

**Telecommunications and Internet converged Services and  
Protocols for Advanced Networking (TISPAN);  
Direct Communication Service;  
Architecture and functional description**

[Endorsement of OMA-AD-PoC-V1]

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Reference

DTR/TISPAN-02034-NGN-R2

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## Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document describes the architecture for Direct Communication of TISPAN NGN Release 2.

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# 1 Scope

The present document defines the architecture for Direct Communication.

This architecture is an endorsement of the OMA architecture specifications.

TISPAN IMS is based on 3GPP IMS. It shall be possible to:

- Deploy TISPAN DC using 3GPP2 MMD as long as the related TISPAN requirements on IMS are considered within 3GPP2 MMD.
- Have interworking of TISPAN DC with 3GPP PoC and 3GPP2 PoC services.

NOTE: The present document uses the term "NGN" only in the context of TISPAN.

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# 2 References

For the purposes of this Technical Report (TR), the following references apply:

- [1] OMA-ERELED-PoC-V1: "Enabler Release Definition for Push-to-Talk over Cellular".
- [2] OMA-TS-PoC-Control Plane-V1: "OMA PoC Control Plane".
- [3] OMA-TS-PoC-User Plane-V1: "PoC User Plane".
- [4] OMA-AD-PoC-V1: "Push talk over Cellular - Architecture".
- [5] ETSI TS 181 005: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".
- [6] ETSI TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Terminology".
- [7] ETSI ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Functional architecture".

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# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in OMA-AD-PoC-V1 [4], TR 180 000 [6] and the following apply:

**Direct Communication (DC) client:** entity performing the PoC Client functions that resides on the User Equipment in the originating or terminating network that supports the Direct Communication service

**Direct Communication (DC) server:** entity performing the PoC Server functions implementing the 3GPP IMS application level network functionality for the Direct Communication service in the originating and terminating network

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

DC	Direct Communication
NGN	Next Generation Networks
OMA	Open Mobile Alliance
PoC	Push to talk over Cellular
XCAP	XML Configuration Access Protocol
XDM	XCAP Document Management
XDMC	XCAP Document Management Client
XDMS	XCAP Document Management Server
XML	eXtensible Markup Language

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## Endorsement notice

The elements of OMA-AD-PoC-V1 [4] apply, with the following modifications.

NOTE: Underlining and/or strike-out are used to highlight detailed modifications where necessary.

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## Global modifications to OMA PoC Architecture Document Version 1

This clause provides an endorsement of OMA-AD-PoC-V1 [4].

The elements of OMA-AD-PoC-V1 [4] apply, with the following modifications:

### General

The following rules are valid throughout the present document:

"Push-to-Talk over Cellular" is replaced by "Direct Communication".

"PoC" is replaced by "DC".

Replace 3GPP/3GPP2 IMS with TISPAN IMS.

Replace "mobile terminals" with "user terminals".

Replace "mobile originated/terminated" with "UE originated/terminated".

Replace "mobile networks" with "mobile and fixed networks".

### Clause 1

Clause 1 "Scope" in OMA-AD-PoC-V1 [4] does not apply and is replaced by the clause 1 "Scope" in the present document.

### Clause 2

Clause 2 "References" in OMA-AD-PoC-V1 [4] applies with the modifications described in Table 1.

The references listed in Table 1 are replaced by references applicable to NGN.

Table 1: List of references to be replaced.

Reference no.	OMA-AD-PoC-V1 [4]	Applicable reference in the present document
<b>OMA-AD-PoC-V1 [4]</b>	OMA-AD-PoC-V1 [4]	The present document.
<b>3GPP TS 23.002</b>	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Network architecture	ETSI ES 282 001: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Overall Network Architecture; Functional Architecture".
<b>3GPP TS 23.228</b>	3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".	ETSI TS 182 006: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 Description; TS 23 228 Release 6, modified".
<b>3GPP TS 24.229</b>	3GPP TS 24.229: "IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".	ETSI ES 283 003: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 Protocol specification; 3GPP TS 24.229 (Release 7), modified".
<b>3GPP TS32.240</b>	3GPP TS 32.240: "Charging Management; Charging Architecture and Principles".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 v6.3.0, TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, TS 32.298 v6.1.0 and TS 32.299 v6.4.0)".
<b>3GPP TS32.260</b>	3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging (Release 6)".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 v6.3.0, TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, TS 32.298 v6.1.0 and TS 32.299 v6.4.0)".
<b>Presence-AD</b>	OMA - Presence using SIMPLE V1, OMA-TS-Presence-SIMPLE-AD-V1	ETSI TS 182 008: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Presence service; Functional Architecture and Functional Description; 3GPP TS 23.141, modified; OMA-AD-Presence_SIMPLE-V1, modified".
<b>PoC RD V1</b>	OMA Push to Talk over Cellular Requirements V1	ETSI TS 181 006 (DTS 1035): TISPAN NGN, Specification of Direct Communication Service in NGN, Release 2.
<b>OMA PoC UP</b>	OMA - Push to talk over Cellular (PoC) - User Plane. OMA-TS-PoC-UserPlane-V1.	ETSI TS 183 045: Telecommunications and Internet converged Services and Protocols for Advanced Networks (TISPAN); Direct Communication Service Capability; SIP Protocol Specification; (OMA-TS-POC-ControlPlane-V1, modified and OMA-TS-POC-UserPlane-V1, modified and OMA-TS-PoC_XDM-V1, modified).
<b>OMA PoC CP</b>	OMA - Push to talk over Cellular (PoC) - Control Plane Document. OMA-TS-PoCControlPlane-V1.	ETSI TS 183 045: Telecommunications and Internet converged Services and Protocols for Advanced Networks (TISPAN); Direct Communication Service Capability; SIP Protocol Specification; (OMA-TS-POC-ControlPlane-V1, modified and OMA-TS-POC-UserPlane-V1, modified and OMA-TS-PoC_XDM-V1, modified).
<b>PoC XDM</b>	OMA PoC XDM Specification V1	ETSI TS 183 045: Telecommunications and Internet converged Services and Protocols for Advanced Networks (TISPAN); Direct Communication Service Capability; SIP Protocol Specification; (OMA-TS-POC-ControlPlane-V1, modified and OMA-TS-POC-UserPlane-V1, modified and OMA-TS-PoC_XDM-V1, modified).

