Technical Specification Group Services and System Aspects Meeting #18, New Orleans, USA, 9-12 December 2002

TSGS#18(02)0676

TSG-SA1#18 ***S1-022365***
Busan, Korea, 11-15th November 2002 ***Agenda Item: IMS***

Title: ***New WID description for "Study of subscriber and operators relationship in IMS and related ISIM requirements for Rel 6" and draft of the TR***

Release: ***6***
Source: ***SA1***
To: ***SA***

Contact Person:

Enrico Scarrone, Telecom Italia
Tel. Number: +39 011 228 7084
E-mail Address: ***Enrico.Scarrone@tilab.com***

Attachments:

S1-022363: TR "Study of subscriber and operators relationship in IMS and related ISIM requirements for Rel 6"

1. Rationale:

S1 is pleased to inform SA about the progresses of the work on the WID "Study of subscriber and operators relationship in IMS and related ISIM requirements for Rel 6". The document is containing the scenarios presently identified as potentially relevant for the WID, nevertheless the identification of common requirements has still to be finalized, as well the agreement about which of the identified requirements S1 will endorse as needed to be supported by the 3GPP system.

The document is presently sent as informal information on the work progress (no specific action is required on the TR).

S1 has also identified the need to clarify the WID related to the TR, and has agreed an enhanced WID description, that is sent separately for approval to SA.

Apart from the merely editorial clean up, SA1 like to stress the fact that S1 will focalise the attention of subscription and operator relationship, deriving appropriate stage 1 requirements. Technical impacts, when identified, will be highlighted, but SA1 will not analyse in detail nor propose technical and architectural solutions for the requirement implementation and SA1 anticipates that this area will be covered by SA2.

2. Actions:

To SA group.

ACTION: **No action required**

3. Date of Next TSG-SA1 Meeting:

SA1 SWG #19 20-24 January 2002, SF, California.

3GPP TR 22.800 V0.1.0 (2002-10)

Technical Report

3rd Generation Partnership Project;
Technical Specification Group TSG SA;
IMS Subscription and access scenarios
(Release 6)

Keywords
3GPP, Services

3GPP

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

Contents

Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

This document studies scenarios between subscribers and operators, mainly from IMS subscriptions point of view and verifies the compatibility of the possible scenarios within 3GPP Scope. Release 6 includes several work items like IMS enhancements, WLAN interworking that needs to be better understood so that clear requirement can be agreed and relevant technical specifications can be developed in time.

The document will identify the requirements arising from the following issues:

- Identification of requirements for 3GPP operators to implement only some of 3GPP system domains? (For example an IMS system separated from the PS domain and access network. What is the relationship between the AN/CN/IMS networks in this case? Are there conflicts in privacy issues due to several subscriptions?)
- Operator control of networks used to access / provide IMS services. For example operator may want to limit the subscriber to access the IMS via a specific 3GPP access network.
- Non-3GPP access network implications.
- Simultaneously access to IMS by one user with multiple devices. .
- UE functionality split (if any implications).
- Deployment of UICC with several USIM and ISIM applications from different parties.
- Analyse aspects of user interaction when activating USIM and ISIM applications on the UICC (e.g. manually, automatically, PIN, NON-PIN) .

Below issues need to be described in scenarios :

- Generic issues
- Security
- Charging
- Privacy
- Roaming
- Regulatory (e.g lawful interception) etc.
- Quality of service
- User experience

Further TR needs to translate the scenarios, which fit in the scope of the 3GPP system to 3GPP service requirements.

Criteria for requirements to be included:

1. In scope with 3GPP access (UTRAN, GERAN) or access that 3GPP has specified interworking with (WLAN).
2. In scope with 3GPP core network(s).
3. In scope with 3GPP enabling technologies.
4. Scope of this work is limited to identify service requirements derived from scenarios capturing various business requirements. No architectural solutions will be considered in this TR.

Note: 3GPP should not place requirements, which would prohibit the possibility to use non-3GPP defined access for IMS.

Note: The SA2 within its own documentation shall look into technical feasibility and architecture implications of scenarios and requirements defined by SA1 and contact SA3 and SA5 for deeper technical understanding if necessary. Overall architecture implications shall consider also UICC implications (e.g. if it is appropriate to have several ISIMs on one UICC and possibility of having empty field for either ISIM or USIM in a UICC.?) and accordingly contact T3 for deeper technical understanding if necessary.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TR 21.905: "Vocabulary for 3GPP specifications"

[2] 3GPP TS 22.101: "Service principles"

[3] 3GPP TS 22.228: "IP multimedia (IM) CN subsystem, stage 1"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Access independence: the ability for the subscribers to access their IP Multimedia services over any access network capable of providing IP-connectivity, e.g via:

- 3GPP (UTRAN, GERAN)
- Non 3GPP accesses with specified interworking (e.g. W-LAN with 3GPP interworking)
- Other non 3GPP accesses (e.g. xDSL, PSTN, satellite, WLAN without 3GPP interworking)

Business Agreement: a relation between two or more parties, it may include one or more of the following elements: roaming agreement, charging agreement, authentication agreement and settlement agreement.

IMS Roaming: IMS roaming refers to the possibility for subscribers of one IMS to obtain IMS services from an IMS the users have not subscribed to, due to a business agreement between the two IMS service providers.

Further definitions are given in 3G TR 21.905 [1].

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

GPRS	General Packet Radio Service
IMS	IP Multimedia Core Network Subsystem
ISIM	IMS Subscriber Identity Module
WLAN	Wireless Local Area Network
xDSL	x Digital Subscriber Line
UE	User Equipment
USIM	Universal Subscriber Identity Module
UICC	Universal Integrated Circuit Card
PDA	Personal Digital Assistant

Further abbreviations are given in 3G TR 21.905 [1].

4 General Aspects

4.1 Modularity of the 3GPP system

Since the days of GSM many operators have selected more that one vendor to provide network elements to their network. The 3GPP system has always been designed modular and flexible, allowing operators to chose among different vendors and manufactures to implement various configurations based on 3GPP system specifications.

