

Updates from 3GPP standardisation

September 2008

Eiko Seidel, Chief Technical Officer
Nomor Research GmbH, Munich, Germany

Summary

Recently a System Architecture plenary meeting took place where interesting discussion took was held concerning the release planning and also concerning the liaison with external groups. Quite some work Home Node Bs and Femto-cells is going on in various groups and an effort is being made to coordinate this work and to progress on the architecture. Last but not least there are some quite interesting Study and Work Items have been started.

3GPP Release planning

TSG SA proposed the target completion date for Release 9 to be December 2009. The target to freeze Stage 1 will be December 2008. SA WG1 has already finalized the requirements for the features moved out of Rel-8 due to lack of time for completing the Stage 2/3 work. As a consequence much of the work in Stage 2 and Stage 3 for Rel-9 should be based on already existing requirements. Stage 2 freeze was expected to be June 2009. Any Work Item proposed after June 2009 should not be considered for Rel-9. Due to the high work load it will be difficult to complete all the work for Stage 2 in time. The TSG SA Chairman reported that prioritization discussions should be held in the December 2008 TSG meetings and asked companies to prepare for this.

There is still a massive amount of CRs to both architecture documents 23.401 and 23.402. This should have a big impact on completion of the Evolved Core Network specification. The effort is focused on essential corrections.

Liaison of 3GPP with the Broadband Forum

The Broadband Forum (BBF - formerly the DSL Forum) contacted 3GPP concerning the work that has started in the Broadband Forum related to mobility and fixed mobile convergence. The intention is to investigate the provision of mobility as an enhancement to traditional fixed broadband services. The BBF has already started to collaborate with the WiMAX Forum and welcomes the chance to collaborate with 3GPP in this area. The BBF is interested to learn more about specific use cases and business requirements that 3GPP has developed in regard to mobility requirements for advanced broadband services.

In an answer 3GPP provided their references to the technical specification. Nevertheless 3GPP does not explicitly addressing business requirements and the BBF was referred to the market representatives such as 3GSM association.

Personal notes: Vodafone/Verizon welcomed this liaison. The BBF liaison officer is from Ericsson! Also note that the Broadband Forum standardized for instance TR-069 the "CPE WAN Management Protocol" which was recently accepted by the Femto-cell forum as basis for the management protocol for femtocells. Among others BBF tries to establish TR-069 as dominant standard for the management of broadband gateways and other consumer devices, such as set top boxes, VoIP devices, and storage devices. So that sounds actually quite interesting.

New architecture work item on Home Node B / Home e Node B

There is quite some work ongoing in various groups such as SA1, SA3, RAN, and CT groups. Below a list on ongoing work items related to Home Node Bs is provided:

- Study on Home (e)NodeB Security (SA3)
- Study of Self-Organizing Networks (SON) related OAM interfaces for Home NodeB (SA5)
- Support of UTRA HNB (RAN2)
- WID HNB/EHNB Rel-8 (SA1)
- UTRAN Architecture for 3G HNB deployment (RAN3)
- WID on Enhanced Home NodeB / eNodeB for Rel-9 (SA1)
- CSG and Idle Mode Mobility for LTE Home eNodeB
- CSG and Idle Mode Mobility for 3G Home NodeB

There was discussion in SA#41 on how to ensure consistent handling of Home (e)NodeB work across different Releases and TSGs. A new Work Item on Architecture Aspects of Home NodeB / eNodeB was proposed and discussed.

The following is written in the Work Item description that was approved in the plenary:

Justification

SA1 has defined the HNB/HeNB requirement and agreed that the HNB/HeNB provides services to members of Closed Subscriber Groups (CSG), and membership, including temporary membership, of CSGs is managed by both the registered owner of the HNB/HeNB and the network operator. Moreover, SA#40 has agreed a new WID on Enhanced Home NodeB / Home eNodeB with the goal to consolidate the service requirements in a new stage 1 specification for Rel-9.

The RAN3 study on the deployment of the 3G Home Node B in UTRAN concluded that the

support of the 3G Home Node B could be ensured in principle within the framework in the UTRAN architecture defined in TS 25.401, with the support of legacy UEs and legacy core networks. However, the expected UTRAN UE mobility performance would be quite poor because in UTRAN the mobility and access control handling was not designed with 3G HomeNodeB in mind.

It is expected that similar problems will arise in LTE if it is allowed that LTE capable UEs exist that are not aware of the HeNB / CSG. Therefore, RAN2 has developed concepts to improve this handling for LTE introducing CSG ID and whitelist concepts. The support of Home eNodeB concept is currently captured within the scope of LTE WID and work is still ongoing. RAN2 has also initiated a WI to improve the 3G UE performance for Rel8 also supporting the CSG ID and whitelist concepts. CT1 has also recently initiated two Work Items for HeNB and 3G HNB support.

The introduction of these new concepts will improve UE performance and UE battery life time for new terminals supporting this CSG concept. It is also important that legacy mechanisms for 3G Home NB and UEs co-exist with any new concepts to ensure pre-Rel-8 UTRAN UE will be supported.

