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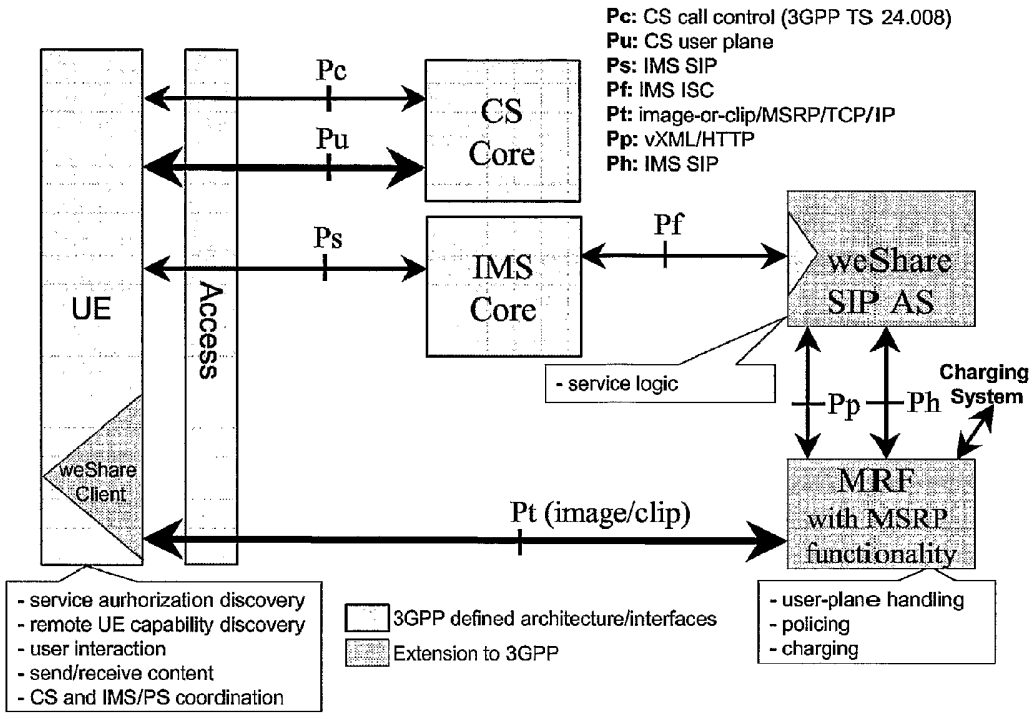
[Continued on next page]

(54) Title: EXCHANGE PROTOCOL FOR COMBINATIONAL MULTIMEDIA SERVICES



(57) Abstract: A method of transporting information between end user terminals via a packet switched network whilst a circuit switched connection is established between the end users, the method comprising: using the Message Session Relay Protocol, MSRP, to encapsulate information transmitted between users.

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Exchange Protocol for Combinational Multimedia Services

Field of the Invention

The present invention relates to combinational multimedia services and in particular, though not necessarily, to a method for encapsulating contents exchanged between users, enforcing network policy on such contents, and generating charging reports.

Background to the Invention

An IP Multimedia service involves the dynamic combination of voice, video, messaging, etc. within the same session. By growing the number of basic applications and the media that it is possible to combine, the number of services offered to the end user will grow exponentially and the inter-personal communication experience will be enriched. This will lead to a new generation of personalized, richer multimedia communication.

A combinational IP Multimedia service is a Multimedia service that includes and combines both a Circuit Switched media (such as voice) and a Packet Switched media over the IP Multimedia Subsystem (IMS) (such as pictures, video, presence, instant messages, etc.). Combinational IP Multimedia enables a user during a Circuit Switched (CS) voice conversation with another user to take a picture, an audio/video clip, etc. and transmit this content to the other party in the conversation. Either party in the conversation may initiate transmission of content to the other party. IMS is the technology as defined by 3GPP to provide IP Multimedia services. Figure 1 illustrates a family of combinational services referred to below as weShare, whilst Figure 2 illustrates the IMS architecture in 3GPP.

A combinational IP multimedia service requires a protocol to carry the images (or audio/video clip, video, etc) during the CS call. Images/Clips must be

transferred using a transport protocol such as TCP, which takes care of retransmissions and ensures that the packets, which the images/clips are broken into, are delivered in order. There also needs to be a user-plane protocol at a higher level (above TCP) that delimits the transfer of an image/clip. Message Session Relay Protocol (MSRP) is a candidate for transferring content such as images or video-clips. MSRP is being specified by IETF and is currently described in the document "draft-ietf-simple-message-sessions-08.txt". MSRP provides a mechanism to transport session-mode contents (e.g. instant messages, pictures, etc.) between endpoints. However, aspects such as weShare service-specific policy enforcement and charging reporting are not covered by the MSRP and by the 3GPP IMS standards.

Summary of the Invention

According to the present invention there is provided a method of transporting information between end user terminals via a packet switched-based IP Multimedia Subsystem network whilst a circuit switched connection is established between the end users, the method comprising:

using the Message Session Relay Protocol, MSRP, to encapsulate information blocks transmitted between users.

Preferably, MSRP related traffic is routed between said end user terminals via one or more MSRP-enabled nodes. The or each MSRP-enabled node is preferably coupled to a SIP Application Server (SIP AS) which controls subscriber access to IP multimedia subsystem based services. The MSRP-enabled node is preferably a Media Resource Function (MRF) element.

At IMS session set-up, the incoming SIP signaling (i.e. SIP INVITE) is first processed by the SIP AS, which executes service logic (e.g. subscription authorization). As part of service logic execution, the SIP AS prepares and stores a vXML (voice over eXtended Markup Language) script to be later retrieved by the MRF. The vXML script contains instruction on the policy to be enforced, such as allowed content type (e.g. image/gif, image/jpeg, video-clip),

content size (kbytes), and send/receive direction.

