] 3GPP TS 26.226: “Global text telephony; Transport of text in the voice channel”
- [16] 3GPP TS 23.221: “Architectural Requirements”
- [17] 3GPP TS 23.002: “Network Architecture”
- [18] 3GPP TS 23.271: “Functional Stage 2 Description of Location Services”
- [19] 3GPP TS 25.305: “Stage 2 functional specification of UE positioning in UTRAN”
- [20] 3GPP TS 25.857: “UE positioning enhancements”
- [21] 3GPP TS 23.228: “IP Multimedia Subsystem; Stage 2”
- [22] 3GPP TS 23.218: “IP Multimedia (IM) session handling; IM call model”
- [23] 3GPP TS 24.229: “IP Multimedia Call Control Protocol based on SIP and SDP; stage 3
- [24] 3GPP TS 24.228: “Signalling flows for the IP multimedia call control based on SIP and SEP; stage 3”
- [25] 3GPP TS 29.162: “Interworking between the IM CN subsystem and IP networks”
- [26] 3GPP TS 29.163: “Interworking between the IM CN subsystem and CS networks”
- [27] 3GPP TS 33.203: “Access Security for IP based services”
- [28] 3GPP TS 32.801: “Performance Management”
- [29] 3GPP TS 23.271: “Functional Stage 2 Description of Location Services”

editor's note: IETF references to be provided.

Definitions, symbols and abbreviations

Definitions

Generic Requirement: in this TR, Generic Requirements are basic functional building blocks of service examples, in most cases common for a number of examples, intended for verification of defined Service Enablers. Generic Requirements are defined and described from user perspective and provide functionality requested or noticeable by the user.

A Service Enabler defines a capability of a functional entity which may be used, either by it self or in conjunction with other Service Enablers, to provide a service to the end user.

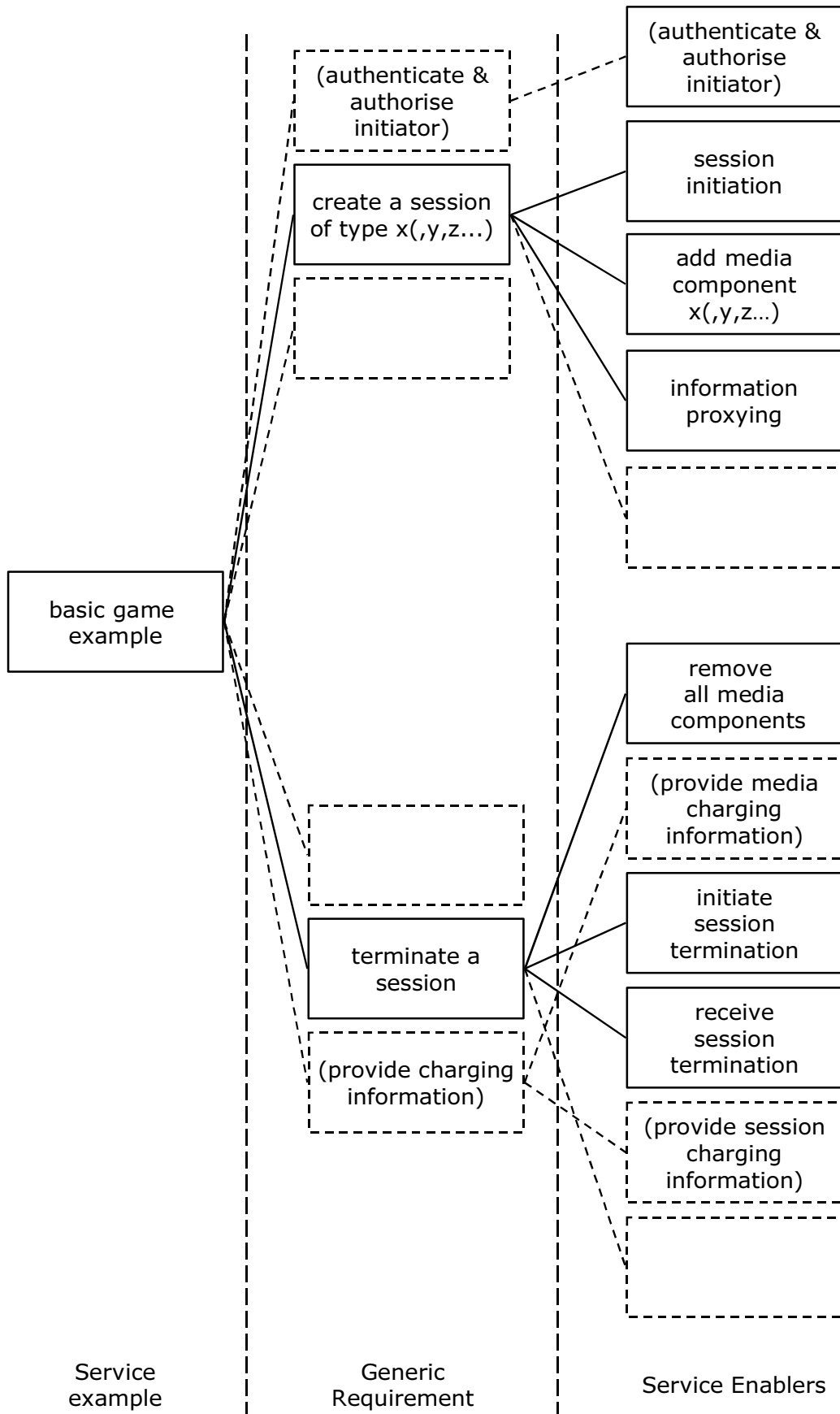


Figure 1: Examples of Generic Requirements and Service Enablers

Abbreviations

<< to be provided >>

Verification Methods

Verification of Service Enablers

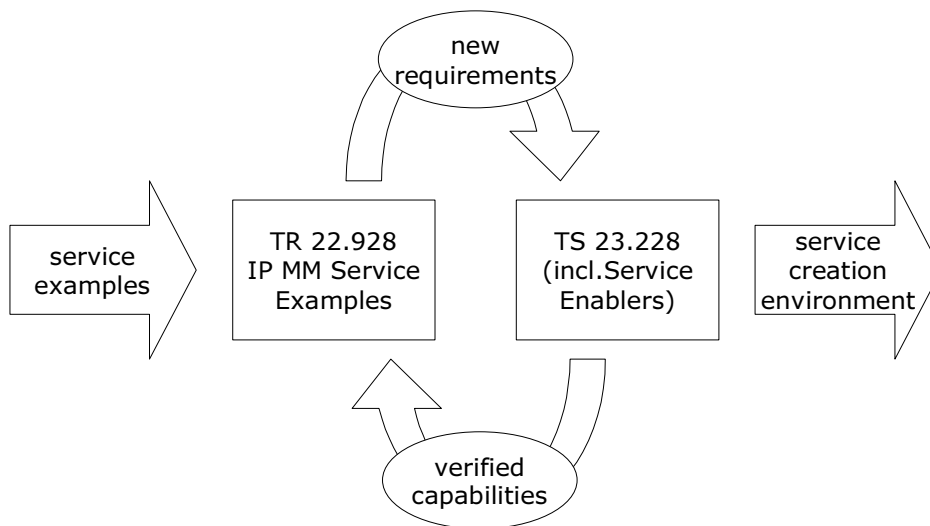


Figure 2: Verification of Service Enablers

The method, used in this TR to ensure definition of complete set of Service Enablers, consists of the following steps:

