FFT Doc 16.004 v1.0 (December 2016)

French Federation of Telecoms
Standards Committee
IP Interconnection Working Group
Architecture Sub-group

IP interconnection
Interface specification
for RCS interconnection

Part 1: Endorsement of GSMA IR.90 for Joyn Blackbird
Part 2: Additional topics

French Federation of Telecoms

Internet

http://www.fftelecom.org

RCS Interworking Guidelines

Version 8.0

20 March 2014

This is a Non-binding Permanent Reference Document of the GSMA

Security Classification: Non-confidential

Copyright Notice

Disclaimer

Antitrust Notice

Table of Contents

1. Introduction

Foreword:

The goal of this document is to specify the SIP/SDP interface for RCS interconnection between two French operators.

It covers SIP/SDP interface. MSRP messages, CPIM and XML bodies, HTTP protocol are out of scope of the document.

The scope of services taken into account in the document is Joyn Blackbird.

This part (Part 1) deals with the endorsement of GSMA IR.90 for the selected scope of services.

Colour code:
The following information helps to understand the colour code used in the document.
Normal text – black on white – text present in the standard that is applicable.
Text with yellow background:
   - explanation of the normative text,
   - differences between GSMA IR.90 V8.0 document and FFT's position (choice of options or non-compliance with the specification).
   - additional information.
~~Strikethrough text with grey background~~ – for non-applicable text, e.g. because it is not in the scope of the document. When all text from a section is deleted, only the title is kept and struck through.

1.1. Overview

This document illustrates the inter-Service Provider aspects of RCS (Rich Communication Suite). The aim is to minimize any interoperability issues when deploying RCS services between Service Providers by making sure guidelines for deployment options are documented. This is necessary for example due to the number of different possible implementation alternatives existing in the corresponding specifications. The intention is not to reinvent the wheel by creating new specifications, but instead to reuse those already existing by making sure Network-to-Network Interface (NNI) specific details of RCS are well documented.

The most relevant RCS document for current endorsement is [Joyn Blackbird] specification, itself based on the "Rich Communication Suite 5.1 Advanced Communications Services and Client Specification" [RCS5.1] which details the service features that define RCS Release and illustrates the technical details of different RCS services. In addition there are a number of endorsement documents, such as "RCS 5.1 Endorsement of OMA SIP/SIMPLE IM 1.0" [RCS5-SIMPLEIM-ENDORS] describing which sections of a particular specification are supported by RCS.

[FFT]: The current document is based on a scope of service corresponding to Joyn Blackbird which includes interoperability with Hot Fixes devices.

The list of services taken into account in current document is detailed below:
− Capability discovery based on OPTIONS;
− Image share (during a call);
− Video share (during a call);
− One-to-one chat (based on OMA SIMPLE IM);

- Group chat (based on OMA SIMPLE IM);
- File transfer (based on OMA SIMPLE IM);
- SIP signalling to prepare the Multi-devices introduction.
- Store&Forward in a Group chat and message delivery notifications in a Group Chat;
- Integrated messaging;
- File transfer over HTTP, including Store&Forward and File transfer in a Group chat.

Other RCS5.1 services which does not belong to Joyn Blackbird specification (e.g. Geolocation push, vCard exchange, RCS IP voice and video calls, Chat and file transfer based on CPM, IM/CPM interworking, Presence, Video share outside a call, etc) are out of scope of the document.

For further information about RCS, see www.gsma.com/rcs

User-to-Network Interface (UNI) specific issues are out of scope, since they do not directly impact NNI. Whatever UNI transport is used for accessing the home network RCS services (for example, 2G, 3G, Global Access Network (GAN) or ADSL) is transparent from the NNI point of view.

In general, the following RCS services are relevant for this document:
- Capability exchange based on Session Initiation Protocol (SIP) OPTIONS
- ~~Social Presence Information based on OMA SIMPLE Presence and XML Document Management (XDM)~~
- Chat based on OMA SIMPLE IM ~~and Converged IP Messaging (CPM)~~
- File Transfer based on OMA SIMPLE IM ~~and CPM~~
- Video Share based on GSMA [IR.74] and [IR.84]
- Image Share based on GSMA [IR.79]
- ~~Geo-location sharing based on OMA File Transfer and Location Application Programming Interface (API)~~
- ~~Voice call based on [IR.92] and [IR.58]~~
- ~~Video call based on [IR.94]~~

General GSMA interworking guidelines are fully applicable to RCS, so for example the guidance given in [IR.34], [IR.65], ~~[IR.67]~~ and [IR.77] related to issues such as addressing, routing, Quality of Service (QoS) and security need to be taken into account. They are not listed in detail within this document. See www.gsma.com/technical-documents for these recommendations.

It should be noted that in general within context of GSMA the term "interworking" means the same as "interconnection". Thus, for example "IM interworking" does not imply conversion between different messaging technologies, but interconnection of IM between Service Providers.

Annex A illustrates the mapping between NNI and UNI parameters, including recommended handling of the parameters per RCS service.

1.2. Roaming

~~For devices that are configured to use the IP Multimedia Subsystem (IMS) Access Point Name (APN), the IMS voice roaming architecture as specified in [IR.65] is applicable for all RCS services.~~

For devices that are configured to use an APN other than the IMS APN, it is assumed that the existing 2G/3G roaming is used to connect to the IMS in the Home Public Mobile Network (HPMN), and no roaming occurs from an IMS perspective. IP traffic for RCS services (for example SIP signalling, RTP video, and Message Session Relay Protocol (MSRP)) is carried inside the normal GPRS Tunneling Protocol (GTP) tunnel from the Visited Network Serving GPRS Support Node (SGSN) to the Home Network Gateway GPRS Support Node (GGSN).

Inter-Service Provider aspects associated with these RCS services are defined in later sections of this document.

> **[FFT]:** Only APN internet shall be used. The existing 2G/3G roaming is used. APN IMS is not applicable.

1.3. Legacy

"Legacy" services including Circuit Switched (CS) voice, CS video, Short Message Service (SMS) and Multimedia Messaging Service (MMS) are expected to work as they do today, so there's no need for additional guidelines for them in the RCS context.

