

TSGS#15(02)0168

Meeting #15, Cheju Island, Korea, 11-14 March 2002



TSG-SA WG5 (Telecom Management) Status Report

Reported by
Adrian Zoicas (MCC)
on behalf of the
TSG-SA WG5 Management Team

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SA5 Documents provided to this Plenary

| Number | Title |
|-----------|--|
| SP-020168 | Status report from SA WG5 to SA#15 |
| SP-020011 | Rel-5 draft TR 32.802 v104 (User Equipment Management UEM feasibility study), in co-operation with T2- for the 2 nd consecutive time for Information |
| SP-020012 | Rel-5 draft TS 32.140 v100 (Subscription Management) - for Information |
| SP-020013 | 3 Rel-5 CR 32.101 (3G Telecom Management principles and high level requirements) |
| SP-020015 | Rel-4 CR 32.111-3 (Fault Management; Part 3: Alarm Integration Reference Point: CORBA SS) Correction of erroneous and addition of missing mapping tables |
| SP-020016 | 5 Rel-4 & Rel-5 CR 32.200 (Charging principles) |
| SP-020017 | Rel-4 CR 32.235 (Charging data description for application services) Corrections for consistency with 23.140 (MMS) |
| SP-020018 | Rel-4 CR 32.304 (Configuration Management; Notification Integration Reference Point: CMIP SS) Correction of invalid ASN.1 definitions |
| SP-020019 | 2 Rel-4 CR 32.603 (Basic configuration management IRP: CORBA SS) |
| SP-020020 | Rel-4 CR 32.622 (Configuration Management; Generic network resources IRP: NRM) Addition of managedElementType value for GSM Radio Access Network support |
| SP-020021 | 3 Rel-4 CR 32.624 (Configuration Management; Generic network resources: IRP CMIP SS) |
| SP-020022 | 4 R99 & Rel-4 CR 32.005 & 32.205 (CS charging), 32.015 & 32.215 (PS charging) Addition of CAMEL phase 3 extensions in SMS-MO CDR |
| SP-020024 | 2 R99 & Rel-4 CR 32.015 & 32.215 (PS charging) Addition of "QoSRequested" parameter into "traffic volume containers" |
| SP-020025 | 2 Rel-5 CR 32.205 & 32.215 (CS & PS charging) Addition of CAMEL phase 4 extensions in SMS-MT CDRs |
| SP-020026 | Rel-4 CR 32.403 (Performance measurements - UMTS and combined UMTS/GSM) Correction of the measured object class for some SGSN MM measurement definitions |
| SP-020028 | 3 Rel-4 CR 32.111-2/3/4 (Fault Management; Alarm Integration Reference Point; Part 2 Information Service/ Part 3 CORBA SS/ Part 4 CMIP SS) Addition of "perceivedSeverity" as parameter to "acknowledgeAlarms" operation |
| SP-020031 | Rel-5 CR 32.304 (Configuration Management; Notification Integration Reference Point: CMIP SS) Correction of errors in the GDMO and ASN.1 definitions |
| SP-020032 | Rel-4 CR 32.615 (Bulk configuration management IRP: XML file format definition) Alignment of XML file definitions with W3C, and modifications to allow use of commercially available XML processing tools |
| SP-020033 | Rel-5 draft TS 32.225 v100 (Charging management; Charging data description for the IP Multimedia Subsystem) - for Information |
| SP-020034 | 2 Rel-5 draft TSs v100 on Kernel Configuration Management IRP: 32.661 (Requirements) & 32.662 (Information Service) - for Information |
| SP-020035 | Rel-5 CR 32.205 (CS charging) Addition of Charging Data Record definition for Location Service in CS domain |
| SP-020036 | LS reply to S1-010636 (cc: SA, SA2, SA3) on 3GPP System – WLAN Interworking (S5-020197) |
| SP-020037 | 2 Rel-5 CR 32.102 (3G Telecom Management Architecture) |
| SP-020038 | 2 Rel-4 CR 32.303 (CM; Notification IRP CORBA SS) & 32.603 (Basic CM IRP CORBA Solution Set) Addition of missing CORBA exceptions |
| SP-020039 | 3 Rel-4 CR 32.111-2 (Fault Management; Alarm Integration Reference Point; Part 2 Information Service) |
| SP-020167 | Rel-5 CR 32.403 (Performance measurements - UMTS and combined UMTS/GSM) Introduction of "Performance Measurements Definition Process" describing the repeatable, top-down process to define measurements for inclusion in future 3GPP Releases |