Once the SIP AS accepts the SIP INVITE (e.g. user is authorized to the invoked weShare service), the SIP AS acts as a proxy server and transmits the SIP INVITE to the MRF. Before proxying the SIP INVITE, the service logic includes into it the HTTP URI to be used to retrieve the vXML script (e.g. the HTTP URI, which embeds the vXML script identity, may be carried in the SIP Request-URI or in a SIP Route header). The MRF receives the SIP INVITE and uses the HTTP protocol to retrieve the vXML script from the SIP AS using the HTTP URI.

In particular, the MRF uses the received policy information to:

- possibly downgrade the request from a user terminal during the SIP session establishment (e.g. a request to send a 50Kbytes jpeg image is downgraded to a maximum allowed size of 40Kbytes); and
- check that the actual content transmitted is in accordance with the specified policy (e.g. a terminal may try sending an image larger than allowed/negotiated and such an action must be rejected).

From an HTTP perspective, the SIP AS acts as a vXML server towards the MRF. NOTE: as a complement to SIP, HTTP is just an example of a protocol which might be used over the interface between SIP AS and MRF for retrieval of instructions.

From a SIP perspective, the MRF acts as a SIP B2BUA (back to back user agent), and creates a new SIP leg/dialog towards the or each invited UE.

From the MSRP perspective, the MRF acts as a "back to back end-point".

Session Initiation Protocol (SIP) [SIP RFC3261] and Session Description Protocol (SDP) Offer/Answer model are used to establish and negotiate the MSRP session. From the SIP perspective, an MSRP-based content session (e.g. an weShare Image/Clip content session) is considered as any other media session, and therefore is described by SDP.

Preferably, for the content transferred via the MRF using MSRP protocol, the MRF reports charging inputs to the charging system.

Other aspects of the invention are defined in the appended claims.

Brief Description of the Drawings

Figure 1 illustrates schematically the services facilitated by the weShare combinational multimedia service;
Figure 2 illustrates schematically the integration of the IP Multimedia Service into a 3GPP network;
Figure 3 illustrates schematically the weShare service architecture; and
Figures 4a to 4c illustrate signaling exchanged between user terminals in connection with a weShare service.

Detailed Description of Certain Embodiments

Figure 3 illustrates the weShare service architecture including a functional split between the Session Initiation Protocol (SIP) Application Server (AS) providing service logic and policy control, and the Media Resource Function (MRF) with Message Session Relay Protocol (MSRP) functionality responsible for user-plane handling, policy enforcement and charging reporting. This architecture is based on the IMS as defined in 3GPP R5/R6, 23.228 and 24.229, with the addition of a WeShare client and WeShare server functional entities. The User Equipment (UE) is the terminal equipment containing the weShare XX client or application software (where "XX" designates the weShare service, e.g. image, clip, etc). Every weShare XX service will use a Type A terminal [3GPP TS 23.060].

The IMS core includes the Proxy-, Interrogating- and Serving-Call Session Control Functions (P-, I-, and S-CSCF respectively) and the Home Subscriber Server (HSS), as defined in 3GPP R5/R6 TS 23.228 and TS 24.229. The IMS Core performs the following functions:

- Routes the SIP signalling between the UE and the WeShare server;
- Terminates the SIP compression from the terminal;
- Performs IMS authentication and authorisation;
- Maintains the registration state and the SIP session state; and
- Reports to the charging system.

The UE shall send all SIP messages to the IP address of the P-CSCF (outbound proxy) after resolving the SIP URI of the P-CSCF to an IP address.

The SIP AS executes service logic. The MRF with MSRP functionality is responsible for user-plane handling, policy enforcement, and charging reporting. The Circuit Switched (CS) Core contains MSC/VLR, GMSC, HLR and possibly other logical elements according to 3GPP R5/R6 TS 23.002.

The transfer of images and video-clips during a CS call can be done as part of a message session. This message session would be set up at the moment in the CS call where one of the users has expressed willingness to transfer an image. The transfer of images during a CS call can be handled by adapting a message session to carry these images.

Figures 4a to 4c illustrates signaling exchanged between two user terminals (UE-A and UE-B) and network nodes, associated with a WeShare Image service. An assumption is that a CS call between the users has already been established. The signaling can be broken down into two main phases, as follows.

Phase 1 – WeShare session set-up phase (signaling steps 1 to 28 in Figure 4a and 4b)

Step 1. User-A takes a picture and pushes the WeShare button to send the

image to User-B. User-A, who has been given an indication of WeShare service availability by the system, shall be able to prepare the image (e.g. by pressing a button to take a photograph with an in-built camera) and transmit it to the other party by pressing a WeShare button. The transmitting party's terminal may generate a query, e.g. confirm image, after presenting the image to its user, requesting that the user presses once again the button to initiate transmission. User-A, who has been given an indication of WeShare service availability, may also be able to select pre-stored content in his/her terminal's memory and transmit this content to the other party in the conversation.

Step 2. A WeShare IMS session set-up request towards the B-party is initiated. A SIP INVITE is sent to the IMS Core A. The "Request-URI" (e.g. PtS@operator.com) of the SIP INVITE contains the weShare service identity, while the identity of the invited user B shall be included in a body of the message. The SIP INVITE contains an SDP Offer which includes the supported/preferred media content-type (e.g. image/jpeg) and an MSRP URL (msrp-url-A) indicating where the UE-A is willing to receive MSRP requests.

Step 3. The IMS Core A detects an originating trigger and forwards the request to the weShare SIP, AS A.

Steps 4. & 5. SIP AS A verifies that user A is authorized to use the weShare service feature (e.g. weShare Image). SIP AS A selects an MRF with MSRP capabilities, generates a vXML script (vXML script A) with instructions for the MRF, and sends the SIP INVITE to MRF A. The SIP INVITE includes:

- the invited user B in the Request-URI
- HTTP URI including the vXML scrip-id-A
- SDP Offer (message msrp-url-A)

Steps 6. & 7. The MRF A requests the vXML script from SIP AS A, using the script-id-A received in the SIP INVITE. The SIP AS A returns a vXML document including the policy to be enforced. Such policy may include allowed content type (e.g. image, clip, etc.), allowed content size, allowed direction (e.g.

send/receive). A protocol such as HTTP may be used for getting such policy information.