Note: It is also possible to run CS based services over Packet Switched (PS) based inter-Service Provider network, using for example MSC-S/SIP-I and Signaling Transport (SIGTRAN) technologies. This, however, is transparent to RCS and is therefore out of scope for this particular document. See the corresponding IREG documentation (such as [IR.83]) for further details.

1.4. Abbreviations

Term	Description
APN	Access Point Name
AS	Application Server
B2BUA	Back-to-Back User Agent
BG	Border Gateway
CPIM	Common Profile for Instant Messaging
CPM	Converged IP Messaging
CS	Circuit Switched
IARI	IMS Application Reference Identifier
ICSI	IMS Communication Service Identifier
IBCF	Interconnection Border Control Function
IM	Instant Messaging
IMDN	Instant Message Disposition Notification
IMS	IP Multimedia Subsystem
IPX	IP eXchange
IWF	InterWorking Function
LBS	Location Based Services
LTE	Long Term Evolution
MSRP	Message Session Relay Protocol
NNI	Network-to-Network Interface
NVAS	Network Value Added Services
P2P	Peer-to-Peer
PS	Packet Switched
RCS	Rich Communication Suite
RTP	Real-time Transport Protocol
SIMPLE	Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions

Term	Description
SIP	Session Initiation Protocol
SPI	Social Presence Information
TrGW	Transition Gateway
URI	Uniform Resource Identifier
XCAP	XML Configuration Access Protocol
XDM	XML Document Management
XML	eXtensible Markup Language

1.5. References

Ref	Doc Number	Title
[1]	[23.228]	3GPP TS 23.221 Release 10, 3rd Generation Partnership Project IP Multimedia Subsystem (IMS);Stage 2 http://www.3gpp.org
[2]	[24.229]	3GPP TS 24.229 Release 10, 3rd Generation Partnership IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) http://www.3gpp.org
[3]	[29.165]	3GPP TS 29.165 Release 10, 3rd Generation Partnership Project Inter-IMS Network to Network Interface http://www.3gpp.org
[4]	[AA.80]	GSMA PRD AA.80 – "IP Packet eXchange Service Agreement" Version 4.1 27 July 2011 http://www.gsma.com
[5]	[IR.34]	GSMA PRD 34 – "Inter-Service Provider IP Backbone Guidelines" Version 7.0 23 January 2012 http://www.gsma.com
[6]	[IR.63]	GSMA PRD IR.63 – "LBS Roaming and Inter-working Guidelines" Version 3.0 15 January 2004 http://www.gsma.com
[7]	[IR.65]	GSMA PRD IR.65 - "IMS Roaming and Interworking Guidelines" Version 6.0 30 August 2011 http://www.gsma.com
[8]	[IR.67]	GSMA PRD IR.67 – "DNS/ENUM Guidelines for Service Providers & GRX/IPX Providers" Version 6,0 1 December 2011

Ref	Doc Number	Title
		http://www.gsma.com/
[9]	[IR.74]	GSMA PRD IR.74 - "Video Share Interoperability Specification" Version 1.4 20 December 2010 http://www.gsma.com/
[10]	[IR.77]	GSMA PRD IR.77 – "Inter-Operator IP Backbone Security Requirements For Service Providers and Inter-operator IP backbone Providers" Version 2.1 03 December 2009 http://www.gsma.com/
[11]	[IR.79]	GSMA PRD IR.79 - "Image Share Interoperability Specification" Version 1.4 29 March 2011 http://www.gsma.com/
[12]	[IR.83]	GSMA PRD IR.83 – " SIP-I Interworking Description" Version 1.2 08 June 2009 http://www.gsma.com/
[13]	[IR.84]	GSMA PRD IR.84 - "Video Share Phase 2 Interoperability Specification" Version 2.2 30 December 2010 http://www.gsma.com/
[14]	[CPM1.0-AD]	OMA Converged IP Messaging Architecture, Candidate Version 1.0 – 12 Oct 2010 http://www.openmobilealliance.org
[15]	[Presence]	OMA Presence SIMPLE Specification, 1.1, http://www.openmobilealliance.org/
[16]	[Presence2.0_DDS]	OMA Presence SIMPLE Data Specification, Approved Version 2.0, 29 September 2009 http://www.openmobilealliance.org/
[17]	[Presence2.1_DDS]	OMA Presence SIMPLE Data Specification, Approved Version 2.1, 02 October 2010 http://www.openmobilealliance.org/
[18]	[Presence2.0_TS]	OMA Presence SIMPLE Specification, Candidate Version 2.0, 02 December 2010 http://www.openmobilealliance.org/
[19]	[Presence2.0_RLS_TS]	OMA Resource List Server (RLS) Specification, Candidate version 2.0, 02 December 2010 http://www.openmobilealliance.org/
[20]	[RCS5.1] [RCS5.1 UNI]	GSMA "Rich Communication Suite 5.1 Advanced Communications Services and Client Specification" 13 August 2012 V4.0 (28/11/2013)

Ref	Doc Number	Title
		http://www.gsma.com/
[21]	[RCS5-CPM-CONVFUNC-ENDORS]	GSMA RCS 5.1 Endorsement of OMA CPM 1.0 Conversation Functions, Version 1.0 13 August 2012 http://www.gsma.com/
[22]	[RCS5-SIMPLEIM-ENDORS]	GSMA RCS 5.1 Endorsement of OMA SIP/SIMPLE ~~IM 1.0, Version 1.0~~ IM 2.0" Version 2.0 ~~13 August 2012~~ (25/09/2013) http://www.gsma.com/
[23]	[XDM2.0_Core]	OMA XML Document Management (XDM) Specification, Candidate Version 2.0, 16 September 2008 http://www.openmobilealliance.org/
[24]	[OMA IM]	OMA "Instant Messaging using SIMPLE" (ref: OMA-TS-SIMPLE_IM-V2_0-20130809-D) (09/08/2013)
[25]	[RCS5.1 NNI Test Cases]	GSMA "RCC TF 56_009 Test Cases for RCS 5.1 NNI" V1.0 (17/04/2013)
[26]	[JOYN BLACKBIRD]	GSMA "joyn Blackbird Product Definition Document" V4.0 (06/10/2014)
[27]	[JOYN BLACKBIRD IOT Guidelines]	GSMA "GSMA RCS IOT joyn Blackbird Implementation Guidelines" v1.5 (18/02/2015)
[28]	[FFT_Archi_RCS]	FFT "Architecture d'interconnexion RCS/Joyn Principes et recommandations", FFT, Doc. 16.001, V1.0 (April 2016)
[29]	[FFT_Profile_RCS_Add]	FFT "Interface specification for RCS interconnection – Part 2: Additionnal topics", FFT, Doc. 16.002, V1.0 (April 2016)

2. Overall IMS NNI Architecture

The IMS NNI architecture forms an important part of RCS NNI since RCS heavily utilizes IMS core system as specified by 3rd Generation Partnership Project (3GPP) to perform a number of key functions such as handling of SIP signalling, authentication, authorization, charging and routing support.