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3GPP SA5 Officers

- **Chair – VACANT**

Albert H. YUHAN (VoiceStream Wireless – until 12/2001 / T1)

was SA5 Chair since 03/99, re-elected 02/2001 – resigned 02/2002

- **Vice Chair** – since 06/99, re-elected 02/2001

Michael TRUSS (Motorola Ltd/ ETSI) – absent from the last two meetings in 2001
& chaired both SA5 meetings in 2002

- **Three (3) SWGs**

SWG-A: Telecom Management - Architecture and Requirements

Michael TRUSS (Motorola Ltd/ ETSI) – Chair since 09/2001

Tommy BERGGREN (Telia/ ETSI) – Vice Chair since 01/2002

SWG-B: Telecom Management - Data Definition (incl. Charging)

Karl-Heinz NENNER (T-Mobile/ ETSI) – Chair since 09/2001

SWG-C: Telecom Network Infrastructure Management

Thomas TOVINGER (Ericsson/ ETSI) – Chair since 09/2001

Joerg SCHMIDT (Motorola/ T1) – Vice Chair since 09/2001

Frédéric BONNEAU (Nortel/ ETSI) – Vice Chair since 10/2001

- **MCC Support** – since 01/2000 **Adrian ZOICAS (MCC)**

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SWG structure

SWG Area of Responsibility

SWG-A Telecom Management - Architecture and Requirements

WI(spec): Architecture (32.101), Principles & Requirements (32.102), UTRAN-OAM (32.800), Subscription Management (SM) (32.140), User Equipment Management Feasibility Study (UEM) (32.802).

Liaison: T2 (MExE, UEM, SyncML), CN5 (OSA Management, OSA Charging), TMF (MMC, **Mobile Management Team**, MTEM), ITU-T SG4 (Architecture / Conformance).

SWG-B Telecom Management - Data Definition

WI(spec): Charging (32.200-series), Performance Management (PM) (measurements, concepts, definition and requirements (32.400-/52.400-series), Subscriber and UE Tracing (32.108).

Liaison: ITU-T SG4 (IMT2000 Management), **3G.IP (IP/Charging requirements for IMS)**, GSM Association (BARG **Charging Principles Working Party**, IREG, SERG), T2 (MMS charging), CN5 (OSA Charging), IETF-AAA (Diameter), **IPDR (Charging)**, **TMF (Wireless Service Management Team)**.

SWG-C Telecom Network Infrastructure Management (TM Solutions)

WI(spec): Configuration Management (CM) (R99 32.106, 32.600-series), Fault Management (FM) (32.111, 32.300-series), Performance Management (PM) - IRP portion (32.400-series), Integration Reference Points (IRPs) to support products of SA5's SWG-A and SWG-B.

Liaison: ITU-T SG 4 (CORBA, tML/XML), T1M1 (CORBA, TML), 3GPP2 (**Delta Specification**).