- generate a sufficient number of service examples
 - basic examples to define a minimum set of Generic Requirements for the time frame when 3GPP R5 based services are brought to market
 - advanced examples to define wish list for the 3GPP R 5 time frame
- verify the relevance and usefulness of these service for the 3GPP R 5 time frame, e.g. by using the methodology in **Error! Reference source not found.**
- break down each service example into sufficiently complete set of Generic Requirements covering
 - service aspects, including usage, initiation, user interface ...
 - charging and billing
 - roaming
 - security
 - interoperability
 - other requirements, e.g. pertinent to service distribution, service marketing etc.
- ask SA2 and other relevant groups to develop a list of defined Service Enablers
- jointly with SA2 and other relevant groups, create a matrix to verify that a sufficient number of Service Enablers exists to build the agreed examples
 - if yes => ok
 - if not => request additional Service Enablers
- add service examples as required to guide definition of additional Service Enablers

Service Examples

In order to clarify the relevance of the examples and their relation to the IMS, the example services are described shortly according to the following template:

Standard Clauses for each service example

8.x Service Title

8.x.1 Motivation

8.x.2 High Level Service Description

- Describe who is offering what to whom
- Describe what value does the service create and who benefits from these values

8.x.3 Relation to IMS

- Describe what is the service's relation to the IMS, if any

8.x.4 Potential Revenue Streams (Business Model)

- Describe who is making profit out of the value emerging from the service and who is paying whom for what

8.x.5 User Perspective (User Interface)

8.x.6 Service Specific Considerations

8.x.6.1 Authorization

8.x.6.2 Deauthorization

8.x.6.3 Registration (needs alternative name)

8.x.6.4 Deregistration

8.x.6.5 Activation

8.x.6.6 Deactivation

8.x.6.7 Service Provisioning

8.x.6.8 Distribution, downloading, terminal capabilities...

8.x.7 Charging and Billing

Interworking with Other Services

Exceptions only

8.x.8 Roaming Considerations

8.x.9 Generic Requirements (for this service)

Editor's note: text from the initially provided examples is provided below, and remains to be put into the format provided in section 7.2 above. Volunteers to do this work are noted as editorial comments (highlighted) below. Additional contributions are welcome.

8.1 Basic Voice Service

8.1.1 Motivation

To use the IMS for high volume, common services.

8.1.2 High Level Service Description

Subscribers to the IMS Basic Voice Service shall be able to make and receive conversational class voice calls via the IMS to/from all types of network (within IMS, GSM, PSTN etc.). This service will be offered by the network operator and will bring value to the network operator by the ability to charge for these calls. Specifically, the minimum requirements are:

a) Initiation

A user initiates a call to any other user or type of network by entering the identity of the called party. The identity used will depend on the scheme of the called party but could include E.164 number or email address or URL.

b) Information during the call

The user making the call is informed of its progress by tones, messages or graphic display on his terminal. During the call, other indications may be given similarly eg to indicate a 3rd party is trying to call one of the parties already in the call.

The called party is sent the identity of the caller unless specifically withheld. The identity used will depend on the capabilities of the networks but could include E.164 number or email address.

c)Control

The user can redirect incoming calls according to the capabilities defined in xxx (reference to redirection requirement)

The user can bar certain types of call ranging from all calls to calls based on the location of the called party, the type of service called etc.

The network operator should also have the capability to bar certain types of call as well. The criteria used to select the bar may differ from that used by the user.

The user can set up calls to multiple destinations (multi-party)

The user already busy on a call can be alerted to another incoming call and can choose to accept it (putting original call on hold) or reject it.

d)Other features

The users of the simple voice call should be able to signal across the networks used end-to-end using simple signalling techniques (eg MF tones).

8.1.3 Relation to IMS

This service will be offered over the IMS.

8.1.4 Potential Revenue Streams (Business Model)

The network operator will receive revenue from subscribers directly (retail rates) or via 3rd parties (wholesale rates). Network operators will also receive roaming revenue from subscribers roaming from other networks; network operators will pay other networks for roaming of own subscribers similarly.

8.1.5 User Perspective (User Interface)

The user's main interface will be to the terminal device. The terminal device's interface (eg menu, key functions, display etc) is proprietary to the terminal manufacturer, however, the interaction of the terminal device with the network will need to be standardised.

8.1.6 Service Specific Considerations

8.1.6.1 Authorization

Authorisation for the use of the service will be under the control of the network operator.

8.1.6.2 Deauthorization

Deauthorisation for the use of the service will be under the control of the network operator.

8.1.6.3 Registration (needs alternative name)

Registration onto the IMS will allow the use of Basic Voice Service, subject to authorisation and barring conditions.

8.1.6.4 Deregistration

Deregistration from the IMS will prevent the use of Basic Voice Service.

8.1.6.5 Activation

The user, a 3rd party service provider and the network operator should be able to activate the various controls including redirection and barring.

8.1.6.6 Deactivation

The user, a 3rd party service provider and the network operator should be able to deactivate the various controls including redirection and barring.

8.1.6.7 Service Provisioning

The Basic Voice Service will be provisioned by the network operator or a 3rd party service provider.

8.1.6.8 Distribution, downloading, terminal capabilities...

The terminal device will require basic capabilities for voice, with at least the default voice codec, signalling and user interface.

8.1.7 Charging and Billing

The user can be charged for calls made in a variety of ways. The following should be possible:

- a) By duration of call (including “one-off” charge/flat rate)
- b) By destination of call (including location of called party)
- c) By location of calling party

The following charging principles should be possible

- a) Existing GSM model where caller pays for call to originally requested destination for a redirected call and the called party on redirection pays for the redirected call
- b) Caller can see destination and cost of redirected call before call is set up, caller pays for all legs of the call to final destination

8.1.8 Interworking with Other Services

All users of Basic Voice Service should be able to call any user on any telecommunications network.

Callers in 3G compatible systems (eg UMTS) should be able to use default codecs to ensure end-to-end compatibility; calls from UMTS systems to other types of network (eg PSTN, Internet) may need to use gateways.

All basic call features (eg redirection, barring, calling party identity etc) should work across compatible networks (eg UMTS networks) including when roaming. They should also work across other types of network subject to the capability of that network.

8.1.9 Roaming Considerations

The user can make and receive calls in any compatible mobile network where there is a roaming agreement. The roamer is charged for the calls he makes (and receives, if appropriate) by the serving network.

All call control functions (eg setting/cancelling redirection, barring etc) should be available in the roamed-to network in the same way as they are in the home network. They should also be presented to the user in a consistent way (VHE concept)

8.1.10 Generic Requirements (for this service)

Common, default codecs in all 3G (UMTS) networks to ensure end-to-end compatibility

Common basic service capabilities across all 3G (UMTS) networks

Calls should be encrypted.

To allow calls to be set up using email or URL as identifiers, a translation facility will be required between E.164 numbers and email/URL identities. This may necessitate the provision of DNS type facilities.

8.2 Videophone Service

8.2.1 Motivation

To use the IMS for high volume, common services.

8.2.2 High Level Service Description

Subscribers to the IMS Videophone Service shall be able to make and receive conversational class videophone calls if the user devices can support the video component and compatible codecs and all networks used by the call, end to end, are capable of supporting it. The Videophone Service also provides the same capabilities as the Voice Service.