It should be noted that both main alternatives for IMS NNI, either using Mw/Gi/SGi interfaces, or using Ici/Izi interfaces are possible in RCS NNI. In other words, individual Service Providers can select the most optimal solution suitable. These two options are fully interoperable, so a Service Provider using Mw/Gi/SGi can interwork with a Service Provider using Ici/Izi without any modifications needed.

For further details of IMS NNI architecture, see Section 3 "Interworking Guidelines" in [IR.65], which illustrates the general service interoperability between IMS networks. For inter-Service Provider guidelines applicable for IMS based services including RCS, see Section 5 "Service Related Guidelines" in [IR.65].

Detailed inter-Service Provider guidelines associated with RCS services are indicated in later Sections of this document.

[FFT]: Only the solution using Ici/Izi Interfaces (with IBCF) as described in section 3.2 of [IR.65] is applicable. The TPO is assumed to use the same NNI model.

3. Capability Discovery

3.1. SIP OPTIONS Based

The present Section focuses on the interworking between two networks supporting the capability and new user discovery mechanism based on SIP OPTIONS as described in [RCS5.1] Section 2.6 "Capability and new user discovery mechanisms" Section 3.4 of [Joyn Blackbird]. As a general principle the capability discovery based on SIP OPTIONS interworking between two IMS networks (IMS-NNI) is handled shall follow [IR.65].

In addition to general guidelines, the SIP OPTIONS NNI shall comply to the rule that the only feature tags which are allowed in either the contact or the accept-contact-header are those described in the [RCS5.1] Section 2.6 "Capability and new user discovery mechanisms" Section 3.4 and section 4.3.2 of [Joyn Blackbird], in addition to any service or capability tags which have been registered against the relevant standardization or regulation bodies (for example OMA, GSMA).

The selected scope of services opened at the interconnection corresponds to the feature tags and feature tags values described in the table below:

RCS service (Joyn Blackbird)		Associated feature tags and feature tags **values** (that could possibly occur combined)
Content sharing (during a voice call)	Image Share	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.gsma-is"
	Video Share	+g.3gpp.cs-voice
Chat		+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.im" +g.oma.sip-im
Integrated messaging		+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.joyn.intmsg"
File Transfer	Over MSRP	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.ft"
	Over HTTP	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.fthttp"

Finally, and as a general principle, those capability tags associated to specific RCS5.1 services where no interworking agreement exists between the service providers, that is assotiated to other services than [Joyn Blackbird], shall should not be included on the NNI interface. For example, two Service Providers who support [IR.84] based Video Share, but who do not have an interworking agreement covering that service. If that capability is then allowed to cross the NNI, the users get the impression that the service can be used between them even though that will likely not be possible. For the particular case of RCS IP Video Call, this may also result in the addition of the +g.gsma.rcs.ipvideocallonly tag defined in RCS5.1 if based on the interworking agreements RCS IP Video Call is supported on the NNI, but RCS IP Voice Call is not.

~~3.2. Presence Based~~

~~3.3. Interworking between Capability Discovery~~

4. IP Interconnection

4.1. Overview

There is a clear need for an IP based inter-Service Provider connection in RCS, simply because RCS is largely an IP based service. That is, existing CS/ Time-Division Multiplexing (TDM) based networks used for transporting voice between the Service Providers are not enough for the needs of RCS since they cannot be used for transporting SIP signalling or MSRP media.

~~IPX (IP eXchange) as defined in [IR.34] is an evolved version of GSMA GRX (GPRS Roaming eXchange) private inter-Service Provider IP backbone which has been commercially used since 2000 for all PS roaming traffic between GSMA Service Providers. IPX has been selected by GSMA as the preferred mechanism for the general IP roaming and interconnection, including also RCS. Therefore this document also concentrates on the model where IPX is utilized. This is in line with the existing IMS interworking recommendation given in [IR.65].~~

~~IPX is seen as the most optimal solution for providing the necessary global reach with low and predictable delay in a secure environment, that is something that is impossible to reach for example by internet based RCS NNI.~~

For the avoidance of doubt, this does not exclude usage of other alternatives, such as bilateral leased line, for RCS interworking purposes when seen fit by the participating Service Providers.

~~Further details on IPX, including the usage of different connectivity options and IPX Proxy, can be found in [IR.34] and [AA.80].~~

Application and transport layer protocols utilized by RCS services as documented in the [RCS5.1] Table "RCS protocols" of Section 2.8 "RCS Protocols" are valid also for NNI.

> **[FFT]:** Only direct interconnection between the two operators is considered. See [FFT_Archi_RCS] for more details on the interconnection architecture.
> See [FFT_Profile_RCS_Add] document for more details on transport protocol.

~~4.2. IPX~~

~~5. Presence~~

6. Messaging & File Transfer

~~Standalone messaging, Chat/Group Chat and File Transfer may use one or more of the SIP header fields defined by OMA CPM, which need special handling over NNI.~~ Chat and File Transfer features in OMA SIMPLE IM realization ~~reuse~~ one ~~two of these~~ SIP header field~~s~~.

The following Table 1 contains the list of SIP header fields that are endorsed by RCS from ~~OMA CPM and~~ OMA SIMPLE IM, and which shall be passed over IMS NNI unaltered, whenever they are present in a SIP request (for example SIP MESSAGE, or SIP INVITE).