## Clause 3

"Terminology and Conventions" in OMA-AD-PoC-V1 [4] applies.

### Clause 3.2

For the purposes of the present document, the terms and definitions given in OMA-AD-PoC-V1 [4] apply with the following additions:

Instead of "PoC" the term "DC" is used.

### Clause 3.3

For the purposes of the present document, the following abbreviations apply:

DC                      Direct Communication

Modify the definition of **Service Instance** by:

Service Instance:    A Service Instance is the instantiation of a logical connection across the radio user- network interface (UNI) associated with a particular protocol stack. Service Instances, as logical connections, are mapped onto the physical layer radio connections. A Service Instance may be closely tied to a single application level flow, e.g. a voice service instance, or may support multiple application level flows, e.g. a best effort packet data service instance.

### Clause 5

Modify Table 1 as follows:

Reference Point	Usage	Protocol	Reference point as defined in ES 282 007 [7]
POC-1	PoC Client to SIP/IP Core Session signalling	SIP	<u>Gm</u>
POC-2	SIP/IP Core to PoC Server Session signalling	SIP	<u>ISC</u>
POC-3	Media and Talk Burst Control	RTP RTCP The media transport utilizes RTP protocol. Talk Burst Control protocol utilizes RTCP APP message protocol. The access network used by the PoC architecture includes both the radio access as well as the other nodes required to gain IP connectivity and IP mobility.	<u>Mb</u>
POC-4	Media and Talk Burst Control between networks	RTP RTCP The media transport utilizes RTP protocol. Talk Burst Control protocol utilizes RTCP APP message protocol.	<u>Mb</u>
POC-5	Shared XDMS to PoC Server	XCAP	
POC-6	SIP/IP Core to PoC XDMS	SIP	<u>ISC</u>
POC-7	PoC XDMS to Aggregation proxy	XCAP	
POC-8	PoC Server to PoC XDMS	XCAP	
XDM-1	XDMC to SIP/IP Core	See [XDM AD]	<u>Gm</u>
XDM-2	Shared XDMS to SIP/IP Core	See [XDM AD]	<u>ISC</u>
XDM-3	XDMC to Aggregation Proxy	See [XDM AD]	<u>Ut</u>
XDM-4	Aggregation Proxy to the Shared XDMS	See [XDM AD]	<u>XCAP</u>
PRS-1	Presence Source to SIP/IP Core	See [Presence AD]	<u>Gm</u>
PRS-2	Watcher to SIP/IP Core	See [Presence AD]	<u>Gm</u>
PRS-3	SIP/IP Core to Presence Server	See [Presence AD]	<u>ISC</u>
PRS-5	Shared XDMS to Presence Server	See [Presence AD]	
IP-1	Session signalling between networks	SIP	<u>Mx or Ic</u>
DM-1	DM Client to DM Server	See [OMA-DM]	



## Clause 6

Clause 6.6:

"Description of functional entities" in OMA-AD-PoC-V1 [4] applies.

## Clause 7.17

Modify clause 7.17 as follows:

### 7.17 Reference point IP-1: SIP/IP Core - SIP/IP Core

The IP-1 reference point supports the communication between the SIP/IP Cores. The IP-1 reference point is based on SIP.

The IP-1 reference point SHALL support the following:

- communication and forwarding of SIP signalling messaging between SIP/IP Cores;
- transfer of inter-provider charging information.

When SIP/IP Core corresponds with TISPAN/3GPP/3GPP2 IMS, then the IP-1 reference point SHALL conform to the Mw reference point described in TS 282 001, [3GPP TS 23.002] and [3GPP2 X.S0013.2].

## Clause 8

Clause 8 "System concepts" in OMA-AD-PoC-V1 [4] applies.

## Clause 8.13

Add to clause 8.13 "Codecs":

For TISPAN NGN codec requirements see [5].

## Clause 9

Clause 9 "High Level Procedures" in OMA-AD-PoC-V1 [4] applies.

## Appendix A

Change History in OMA-AD-PoC-V1 [4] is not applicable.

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## History

<b>Document history</b>		
V1.1.1	January 2007	Publication