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Report of the 3GPP MBMS Workshop

DRAFT 01

6-7 May 2002

London, United Kingdom

Chairman: Niels Peter Skov Andersen, Motorola

MCC Support: Paolo Usai, ETSI

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Multimedia Broadcast/Multicast Service Workshop

London, 6-7 May 2002

DRAFT 01

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1 Opening of meeting

The Multimedia Broadcast/Multicast Service Workshop took place on 6th and 7th May 2002. It was hosted by Lucent Technologies, in London, U.K.

The meeting was chaired by Mr. Niels Andersen from Motorola and supported by Mr Paolo Usai, MCC, author of these minutes.

After a brief introduction, Mr. Niels Peter Skov Andersen, MBMS WS Chairman, opened the meeting and welcomed delegates. An opening address was provided by Mr. Indaka Weerasekera, speaking on behalf of the host Lucent Technologies, who welcomed the participants and gave some practical information.

The workshop continued with the presentations from individual companies.

2 Approval of Agenda

MBMS-000001 **Proposed Draft Agenda for MBMS workshop**, Chairman. The Agenda was approved.

Mr. Indaka Weerasekera presented MBMS-000022 **Scope of MBMS Workshop**, Lucent Technologies.

This document represents Lucent Technologies' expectations of the MBMS Workshop. It is presented here for information and its aim is to agree a set of workshop goals and deliverables to assist 3GPP in progressing MBMS in Rel-6

The following output was requested at least to be provided from the MBMS workshop:

1. Agreement on the scope of MBMS: "what it will provide in R6 and what may be included in later releases"

2. Provide answers to specific questions raised against service requirements

3. Understanding of the responsibilities of TSGs to complete the work in R6

4. Provide liaisons to TSGs to expedite certain work areas, e.g. security

The MBMS workshop was asked to agree a minimum set of goals.

The MBMS WS Chairman commented that items 1 and 4 are not in line with the usual mandate of workshops (not entitled to take decisions/agreements binding TSGs, and/or send LSs); hence the main output from the workshop would be this report, which could contain the agreed recommendations from the workshop to TSGs to expedite work. It was also commented that the purpose of the workshop is mainly to get a "common understanding" of MBMS and clarify status/requirements/objectives/etc.

Of course, it is taken for granted that the readers of this report have carefully reviewed all the documents presented to the MBMS WS.

3 MBMS Requirements, Architecture and Status

MBMS-000006 **MBMS History & Status (slides)**, Huthchison 3G.

Mr. A. Jarvis, Chairman of MBMS SWGs in SA1 and SA2 illustrated the status of the Stage 1 (TS 22.146 was formally approved at SA #13, and current version is at V. 5.2.0) and of the Stage 2 (SA2 is producing a technical report on the architecture for MBMS, with the purpose to identify the architecture and either apply change request to existing specifications or create a MBMS TS if required). The TR (V.0.5.0) will be presented to SA plenary for information in June 2002 and is targeted for approval in Sept 2002. At present up to five different architectures are being developed within the TR. SA2 will need to analyse these architectures and determine the best way forward. MBMS is defined as a bearer service, i.e. it is a mechanism to efficiently transmit data to a number of users, and a list of requirements for a radio channel was given.
Comments.
The MBMS WS Chairman asked to clarify the concept of "point-to-point" and "point-to-multipoint" multicast from the operator/service provider (to design the system) and from the customer point of view, and where is the transition between "ptp" and "ptm" multicast described in Stage 1 and Stage 2 (felt in contradiction); in terms of bearer service, the network operator will decide whether the requested info will be multicast "ptp" or "ptm" (depending on his convenience to save resources). Roaming for multicast services was felt feasible. Service information and mechanisms for subscription, transport and distribution were discussed. Service, transport and application concepts were asked to be kept separated. Feedback was requested to be provided to SA1 and SA2.

MBMS-000007 **TS 22.146 V 5.2.0 Stage 1 on MBMS**, 3GPP TSG SA WG1.

This document was provided for information. Clause 4.3 MBMS Service discovery was commented that could be integrated with other services (push, presence, streaming) to improve efficient use of resources. Clause 5.1 "User requirements" and 5.3 "Availability" were commented that could cause problems in case of multiple tasks to be managed in parallel (i.e. broadcast and paging); network knowledge (being aware) of UEs being in MBMS mode, or busy for other application running (e.g. paging), was requested to be clarified from the "signalling" point of view. Number of parallel/simultaneous sessions open and/or number of served areas were requested to be clarified in Stage 1, limitations being possible due to equipment capabilities and/or allocation of channel for MBMS purposes. Scheduling, access technologies, network capabilities were felt all impacting on the design/planning of radio networks and terminals.

Conclusion: "Service" and "Transport" levels were felt of primary importance to understand the Stage 1; the stage 1 needs to clarify that it refers to the service level, and not to the transport level, when mentioning point to multipoint.

Mr. Alexander Vesely presented MBMS-000010 **On QoS requirements for MBMS**, Siemens.

This contribution summarises some QoS related issues for MBMS from the UTRAN perspective. Siemens propose to settle a set of QoS working assumptions, beyond those already identified in TS 22.146 and TR 23.846, in order to allow (GE)RAN groups to start with MBMS related work. Further Siemens propose to discuss the attached CR, or at least to forward this work (as official as possible from this WS) to SA1.

Discussion: the last item was commented as being outside the mandate of this workshop, and the discussion was requested to be conducted taking into account the multiple WG attendance and interests represented at the WS, rather than focusing on SA1 aspects only.

The stage 1 specification in section 5.1.1 and 5.2.1 states that "The PLMN operator shall be able to configure the quality of service for individual broadcast (multicast) services. If

transmitted to multiple broadcast (multicast) areas, a broadcast (multicast) service may be provided with different QoS parameters for each broadcast (multicast) area associated with the service".

This paragraph can be interpreted that the UTRAN shall provide the service within one broadcast (multicast) area with the same QoS. Can this be confirmed ?

This aspect was discussed, and felt linked more to traffic conditions (e.g. cell congestion) than to the "geographical scope"; for different services, the MBMS area could differ, i.e. it makes sense to consider a specific MBMS area / specific service (this point being unclear in the TS 22.146). There was convergence towards the concept of a specific MBMS area / specific service. The case of multiple kinds of service (e.g. traffic info and sport info) seen by multiple users in different areas (and with different content) was raised; this was seen as a case of multi-point to multi-point service.

Conclusion: this requirements in Stage 1 should be revised taking into account the MBMS from the service provider (network operator) as well as from the user points of view, main point being the need for a separation of “distribution areas” and “user service areas” which would allow to the user to have different content for the same service depending on the geographical area.

Also, on user request, a ptp info may be transferred with different QoS parameters... also depending on the content distributed on a certain area, the radio access technology (FDD, TDD, GERAN, etc.) and the negotiated QoS. The Stage 2 definitions should be aligned accordingly, and the needed functionalities be provided.

