

TSG-SA WG1 #27
Cape Town, South Africa, 17th to 21st January 2005

S1-050256
Agenda Item:

Work Item Description

Title: Study of Network Selection Principles

1 3GPP Work Area

X	Radio Access
X	Core Network
X	Services

2 Linked work items

All IP Network Feasibility Study (unique ID 31059),
WLAN – UMTS Inter-working (unique ID 31012)

3 Justification

The current network selection mechanisms in TS22.011 were written originally to encompass only GSM and then GPRS network selection. Since then, further mechanisms have been added to address 3G and more recently to incorporate selection of the RAT (Radio Access Technology).

The advent of new types of access technology (e.g. WiFi) and alternative access methods will result in more complex access selection requirements that are not catered for by the existing mechanisms. Also, the changing operator environment will result in a greater choice of new, independent networks (e.g. independent WLAN operators, fixed line operators).

The current network selection mechanisms have also been shown to cause problems under certain operational conditions (e.g. where there is a fault on selected GPRS network).

The main problems caused by this increasing complexity and current operational conditions are:

- User confusion – there is an increased number of options and users already find manual network selection difficult
- Automatic network selection does not always guarantee that the end-user device ends up connected to a network that can support the service required.
- The present method does not take account of operational conditions of available networks
- Network selection (particularly on 3G) is too slow

In order to address the above problems, it is proposed that the current network selection mechanisms should be reviewed.

4 Objective

To review the network selection mechanisms in TS22.011 and requirements from other work areas as noted in section 2, above, to take account of new methods of access and new operator types and to ensure that the appropriate access is chosen based on the requirements described below.

It is proposed to look carefully at existing network selection mechanisms to determine how well they meet requirements related to the aspects described in section 5, below. Depending on the extent to which the existing mechanisms meet these requirements, it can be decided whether to enhance the existing specification or carry out a more fundamental rewrite. Within this review the following areas need to be considered:

- Network selection algorithm used by mobile devices
- End user inter-action & interface
- Network operation
- Multiple Access System scenarios
- User & network operator lists
- National roaming
- International roaming
- RAN evolution
- Radio Planning
- Backwards compatibility

5 Service Aspects

The interests of both the network operator and the end user need to be considered. Network selection mechanisms should take account of the following considerations:

- Service used (including requirements for data rate & QoS)
- Network operator roaming agreements
- User preferences (e.g. preference based on cost)
- Operational condition of available networks (e.g. fault conditions)
- Optimisation of end-user device operation (e.g. power consumption)
- Speed of selection operation
- Should support long-term evolution of access methods (e.g. RAN Evolution work)
- Should be backwards compatible to ensure existing end user devices can still work

6 MMI-Aspects

None.

7 Charging Aspects

TBD

8 Security Aspects

TBD

9 Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes	X	X	X	X	

No					
Don't know					

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

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR 22.8xx	Review of Network Selection Principles	SA1		TBD	TBD	
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
TS22.011						

11 Work item rapporteur(s)

Chris Friel, O2

12 Work item leadership

SA1

13 Supporting Companies

O2, RIM, Qualcomm, 3, TIM, T-Mobile, Axalto, Vodafone, Siemens, Orange

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

31050 Behaviour of Multi System UEs

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 "early implementation" 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 "rapporteur" corrected
2002-07-04: "USIM" box changed to "UICC apps"