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3RD GENERATION
PARTNERSHIP
PROJECT 2
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IMS Centralized Services

Stage 1 Requirements

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1 **1 INTRODUCTION AND SCOPE**

2 This document provides service requirements for IP Multimedia System (IMS)
 3 Centralized Services (ICS). ICS enables the delivery of IMS-based services to
 4 users regardless of the attached access network type, e.g., CS domain access
 5 (1xRTT) or IP-based (HRPD or WLAN) access. Service continuity between access
 6 networks is addressed. Service scenarios are described. Requirements are
 7 identified from both user and service provider perspectives.

8 **2 REFERENCES**

9 [S.R0117] 3GPP2 S.R00117-0 v1.0 “Multimedia Priority Service (MMPS)
 10 for MMD-based Networks - Stage 1 Requirements

11 **3 DEFINITIONS AND ABBREVIATIONS**

12 The terms and abbreviations that are used within this document are defined as
 13 follows:

14 **3.1 Definitions**

15 **IMS Centralized Services (ICS):** the provision of communication services
 16 wherein supplementary services and service control are based on IMS
 17 mechanisms and enablers while support is provided for a diversity of access
 18 networks (including circuit-switched and IP-based, wireless and wire-line) and
 19 for supplementary service continuity between access networks.

20
 21 **ICS AS:** SIP Application Server that performs ICS.

22
 23 **ICS Enabled UE:** a UE that has an ICS client. The ICS client is capable of
 24 direct signaling between the ICS-enabled UE and the ICS AS.

25
 26 **Internet Protocol-Connectivity Access Network (IP-CAN):** refers to any
 27 collection of network entities and interfaces that provides the underlying IP
 28 transport connectivity to or between IMS entities.

29 **3.2 Abbreviations**

30	CS	Circuit Switched
31	ICS	IMS Centralized Services
32	ICS-UE	ICS Enabled UE
33	IP-CAN	Internet Protocol – Connectivity Access Network
34	VCC	Voice Call Continuity

4 GENERAL DESCRIPTION

It has been recognized that the direction of the industry is towards IMS, and a need exists for the consistent provision of services across a diversity of access networks. Additionally, the ability to deploy all services from a single consolidated core network may be attractive to service providers. IMS Centralized Services (ICS) addresses these needs.

ICS is an approach to the provision of communication services wherein services and service control are based on IMS mechanisms and enablers while support is provided for a diversity of access networks (including circuit-switched and IP-based, wireless and wire-line).

In this context “service consistency” means that the subscriber’s service experience is the same regardless of the access domain. “Service continuity” means that the subscriber’s services are maintained transparently when transitioning across domains while in an active session. ICS enables both service consistency and service continuity. Service continuity availability depends on the capability of the UE.

A high level conceptual overview of ICS is provided in the following figure.

