3GPP TSG CN Plenary Meeting #14
Kyoto, JAPAN, 12th–14th December 2001

NP-010617

Source:	TSG CN WG4
Title:	CRs on R99 Super Charger
Agenda item:	7.23
Document for:	APPROVAL

<u>**Introduction:**</u>

This document contains 8 CRs on R99 Work Item "Super Charger", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.002	330	1	N4-011226	R99	Clarification of methodology for maintaining data consistency in Supercharger	F	3.10.0
29.002	331	1	N4-011227	Rel-4	Clarification of methodology for maintaining data consistency in Supercharger	A	4.5.0
23.116	003	1	N4-011228	R99	Clarification of methodology for maintaining data consistency in Supercharger	F	3.1.0
23.116	004	1	N4-011229	Rel-4	Clarification of methodology for maintaining data consistency in Supercharger	A	4.0.0
23.912	001	1	N4-011230	R99	Clarification of methodology for maintaining data consistency in Supercharger	F	3.0.2
23.912	002	1	N4-011231	Rel-4	Clarification of methodology for maintaining data consistency in Supercharger	A	4.0.0
23.912	003		N4-011327	R99	Update Location in Supercharger following receipt of Reset message from HLR	F	3.0.2
23.912	004		N4-011328	Rel-4	Update Location in Supercharger following receipt of Reset message from HLR	A	4.0.0

CR-Form-v4

CHANGE REQUEST

	23.116 CR	003	rev	1	Current version:	3.1.0	

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘   (U)SIM ☐   ME/UE ☐   Radio Access Network ☐   Core Network ☒

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	CN4
Work item code: ⌘	TEI	***Date:*** ⌘ 1ˢᵗ October 2001
Category:	⌘ **F** Agreed by Consensus	***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
REL-4 *(Release 4)*
REL-5 *(Release 5)*

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process.

When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs. |
| ***Summary of change:*** ⌘ | | Add a reference to point readers towards 23.912 for the mechanisms that should be implemented to maintain data consistency in super charger networks. |
| ***Consequences if not approved:*** | ⌘ | Poor referencing within documentation and lack of clarity on processes for maintaining data consistency. |

Clauses affected:	⌘	5.2.3
Other specs affected:	⌘ ☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘ 23.912 (CR 01), 29.002 (CR 330)
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.2.3 Cancel Location

The cancel location procedures are normally not used within and between Super-Charged networks as part of the location update procedure, as described 3GPP TS 23.012. However, Super-Charged networks shall support the cancel location procedure to provide interworking for location update procedures with GSM & UMTS networks that do no tsupport the Super-Charger functionality. The cancel location procedure shall also be used within a Super-Charged network as a notification when there is a need to inform the previous network entity that the connections for the subscriber can be released, due to the fact that the MS has moved to another network entity. Subscription data may stil lbe kept in the previous network entities that support Super-Charger.

The mechanisms used to determine which network entities the cancel location message shall be sent to areis outside the scope of this specification. However, it is recommended that the HLR store an indication if the serving network entity supports the Super-Charger functionality. It is also recommended that an HLR supporting the Super-Charger functionality have mechanisms to decide when a notification, as described above, needs to be sent against previous network entity or not. Without such a mechanisms, Cancel Location shall always be sent. The mechanisms is are triggered by the indication received from serving network entity during location update procedure saying that previous network entity must be notified. These mechanisms are triggered when there is a risk data inconsistency between nodes in the network, and are detailed in 3GPP TS 23.912.

CR-Form-v4

CHANGE REQUEST

| ⌘ | **23.116 CR** | **004** ⌘ | rev | **1** | ⌘ | Current version: | **4.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	CN4
Work item code: ⌘	TEI	**Date:** ⌘ 1st October 2001
Category:	⌘ **A**	**Release:** ⌘ Rel 4

Use *one* of the following categories:
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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process.

