Rich Communication Suite

GSMA Rich Communication Suite White Paper

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1 Executive Summary

1.1 Introduction

Today new communication services are introduced in a silo approach. Often such services are limited to a smaller set of devices and usage is not growing.

Within the GSMA RCS program an end-to-end approach is being followed to define a clear set of available communication services. With early interoperability testing the technical feasibility has been verified and the value of the selected suite has been confirmed. The clearly described profiles of existing standards implementation facilitate a fast delivery of RCS to the market.

The stakeholders in RCS are all key players in the telecom market and are committed to introducing the RCS services both from an operator and supplier side.
The initiative is now integrated in the GSMA; it is also open to non-GSM operators, fixed and mobile, and is independent from used technologies (CDMA etc...)

The RCS initiative is working with the objective of launching successful Rich Communication services. Operator members of the group are encouraged to promote local ecosystems in their markets to aide in successful interoperable service launches. In the vendor community there is work to align technical and interoperability milestones with go-to-market strategies. The RCS initiative also works together to develop concrete value propositions for the Rich Communication services for different stakeholders in the ecosystem. This also includes developing use case values from the perspective of a consumer.

Who should read the White Paper?

- Mobile and fixed network operators who want to understand the value of the RCS services without any limitation to the used access technology
- Telecom suppliers who want to offer rich communication solutions
- Service providers who want to extend their offer with rich communication capabilities
- Advertising industry

The GSMA White Paper describes a compelling end user experience and service environment to attract new revenue streams through increased usage of communication services. With RCS a balanced bundle of integrated communication services comes to the market. Through early interoperability work, the market introduction will be accelerated.

1.2 Next Steps

GSMA RCS will continue to extend its feature set and service offering. The initial focus was on enriched mobile communication services, now RCS is extending the same services to the fixed environment. In addition new communication features and services will be added to the Rich Communication Suite.

As part of the GSMA, RCS will also focus on driving preparation required to help operators go to market with RCS. This will include using the existing GSMA work groups to prepare the required commercial and technical inter-working agreements.

2 Scope

The scope of this paper is summarised below.

The following is considered in scope:

- What is the GSMA RCS program
- Why this Suite of Rich Communication services
- RCS program objectives
- RCS Core feature set and services
- RCS relationship with Standards
- RCS and Clients
- RCS Business Rationale

The following is considered out of scope:

- User Interfaces
- RCS specifications

3 Introduction

3.1 What is the GSMA Rich Communication Suite (RCS) program?

The GSMA Rich Communication Suite (RCS) program is an effort of a group of industry players for the rapid adoption of applications and services providing an interoperable, convergent, rich communication experience both in mobile and fixed environments. The RCS program includes network operators, network, device and client software vendors. It is a global program independent of used access technologies, so it is not limited to GSM/UMTS. CDMA based networks are also actively participating in RCS.

The RCS program uses an iterative, agile methodology to deliver a consistent feature set, implementation guidelines, example use cases as well as demonstrations around interoperable reference implementations based on profiling of existing standards and specifications. The deliverables of the GSMA RCS program are intended to be provided as input to industry associations for consideration as reference specifications.

3.2 Why this suite of rich communication services?

Today, consumers are experiencing the power and the promise of enriched communication. Services and applications that have introduced buddy lists showing dynamically changing status and on-line capabilities, different messaging options and possibilities of adding contents are just a few examples of this richer communication experience. Consumers may take for granted that these capabilities are available not only on a PC but also on a mobile device and that there is open communication between devices and networks. Service discovery is a keystone to boost the usage of richer communication services. Additionally, the user experience is improved by visualizing through the Rich Communication Suite only those communication services with an end-to-end guaranty of use.

With the Rich Communication Suite the operators can fulfill their customer expectations and continue to introduce ever evolving services based on what the consumer demands.

To ensure service availability in 2008, the RCS program continuously drives interoperability testing to form grounds for faster deployment of trusted rich communication services. These tests include interoperability testing between various devices, such as mobile handsets and PC clients and interoperability in a multi-operator environment as well as sharing the RCS specifications with relevant industry forums.