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Meetings held

SA5 #25

- 14 - 18 Jan 2002 in Sophia Antipolis, FRANCE
hosted by ETSI
Attended by 48 delegates
- Full report in **S5-020100**

SA5 #26

- 25 February – 1 March 2002 in Miami, USA
hosted by 3GPP NA Friends
Attended by 58 delegates
- Draft report in **S5-020143**

Joint sessions during SA5#26 in Miami, USA

- SA2 experts on IMS Charging Architecture (23.815, 32.200, 32.225)
- IPDR.org (Internet Protocol Detail Record Organization) on Charging
- TMF's Wireless Service Management Team on Service Measurements
- TMF's Mobile Management Team on UE Management

Activity Highlights (1/2)

- Release 5

Feature: Subscription Management (SM)

- “SM” WI is **95%** complete
- TS 32.140 v1.0.0 (Stage 1) submitted to SA#15 - **for Information**
- TSG approval target delayed from **03/2002** to **06/2002**
Reason: SM is closely linked to GUP, which will not be included in Rel-5 (S2-020887). **Move also SM to Rel-6 ?**

Feature: UE Management - Feasibility Study (UEM)

- “UEM” WI is **99%** complete
- TR 32.802 v1.0.4 submitted to SA#15 - **for the 2nd time for Information**
- TSG approval target delayed from **03/2002** to **06/2002**.
Reason: T2-SWG2 requesting further discussion & a joint session during SA5#27 in Cork (04/2002) in parallel with GUP ad-hoc meeting

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Activity Highlights (2/2)

- **Release 5**

Feature: Trace Management (Trace Mg)

- “Trace Mg” WI is **60%** complete (WID approved at SA#14, 12/2001)
- Submission to TSG **for Information** delayed from **03/2002** to **06/2002**

Reason: ongoing communication with CN4/SA3 (Information to be collected in MGW, security concerns when transmitting sensitive information like IMSI/IMEI across the Mc Interface)

- TSG approval target remains **06/2002**

Feature: Charging and OAM&P (OAM)

- “OAM” WI is **80%** complete
- TSG approval target remains **06/2002**

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Administrative /Organizational

- **Albert YUHAN, left VoiceStream Wireless end of 2001 and resigned as SA5 Chair on 18/02/2002**
- **The SA5 Vice Chair, Michael TRUSS (Motorola Ltd), chaired both SA5 meetings in 2002**
- **Elections for the now vacant SA5 Chair position and for a 2nd SA5 Vice Chair will take place at SA5#27 in Cork/ IRELAND (04/2002)**
- **Due to the increased volume of work (Charging, Trace) SA5 aims to split the current SWG-B in two separate SWGs. This should happen at SA5#27 (04/2002).**
- **Several ad-hoc meetings are planned in order to deliver SA5's Rel-5 completely at SA#16 in 06/2002**

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Inter-Organizational

Co-operation with:

3GPP2 TSG-S on Management Standards

- 3GPP2 TSG-S is referencing SA5's TSs in its specification S.S0028 "OAM&P for cdma2000 (3GPP Delta Specification)", which also documents some exception areas (e.g. network resource model for cdma2000)

ITU-T SG4 & T1M1 on CORBA framework and XML/TML standardization

- Further co-operation is under investigation (Feasibility Study in Rel-5)

TMF Mobile Marketing Centre (MMC) on 3G-mobile Management standards

- Joint session held at SA5#26 in Miami (02/2002) between TMF Mobile Team and SA5's SWG-B who are currently co-operating on Performance Management Measurement definitions. Identified scope for further possible co-operation with SA5's SWG-B/A in the area of Key Performance Indicators (KPI) and Key Quality Indicators (KQI) (being worked on by TMF) and QoS Management (being worked on by SA5's SWG-A).