When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs. |
| **Summary of change:** ⌘ | | Add a reference to point readers towards 23.912 for the mechanisms that should be implemented to maintain data consistency in super charger networks. |
| **Consequences if not approved:** | ⌘ | Poor referencing within documentation and lack of clarity on processes for maintaining data consistency. |

Clauses affected:	⌘	5.2.3
Other specs affected:	⌘ ☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘ 23.912 (CR 02), 29.002 (CR 331)
Other comments:	⌘	

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The mechanisms used to determine which network entities the cancel location message shall be sent to areis outside the scope of this specification. However, it is recommended that the HLR store an indication if the serving network entity supports the Super-Charger functionality. It is also recommended that an HLR supporting the Super-Charger functionality have mechanisms to decide when a notification, as described above, needs to be sent against previous network entity or not. Without such a mechanisms, Cancel Location shall always be sent. The mechanisms is are triggered by the indication received from serving network entity during location update procedure saying that previous network entity must be notified. These mechanisms are triggered when there is a risk data inconsistency between nodes in the network, and are detailed in 3GPP TS 23.912.

CR-Form-v4

CHANGE REQUEST

⌘ **23.912 CR** **001** ⌘ rev **1** ⌘ Current version: **3.0.2** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	Nortel Networks
Work item code: ⌘	TEI	*Date:* ⌘ 1st October 2001
Category:	⌘ **F** Agreed by consensus	*Release:* ⌘ R99

Use one of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can
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Use one of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
REL-4   (Release 4)
REL-5   (Release 5)

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process. When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs.
Summary of change: ⌘		Add InformPreviousNetworkEntity usage decription and clarify the other mechanisms for maintaining data consistency.
Consequences if not approved:	⌘	Incomplete mechanisms implemented for maintaining data consistency.

Clauses affected:	⌘	5.5
Other specs affected:	⌘ ☒ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	23.116 (CR 03), 29.002 (CR 330)
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.5 Data Consistency

Normal GSM operation ensures that subscriber data is only maintained in the HLR. When a subscriber enters a service area served by a particular database (i.e. VLR or SGSN), the HLR temporarily provides the database with the data related to that particular subscriber. If the subscriber happened to move to a new service area served by a different database, the subscriber data is sent to the new database and removed from the old database.

In a Super-Charged Network, subscription data is retained in numerous databases around the network. Each database provided with subscription data will retain this information when the subscriber roams to a different service area. In order to ensure data consistency the HLR shall record the date/time at which the subscription data was last modified and this date/time stamp is downloaded to the VLR or SGSN with the subscriber data . If the subscription data is changed in the HLR the copy of the data in each database will become outdated, except the current database(s) since they will be automatically updated. At location updating the VLR or SGSN shall provide the date/time at which the subscriber data was last modified then by comparing this value with the date/time stored in the HLR the HLR can determine whether the subscription data in the requesting entity is valid. Only if the data is not valid shall the HLR download the current subscription data.

Furthermore, to prevent the HLR containing inconsistent subscriber location information if radio contact with the mobile station is lost during a location update procedure, a PurgeMS message is sent when the MSC/ VLR or SGSN detects that radio contact has been lost, resulting in a cancel location message is being sent to the subscribers 'old' or 'previous' MSC/VLR or SGSN.

 A PurgeMS message is sent when the MSC/ VLR or SGSN detects that radio contact has been lost.

In some cases, during the Update Location, the Send Identification message between the MSC and the previous network entity shall not be sent. It can also be the case that during Update GPRS Location, the Context Update message between the SGSN and the previous network entity shall not be sent. When this occurs, the Update Location message between the VLR and HLR or in the case of GPRS the Update GPRS Location between the SGSN and the HLR shall include the InformPreviousNetworkEntity parameter. This will cause the HLR to send a cancel location message to the previous MSC/VLR or SGSN.

Finally, in the event of an HLR restart the date/time stamp for each subscriber is updated to reflect the restart. HLR restarts will result in a temporary decrease in the benefit from Super-Charger.

CR-Form-v4

CHANGE REQUEST

| ⌘ | **23.912 CR** | **002** ⌘ | rev | **1** | ⌘ | Current version: | **4.0.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘   (U)SIM ☐   ME/UE ☐   Radio Access Network ☐   Core Network ☒

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	CN4
Work item code: ⌘	TEI	*Date:* ⌘ 1st October 2001
Category:	⌘ **A**	*Release:* ⌘ Rel-4

Use *one* of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
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Use *one* of the following releases:
2   (GSM Phase 2)
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R98   (Release 1998)
R99   (Release 1999)
REL-4   (Release 4)
REL-5   (Release 5)

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process.

