
Source: Samsung
Title: Discussion for I-WLAN WIDs
Document for: Discussion
Agenda Item: 7.2.2
Attachment: S2-043328, S2-043749, S2-043750

Introduction

For the last several years, 3GPP has worked on 3GPP-WLAN interworking (I-WLAN) to get synergy from different radio access technologies. From the study conducted by SA1, a step-by-step approach has been taken with six identified scenarios.

In Release 6, use of 3GPP Access, Authentication and Authorization for access to the WLAN (a.k.a. scenario 2) and WLAN 3GPP IP Access (a.k.a. scenario 3) to provide 3G PS service over I-WLAN have been standardized.

In the last SA2 meetings, new WIDs for I-WLAN Release 7 were proposed and discussed (please refer to the attached files). This paper summarized discussions in the SA2 meetings regarding the WIDs for I-WLAN Release 7 in order to get direction from SA.

Discussion

As stated above, I-WLAN scenario 2 and scenario 3 are expected to be included in Release 6. As for scenario 3, the original requirement from SA1 for scenario 3 is support of all 3GPP PS based services. However, it was found that some services could not be supported completely over I-WLAN in the Release 6 time frame. For example, the SBLP functionalities in PDG were decided to be removed. And SMS/MMS over I-WLAN is currently under study with a separate work item for "SMS/MMS over IP".

For release 7 of I-WLAN, a new requirement for service continuity between I-WLAN and 3GPP access systems was agreed in SA1 #26 (S1-040965).

Reflecting these requirements, a new WID for I-WLAN release 7 was proposed at SA2 #42 with 11 supporting companies (S2-043328). In order to allow more time for other companies to check the WID internally, decision on the WID was postponed to SA2 #43.

When it is presented again on the first day of SA2 #43, dividing the WID into two was suggested and agreed; one for enhancement of scenario 3 and the other for mobility support (S2-043749 and S2-043950 respectively). For the latter, many companies proposed to expand the scope of the WID to cover mobility support between heterogeneous IP access networks and it has been reflected during drafting the actual WID.

Despite the efforts to make agreeable WIDs, these two WIDs were not agreed in SA2. The followings are issues mentioned during discussion.

- WID for Enhancement of I-WLAN Scenario 3
 - Argument: One of main objectives of the WID is QoS provisioning over I-WLAN. There can be overlap with another WI in SA2 for E2E QoS. It would be better to have an overall work item which covers all aspects of IP based QoS.
 - Answer: There is no overlap between two WI because one is about QoS support within I-WLAN (including PDG and WAG) and the other is between a PLMN and an external IP network. The main purpose of the WI is filling gaps that failed to be standardized in Release 6.
- WID for Support of mobility between heterogeneous IP connectivity access networks
 - Argument: There is confliction with SA1's AIPN WI.
 - Answer: While AIPN is a study item yet, the requirement for service continuity for I-WLAN has been agreed against TS 22.234. While AIPN is aiming long-term network evolution, I-WLAN sc4/5 is for

short/mid term and it can be regarded as a middle step towards AIPN. Also the WID proposes to produce a TR to gather ideas first.

- Argument: Security aspects are not clearly stated
- Answer: Text to reflect high level security aspects can be added. A SA3 WI can be created in the later stage.

Proposal

We recognize that several work items have been proposed and/or are under progress with similar objectives; AIPN, UTRAN evolution SA2 aspect, I-WLAN Release 7 to name a few. It is necessary to organise these activities well to get maximum synergy. To this end, the exact objectives and scope of each work item need to be clearly identified, i.e. what should be in the AIPN WID, what should be in the I-WLAN WIDs, what should be in UTRAN evolution SA2 WID and how these WIDs relate each other.

It is expected that SA2 will discuss the WIDs for I-WLAN Release 7 in the next meeting. It would be helpful for SA to give guidance to make fruitful progress.

**3GPP TSG-SA WG2 Meeting #42.
Sophia Antipolis, France. October 11-15, 2004.**

Tdoc S2-043328

Source: Samsung, Orange, HP, Siemens, Huawei, RIM, T-Mobile, Alcatel, [InterDigital](#), [Infineon](#), Telcordia
Title: WID for I-WLAN Rel-7
Agenda item: 12.1
Document for: APPROVAL

This document proposes a new work item for 3GPP/WLAN interworking in Release 7.