It shall be possible to initiate the full videophone call at initial set-up, or the video component may be added to an existing voice call and removed, as the user requires.

Specifically, the minimum requirements are:

a)Initiation

As for Basic Voice Service.

Additional capability to initiate call with audio only, video only or both. The use of video will depend on the capabilities of the networks involved in the call. If a call is made to a network that cannot accept video (eg PSTN or GSM), then the call should default to voice only.

b)Information during the call

As for Basic Voice Service. Additional messages may be given by video.

c)Control

Call redirection and barring capability as for Basic Voice Service.

Additionally, the user can redirect and bar the audio and video components separately.

The network operator should also have the capability to redirect and bar the components separately

The user can set up calls to multiple destinations (multi-party call) as for Basic Voice Service. The user should be able to display the video from each party in the call either in turn or simultaneously (if the terminal is capable).

The user already busy on a call can be alerted to another incoming call and can choose to accept it (putting original call on hold) or reject it as for Basic Voice Service.

The user should be able to switch the audio or video components of the call on and off during the call as required.

d) Other features

The users of the Videophone Service should be able to signal across the networks used end-to-end using simple signalling techniques (eg MF tones).

8.2.3 Relation to IMS

This service will be offered over the IMS.

8.2.4 Potential Revenue Streams (Business Model)

As for Basic Voice Service

8.2.5 User Perspective (User Interface)

As for Basic Voice Service

8.2.6 Service Specific Considerations

8.2.6.1 Authorization

As for Basic Voice Service

8.2.6.2 Deauthorization

As for Basic Voice Service

8.2.6.3 Registration (needs alternative name)

As for Basic Voice Service

8.2.6.4 Deregistration

As for Basic Voice Service

8.2.6.5 Activation

As for Basic Voice Service

8.2.6.6 Deactivation

As for Basic Voice Service

8.2.6.7 Service Provisioning

As for Basic Voice Service

8.2.6.8 Distribution, downloading, terminal capabilities...

As for Basic Voice Service plus the requirement for the terminal to use a default video codec.

8.2.7 Charging and Billing

The user can be charged for calls in the same ways as described for Basic Voice Service. Additionally, separate charges can be raised for the audio and video parts of the call.

8.2.8 Interworking with Other Services

As for Basic Voice Service. The transmission of the video component will depend on the capabilities of the other networks involved in the call.

Also, where networks are used that can carry video, the switching on and off of the video component of the call should be recognised by all networks. Similarly for the switching on and off of the audio component.

8.2.9 Roaming Considerations

As for Basic Voice Service. The ability to use video will depend on the capabilities of the serving network.

8.2.10 Generic Requirements (for this service)

As for Basic Voice Service.

Additionally, where the audio or video component is switched on or off during a call, the network should adjust the resource required (particularly the radio resource).

(note: BT to provide input)

1.1 Mixed media interactive communication

A subscriber receives an urgent voice call but is currently in a situation where a verbal response is not suitable (e.g. in a meeting). Using a “special answer” option on the UE, the subscriber could accept the audio portion of the incoming call (probably delivered via an earpiece) but would only reply in a textual fashion (e.g., instant messaging). In this manner, the subscriber could listen to the incoming voice call and generate responses without interrupting or disturbing the meeting in progress.

(note: AWS to provide input)

1.2 Multimedia Based Voice Response Unit

A customer places a voice call to the customer service centre. Instead of connecting the customer to an audio unit that plays announcements and prompts for input, the current session is switched from a voice call to an interactive “data call”. During this interactive “data call”, textual and/or graphical representation of the various options are provided to the subscriber’s UE. The customer can then browse through the choices and select the desired service. After selection by the customer, the current connection may again change media (e.g., switch back to voice call, receive a streaming video).

The user is in a voice communication, and receives an incoming IP video communication. The user decides not to accept the communication, but diverts the incoming video to a messaging system. Further, the user is given an indication that there is a video message in his mailbox.

(note: AWS to provide input)

1.3 Regional Regulatory Compliance

Emergency Call

Motivation

It is a regulatory requirement in many countries that networks offering speech service shall also offer emergency speech service. For detailed 3GPP requirements see 22.101[2].

High Level Service Description

Billy Bob Barracuda (a partner in the law firm of Barracuda and Sharkey) is driving down a remote back road in Utah. It’s very late at night, and the car’s headlights barely penetrate the heavy snowfall. His ailing mother sits next to him in

the passenger seat. A dip suddenly appears in the road in front of him. He looks puzzled, this road doesn't have any dips in it. He must be lost. Wham.

He wakes up with a splitting headache, a huge bump on his head, and finds his car in a roadside ditch. A light snow covers the car. It's freezing cold, the battery is dead, and the engine won't start. His mother is unconscious and her skin color has a disturbing blue tint. Billy Bob pulls out the cell phone from the glove compartment and dials 911. The call goes through to the nearest Emergency Call Centre, and his location is automatically provided (Billy Bob has no idea where he is). The emergency operator provides instructions to Billy Bob for taking care of his mother and dispatches an emergency vehicle and a tow truck. Both are soon rescued.

A variant on above scenario: phone doesn't have a USIM.

Accuracy of location information

For example, in the USA the FCC audits all carriers to ensure compliance with Phase II Emergency Services requirements. NewCo uses a handset based positioning solution, and their records indicate more than 67% of emergency calls made in their network provided positioning within 50 meters. Their records also indicate more than 95% were within 150 meters. This implies that the network requires to maintain statistical information on the accuracy of calls.

Relation to IMS

This is a variation of Basic IMS voice call where specific priorities and routing is applied. Also service involves LCS functionality for geographical positioning.

Potential Revenue Streams (Business Model)

Not relevant.

User Perspective (User Interface)

No specific user interface aspects identified.

Service Specific Considerations

Emergency service requires a connection from terminal to emergency service centre. Due to special nature of connection requirements for delay and priority are higher than in case of basic voice call. Specific considerations is needed for example, on call set up time optimisation and priority for bearer (i.e. shall not be dropped and in case of congestion may clear other connections).

The routing shall be able to take into account the area where the call is made in order to route call to nearest emergency call centre (Note this does not require higher than cell level accuracy).

Emergency call centre is required to receive additional details like CLI (e.g. for call back purpose) as call arrives. Further in some countries it is expected to provide a geographical position of user.

Additional scenario is IMS emergency call establishment without USIM.

Due to special nature of emergency call some specific service control / management logic may not apply e.g. CLIR shall not apply.

Charging and Billing

Not relevant.

Roaming Considerations

Emergency call shall be available in each country according to local regulations and usable for local subscribers and roamers on same way. Further, a subscriber shall be able to establish emergency call with number familiar to him /her. For detailed 3GPP requirements see 22.101[2].

Generic Requirements (for this service)

TBD

Mobile number portability

(note: Rogers Wireless to provide input)

1.3.1 Privacy

(note: Rogers Wireless to provide input)

Note: caller ID privacy, anonymity

1.3.2 Lawful Interception

(note: Rogers Wireless to provide input)

1.3.3 Trace facility

(note: Rogers Wireless to provide input)

A basic gaming scenario: a peer-to-peer game

(note: Ericsson to provide input)

Example Motivation

Service description

The gaming scenarios proposed in this section can be viewed to extend today's single user games by using the full capabilities of mobile networks, such as radio access and IMS.