When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs. |
| *Summary of change:* ⌘ | | Add InformPreviousNetworkEntity usage decription and clarify the other mechanisms for maintaining data consistency. |
| *Consequences if not approved:* | ⌘ | Incomplete mechanisms implemented for maintaining data consistency. |

Clauses affected:	⌘	5.5
Other specs affected:	⌘ ☒ Other core specifications	⌘ 23.116 (CR4), 29.002 (CR 331)
	☐ Test specifications	
	☐ O&M Specifications	
Other comments:	⌘	

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In a Super-Charged Network, subscription data is retained in numerous databases around the network. Each database provided with subscription data will retain this information when the subscriber roams to a different service area. In order to ensure data consistency the HLR shall record the date/time at which the subscription data was last modified and this date/time stamp is downloaded to the VLR or SGSN with the subscriber data . If the subscription data is changed in the HLR the copy of the data in each database will become outdated, except the current database(s) since they will be automatically updated. At location updating the VLR or SGSN shall provide the date/time at which the subscriber data was last modified then by comparing this value with the date/time stored in the HLR the HLR can determine whether the subscription data in the requesting entity is valid. Only if the data is not valid shall the HLR download the current subscription data.

Furthermore, to prevent the HLR containing inconsistent subscriber location information if radio contact with the mobile station is lost during a location update procedure, a PurgeMS message is sent when the MSC/ VLR or SGSN detects that radio contact has been lost, resulting in a cancel location message is being sent to the subscribers 'old' or 'previous' MSC/VLR or SGSN.

 A PurgeMS message is sent when the MSC/ VLR or SGSN detects that radio contact has been lost.

In some cases, during the Update Location, the Send Identification message between the MSC and the previous network entity shall not be sent. It can also be the case that during Update GPRS Location, the Context Update message between the SGSN and the previous network entity shall not be sent. When this occurs, the Update Location message between the VLR and HLR or in the case of GPRS the Update GPRS Location between the SGSN and the HLR shall include the InformPreviousNetworkEntity parameter. This will cause the HLR to send a cancel location message to the previous MSC/VLR or SGSN.

Finally, in the event of an HLR restart the date/time stamp for each subscriber is updated to reflect the restart. HLR restarts will result in a temporary decrease in the benefit from Super-Charger.

CR-Form-v5

CHANGE REQUEST

| ⌘ | **23.912** CR **003** | ⌘**rev** | **-** | ⌘ | Current version: | **3.0.2** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title: ⌘	Update Location in Supercharger following receipt of Reset message from HLR	
Source: ⌘	CN4	
Work item code: ⌘	TEI	**Date:** ⌘ 16th November 2001

Category: ⌘ **F** (agreed by concensus)   **Release:** ⌘ R99

Use <u>one</u> of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP <u>TR 21.900</u>.

Use <u>one</u> of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘	When MSC/VLR or SGSN receives a Reset message from an HLR, the message tells the MSC or SGSN that there has been a significant failure in the HLR. In a non-supercharger network, receipt of a Reset message from an HLR triggers Update Location for all affected subscribers. For a Super-charger network, the nature of the failure in the HLR is not known so if Update Location is invoked but the time/Date stamp in the ULArg and that held in the HLR match, no ISD will be sent. However, the information in the HLR may no longer be consistent with that in the MSC/VLR or SGSN.
Summary of change: ⌘	If a Reset message is received from the HLR, the subsequent Update Location Arg sent by the MSC/VLR or SGSN shall include the SendSubscriberData marker in SuperChargerInfo.
Consequences if not approved: ⌘	Danger of different (incorrect) subscriber data being held on the HLR to that on the MSC/VLR.

Clauses affected: ⌘	6.1.4	
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	
Other comments: ⌘		

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1.4 Reset

Super-Charger has a minimal affect on the restoration procedures in the VLR and SGSN.

When a MSC/VLR restarts after a failure, all IMSI records affected by the failure are erased. This may include affected inactive subscription data present in the VLR as part of the Super-Charger process. Consequently, there will be no subscription data or location information stored for an affected mobile station until after the VLR has received either a "Provide Roaming Number" request or an "Update Location" request for that mobile station.

In the former case, on receipt of a "Provide Roaming Number" request restoration of subscriber data in the VLR is triggered individually for each IMSI record using the "Restore Data" procedure. This procedure is not affect by the Super-Charger functionality.

In the case of a "Update Location" request from a mobile station following a VLR restart, since the VLR will not have subscription data for the mobile station the Update Location message shall include the "ageOfSubscriberData" parameter containing the default value. Consequently, the HLR will initiate the normal GSM "Insert Subscriber Data" procedure and update the Super-Charger supported flag..