Step 8. MRF A reserves MSRP resources and allocates an MSRP-URL (msrp-url-SA).

Step 9. The MRF A behaves as a SIP B2BUA, creates a new SIP dialog, and sends a SIP INVITE to IMS Core B. The SIP INVITE includes:

- the invited user B in the Request-URI
- SDP Offer (message msrp-url-SA)

Step 10. The IMS Core B detects a terminating trigger and forwards the request to the weShare SIP AS B.

- Steps 11. & 12. The SIP AS B verifies user B is authorized to the weShare service feature (e.g. weShare Image). SIP AS B selects an MRF with MSRP capabilities, generates a vXML script (vXML script B) with instructions for the MRF, and sends the SIP INVITE to MRF B. The SIP INVITE includes:
- the invited user B in the Request-URI
- HTTP URI including the vXML scrip-id-B
- SDP Offer (message msrp-url-SA)

Steps 13. & 14. The MRF B requests the vXML script from SIP AS B, using the script-id-B received in the SIP INVITE. The SIP AS B returns a vXML document including the policy to be enforced. Such policy may include, allowed content type (e.g. image, clip, etc.), allowed content size, allowed direction (e.g. send/receive). A protocol such as HTTP may be used for getting such policy information.

Step 15. MRF B reserve MSRP resources and allocates an MSRP-URL (msrp-url-SB).

- Step 16. The MRF B behaves as SIP B2BUA, creates a new SIP dialog, and

sends a SIP INVITE to IMS Core B. The SIP INVITE includes:

- the invited user B in the Request-URI
- SDP Offer (message msrp-url-SB)

Step 17. IMS Core B forwards the SIP INVITE to UE-B.

Step 18. Upon receiving a WeShare IMS session set-up request, the receiving UE will prompt the receiving user to accept or reject the enrichment of the CS call to a WeShare multimedia session (i.e. whether he/she would like to accept the content/image).

Steps 19. & 20. The receiving user B accepts the request. UE-B sends a SIP 200 OK response to IMS Core B. The response includes an SDP Answer to the SDP Offer received in the INVITE request containing the supported/preferred media content-type (e.g. image/jpeg) and an MSRP URL (msrp-url-B) indicating where the UE-B is willing to receive MSRP requests.

Steps 21. & 22. The SIP 200 OK is forwarded to MRF B, via SIP AS B.

Step 23. The MRF B sends to IMS Core A an SIP 200 OK including the "msrp-url-SB"

Step 24. & 25. The SIP 200 OK is forwarded to MRF A, via SIP AS A.

Step 26. The MRF A sends to IMS Core A an SIP 200 OK including the "msrp-url-SA"

Step 27. IMS Core A forwards the SIP 200 OK to UE A.

Step 18. A SIP ACK is sent for each SIP dialog.

Phase 2 – Image transfer phase (signaling steps 29 to 41 in Figure 4c)

Step 29. TCP connections are established between UE-A and MRF-A, MRF-A and MRF-B, MRF-B and UE-B.

Step 30. UE-A sends to MRF A an MSRP SEND, over the established TCP connection, including the image.

Steps 31. & 32. The MRF A, upon receiving the MSRP SEND, enforces the policy. MRF A behaves as an MSRP "back-to-back end point" and sends the MSRP SEND to MRF B.

Steps 33. & 34. The MRF B, upon receiving MSRP SEND, enforces the policy. MRF B behaves as an MSRP "back-to-back end point" and sends the MSRP SEND to UE B

Step 35. UE-B displays the image to User-B.

Step 36. UE B sends to MRF B an MSRP 200 OK response for the MSRP SEND request.

Step 37. MRF B sends to MRF A an MSRP 200 OK response for the MSRP SEND request.

Step 38. MRF A sends to UE A an MSRP 200 OK response for the MSRP SEND request.

Step 39. User A is notified of successful image transfer to User B.

Step 40. & 41. Upon receipt of the MSRP 200 OK, each MRF produces charging input towards the charging system, for billing of the users. NOTE: in case the content (e.g. image) is segmented in multiple chunks, the MRF generates charging input only when receiving the MSRP 200 OK for the last chunk.

The present invention is applicable to applications other than combinational multimedia services such as weShare. Example of other IMS service features to which the invention may be applied are:

1) Session Based Messaging Group Call. This is an instant messaging conference between more than two users (Session-based Messaging One to Many). A user calls a shared group stored in the network (i.e. a user group that can be used by several users who are typically part of the group, and that is likely to be owned by a single user). This service feature uses MSRP as the user-plane protocol.

2) Push-to-Talk over Cellular (PoC) Instant Group Call. This is a "walky-talky" style 1-to-N call to a shared group. This service feature uses RTCP and RTP as the user plane protocols.

For these alternative service features, the SIP INVITE request carrying the IP multimedia service request is forwarded from the IMS Core serving the inviting user A to the SIP AS A hosting the service logic for the requested service and for the inviting user A. Upon receiving the SIP INVITE request, the SIP AS processes it by executing the relevant service logic. When the service request is refused (e.g. due to a screening feature), the SIP AS acts as SIP UA and reject the session attempts, without involving an MRF. When the SIP INVITE request is accepted, the service logic builds a vXML script or an XML document containing the group members that should be invited to the call. The SIP AS acts as a proxy server and transmits the SIP INVITE, including the HTTP URI to be used to retrieve the script/document, to the MRF. The MRF retrieves the script or document, process it, and initiates invitation of the group members to the instant messaging (1) or PoC session (2). The MRF generates N SIP INVITE related to N SIP dialogs, one for each of the invited users.

This logic/mechanism may be applied to both originating and terminating features.