In a basic scenario, two or a few players will organise the game amongst themselves using a peer-to-peer model. The game generates airtime in a PS network.

Relation to IMS

The IMS enhances the gaming experience by allowing multiple users to contact other users and establish synchronised peer-to-peer sessions as well as by adding and removing voice and/or messaging media components on demand.

Monetary flow

The players are charged by the network operator for session time and transferred data volume.

Progress of the game

Description

A player is presented with a visual representation of the game – this may be simple screens (for e.g. tic-tac-toe) seen on the phone today, or more advanced screens (for e.g. “blue objects”). The content of the display is updated as the game advances.

Players can communicate with each other, using written messages or voice, without suspending the game.

A player can present himself to the other players using an id of his choice.

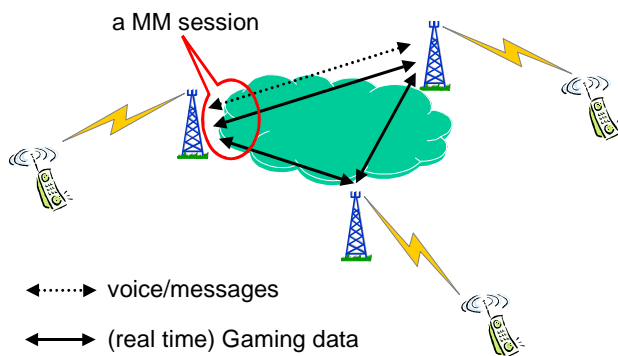


Figure 3: Basic game setup

Requirements

It must be possible to create a gaming session, which may contain one or more media components, providing connectivity with the other terminal(s). The media components may include real-time data communication for updating the games status; and optional voice or messaging, for communication amongst players.

It must be possible to add and remove the optional media components on demand, with set-up time not affecting the progress of the game ("synchronised media components").

User interaction

Description

A player uses the keyboard and display of a mobile, however if the terminal has additional capabilities, such as colour display or qwerty-keyboard, the game will use these capabilities. The size of the presented playfield is adapted to the size of the mobile's display.

Requirements

At the game session set-up time, the application must check basic capabilities of the terminal (e.g. screen size) and adapt the game presentation accordingly. Some of the capabilities must be re-negotiated at regular intervals, e.g. in case that the radio bearer capacity changes.

Initiation of a game session

Description

An authenticated and authorised subscriber can either join a game session of his choice or create a new session. Such new session can be set up in a number of ways, e.g.

- by invitation, using id's, names or mobile numbers available in the mobile terminal
- a public session
- a local, geographically limited session

In addition, the subscriber can limit the actual number of players.

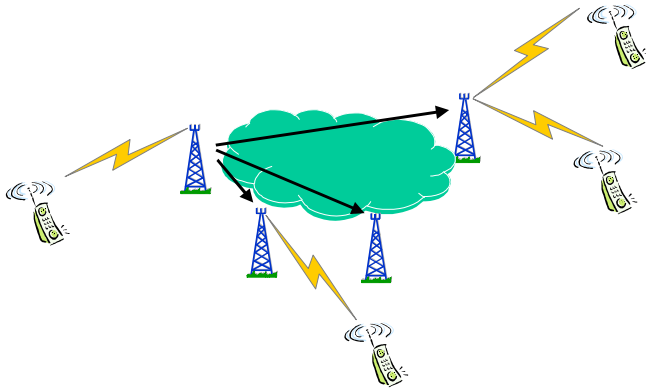


Figure 4: Parallel invitation

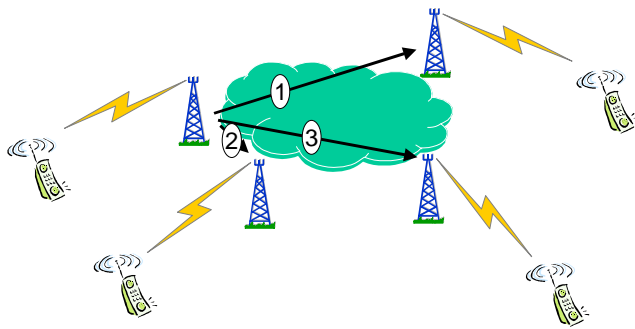


Figure 5: Sequential invitation

Requirements

It must be possible to join a game session from a presented list, or – if authorised – initiate a new game session. Invitations to such new session can be sent to subscribers selected in some fashion, e.g.:

- present in entire network or in desired part of it,
- to entire list at once (parallel initiation) or to individual members one-by-one until a condition (e.g. number of players) is met (sequential initiation)

It must be possible to address presumptive players using their mobile number, their URL or an id of their choice.

Roaming

Description

It is possible to participate in the game independent of the actual mobile network, providing that the network offers multimedia capabilities.

Requirements

A mobile network, offering multimedia services, must provide access to a standardised set of Service Enablers.

Charging and billing

Description

The gaming session is charged based in information from the by transferred data volume, and session level information (even though in some cases, the network may not understand the media content as it may be proprietary to the game).

The player's charges will be added to his mobile invoice. A player can use a prepaid mobile subscription to cover game charges.

Requirements

The CDR's for each of the media components is collected and rated by the mobile operator. The rating mechanism is based on session and bearer level information, e.g. time and data volume.

Distribution of the game

Description

The application client is either inherent to the mobile terminal, or can be downloaded from a server, provided by the mobile operator.

Requirements

The mobile terminal must have the game built-in or be capable of downloading, configuring and setting up the application client.

An advanced gaming scenario: a Game Service Provider

(note: Ericsson to provide input)

Example Motivation

Service description

The gaming scenarios proposed in this section can be viewed to extend the previous basic scenario by organisation of the game by a service provider, which might, but does not need to be different from the network operator.

The game generates airtime in a PS network.

Relation to IMS

The IMS enhances the gaming experience by allowing multiple synchronised media components as well as by on demand adding and removing extra, e.g. voice and/or messaging media components.

In this advanced example, it the task of the IMS to allow users to locate and connect to the service provider.

Monetary flow

The players are charged by the network operator for session time and transferred data volume and/or charged by the service provider for session time and game events.

Editor's Note: change "Monetary flow" to Potential Revenue Streams all

Progress of the game

Description

A player is presented with video background corresponding to his position on the playfield. The exact position of the player, as well as positions of other players within the same area are also indicated, using individual symbols. During the game players interact with each other, overcome obstacles and are rewarded for reaching higher levels of difficulty.

Players can communicate with each other, using written messages or voice, without suspending the game.

A player can present himself to the other players using an id of his choice.