4 GSMA Rich Communication Suite program

The GSMA RCS program is a collaborative effort to speed up and facilitate the introduction of commercial IP Multimedia Subsystem (IMS) based rich communication services over mobile networks for both UMTS and CDMA initially and later extending to fixed networks.

RCS was established in May 2007 as an initiative and was supported by key industry players. Now the program includes many operators, network infrastructure vendors and client vendors from global markets and was integrated in the GSMA in the summer of 2008 (1). The participating company list can be found on the RCS portal (2).

To speed up the introduction of commercial IMS services, the participants in the GSMA RCS program have:

- Defined a core feature set, leveraging existing standards, and implementation guideline specifications for an interoperable IMS-based communications suite. The IMS is an important architecture for bringing these capabilities to the consumer in an interoperable way.
- Developed reference implementations of the Rich Communication Suite for commercial devices, and validated the underlying requirements and technical specifications for service interoperability.
- Conducted interoperability testing in multi-vendor environments to ensure and verify the maturity of the RCS feature set.
- Agreed to support the deployment of RCS.

The GSMA RCS program does not specify user interface or device implementation but rather focuses on user experience, interconnection and interoperability requirements tied to a core feature set of rich communication capabilities.

The GSMA RCS program is also developing Implementation Guidelines for User Experience to ensure that the customer experience is placed at the forefront of the development. Since RCS is seen as the evolution of peer to peer communications towards a mass market service, customers must be provided with a good user experience. This is a key aspect in order for a service to become adopted by the mass market. Some of the key issues that are addressed in RCS in order to provide a good user experience are service discovery, continuation of using traditional contacts in the phonebook and seamless handset configuration.

It is not the intention of the RCS program to create new standards but rather to specify a core feature set that can be implemented using existing standards and guidelines already defined by other forums (e.g., 3GPP, ETSI, OMA, and the GSMA). Should the experiences of the interoperability tests identify the need for further standardization or corrections to the existing standards, then these facts will be documented and communicated to the associated standards organizations.

The initial focus for the program's efforts was a "phase1" of work that is completed with demonstrations in 2008, producing a set of interoperable rich

communication services and establishing the basis for future incremental enhancements. Major milestones have been achieved. The RCS feature set was already demonstrated in Barcelona 2008 and at the Paris IMS World Forum in April 2008. Network interworking was also a part of the demonstrations at Communicasia 2008 and further demonstrations will be done as part of the Mobile Asia Congress.

5 GSMA RCS Core Feature Set

The RCS program focuses on a core feature set with the intention of realizing practical interoperability between different devices and network infrastructures.