Technical, Work Planning (1/4)

Feature: Subscription Management (Rel-5)

- “SM” work item is **95%** complete
- TS 32.140 v1.0.0 (Stage 1) submitted to SA#15 - **for Information**
- TSG approval target delayed from **03/2002** to **06/2002**
Reason: SM is closely linked to GUP, which will not be included in Rel-5 (S2-020887). **Move also SM to Rel-6 ?**
- Co-ordination still ongoing with other 3GPP WGs on:
 - GUP (SA1/T2), VHE (SA1), HSS Interface (CN4), OSA Management (CN5), UE Management (SA5)
- Joint SA5 SWG-A/T2 GUP planned at SA5#27 in Cork (**04/2002**)

SA is invited to:

1. note TS 32.140 v1.0.0 (Stage 1) "Services Operations Management; Subscription Management Requirements" (**SP-020012**)
2. give guidance/decide on the appropriateness of moving 32.140 (which is only Stage 1 and Stages 2/3 are not planned for Rel-5) to Rel-6 due to linkage with GUP, since GUP will not be included in Rel-5 (S2-020887).

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Technical, Work Planning (2/4)

Feature: UE Management (Rel-5)

- “UEM” WI is **99%** complete
- TR 32.802 v1.0.4 submitted to SA#15 - **for the 2nd time for Information**
- TSG approval target delayed from **03/2002** to **06/2002**.
Reason: T2-SWG2 requesting further discussion & a joint session during SA5#27 in Cork (04/2002) in parallel with GUP ad-hoc meeting

Co-ordination ongoing with other groups:

- Joint SA5 SWG-A/T2 session planned at SA5#27 in Cork (**04/2002**)
- Subscription Management (SA5), GUP (SA1/T2), MExE (T2)
- TMF’s MTEM (Mobile Terminal Equipment Management) : Joint meeting held at SA5#26 in Miami (**02/2002**).
- Aware of work in SyncML Device Management (DM)

SA is invited to:

- note Rel-5 draft TR 32.802 v1.0.4 done in co-operation with T2 on "User Equipment Management (UEM) feasibility study" (**SP-020011**)

Technical, Work Planning (3/4)

Feature: Trace Management (Rel-5)

- “Trace Mg” WI is **60%** complete (WID approved at SA#14, 12/2001)
- Submission to TSG **for Information** delayed from **03** to **06/2002**
Reason: ongoing communication with CN4/SA3 (Information to be collected in MGW, security concerns when transmitting sensitive information like IMSI/IMEI across the Mc Interface)
- TSG approval target remains **06/2002**
- SA#14 noted that this adds Trace into IMS (missing in GSM 12.08)
- The future of GSM 12.08 to be decided at SA5#27 (04/2002)
- SA#14 asked SA5 to investigate on possible work to be done by other 3GPP groups (CN, (GE)RAN) and to report back at SA#15.
- CN1 needs more information on requirements for a trace activation mechanism in SIP. CN1 cannot include trace functionality in Rel-5.
- RAN3 informs that the availability of the IMSI and IMEI in the RNC for trace purposes is not given in the cases inquired by SA5.
- RAN2 work needed for potential changes to radio signalling I/Fs

Technical, Work Planning (4/4)

Feature: Charging and OAM&P (Rel-5)

- “OAM” WI is **80%** complete
- TSG approval target remains **06/2002** (TSG#16)
- Contains Four (4) SA5 Building Blocks:
 - 1 Principles, high-level requirements and architecture (OAM-AR) - **100%** complete
 - 2 Charging Management (OAM-CH) - **80%** complete
 - 3 Performance Management (OAM-PM) - **95%** complete
 - 4 Network Infrastructure Management (OAM-NIM) - **60%** complete

Technical, OAM Rel-5 Feature delivery (1/8)

BB: Principles, high level Requirements and Architecture (OAM-AR) :

100% complete

SA decision is requested for

32.101 approval of 3 Rel-5 CRs (**SP-020013**)

32.102 approval of 2 Rel-5 CRs (**SP-020037**)

32.800 (UTRAN OAM) upgrade to Rel-5 without change

SA is invited to note and endorse the request that

- SA5 needs experts from the IMS/SSE equipment vendors to help it identify any specific management requirements that may exist (32.101: WT on Management of Service Specific Entities)

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Technical, OAM Rel-5 Feature delivery (2/8)