When an SGSN restarts after a failure, the SGSN deletes all MM and PDP contexts affected by the restart. Optionally, the SGSN may broadcast a Reset message within the SGSN routeing area. This causes the mobile stations that are located in the SGSN routeing area to reinitiate Attach and Activate PDP context procedures. The broadcast Reset message does not target specific mobile station based on the content of the SGSN database. Therefore, no additional signalling is incurred as a result of inactive subscription data present in the SGSN as part of the Super-Charger process.

Each mobile station shall perform a re-attach after a random calculated time in each MS to avoid network congestion. At the next Routeing Area Update from the MS the SGSN performs an Update Location to the HLR as in the Attach or Inter-SGSN RA Update procedures. The update location message shall not contain the "subscriberDataNotRequired" flag. Consequently, the HLR will initiate the normal "Insert Subscriber Data" procedure and enter the SGSN address into the Roaming History, if it is not already present.

In a non-super-charger network, when a HLR sends a Reset message to MSC/VLR and SGSN attached to it, this triggers an Update Location for all subscribers affected, as indicated in the Reset message itself. This procedure is applicable for HLR Reset in a super-charger network. However, the sending of the Reset message and subsequent need for an Update Location indicates a loss of confidence in the data stored by the HLR. To ensure that the data held at the HLR is correct, the UpdateLocationArg sent by the MSC/VLR or SGSN following receipt of a Reset from the HLR should include the SendSubscriberData marker within the SuperChargerInfo parameter.

CR-Form-v5

CHANGE REQUEST

⌘	**23.912** CR **004**	⌘ **rev**	**-**	⌘	Current version:	**4.0.0**	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title: ⌘	Update Location in Supercharger following receipt of Reset message from HLR	
Source: ⌘	Nortel Networks	
Work item code: ⌘	TEI	**Date:** ⌘ 16ᵗʰ November 2001
Category: ⌘ **A**		**Release:** ⌘ Rel-4

Use *one* of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
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Reason for change: ⌘	When MSC/VLR or SGSN receives a Reset message from an HLR, the message tells the MSC or SGSN that there has been a significant failure in the HLR. In a non-supercharger network, receipt of a Reset message from an HLR triggers Update Location for all affected subscribers.
	For a Super-charger network, the nature of the failure in the HLR is not known so if Update Location is invoked but the time/Date stamp in the ULArg and that held in the HLR match, no ISD will be sent. However, the information in the HLR may no longer be consistent with that in the MSC/VLR or SGSN.
Summary of change: ⌘	If a Reset message is received from the HLR, the subsequent Update Location Arg sent by the MSC/VLR or SGSN shall include the SendSubscriberData marker in SuperChargerInfo.
Consequences if not approved: ⌘	Danger of different (incorrect) subscriber data being held on the HLR to that on the MSC/VLR.

Clauses affected: ⌘	6.1.4

Other specs affected: ⌘	☐ Other core specifications	⌘	
	☐ Test specifications		
	☐ O&M Specifications		

Other comments: ⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1.4   Reset

Super-Charger has a minimal affect on the restoration procedures in the VLR and SGSN.

When a MSC/VLR restarts after a failure, all IMSI records affected by the failure are erased. This may include affected inactive subscription data present in the VLR as part of the Super-Charger process. Consequently, there will be no subscription data or location information stored for an affected mobile station until after the VLR has received either a "Provide Roaming Number" request or an "Update Location" request for that mobile station.

In the former case, on receipt of a "Provide Roaming Number" request restoration of subscriber data in the VLR is triggered individually for each IMSI record using the "Restore Data" procedure. This procedure is not affect by the Super-Charger functionality.

In the case of a "Update Location" request from a mobile station following a VLR restart, since the VLR will not have subscription data for the mobile station the Update Location message shall include the "ageOfSubscriberData" parameter containing the default value. Consequently, the HLR will initiate the normal GSM "Insert Subscriber Data" procedure and update the Super-Charger supported flag..

When an SGSN restarts after a failure, the SGSN deletes all MM and PDP contexts affected by the restart. Optionally, the SGSN may broadcast a Reset message within the SGSN routeing area. This causes the mobile stations that are located in the SGSN routeing area to reinitiate Attach and Activate PDP context procedures. The broadcast Reset message does not target specific mobile station based on the content of the SGSN database. Therefore, no additional signalling is incurred as a result of inactive subscription data present in the SGSN as part of the Super-Charger process.