The discussion continued on item 2.7 Individual Service Reception of the document, i.e. the initial DL power setting for an MBMS radio bearer will most likely influence the number of subscribers that are able to receive the service within a cell. UEs close to the cell border might have difficulties to receive the service at an acceptable quality level. Where should the initial RB settings be based on ? On cell-statistical data, or individual measurements, ... ?

Is there any requirement that a certain percentage of (or even all) UEs have to have the possibility to receive the service with a certain QoS (which was possibly guaranteed to each subscriber during serving activation) ?

Comments: Stage 1 does not require a "guaranteed QoS" linked to any initial DL power setting, anyway some reporting mechanism could be identified to measure the delivered QoS.

Conclusion: the requirements in Stage 1 could be revised taking into account the MBMS requirements from both the network, the geographical area (also extended for less than a cell), the radio technology, as well as from the user points of view.

Mr. Dimitris Koulakiotis presented MBMS-000016 **MBMS Service Models**, Nokia.

The aim of this contribution is to discuss a number of service models, which reflect at different network functionalities and resource reservation requirements.

The features presented do not go into details discussing e.g. required data rates, delay requirements, throughputs etc, but rather look at the concept, which needs to be build up in order to support the broadcast / multicast services through CN and UTRAN.

Nokia propose that the output of the discussion should be documented and forwarded to the appropriate WGs as "guidance" for stage-2 and stage-3.

Discussion: the last item is covered by this report.

Encryption solution was felt outside Stage 1. The concept of active cells within a certain multicast area was raised to define the number of users in a certain multicast area.

Conclusion: this document was noted.

Mr. Indaka Weerasekera presented MBMS-000023 **MBMS Applications & Bit rates**, Lucent Technologies.

The current stage 1 requirements for MBMS mentions little about the types of applications and supported data rates expected of MBMS applications. This contribution aims to help progress this open issue and proposes that the stage 1 requirements be updated with information agreed at this workshop.

Questions on justification for the highest bit rates proposed in the document were raised. It was suggested to produce the contribution to the attention of SA1. Targets for the radio requirements should be set by SA1 in co-operation with SA4; also the need of headers was felt needed to be clarified, to build up the payload (content, signalling, extra info).

Conclusion: the work should be continued in TSG WGs of competence (mainly GERAN, RAN, SA1 and SA4). Indication of required payload (Data, signalling + radio overhead) is needed. SA4 needs to be consulted on the suitability of the different codec types. Further it was noted that it would be necessary to limit the options for the UEs to ensure the feasibility of grouping into point to multi-point service.

Mr. Chris Pudney presented MBMS-000038 **MBMS Service Requirements**, Vodafone Ltd.

This contribution claims that the MBMS stage 1 specification 22.146 V5.2.0 is a collection of vendor requirements, special interest group requirements and some operator requirements; as a consequence, it is difficult to use the stage 1 to determine some of the key commercial issues surrounding MBMS.

One of the key conclusions of the 3GPP Future Evolution Workshop in Helsinki in October 2001 was that our future work should be commercially driven. This document attempts to discuss some of the commercial requirements that will be important in determining the commercial success of MBMS.

The main commercial driver for MBMS appears to be for the relief of congestion caused by popular point to point streaming services. This leads to the need to have (application level) acknowledgements. It is necessary to ensure that the standard solves at least this requirement.

Vodafone would also like to ensure that the points in this document are used to guide the MBMS design work. The listed points are: *Congestion relief - requirements, Geographic Service, Codecs Needed for Supporting MBMS (SA 4 Issue), Different Levels of Security Mechanisms Required*, *Simultaneous Services.*

Questions & comments.

To provide support for charging, techniques for application level acknowledgement were requested to be provided (mandatory); it was questioned whether such approach would be the unique possible solution, and questions for clarifications of what "application level acknowledgement" does mean in practice were raised (depending on the scenario, how many times this would occur, when, how IETF mechanisms would fit, how real time mechanisms would work, how synch and repetition issues would be solved for radio efficient and optimised use, etc.).

Data transfer (when to start, how to notify the transfer is ready, interaction with other simultaneous services, seen also from the user perspective) were requested to be investigated, and desirable requirements and priorities then set.

Charging model need was questioned.

Conclusion: proposed relevant requirements will be brought to the attention of the relevant WGs (SA1, GERAN, RAN) for consideration.

Ms. Elena Voltolina presented MBMS-000043 **Clarifications on MBMS terminology**, Ericsson.

TS 22.146 defines the basic concepts on which MBMS is going to be built. However, there is a need to further clarify the terminology in order to achieve a common understanding, especially as these definitions are the core requirements for the MBMS standardisation effort. It is believed extremely important that all technical specification groups share the same view before the actual standardisation process is continued; therefore, Ericsson propose clarifications to some of the concepts related to MBMS that are presently not considered specified/clear enough. Moreover, some missing definitions are also introduced in the contribution.

Ericsson propose to discuss the concepts and agree on the clarifications presented in this paper, and reflect the agreements in new/updated definitions in the relevant technical specifications / technical reports.

Discussion: architectural working assumptions were already made in SA2 and should be confirmed; bi-directional flow bearer service requirements (for transport reasons, and/or seen from the user point of view, implying signalling, etc.) should be fully clarified in Stage 1 from the service requirements point of view, and forwarded to the other relevant WGs for the other aspects (e.g. signalling, technical solutions, etc.).

Mapping of MBMS onto channels on the radio interface was felt pertinent to RAN/GERAN.

Conclusion: It was noted that stage 1 and 2 tend to use to specific stage 3 terms and descriptions which could be misunderstood; appropriate contributions are expected be produced to SA1 and SA2 meetings.

Mr. Peter Edlund presented MBMS-000044 **High Level MBMS Requirements**, Ericsson.

Issues for settling high level requirements are under discussions in this paper.

Assumptions

- Unconfirmed service, i.e. neither RAN nor SGSN has any knowledge about the offered QOS per user
- In case a return channel is introduced, then the uplink transmission is only required on slow repetition basis
- The applied QOS is independent of mode of MBMS, i.e. Multi-cast or Broadcast mode
- MBMS channel in GERAN case is likely to be PDCH in shared mode
- The Notification message is sent on FACCH/FACH.
- For charging purpose a return channel is used, e.g. PACH,FACH/dedicated
- After the MBMS service area is set up the service area is assumed to be static and independent of users relocations.

Summary of requirements

- The impact on Mobility Management shall be minimised. The mobile shall be able to perform normal Cell re-selection during a MBMS session.
- MBMS procedures over the RAN are independent of radio access technology
- Handover and SGSN relocation shall not be affected by an active MBMS session
- The impact on RR shall be minimized.
- The Ue is only required to handle one MBMS session at a time.
- The network shall be responsible for setting up the required QOS for the MBMS session. Users are offered available MBMS sessions with a

certain QOS without possibility of negotiation with the network.