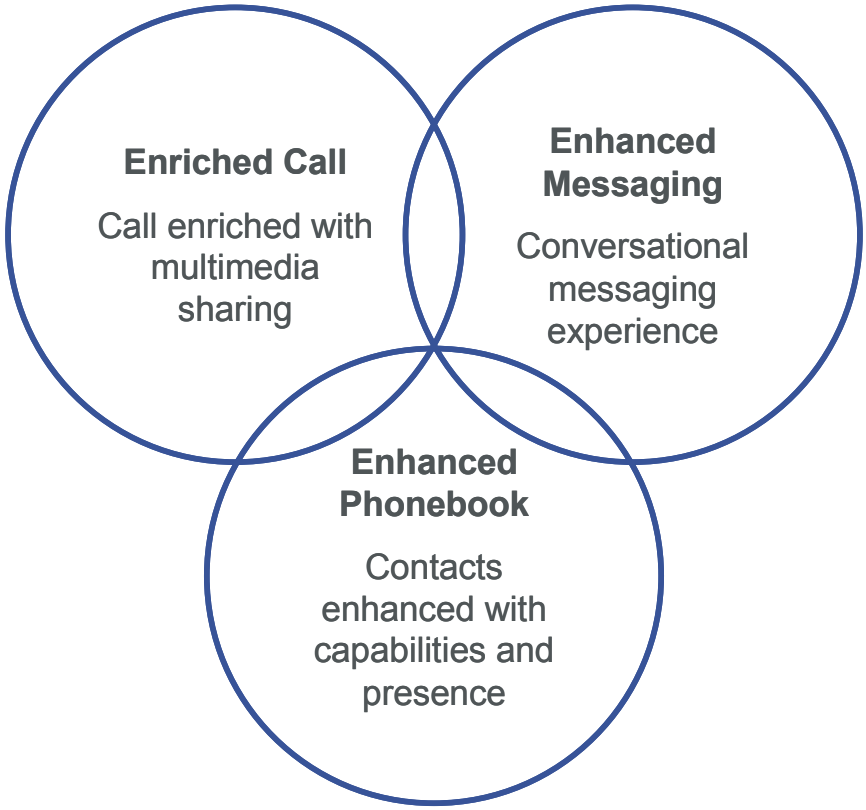

Figure 1: Three aspects of the Rich Communication Suite

The following areas have been identified as being part of the RCS today:

- Enriched Call
- Enhanced Messaging
- Enhanced Phonebook

The Enriched Call experience initially provides the capability to share multimedia content during a call. The forms of multimedia sharing available at a given time between the communicating parties are shown to the call participants

to eliminate unpleasant errors when either party cannot share the chosen multimedia (e.g., when not within 3G coverage, or when the capability is not available).

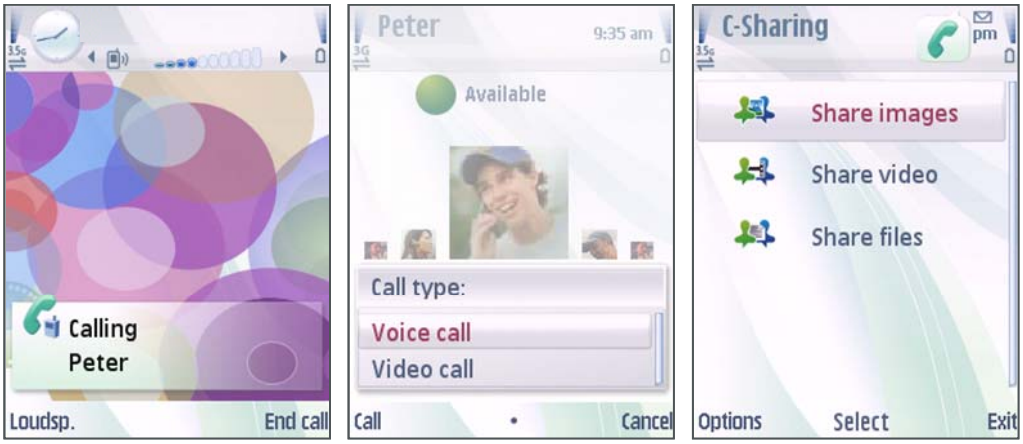

Figure 2: Multimedia sharing during a call

The Enhanced Phonebook allows “guaranteed” communication through capability enhanced contacts. In addition, the Enhanced Phonebook means that communication can be initiated from the phonebook by selecting a communication type (e.g., calling or messaging).

The Enhanced Messaging allows the possibility to view and trigger all communication (including calls, SMS, MMS, instant messaging) in a conversational view, where the user can see the communications history. The conversational view is similar to chat history in instant messaging services. Users gain value from the simplified communications experience and from the availability of the richest possible services for continuing communications dialog within and without a call in progress.

Figure 3: Enhanced Phonebook and Messaging

RCS provides implementation guidelines for IP based communication solutions including voice, instant- and multimedia messaging, video and presence. Capability enhanced phonebook; media sharing, group messaging and secure authentication are seen as important aspects too.

Interoperable services between mobile devices and PC terminals, across the different access networks, also provide a selected set of supplementary services and are backwards compatible with legacy services such as SMS and voice.