Item	Header field	Ref. Specification	IMS Interconnect-NNI		Description
			OMA CPM realization	OMA SIMPLE IM realization	
1	Conversation-ID	RCS 5.1 (endorsed from OMA CPM V1.0)	Mandatory	N/A	Identifies a CPM conversation, which can include standalone message(s), chat session(s), and file transfer(s).
2	Contribution-ID	RCS 5.1 (endorsed from OMA CPM V1.0)	Mandatory	Mandatory	Identifies a specific messaging request, such as a standalone message, a chat session, a file transfer request or a disposition notification. Identifies globally and uniquely the Group Chat.
3	InReplyTo-Contribution-ID	RCS 5.1 (endorsed from OMA CPM V1.0)	Optional	N/A	Identifies a CPM or SIMPLE IM request to which the current request replies to (for example standalone message(s), or chat session(s). Header field is mandatory in replies in CPM realization.
4	Session-Replaces	RCS 5.1 (endorsed from OMA CPM V1.0)	Optional	Optional	It carries the value of the CPM or SIMPLE IM Contribution-ID of the 1-to-1 session being replaced with the current

Item	Header field	Ref.	IMS Interconnect-NNI		
					~~group session.~~ ~~It is mandatory in SIP INVITE sent to the original participant in 1-1 session being extended.~~
~~5~~	~~Message-Expires~~	~~RCS 5.1 (endorsed from OMA CPM V1.0)~~	~~Optional~~	~~N/A~~	~~It carries the expiry time associated with the Large Message Mode CPM Standalone Message set by the user for content validity.~~

1.   Table 1: RCS specific SIP header fields

~~Any mapping applicable over NNI between these SIP header fields, in the various inter-operability combinations between messaging realizations is detailed in the following sub-sections.~~

6.1. OMA IM NNI

6.1.1.   OMA IM to OMA IM NNI

OMA SIMPLE Instant Messaging (IM) (SIP based Instant Messaging) ~~may be~~ is used for chat (see ~~[RCS5.1] Sections 3.3 "1-to-1 Chat" and 3.4 "Group Chat"~~ Sections 5.3 (One-to-one chat) and 6.3 (Group chat) of [Joyn Blackbird]). File Transfer (see ~~[RCS5.1] Section 3.5 "File Transfer"~~ Section 7.4 of [Joyn Blackbird]) can also be handled via SIMPLE IM using the MSRP protocol (File Transfer over MSRP) as a fallback solution when File Transfer over HTTP is not supported by one of both endpoints.

Note: The RCS feature set is reduced compared to the full set of features offered by the OMA SIMPLE IM specifications. For example Large Message Mode and Group Messages are not supported in RCS and Pager Mode Messages are used only for Chat Disposition Notifications. For further information see [RCS5-SIMPLEIM-ENDORS].

The SIMPLE IM NNI follows [IR.65] and consists of IM-8 between IM Servers (MSRP) and IP-1 between IMS core systems (SIP) (IP-1 is the same as used by XDM and Presence, that is 3GPP Mw interface). In addition IM-2 is utilized between IMS core system and IM server, but this is an intra-Service Provider interface (standard 3GPP ISC interface between IMS and AS) and therefore out of scope for this study.

The OMA SIMPLE IM specifications allow various deployment options to be taken, for example in interworking scenarios where both Service Providers use an IM server, only one Service Provider uses an IM server or none of the Service Providers use an IM server (that is IM messages are routed in P2P fashion between the clients in one-to-one messaging session). In addition it is

possible to separate signalling and media paths so while signalling might be routed via IM server(s), media could be using P2P mode instead.

So in a nutshell there are multiple different deployment models that can be supported. However, for RCS NNI it is recommended to concentrate on a single architectural option for interoperability reasons. It is also recommended that Service Providers deploying RCS NNI will utilize the model where both originating and terminating Service Provider are always using IM server, both for signal and media paths. That is IM traffic uses server-to-server connection over NNI.

An IM server deployed for RCS purposes has capabilities to function both as Controlling as well as Participating IM Function. The Participating IM Function acts as an IM service point for users, offering IM access and service policies. The Controlling IM Function is used for example in case of group communication for the IM server that owns or shares the group identity.

A Service Provider's IM server may support File Transfer in an active Group Chat according to [RCS5.1] section "File Transfer in Group Chat" for File Transfer over HTTP only including participants of another Service Provider which should be agreed between both Service Providers. File Transfer SIP INVITE requests will be sent via NNI towards the conference focus of the hosting Service Provider. If the feature is not allowed for another Service Provider, the related RCS 5.1 File Transfer IARI tags in the contact header of the Group Chat SIP INVITE shall be filtered out on the NNI.

[FFT]: Only the recommended solution based on IM server with Controlling and Participating IM Function is applicable. The TPO is assumed to use the same model.

Each network operator is assumed to manage Store & Forward feature for the received messages/notifications destinated to his/her customers. Fallback procedures for symmetrical Store & Forward (i.e. messages/notifications stored & forwarded towards a TPO user) are not considered.

For File Transfer, the interconnected operators shall define and exchange the maximum size of the files to tranfer. See Annex B for defined value

6.1.2.   OMA IM to Legacy

6.2. OMA CPM NNI

6.3. OMA IM – OMA CPM Interworking

6.4. MSRP Chunk Size Handling

When MSRP is used as a media transport for RCS services, such as Chat or File Transfer, MSRP message can be sent in chunks. However, the MSRP Chunk size is not negotiable at the protocol level.   In order to reduce the risk of MSRP message rejection or MSRP session disconnection by the MSRP receiver side, a global Max MSRP Chunk Size is set to 500 Kbytes. All Service Providers shall support the MSRP chunk size up to 500 Kbytes. That is, the sender shall send chunks no greater than 500 Kbytes and receiver shall be able to handle chunks up to at least 500 Kbytes. The Max_MSRP_Chunk_Size shall be specified in the interworking agreement.

[FFT]: The recommended chunk value size is 10 kilobytes (cf [Joyn Blackbird] §7.4.4.3). See Annex B for defined value. If the MSRP chunk size is greater than the recommended value or than the value negotiated by bilateral agreement then potential service dysfunctions may occur.

7. Content Sharing

7.1. Image Share

The NNI architecture of Image Share, as well as NNI of the Image Share signalling and media shall follow Section 2 of this document.

The NNI of Image Share service shall follow Section ~~3.6.4.2 "Image Share" and subsequent Sections of [RCS5.1].~~ 10.3 of [Joyn Blackbird].

7.2. Video Share

The NNI architecture of Video Share, as well as NNI of the Video Share signaling and media shall follow Section 2 of this document.