BB: Charging Management (OAM-CH) : **80%** complete

SA decision is requested for

- **32.200 approval of 3 Rel-4 & 2 Rel-5 CRs (SP-020016)**
- **approval of 4 R99/Rel-4 CRs 32.005/205, 32.015/215 (SP-020022)**
- **approval of 2 R99 & Rel-4 CR 32.015/215 (PS) (SP-020024)**
- **approval of 2 Rel-5 CR 32.205 & 32.215 (CS & PS) (SP-020025)**
- **32.205 approval of Rel-5 CR (SP-020035)**
- **approval of Rel-4 CR 32.235 (SP-020017)**
- **32.235 to NOT upgrade to Rel-5 now; wait for major CR in 06/2002 (substantial input from GSMA is still pending)**

SA is invited to note

- **32.225 to note Rel-5 draft v100 (IMS Charging) (SP-020033)**

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Technical, OAM Rel-5 Feature delivery (3/8)

BB: Performance Management (OAM-PM) : 95% complete

SA decision is requested for

- 32.401 upgrade to Rel-5 without change
- 52.402 to NOT upgrade to Rel-5 now; wait for CR in 06/2002
- 32.403 approval of 1 Rel-4 CR (**SP-020026**)
- 32.403 approval of 1 Rel-5 CR (**SP-020167**)

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Technical, OAM Rel-5 Feature delivery (4/8)

BB: Network Infrastructure Management (OAM-NIM) : 60% complete

SA decision is requested for

- **32.111-1 upgrade to Rel-5 without change**
- **approval of 3 Rel-4 CR 32.111-2/3/4 (SP-020028)**
- **32.111-2 approval of 3 Rel-4 CR (SP-020039)**
- **32.111-3 approval of 1 Rel-4 CR (SP-020015)**
(upgrade to Rel-5 only after the implementation of the above CRs)
- **32.311 upgrade to Rel-5 without change**
- **32.312 upgrade to Rel-5 without change**

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Technical, OAM Rel-5 Feature delivery (5/8)

BB: Network Infrastructure Management (OAM-NIM) : 60% complete

SA decision is requested for

- **32.300** to NOT upgrade to Rel-5 now; wait for CR in 06/2002
- **32.301** upgrade to Rel-5 without change
- **32.302** *exists already in Rel-5*
- **32.303** approval of 1 Rel-4 CR (**SP-020038**)
- **32.303** upgrade to Rel-5 after the implementation of the above CR
- **32.304** approval of 1 Rel-4 CR (**SP-020018**)
- **32.304** *exists already in Rel-5*
- **32.304** approval of 1 Rel-5 CR 32.304 (**SP-020031**)

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Technical, OAM Rel-5 Feature delivery (6/8)

BB: Network Infrastructure Management (OAM-NIM) : 60% complete

SA decision is requested for

- **32.603 approval of 2 Rel-4 CR (SP-020019)**
- **32.615 approval of Rel-4 CR (SP-020032)**
- **32.622 approval of Rel-4 CR (SP-020020)**
- **32.624 approval of 3 Rel-4 CR (SP-020021)**

to NOT upgrade to Rel-5 now; wait for CRs in 06/2002

- **32.600,**
- **32.601, 32.602, 32.603, 32.604**
- **32.611, 32.612, 32.613, 32.614, 32.615**
- **32.621, 32.622, 32.623, 32.624,**
- **32.631, 32.632, 32.633, 32.634**
- **32.641, 32.642, 32.643, 32.644**
- **32.651, 32.652, 32.653, 32.654**

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Technical, OAM Rel-5 Feature delivery (8/8)

BB: Network Infrastructure Management (OAM-NIM) : **60% complete**

New TSs in Rel-5

Early drafts partly available for:

- **32.321, 32.322, 32.323, 32.324 (Test Management IRP)**
- **32.625, 32.635, 32.645, 32.655 (IRPs in XML)**
- **32.671, 32.672, 32.673, 32.674 (State Management IRP)**