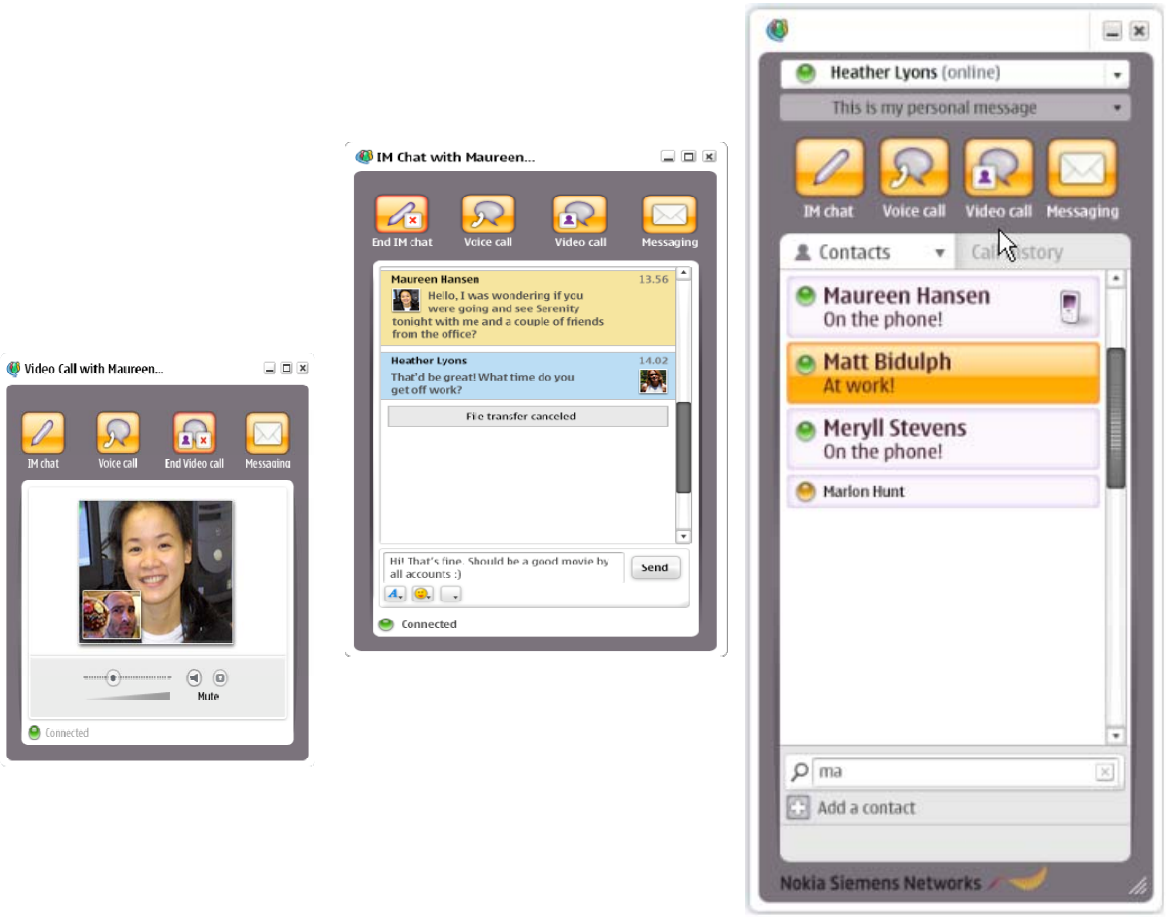

Figure 4: PC Terminal Prototype: Capability Enhanced Phonebook, Video Call and Chat