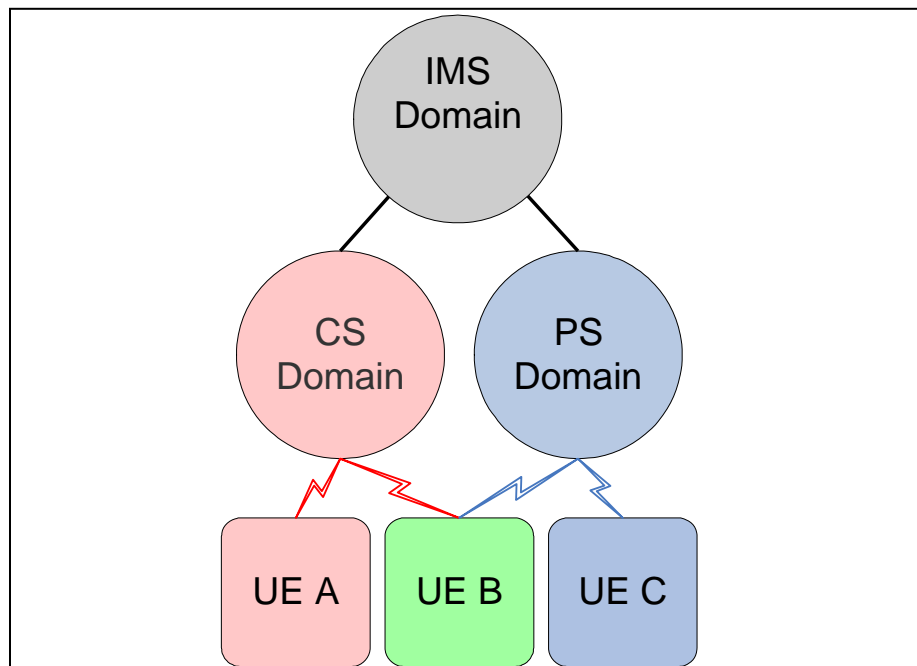


Figure 1. IMS Centralized Services Concept

Key attractions for enabling ICS include the ability to provide a consistent user experience regardless of the domain (CS, PS), and consistency with the

1 industry trend toward IP-based services. Additionally, ICS provides the
2 opportunity to reduce core network complexity, maintenance and operation by
3 offering all services by way of a single consolidated core network.

4 **5 ICS Service Objectives**

5 When identifying requirements for ICS, it is useful to consider the user's
6 perspective, the service provider's perspective, and service scenarios.

7 **5.1 User Perspective**

8 From the User's perspective, IMS Centralized Services provides an enhanced,
9 more ubiquitous user experience from a single UE than otherwise provided.
10 Connectivity is provided over a greater diversity of access networks than
11 previously available. The service set available behaves consistently and can
12 grow with the evolution of IMS. Additionally, the maintenance of service
13 continuity between networks is appealing to subscribers.

14 **5.2 Service Provider Perspective**

15 Service providers may find IMS Centralized Services attractive because this
16 approach is consistent with the direction of the industry to move towards IP-
17 based services. Service providers deploying IMS Centralized Services may be
18 viewed as IMS service providers. Their core networks are therefore IMS oriented
19 (e.g. not CS oriented). With this focus, service providers would prioritize
20 approaches that optimize IMS core network performance and common IMS
21 service architecture consistency. Consequently, although support for non-ICS
22 enabled devices may be highly desired, it may not be pursued if the impacts for
23 supporting such devices are extensive, or result in compromised performance,
24 or are inconsistent with the paradigm of IMS-based services.

25 From the perspective of service providers, ICS users are IMS subscribers. The
26 services provided are therefore IMS services, and IMS Centralized Services is
27 essentially viewed as enabling the provision of IMS services to subscribers in
28 the CS domain.

29 Additionally, a key attraction of ICS for service providers is that it supports the
30 development of a single consolidated core network with one service
31 environment rather than several service environments.