The NNI of Video Share service during voice call shall follow Section ~~3.6.4.1.1 "Video Share during a voice call" and subsequent Sections of [RCS5.1].~~ 10.3 of [Joyn Blackbird].

~~The NNI of Video Share service without voice call shall follow Section 3.6.4.1.2 "Video Share without a voice call" and subsequent Sections of [RCS5.1].~~

~~The NNI of potential VS AS shall be identical to the UNI described in Section 3.6.4.1.2 "Video Share without a voice call" of [RCS5.1].~~

~~8. IP Voice and Video Call~~

~~9. Geolocation~~

10. Identification of Services

Identification of services is an important aspect of interworking. For example possible intermediate IPX nodes (such as IPX Proxy), and also terminating networks as regards securing interworking agreements and potential termination fees, etc. While charging and agreement aspects are out of scope for this document (and for IREG in general), there's still the need to provide technically this functionality which then could be utilized commercially.

According to [24.229], charging and accounting is expected to be based upon the contents of the P-Asserted-Service header and the actual media related contents of the SIP request and not the Accept-Contact header field contents or the contact reached.

Note: Not all RCS services have a standardized P-Asserted-Service value. When they do, the value is listed along with the rest of the information that may be used to identify a service. Furthermore, some RCS services share the same value for P-Asserted-Service.

[FFT]: The criteria for charging and accounting detailed in next sections are currently not considered. They should be taken into account when billing between network operators will be introduced.
In a general manner the following criteria for identification of Services given in next sections are for information.

10.1. Capability Query

− SIP
  o OPTIONS containing in the Accept-Contact and Contact header fields at least one of the following feature tags and values that could possibly occur combined
    ▪ +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.msg; urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.largemsg"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.im"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.ft"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.gsma-is"
    ▪ +g.3gpp.cs-voice
    ▪ +g.3gpp.iari-ref="urn:urn-7:3gpp-application.ims.iari.gsma-vs"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.sp"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcse.dp"
    ▪ +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.mmtel"
    ▪ video
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geopull"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geopush"
    ▪ +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.joyn.intmsg"
    ▪ +g.3gpp.iari-ref="urn:urn-7:3gpp-application.ims.iari.rcs.fthttp"
    ▪ +g.oma.sip-im
  o anonymous SUBSCRIBE/NOTIFY with event = "presence"

10.4.One-To-One Chat:

− SIP
  o INVITE (in case of SIMPLE IM based chat sessions)
    ▪ Accept-Contact and Contact header fields containing feature tag +g.oma.sip-im and
    ▪ without SDP containing a=file-selector and
    ▪ without "isfocus" parameter in the Contact Header and
    ▪ Request URI is set to a user's address (that is~~i.e.~~ not to a Group Chat session identity) and
    ▪ username part of the URI in the P-Asserted-Identity header field different from "rcse-standfw" or
  o ~~INVITE (in case of CPM based chat sessions)~~
    ▪ ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.session~~
    ▪ ~~Accept-Contact and Contact header fields containing feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.session" and~~
    ▪ ~~without "isfocus" parameter" in the Contact header field and~~
    ▪ ~~Request URI is set to a user's address (that is~~i.e. not to a Group Chat session identity) and~~
    ▪ ~~username part of the URI in P-Asserted-Identity header field different from "rcse-standfw"~~
− MSRP in the session established using SIP INVITE

10.5.Group Chat:

− SIP
  o INVITE, SUBSCRIBE and REFER (in case of SIMPLE IM based chat sessions)
    ▪ Accept-Contact and Contact header fields containing feature tag +g.oma.sip-im and
    ▪ without SDP containing a=file-selector and
    ▪ with "isfocus" parameter in the Contact header field or
  o INVITE (in case of SIMPLE IM based chat session rejoin or restart
    ▪ Accept-Contact and Contact header fields containing feature tag +g.oma.sip-im and
    ▪ Request URI is set to a Group Chat session identity) and
    ▪ without SDP containing a=file-selector or
  o ~~INVITE, SUBSCRIBE and REFER (in case of CPM based chat sessions)~~
    ▪ ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.session~~
    ▪ ~~Accept-Contact and Contact header fields containing feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.session" and~~
    ▪ ~~with "isfocus" parameter in the Contact header field~~
  o ~~INVITE, SUBSCRIBE and REFER (in case of CPM based chat sessions rejoin or restart)~~
    ▪ ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.session~~
    ▪ ~~Accept-Contact and Contact header fields containing feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.session" and~~
    ▪ ~~Request URI is set to a Group Chat session identity) and~~
    ▪ ~~with "isfocus" parameter in the Contact header field~~
− MSRP in the session established using SIP INVITE

10.6.Disposition Notifications:

- SIP
  - ~~MESSAGE (used for both Standalone Messaging and Chat disposition notifications)~~
    - ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.msg~~
    - ~~Accept-Contact header field containing feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.msg" and~~
    - ~~carrying content of the type message/imdn+xml ; or~~
  - MESSAGE (used for Chat disposition notifications)
    - with feature tag +g.oma.sip-im; or
  - ~~INVITE (used for Chat disposition notifications)~~
    - ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.session~~
    - ~~Accept-Contact and Contact header fields containing feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.session" and~~
    - ~~without "isfocus" parameter in the Contact header field and~~
    - ~~with "rcse-standfw" as user part of the URI in the P-Asserted-Identity header field; or~~
  - INVITE (used for Chat disposition notifications)
    - Accept-Contact and Contact header fields containing feature tag +g.oma.sip-im and
    - without "isfocus" parameter in the Contact header field and
    - with "rcse-standfw" as username part of the URI in the P-Asserted-Identity header field
- MSRP in the session established using SIP INVITE or, for Chat disposition notifications, MSRP within the session established for the Chat itself

10.7.File Transfer:

10.7.1. One-to-One using MSRP

- SIP

  - INVITE (in case of SIMPLE IM based File Transfers)

    - Accept-Contact and Contact header fields containing the +g.oma.sip-im feature tag and
    - ~~Accept-Contact and Contact header fields NOT containing the feature tag +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geopush" and~~
    - ~~Accept-Contact and Contact header fields NOT containing the feature tag +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geopullft" and~~
    - SDP containing a=file-selector
    - Request URI is set to a user's address (that is not to a Group Chat session identity) and
    - without "isfocus" parameter in the Contact Header

  - ~~INVITE (in case of CPM based File Transfers)~~

    - ~~P-Asserted-Service: urn:urn-7:3gpp-service.ims.icsi.oma.cpm.filetransfer~~
    - ~~Accept-Contact and Contact header fields containing the feature tag +g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.filetransfer" and~~
    - ~~Accept-Contact and Contact header fields NOT containing the feature tag +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geopush"~~

- MSRP in the session established using SIP INVITE

~~10.7.2. In Group Chat using MSRP~~

10.7.3. HTTP File Transfer

A Chat Message with *application/vnd.gsma.rcs-ft-http+xml* as the CPIM content-type property. This Chat Message can be sent in an MSRP session (identified as in sections 10.4 and 10.5) and in a one to one session also in a SIP INVITE request (see section 10.4).