Figure 5: PC Terminal: Capability Enhanced Phonebook, Chat and File Sharing

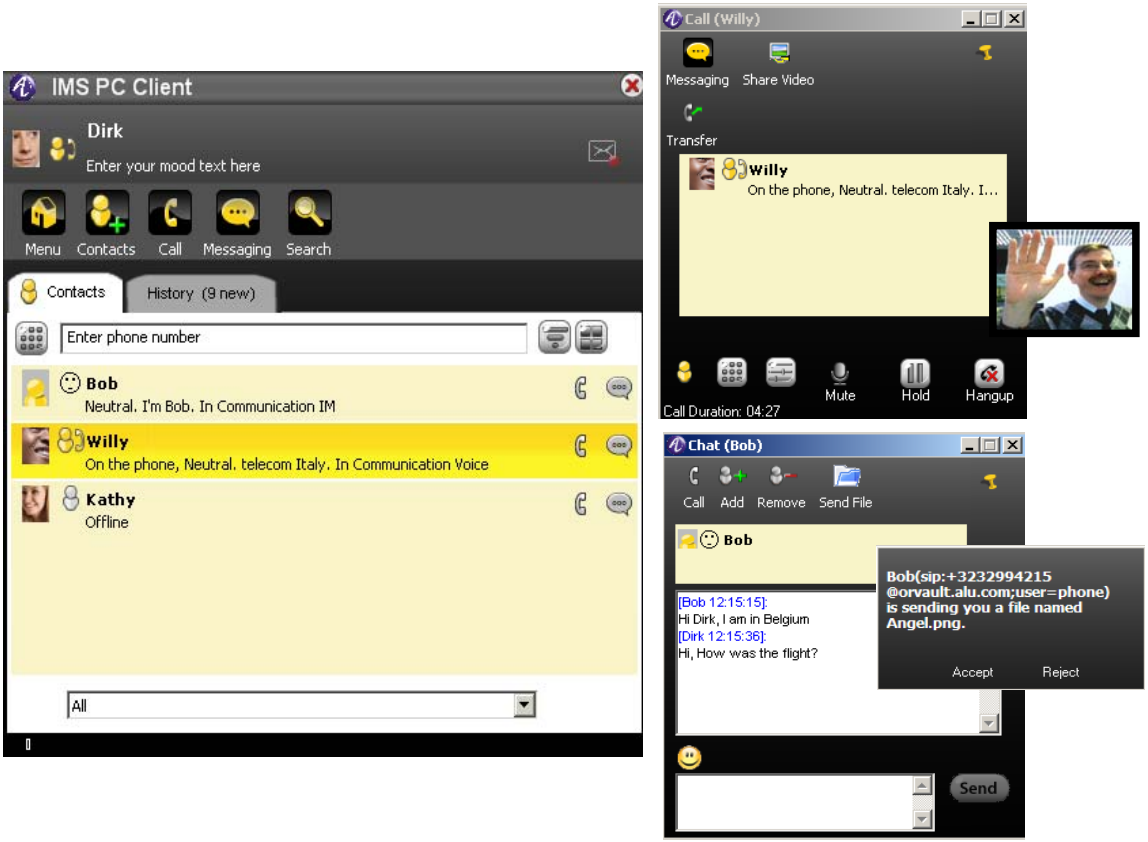

Figure 6: PC Terminal: Capability Enhanced Phonebook, Chat, Voice Call, Video Call, File Transfer

5.1 Interoperability challenges

The continuous focus of the RCS program is to overcome some of the existing obstacles to reach these future services. Currently, standards are being developed in different forums: IETF, 3GPP and ETSI/TISPAN while some IMS based services are standardized in OMA. However, these standards are covering a very broad range of services and with great latitude in what functions need to be included in each; which will lead to different combinations of services and functionality.

By allowing for a common, well-defined set of features, based on profiling of the available standards, which is agreed upon by device manufacturers, client software vendors, infrastructure vendors and operators, a common denominator of interoperability can be achieved with a common feature set, providing an engaging solution for end-users and thus driving service up-take. Additionally, the feature set allows for seamless interworking with existing services but also provides a bridge to allow users to upgrade to richer services and forms of communication.

5.2 RCS services

RCS services are built using a set of standardized features that use the IMS architecture to enable service integration that provides a smooth user experience and interoperability between service providers. RCS services can be used both in mobile and fixed network environments, and are interoperable between these two network environments. RCS gives the possibility to create trusted connection between users and network environments.

The presence service (OMA SIMPLE Presence) plays a key role in RCS. The discovery of the rich communication capability is the key enabler to increase the usage of these new services. Publication of the end-user's current communication capabilities guarantees that service completion can be realized for these new communication services.

In the actual feature set, presence information is used to communicate not only the communication capabilities, but also personalized contact features including a photo, availability and status text.

Presence can be conveniently shown in several ways: in the phonebook and in places where services are launched. User feedback on presence services has been very positive.

In addition to presence services, RCS includes a set of common industry standard communication services that, taken together, form a comprehensive and innovative user experience. The additional communications services comprise Multimedia Messaging, Chat, File Transfer, Video Share and Image Share.

