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Agenda Item: 7

Source: Motorola

Title: Enabling Dynamic Assignment of CSCF in the Reference Architecture in TR 23.821

Document for: Approval

Overview

The Release 2000 Reference Architecture should enable the CSCF to be dynamically assigned at registration, during origination of "calls" and even during a "call" when special services are requested. This is not to prohibit static assignment since IP protocols allow the direct addressing of CSCFs in any case. This contribution proposes minimal changes to the architecture to enable this dynamic assignment.

Discussion of Proposal

Most discussions of CSCF selection, to date, have focused on static assignment of the CSCF at registration of the subscriber. It is true in an IP environment that the subscriber can request a specific CSCF by IP address. However, for network operators, it would be more advantageous to allow the network to make the CSCF selection and to be able to dynamically make that selection based on potential services requested by the user. CSCFs could be built around specific services or collections of services that the operator packages for subscription. Some CSCFs might be used for basic services, while other CSCFs might be designed to provide video services. A user might start in a basic CSCF and through request for a video service, be moved to the video services CSCF. Roaming and home subscribers may be handled uniquely by dynamic assignment to a CSCF at time of "call" or service request. A single user may use different service sets from different CSCFs by indicating such information in the setup request or during the processing of the "call" such that the network would dynamically assign the user according to the request.

Another motivation for dynamic assignment is the ability to balance the load among CSCFs in the network. As traffic loads shift according to time of day and number of subscribers active in a geographical area, dynamic assignment of the CSCF would be done as the user initiates a "call" service in the Packet Domain. In addition, dynamic

assignment would simplify the maintenance and testing of a CSCF for operations purposes. Users could be migrated off a certain CSCF to allow for maintenance.

In this contribution the SGSN is designated as the network element that performs the assignment of the CSCF. This assignment might be based on one of several methods, for example:

1) User profile may designate a certain type of CSCF for assignment.
2) Since the SGSN has a view of more than one CSCF, the SGSN may assign the CSCF based on a load-balancing algorithm.
3) The SGSN may receive parameters that would indicate a more appropriate CSCF based on the application content request information received from the CSCF initially assigned, and reassign the CSCF.

This is not meant to be an exhaustive list, but merely an example. Of these methods, none is proposed at this time. By enabling the dynamic assignment of the CSCF in the architecture at this time, the various methods used in the selection process can be developed during the course of preparing the more detail specification of the architecture.

Proposed Text Changes

Additions to the Functional Element Descriptions in Section 5.3

5.3.12 SGSN (changes to capabilities)

- The SGSN communicates with the CSCF (using the SGSN-CSCF reference point) to allow for the dynamic assignment of CSCF at time of registration and during call set up origination.

Additions to Reference Point Descriptions

5.4.15 Pq Reference Point

This is the reference point between the SGSN and the CSCF. This reference point is needed signal content aware information between the CSCF and the SGSN. <u>Dynamic assignment of CSCF may also be negotiated across this reference point.</u>

Conclusion and Proposal

The additions to the reference model proposed in this contribution are important for enabling dynamic assignment of CSCF within the core network. These changes to the Architecture Principles for Release 2000 Report should be adopted. Modifications to the proposed text may be appropriate to make the intent clear in the document.