It will be appreciated by the person of skill in the art that various modifications may be made to the above described embodiment without departing from the scope of the present invention. In one application, the MSRP protocol may be used to transfer weShare data between users without the need for intermediate MSRP enabled nodes.

CLAIMS:

1. A method of transporting information between end user terminals via a packet switched network whilst a circuit switched connection is established between the end users, the method comprising:

using the Message Session Relay Protocol, MSRP, to encapsulate information transmitted between users.

2. A method according to claim 1, wherein MSRP related traffic is routed between said end user terminals via one or more MSRP enabled nodes.

3. A method according to claim 2, wherein the or each said MSRP enabled node is a Media Resource Function, MRF, node.

4. A method according to claim or 2 or 3, wherein the or each MSRP enabled node is coupled to an element in the control-plane of the IMS network controlling user terminal access to certain packet based services.

5. A method according to claim 4, wherein said element is a SIP AS.

6. A method according to claim 5, wherein the SIP AS installs service policies into the MSRP enabled node, multimedia service requests by an end user being checked against said policies upon receipt by the MSRP enabled node.

7. A method according to claim 6 and comprising installing service policies into the MSRP enabled node by generating a script or document at the SIP AS, in response to receipt of a SIP request to initiate a multimedia service from an end user, forwarding the SIP request from the SIP AS to the MSRP enabled node, sending a script identifier in the SIP request from the SIP AS to the MSRP enabled node, and at the MSRP enabled node retrieving the script from the SIP AS.

8. A method according to claim 7, wherein said script is a voice over eXtended Markup Language, vXML, script.

9. A method according to claim 7, wherein said document is an eXtended Markup Language, XML, document.

10. A method according to claim7, wherein at the MSRP enabled node said script or document is retrieved from the SIP AS over an HTTP protocol-based interface.

11. A method according to claim 10, wherein said script or document identifier is a Universal Resource Identifier, URI.

12. A method according to any one of claims 7 to 11, wherein said SIP request is a SIP INVITE message.

13. A method of operating a SIP Application Server, the method comprising:

receiving a multimedia setup request from an end user, the request relating to an Message Session Relay Protocol related session;

determining a service policy for the end user; and

notifying a selected MSRP enabled node of the determined policy.

14. A method according to claim 13 and comprising defining the determined service policy as a vXML script or XML document and at least temporarily storing the script or document at the SIP AS, and enabling the MSRP enabled node to subsequently retrieve the script or document.

15. A method according to claim 14 and comprising providing the MSRP enabled node with a script or document identifier, and subsequently retrieving from the SIP AS the script or document using said script or document identifier, and processing said script or document.

16. A method according to claim 15, wherein said script or document

identifier is a URI, and the SIP AS has an HTTP-based interface with the MSRP enabled node over which said script or document is transferred.

17. A method according to claim 14 or 15, wherein said script or document identifier is sent from the SIP AS to the MSRP enabled node in a forwarded SIP INVITE message.

18. A method of operating an MSRP enabled node interposed between end user terminals, the method comprising receiving service policies from a SIP Application Server, and implementing the received policies in respect of a multimedia session between the user terminals.

19. A method according to claim 18, wherein said MSRP enabled node is an MRF node.

20. A method according to claim 18 or 19, and comprising receiving from the SIP AS a script or document identifier identifying a policy script or document stored at the SIP AS, and subsequently retrieving the script or document from the SIP AS.

21. A method according to claim 20, wherein said script or document identifier is received in a SIP INVITE message.

22. A method according to claim 20 or 21, wherein the retrieval occurs over an HTTP-based interface with the SIP AS.

23. A method of transferring information between a SIP Application Server (SIP AS) and a Media Resource Function (MRF), the method comprising receiving a SIP request at a SIP AS, the request being related to an IP multimedia service request from an end user terminal, executing service logic at the SIP AS and determining that an MRF needs to be involved for providing the requested service, generating and storing a script or document at the SIP AS, forwarding the SIP request to the MRF, the forwarded request including an

identifier for the script or document, and at the MRF retrieving the script or document from the SIP AS and processing said script or document.

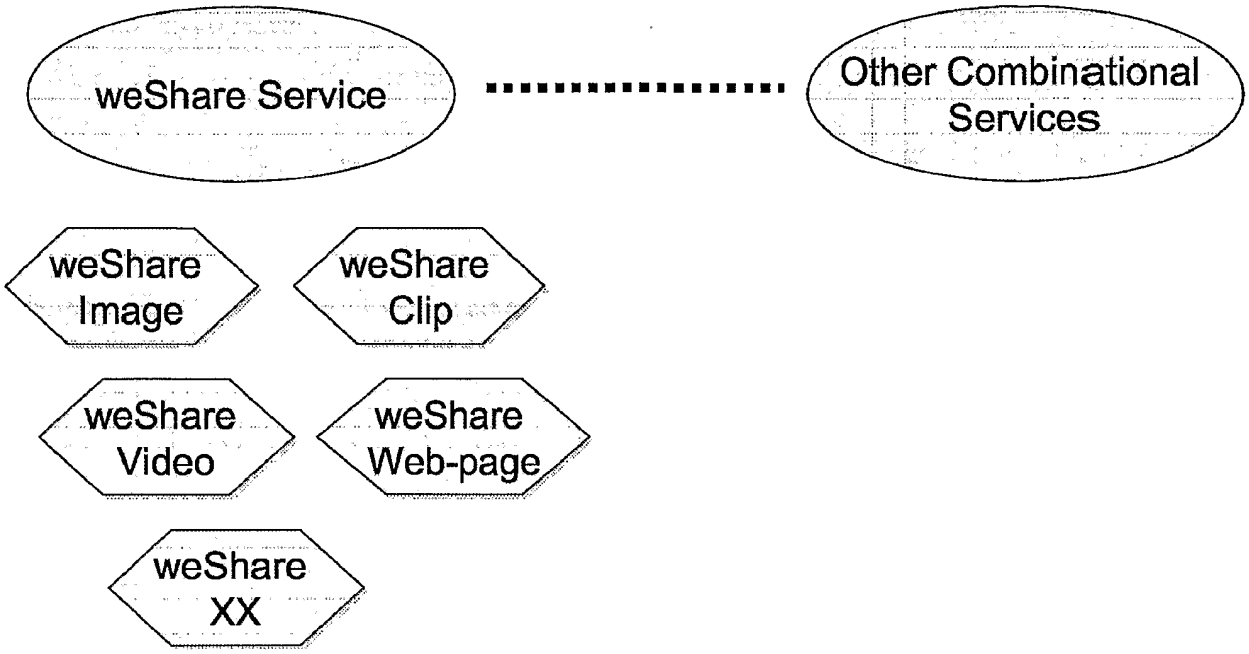
weShare Service
Other Combinational Services
weShare Image
weShare Clip
weShare Video
weShare Web-page
weShare XX