RCS Service	Specification Owner
Presence	OMA PAG
Service Capability distribution/discovery	OMA PAG
Multimedia Messaging	OMA IM
Chat	OMA IM
File Transfer	OMA IM
Video Share	GSMA
Image Share	GSMA

Table 1: Sources for each of the RCS services

RCS also includes several other services such as the feature to centrally back-up (and restore) the contacts in the local phonebook to a safe network repository; minimizing the impact of lost, broken or stolen devices. There is also the feature to access network-based directories and search and retrieve contacts to the local phonebook on the device.

After a user has established a trusted communication connection with another user, the presence service enables them to see what services (communication capabilities) each other has available. The 3G Video Calls, Multimedia Messaging, Chat and File Transfer services are examples of possible communication capabilities for a given user. The detailed service attributes for Video Share and Image Share like codecs are included as part of the voice call set up. The service profiles enable integration of services that give users a smooth and seamless service experience.

Existing services, including video, voice, MMS and SMS, as well as a variety of future services can be integrated into RCS. In addition, as new services are added or when users upgrade their devices, the new service capabilities can be “published” to contacts via the presence service.

The RCS Enhanced Phonebook contains a number of useful attributes to assist and stimulate communication. Contact information is no longer restricted to just the ones stored on the device. The user can also search and retrieve contacts from the mobile network directory , or other fixed network directories (e.g., white pages or yellow pages) or even a service specific directory (e.g., gaming service).

In addition, the RCS Enhanced Phonebook can provide a quick summary of communication with each of your contacts. The detailed view of an individual contact in the phonebook will reveal the complete profile of that contact, including their presence and most recent communications capabilities. The communications capabilities information provides an important clue to how that contact can be reached. Communication with any contact is as easy as identifying them in the RCS Enhanced Phonebook and then selecting the available communication type which fits best.

Figure 6: A possible user experience for the RCS Enhanced Phonebook

6 RCS Clients

Availability of RCS clients is a critical success factor for the RCS program. The promise of IMS is to give standardized features and enablers as well as handset platforms for innovating new services and applications. To maximize innovation it is important that the device platform is open for 3rd party client development. This can be solved with open device operating systems like Symbian S60/UIQ, Windows Mobile, Linux, or environments providing Java (with suitable JSR support, e.g. JSR 281) runtime. The openness gives a shorter development time which has previously been one of the drawbacks with telecom standardization.

Another important reason for open client development is the iterative nature of the RCS program. This means that not all handsets need support all the common feature set. It also means that new RCS Clients can be developed and launched independently of each other. Since the RCS Clients are launched independently and without co-ordination, interoperability testing is up to the developer of a particular RCS Client.

The future availability of Client Software Development Kits with key RCS enabler building blocks helps support such open client development models and further accelerate the development and customization of finished RCS clients. They help the industry to shift from single-purpose vertical applications (e.g. Video Share, IM) to an integrated, multi-functional RCS Client Framework that is device platform, application environment, network, and service infrastructure independent.

The open handset platforms and the possibility for diverse sets of RCS Clients follow a similar innovation approach as is widely used on the internet today. The differentiator is mainly that the RCS program is built on standardized, interoperable components.

Supported by open handset platforms and multi-functional client software frameworks, RCS enables the industry to realize the ‘Long Tail’ of applications, in that many applications can be rapidly built and deployed utilizing one or more enablers of RCS.

Furthermore the support of the RCS feature set by PC clients will improve the acceptance and increase the usage. Dual usage will allow using both mobile and fixed devices with RCS feature set. Indeed, the RCS program is working on delivering the RCS features on PC, and fixed devices for the coming RCS release.

7 Business Rationale of the Rich Communications Suite

From the operator perspective, the business rationale for the RCS is based on how it provides a common base for addressing multiple customer requirements and how it enables the operator to attract new subscriptions and increased usage of communication services.

- The RCS increases the attractiveness of operator communication service offering by integrating presence and capability information and other new communication services. Capability information increases the usage of communication services by informing the user of the recipient's supported communication methods. Exposing service capabilities also gives the operators the flexibility to gradually deploy communication services at their own pace and means to advertise the new services to the customers.