4.2 UICC platform

3GPP release 99 introduced the UICC, a smart card platform that can contain several applications. From the 3GPP point of view the most important are the USIM and SIM applications. The USIM is designed for UTRAN access, but can also be used for GERAN access. The UICC design allows several USIM applications to be stored on the same UICC, but due to architectural reasons and UE capabilities, only one of the USIMs can be active at any given time.

In general the 3GPP specifications do not have any position on commercial scenarios, e.g. ownership of the UICC is not specified by the 3GPP. In practise, the UICC is understood to be owned by the network operator, who thus has control over all applications installed on the UICC. However the specifications do not prohibit other scenarios.

For Rel 5, the 3GPP has developed and specified the IMS as a means to provide IP multimedia based services. Part of the development includes a UICC application to be used for access to IMS, i.e. the ISIM application.

4.3 IMS access independence

Editors note: Below text was included a basis for further contributions. Text is not agreed as time being.

For release 5 3GPP agreed on the requirements for a UICC application – the ISIM, which sufficiently provides the necessary security mechanisms for accessing the IMS domain. There are two requirements, which are release 5 specific. In [2] it is stated: *"In Rel5 the ISIM application shall require the presence of a USIM application on the same UICC."* Further [3] states: *"In R5 the ISIM application shall require the presence of a USIM application on the same UICC. This shall not preclude the possibility in later releases of having an ISIM in a UICC that does not contain a USIM."*

In release 5 these two specific requirements are equivalent to the fact that the only way of accessing the IMS domain is through the GPRS access (architectural limitations). There was no explicit mechanism developed for checking the existence of a USIM on the UICC in case there were an ISIM on the same UICC as the IMS has been considered as an integral part of the overall 3GPP system architecture.

*Armin Toepfer: WLAN is considered as an additional radio access means and does not provide any justification for this debate.*The ISIM requirements have bearing on the meaning of the high level requirement for the IMS - commonly known as "Access Independence" [3]. However, for the sake of firm specifications "Access Independence" in the framework of the 3GPP partnership project must be limited to those access networks 3GPP specifications are covering, including those where functional care is taken via close working relationships (e.g. 3GPP2). Any other combination is

out of the scope of 3GPP. Subscription scenarios, until now, assume a "basic" subscription to a licensed network operator (service providers usually offer a subscription to one network operator) and "add-on" subscriptions to services as features. Insofar the envisioned scenario that users of non-3GPP access have access to an IMS domain without being subscribers to a licensed network operator are not covered by 3GPP specifications yet.

Editors note: Following definition was drafted by SA1 but not agreed by SA on same topic*: "Access technology independence; where access independence provides the ability for the subscriber to access their IP Multimedia services via non 3GPP access technologies, e.g. via Internet, WLAN."*

5 Traditional Roles

5.1 Description

Actors

Operator 'BigGreens'

BigGreens runs a 3GPP mobile access network and an IMS domain. It has also deployed WLAN using 3GPP interworking.

[Editor's note: To whom are BigGreens offering IMS services? For instance do you need to be a subscriber to BigGreens's 3G access service in order to use BigGreens's IMS services? In that case can you access the IMS only from BigGreens's access.]

Operator '3cent'

3cent is any 3GPP operator, which has a roaming agreement with Operator BigGreens. 3cent does not have an IMS.

Operator 'Cool'

Cool is any operator that has a roaming agreement with BigGreens and it also runs its own IMS.

Customer

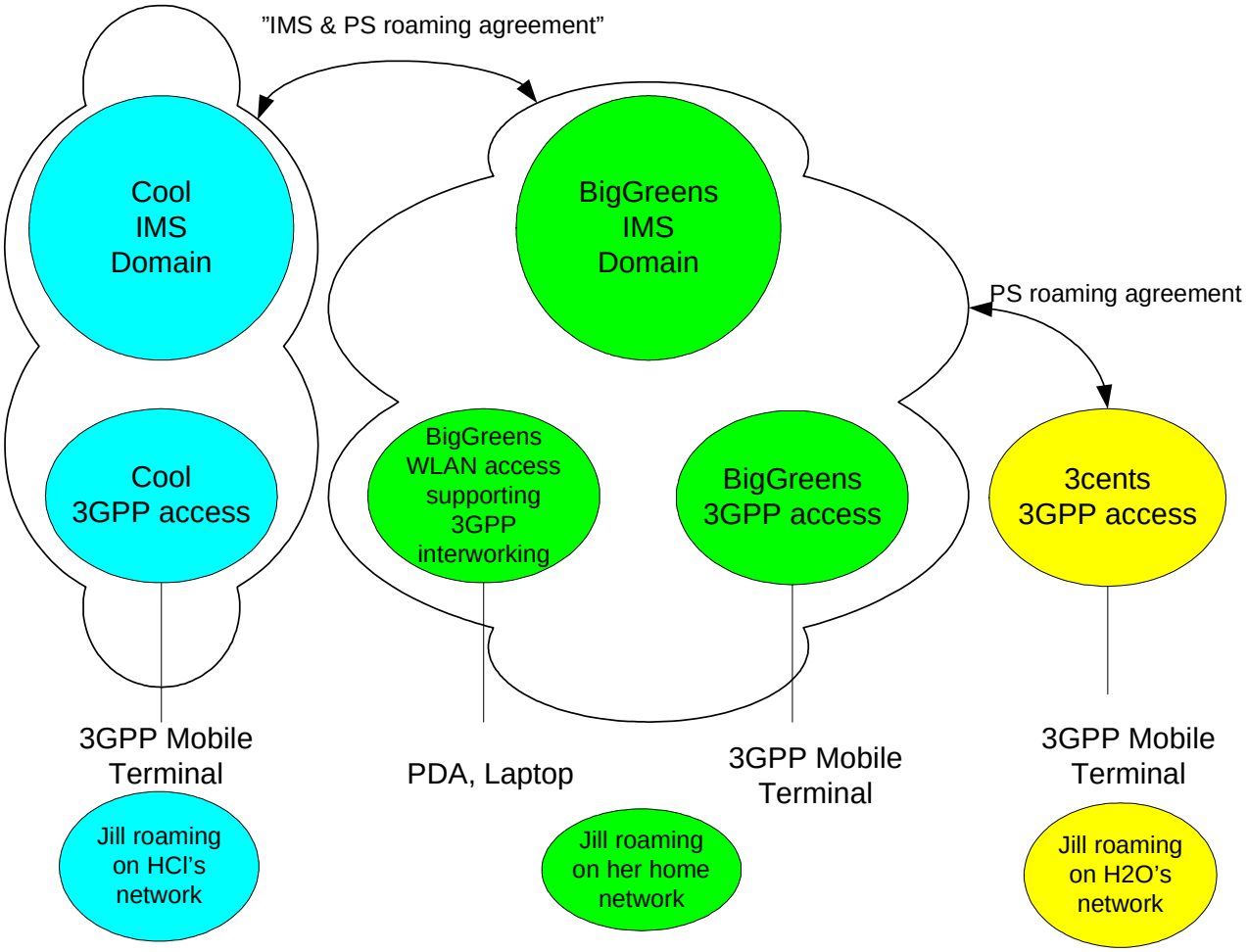
Jill, the customer, has a subscription with operator BigGreens (Both IMS and PS domains).