Figure 1

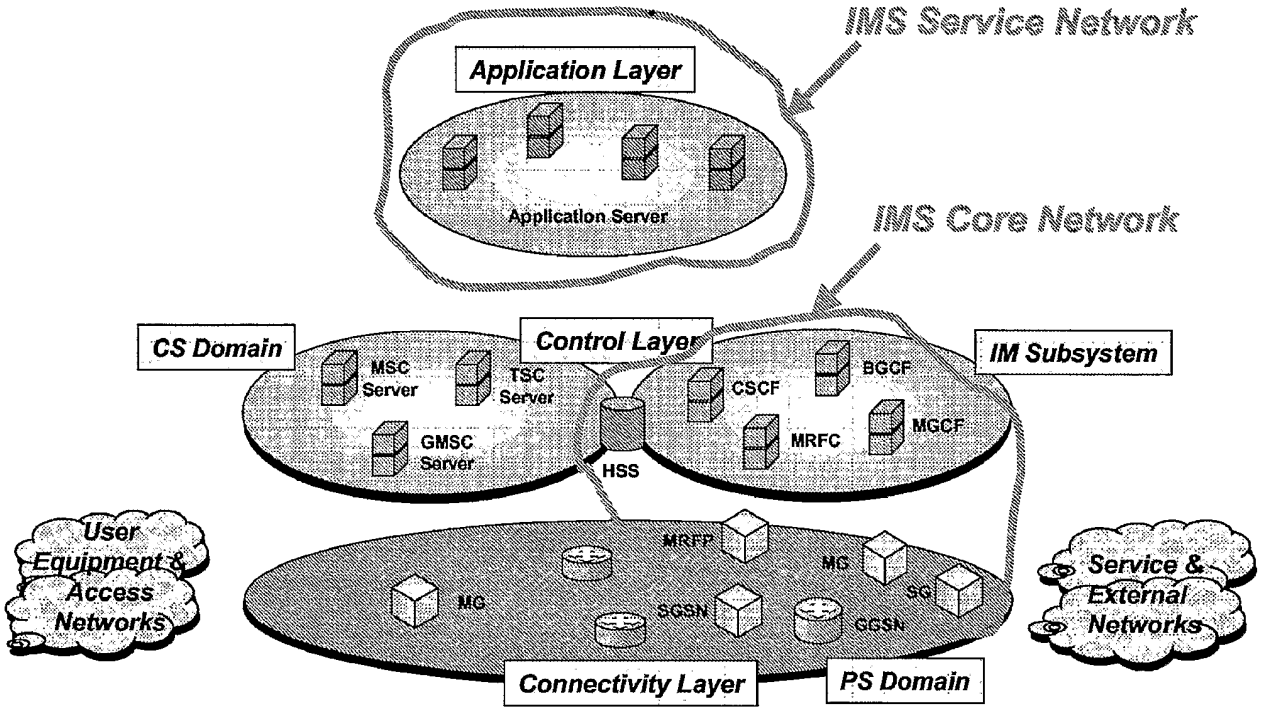
IMS Service Network
Application Layer
Application Server
IMS Core Network
CS Domain
Control Layer
IM Subsystem
MSC Server
TSC Server
GMSC Server
HSS
CSCF
BGCF
MRFC
MGCF
User Equipment & Access Networks
MRFP
MG
SG
SGSN
GGSN
Service & External Networks
Connectivity Layer
PS Domain

