Work Item Description

Title: **Delay optimisation for procedures applicable to CS and PS Connections**

1   3GPP Work Area

X	Radio Access
X	Core Network
	Services

2   Linked work items

None

3   Justification

In a modern telecommunication network such as UMTS, the aim of the operator is to offer high quality of service to users. The Quality of Service is the collective effect of service performances, which determine the degree of satisfaction of a user of a service.

Under the general heading of quality of experience (QoE) one of the more noticeable points faced by the user is the apparent delay in set up or channel allocation times for different connections. The set up and channel allocation delay can be defined as the time interval from the instant the user initiate a connection request until the complete message indicating call disposition is received by the calling terminal or the by application server. When establishing a connection the user, due to this delay, may think that the connection has not gone through or the network is not responding which may prompt the user to re-dial, reconnect or even in some cases to abandon the connection attempt. From the service provider's perspective improving the quality of service is very important giving their users a good perception of the network performance and efficiency.

This work item is intended to investigate mechanisms to improve the connection establishment times and implement those changes into the relevant specifications.

The delay in set up or channel allocation times can be attributed to:
- Processing time in the UTRAN
- Processing time in the Core network
- Processing time in UE
- Call setup and alerting phase in the core network
- UTRAN and CN Protocols and associated overhead including protocol conversion
- Signalling delay on the air interface
- Signalling delay on UTRAN interfaces and towards CN
- NAS procedures

This work item shall not delay the finalization of the already ongoing work for release 6 targeting faster channel setup times.

4   Objective

The objectives of this work item are:

- o To review the CS and PS Call and session Setup and channel allocation procedures in UMTS
- o To highlight the improvements where call and session setup process can be improved and consider impacts the relevant specifications
- o To highlight the improvements to the existing RRC state transitions
- o To identify possible ways to enhance call and session setup performance whilst keeping in mind R99 backwards compatibility
- o To put forward change request relevant to specifications
- o To focus on the reduction of delay caused by RAN related aspects
- o To review performance requirements for e.g. RRC procedures
- o To review network RRM strategies

This investigation should determine possible enhancements, which will be documented in a technical report. The report should also propose in the conclusion suggested changes to existing specifications.

Priorities should be given to decrease the latency, which is caused by the different factors.
Solutions with limited impact on the UE development should be preferred in order to ensure a fast delivery.

The relevant specifications should be enhanced as soon as a solution can be agreed in the technical working groups. Change Requests should be approved for the earliest possible release of the 3GPP specifications.

## 5	Service Aspects

None

## 6	MMI-Aspects

None.

## 7	Charging Aspects

None

## 8	Security Aspects

None

## 9	Impacts

Affects:	UICC apps	ME	AN	CN	Others
Yes		X	X	X	
No	X				
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 25.XXX	Signalling Enhancements for CS and PS Connections; Analyses and Recommendations	RAN2	RAN3 RAN1 CN1	30	31	

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments

11 **Work item rapporteur(s)**

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12 **Work item leadership**

TSG RAN WG2

13 **Supporting Companies**

3, Ericsson, LG, Motorola, NEC, Nokia, Nortel, Qualcomm, Samsung, Siemens, Telia-Sonera, T-Mobile

14 **Classification of the WI (if known)**

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