When roaming on 3cent or Cool, Jill can access the BigGreens' IMS.

[Editor's Note: It has to be decided within the scope of the scenario if this shall require a business agreement additional to the PS roaming agreement. Then, if this has any impact on the 3GPP specification is FFS.]

When roaming on Cool, Jill may also access the IMS of Cool subject to agreements between BigGreens and Cool. (If there is no agreement, then Jill cannot use HCL's IMS).

[Editor's Note: This sort of commercial agreement might be called "IMS roaming agreement", but the concept needs to be clarified. It has to be decided within the scope of the scenario if Jill can access to HCL's IMS when she is on her HPLMN subject to the "IMS roaming agreement? What the impacts are on the 3GPP specification is FFS.]



- From the solutions identified for WLAN 3GPP system interworking this scenario uses the UICC for authentication for using BigGreens’ WLAN. .

- Authentication to the IMS domain is according to 3GPP specified mechanism.

5.2 Charging implications

Charging is already developed or being developed in 3GPP.

5.3 Security

Security is already developed or being developed in 3GPP.

5.4 Privacy implications

[Editor's note: General privacy issues and in particular issues relating to multiple subscriptions/ISIMs]

5.5 Regulatory aspects

[Editor's note: identification of requirements and related problems, e.g. legal interception]

5.6 Roaming

FFS

5.7 Quality of service

[Editor's note: identified issues]

5.8 User experience

[Editor's note: identified issues]

5.9 3GPP Requirements summary

[Editor's note: identified issues]

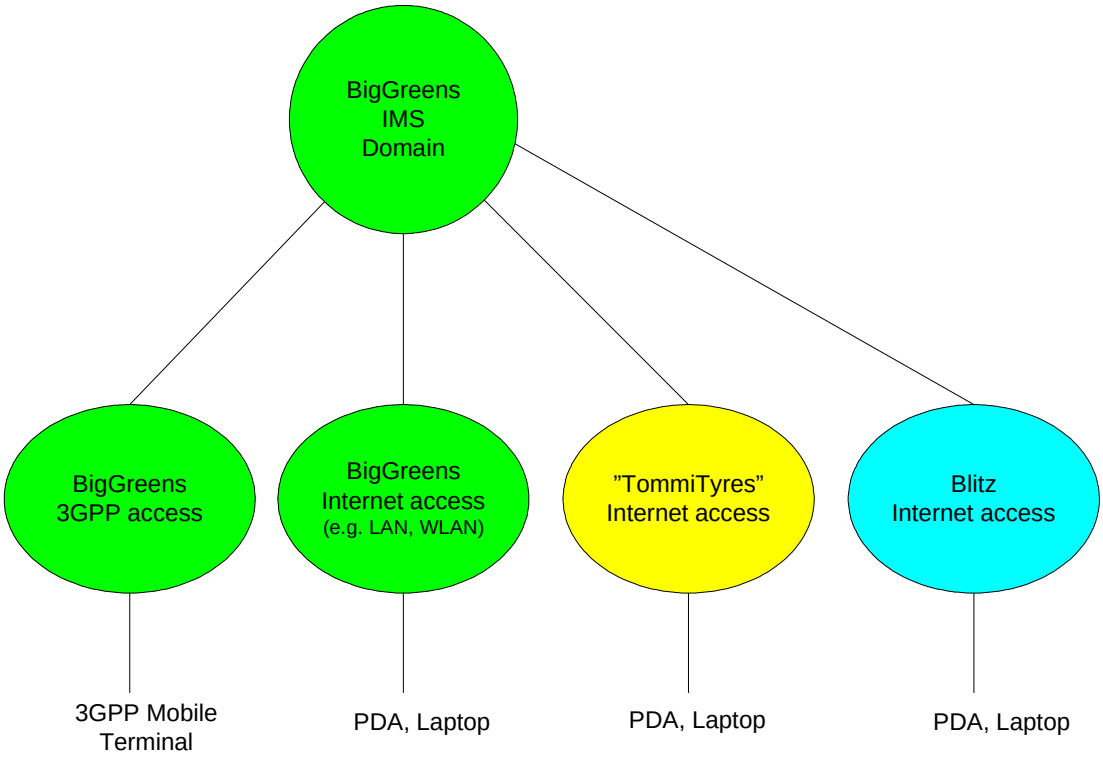
6 Non-3GPP access scenario

6.1 Description

The scenario includes three actors. Operator BigGreens runs the IMS domain, the 3GPP Access domain as well as a non-3GPP access providing IP-connectivity, e.g. WLAN or LAN. Company TommiTyres and Blitz operates a non-3GPP-access system domain providing IP-connectivity.

Note! The word domain is used here to indicate an administrative domain. These domains may/ or may not correspond to technical domains specified by the 3GPP.