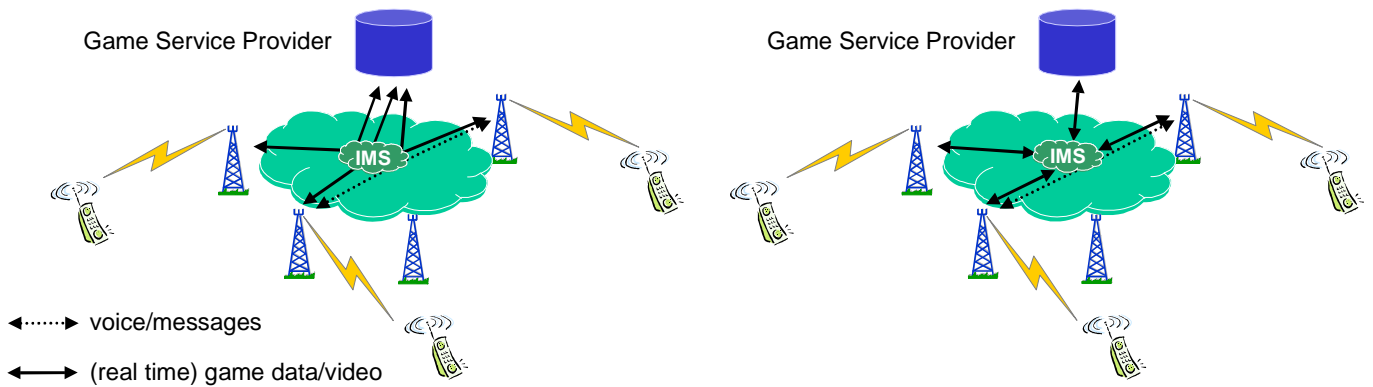


Figure 6: Alternative advanced scenarios

Requirements

It must be possible to create a gaming session, which may contain one or more media components providing connectivity with the other terminal(s) and the game server. The media components may include video, real-time data communication for updating the games status; and optional voice or messaging, for communication amongst players.

It must be possible to add and remove the optional media components on demand, with negligible set-up time (“synchronised media components”).

User interaction

Description

A player uses by default the keyboard and display of a mobile, however if the terminal has additional capabilities, such as colour display or query-keyboard, the game will use these capabilities. The size of the presented playfield is adapted to the size of the mobile’s display.

The player can use his mobile e.g. for answering incoming calls by temporarily suspending the game but without leaving it.

Requirements

At the game session set-up time, the application must check capabilities of the terminal and adapt the game presentation accordingly. Some of the capabilities must be re-negotiated at regular intervals, e.g. in case that the radio bearer capacity changes.

The game client must be able to seize and release terminal resources (display, keyboard) on demand.

Initiation of a game session

Description

An authenticated and authorised subscriber can either join a game session of his choice or create a new session. Such new session can be set up in a number of ways, e.g.

- by invitation, using id’s, names or mobile numbers available in the mobile terminal
- a public session
- a session within a pre-set team

- a local, geographically limited session

In addition, the subscriber can limit the actual number of players.

Requirements

It must be possible to join a session from a presented list, or – if authorised – initiate a new game session. Invitations to such new session can be sent to subscribers selected in some fashion, e.g.:

- present in entire network or in desired part of it,
- to entire list at once or to individual members one-by-one until a condition (e.g. number of players) is met

It must be possible to address presumptive players using their mobile number, their URL or an id of their choice previously registered with the SP.

Roaming

Description

It is possible to participate in the game independent of the actual mobile network, providing that the network offers multimedia capabilities.

Requirements

A mobile network, offering multimedia services, must provide access to a standardised set of Service Enablers.

Charging and billing

Description

The game is charged based on session events (e.g. time) and application level information (e.g. results of the game). The players are rewarded and credited for reaching certain targets. Additional voice or messages are charged at service provider's rate.

The player can choose either to be billed by the game service provider directly or to add the charges to his mobile invoice. Possible game credits are immediately subtracted from the player's mobile account. A player can use a prepaid mobile subscription to cover game charges.

Requirements

The CDR's for each of the media components can be collected by the mobile operator. The rating mechanism must be based on bearer level information (e.g. resources requested or usage), session information (e.g. time) and application level information (e.g. game results). In case the SP caters for the billing, an on-line link between the SP and the mobile operators billing system is required.

Distribution of the game

Description

To be able to participate in the game, a mobile subscriber connects to a download server and downloads an application client (common for many, if not all types of terminals). A game can therefore be started anytime and anywhere, with a minimum of effort.

As part of the game set-up in the terminal, the client requires authorisation to either use the current mobile account (post- or prepaid) or an account with the game SP (existing or new).

Requirements

The mobile terminal must be capable of downloading, configuring and setting up the application client, or as an alternative, to serve as a link to another terminal with such capabilities.

There must be possibility to set up a secure link between the application client and the authorising entity, whether belonging the mobile operator or the service provider.

Marketing of the game

Description

The game SP can subscribe to the most current information about subscribers of the mobile operator, fulfilling some set of criteria, such as subscription to other games, exceeding a pre-set spending limit or present in certain locations. This allows the SP to efficiently market the game to adequate audience.

A game advertisement will typically consist of a video push stream including a hyperlink. The user can obtain information about the game and set it up in his mobile simply by following the hyperlink.

Requirements

It must be possible to sort mobile subscribers according to parameters such as Class of Service (CoS), information in the billing system or presence (attachment) in some location. It must be further possible to forward the identity of such subscriber to a service provider through an online link.

It must be possible to set up a push session from a video server (belonging to the SP), include hyperlinks in the push stream and to follow-up the hyperlinks. The hyperlink can originate a data call (download) or a voice call (to a call centre), possibly in parallel with the video stream.

Finally, it must be possible to charge both the push stream and the terminal originated follow-up session (e.g. a client download) to the SP if the SP wants to allow the user to try the game before purchase.

Others

It is FFS whether it should be possible to join the game from a non-mobile terminal with multimedia capabilities.

Mobile Virtual Private Network (Mobile Road Warrior)

Example Motivation

A mobile, location independent and ready to use access to the corporate information management systems (including e.g. e-mail, financial and logistic transaction systems, document stores as well as the voice communication system) is top priority of most corporate clients.

High Level Service description

A MVPN-service extends the desktop work environment to the mobile situation.

A MVPN offers secure single sign-on access to the company's information management systems, including access to filed documents, video clips (e.g. process descriptions) and real time transaction information, while mobile; optional ability to retrieve information while talking to company employees; and access to relevant information exactly when needed.

Business Model

In this scenario, a network operator offers some corporate customer a VPN-type access arrangement at agreed rating scheme. Such VPN arrangement includes access to the corporate gateway, but no services.

As an alternative, the offering could include mobile network specific services (e.g. location based services).

Relation to IMS

IMS offers possibility to set up a single session with the corporate environment and later use it for single or multiple media components, synchronised if of value. IMS also allows adaptation of rating arrangements, e.g. billing per transaction rather than billing per data volume or session time.

User Perspective

It is required that a single authentication and authorisation enables access to the full capabilities of the corporate environment.

Once the connection to the corporate systems is established, the user interface should not differ from that offered in desktop environment.

Service Specific Considerations

As a general requirement, no restrictions shall be imposed by being off-site.

It must be possible to address the corporate gateway using its E.164 or URL address. Once the sign on procedure has been completed, the addressing is transparent to the mobile network. A sign on shall remain effective until a deregistration has taken place, either due to sign off or due to time out.

It is desirable that the corporate customer shall be able to add a new user to the service and change the authorisation of a user to use different media components and/or possible additional services.

The corporate customer shall, as a minimum be able to activate and deactivate a known user's access to the service.

It shall be possible to adopt the security of the access to the security of the customer's corporate environment.

Charging and billing

It shall be possible to combine time-based and volume-based charging for each of the applicable media components. It shall further be possible to agree on chargeable events between the operator and the corporate customer.

It shall be possible to assemble an arbitrary number of MVPN users on one invoice.