- It shall be possible to exchange the ciphering key outside the RAN on the application layer. The ciphering key is a common decryption key which is common for all users in the same session.
- It shall be possible to support charging without including the RAN. The decryption key, which is only valid for a specific session, is an entry for charging at application layer.
- Security is not regarded as an issue for the RAN.
- Multi cast session awareness of receiving clients may be accomplished in different ways
  - Shared resource with many users and a return channel (multicast concept). Confirmed Service
  - Dedicated MBMS channel Shared resource with only MBMS clients assigned (Restricted Cell Broadcast Channel).Unconfirmed service.
- Broadcast session channel is unaware of any clients and received quality. Charging may be accomplished on application level.
- The MBMS application knowledge of the received quality on individual user basis is not required.
- ARQ on link layer is not required
- ARQ on end-to-end transport level is not required.
- Service area management is operator specific
  - MBMS Multicast area may be relevant to be defined in case an operator for one or the other reason to restrict the area where the service is available (e.g. due to offered QOS capabilities)
  - MBMS Broadcast area is per definition defined as the area where all cells are assigned MBMS channels
  - Service area; one or more cells where the MBMS service is available. PLMN/RA/LA specific such it is unique within a PLMN/RA/LA
- Notification aspects, When to start to decode MBMS broadcast channel and the availability of MBMS in a cell. It is required that the mobile shall have information when the MBMS is available and when the session starts.
- The application shall be able to ‘page’ the mobile on a broadcast channel when MBMS is activated.
- Service outage time of less than 2s shall not be required.
- It is required to be able to page the mobile during MBMS
- It is not required to have speech/data connection in parallel with active MBMS
- Max one MBMS session active in the cell at a time

Questions & Comments: chargeable service on a demand basis was asked to be clarified, one MBMS session at a time on the MS was felt valuable, in order to keep the mechanism simple. "Max one MBMS session active in the cell at a time" was interpreted as a request, and not to impose (mandatory) multiple sessions. Cell re-selection and outage time seen from the MS should be taken into account (acknowledge mechanism in point-to-multipoint MBMS). The meaning of many "shall not" requirements on MS was asked to be clarified (whether strict limitations should be imposed to the MS implementation to favourite minimum change to the existing infrastructure), as well as the "session concept" (active reception) was requested to be detailed.

Comment was made that some limitation could be imposed to certain technology, by accepting the requests listed in this document.

Handover between GERAN and UTRAN was asked to be investigated (what will happen in case of) and what procedures would take place, looking carefully at the details and

consequences; it was remarked that Stage 1 and Stage 2 were thought to be developed emphasizing the "commonalities" between GERAN and UTRAN.

Impact on Iu interface was asked to be left aside from this discussion.

Conclusion: the document was felt should be interpreted with common sense, i.e. to keep the requirements and the consequent solutions as simple as possible, considering costs and complexity implication of each decision. Comparison of this document and Stage 1 latest version was requested to be carried out, considering what is already in the Stage 1 and what is a new requirement.

Mr. Denis Fauconnier presented MBMS-000047 **Background traffic class for MBMS**, Nortel Networks.

This contribution addresses the notion of background traffic class for MBMS, and raises a number of questions. Clarification on the questions raised in the contribution was requested to be provided.

Comments: at present, SA1 Stage 1 requirements do not include background traffic class for MBMS. In the case of Broadcast services, it was questioned whether this duplicates the already available SMS-CB service. SA1 should consider this aspect.

Other questions raised from the document (not answered at the workshop):

When considering the background class:

- Is duplication of packets allowed? How much?
- What is the size of packets that will be provided to the RAN; it should be noted that if RAN has to segment packets, the error rate will be propagated since one missing segment means that an entire IP packet has to be discarded

Background traffic class has no *guaranteed bit rate.*

- How would MBMS traffic be prioritized on other traffic?

Is it expected that the operator will reserve via O&M a given capacity in a cell for MBMS ?

Conclusion: the document was noted.

MBMS-000008 **TR 23.846 V 0.4.0 on MBMS architecture**, 3GPP TSG SA WG2.

This document was provided for information. Integration of MBMS into WLAN was left for a later phase.

Mr. Michael Eckert presented MBMS-000009 **MBMS state model**, Siemens.

As a starting point it is proposed to first discuss the MBMS state model separately from the RRC state model and to evaluate RRC dependencies later on. In this paper Siemens assume completely separated state machines for RRC and MBMS and present an overall MBMS state model, including the UE and UTRAN attributes and behaviours, irrespective of the different RRC states and modes. The MBMS state model presented in this document should be seen as a basis for discussion on MBMS in RAN; it should clarify UEs and UTRANs behavior in the different MBMS states, independent from the RRC state model. The dependencies between RRC states and the MBMS states are for discussion.

If the presented state model is agreed by the MBMS workshop, Siemens propose to add the model to a future technical report on MBMS in RAN.

Questions & Comments.

Interaction with subscription was felt outside the state model produced by Siemens (subscription has already taken place). Separate message for notification would be needed.

Specification of the protocol was felt a bit premature, considering the work for that has not started yet. Other comments were made on the terminology used in the document, which was felt somewhat not quite adequate.

Conclusion: It was noted that there is a clear benefit in distinguishing the three states/situations MBMS NULL, IDLE and CONNECTED; hence it was recommended that SA2 would include a high level framework in their TR, clarifying the terminology to be used for each state/situation (notification, connected mode, data reception, etc.), but it was also questioned whether a state model would be really needed there.

MBMS-000012 **An integrated MBMS Multicast and Push service architecture**, Sasken Communication Technologies Ltd.

The 3GPP forum has undertaken the development of the MBMS framework [TS 22.146] covering the Broadcast and the Multicast modes and a Push service framework [TS 22.174] separately. The primary difference between unicast (Push), multicast and broadcast arises in the grouping of target UEs and their initiation mechanism at the RAN. Based on the initiation mechanism similarities between the Push service and MBMS Multicast service at the RAN as well as other similarities Sasken propose that the MBMS multicast service be based on the Push architecture, and Sasken propose that this be included in section 5 of TR 23.846.

Conclusion: the document was noted as provided for information, and delegates were invited to study it.

Mr. Indaka Weerasekera presented MBMS-000024 **GERAN/UTRAN: Proposal to progress TR 23.846**, Lucent Technologies.

MBMS is being specified for both UTRAN and GERAN networks. This document proposes how the work should be classified to help the progression of TR 23.846 in SA2.

The GERAN should be able to efficiently transport MBMS services. However, given the fundamental architectural differences between the Gb and Iu-ps interfaces, common solutions for these two interfaces would prove difficult. Should the workshop decide that support of multicast services over Gb is required, it is proposed that the best way to incorporate the Gb interface is to create a separate section in the TR with Gb specific issues. This way, 3GPP would

- Not impede the development of separate requirements for each mode, (UTRAN/GERAN Iu-ps and GERAN Gb)

- Allow future access methods to support and evolve with MBMS

Comments: Gb interface was commented would just introduce a further way to provide MBMS in GERAN (beside Iu inteface), i.e. a duplication used in order to provide in the end the same service, but with much more complication.