SA is invited to note

- **32.661, 32.662 (Kernel CM IRP) Rel-5 drafts v100 (SP-020034)**
- **32.663, 32.664 (CORBA/CMIP Solution Sets will NOT exist in Rel-5)**

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**Telecom
Network
Infrastructure
Management**

**New in
3GPP
Rel-5**

| | | |
|--------|--|----------------------|
| 32.321 | Test Management IRP: Requirements | Siemens lead |
| 32.322 | Test Management IRP: Information service | |
| 32.323 | Test Management IRP: CORBA solution set | |
| 32.324 | Test Management IRP: CMIP solution set | |
| 32.625 | Generic NR IRP: Bulk CM XML file format definition | Nortel Networks lead |
| 32.635 | Core NR IRP: Bulk CM XML file format definition | |
| 32.645 | UTRAN NR IRP: Bulk CM XML file format definition | |
| 32.655 | GERAN NR IRP: Bulk CM XML file format definition | |
| 32.661 | Kernel CM IRP: Requirements | AWS lead |
| 32.662 | Kernel CM IRP: Information service | |
| 32.663 | Kernel CM IRP: CORBA solution set | |
| 32.664 | Kernel CM IRP: CMIP solution set | |
| 32.671 | State Management IRP: Requirements | Siemens lead |
| 32.672 | State Management IRP: Information service | |
| 32.673 | State Management IRP: CORBA solution set | |
| 32.674 | State Management IRP: CMIP solution set | |