Work Item Description

Title

WLAN Interworking ñ Architectural Enhancements for support of mobility between I-WLAN and 3GPP systems and further extensions to 3GPP/WLAN Interworking

1 3GPP Work Area

X	Radio Access
X	Core Network
X	Services

2 Linked work items

TSG SA1: 3GPP system - WLAN Interworking (with unique ID 31012)

TSG SA1: Session Continuity (with unique ID 31057)

TSG SA2: WLAN Interworking ñ Architecture Definition and stage 2 definition of WLAN access and Interworking (with unique ID 32018)

[TSG GERAN: Generic Access to A/Gb](#)

[TSG SA2: System Enhancements for Fixed Broadband Access to IMS](#)

TSG SA1: All-IP Network (AIPN) Feasibility Study (it is for further study if this Work item is linked)

3 Justification

3GPP has worked on interworking between WLAN and 3GPP systems. It has been identified that mobility support between I-WLAN and 3GPP systems is an essential feature to be developed as a next step for WLAN interworking. SA2 has not yet explored the possible architectures and techniques, which may be used to add mobility support and enhanced network re-selection to the existing WLAN Interworking System.

In addition, for provisioning of certain 3GPP PS based services over I-WLAN, features which were not standardized in the Rel-6 timeframe, e.g. QoS provisioning over I-WLAN, need to be investigated.

4 Objective

The objective of this Work Item is to provide an architecture to support mobility between I-WLAN (as defined in 3GPP TS 23.234) and 3GPP Systems.

Definition of all the functions needed, as well as their allocation to existing Network Elements, will be included in this Work Item.

The solution to support mobility should be generic as much as possible, so that it can be reused for future use cases, e.g. mobility management between generic IP access and 3GPP systems.

This Work Item also aims at improving the interworking defined in Release 6 (e.g. QoS, [access to IMS](#)). [This Work Item will also study the possible technical interactions with the solutions defined in the Work Item "Generic Access to A/Gb".](#)

5 Service Aspects

See the parent Work Item

6 MMI-Aspects

See the parent Work Item

7 Charging Aspects

See the parent Work Item

8 Security Aspects

See the parent Work Item

9 Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes		X		X	
No					
Don't know	X		X		X

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime resp. WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR 23.8xx	Support of mobility between I-WLAN and 3GPP systems - Architectural Aspects	SA2		SA#286		TR
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
TS 23.234					For improvements of interworking defined in Release 6	

11 Work item rapporteur(s)

Osok Song, Samsung Electronics

12 Work item leadership

SA2

13 Supporting Companies

Orange, T-Mobile, Samsung, HP, Siemens, RIM, Huawei, Alcatel, [InterDigital](#), [Infineon](#), Telcordia

14 Classification of the WI (if known)

	Feature (go to 14a)
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X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

3GPP system - WLAN Interworking

14c The WI is a Work Task: parent Building Block

form change history:
v1.11.0: includes those changes from v1.8.0 agreed at SP-25.
v1.10.0: full circle
v1.9.0: a clean sheet
v1.8.0: includes comments from SA#24
v1.7.0: includes comments from RAN, CN and T #24; also includes i early implementationi data
v1.6.0: includes comments made during review period prior to TSGs#24
v1.5.0: includes comments made at TSGs#23 (Phoenix)
v1.4.0: offered to SA#23 for approval
v1.3.0: offered to CN#23, RAN#23 and T#23 for comments
DRAFT4 v1.3.0: 2004-03-09: Incorporation of comments from Leaders list
DRAFT3 v1.3.0: 2004-02-19: Incorporation of comments from MCC members
DRAFT2 v1.3.0: 2004-01-29: Complete redraft:
v1.2.0: 2002-07-04: "USIM" box changed to "UICC apps"
2003-05-28: spelling of i rapporteuru corrected
2002-07-04: "USIM" box changed to "UICC apps"

Source: Samsung, Fujitsu, T-Mobile International, Orange
Title: WID for Enhancement of I-WLAN Scenario 3
Agenda item: 12.1
Document for: APPROVAL

This document proposes a new work item for 3GPP/WLAN interworking in Release 7.

Work Item Description

Title

WLAN Interworking ñ Enhancements to support 3GPP PS Services over 3GPP/WLAN Interworking

1 3GPP Work Area

	Radio Access
X	Core Network
X	Services

2 Linked work items

TSG SA1: 3GPP system - WLAN Interworking (with unique ID 31012)
TSG SA2: WLAN Interworking ñ Architecture Definition and stage 2 definition of WLAN access and Interworking (with unique ID 32018)
TSG SA2: IP based mobility support between heterogeneous access networks (to be approved)
TSG SA2: End to End QoS
TSG SA2: Evolution of Policy Control and Charging

3 Justification

Some features needed to fully support certain 3GPP PS based services over I-WLAN were not standardized in the Rel-6 timeframe. These features include e.g. QoS provisioning over I-WLAN and support of SBLP over I-WLAN. Therefore, these features need to be provided in this work item.