Conclusion: TSG GERAN Chairman observed that the split should take place at the moment significant differences are noticed (between Gb and Iu in GERAN), considering that, so far, the architectural document maintain (in principle) both interfaces alive. Market considerations for GERAN were felt crucial to take decision on the issue. Lucent Technologies felt delay possible if split is not decided soon; to the purpose, it was reminded the progress is contribution driven, hence it was suggested to maintain the common solutions until the requirements are met also for GERAN Gb.

Mr. Jagdish Sonti presented MBMS-000028 **An architecture option for MBMS which maximizes the use of IETF Multicast**, Cisco.

Feasibility study for various architectural options is being carried out in SA2. At this time, all alternatives should be considered to find the best possible solution. Cisco Systems is proposing an alternative architecture based on IETF multicast. This contribution provides a very high level discussion on this alternative architecture. The purpose is to request this group to keep all options open while SA2 work is in progress. The details of this architecture option will be submitted to SA2.

Comments: Proprietary techniques were felt not needed by Cisco. It was noted that a similar contribution was received at the last S2 meeting.

Conclusion: there might be a benefit if the originators of the two contributions compare/coordinate their contribution before the next S2 meeting.

Mr. Alexander Vesely presented MBMS-000042 **On Architecture Options**, Siemens.
This paper tries to identify functional blocks essential to support the stage 1 & stage 2 requirements, to elaborate more on UE mobility concepts for one option and tries to find common approaches among the options. Siemens propose to find agreements separately for each function block / procedure and to try to identify which part of discussions could be transferred to other working groups.

Comments: it was proposed to discuss the details in SA2; in the mean time work could start also in the other committees. Noted; delegates were encouraged to study the document.

Mr. Denis Fauconnier presented MBMS-000045 **Broadcast vs Multicast architectures**, Nortel Networks.

This contribution discusses what should be common between Broadcast and Multicast services, and what would be beneficial to be separate.

The main differences in terms of architecture optimisation stem from the fact that Broadcast services are provided in one given area, irrespective of UEs, whereas Multicast services are provided to UEs, potentially belonging to one area (this latter point being addressed in a specific contribution).

Work can proceed separately in the Core Network and SA2, whereas the RAN would ensure that the UE Hw requirements are identical for both services by keeping the work on the radio interface architecture common.

Comments: Siemens commented that MBMS-000041 MBMS UTRAN Functions, from Siemens, does point out that the architecture can be the same for Broadcast and Multicast, i.e. the Broadcast mode and the Multicast mode can be supported by the same UTRAN functionality. Nortel Networks replied that, from the radio point of view, differences do exist and study should be conducted separately, also not to force Broadcast to have the same complexity of Multicast due to the common architecture. Cisco was not opposing flexibility of the solution. H3G pointed out they are looking for a solid solution, not necessarily for a quick or simple solution for the two services, and preferred to maintain a unique WID.

Conclusion: the interest in Broadcast and Multicast is different, and seems to change on a meeting basis; Broadcast is easier to implement than Multicast. It was left to SA1 and SA2 to decide the way forward, as there was a clear concern that vendors would focus on Broadcast instead of Multicast, which several operators seems to consider as the key functionality.

Mr. Norbert Kroth presented MBMS-000011 **UE reception capability for MBMS**, Siemens.

This paper identifies a number of open issues concerning the requirements for MBMS services which are related to the reception capability of the mobile terminal and focus in particular on the question about which mobile terminal capabilities are needed for the

reception of MBMS services in order to indicate which kind of terminals the UTRAN has to support.

Especially, it should be clarified whether it is intended that MBMS services should be able to be received by low-end mobiles as well or only by high-end mobiles which have a dedicated MBMS reception capability.

The identification of UE related issues shall help to clarify the MBMS requirements for the radio access network and to take assumptions for the work on the MBMS UTRAN architecture.

Comments: Qualcomm supported that MBMS services should be able to be received by low-end mobiles as well as well as by high-end mobiles. A possible inconsistency between Stage 1 and Stage 2 was pointed out (support of more than just paging messaging in Stage 2... i.e. Stage 2 reads "it shall be possible for UEs to receive MBMS data in parallel to other services and . signalling (e.g. paging, voice call)". How SMS works in Release 99 was explained by Mr. D. Fauconnier. Mechanisms to cope with errors in case of parallel services to be supported were debated. The requirement of simultaneous reception of multiple MBMS services could be fulfilled in different ways, with different consequences from the radio point of view (on complexity and radio efficiency). Priorities of each service were mentioned as well, paging requirement would stick to Stage 1 specification wording, and for simultaneous reception of multiple MBMS services different possible solutions exist.

Conclusion: SA1 requirements in clauses 5.1.2 User requirements for MBMS (Broadcast) and 5.2.2 User requirements for MBMS (Multicast) need to be clarified: Stage 1 only requires simultaneous reception of paging and MBMS – S1 is requested to tell if otherwise apply. Multiple MBMS use same channel: this looks OK from radio perspective, use of different channels being questionable. Change of service requirement: is that to free resources, or to change to a higher priority service from user point of view ?

Mr. Denis Fauconnier presented MBMS-000048 **Notion of Broadcast/Multicast area in MBMS**, Nortel Networks.

This contribution addresses the notion of Broadcast/Multicast area for MBMS. It lists some of the difficulties regarding this notion for Multicast services, and proposes that the concept is restricted to Broadcast services, at least in a first phase of MBMS. Nortel Networks propose to decide the following:

- The notion of MBMS area applies to the Broadcast service,
- The Broadcast area is the Service Area

The notion of MBMS area does not apply to the Multicast service (this could be revisited in a future phase of MBMS, or if the requirement is clarified).

Comments: a dedicated session would be needed to discuss the complex matter (in particular radio efficiency).

Conclusion: The workshop confirmed no service based cell selection should be used.

Summary of Key points discussed on Agenda Item 3 of the WS:

Service / Transport mechanisms;

User Service Area / Distribution Area;

Variable "QoS";

Data rates: SA4 should be consulted for codec types. Other aspects: payload, signalling, radio redundancy, traffic model, QoS type (to optimise, to limit mobile options);

Simultaneous reception of different services: **paging** requirement only should be met from Stage 1 requirements (+ RAN maintenance); Multiple MBMS services issues were left open; Changes of MBMS services: Network resources /User priorities, e.g. Interruption of MBMS service due to higher priority advertisement (example of soccer goal during other on-going service reception) : requirement to be clarified

No "service based" cell selection /reselection should be used - operator control

A number of other aspects in Stage 1 specification need further clarification (see meeting notes above). A session could be organised during SA1 meeting in July 2002, specific on MBMS aspects.