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Future SA5 Meetings



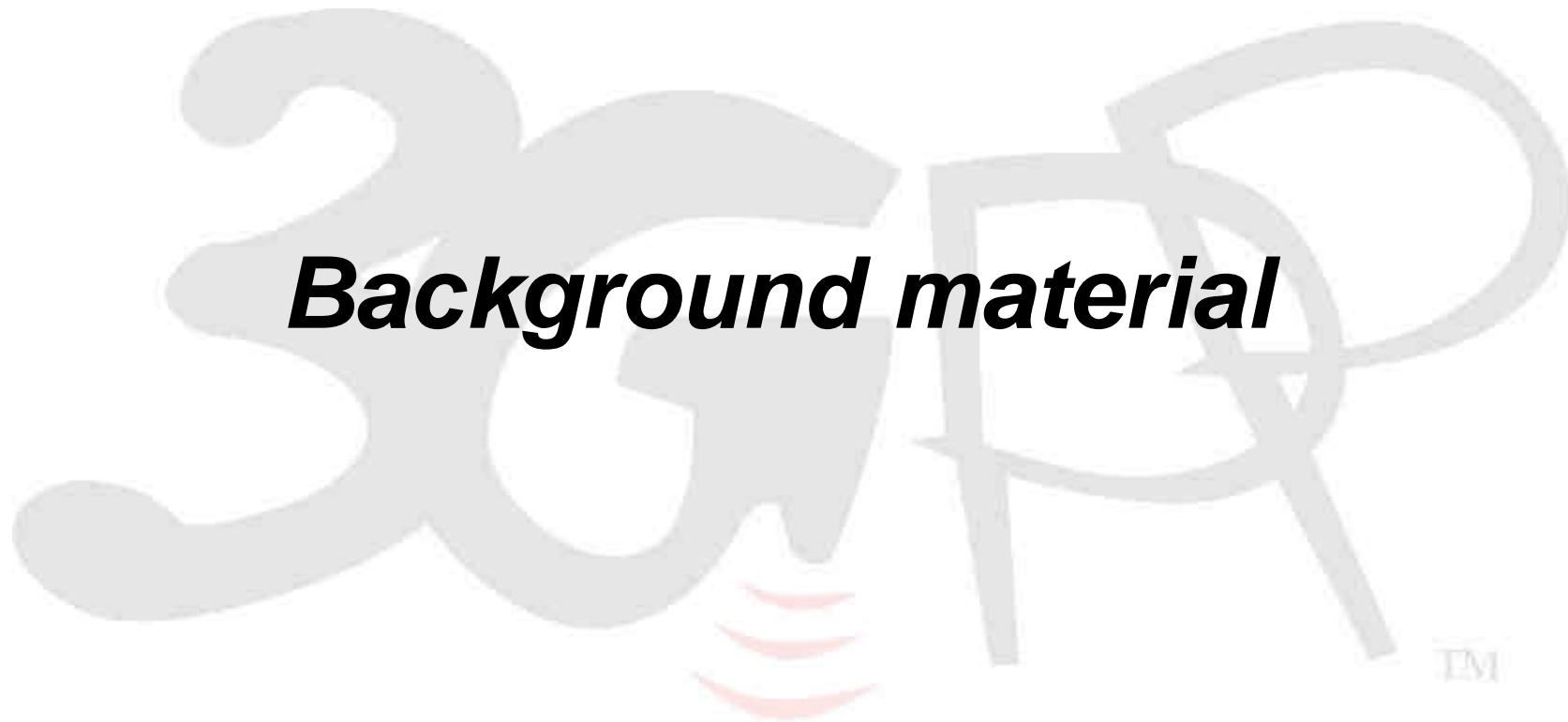
| Meeting | Date | Location | Host |
|---------------|-----------------------|---------------------------------|------------------------|
| SA5#27 | 2-5 Apr 2002 | Cork, IRELAND | Motorola |
| SA5#28 | 20-24 May 2002 | Sophia Antipolis, FRANCE | ETSI |
| TSG#16 | 4 - 13 Jun 2002 | Marco Island, FL, USA | Motorola |
| SA5#29 | 24-28 Jun 2002 | Beijing, CHINA | Nortel Networks |
| SA5#30 | 19-23 Aug 2002 | Tampere, FINLAND | NOKIA |
| TSG#17 | 3 - 12 Sep 2002 | Biarritz, FRANCE | Alcatel |
| SA5#31 | 7-11 Oct 2002 | Phoenix, AZ, USA | NA Friends |
| SA5#32 | 18-22 Nov 2002 | Sophia Antipolis | ETSI |
| TSG#18 | 3 - 12 Dec 2002 | New Orleans, USA | NA Friends |
| SA5#33 | 20-24 Jan 2003 | Sophia Antipolis | ETSI |
| TSG#19 | 11 - 21 Mar 2003 | Jersey Island, UK | UK Friends |

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Background material



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Charging Management

| | | |
|-------------------|---------------|---|
| 3GPP R99 | 32.005 | Call and event data for the CS domain |
| | 32.015 | Call and event data for the PS domain |
| 3GPP Rel-4 | 32.200 | Charging Principles |
| | 32.205 | Charging data description for the CS domain |
| | 32.215 | Charging data description for the PS domain |
| | 32.235 | Charging data description for application services |
| 3GPP Rel-5 | 32.200 | Charging Principles |
| | 32.205 | Charging data description for the CS domain |
| | 32.215 | Charging data description for the PS domain |
| | 32.225 | Charging data description for the IMS domain |
| | 32.235 | Charging data description for application services |

Performance Management

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|---------------|--------|------------------------|
| 3GPP { | 32.104 | Performance Management |
|---------------|--------|------------------------|

R99

| | | |
|-------------------------------|--------|---|
| 3GPP { Rel-4 | 32.401 | Performance Management; Concept and requirements |
| | 52.402 | Performance measurements - GSM |
| | 32.403 | Performance measurements - UMTS and combined UMTS/GSM |

| | | |
|-------------------------------|--------|--|
| 3GPP { Rel-5 | 32.401 | Performance Management; Concept and requirements |
| | 52.402 | Performance measurements - GSM |
| | 32.403 | Performance measurements - UMTS and combined UMTS/GSM |