Figure 2

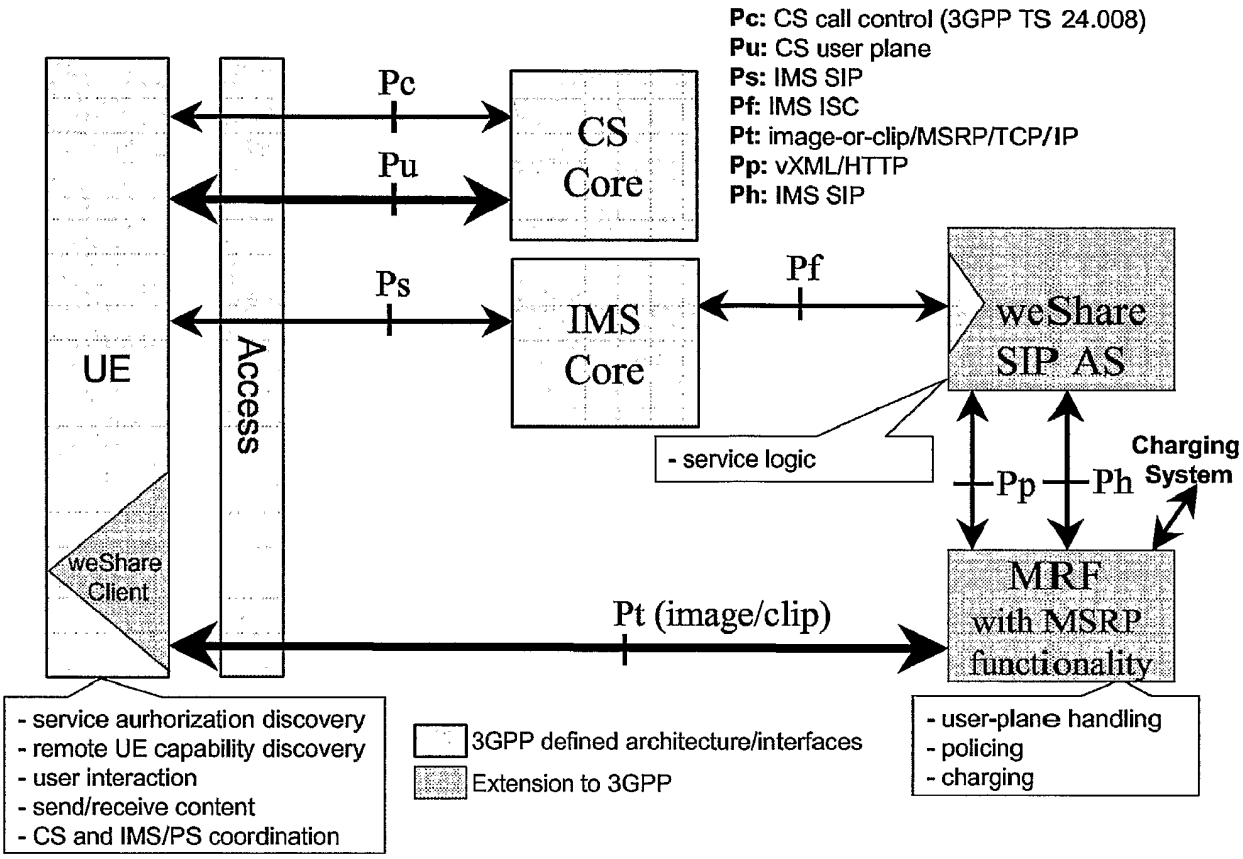
Pc: CS call control (3GPP TS 24.008)
Pu: CS user plane
Ps: IMS SIP
Pf: IMS ISC
Pt: image-or-clip/MSRP/TCP/IP
Pp: vXML/HTTP
Ph: IMS SIP
UE
Access
Pc
Pu
Ps
CS Core
IMS Core
Pf
weShare SIP AS
- service logic
Pp
Ph
Charging System
weShare Client
Pt (image/clip)
MRF with MSRP functionality
- service aurhorization discovery
- remote UE capability discovery
- user interaction
- send/receive content
- CS and IMS/PS coordination
3GPP defined architecture/interfaces
Extension to 3GPP
- user-plane handling
- policing
- charging

Figure 3

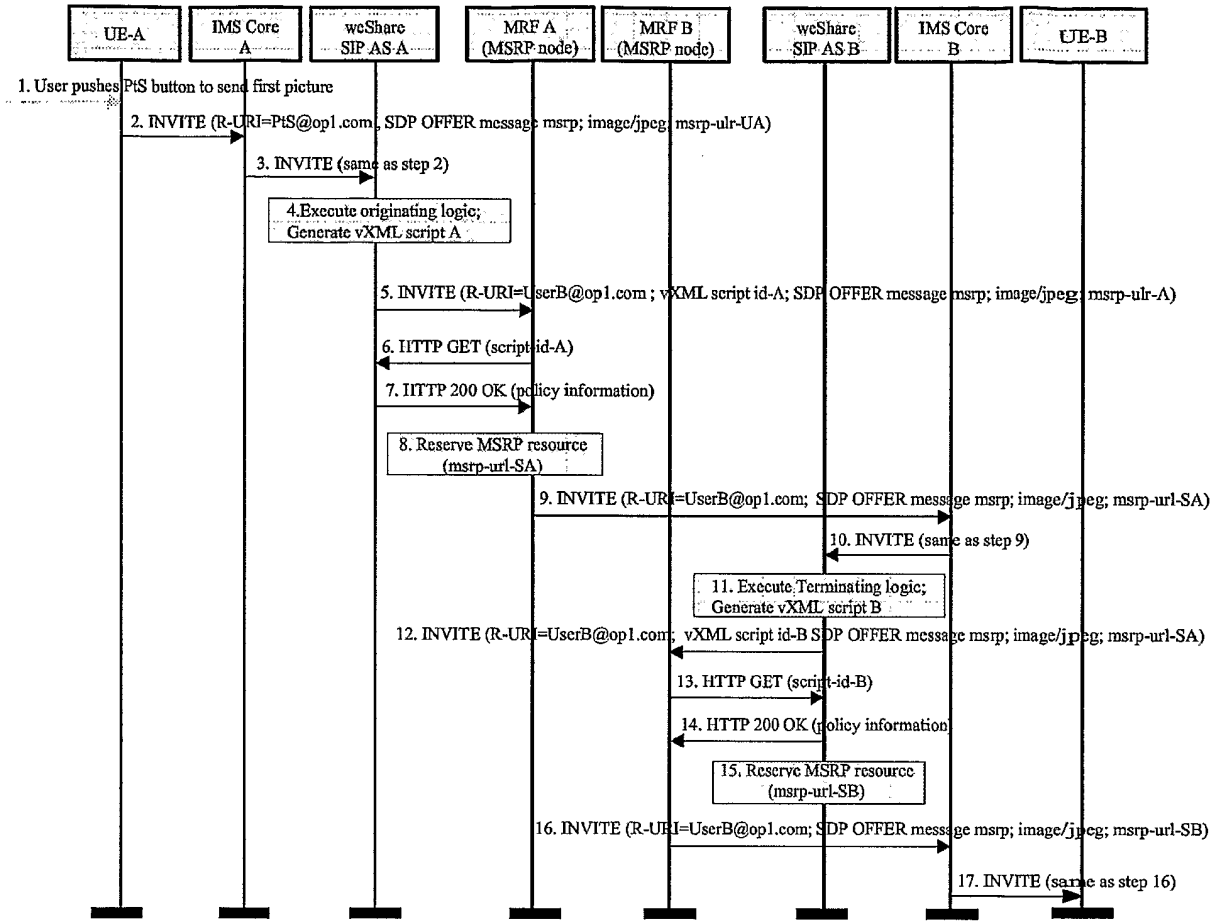
UE-A
IMS Core A
weShare SIP AS A
MRF A (MSRP node)
MRF B (MSRP node)
weShare SIP AS B
IMS Core B
UE-B
1. User pushes PtS button to send first picture
2. INVITE (R-URI=PtS@op1.com, SDP OFFER message msrp; image/jpeg; msrp-ulr-UA)
3. INVITE (same as step 2)
4.Execute originating logic; Generate vXML script A
5. INVITE (R-URI=UserB@op1.com ; vXML script id-A; SDP OFFER message msrp; image/jpeg; msrp-ulr-A)
6. HTTP GET (script-id-A)
7. HTTP 200 OK (policy information)
8. Reserve MSRP resource (msrp-url-SA)
9. INVITE (R-URI=UserB@op1.com; SDP OFFER message msrp; image/jpeg; msrp-url-SA)
10. INVITE (same as step 9)
11. Execute Terminating logic; Generate vXML script B
12. INVITE (R-URI=UserB@op1.com; vXML script id-B SDP OFFER message msrp; image/jpeg; msrp-url-SA)
13. HTTP GET (script-id-B)
14. HTTP 200 OK (policy information)
15. Reserve MSRP resource (msrp-url-SB)
16. INVITE (R-URI=UserB@op1.com; SDP OFFER message msrp; image/jpeg; msrp-url-SB)
17. INVITE (same as step 16)