4 Requirements on the Radio Access Networks and their impact

Mr. Denis Fauconnier presented MBMS-000015 **LS on RAN requirements to support MBMS**, 3GPP TSG RAN WG2 & 3GPP TSG RAN WG3.

During the RAN2/RAN3 #28 meetings in Kobe (Japan), RAN2 and RAN3 jointly discussed RAN requirements to support MBMS. Based on the discussions, understanding of a number of points needs to be confirmed, and a list of questions for the workshop (6-7 May in London, UK) was drawn up. The following is the understanding of RAN2 and RAN3 and needs to be confirmed :

- MBMS is downlink only.
- Charging should not affect UTRAN.
- Roaming does not affect RAN.
- Reception of MBMS is not guaranteed *[this was confirmed by TSG-SA WG1 in LS S1-020299 (R2-020692; R3-020300)]*.
- Transmission can use dedicated resources or broadcast resources.
- MBMS should not prevent the capability for SRNS relocation.
- Uplink transmissions would be on point-to-point RABs and therefore not seen by RAN as MBMS RABs.
- The QoS attributes are the same for multicast and broadcast.
- Header compression would be preferable.

RAN2 and RAN3 had the following questions:

- Should MBMS and point-to-point RABs be independent ? What are the requirements in case of parallel point-to-point and MBMS services ?
- Is the assumption to have dedicated capability in the UE for MBMS, not shared with other point-to-point services, e.g. MBMS dedicated rake receiver ?
- What amount of data loss or duplication is acceptable in case of cell change ?
- What is the range of applicable bit rates ?
- What are the QoS attributes? Is it assumed to be the same bit rate in all cells ?
- What is the requirement on ciphering for Broadcast service ?
- Should MBMS influence cell re-selection or even handover (no commitment from RAN to fulfil this if answer is yes) ?
- What is the requirement on arbitration between point-to-point RABs and MBMS RABs (e.g. is there an A/R priority etc.) ?
- Are multicast areas operator-based or user-based ?

Action to the Workshop.

ACTION: RAN2 and RAN3 ask the Workshop to confirm that their understanding of the points in the first list above is correct, and requests answers to the questions in the second list.

Comments: all understanding points of RAN2 and RAN3 in the first list above were confirmed to be correct by the workshop.

All questions in the second list above were tackled during the Agenda Item 3 discussions (ciphering for Broadcast service is at application level, and assumption is that no ciphering is provided by the UTRAN/GERAN).

Whether multicast areas are operator-based or user-based would be clarified by introducing the concept of distribution areas for the service.

In conclusion: All the assumptions of the LS were confirmed. Questions either found an answer or were identified as open, according to the earlier discussions.

Mr. Mony Kochupillai presented MBMS-000013 **RAN Requirements to support MBMS**, Huthchison 3G.

The purpose of this document is to provide Hutchison 3G view on the RAN Requirements to Support MBMS. This document was discussed in detail.

Comments & questions were raised, and clarifications were given on the following requirements: Multicasting should provide similar packet loss performance as a Unicasting, Shared Resources, Power Control Shall be Possible (for Multicast service), linked to Independence on Number of Users (not an absolute concept, anyway, depending on the Number of Users); further discussions were felt needed on power control requirement. Other comments were made on the requirements Data Loss during HO should be minimum, Should be possible to selectively multicast in a particular tier/carrier (HCS/Multi-carrier, this item was discussed whether a practical proposal/solution would successfully be provided, from a radio perspective), Multicast Join concept, Connection Type Depending upon the number of users (when the number becomes reasonable, from Unicast go to Multicast.

Conclusion: a comparison of this set of requirements with the actual status of Stage 1/2 would be needed.
A few of the requirement seemed slightly contradictory. Main discussion point was the true need for power control, and also the impact of having RAN control cell change.

MBMS-000017 **Stage1/2 MBMS Requirements for Clarification**, Nokia.

The objective of this contribution is to briefly present and discuss some of the current MBMS Service requirements and Architecture principles as they are defined in stage 1 and stage 2 and point out some inconsistencies/unclear areas.

Conclusion: It was noted that the points raised had already been covered.

Mr. Jose Luis Carrizo Martinez presented MBMS-000039 **MBMS Requirements on the RANs**, Vodafone Ltd.

Vodafone would like make clear some of their key radio requirements for the successful support of MBMS, and would like the meeting to come to agreement on such requirements on the radio access networks.

Key Requirements on Radio Access Network: Determine whether there are 0, 1, 2, .., or many multicast receivers in a cell, Handling Cell Hierarchies, Proportion of users, Coverage, Data rates, DRNCs, Reuse existing mobile “hardware”

Questions & Comments: Network operator should have control, and it was remarked that it is important for Vodafone that the standard focuses on solutions that have commonality with existing BTS and mobile low level designs. For the MBMS Vodafone felt possible to satisfy requests with ptp connections. Scenario including the use of different technologies in different distribution areas and the use of the "same" data stream was considered as far as concerns cell re-selection and handover, but also (different) QoS issues in the two distribution areas were mentioned. Repetition of information (to be documented), decoded by the MS, would need some techniques.

Conclusion: It was noted that most points raised had already been covered in previous presentations. Maximise the reuse of existing mobile “hardware” should not prevent the introduction of high-tier mobiles; it was questioned this was (not) a Stage 1 requirement, but of course a link does exist.

Mr. Indaka Weerasekera presented MBMS-000020 **Access Security for Multicast Data**, Lucent Technologies.

Whether ciphering is performed at a higher application layer or as part of existing or new RAN lower layer security mechanisms has yet to be determined; another issue is common key distribution. The MBMS workshop is requested to investigate the requirements on security and consider working assumptions for release 6.

Lucent Technologies suggest that, in order to progress the work on security aspects of multicast, the workshop should pose the following questions to SA3 in the form of a liaison to be agreed at SA plenary, so that SA3 could start to consider a new work item on MBMS security :

- How would the key management session be established ?
- Does SA3 foresee any problems using common keys to multiple users ?
- What would be the recommendation from SA3 for ciphering ?

Comments & Questions: in this document Lucent requested a LS to be provided to SA3: as already decided in the first day, no LS will be produced at this workshop. Application layer security issues were requested to be clarified (expensive solution, responsibility, efficiency from the radio spectrum perspective, and other issues were mentioned). It was also questioned whether a specification would be needed in 3GPP, if the ciphering is done at application level. Use and distribution of keys in ptp and ptm and Ciphering in case of simultaneous MBMS should be carefully considered as well. In summary, SA3 should not be left alone to decide on this issue.

Conclusion: RAN should deal with this matter first, and then liase with SA3.

Mr. Jean Bouin presented MBMS-000002 **MBMS data loss performance in UTRAN**, Alcatel.

This document proposes to analyse, within the TSG RAN WG2 "Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN" work item, the packet loss performance requirement and the associated mechanisms to sustain this performance, to be acceptable for the MBMS applications and UTRAN system capacity.