4 Objective

- Provide a mechanism to support QoS within I-WLAN
- This QoS mechanism also aims to take the E2E QoS architecture into consideration, in order to support the interworking with external IP network to provide E2E QoS.
- Provide policy control mechanism for services e.g. IMS based services over I-WLAN; policy and charging evolution aspects should be taken into consideration.
- Other work may be identified to complete this work item.

5 Service Aspects

See the parent Work Item

6 MMI-Aspects

See the parent Work Item

7 Charging Aspects

See the parent Work Item

8 Security Aspects

See the parent Work Item

9 Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes		X		X	
No	X		X		
Don't know					X

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime resp. WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
23.234		Enhancements to support 3GPP PS Services over 3GPP/WLAN Interworking		SA#29		

11 Work item rapporteur(s)

Osok Song (Samsung)

12 Work item leadership

SA2

13 Supporting Companies

Samsung, Fujitsu, T-Mobile International, Orange

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

3GPP system - WLAN Interworking

14c The WI is a Work Task: parent Building Block

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v1.9.0: a clean sheet
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v1.7.0: includes comments from RAN, CN and T #24; also includes i early implementationi data
v1.6.0: includes comments made during review period prior to TSGs#24
v1.5.0: includes comments made at TSGs#23 (Phoenix)
v1.4.0: offered to SA#23 for approval
v1.3.0: offered to CN#23, RAN#23 and T#23 for comments
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DRAFT2 v1.3.0: 2004-01-29: Complete redraft:
v1.2.0: 2002-07-04: "USIM" box changed to "UICC apps"
2003-05-28: spelling of i rapporteurí corrected
2002-07-04: "USIM" box changed to "UICC apps"

**3GPP TSG-SA WG2 Meeting #43.
Seoul, Korea.15th - 19th November 2004.**

Tdoc S2-043750

Source: Samsung, T-mobile International, HP, Orange, Fujitsu, Siemens, Infineon

Title: WID for Support of mobility between heterogeneous access networks

Agenda item: 12.1

Document for: APPROVAL

This document proposes a new work item for mobility support between heterogeneous access networks.

Work Item Description

Title

Support of mobility between heterogeneous access networks

1 3GPP Work Area

	Radio Access
X	Core Network
X	Services

2 Linked work items

TSG SA1: 3GPP system - WLAN Interworking (with unique ID 31012)
TSG SA1: Session Continuity (with unique ID 31057)
TSG SA2: WLAN Interworking ñ Architecture Definition and stage 2 definition of WLAN access and Interworking (with unique ID 32018)
TSG SA2: System Enhancements for Fixed Broadband Access to IMS
TSG SA1: All-IP Network (AIPN) Feasibility Study
TSG SA2: WLAN interworking ñ Enhancements to support 3GPP PS services over 3GPP/WLAN interworking (to be approved)

The linkage of these work items will be investigated.

3 Justification

It is expected that IP based 3GPP services will be provided through various access technologies. A mechanism to support mobility (including handover) between heterogeneous access networks, e.g. I-WLAN and 3GPP access systems, is an essential feature for future network evolution.

4 Objective

The objective of this Work Item is to design an architecture to support mobility between heterogeneous access networks including service continuity.

One of the examples which has been identified is support of service continuity between I-WLAN and 3GPP Systems (e.g. GPRS).

The solution to support mobility should be as generic as possible, so that it can be in principle applied for mobility management between any IP connectivity access network and the 3GPP access systems. The solution should take QoS aspects into consideration.

5 Service Aspects

Service continuity as defined in TS 22.101 and TS 22.234.
Other requirements could be elaborated by SA1.

6 MMI-Aspects

To be determined

7 Charging Aspects

Not identified

8 Security Aspects

To be determined

9 Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes		X		X	
No	X				
Don't know			X		X

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime resp. WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR 23.8xx	Support of mobility between heterogeneous access networks - Architectural Aspects	SA2		SA#29	SA#31	TR
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	

11 Work item rapporteur(s)

Osok Song, Samsung Electronics

12 Work item leadership

SA2

13 Supporting Companies

T-mobile International, HP, Orange, Samsung, Fujitsu, Siemens, Infineon

14 Classification of the WI (if known)

X	Feature (go to 14a)
	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

form change history:
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DRAFT4 v1.3.0: 2004-03-09: Incorporation of comments from Leaders list
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DRAFT2 v1.3.0: 2004-01-29: Complete redraft:
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