10.8. Video Share:

- SIP INVITE
  - Accept-Contact and Contact header fields containing the +g.3gpp.cs-voice feature tag and
  - Accept-Contact and Contact header fields NOT containing the +g.3gpp.iari-ref feature tag
- RTP in session established using SIP INVITE

~~10.9. Video Share Phase 2:~~

10.10. Image Share:

- SIP INVITE
  - Accept-Contact and Contact header fields containing the feature tag +g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.gsma-is"
- MSRP in session established using SIP INVITE

~~10.11. IP Voice Call:~~

~~10.12. IP Video Call:~~

~~10.13. Geo-location PUSH:~~

~~10.14. Geo-location PULL using LBS infrastructure:~~

~~10.15. Geo-location PULL using File Transfer:~~

~~10.16. Show us on a map:~~

11. DNS & ENUM

For Domain Name System (DNS) usage in RCS interworking, see general IMS related guidelines in [IR.67] Section 4.5 "IP Multimedia core network Subsystem (IMS)". ENUM guidelines as illustrated in [IR.67] Section 5 "E.164 Number Translation" are applicable also for the purpose of RCS, including the Mobile Number Portability (MNP) issues described in Annex C "Solving Number Portability in ENUM".

[FFT]: For further study, according to the results of the dedicated working Group

Annex A   Configuration Parameters with NNI Impact

Refer to Annex B for defined values.

NNI parameter	UNI parameter	Recommended NNI handling
Capability Discovery		
Polling period	pollingPeriod	The recommended value is zero (0) as it will significantly reduce the number of capability queries across the NNI.
Polling rate period Polling rate	pollingRatePeriod	The recommended value is that in case polling is enabled, these parameters should be set to values that minimize the NNI traffic without compromising the user experience.
	pollingRate	Each network operator is free to assign its preferred values.
Preferred Capability Discovery Mechanism	CAPABILITY DISCOVERY MECHANISM	Indicates the preferred capability discovery mechanism to be used on the NNI. Fixed Value by Blackbird: 0 (SIP OPTIONS).
~~Presence~~		
~~Max size of icon [bytes]~~	~~ICON MAX SIZE~~	~~This parameter influences the size of the file transfer that crosses NNI. This value is negotiated and agreed between interconnecting Service Providers. Each Service Providers can configure a size limit for the icon that customers can publish (i.e. RCS Configuration parameter: IconMaxSize). [RCS5.1] limits this to a maximum of 200 kilobytes.~~
~~Max size of free text [bytes]~~	~~NOTE MAX SIZE~~	~~• A RCS user can enter free text for note~~ ~~• Each Service Provider can configure a upper size for these elements (up to a limit of 200 characters)~~ ~~• Proposed limit on the note value should be low to minimize NNI traffic and discourage "guerilla messaging."~~
~~Max size of favourite URI label [bytes]~~	~~FAVORITE LINK LABEL MAX LENGTH~~	~~• A RCS user can enter free text for URI label~~ ~~• Each Service Provider can configure a upper size for these elements (up to a limit of 200 characters)~~ ~~• Proposed limit on the URI label value should be low to minimize NNI traffic and discourage "guerilla messaging."~~
~~Max size of location text [bytes]~~	~~LOCATION TEXT MAX LENGTH~~	~~A RCS user can enter free text for location text~~ ~~Each Service Provider can configure a upper size for these elements~~

		(up to a limit of 200 characters)
		~~Proposed limit on the location text value should be low to minimize NNI traffic and discourage "guerilla messaging."~~
Messaging & File Transfer		
Chat enabled	CHAT AUTH	This should be covered in the interworking agreements. If a Service Provider disables Chat service for all users, then the Chat service traffic should not be allowed to cross the NNI based on the service identification (see Section 11). Fixed Value by Blackbird: 1 (Chat is always enabled for joyn).
Group Chat enabled	GROUP CHAT AUTH	This should be covered in the interworking agreements. If a Service Provider disables Group Chat service for all users, then the Group Chat service traffic should not be allowed to cross the NNI based on the service identification (see Section 10). Value: 1 because Group Chat is always enabled for selected scope of services.
Message in INVITE	FIRST MSG IN INVITE	Differences should be covered in the interworking agreements and dealt with according to Section 6.3. Fixed Value by Blackbird: 1 (A message *shall* always be included in the INVITE request for joyn in case of 1 to 1 chat).
Standalone message enabled	STANDALONE MGS AUTH	This should be covered in the interworking agreements. If a Service Provider disables Standalone Message service for all users, the Standalone Message service should not be allowed to cross the NNI based on the service identification (see Section 10). Fixed Value by Blackbird: 0 (Standalone Messaging is not in scope of joyn Blackbird).
Multimedia in chat enabled	MULTIMEDIA IN CHAT	As described in [RCS5.1] and Sections 6.1, 6.2 and 6.3, this parameter is part of the capability exchange and any differences between interconnected Service Providers will therefore be honoured at the protocol level. Fixed Value by Blackbird: 0 (No multimedia *shall* be included in the Chat messages for joyn. It *will* be sent in a File Transfer request instead).
Chat to offline users allowed	IM CAP ALWAYS ON	This parameter indicates whether the Service Provider's customers may send 1-to-1 Chat messages to users that are offline. As this could have significant impact on the amount of traffic going over the NNI, it should be covered in interworking agreements. Value: 0 for users with Fully Integrated Messaging, 1 otherwise.
Group chat full store and forward enabled	GROUP CHAT FULL STORE FORWARD	This parameter indicates whether the Service Provider supports Full Store and Forward for Group Chat. For the NNI, this is mainly relevant for the expected behaviour of the "Group chat Invite only full store forward" parameter. Fixed Value by Blackbird: 0 (Full Store and Forward is not included in joyn Blackbird). Note: Store & Forward for Group Chat may be applied by operators. If applied, each operator should precise its AS level for Store & Forward.
Group chat Invite only full store forward	GROUP CHAT INVITE ONLY FULL STORE FORWARD	This parameter indicates whether the Service Provider's customers may invite only users that support Full Store and Forward to a Group Chat. As this could have significant impact on the traffic going over the NNI towards operators that do not support Full Store and Forward, it should be covered in interworking agreements. Fixed Value by Blackbird: 0 (All users may be invited for a Group Chat).

