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Abstract	The contribution proposes a resolution to the Sponsor Ballot comment 106.
Purpose	Adoption
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Fixing mappings between management functions and NCMS services

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1. Introduction

This contribution proposes a resolution to Comment 106. It spells out the mappings of NCMS services illustrated in Figure 1a to functions of the management and control primitives in Section 14. The proposed changes are,

1) Add box "Mobile Terminal Management Services (MS side only)" in Figure 1a.

2) Specify the mapping of primitive functions in Section 14 to NCMS services as follows,

- Accounting: AAA Services
- Security: AAA and Security Services
- IP Configuration: Mobility Management Services
- Subscriber Mode: Paging and Idle Mode Services
- Network Entry and Exit: Service Flow Management Services and Mobility Management Services
- Quality of Service: Service Flow Management Services

The following mappings are already specified in the existing text therefore no further specification is necessary.

- Handover: Mobility Management Services
- Quality of Service: Service Flow Management Services

The mappings of the following functions are implied by their names therefore no further specification is necessary.

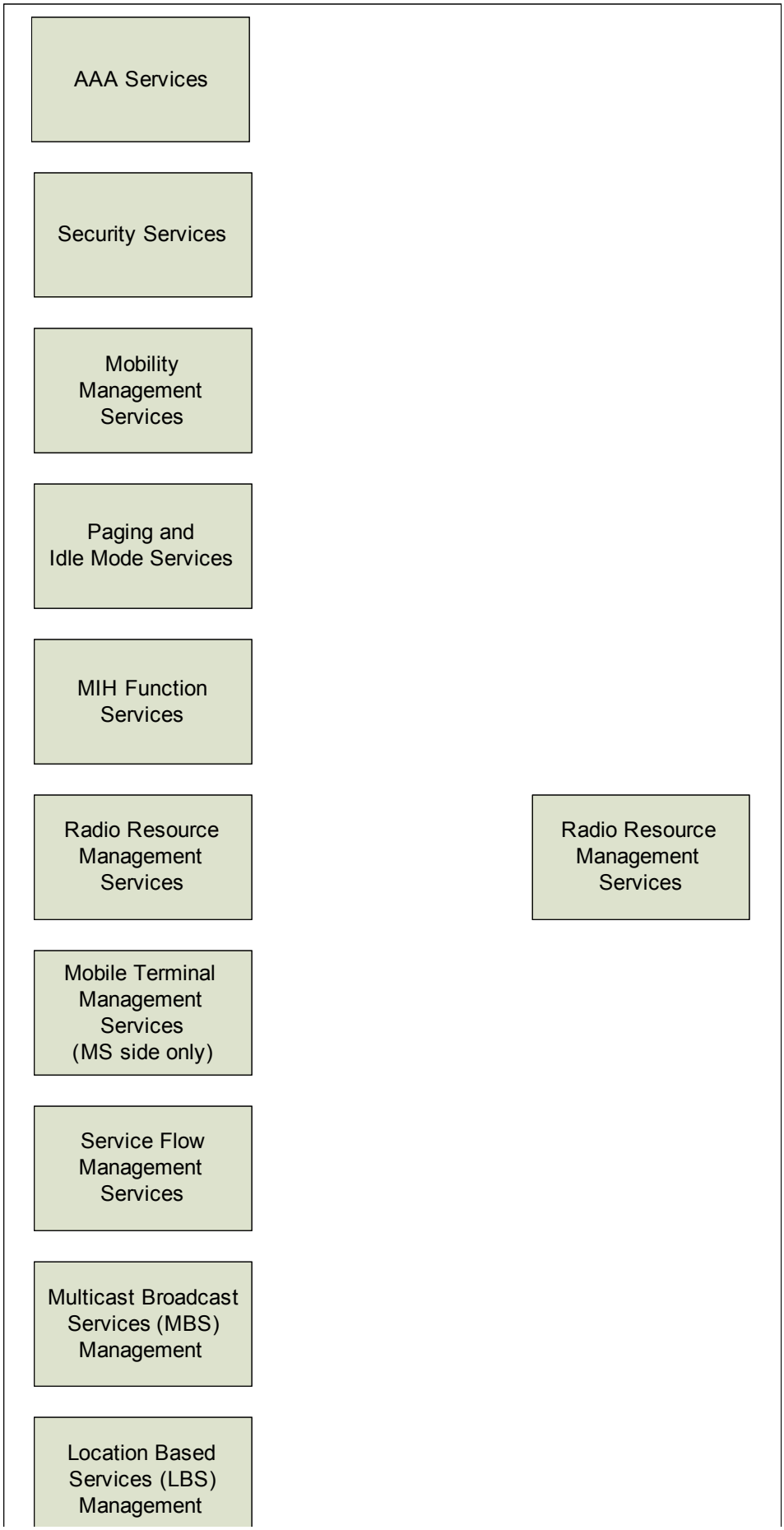
- Radio Resource Management: Radio Resource Management Services
- Multicast and Broadcast Services: Multicast Broadcast Services
- Location Based Services: Location Management Services
- Mobile Terminal Management: Mobile Terminal Management Services

Summary of how it is today and how it should be, in tabular form; required changes are shown by yellow background:

Section 14.2.x	**NCMS Functional Entities (Fig. 1a)**	**SAP Types**	**Remark**
14.2.1 Accounting management	**AAA Services**	M-ACM-REQ/RSP/IND	
14.2.2.1 Security, EAP-based	**AAA Services**; and **Security Services**	C-SM-IND	Do we need "Security Services" (rarely mentioned in 14.2.2) in addition to AAA Services at all?
14.2.2.2 Security, RSA-based	**AAA Services**; and **Security Services**	C-SM-IND/ REQ/RSP	
14.2.2.3 Security for HO (EAP)	**Security Services** and/or **Mobility**	C-SM-REQ/RSP	For security context transfer from Serving to

Section 14.2.x	NCMS Functional Entities (Fig. 1a)	SAP Types	Remark
	Management Services		Target BS
14.2.3 IP Management with SMC	Mobility Management Services	M-SMC-IND	
14.2.4 Subscriber mode management	Paging & Idle Mode Services	C-PG-IND/REQ/RSP/ACK	
14.2.5.x (x<3) Handover management	Mobility Management Services	C-HO-REQ/RSP/IND	
14.2.5.3 MIH Ctrl protocol procedures	MIH Function Services	C-MIH-IND	
14.2.6 RRM	RRM Services aka RRC (Radio Resource Controller)	C-RRM-REQ/RSP/IND	
14.2.7 Network Entry&Exit Mgmt	"SF Management Services" and Mobility Management Services (14.2.7 talks of "upper layer entity")	C-NEM-REQ/RSP/IND	(p.118 line 1: Wrong Destination; should be NCMS(BS)).
14.2.8 Mobile Terminal mgmt	Mobile Terminal Management Services (MS side only)	M-MTM-REQ/RSP/IND	SS side only.
14.2.9 QoS Mgmt	SF Management Services (aka QoS Management?)	C-SFM-REQ/RSP	
14.2.10 MBS Mgmt	MBS Services	C-MBS-REQ/RSP/IND	
14.2.11 LBS Mgmt	Location Based Services (LBS) Management	C-LBS-REQ/RSP/ACK	

The following figure shows this graphically:


AAA Services
Security Services
Mobility Management Services
Paging and Idle Mode Services
MIH Function Services
Radio Resource Management Services
Mobile Terminal Management Services (MS side only)
Service Flow Management Services
Multicast Broadcast Services (MBS) Management
Location Based Services (LBS) Management
Radio Resource Management Services

2. Proposed Text Changes

[*Modify Figure 1a as follows*]

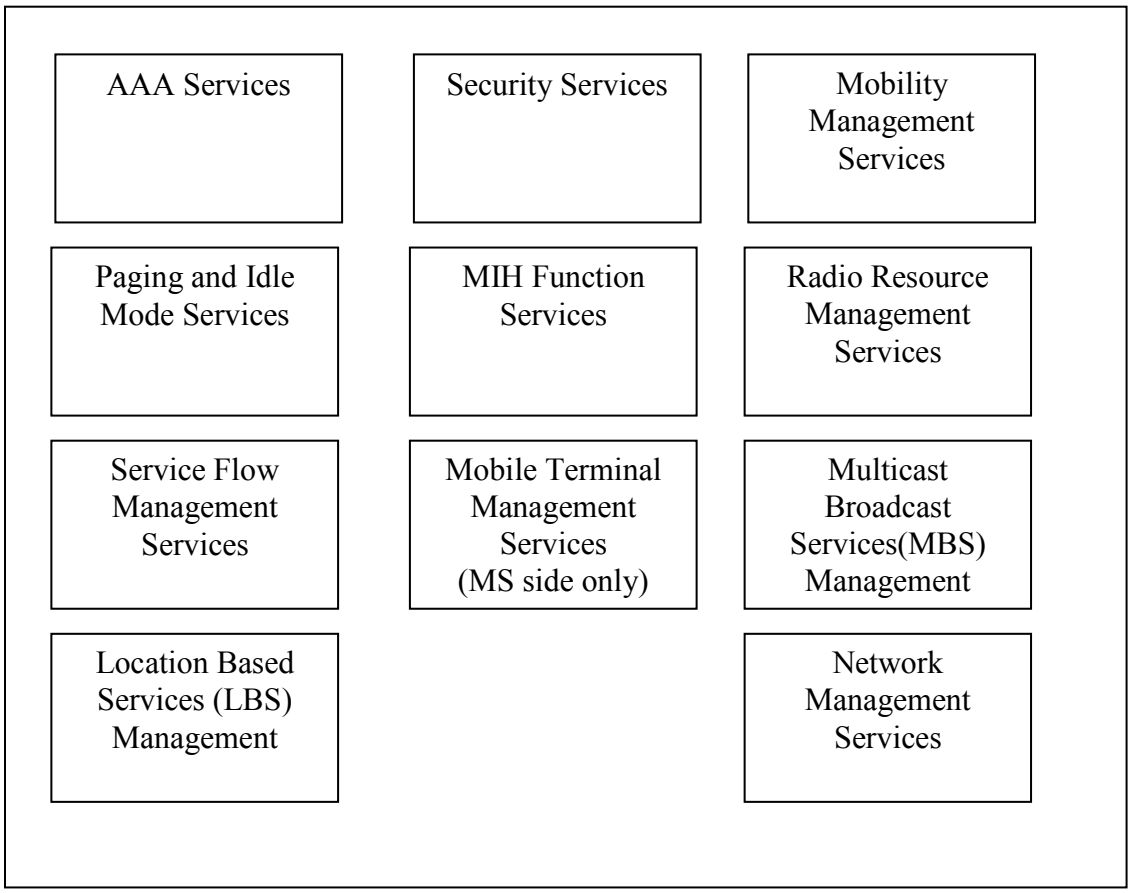


Figure 1a: Illustration of the Network Control and Management System (Informational)

[*Modify Subclause 14.2.1 as follows*]

14.2.1 Accounting management

Accounting event can be detected for an SS Network Entry. Since each SS can have multiple connections at the same time, accounting event for each connection should be detected. Accounting for an SS Network Entry is initiated when the SS registers at the network and terminated when the SS deregisters from the network. Similarly, accounting for a connection is initiated at the dynamic service addition (DSA) instant of the connection and terminated at the dynamic service deletion (DSD) instant of the connection. Accounting management uses the AAA Services in the NCMS.

[*Modify Subclause 14.2.2 as follows*]

14.2.2 Security management

14.2.2.1 EAP-based authentication procedure

When an SS tries to initiate an EAP-based authentication or re-authentication procedure with a BS, it sends a PKMv2 EAP_Start message. The BS informs the AAA Services entity in NCMS (i.e. the authenticator) by sending the C-SM-

IND/EAP_Start primitive. If the SS receives EAP-Request/Identity messages, then it sends the EAP-Response/Identity message with SS MAC Address to the AAA Services entity. After the EAP-Response/Identity message, the EAP methods are negotiated between the SS and the AAA server and the EAP messages are exchanged several times. The EAP encapsulated messages are exchanged between the SS and the AAA Services entity. If the EAP authentication procedure is finished successfully and also yields an MSK (Master Session Key), the BS which does not know EAP protocols receives the AK and a key life-time from the authenticator, which is part of the AAA Services entity, in the C-SM-IND/AK_Transfer primitive. The MSK is already shared between the AAA server and the SS through the EAP exchanges. The MSK is used by the SS and authenticator for derivation of the PMK (Pairwise Master Key) and optional EIK (EAP Integrity Key).

Figure 473 shows EAP-based authentication procedure between a BS and ~~an~~ the AAA and Security Services ~~entity~~ in NCMS as follows:

[*Modify Subclause 14.2.3 as follows*]

14.2.3 IP management with Secondary Management Connection

These primitives are provided when the IP connection is managed by the secondary management connection. It is available for both IPv4 and IPv6. IP management uses the Mobility Management Services in the NCMS.

[*Modify Subclause 14.2.4 as follows*]

14.2.4 Subscriber mode management

The following informative subsection describes subscriber mode management.

14.2.4.1 Managing device states

…

Sleep Mode operation is defined between an MS and a BS only, and the NCMS does not need to manage the subscriber's Sleep Mode. Thus, both an MS and a BS manage the Normal Operation, Sleep Mode, and Idle Mode of the subscriber. On the other hand, the Paging and Idle Mode Services in the NCMS manages Normal Operation and Idle Mode. Subscriber Mode transitions at an MS, BS and the NCMS are illustrated in Figures 478 and 479.

[*Modify Subclause 14.2.4 as follows*]

14.2.7 Network entry & exit management

The Network Entry & Exit Management Primitives are a set of primitives for supporting network entry, network re-entry, and network exit procedures between 802.16 Entity and NCMS. Network entry and exit management uses the Service Flow Management Services in the NCMS. The exception are the neighbor BS update primitives which use the Mobility Management Services.