Each mobile station shall perform a re-attach after a random calculated time in each MS to avoid network congestion. At the next Routeing Area Update from the MS the SGSN performs an Update Location to the HLR as in the Attach or Inter-SGSN RA Update procedures. The update location message shall not contain the "subscriberDataNotRequired" flag. Consequently, the HLR will initiate the normal "Insert Subscriber Data" procedure and enter the SGSN address into the Roaming History, if it is not already present.

In a non-super-charger network, when a HLR sends a Reset message to MSC/VLR and SGSN attached to it, this triggers an Update Location for all subscribers affected, as indicated in the Reset message itself. This procedure is applicable for HLR Reset in a super-charger network. However, the sending of the Reset message and subsequent need for an Update Location indicates a loss of confidence in the data stored by the HLR. To ensure that the data held at the HLR is correct, the UpdateLocationArg sent by the MSC/VLR or SGSN following receipt of a Reset from the HLR should include the SendSubscriberData marker within the SuperChargerInfo parameter.

CR-Form-v4

CHANGE REQUEST

| ⌘ | **29.002** CR | **330** ⌘ | rev | **1** | ⌘ | Current version: | **3.10.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘   (U)SIM ☐   ME/UE ☐   Radio Access Network ☐   Core Network **X**

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	CN4
Work item code: ⌘	TEI	*Date:* ⌘ 1st October 2001
Category:	⌘ **F** Agreed by Consensus	*Release:* ⌘ R99

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
C (Functional modification of feature)
D (Editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2   (GSM Phase 2)
R96   (Release 1996)
R97   (Release 1997)
R98   (Release 1998)
R99   (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process.
		When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs.
Summary of change: ⌘		Add clarity in MAP on Inform Previous Network Entity.
Consequences if not approved:	⌘	Inform Previous Network Entity may be implemented incorrectly

Clauses affected:	⌘	8.1.2.3, 8.1.7.3
Other specs affected:	⌘ **X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘ 23.116 (CR 03), 23.912 (CR 01)
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.1.2.3 Parameter definitions and use

<text removed for clarity>

Inform Previous Network Entity

This parameter is used by the VLR to ask the HLR to inform the previous network entity about the update by sending the previous network entity a Cancel Location message. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform ~~itself~~ the previous network entity that MS has moved, that is if it has not sent Send Identification to the previous serving entity.

<end of changes to this section>

8.1.7.3 Parameter definitions and use

<text removed for clarity>

Inform Previous Network Entity

This parameter is used by the SGSN to ask the HLR to inform the previous network entity about the update by sending the previous network entity a Cancel Location message. It is used in case Super-Charger is supported in the network and the serving network entity has not been able to inform ~~itself~~ the previous network entity that MS has moved, that is if it has not sent SGSN Context Request to the previous serving entity.

<end of changes>

CR-Form-v4

CHANGE REQUEST

⌘   **29.002 CR**   **331** ⌘ rev **1** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘   (U)SIM ☐   ME/UE ☐   Radio Access Network ☐   Core Network **X**

Title:	⌘	Clarification of methodology for maintaining data consistency in Supercharger
Source:	⌘	CN4
Work item code: ⌘	TEI	***Date:*** ⌘ 1st October 2001
Category:	⌘ **A**	***Release:*** ⌘ REL-4

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
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REL-5   (Release 5)

Reason for change:	⌘	A CR was implemented to introduce the InformPreviousNetworkEntity parameter in the Super Charger network to help maintain data consistency. There is also a process detailed in 23.912 that describes a method for maintaining data consistency in Super Charger networks where radio contact is lost during an UL process. When looking in the specs the combined effect of these process and definitions could cause confusion and also makes for difficulties in finding sources of information. Further, whilst the original CR on InformPreviousNetworkEntity addresses how the parameter is dealt with, this has not been reflected anywhere within the specs.
Summary of change: ⌘		Add clarity in MAP on Inform Previous Network Entity.
Consequences if not approved:	⌘	Inform Previous Network Entity may be implemented incorrectly

Clauses affected:	⌘	8.1.2.3, 8.1.7.3
Other specs affected:	⌘ **X**	Other core specifications ⌘ 23.116 (CR 04), 23.912 (CR 02) ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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<end of changes to this section>

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<end of changes>