Comments and questions: a comment was made that a common document RAN/GERAN would be needed, containing the MBMS radio requirements and functionalities to be provided, responsibility to create such document left to TSG RAN as leader, GERAN having second responsibility, and forwarded to SA1, SA2 (and SA4 for their part).

Conclusion: only one document containing the MBMS radio requirements and functionalities was felt needed (prime responsibility being in TSG RAN, second responsibility in TSG GERAN).

Mr. Byron Bakaimis presented MBMS-000031 **DL signalling requirements for MBMS**, Samsung.

Access Stratum signalling such as RRC has been designed and optimised to point to point communication. In that sense, DL signalling is expected to be modified for point to multi point communication.

Samsung list necessary information to be signalled for MBMS in access stratum, and sort out what is already available and what need to be invented, hopefully to initiate discussion on Uu interface of MBMS. Samsung propose to discuss followings

- The way of efficient delivery of common information for UE(s) to receive a MBMS service
- The way of preventing abuse of MBMS service.
- The necessity of associated DCH for MBMS service
- The physical channel structure of MBMS service taking physical signals into account

Comments and questions: the necessity of associated DCH for MBMS service was questioned; mobility management was felt outside the scope of this document.

Conclusion: the document was appreciated as it pointed out relevant issues concerning signalling requirements for MBMS.

Mr. Joon Goo Park presented MBMS-000032 **Soft handover for MBMS (slides)**, Samsung.

Soft handover benefits for MBMS data streaming can be achieved by general timing adjustment schemes. Soft handover for MBMS may and can be achieved without strong impacts on RAN.

Comments and questions: shared channel model was felt to be used by Samsung; Qualcomm pointed out they conducted a similar study and questioned the proposed solution. A number of questions for clarifications were raised, which showed a number of points have to be further discussed and clarified in RAN.

Conclusion: all questions raised during the workshop pointed out the need for further study, to clarify and solve the concerns for MBMS soft handover, before a final decision is taken.

Mr. Serge Willenegger presented MBMS-000029 **MBMS: UTRAN Aspects (slides)**, QUALCOMM Europe.

An extensive presentation of most UTRAN aspects for MBMS took place in this contribution (16 slides), with particular focus on Requirements Integration of MBMS in UTRAN.

In conclusion the document stated that:

•Integration of MBMS into existing UTRAN is feasible

–Main effort relates to RAN WG2 (WI lead)•Some SA requirements need to be clarified as they impact UTRAN

–E.g. UE capability & complexity•MBMS specific UTRAN enhancements are worth considering

–RAN MBMS WI should be extended to RAN WG1

Questions and comments: Voice calls may not be possible on the MBMS carrier of interest was requested to be clarified (if 50% resources are taken for the service). Hierarchical media (de-)multiplexing was commented again that Stage 1 service requirement was set for one

service and it may happen that e.g. video + voice + data are transmitted on separate channels and Low end UE would only be able to receive voice... hence SA1 in consultation with SA4 should investigate these aspects and clarify the requirements.
Summary of Key points discussed under Agenda Item 4 of the WS:

Stage 1 clarifications needed on service interactions

Maximise the re-use of existing physical layer functionality;

Radio Requirements : RAN MBMS requirements document to be created (c/o RAN WG2 leader, prime responsibility: RAN, and 2nd responsibility: GERAN);

Distribution of keys to multiple users and ciphering issues (RAN & SA3)

A number of aspects in Stage 1/2 specification need further clarification (see meeting notes above).

5 Identification of potential solutions and limitations in the Radio Access Networks

Mr. Alexander Vesely presented MBMS-000041 **MBMS UTRAN Functions**, Siemens.

This document was already presented at the MBMS Ad-hoc during SA2 meeting # 24 and mentioned the first day of the workshop; according to the Ad-hoc minutes in S2-021037, there was a debate whether both, the Broadcast mode and the Multicast mode can be supported by the same UTRAN functionality: proposed changes to the MBMS TR 23.846 v0.3.0 are described. It was decided to forward this question to the MBMS workshop.

Comments and questions: discussion took place again on separation between Broadcast and Multicast, which was felt not only the awareness of presence of user(s) and who they are (for charging them) from the network; the proposed change to "establish radio resources in cells with users receiving the MBMS service" was felt addressed in practice to Stage 1 (removal of "blind" Broadcast mode) and not to Stage 2. Efficient delivery of Broadcast service was felt endangered as well; conversely the change, if approved, would allow similar architecture for Broadcast mode and Multicast mode. It was pointed out that the proposal was already rejected at WG level, due to lack of advantages (and consensus) on the proposal itself.

Conclusion: no consensus was found on the proposed change.

Mr. Mony Kochupillai presented MBMS-000014 **RAN Solution Proposal to Support MBMS**, Huthchison 3G.

The purpose of this document is to provide Hutchison 3G view and details on the RAN Solution Proposal to Support MBMS (slides). The proposal claims to meet the Key RAN Requirements, and requires changes to RRC and UTRAN protocols. Besides, RRM, L1/L2 Parameters, MM, RNL/TNL Optimisation, Changes to BCCH etc., need further study, and Impact on UE Complexity needs to be assessed

Comments and questions: "Idle mode is not preferable" was commented that a clarification in Stage 1 wording could be opportune, to avoid misunderstanding. Differences/changes from the present Layer 1 status were requested to be enlightened. Quite a number of questions for clarification were made (mainly related to power control).

Conclusion: the document was left for further consideration from the interested delegates and WGs.

Mr. Christophe Nussli presented MBMS-000037 **A stand alone unidirectional carrier for MBMS, marketing considerations (slides)**, Alcatel.

MBMS shall induce a real differentiation for the mobile operators, and MBMS should rely on scalable capabilities to serve both local multicast and global broadcast demand, with reduced network management constraints.There are cost effective solutions to implement such dedicated broadcast layer over global coverage and ensure MBMS delivery over GPRS networks

This presentation covered also the following three documents from Alcatel. It was noted that satellite exploitation would offer a further option.

MBMS-000003 **Issues related to high audience targeted MBMS**, Alcatel.

This document lists some issues with the support of Multimedia Broadcast & Multicast Services targeted to large audiences. Alcatel proposes to investigate these issues and elaborate some solutions within the TSG RAN WG2 "Enhancement of broadcast and Introduction of multicast Capabilities in RAN" work item to efficiently support large audience MBMS applications.

Noted.

MBMS-000004 **Stand-alone downlink carriers for MBMS**, Alcatel.

The notion of stand-alone downlink carriers to deliver unidirectional point-to-multipoint services is introduced in this contribution.

Alcatel propose to investigate this concept within the TSG RAN WG2 "Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN" work item as potential enhancement to handle MBMS in an efficient way.

Noted.

MBMS-000005 **Umbrella cells for MBMS**, Alcatel.