The operator shall be able to supply charging information to the customer on line.

Roaming considerations

It shall be possible to use the MVPN-service in home or visited networks.

Generic Requirements

FFS

(Requires secure bit pipe to company Intranet gateway, allowing multiple simultaneous media components of various QoS. The mobile terminal needs the possibility to be a member of a company VPN with regard to charging, billing, numbering and user administration.)

1.4 Multimedia Service

8.9.1 Motivation

To use the IMS to handle multi-media calls efficiently

8.9.2 High Level Service Description

Subscribers to the IMS Multimedia Service shall be able to use all types of media simultaneously. The media types include real-time voice and video and the non real-time capabilities listed below. The use of the different media will depend on the capabilities of the user device and the supporting networks. The Multimedia Service also provides the same capabilities as Videophone Service.

Users of the Multimedia Service, shall be able to send and receive the following types of non-real time media:

- audio download;
- video download;
- audio streaming;
- video streaming;
- general data files;
- text messaging (SMS);
- emails;
- general web browsing;
- multi-media messaging

Specifically, the minimum requirements are:

a) Initiation

As for Basic Voice and Videophone Services.

Additional capability to initiate audio and video download and streaming services, initiate email and web access, initiate data file download, send and receive text messages (eg SMS), initiate access to multimedia messaging systems. Access to these additional services can be initiated during an existing audio or video call or access can be initiated stand-alone.

b) Information during the call

As for Basic Voice and Videophone Services.

c) Control

Capabilities as for Basic Voice and Videophone Services.

Additional capability required for the user or network operator to bar access to additional services such as download & streaming.

d) Other features

As for Basic Voice and Videophone Services.

8.9.3 Relation to IMS

This service will be offered over the IMS.

8.9.4 Potential Revenue Streams (Business Model)

As for Basic Voice and Videophone Services plus revenue from audio and video download and streaming, file downloads, messaging access and web access.

8.9.5 User Perspective (User Interface)

As for Basic Voice and Videophone Services.

8.9.6 Service Specific Considerations

8.9.6.1 Authorization

As for Basic Voice Service

8.9.6.2 Deauthorization

As for Basic Voice Service

8.9.6.3 Registration (needs alternative name)

As for Basic Voice Service

8.9.6.4 Deregistration

As for Basic Voice Service

8.9.6.5 Activation

As for Basic Voice Service

8.9.6.6 Deactivation

As for Basic Voice Service

8.9.6.7 Service Provisioning

As for Basic Voice Service

8.9.6.8 Distribution, downloading, terminal capabilities...

As for Basic Voice and Videophone Services plus the requirement for the terminal to use default codecs for download and streaming applications.

8.9.7 Charging and Billing

The user can be charged for calls in the same ways as described for Basic Voice and Videophone Services. Additionally, separate charges can be raised for any services used during the call, e.g. audio and video download and streaming, email and web access.

Charging by data volume should be possible for download and streaming services, web and email access and messaging use.

8.9.8 Interworking with Other Services

As for Basic Voice and Videophone Services.

8.9.9 Roaming Considerations

As for Basic Voice and Videophone Services. The ability to access other capabilities such as streaming and download will depend on the capabilities of the serving network.

8.9.10 Generic Requirements (for this service)

As for Basic Voice and Videophone Services.

Local Services

Motivation

IMS architecture is characterized by service control by Home Environment allowing operators to create more advanced services. While this is beneficial for most services, additional consideration must be given for services offered locally also when roaming.

High Level Service Description

Case is about local numbers with specific charging.

A subscriber has restricted his access to premium rate services (e.g. 0600-numbers). He travels abroad and calls to local American Express freephone number 0800-123123, the call is managed by IMS.

The same scenario can be applied to home subscribers.

Relation to IMS

This is a variation of basic IMS voice call where information from both home environment and visited network information is required for call routing and charging.

Potential Revenue Streams (Business Model)

Offering of local special rate and other services also for roaming users in a same way as for local subscribers.

User Perspective (User Interface)

User dials the local number using local numbering plan.

The user might also get information about the tariff of the call.

Note: TBD, if user needs to select if call is routed via CS or IMS.

Note: it is assumed that current GSM principle is applied also in IMS, i.e. the user is assumed to dial always the local number if country code is missing. In case of calling to home network from abroad, a country code of the home network shall be included.

Service Specific Considerations

Call/session establishment and progress like as in basic voice call.

For routing purposes local numbers must be recognized.

For charging and home environment specific service logic (e.g. barring of premium rate numbers) purposes home environment must be aware of charging and/or a type of service applied.

The local services may utilise some local information from network e.g. geographical location data or network topology awareness.

Charging and Billing

American Express pays to the roamed to network operator for providing access to the service. The details of freephone call charging are outside of this example.

Both the prepaid and postpaid charging method must be supported.

Roaming Considerations

Local services are available in a same way for both local subscribers and inbound roamers.

Generic Requirements (for this service)

TBD

1.5 Presence Service

Text to be provided (Motorola???)

1.6 Instant Messaging

Text to be provided by (Converse?)

1.7 Next Service Example

Verification

Note: to be reworked after services examples are further elaborated upon.

Providers of examples are encouraged to provide material for this table.

<i>Generic Requirements</i>	<i>basic game</i>	<i>advanced game</i>	<i>mobile road warrior</i>	<i>other examples</i>	<i>LS to</i>	<i>OK?</i>
create a session containing one or more media components	X	X	X		SA2	
terminate a session	X	X	X		SA2	
add and remove media components, with negligible set up time	X	X	X			
negotiate capabilities of the terminal, at session set up and at modifications	X	X	X			
join an ongoing session from a mobile or non-mobile (FFS) terminal	X	X	(X)			
invite to a new session						
<ul style="list-style-type: none"> generally, based on the location or on membership in a list 	X	X	X			
<ul style="list-style-type: none"> individually, sequentially or in parallel 	X	X	X			
address users using the mobile number, URL or id of choice	X	X	X			
rate media components based upon connection time, data volume, application events	(X)	X	X			
	time /volume only					
charging & billing						
<ul style="list-style-type: none"> originating or terminating entity 		X	X			
<ul style="list-style-type: none"> pre-paid or post-paid 	X	X	X			
<ul style="list-style-type: none"> by network operator or by service provider 		X	X			
download, configure and set up an application (client) in a terminal	X	X				

authorise a terminal or a terminal based client (e.g. assign identity using a secure link)	X	X		
single sign-on access		X		
seize and release terminal resources (display, keyboard) on demand	X	X		
provide subscriber data to a service provider, sorted by CoS, billing information or location	X	X		
enable a push session originated from a server owned by a Service Provider	X	X		
allow sending hyperlinks to terminals, pointing at E.164 numbers, URL's or SP-owned id's	X			

Progress of verification

either

- enough Service Enablers, or
- missing Service Enablers to be identified and S2 informed about the need
- additional aspects to be defined for Service Element n

Enablers

<< to be provided >>

Toolkits

<< to be provided >>

User Devices

<< to be provided >>

Network Architecture

<< to be provided >>

Radio Access Network

1.7.1 Core Network

Protocols

<< to be provided >>

Systems Engineering Considerations

End to end systems engineering considerations are provided
(An overview of how functionality is provided with respect to the following topics)

<< to be provided >>

Customer Care

<< to be provided >>

1.8 Operations, Administration, Maintenance

(Network Care)

<< to be provided >>

Service Control

<< to be provided >>

Charging and Billing

<< to be provided >>

Consistent Delivery of Basic Services

<< to be provided >>

Capability Discovery and Service Negotiation

<< to be provided >>

End to End Quality of Service

<< to be provided >>

Interoperability Between Various Mechanisms

<< to be provided >>

User Control

<< to be provided >>

Security

<< to be provided >>

Integrity

Authentication

Authorization

Privacy

Interworking

<< to be provided >>

2G / 3G Interworking

<< to be provided >>

1.8.1 GSM / IS-41 Interworking

<< to be provided >>

1.8.2 Interdomain Interworking

<< to be provided >>

Handover

<< to be provided >>

Roaming

<< to be provided >>

Access Network Considerations

Different access networks will enable services to varying degrees.