Objective

The objective of this work item is to study the architecture aspects for 3G HNB and HeNB in the following areas:

- distribution of functions on network nodes for 3G HNB and LTE HeNB support
- architecture support of CSGs and whitelist handling
- architecture support of security, authentication and discovery processes related to 3G HNB / HeNB
- architecture support of mobility and Access Control
- identification of Rel-8 impacts of 3G HNB

The initial focus of this TR will be to identify the aspects addressed in other WGs, in order to avoid inter-Release compatibility issues at a later stage. In the second phase, the enhancements required in the future can be developed according to SA WG1 requirements. At this time a decision will be needed whether to create a separate TS for 3G HNB / HeNB, or whether CRs to existing specifications are sufficient. The TR will be kept to serve as a documentation of the overall 3GPP HeNB / HNB concept and architecture. RAN architecture work that is being performed in RAN WG3 concerning 3G HNB and HeNB, will be taken into account in the overall architecture appropriately.

The Work Item was publicly supported by Airvana, Alcatel-Lucent, Cisco, Ericsson, Huawei, Marvell, Motorola, NEC, Qualcomm Europe, Orange, Samsung, SOFTBANK MOBILE Corp, Starent, T-Mobile International, Verizon, ZTE, Telecom Italia, Nokia Siemens Networks and Fujitsu.

In a white paper Nomor Research was recently introducing the concept of Self-Organizing Networks (SON). It can be expected that SON functionality will play an important role for the success of Home Node Bs. SA5 is preparing TR32.821, which is studying the SON OAM architecture for both home NodeB and home eNodeB, differences between the SON OAM architecture for these and for the macro NodeB/eNodeB, and making preparation for a later implementation work item.

Newly approved Study Items concerning service requirements and architecture

[TD SP-080504](#) Study on Personal Broadcast Service SA WG1

Objective: This study will focus on aspects necessary to support Personal Broadcast Service in 3GPP system The scope of this study will

include, but not be limited to; - identifying use cases of Personal Broadcast Service - identifying service and system aspects necessary for the support in 3GPP - identifying security and charging aspects pertinent to Personal Broadcast Service - identifying minimum set of requirements to support service specific 3GPP terminals, such as 3GPP Car Audio or Portable 3GPP Radio. Note: Major function of the service specific 3GPP terminals is Audio or Video broadcast service reception, and capability for voice and data communication may be neglected.

Supporting companies: ETRI, SK Telecom, China Mobile, TOSHIBA, NEC

[TD SP-080505](#) WID on LCS support in EPC for non 3GPP accesses SA WG1

Objective: This work will examine whether requirements in TS 22.071 would be applicable for non 3GPP accesses and specify new service requirements for the users connected to non 3GPP accesses through EPC. Consideration will be given, but not limited, to the following: - High level requirements of LCS support for non 3GPP accesses; - Location information provided to the LCS client for non 3GPP accesses; - QoS requirements of LCS support for non 3GPP accesses. - Priority between different LCS services for non 3GPP accesses. - Privacy requirements of LCS support for non 3GPP accesses. - Periodic location report of LCS services for non 3GPP accesses. - Impact on the LCS client and the LCS server to support LCS services for non 3GPP accesses.

Supporting companies: SK Telecom, Samsung, Intel, Sprint, ETRI, Polaris Wireless, Toshiba, KDDI

[TD SP-080558](#) New SID: Feasibility Study on IMS Evolution SA WG2

Objective: This study item intends to study the feasibility of enhancing IMS network architecture as follows, - Investigating architectural

improvements to reduce the complexity of signaling procedures by reducing the signaling hops, or the number of options and combinations (by looking at different groupings of combining existing entities) to fulfill the same requirements as described in the Justification section - Investigating means to improve system-level load balancing and reliability - Investigating possibilities for reducing configuration workload to save OPEX Backward compatibility with current IMS specifications shall be ensured. Note: overlap with SA WG5 and CT WG4 work need to be monitored.

Supporting companies: China Mobile, SK Telecom, Telefonica, Verizon, Telecom Italia, Huawei, ZTE, CATT

Newly approved Work Item concerning service requirements and architecture

[TD SP-080507](#) WID on Inter-Device Transfer – Requirements SA WG1

Objective: The objective is the identification of service continuity requirements for Inter-Device Transfer In particular, SA WG1 will specify requirements for: - Inter-Device Transfer of media components - Transferring media components to target device(s) and the session control to a target device Transferring media components to target device(s) whilst keeping their control in the source device.

Supporting companies: Telecom Italia, Marvell, NTT DoCoMo, AT&T, T-Mobile, Samsung, Motorola, Huawei, LG Electronics, BT, NEC, KDDI, Alcatel-Lucent, Nortel Networks, Panasonic, Softbank Mobile, Toshiba

This newsletter is provided to you by Nomor Research GmbH. Similar documents can be obtained from www.nomor.de.

You are also able to subscribe:

<http://www.nomor.de/home/technology/3gpp-newsletter>

Feel free to forward this issue in electronic format; no reproduction is allowed or to copy content. Please contact us in case you are interested in collaboration on related subjects.

Disclaimer: This information, partly obtained from official 3GPP meeting reports, is assumed to be reliable, but do not necessarily reflects the view of Nomor Research GmbH. The report is provided for informational purpose only. We do not accept any responsibility for the content of this newsletter. Nomor Research GmbH has no obligation to update, modify or amend or to otherwise notify the reader thereof in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate.