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Title: Proposal for initiating the study on IP based mobility security for NGN

1 Introduction

This contribution proposes to initiate the study on IP based mobility security for NGN.

2 Discussion

(1) Motivation

Mobility support has already been an important feature in NGN Release 2 [2][3][4]. Some mobility specific recommendations (such as Q.1706/Y.2801[1], Y.MCFArch[5]) have already proposed the security requirements related to mobility management.

NGN Q.15/13 has already well developed security requirements for identification, authentication, authorization, etc [6][7]. Correspondently, the security mechanisms to meet the requirements are established [8]. However, the mobility specific security requirements and mechanisms have not covered in the current recommendation in Q.15. For example, for mobility and roaming case, there is a need for a VPN user to move from one address to another without re-establishing all security associations. IKEv2 Mobility and Multihoming Protocol (MOBIKE) provides a mechanism to meet this requirement [9][10]. Currently there is no placeholder for MOBIKE mechanisms in existing Q.15 recommendations.

(2)Scope

Mobility may happen in various layers, such as link layer, IP layer or Application Layer. However, only IP based mobility security is concerned in this document. Two kinks of mobility cases will be discussed: host based mobility and network based mobility.

(3)Problems to be solved

When a device changes its point of attachment, IP based mobility technologies may utilized to support service continuity. Compared with fixed network case, it will face more security threats when a device is moving. This document will focus on IP based mobility specific security problems.

(4)Methods

- Identify security requirements mainly came from Q.1706/Y.2801, Y.MCFArch, Y.NGN Requirements R2

- Study the related work in other SDOs, e.g. 3GPP2 [13][14][15], 3GPP [11][12]

- Develop a solution to meets the security requirements in the context of ITU-T NGN

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3 Proposal

1. It is proposed that Q.15/13 initiating the study on IP based mobility security for NGN
2. It is proposed that the Appendix in the contribution can be accepted to be a baseline text for the study.

References

[1] ITU-T Recommendation Q.1706/Y.2801 (2006), Mobility management requirements for next generation networks.

[2] ITU-T Draft Supplement, NGN release 2 scope

[3] ITU-T draft Recommendation Y.NGN-R2-Reqts, "Requirements and capabilities for ITU-T NGN release 2"

[4] ITU-T Draft Recommendation Y.NGN-FRA R2, functional requirements and architecture of the NGN of release 2

[5] ITU-T Recommendation Y.MCFArch, "Mobility control functions in the NGN"

[6] Y.2701, Security Requirements for NGN Release 1

[7] ITU-T Draft Recommendation Y.NGN Authentication,

[8] ITU-T Draft Recommendation Y.secMechanisms, NGN security mechanisms and procedures

[9] IETF RFC4555, IKEv2 Mobility and Multihoming Protocol (MOBIKE)

[10] IETF RFC4621, Design of the IKEv2 Mobility and Multihoming (MOBIKE) Protocol

[11] 3GPP TS 33.402, 3GPP System Architecture Evolution (SAE); Security aspects of non-3GPP accesses

[12] 3GPP TS 33.922, Security aspects for inter-access mobility between non 3GPP and 3GPP access network

[13] 3GPP2 X.P0044-0 v1.0, MIPv4 Enhancements

[14] 3GPP2 X.P0047-0 v1.0, Mobile IPv6 Enhancement

[15] 3GPP2 X.S0054-220-0 v1.0, Network PMIP Support

Appendix: Proposed text

1 Scope

This Recommendation is meant to provide the security aspects of intra-access and inter-access IP-based mobility in NGN, which include host based mobility and network based mobility.

2 References

3 Definitions and Abbreviations

4 Introduction

NOTE: Analysis of security threats and risks related IP based mobility in NGN.

5 Authentication and Key Agreement

NOTE: Identification, AAA support, Key distribution

6 Security for IP based mobility signalling

NOTE: Protect the MIP signalling both host based mobility and network based mobility.

7 Security for Handover

NOTE: security context transfer, enabling technology for maintaining security association in mobility and roaming case.