- The customer Jill has a subscription with operator BigGreens. The subscription allows access to BigGreens' IMS domain (and *possibly* only to that domain).
- Jill also uses other companies' accesses, which provided IP-connectivity. Company TommiTyres could for instance be her employer. Jill has also chosen company Blitz, which is one of many companies offering IP-connectivity to the public. (I.e. Jill has a subscription with Blitz)
- Operator BigGreens and company Blitz have a business agreement, which allows Jill to benefit from the charging feature provided by the IMS technology. (See charging below)..
- Operator BigGreens and Company TommiTyres does not have any business agreement.



- TommiTyres and Blitz authenticates its customer and authorizes access to its domain. (Anonymous access may be plausible depending on the exact circumstances, which are left outside the scope of the scenario.)
- TommiTyres and Blitz manages its own subscriptions.
- TommiTyres has the billing relationship with its customer (if applicable).
- Accessing the IMS of BigGreens from the TommiTyres and Blitz Company's domain should not in itself degrade the security level of the IMS domain. [Editor's note: This bullet should probably be removed or put in the requirement summary.]
- The TommiTyres and Blitz Company's access may for example be of the type xDSL, LAN, WLAN. Editors note: Author assumes for this scenario any IP –connectivity. It need to be clarified what it the authentication mechanism assumed is based on 3GPP specifications or other solution, i.e. the scenario is different on UICC authentication compared to e.g. plain password solution.
- The authentication mechanism for accessing TommiTyres and Blitz Company's domain is not based on UICC in this scenario. [Editor's note: These other mechanisms are outside the scope of 3GPP.]
- Authentication to the IMS domain is according to 3GPP specified mechanism.
- BigGreens authenticates its customer and authorizes access to its domain.
- BigGreens has the billing relationship (prepaid/post-paid) with its customer. Also, please see charging section below.

- BigGreens should be able to ensure the user's privacy when the IMS is accessed from TommiTyres and Blitz. [Editor's note: This bullet should probably be removed or put in the requirement summary.]
- The scenario envisages that BigGreens have the mechanisms for providing lawful interception, also when the IMS is accessed from Blitz's domain. [Editor's note: This bullet should probably be removed or put in the requirement summary.]
- The scenario assumes that the company having the billing relationship with the customer is also the owner of the UICC(s) (in the case a UICC is used for accessing a domain).

In the scenario it can be envisaged that users wants to register with their IMS service from various terminal equipments over different accesses at the same time. Some sessions they may want to receive on specific terminal equipment, e.g. "heavy" multimedia sessions, and other session they may want to receive with their mobile phone. The scenario has bearing on UE functional split. It may be envisioned that the service applications, including IMS related applications, reside on the terminal equipment.

6.2 Charging implications

If applicable, TommiTyres charges its customer for using the access. (The tariff may be e.g. flat rate, or based on received/generated traffic volume.) Of course, if company TommiTyres is Jill's employer (access being e.g. corporate WLAN) no charges are incurred.

BigGreens charges its customer for using the IMS, the fee may include charges levied by the called party's IMS. (I.e. the customer initiate a session to another person residing on another IMS domain "Calling-party pays"). Note: The charging in this use case is similar to the "Interoperability Scenario".

The business agreement between BigGreens and Blitz, means that Jill will charged in the same manner when using Blitz's domain as she would have been if she had used BigGreens' Internet access. The scenario envisages that in this case the BigGreens has the billing relationship with Jill and also performs the charging, e.g. correlation for bearer, session and event layer. Blitz charges BigGreens for Jill's usage of Blitz's access. However, when Jill uses Blitz's access network for other purposes than using the IMS, Jill will be charged by Blitz.

6.3 Security

The scenario prescribes that accessing the IMS from the TommiTyres and Blitz Company's domain will not in itself degrade the level of security (compared to accessing the IMS from BigGreens' accesses).

6.4 Privacy implications

Ideally, BigGreens should be able to ensure the user's privacy when the IMS is accessed from the TommiTyres or Blitz's domain. BigGreens should at least have the mechanisms for denying access to its IMS from access domains it doesn't consider secure enough.

6.5 Regulatory aspects

In some countries regulations only require lawful interception on "telephony networks" and not "data networks" but the situation can be expected to change. BigGreens could be subject to facilitate lawful interception and the scenario prescribes that it has the means to do so, also for sessions over the other companies' access.

6.6 Roaming

6.7 Quality of service

Since the IMS services are accessed through non-3GPP accesses, 3GPP specified QoS is not applicable.

[Editor's note: identified issues]

6.8 User experience

[Editor's note: identified issues]

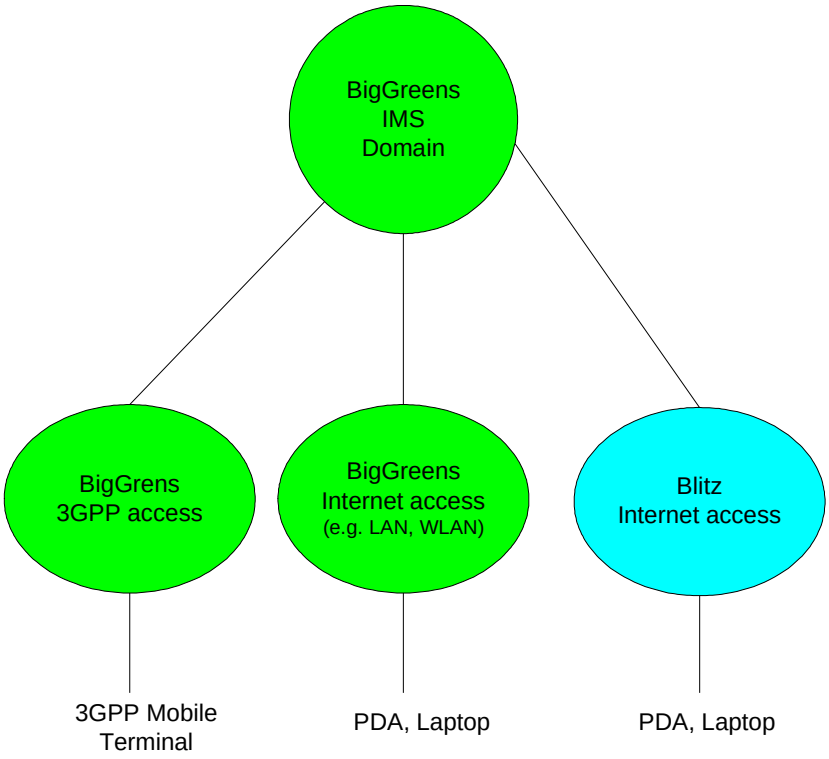
6.9 3GPP Requirements summary

[Editor's note: identified issues]