Max size of 1-to-1 message [bytes]	MAX SIZE 1-to-1 IM	As described in [RCS5.1] and Sections 6.1, 6.2 and 6.3, this parameter is part of the capability exchange and any differences between interconnected Service Providers will therefore be honoured at the protocol level.
Maximum size of IM content [kbytes]	MAX SIZE GROUP IM	As described in [RCS5.1] and Sections 6.1, 6.2 and 6.3, this parameter is part of the capability exchange and any differences between interconnected Service Providers will therefore be honoured at the protocol level. Not applicable in Joyn Blackbird (since "Multimedia in chat" is disabled in Joyn Blackbird).
Max size of large message [bytes]	MAX SIZE STANDALONE	As described in [RCS5.1] and Sections 6.1, 6.2 and 6.3, this parameter is part of the capability exchange and any differences between interconnected Service Providers will therefore be honoured at the protocol level. Not applicable in Joyn Blackbird (for Standalone).
Max number of participants in group chat session	MAX_AD-HOC_GROUP_SIZE	Any differences in the value between interconnected Service Providers will be honoured at the protocol level since the final decision is with the Controlling Messaging Server. Such differences might lead to inconsistencies in the user experience and possible failed attempts though. It is therefore recommended that Service Providers with lot of NNI traffic between themselves (e.g., those within the same country) use similar values. This value may also depend of AS parameters.
1-to-1 IM session inactivity timer [seconds]	IM SESSION TIMER	This parameter indicates how long a Service Provider will keep a 1-to-1 Chat session in which there is no traffic active. As the tearing down of the session can be initiated independently from either side, any differences between interconnected Service Providers will be honoured at the protocol level. Since differences will lead to inconsistencies in the user experience, it is recommended that Service Providers with a lot of NNI traffic between themselves (for example, those within the same country) use similar values. This value may also depend of AS parameters.
Group IM session inactivity timer [seconds]	Not available	This parameter indicates how long a Service Provider will keep a hosted Group Chat session in which there is no traffic active. As the tearing down of the session is always initiated from the Controlling Function, any differences between interconnected Service Providers will therefore be honoured at the protocol level. Since differences will lead to inconsistencies in the user experience, it is recommended that Service Providers with lot of NNI traffic between themselves (e.g. those within the same country) use similar values.
One-to-One Chat maximum Session duration [seconds]	Not available	An operator may limit the maximum duration of a 1-to-1 Chat session. If that is the case, this would affect the user experience of users in interconnected networks that support the Chat service and expected traffic patterns on the NNI.
One-to-One Chat maximum number of messages	Not available	An operator may limit the maximum number of messages exchanged in a 1-to-1 Chat session. If that is the case, this would affect the user experience of users in interconnected networks that support the Chat service and expected traffic patterns on the NNI.
Group Chat maximum Session duration [seconds]	Not available	An operator may limit the maximum duration of a Group Chat session. If that is the case, this would affect the user experience of users in interconnected networks that support the Chat service and expected traffic patterns on the NNI.
Group Chat maximum number of messages	Not available	An operator may limit the maximum number of messages exchanged in a Group Chat session. If that is the case, this would affect the user experience of users in interconnected networks that support the Chat service and expected traffic patterns on the NNI.
FT maximum file size [kbytes]	FT MAX SIZE	As described in [RCS5.1] and Sections 6.1, 6.2 and 6.3, this parameter is part of the capability exchange and any differences between interconnected Service Providers will therefore be honoured at the protocol level. Since differences will lead to inconsistencies in the user experience and

		possible failed attempts, it is recommended that Service Providers with lot of NNI traffic between themselves (e.g., those within the same country) use similar values.
Auto-accept of group chat	IM SESSION AUTO ACCEPT GROUP CHAT	Any differences in the value between interconnected Service Providers will be honoured at the protocol level since a final decision is with the invited clients. Such differences might lead to inconsistencies in the user experience though. It is therefore recommended that Service Providers with lot of NNI traffic between themselves (e.g., those within the same country) use similar values. Fixed value by Blackbird: 1 on primary devices, 0 on secondary devices (Group chat is disabled on secondary device. So primary devices can use auto accept).
Interworking with SMS/MMS	IM CAP NON RCS	If this functionality is enabled, a user is able to invite non-RCS contacts to a chat session requiring the behaviour described in Section 6.2.1. Therefore the interworking agreements should cover this parameter Fixed Value by Blackbird: 0 (Interworking is not provided).
File transfer in group chat	Not Available	This parameter indicates if initiating a file transfer in a group chat hosted by the conference focus of the other Service Provider is allowed via NNI. If not allowed, consistent capability information should be ensured on protocol level as described in Section 6.1.1.
Messaging Technology	CHAT MESSAGING TECHNOLOGY	This parameter indicates what messaging technology should be used by preference on the NNI: SIMPLE IM or CPM. Fixed Value by Blackbird: 0 (joyn *shall* use OMA SIMPLE IM for Chat).
Group Chat supports disposition notifications	Not Available	Indicates whether the network supports disposition notifications in group chat. This will influence amongst others the traffic model that can be expected on the NNI. The network always supports disposition notifications in group chat.
Group Chat focus allows restarts	Not Available	Indicates whether a network hosting a group chat allows users of other networks to restart the Group Chat after it has been torn down because of idle time. This will influence amongst others the traffic model that can be expected on the NNI. If supported, the time during which the restart of a Group Chat with no active session is possible shall be addressed.
File Transfer HTTP retention period	Not Available	Indicates how long a file that was sent using File Transfer via HTTP will be indicated as available for download in the File Transfer via HTTP XML bodies that are sent by the Service Provider over the NNI. Any differences in the value between interconnected Service Providers will be honoured at the protocol level since a final decision is with the invited clients. Such differences might lead to inconsistencies in the user experience though. It is therefore recommended that Service Providers with lot of NNI traffic between themselves (for example, those within the same country) use similar values.
File Transfer Resume supported	Not Available	Indicates whether the File Transfer Resume procedures are supported on the NNI (that is whether the service provider's devices will initiate them and whether any received resume requests will be handled or automatically rejected) This will affect the user experience of users in interconnected networks that support the File Transfer service and impacts the traffic model that can be expected on the NNI.
File Transfer Thumbnail supported	FT THUMB	Indicates whether the thumbnail is supported in MSRP based File Transfer invitations and thus whether it can be expected to be included in invitations for MSRP based File Transfer that are sent over the NNI as specified in RCS5.1. This will affect the user experience of users in interconnected networks that