Fault Management

3GPP R99

| | |
|----------|--------------------------------|
| 32.111-1 | Fault Management requirements |
| 32.111-2 | FM; Part 2: Alarm IRP; IS |
| 32.111-3 | FM; Part 3: Alarm IRP; CORBA |
| 32.111-4 | FM; Part 4: Alarm IRP; CMIP SS |

3GPP Rel-4

| | |
|----------|--------------------------------------|
| 32.111-1 | Fault Management requirements |
| 32.111-2 | FM; Part 2: Alarm IRP; IS |
| 32.111-3 | FM; Part 3: Alarm IRP; CORBA |
| 32.111-4 | FM; Part 4: Alarm IRP; CMIP SS |
| 32.311 | Generic IRP management; Requirements |
| 32.312 | Generic IRP management; IS |

3GPP Rel-5

FM + CM = NIM
Telecom
Network
Infrastructure
Management

| | |
|----------|---|
| 32.111-1 | Fault Management; Requirements |
| 32.111-2 | FM; Part 2: Alarm IRP; IS |
| 32.111-3 | FM; Part 3: Alarm IRP; CORBA SS |
| 32.111-4 | FM; Part 4: Alarm IRP; CMIP SS |
| 32.311 | Generic IRP management; Requirements |
| 32.312 | Generic IRP management; IS |

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Configuration Management

**3GPP
R99**

| | |
|----------|--|
| 32.106-1 | Configuration Management; Concept and requirements |
| 32.106-2 | CM; Part 2: Notification IRP IS |
| 32.106-3 | CM; Part 3: Notification IRP; CORBA SS |
| 32.106-4 | CM; Part 4: Notification IRP; CMIP SS |
| 32.106-5 | CM; Part 5: Basic CM IRP information model (including NRM) |
| 32.106-6 | CM; Part 6: Basic CM IRP CORBA SS |
| 32.106-7 | CM; Part 7: Basic CM IRP CMIP SS |
| 32.106-8 | CM; Part 8: Name convention for Managed Objects |

**3GPP
Rel-4**

- see next slide

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Configuration Management

**3GPP
Rel-4
&**

Telecom Network Infrastructure Management

Rel-5

| | |
|---------------|---|
| 32.600 | Configuration Management; Concept and main Requirements |
| 32.601 | Basic CM Integration Reference Point (IRP): Requirements |
| 32.602 | Basic CM IRP: Information model |
| 32.603 | Basic CM IRP: CORBA solution set |
| 32.604 | Basic CM IRP: CMIP solution set |
| 32.611 | Bulk CM IRP: Requirements |
| 32.612 | Bulk CM IRP: Information service |
| 32.613 | Bulk CM IRP: CORBA solution set |
| 32.614 | Bulk CM IRP: CMIP solution set |
| 32.615 | Bulk CM IRP: XML file format definition |
| 32.621 | Generic Network Resources (NR) IRP: Requirements |
| 32.622 | Generic NR IRP: Network Resource Model (NRM) |
| 32.623 | Generic NR IRP: CORBA solution set |
| 32.624 | Generic NR: IRP CMIP solution set |
| 32.631 | Core NR IRP: Requirements |
| 32.632 | Core NR IRP: NRM |
| 32.633 | Core NR IRP: CORBA solution set |
| 32.634 | Core NR IRP: CMIP solution set |
| 32.641 | UTRAN NR IRP: Requirements |
| 32.642 | UTRAN NR IRP: NRM |
| 32.643 | UTRAN NR IRP: CORBA solution set |
| 32.644 | UTRAN NR IRP: CMIP solution set |
| 32.651 | GERAN NR IRP: Requirements |
| 32.652 | GERAN NR IRP: NRM |
| 32.653 | GERAN NR IRP: CORBA solution set |
| 32.654 | GERAN NR IRP: CMIP solution set |