7 Non-3GPP access scenario with roaming

7.1 Description

The scenario includes two actors. Operator BigGreens runs the IMS domain, the 3GPP Access domain as well as a non-3GPP access providing IP-connectivity, e.g. WLAN or LAN. Blitz operate a non-3GPP-access system domain providing IP-connectivity. The main difference with the previous scenario is that in this case BigGreens has a commercial agreements in place with Blitz, which give the possibility for BigGreens customers to use Blitz internet access. The subscribers of BigGreens do not need to have a direct business relation with Blitz to attain connectivity. BigGreens is responsible for charging the subscriber also for the connectivity as well as authenticating and authorising the subscribers on Blitz.



- The customer Jill has a subscription with operator BigGreens. The subscription allows access to BigGreens' IMS domain (and *possibly* only to that domain).
- Jill also uses other companies' accesses, which provided IP-connectivity. Jill has also chosen company Blitz when BigGreens does not offer IP connectivity (e.g. abroad).
- Operator BigGreens and company Blitz have a business agreement , which give the possibility for BigGreens customers to use Blitz internet access..
- Operator BigGreens is the only actor with billing relations with Jill.
- The charges for the usage of Blitz network are settled by BigGreens.
- Accessing IMS from Blitz domains should not degrade the security level of the IMS domain. [Editor's note: This bullet should probably be removed or put in the requirement summary.]
- Blitz access may for example be of the type PSTN, xDSL, LAN, WLAN.
- BigGreens authenticates its customers when they try to access the Blitz network. The authentication may be performed using 3GPP mechanisms, but other forms of authentication may apply (e.g. AAA). The authentication method(s) used are assumed to be specified by the commercial agreement.
- BigGreens authenticates its customer and authorizes access to its domain. This generally means that BigGreens owns the mechanisms for performing the task.
- BigGreens should be able to ensure the user's privacy when the IMS is accessed from Blitz domain.
- The scenario envisages that the BigGreens has the mechanisms for providing lawful interception, also when the IMS is accessed from the Blitz domains.

- The scenario assumes that BigGreens (the company having the billing relationship with the customer) is also the owner of the UICC(s) (in the case a UICC is used for accessing a domain).
- In this scenario (and possibly others) it can be envisaged that users wants to register with their IMS service from various terminal equipments over different accesses at the same time. Some sessions they may want to receive on specific terminal equipment, e.g. "heavy" multimedia sessions, and other session they may want to receive with their mobile phone.

Editors Note: The final bullet point may lead to the development of an additional scenario to consider situations where a user registers to IMS services from multiple UEs.

7.2 Charging implications

Blitz applies agreed charges to BigGreens when BigGreens customers use the Blitz access.

BigGreens charges its customer for using the IMS, the fee may include charges levied by the called party's IMS, ("calling party pays").

7.3 Security

The scenario prescribes that accessing the IMS from Blitz's domain will not in itself degrade the level of security of the IMS. The security requirements for accessing Blitz domain are probably outside the scope of 3GPP.

7.4 Privacy implications

Ideally, BigGreens should be able to ensure the user's privacy when the IMS is accessed from Blitz's domain.

7.5 Regulatory aspects

In some countries regulations only require lawful interception on "telephony networks" and not "data networks" but the situation may change. BigGreens could be subject to facilitate lawful interception and the scenario prescribes that it has the means to do so, also for sessions over the other companies' access.

7.6 Roaming

FFS

7.7 Quality of service

When the IMS services are attained through the non-3GPP network, the 3GPP QoS does not apply.

7.8 User experience

In this case a mapping of QoS parameters or a SLA may be necessary to guarantee a satisfactory experience of the service.

7.9 3GPP Requirements summary

FFS

8 Multiple IMS scenario (part one)

8.1 Description

Changes in business relations like mergers (or take over) may create situations were flexibility in IMS operator and subscriber relations are desirable. One example would be an operator, 'Untouched', merging with another operator BigGreens, and buying access network services from that other operator (BigGreens) in the future. (Resulting scenario in picture below.) Untouched would remain offering IMS services and would keep business relationship with its subscribers unchanged. Subscribers of the former two companies are free to choose between BigGreens' IMS services and Untouched's IMS services (possibly using both simultaneously). Untouched goes on with its business and becomes the big global IMS operator. It makes business agreements with other operators where it acts as a 3rd party IMS only operator.

Note! The word domain is used in this text to indicate an administrative domain.

Actors

Operator 'BigGreens'

BigGreens operates a 3GPP 3G, 2G mobile network.

BigGreens also operates an IMS. BigGreens offers access to its IMS via GERAN and UTRAN,

BigGreens has a business relationship with Untouched.

Operator '3cent'

3cent is any 3GPP operator supporting GPRS.(not necessarily having IMS). 3cent has a GPRS roaming agreement with BigGreens but has no relationship with Untouched.

Operator 'Untouched'

Untouched is the IMS only operator covering a number of countries perceived to be the market leader in IMS services.

Customer

Jill is a customer of BigGreens. BigGreens offers her the opportunity also to use the IMS of Untouched.

Jill should be able to access IMS services to both BigGreens and Untouched.

Despite Untouched not having a business relationship with 3cent, Jill will still be able to access the IMS services from Untouched whilst roaming on 3cent (bearer capabilities allowing).

Dependent on the business arrangement Untouched could be acting as an MVNO and own it's own customers.

The assumptions are that Jill has been issued a UICC belonging to BigGreens.