Alcatel introduce the concept of umbrella cell covering several cells in order to extend the MBMS service coverage over 2G cellular network. This allows to deploy a limited set of multimedia services over 2G network and to postpone investment associated to deployment of infrastructure delivering the full range of point to point multimedia services. An umbrella cell large coverage is achieved with a central Node B transmitter installed typically on a high point. It can also be achieved with a bent-pipe geo-stationary satellite or High Altitude Platform Systems (HAPS).

Alcatel propose to investigate this concept within the TSG RAN WG2 "Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN" work item as potential enhancement to handle MBMS in an efficient way.

Noted.

Mr. Dimitris Koulakiotis presented MBMS-000018 **Potential UTRAN Transport Channels for MBMS**, Nokia.

This paper briefly assess DSCH and FACH and their suitability within the requirements that have been set for a transport channel MBMS in 22.146 and 23.846. If the requirements are found not to be met by the existing channels, then a new channel concept could be examined. Yet, it should be pointed out that a solution among the existing UTRAN channel concepts should be favoured since it will allow for faster completion of the work on this WI.

Comments and questions: it was questioned whether DRX control is already specified. Noted.

MBMS-000036 MBMS transport channel power efficiency scheme, Agilent Technologies, Inc. was WITHDRAWN.

Mrs. Laurence Lautier presented MBMS-000049 **MBMS multicast context per UE in the RNC**, Nortel Networks.

Some architecture relies on the fact that RNC knows each UE interested in a MBMS Multicast service while for other proposals the RNC does not know which UEs are interested in a MBMS Multicast service. This contribution shows advantages and drawbacks of each proposals and proposes to provide guidance to SA2 from an RAN perspective.

In order to allow the RNC to manage the UTRAN UE mobility for MBMS service as well as for non-MBMS services, it seems reasonable to decide that a MBMS specific context shall exist in the RNC for each UE activating a MBMS service.

Comments and questions: the concept that RNC has the knowledge was explained in the document; after activation, in an architecture where the RNC knows the UEs that are interested in the MBMS data, RNC tracks all the UEs which are interested into a given MBMS service i.e. have a context for each UE, and have in the context the list of MBMS services of interest, then RNC can multicast received MBMS data in the appropriate cells and can also decide to use a common or dedicated channel in each cell. Iur would not be involved for sending data/payload. Use of notification channel was clarified. Scenarios with different RNCs were formulated. Risk of missing paging was denied. Clarifications on release of Iu, and number of Iu (one per mobile) were discussed and clarified, also from a complexity of solutions, traffic and signalling points of view.

Conclusion: the document was noted.

Mr. Sudeep Palat presented MBMS-000026 **Mobility issues for MBMS - Paging Delay, PMM-Idle**, Lucent Technologies.

The purpose of this document is to highlight some of the mobility issues within the RAN and CN for MBMS. Specifically, paging delay/identity and handling of users that are in PMM-idle state will need to be studied.

Lucent Technologies proposes that the following be adopted as the working assumption:

1. Use notification messages before network initiated multicast sessions

2. Not to use additional notification messages before data transfer after an idle period and that paging be triggered by data arrival at the appropriate network elements.

Buffering mechanisms to handle paging delay should not be used. Loss of data during the initial phase should be acceptable. A common paging ID for all the members of a multicast group should be used. Paging could be over a paging channel or a dedicated channel.

Comments and questions: advantages of option 2 were clarified. The document was felt linked to the same aspects dealt with in MBMS-000049.

Conclusion: the document was noted.

Mr. Meir Fuchs presented MBMS-000034 **Error Resilience Control for MBMS**, Bamboo MediaCasting.

Bamboo feel important for MBMS to allow for service specific control of link-layer error resilience that would be translated into downlink transmission power and different forward error correction schemes. Certain applications will provide their own set of error protection and concealment mechanisms and would then require reduced error resilience capabilities from the lower radio layers.

Comments and questions: it was remarked that requirements would be needed on error performance /error correction /QoS; also optimized solutions could be designed, once the used media are defined.

Conclusion: the document was noted.

Mr. Hyeon Woo Lee presented MBMS-000033 **Scalable MBMS (slides)**, Samsung.

The Basic Concept of Scalable MBMS is illustrated (High quality to Normal Quality, high bit rate to lower bit rate, Enhanced Layer and Base layer, etc.). Transmit power resource usage can be a serious problem of MBMS.

Impacts to be considered:

- Scalability option of multimedia codec
- 2 separate paths for base layer and enhanced layer
- 2 separate physical channels and differentComments and questions: QoS parameters would need to be defined to differentiate the two kinds of offered quality; synchronization issues were felt solvable; two physical channels are needed; charging of customers was felt an issue; complexity of delivering two streams was requested to be quantified; service with two sub-streams need to provide information.

Conclusion: the document was noted.

Mr. Chris Pudney presented MBMS-000040 **MBMS P2M mode solution based on counting number of Channel Request messages for the GSM network**, Vodafone Ltd.

This document proposes some methods, which aim to make efficient use of radio resources regarding GSM paging and channel allocation for MBMS data transfer. The following proposals are made:

- Use a Temporary Mobile Group Identity for MBMS paging.
- Include Channel Request contents, “max-retrans” and downlink assignment information in the paging message.
- Count the uplink paging responses, in order to decide whether MBMS or point-to-point data transfer is performed.

Comments and questions: randomising procedures were felt reasonable; normal DRX was clarified would be used; contention resolution was requested to be clarified (off-line discussion).

Conclusion: the document was noted.

Mr. Michael Boote presented MBMS-000027 **Options for Handling Iu-flex**, Lucent Technologies.

Solutions to reduce the impact on network resources if Iu-Flex is configured in the network are presented here together with the advantages and disadvantages identified for discussion, with a view to having an option agreed as the best solution from these with or without modification resulting from the discussion. The agreed solution is proposed then to be presented to SA2 as the Iu Flex solution. Lucent Technologies propose that the MBMS workshop choose option 1 of the solutions discussed as it is the most resource efficient and simpler.

Comments and questions: no options were requested to be provided to SA2; interaction between serving RNC and Iuflex was requested to be investigated and input provided to SA2.

Conclusion: the document was noted.

MBMS-000030 **MBMS with Iu-Flex (slides)**, Samsung (통신연구소 표준연구팀)

To resolve the Iu-Flex problem, Samsung propose RNC and SGSN can manage 'Default SGSN'; the expected signalling flow for using the 'Default SGSN' option is clarified.

Conclusion: the document was noted as one more input for Iuflex discussion.MBMS-000025 **QoS Issues for MBMS**, Lucent Technologies was WITHDRAWN.

Mr. Meir Fuchs presented MBMS-000035 **Alternatives to QoS Negotiation for MBMS**, Bamboo MediaCasting.

The document offers some alternatives to full QoS negotiation and points out possible benefits and disadvantages. Slides were provided as well.

Comments and questions: different QoS refer to the same service; trade-off on offered QoS was felt to be decided by operators.

Conclusion: the document was noted.