To be further elaborated upon.

<< to be provided >>

Annex A (informative): Change History

Change history											
TSG SA#	SA Doc.	SA1 Doc	Spec	CR	Rev	Rel	Cat	Subject/Comment	Old	New	Work Item
			22.941					Rapporteur's initial draft skeleton		0.1.0	
								Addition of Initial Services Examples (S1-010383) from Tempe IMS adhoc meeting		0.2.0	
								Comments from 5/9/01 IMS drafting adhoc, Helsinki		0.2.1	
								Comments from 5/10/01 SA1 plenary, specification -> report, added Instant Messaging		0.2.2	
								Added emailed contributions on: Sections 8.1, 8.2, 8.9 (BT) 7.1 folded in 8 (editor) 8.10 (Nokia) 8.5.1 (Nokia)		0.2.3	
								Added email contribution on: Section 8.8 (Ericsson)		0.2.4	

Annex B (informative): Additional Service Examples

Editor's note: those examples below that are elaborated upon in the body of the document should be deleted from the appendix. Remaining examples (and further examples) should be retained in the appendix.

Additional examples to be provided for:

Streaming

MultiMedia Messaging (including MMS, Push)

Selected representative IP based multimedia services, to be used for validation of requirements and capabilities, are described in the body of this report. It is anticipated that many additional services will be enabled by the capabilities developed. This appendix provides additional examples of basic and advanced IP based multimedia services for consideration. Note that this list of services is not intended to be exhaustive or complete, but rather only to provide further service examples for consideration.

1 Mobile Internet Access

A service that offers mobile subscribers access to full fixed Internet Service Providers. The offered transmission quality and functionality offered by the service shall be near-wireline. Web-casting multi-media to multiple parties.

Examples are:-

MP3 download

Background download of mp3-files from a remote server with an option to follow the progress of the download by command if the user requires. Per song charge.

MP3-downloads without UE being tied up during the transfer. Downloads are charged per song, including no charge in the case of an unsuccessful transfer.

The network must be able to deliver two or more independent simultaneous media streams to the same UE. The UE has to be able to handle two sessions at the same time. Ability to assign UE resources to either session.

2 Customised Infotainment/Edutainment

Customised Infotainment is a service which provides device-independent access to personalised content (like advertisements, Information Services, communities, etc.) anywhere, anytime via structured-access mechanisms which will allow also the support of services like mobile commerce, mobile chatting. (e. interactive entertainment). Personalised multimedia services.

Examples are:-

Games may be downloaded – need to attract the game development community

Games may be loaded at point of sale or other outlets

Interactive remote learning

Multiplayer mobile gaming with voice channel

Shoot-n-Shout is a team competition where you simply shoot down the members of the competing teams. At a web/WAP service operated by the game application provider, interested potential players can choose a game session and also find other gamers to form a team with. There is a text chat service where potential teammates can learn to know each other. Teams can prepare a game strategy in advance through the text chat service, but when in the battle they need a faster way of communication. There is a conference/chat service where all players can talk (or rather shout) to each other in a "common room" and one "private room" for each team. Players in a team can also dynamically create more "private rooms" if they only like to talk to one (or a few) of their friends. The volume (and stereophonic position) of the players voices when they are using the "common room" is controlled so that it matches the virtual surroundings in the game environment, e.g., players that are behind a wall will only be heard as a vague whisper in the distance.

The Real Virtual Theatre and Foyer Chat room

A group of people is watching a theatre play and is utterly fascinated by the first act. Bob, a friend of theirs, is in a hospital bed and they really want to share this first act with him since they know Shakespeare's Midsummer Night's Dream is his favourite. Bob uses the theatre's online streaming service via the hospital network, displaying in colour and stereo surround sound on his bedside TV set. In the break his friends call him up from the theatre chat room equipped with 3D sound pick up and local display screens with streaming facilities. They set up the streaming from one of the screens to be synchronised with Bob's bedside equipment. Their voices are also mixed into the sound streams as they talk. Bob now gets both the playbacks from the first act and his friends' voices in 3D-surround sound. Bob's voice is projected close to the screen as if he was standing leaning on the bench right there. His voice is very clear and full of emotions as he speaks to the various playbacks. Both parties can control the playbacks and watch their own selection in a second window on the screen.

3 E-commerce and m-commerce

Examples are:-

Follow-up of a push service

A presentation of a push announcement (e.g. based upon the user's location) can be followed up either by a voice call, using a hyperlink included in the announcement, or by an on-line m-commerce transaction. The originator of the push announcement will increase the yield of the campaign by allowing spontaneous purchases or by connecting potential buyers to a sales rep. The receiver of the push can focus on the content of the announcement rather than on how to use it. The push originator must be able to authorise the receiver to make a voice call or to perform an on-line transaction at the cost of the push originator. The push receiver's UE and network connection must be able to handle a voice call or an m-commerce transaction while receiving a push announcement. It must be possible to split charges for the call/transaction as required by the push originator, e.g. to reverse call charges.

In-store personalised shopping

Matuma is engaged in a mobile call to her mother. She goes into her local shopping mall, on entering the mall she receives information (e.g. pushed advertising information) from the store's web network on special offers (for grocery, hardware etc). Based on the advertisement she can order her goods (whilst discussing them with her mother and letting

her see the goods on offer). She pays for the goods via her mobile account, and picks up her goods before leaving the store. Based on her personalised user profile Matuma only receives mall information that is of interest.

Multimedia customer care

User calls his customer service centre/repair centre to query the contents of an invoice. The invoice is shared between the two parties and modifications made online, and agreed to automatically debit from the customer's mobile services account.

4 Multimedia Messaging Information Service

Non-realtime, person-to-box type services. These services include real-time multimedia messaging services, instant messaging services (due to the always-on capabilities), messaging services target for closed user groups, specific communities defined by the service provider or the user (e.g. unified messaging).

Examples are:-

The user is idle in a network and not involved in a communication. The user modifies his user profile to divert all voice communications other than those from high priority, pre-identified callers (e.g. his boss). In this scenario all emails and text messages continue to be received regardless of the sender.

Mobile synchronised multimedia messaging container

Bill is on a business travel to Spain. He calls his wife Christine every night using his terminal. This evening Christine has been at a restaurant with a friend. When Bill is calling, she is sitting on the commuter train on her way home. Today, their talk starts off as a common voice conversation. After a while Bill likes to show Christine the lovely sunset view that he can see from his hotel room, so he takes some snapshots with the built-in camera of his terminal and sends them in real-time mode to Christine. Christine likes to show one of them to their little daughter Linda when she comes home. With a quick gesture on the touchscreen of Christine's terminal, she instantly moves the selected picture from the real-time session window to the "multimedia container" icon. All the contents of the "container" is automatically mirrored between the terminal and her home server. In this way, Christine can easily pick up the picture from her Screenphone at home. If Linda is asleep when Christine comes home, she can wait until tomorrow.