Editors note: Roaming related issues needs to take into account different type of roaming agreement.

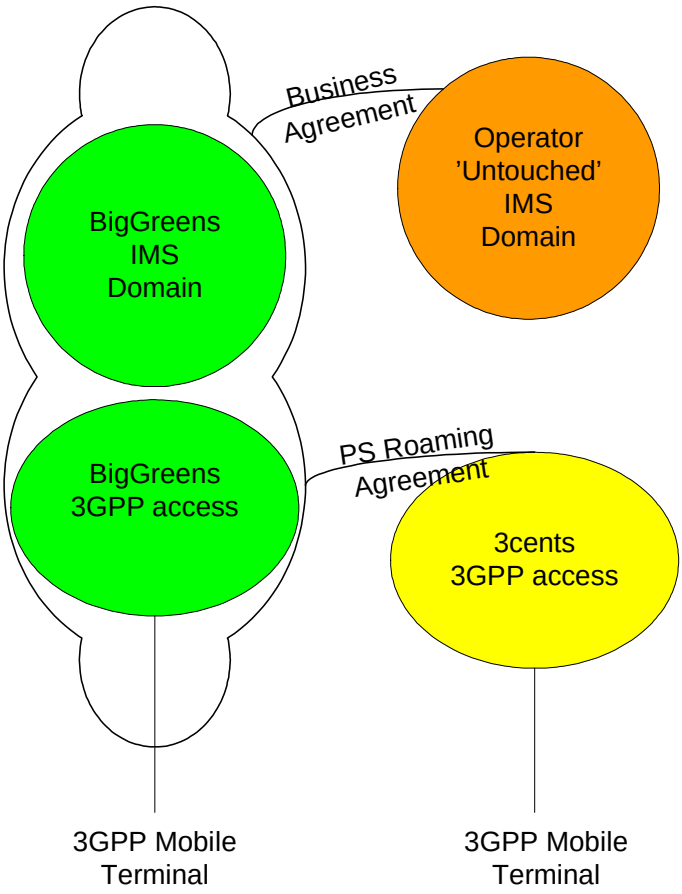

Business
Agreement
Operator
'Untouched'
IMS
Domain
BigGreens
IMS
Domain
BigGreens
3GPP access
PS Roaming
Agreement
3cents
3GPP access
3GPP Mobile
Terminal
3GPP Mobile
Terminal

Figure YY

- Untouched manages its own subscriptions.
- Untouched authenticate and authorise customers to use Untouched's domain.
-
- BigGreens has the billing relationship with Jill.
- It should be possible for Jill to access both Untouched and BigGreens IMS domain, preferably simultaneously.

8.2 Charging implications

BigGreens provides Untouched with the necessary charging information for charging the customer for the 3GPP access service usage. BigGreens sells capacity to Untouched on a wholesale basis. Untouched can perform correlation between bearer, session and event layer. Charging between Untouched and BigGreens is for FFS.

8.3 Security

The scenario envisages that Untouched will provide the same level of security as BigGreens.

8.4 Privacy implications

The scenario envisages that Untouched can ensure the same level of privacy as BigGreens.

8.5 Regulatory aspects

The scenario envisages that Untouched and BigGreens can perform legal interception.

8.6 Roaming

FFS: While roaming on 3cent, Jill chose between BigGreens IMS and Untouched IMS the same usual way she always does. The scenario envisages that although Jill is roaming on 3cent it is transparent to Jill.

8.7 Quality of service

[Editor's note: identified issues]

8.8 User experience

[Editor's note: identified issues]

8.9 3GPP Requirements summary

FFS

9 Multiple IMS scenario (part 2)

9.1 Description

This scenario continues from the previous one (Multiple IMS scenario part1).

Note! The word domain is used in this text to indicate an administrative domain.

Actors

Operator 'Tealeaf'

Tealeaf operates a 3GPP 3G, 2G mobile network.

Tealeaf also operates an IMS. Tealeaf offers access to its IMS via GERAN and UTRAN.

Tealeaf has a business relationship with Untouched.

Operator 'BigGreens'

BigGreens is the same 3GPP operator as in the previous scenario and which has its own IMS. They allow their customer to access the IMS of Untouched. BigGreens and Tealeaf does not have GPRS roaming agreements.

Operator 'Untouched'

Untouched is the same IMS only operator from the previous scenario, covering markets in a number of countries perceived to be the market leader in IMS services.

Customer

Jill is the customer of BigGreens . As in the previous scenario BigGreens offers her the opportunity to use the IMS of Untouched.

Frank is a customer of Untouched only. Untouched offers him to choose among various access operators. Frank has chosen Tealeaf. (Alternative scenario is that Untouched chose Tealeaf for him based on a number of suitable criteria.)

Frank can only access to the (IMS) services of Untouched.

The assumptions are that Frank has been issued a UICC belonging to Untouched.

'Untouched' is acting as an MVNO and own it's own customers.

One day Jill arrives in the country where Tealeaf is running its business. Jill buys a prepaid subscription with Tealeaf and can access the IMS of Untouched due to the business agreement between the two. Jill has a dual UICC slot mobile where she was only using one of the slots. So in the empty slot she can insert the UICC hosting the USIM of the prepaid subscription she just has bought.

FFS: What are the billing relationship(s) with Jill in this case? The assumption is that BigGreens is not aware of Jill's initiative.