Summary of Key points discussed under Agenda Item 4 of the WS:

A number of technical solutions were examined under this Agenda Item, and delegates were invited to take into account the information received to progress the open issues in the respective Working Groups.

6 Assessment of potential phasing of MBMS considering impact on the Radio Access Network

Mr. Denis Fauconnier presented MBMS-000046 **Phasing considerations for MBMS**, Nortel Networks.

There are two aspects that should be distinguished regarding the phasing:

- Phasing of the standard
    - regarding the support of the stage 1
    - regarding optimization
- Phasing of the implementation

The Broadcast service should be considered as a first phase which should also allow to test the service acceptation and interest, i.e. encourage application designers.

Regarding the Multicast service, the management of mobility, and also a decision to broadcast in certain cells selectively, are the main difficulty from a RAN implementation standpoint. It should therefore be possible to operate MBMS without these.

Regarding the actual phasing of the standard,

- Phasing should be allowed as work progresses, and considered when progressing the architecture

- Phasing should take into account service introduction i.e. also implementation and network roll-out considerations

- The architecture should be established in the first phase, including functionalities which would be part only of a later phase of the standard

- The hardware requirements, in particular for the UE and RAN, should be clearly established after the first phase, so that other phases do not impact Hardware

Comments and questions: phasing was felt questionable by one operator; different interpretation of phasing was given, i.e. in case of difficulties, or whether time is required to develop the standard.

The document was discussed together with next document.

Mr. Indaka Weerasekera presented MBMS-000021 **Potential Phasing of MBMS**, Lucent Technologies.

This document presented a potential phasing of MBMS in order to deliver a set of specifications that would provide a basic set of service capabilities for MBMS in the packet domain of release 6 3GPP networks. In order to ease the pressure on RAN groups, 3GPP should agree a basic functionality for MBMS in its first release and hence a set of deliverables associated with this functionality. Essential and non-essential functionalities are listed.

The main motivation for MBMS is resource efficiency, but attention must be given to re-using as much of the existing network components and concepts. Lucent Technologies proposes that the listed features should be considered for the eventual phasing of MBMS.

Comments and questions: the MBMS Chairman pointed out that the two clauses Essential / Non-essential functionalities for release 6 should be brought to the attention of SA1, as could significantly impact on the time needed to develop the specifications, radio efficiency being the relevant point for this standard.

Conclusion: the issue of phasing was felt mainly to be addressed in SA1 (taking into account architectural issues as well).

7 Other technical issues related to MBMS

None.

8 AoB

MBMS-000019 **Proposed Updated RAN MBMS WI**, Nokia.

The following changes are proposed to the existing RAN WI:

- Change of RAN Work Item name *from "Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN*" to "*Introduction of the Multimedia Broadcast Multicast Service (MBMS) in RAN*". The new name reflects better its relationship with the SA1 and SA2 WID on MBMS.

- Updating of the RAN2 and RAN3 WI objectives.

- Introduction of separate TRs in RAN2 and RAN3.

Comments: this revised WID was provided for information and guidance. It was already stated that one document only was requested to be produced on MBMS radio requirements (under 1st responsibility RAN, 2nd responsibility GERAN). Also 4 supporting Companies would need to be identified for the validity of the revised WID. It was commented that no Broadcast is mentioned in the document, and no revision marks from the previous version are visible (to identify the changes from the previous version).

9 Close of meeting

The Chairman, Mr. Niels Peter Skov Andersen, summarised the output of the Workshop, thanked the host, Lucent and their support team for the excellent arrangements. The delegates were thanked for their hard work; then the Chairman closed the workshop.

Annex A - Agenda

3GPP MBMS workshop

6 – 7 May 2002

London, United Kingdom

Draft Agenda

1 Opening of meeting

2 Approval of Agenda

3 MBMS Requirements, Architecture and Status

4 Requirements on the Radio Access Networks and their impact

5 Identification of potential solutions and limitations in the Radio Access Networks

6 Assessment of potential phasing of MBMS considering impact on the Radio Access Network

7 Other technical issues related to MBMS

8 AoB

9 Close of meeting

Annex B - Document list

3GPP MBMS workshop London, 6-7 May 2002

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MBMS-000003	Issues related to high audience targeted MBMS	Alcatel	5
MBMS-000004	Stand-alone downlink carriers for MBMS	Alcatel	5
MBMS-000005	Umbrella cells for MBMS	Alcatel	5
MBMS-000006	MBMS History & Status (slides)	Huthchison 3G	3
MBMS-000007	TS 22.146 V 5.2.0 Stage 1 on MBMS	3GPP TSG SA WG1	3
MBMS-000008	TR 23.846 V 0.4.0 on MBMS architecture	3GPP TSG SA WG2	3
MBMS-000009	MBMS state model	Siemens	3
MBMS-000010	On QoS requirements for MBMS	Siemens	3
MBMS-000011	UE reception capability for MBMS	Siemens	3
MBMS-000012	An integrated MBMS Multicast and Push service architecture	Sasken Communication Technologies Ltd	3
MBMS-000013	RAN Requirements to support MBMS	Huthchison 3G	4
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MBMS-000018	Potential UTRAN Transport Channels for MBMS	Nokia	5
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MBMS-000022	Scope of MBMS Workshop	Lucent Technologies	2
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TD No.	TITLE	SOURCE	Agenda Item
MBMS-000025	QoS Issues for MBMS	Lucent Technologies	withdr.
MBMS-000026	Mobility issues for MBMS - Paging Delay, PMM-Idle	Lucent Technologies	5
MBMS-000027	Options for Handling Iu-flex	Lucent Technologies	5
MBMS-000028	An architecture option for MBMS which maximizes the use of IETF Multicast	Cisco	3
MBMS-000029	MBMS: UTRAN Aspects (slides)	QUALCOMM Europe	4 & 5
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MBMS-000031	DL signaling requirements for MBMS	Samsung	4
MBMS-000032	Soft handover for MBMS (slides)	Samsung	4
MBMS-000033	Scalable MBMS (slides)	Samsung	5
MBMS-000034	Error Resilience Control for MBMS	Bamboo MediaCasting	5
MBMS-000035	Alternatives to QoS Negotiation for MBMS	Bamboo MediaCasting	5
MBMS-000036	MBMS transport channel power efficiency scheme	Agilent Technologies, Inc.	withdr.
MBMS-000037	A stand alone unidirectional carrier for MBMS, marketing considerations (slides)	Alcatel	5
MBMS-000038	MBMS Service Requirements	Vodafone Ltd	3
MBMS-000039	MBMS Requirements on the RANs	Vodafone Ltd	4
MBMS-000040	MBMS P2M mode solution based on counting number of Channel Request messages for the GSM network	Vodafone Ltd	5
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MBMS-000043	Clarifications on MBMS terminology	Ericsson	3
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MBMS-000049	MBMS multicast context per UE in the RNC	Nortel Networks	5

Annex C - List of participants

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YES = the delegate attended the meeting
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