- Today the user needs to know which messaging platform their friends use (MSN-Messenger, Skype etc.) and connect to them with the user credentials (e.g., name email) used by that application. The RCS program enables messaging just based on phone number information, which is already stored on the users phonebook and makes connecting to friends easy no matter which operators these friends have a subscription with.

- The RCS strengthens the existing operator business model by answering the customer demand for personalization and self-expression through new means of communication. This enables the consumer to benefit from an improved rich communication experience.

- Advertising in instant messaging services and with conversational messaging user experience could possibly become a mechanism for new revenue source for operators.

- The RCS further differentiates the operator on multimedia services and so supports increased availability of services such as IM and multimedia sharing for consumers.

- The RCS also improves the messaging user experience through increased interoperability between operators. The increased availability of rich messaging services has not happened as widely and as quickly as for SMS.

- The RCS gives the possibility to integrate the usage of PC communication by integration to the mobile network environment. The scope of the RCS program includes mobile-to-mobile and mobile-to-fixed network connections.

- The RCS objective is to bring successful Rich Communication services to the market. Operator members of the group are encouraged to promote local ecosystems in their markets to aide in a successful interoperable service launches. In the vendor community there is work to align technical and interoperability milestones with the go to market strategies. The RCS program also works together to develop concrete value propositions of the Rich Communication services for different stakeholders in the ecosystem. This also includes developing use cases from the perspective of the consumer.

8 Summary

The services defined by the GSMA RCS program add a rich communication services feature set to existing mobile and fixed services, bringing more value for users, device manufacturers, client developers, and network providers. Interoperability is vital for services take-up. Without services that work across devices and networks, users will have little incentive to use these new services. The GSMA RCS program is a collaborative effort to speed up and facilitate the introduction of commercial IMS based communication services. Commercial interoperability across vendors and operators is targeted to be achieved through this program. The GSMA RCS program has defined a first core feature set and has tested interoperability across multiple device manufacturers and infrastructure providers. To ensure services availability, the GSMA RCS program continues to drive testing and interoperability in a multi-operator environment, as well as sharing the RCS specifications with relevant industry forums. This establishes a basis for future development in a phased and structured manner, ensuring a good level of interoperability.

9 References

(1) GSMA Press release : GSMA to take Rich Communication Suite forward
http://www.gsmworld.com/news/press_2008/press08_55.shtml

(2) RCS portal can be found under
http://www.gsmworld.com/initiatives.shtml or
http://www.gsmworld.com/rcs

10 Terminology and Convention

10.1 Conventions

This is an informative document, which is not intended to provide testable requirements for implementations.

10.2 Definitions

Chat	Messaging communication experience done in conversational mode. Can be realised in a person-to-person set-up or in a group conversation. Also used to indicate Instant Messaging user experience. http://en.wikipedia.org/wiki/Online_chat
Google Talk	Service operated by Google for messaging, voice services and sharing http://en.wikipedia.org/wiki/Google_Talk
JSR 281	This JSR provides a high-level API to access IP Multimedia Subsystem (IMS) services. This API hides IMS technology details and exposes service-level support to enable easy development of IMS applications. http://jcp.org/en/jsr/detail?id=281
MSN-Messenger	Service operated by Microsoft for messaging, voice services and sharing. http://en.wikipedia.org/wiki/MSN_Messenger
OMA Presence SIMPLE	OMA Presence SIMPLE is an OMA enabler, product of the work item OMA PAG (Presence and Availability working Group). http://www.openmobilealliance.org/
Skype	Service operated by Skype for messaging, voice services and sharing http://en.wikipedia.org/wiki/Skype

10.3 Abbreviations

3GPP	3rd Generation Partnership Project
ARPU	Average Revenue Per User
ETSI	European Telecommunications Standards Institute
GSMA	GSM Association
IETF	Internet Engineering Task Force
IM	Instant Messaging
IMS	IP Multimedia Subsystem
IP	Internet Protocol
MMS	Multimedia Messaging Service
OMA	Open Mobile Alliance
PAG	Presence and Availability Working Group in OMA
RCS	Rich Communication Suite
SIMPLE	Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions
SMS	Short Message Service

TISPAN	Telecoms & Internet converged Services & Protocols for Advanced Networks
UIQ	User Interface Quartz