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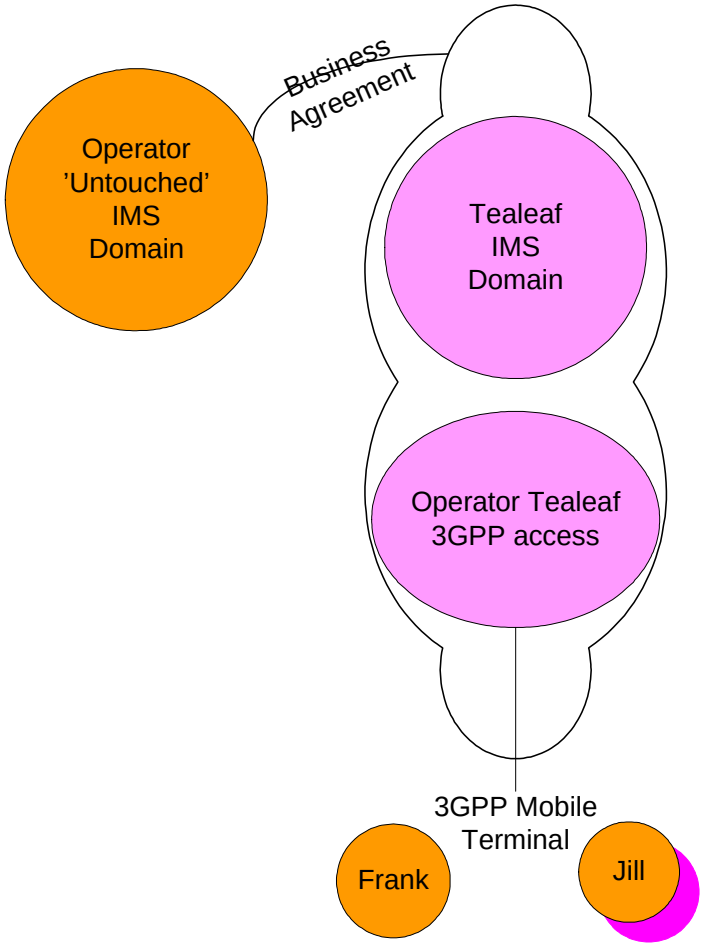

Business
Agreement
Operator
'Untouched'
IMS
Domain
Tealeaf
IMS
Domain
Operator Tealeaf
3GPP access
3GPP Mobile
Terminal
Frank
Jill

Figure YY

- Untouched manages its own subscriptions.
- Untouched authenticate and authorise customers to use Untouched's domain.
- Untouched has the billing relationship with Frank.

9.2 Charging implications

Tealeaf provides Untouched with the necessary charging information for charging the customer (Frank) for the 3GPP access service usage. Tealeaf sells capacity to Untouched on a wholesale basis. Untouched can perform correlation between bearer, session and event layer. Charging between Untouched and Tealeaf is for FFS.

FFS: Is there a charging relationship also for customers like Jill, with a GPRS prepaid subscription?

9.3 Security

The scenario envisages that Untouched will provide the same level of security as Tealeaf can for its IMS.

9.4 Privacy implications

The scenario envisages that Untouched can ensure the same level of privacy as Tealeaf can for its IMS.

9.5 Regulatory aspects

The scenario envisages that Untouched and Tealeaf can perform legal interception.

9.6 Roaming

[Editor's note: identified issues]

9.7 Quality of service

[Editor's note: identified issues]

9.8 User experience

[Editor's note: identified issues]

9.9 3GPP Requirements summary

FFS

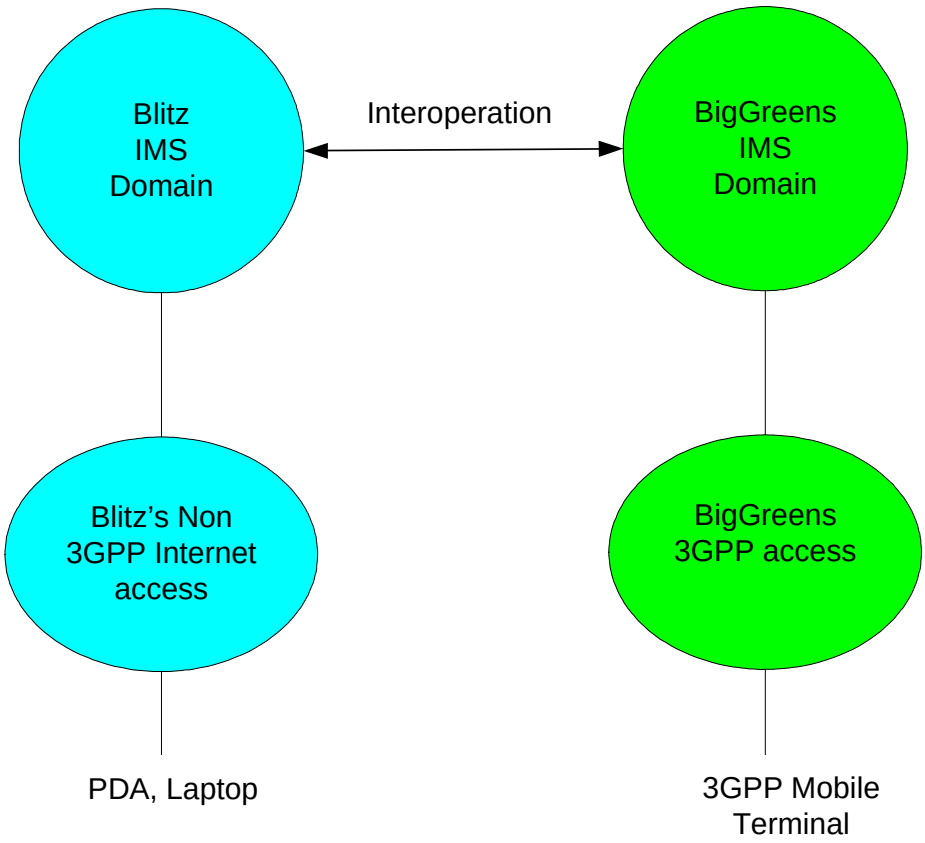
10 Interoperability scenario

10.1 Description

The company Blitz, which does not operate a 3GPP-access, offers its customer, Jack, IP-connectivity and access to its IMS domain over its non-3GPP-access. BigGreens offers its customer, Jill, IP connectivity over its 3GPP access and also access to its IMS domain. This scenario allows customers of Blitz to interoperate with customers of BigGreens. For instance Jack could make a multimedia call to Jill and pay for that call (Calling-party pays). In the case Jill is roaming she will be charged for the roaming portion of the call, as she would do today.

The benefit for mobile operators would be that by allowing for this kind of "IMS interoperations", it would stimulate traffic to the mobile operator's network, as well as increase the interest for IMS technology.