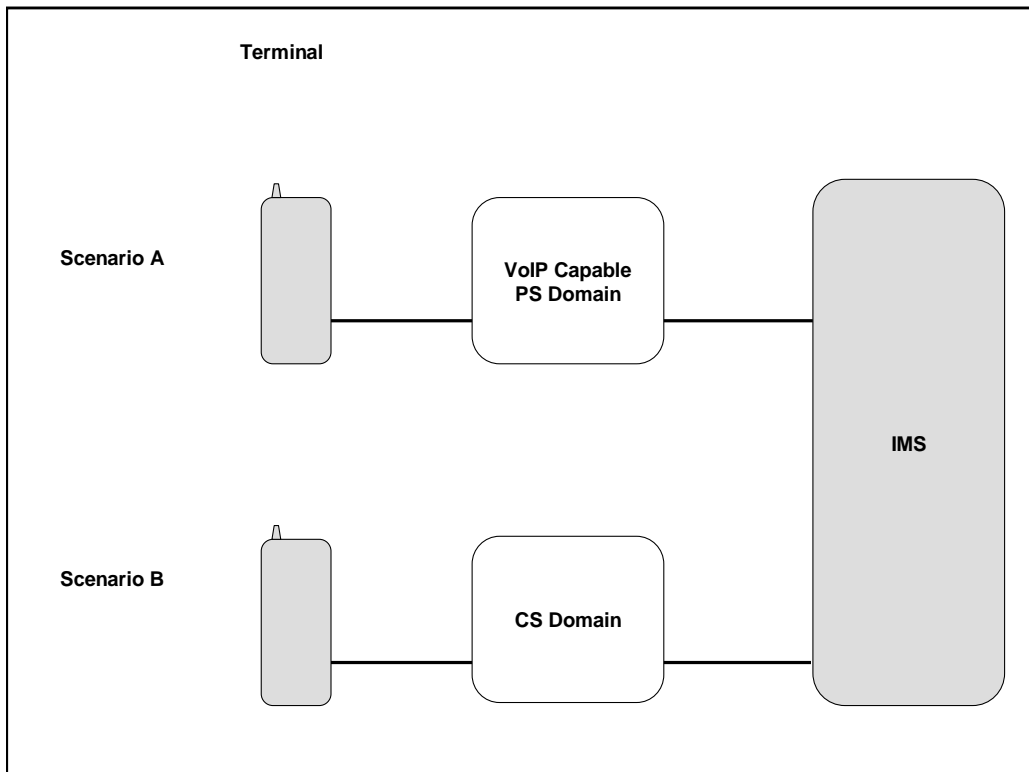
32 **5.3 Access Network Scenarios**

33 ICS will be supported on behalf of UEs attached through different types of
34 access networks. User Equipment with specific functionality for enabling ICS
35 when attached through the CS domain shall be supported. Additionally, User

1 Equipment without specific functionality for enabling ICS when attached
 2 through the CS domain may be supported as well. UEs may or may not be VCC
 3 capable.

4 An overview of UE / Access Network scenarios is seen in the following figure.

5



6

7

Figure 2. Access Network Scenarios

8 Scenario A: The network is an IP-CAN capable of transporting bi-directional
 9 speech media. Here both media transport and session control signaling is
 10 carried over the IP-CAN.

11 Scenario B: The UE is served through the CS domain. In this scenario, both the
 12 media transport and session control signaling is carried through the CS
 13 domain.

1 **6 Requirements**

2

3 **6.1 General**

4 ICS brings value to service providers by providing a consolidated core network,
5 and to subscribers by providing a consistent service experience.

6 [SYS-001] The core network enabling mechanisms for provision of ICS should
7 be consistently applied regardless of access domain type.

8 [SYS-002] ICS users shall be IMS subscribers.

9 [SYS-003] The ICS user shall receive both registered and unregistered services
10 in a consistent manner when the user is accessing IMS regardless of the access
11 domain (e.g., CS domain, PS domain).

12 **6.2 Support for Non-ICS enabled Devices**

13 [NON-001] The concept of ICS applies to non-ICS enabled devices (legacy CS
14 terminals), but the set of services available to the ICS user when the non-ICS
15 enabled device is attached to the CS domain will be limited.

16 [NON-002] In the CS domain the UEs shall be able to use the minimum set of
17 services in a consistent manner.

18 Note: The minimum set of services will be determined during stage 2/3
19 development.

20 **6.3 Roaming Support**

21 [ROM-001] An ICS-UE shall continue to receive full ICS support from the home
22 network while roaming.

23 [ROM-002] An ICS-UE shall be capable of acting as a non-ICS enabled UE
24 displaying standard CS domain interface and operation mode.

25 [ROM-003] The home operator shall be able to control if the UE shall act as an
26 ICS-UE or non ICS-enabled UE while roaming, subject to the constraints of the
27 visiting operator (e.g. roaming agreements, operator policies)

28 Note: If the serving access network (e.g., CS access network) does not support
29 ICS signaling to the home IMS network, the UE reverts to legacy operation
30 for services.

1 **6.4 Service Consistency**

2 [CON-001] ICS should be available from any access network available to ICS
3 users.

4 [CON-002] Subscribers shall have a consistent user experience regardless of
5 the access network used, subject to the constraints of the UE and access
6 network.

7 **6.5 Service Continuity**

8 [COT-001] ICS shall enable transparent service provision during domain
9 transfer between different access networks (e.g. HRPD, WLAN, CS access)
10 subject to the constraints of the UE and access networks.

11 [COT-002] Services shall be maintained after domain transfer occurs, subject
12 to the constraints of the UE and the source and target access networks.

13 **6.6 Emergency Services**

14 [EME-001] ICS shall not limit the ICS user's capability to make emergency
15 calls.

16 **6.7 Multimedia Priority Services**

17 [MMPS-001] ICS shall not limit the ICS user's capability to support Multimedia
18 Priority Services as defined in [S.R0117].