Figure 4a

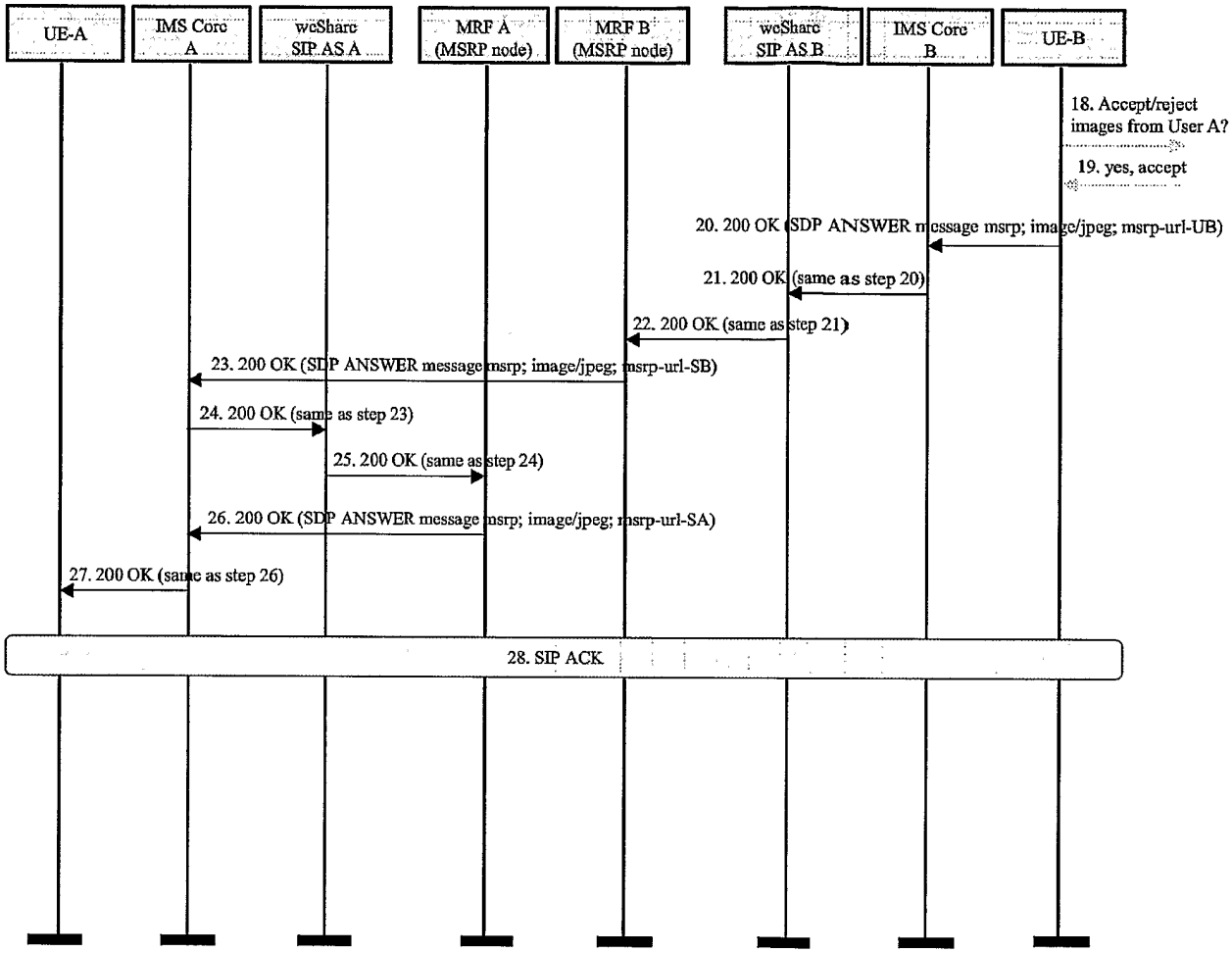
UE-A
IMS Core A
weShare SIP AS A
MRF A (MSRP node)
MRF B (MSRP node)
weShare SIP AS B
IMS Core B
UE-B
18. Accept/reject images from User A?
19. yes, accept
20. 200 OK (SDP ANSWER message msrp; image/jpeg; msrp-url-UB)
21. 200 OK (same as step 20)
22. 200 OK (same as step 21)
23. 200 OK (SDP ANSWER message msrp; image/jpeg; msrp-url-SB)
24. 200 OK (same as step 23)
25. 200 OK (same as step 24)
26. 200 OK (SDP ANSWER message msrp; image/jpeg; msrp-url-SA)
27. 200 OK (same as step 26)
28. SIP ACK