5 Location Based Services

These services offer the possibility to users or machines to find/locate other persons, machines, vehicles, resources and also location-sensitive services, as well as the possibility for users to track their own location.

Examples are:-

Traffic congestion monitoring

The user is able to download colour congestion maps showing the current traffic troublespots, with alternative routes highlighted dependent on the user's specific destination.

Interactive traffic info and Route Butler

Based on the user's location, current traffic information is downloaded specific to the user's personalised location, and alternative routes displayed on maps and verbally presented to the user to avoid delays.

Where is the nearest Pizza Parlour?

The user is informed, via maps and audio guidance, the exact route to the nearest place to buy his favourite pizza

Lost in London

Two friends who have become separated, are automatically located, and instructions/maps/verbal guidance given to find each other again

Emergency location with voice conversation, navigation and picture transfer

A family is out driving in the countryside and slide down into the ditch. Bobby the dog in the back of the van gets a heavy box of books on top of his left paw, which may be broken. The rest of the family is ok. Ma Beth calls 112. The

answer comes after 23 seconds and the operator immediately confirms the identity and the location of the van. Ma Beth states the problem and gets connected to a vet who asks a few pertinent questions. She can show a close up picture of the dog's left paw and the vet confirms a possible (95%) broken leg just above the paw. He gives a few quick instructions and sends her a map of the closest emergency animal hospital. The map shows her current position and soon displays the quickest way to get to the hospital. She can now drive there and make the right turns at every corner. Once there, Bobby is taken care of and things are looking up.

Location Based Charging

Jane is billed the same low "Home Zone" flat rate if she uses her cell phone at home, at her mother's house, or work. Outside of these areas she is billed at a higher rate. Her phone indicates if she is in her "Home Zone", and it warns her if she roams outside the "Home Zone" while a call is in progress.

6 Conversational Services

High quality, person(s)-to-person(s) types of services. The conversational services are real-time and two-way. It provides advanced voice capabilities (such as videotelephony), voice activated net access, and Web-initiated voice calls), while still offering traditional mobile voice features (such as operator services, directory assistance and roaming). As the service matures, it will include mobile videophone and multimedia communications.

Note that simple voice service and videophone service are examples of conversational services that are articulated in detail in the body of this report.

Simple Voice Service

6.1 simple videophone service

6.2 group browsing

(including audio/video streaming) whilst in tele- or video conference

sending pictures, video clips, text messages, documents or emails in real-time during a call

e-Postcard

This service allows a photo from a digital camera to be sent to a person while talking to her. The service guarantees delivery of the photo without noticeable delay. The service is charged per picture.

The user can significantly enhance presentation of an event or a situation by providing visual information in parallel to the verbal description.

It must be possible to attach a non-SIM peripheral (e.g. digital camera) to an UE and use that peripheral for activation and deactivation of the service. It must be possible to negotiate set-up time and other relevant attributes of the e-postcard media stream to present it without delay from the user's point of view.

Mixed media interactive communication.

A subscriber receives an urgent voice call but is currently in a situation where a verbal response is not suitable (e.g. in a meeting). Using a "special answer" option on the UE, the subscriber could accept the audio portion of the incoming call (probably delivered via an earpiece) but would only reply in a textual fashion (e.g., instant messaging). In this manner, the subscriber could listen to the incoming voice call and generate responses without interrupting or disturbing the meeting in progress.

Multimedia Based Voice Response Unit

A customer places a voice call to the customer service centre. Instead of connecting the customer to an audio unit that plays announcements and prompts for input, the current session is switched from a voice call to an interactive “data call”. During this interactive “data call”, textual and/or graphical representation of the various options are provided to the subscriber’s UE. The customer can then browse through the choices and select the desired service. After selection by the customer, the current connection may again change media (e.g., switch back to voice call, receive a streaming video).

The user is in a voice communication, and receives an incoming IP video communication. The user decides not to accept the communication, but diverts the incoming video to a messaging system. Further, the user is given an indication that there is a video message in his mailbox

Videophone Service (Voice & video calls to/from other IMS networks & other capable networks)

On receiving a communication, the calling party's identity is displayed (if not restricted) and user shall be able to decide whether to accept the communication, or divert to a messaging system. The user shall be able to request media handling of the communication (e.g. media splitting to different destinations, media conversion).

Stereo sound (nuances, character of voice plus positions, sound-scapes)

A purchase Officer, Gustavo participates in a conference to discuss purchase of a new kind of steel for the factory in Rio. As he is on the road he calls from his hotel room in Sydney. The conference is in the head office in Rio. The local department has invited the two final contenders to have them argue their cases. The two companies are positioned at the different ends of the table. One of the groups is presenting and mentions something about deliveries. A side remark is barely audible, “we can’t deliver that quality and that quantity this year !” Who made this remark? The excellent sound quality together with the stereoscopic sound gives Gustavo the information he needed. It was the other group that made the remark. The decision was made for him at that point. He gave the order to the presenting group right after they finished a very good presentation that told him everything he wanted to hear. The set-up at the head office was done with two synchronised 3G phones at each end of the table.

Conference/chat with "private rooms"

A project team has one of their weekly reporting meetings using their mobile communicators. In the middle of the meeting, Rick and Diana get lost in a lengthy argument that bores the rest of the team. Ted, the moderator, finds that it is nevertheless necessary to give Rick and Diana some minutes to finish their discussion, so he decides to not interrupt them. At the same time Sven remembers that he need to remind Liu to send a report to him on the latest findings from her research work. The team use a conference/chat service with the new facility "private rooms". Sven activates easily this feature by the GUI of his communicator. Liu is immediately notified by the GUI of her communicator that Sven is now talking privately with her (this is necessary to avoid embarrassing misunderstandings that could occur if Liu were to answer Sven in the "common room" instead of in the new "private room" that Sven has created). Since the voices of all conference members are synthetically mapped in a stereophonic projection, Liu is able to hear what Sven is saying, even though he speaks simultaneously with the other team members (the communicator will not automatically adjust the sound volume of the "common room", since it cannot know if Liu is more interested in Sven's comments or in continuing to listen to the other team members). This service thus emulates virtual presence in a conference room. The synthetic stereophonic sound projection provides good possibilities for a conference member to discriminate unwanted voices even if everyone is talking at the same time.

Application sharing with voice commentary

Marketing Manager, Rita launches a new campaign for some customers in London. Last minute feedback is that one of the customers is expecting the latest gadget to be included, even if it’s only a prototype. Rita knows it’s not included in the presentation and she has no information with her. Rita calls Jones, the media guru they employed for design of their important presentations. He has the information and some pictorials. He sends them over into Rita’s PowerPoint application and they edit the new slide together as they discuss the textual information to be included. The process is extremely interactive and the session takes only 5 minutes thanks to the broadband connection and the fact that they don’t need to Ping-Pong the pictures and the text back and forth. The customer is happy and a Letter of Intent is signed.

Annex C (informative): IP Based Multimedia Services Roadmap

<< to be provided >>