		support the File Transfer service and impacts the traffic model that can be expected on the NNI. Fixed Value by Blackbird: 0 (For MSRP based File Transfer no thumbnail is provided).
Preferred File Transfer technology	FT DEFAULT MECH	Indicates whether File Transfer via HTTP or File Transfer via MSRP should be used in case both mechanisms are supported. Fixed Value by Blackbird: http.
Auto Accept of File Transfer	FT AUT ACCEPT	Any differences in the value between interconnected Service Providers will be honoured at the protocol level since a final decision is with the invited clients. Such differences might lead to inconsistencies in the user experience though. It is therefore recommended that Service Providers with lot of NNI traffic between themselves (for example, those within the same country) use similar values.
File Transfer via MSRP Store and Forward	FT STANDFWD ENABLED	Indicates whether the Service Provider provides Store and Forward Services for MSRP based File Transfer. In case Store and Forward is not provided, this may result in an increase in the number of originating Store and Forward scenarios to be handled by interconnected operators. As this could have significant impact on the amount of traffic going over the NNI, it should be covered in interworking agreements. Fixed Value by Blackbird: 0 (MSRP based Store and Forward is not provided).
File Transfer to offline users allowed	FT CAP ALWAYS ON	This parameter indicates whether the Service Provider's customers may send files to users that are offline. As this could have significant impact on the amount of traffic going over the NNI, it should be covered in interworking agreements. Fixed Value by Blackbird: 0 (MSRP based Store and Forward is not provided).
Max MSRP chunk size	Not available	The maximum MSRP chunk size supported for MSRP media transport. This will not only avoid the potential MSRP message rejection across networks but also affect the dimensioning of an NNI. The upper limit for this parameter is 500KB. To minimize the rechunking over NNI, the Service Providers with a lot of NNI traffic may consider using the same value.
Content Sharing		
IS maximum image size [kbytes]	IS MAX SIZE	Maximum authorized size of an Image Share in kilobytes).If a file is bigger than IS MAX SIZE value then the transfer will be cancelled by the receiving Service Provider.
VS maximum duration [seconds]	VS MAX DURATION	Maximum connection time of a Video Share in seconds. After expiration of this time limit, the receiving Service Provider can force to disconnect the session.
VS Bandwidth	Not Available	The maximum bandwidth allowed for a video share session in the operator's network. This will affect the dimensioning of an NNI.
~~Geolocation~~		
~~Max length of geo-location text~~	~~GEOLOCATION TEXT MAX LENGTH~~	~~This parameter influences the size of the file transfer that crosses NNI (both for PUSH and PULL based on File Transfer) and should be negotiated between the interconnect Service Providers.~~

Joyn Blackbird specificities		
	MESSAGING UX	This parameter controls whether the UX for messaging shall be the converged inbox experience (0, default value) or the fully integrated messaging experience (1). NOTE: when receiving a provisioning document from a legacy network, this parameter is not provided resulting in the default behaviour. As usage of fully integrated messaging experience impacts the user experience of remote users and the traffic on NNI interface, it is recommended that Service Providers with lot of NNI traffic between themselves (for example, those within the same country) use similar values. It has to be noted that even when the fully integrated messaging experience is used, interaction with devices without this messaging experience shall be considered.
	FT HTTP CAP ALWAYS ON	When Fully Integrated Messaging is used, this parameter controls whether 1-to-1 File Transfer is available to all contacts supporting File Transfer via HTTP regardless of their online status (1) or only to those contacts that are online (0). Value: left to operator choice.
	MESSAGING CAPABILITIES VALIDITY	When Fully Integrated Messaging is used, this parameter controls the period during which the capabilities of a contact in a 1-to-1 messaging context (i.e. joyn 1-to-1 chat and xMS) shall be considered valid. If capabilities of that contact were obtained more recently than this configured time, the client shall not initiate a new capability exchange when encountering one of the messaging related capability triggers. A minimum value of 5 seconds shall be used. When the parameter is not provided, no messaging specific timeout will be used. NOTE: the validity time used for the capabilities within the context of other communication is left as a client implementation decision. As the chosen value will impact OPTIONS traffic at NNI interface, it is recommended that Service Providers with lot of NNI traffic between themselves (for example, those within the same country) use similar values.
	DELIVERY TIMEOUT	When Fully Integrated Messaging is used, this parameter controls the timeout for the reception of delivery reports for joyn messages after which a capability check is done to verify whether the contact is offline. When set to 0 the timeout shall not be used as a trigger for the capability exchange. A default value of 300 seconds is used in case the parameter is not provided. The expiry of this timer is also a criterion to propose the user to resend an undelivered joyn message via xMS. The value used by an operator may impact the user experience of users of another operator. It is therefore recommended that Service Providers with lot of NNI traffic between themselves (for example, those within the same country) use similar values.

Table 4: Configuration Parameters with NNI Impact per RCS Service

Annex B   Interworking Form

The Interworking Form for IMS based services, especially for RCS 5.1:

[FFT]: Please refer to the form of Annex B of GSMA IR.90.

Document Management

Document History

History of the present document		
0.1	28/07/2015	First presentation to the FFT working group
0.2	23/10/2015	2nd draft for clarifications
1.0	15/12/2016	Modifications of §1.1 and §6.4 following the consultation phase. Approved public version