Figure 4b

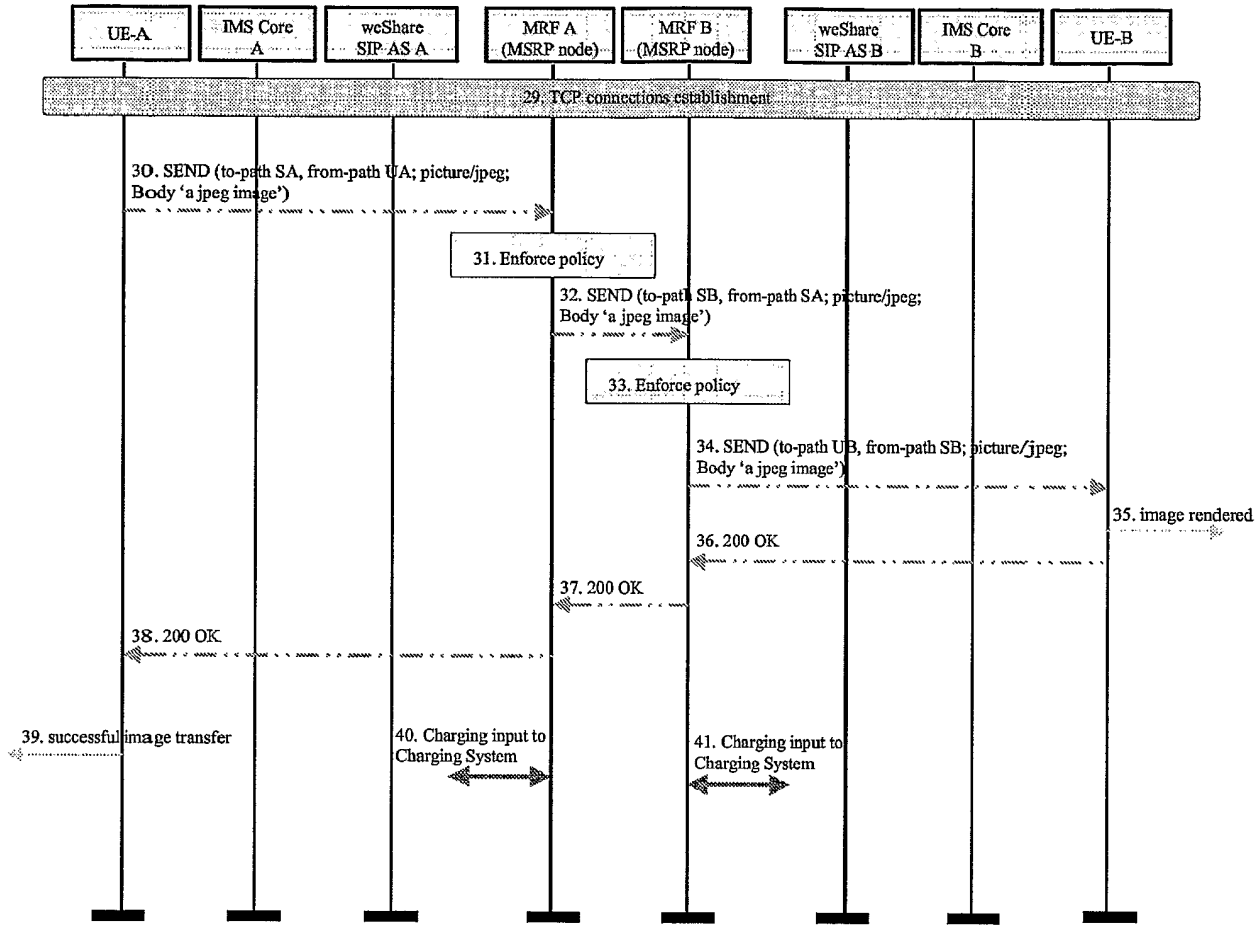
UE-A
IMS Core A
weShare SIP AS A
MRF A (MSRP node)
MRF B (MSRP node)
weShare SIP AS B
IMS Core B
UE-B
29. TCP connections establishment
30. SEND (to-path SA, from-path UA; picture/jpeg; Body 'a jpeg image')
31. Enforce policy
32. SEND (to-path SB, from-path SA; picture/jpeg; Body 'a jpeg image')
33. Enforce policy
34. SEND (to-path UB, from-path SB; picture/jpeg; Body 'a jpeg image')
35. image rendered
36. 200 OK
37. 200 OK
38. 200 OK
39. successful image transfer
40. Charging input to Charging System
41. Charging input to Charging System

Figure 4c

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/052236

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	B. CAMPBELL ET AL.: "Instant Messages in SIMPLE" SIMPLE WORKING GROUP, 30 June 2003 (2003-06-30), pages 1-57, XP015003375 abstract pages 4-15 pages 19,23,28 ----- -/--	1-5

[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 November 2004	25. 01. 05

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Jurca, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228 version 5.6.0 Release 5); ETSI TS 123 228" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, SOPHIA-ANTIPO, FR, vol. 3-SA2, no. V560, September 2002 (2002-09), XP014007876 ISSN: 0000-0001 pages 8-12 -----	1-5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/052236

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5

Claims 1-5 are directed to the transport of information between end user terminals via a packet switched network whilst a circuit switched connection is established between the users. This is done by encapsulating the information within MSRP protocol.

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2. claims: 6-23

Claims 6-23 are directed to the processing, in a SIP AS, of a multimedia service request from an end user terminal. This is done by executing service logic and sending service processing information to a selected node.
