

Technical Specification Group Services and System Aspects
Meeting #11, Palm Springs, CA, USA, 19-22 March 2001

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Title: LS on basic and advanced services examples

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Source: SA WG1

To: SA, SA WG2

Copy: SA3, SA5, T2, T3, CN WG1, CN WG3, CN WG4, CN WG5, SERG

Title: LS on basic and advanced services examples

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Introduction

SA1 would like to thank SA for its LS (TSGS#10(00)0696, attached), in which SA1 was requested to produce both basic and advanced examples of IP multimedia services which can be used to verify that the necessary capabilities are available.

As a starting point services, that are supported by IMS capabilities, can generally be considered to provide the following principal benefits:

- person(s) to person(s) and/or device IP multimedia services
- efficient use of radio interface resources
- allow flexible personalised Multimedia sessions comprising a combination of various media components.
- within a session allow different media components to be used in the two directions between the users.
- allow in-session management by the user and/or network of media components in an interoperable way (e.g. adding, removing, redirecting, recombination/changing individual media components).
- allow flexible charging (e.g. per service or media usage, pre-pay etc.)

SA1 notes that SA has stated that the services themselves will not be specified, and agrees on the need to produce basic and advanced examples to verify that the capabilities are present. This LS contains a series of services examples to depict the sort of services which could be supported by the IMS. SA1 has approached this task in the following way:-

- **defining categories of services**

Although the definition of categories of services is somewhat arbitrary, these categories have been identified as a means to collect similar services, which may require similar supporting capabilities from the system. When identifying and defining these categories, input has been taken both from the UMTS Forum as well as from Individual Members, and are for guidance purposes only.

The categories are not exhaustive, and may not be representative.

- **identifying example services for each category**

Typical IP-based multimedia services were then identified for each category. Services were identified which represent examples of the broad range of capabilities which will require to be supported by 3G systems. 3G systems are designed to enable the creation of innovative

services, and these example services are not intended to define specific services, but instead used to determine whether they can be supported by the 3G system, and in particular the IMS. Where possible, the example services have been specifically chosen where 3G systems can bring some added value to network operators, rather than just simply replicating services available from, for example, the internet.

It should be noted that the example services list may not necessarily explicitly identify all the basic services examples, however their omission does not imply that they are not to be supported. The services examples listed are not exhaustive, and may not be representative, but are intended to be broad enough to capture all the system capabilities that need to be supported.

Next steps

It is proposed that the SA1 works together with SA2, T2, T3, CN1, CN3, CN4, CN5 and other working groups as appropriate, and believes that the following steps should now be followed:-

- **review the list of examples services**

review example services for validity, and consider potential addition of other example services

- **refine the example services into capabilities**

identify all the required capabilities to ensure interoperable support of the example services

- **document the capabilities requirements**

the work on identification of capabilities to support the example services shall be documented in a (new or existing) report or specification

- **inform TSG-SA and other working groups**

TSG-SA and other WGs shall be informed on any additional capabilities required by these example services which are not currently available

SA1 will then work as required with other TSGs to ensure that any missing capabilities, if any, are supported by the system with the framework of an agreed timescale.

SA1 welcomes feedback on the proposals to work on these initial services examples, and SA1 will continue its work in this area. SA1 looks forward to working with TSG-SA and other working groups to ensure that innovative multimedia services can be interoperably supported.



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1 Service categories

The following categories for the have been identified as a means to collect similar services, which may require similar supporting capabilities from the system.

- Mobile Internet Access
- Mobile multimedia office
- Customised Infotainment
- E-commerce and m-commerce
- Multimedia Messaging Information Service
- Location Based Services
- Conversational Services
- Regional/regulatory services

2 Possible service examples

2.1 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.

2.2 Mobile multimedia office

A service for the business market segment which provides a secure mobile access to corporate Local Area Networks, and access to Virtual Private Networks (VPNs). (e.g. office extension). Virtual multimedia conferences; corporate management systems and information retrieval.

Examples are:-

- Mobile road warrior

Secure access to the company's information management system, including access to filed documents, video clips of process descriptions and real time transaction information, while mobile. Optional ability to retrieve information while talking to company employees. Access to relevant information exactly when needed.

No restrictions imposed by being off-site.

Requires secure bit pipe to company Intranet gateway, allowing multiple simultaneous media streams 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.

2.3 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 games 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 team-mates 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 are 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 synchronized 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.

2.4 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.

- Instore 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 personalized 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.

2.5 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 synchronized 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.

2.6 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 country side 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.

2.7 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.

Examples are:-

- simple voice service
- simple videophone service
e.g. incorporating simple switching from voice to videophone, mixed media streams, addition and deletion of further parties in the call
- 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 mail box
- 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 setup at the head office was done with two synchronized 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 needs 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.

2.8 Regional/regulatory services

Examples are:-

- Emergency Call
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.
- Mobile number portability

- Privacy
- Lawful Interception
- Trace facility

**Technical Specification Group Services and System Aspects
Meeting #10, Bangkok, Thailand, 11-14 December 2000**

TSGS#10(00)0696

Source: TSG-SA
Title: Liaison statement on IP Multimedia sessions
To: SA WG1, SA WG2
cc: CN WG1, CN WG3, CN WG4

TSG-SA did not conclude on a specific answer to the technical questions raised in the liaison statement (S2-002223) from SA WG2. However, the following principles have been agreed by TSG-SA as guidance to SA WG1 and SA WG2 for their work in defining the service requirements and architecture for the control of IP multimedia services:

1. It was agreed that we need to focus upon the provision of new services in order to provide the necessary capabilities. We will not specify the services themselves, but we need to produce both basic and advanced examples which can be used to verify that the capabilities are present. SA WG1 are asked to produce these examples.
2. It was agreed that the IMS supports voice capabilities and it shall be possible to have basic voice calls between IMS users and users in CS domain/PSTN-style networks.
3. It must be possible to separate the logic which controls IP multimedia services from the SIP session control and the user plane.
4. Communication between the service control logic, the SIP session control and the user plane must be over open interfaces, to allow multivendor sourcing.
5. The development of new logic and functions for the multi-media services will offer an opportunity for the improvement of the service creation environment. However the separation of the service control logic from the SIP session control and the user plane must also offer the possibility to re-use existing investment in control platforms, service logic design, subscriber databases, subscriber administration and billing systems which have been developed for existing services, where this is technically and economically viable.
6. The use of multiple points of service control for the different components of an instance of IP multimedia session is a source of problems; SA WG2 are asked to take note of this in their choice of architecture.

SA WG1 and SA WG2 are encouraged to propose their own solution in line with the recommendations above.