Note! The word domain is used here to indicate an administrative domain. These domains may correspond roughly to technical domains specified by the 3GPP or not correspond to a technical domain at all.



- Blitz manages its own subscriptions.
- Blitz authenticates and authorises customers to use Blitz's domains.
- Blitz has the billing relationship with its customer.
- The scenario envisages that all Blitz customers can communicate with persons/entities registered on other IMS domains and operators to maintain traditional mobile telephony charging schemes.
- Blitz access may be of the type PSTN dial-up, xDSL, LAN, WLAN.
- A customer of Blitz doesn't have to be known by BigGreens.
- BigGreens authenticate and authorise users to access its domain.
-

- Blitz has a business agreement with BigGreens (or possibly some intermediate actor, which has a business agreement with BigGreens)

10.2 Charging implications

The scenario envisages that Blitz can perform correlation of bearer, session and events in the same manner as the BigGreens can do for its customers.

10.3 Security

The scenario envisages that Blitz will be able to provide the same level of security for its IMS domain as can BigGreens.

10.4 Privacy implications

Blitz is expected to be able to ensure the same level of privacy for its customers as BigGreens can do for its customers.

10.5 Regulatory aspects

In some countries the regulator is only requiring lawful interception on "telephony networks" and not "data networks", but the situation may change. The scenario envisages that Blitz performs legal interception.

10.6 Roaming

Roaming is not applicable in this scenario.

10.7 Quality of service

When the IMS services are accessed through non-3GPP accesses, 3GPP specified QoS is not applicable.

10.8 User experience

[Editor's note: identified issues]

10.9 3GPP Requirements summary

11 Multiple terminals scenario

11.1 Description

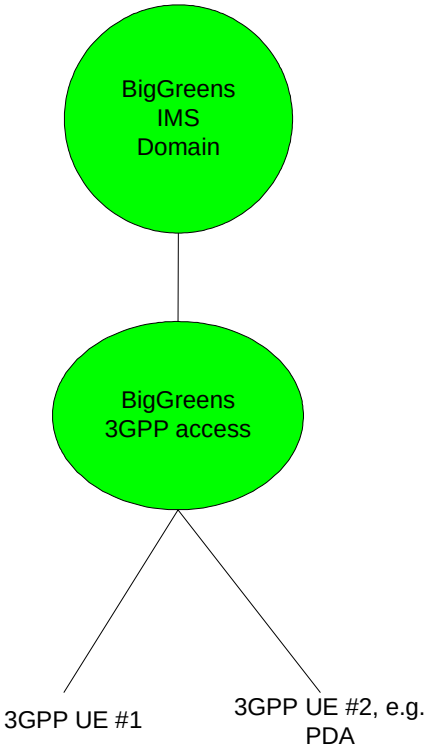
This scenario is for the following use case:

One subscriber is using his IMS services with several terminals at the same time. For the incoming sessions the user would have the same public identity / identities for all his devices (through which he has registered to the IMS system). It should be noted that the registered applications (/capabilities) may be the same or different, e.g. the list of

supported codecs. Thus the routing for incoming sessions needs to be based on additional information like capabilities of UEs or preferences of the user and the network.

Editors note: Add text that all terminals need to have their own UICC. At least one use case is needed. "Intelligent routing" needs further described e.g. which terminals receive message and do all terminals alert on incoming calls.

In the scenario described in figure X customer is having an UE 1 and an UE 2 (e.g. PDA) both registered to same IMS subscription.



FigureX: Customer with two devices using IMS services.

11.2 Charging implications

The scenario envisages that it is possible to provide itemised billing per used UE.

It is for further study if charging could be different according to on what UE the service is delivered.

11.3 Security

IMS shall use same security mechanisms for the multiple terminals case as in one terminal case.

11.4 Privacy implications

None identified.

11.5 Regulatory aspects

None identified.

11.6 Roaming

Roaming does not have a direct impact on this scenario, but combinations with the other scenarios described in this TR may bring implications that are left FFS.

11.7 Quality of service

FFS

11.8 User experience

[Editor's note: identified issues]

11.9 3GPP requirements summary

This scenario implies the following potential requirements:

-One subscriber shall be able to use same public identity with several terminals simultaneously.

-IMS shall be able to support several registrations from different terminals per one public identity.

-IMS shall be able to support Intelligent routing towards the correct terminal(s), based on Terminal capability, User preference and/or Network preferences.

NOTE: It is for further study what the implications of this scenario are on the Generic User Profile.

12 Summary of all scenarios

Editors note: This is a place holder picture of all scenarios if possible…

13 Miscellaneous

[Editor's note: UE functionality split (if any implications), card ownership issues, MMI-aspects e.g. analyse aspects of user interaction when activating different applications (e.g. manually, automatically, PIN, NON-PIN) on the UICC). Are there conflicts in privacy issues due to several subscriptions?)]

Annex A: Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2002-10					First Draft		0.0.1
2002-10					Agreed skeleton		0.0.2
2002-10					First draft with content from Beijing IMS SWG		0.0.3
2002-10					Editorial cleanup of output version from Beijing		0.0.4
2002-11					Draft with content added from Busan IMS SWG		0.0.5
2002-11					Update following review of 0.0.5 in Busan IMS SWG		0.0.6

Annex B Scenario template

X.1 Description

[Editor's note: Description of the scenario including roles, actors, business agreements, , what value is created?, etc.]

X.2 Charging implications

[Editor's note: E.g. Interoperator charging issues, who is paying whom for what?, revenue stream,…]

X.3 Security

[Editor's note: Identification of security issues, e.g. concerning interoperator interfaces.]

X.4 Privacy implications

[Editor's note: General privacy issues and in particular issues relating to multiple subscriptions/ISIMs]

X.5 Regulatory aspects

[Editor's note: identification of requirements and related problems, e.g. legal interception]

X.6 Roaming

[Editor's note: identified issues]

X.7 Quality of service

[Editor's note: identified issues]

X.8 User experience

[Editor's note: identified issues]

X.9 3GPP Requirements summary