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SERIES Y: GLOBAL INFORMATION
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS
AND NEXT-GENERATION NETWORKS

Internet protocol aspects – Interworking

Tandem free operation (TFO) – IP network interworking – User plane interworking

ITU-T Recommendation Y.1454



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Operation, administration and maintenance	Y.600–Y.699
Security	Y.700–Y.799
Performances	Y.800–Y.899

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Architecture, access, network capabilities and resource management	Y.1200–Y.1299
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Interworking	Y.1400–Y.1499
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Charging	Y.1800–Y.1899

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Service aspects: Service capabilities and service architecture	Y.2200–Y.2249
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Network management	Y.2400–Y.2499
Network control architectures and protocols	Y.2500–Y.2599
Security	Y.2700–Y.2799
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ITU-T Recommendation Y.1454

Tandem free operation (TFO) – IP network interworking – User plane interworking

Summary

This Recommendation focuses on required functions for network interworking of tandem free operation, specifically the user plane interworking mechanisms and procedures for transport. It specifies a list of requirements, interworking scenarios and interworking encapsulation formats and semantics for TFO-IP network interworking.

Source

ITU-T Recommendation Y.1454 was approved on 14 December 2006 by ITU-T Study Group 13 (2005-2008) under the ITU-T Recommendation A.8 procedure.

Keywords

Gateway, interworking, IWF, RTP, tandem free operation (TFO).

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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CONTENTS

Page

1	Scope	1
2	References.....	1
3	Definitions	2
3.1	Terms defined elsewhere	2
3.2	Terms defined in this Recommendation.....	2
4	Abbreviations.....	3
5	Conventions	4
6	TFO-IP interworking	4
7	General requirements.....	6
7.1	User plane requirements	6
7.2	Control plane aspects.....	7
7.3	Fault management aspects.....	8
7.4	Traffic management aspects	8
7.5	Connection admission control for IWF	8
8	Functional group considerations for TFO-IP network interworking.....	9
8.1	Overview	9
8.2	Transport label.....	11
8.3	Interworking label	11
8.4	Common interworking indicators.....	11
8.5	Optional timing information.....	11
9	Payload formats	11
10	Timing aspects.....	12
11	Packet loss aspects.....	12
12	Security considerations.....	12
	Appendix I – Voice-TFO transitioning state diagrams.....	13
	Appendix II – Differences between TFO-IP modes of operation.....	15
	Bibliography	16

ITU-T Y.1454 2006

ITU-T Recommendation Y.1454

Tandem free operation (TFO) – IP network interworking – User plane interworking

1 Scope

This Recommendation focuses on required functions for network interworking of tandem free operation (TFO) [ETSI TS 123053], [ETSI TS 123153], [ETSI TR 123977] and [ETSI TS 128062] and IP, specifically the user plane interworking mechanisms and procedures for transport. In particular it specifies a list of requirements, interworking scenarios and interworking encapsulation formats and semantics for TFO-IP network interworking. Since TDM connections are inherently point-to-point, this interworking defines a single connection between two interworking functions (IWFs).

TFO-IP denotes network interworking between "TFO-over-TDM" networks and "TFO-over-IP" networks. Particularly:

- TFO/TDM interfaces without any specific transport mechanisms (like GSM *Ater* interface) below the TFO protocol; and
- interworking to TFO/IP interfaces without any mobile-specific transport mechanisms like ETSI framing protocols [ETSI TS 125415] and [ETSI TS 129415].

Use of ETSI framing protocols is excluded from consideration in this Recommendation.

The TFO-IP interworking function (IWF) is a new and specific type of in path equipment (IPE) form TFO endpoint perspective [ETSI TS 128062].

This Recommendation may not be suitable for use by recognized operating agencies due to possible degradation of network synchronization performance as compared with native TDM transport.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T G.711] ITU-T Recommendation G.711 (1988), *Pulse code modulation (PCM) of voice frequencies*.
- [ITU-T G.799.1] ITU-T Recommendation G.799.1/Y.1451.1 (2004), *Functionality and interface specifications for GSTN transport network equipment for interconnecting GSTN and IP networks*.
- [ITU-T G.809] ITU-T Recommendation G.809 (2003), *Functional architecture of connectionless layer networks*.
- [ITU-T H.248.1] ITU-T Recommendation H.248.1 (2005), *Gateway control protocol: Version 3*.
- [ITU-T Y.1413] ITU-T Recommendation Y.1413 (2004), *TDM-MPLS network interworking – User plane interworking*.
- [IETF RFC 3261] IETF RFC 3261 (2002), *SIP: Session Initiation Protocol*.

- [IETF RFC 3550] IETF RFC 3550 (2003), *RTP: A Transport Protocol for Real-Time Applications*.
- [IETF RFC 3551] IETF RFC 3551 (2003), *RTP Profile for Audio and Video Conferences with Minimal Control*.
- [IETF RFC 4040] IETF RFC 4040 (2005), *RTP Payload Format for a 64 kbit/s Transparent Call*.
- [IETF RFC 4566] IETF RFC 4566 (2006), *SDP: Session Description Protocol*.
- [ETSI TR 123977] ETSI TR 123.977 V6.1.0 (2005), *Universal Mobile Telecommunications System (UMTS); Bandwidth And Resource Savings (BARS) and speech enhancements for Circuit-Switched (CS) networks*.
- [ETSI TS 122053] ETSI TS 122.053 V6.0.0 (2004), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Tandem Free Operation (TFO); Service description*.
- [ETSI TS 123053] ETSI TS 123.053 V6.0.0 (2004), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Tandem Free Operation (TFO); Service description*.
- [ETSI TS 123153] ETSI TS 123.153 V6.3.0 (2005), *Universal Mobile Telecommunications System (UMTS); Out-of-band transcoder control; Stage 2*.
- [ETSI TS 125415] ETSI TS 125.415 V7.3.0 (2006), *Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface user plane protocols*.
- [ETSI TS 128062] ETSI TS 128.062 V6.3.0 (2006), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Inband Tandem Free Operation (TFO) of speech codecs; Service description*.
- [ETSI TS 129415] ETSI TS 129.415 V6.1.0 (2006), *Universal Mobile Telecommunications Systems (UMTS); Core network Nb interface user plane protocols*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 egress IWF: See [ITU-T Y.1413].

3.1.2 ingress IWF: See [ITU-T Y.1413].

3.1.3 TFO frame [ETSI TS 128062]: A speech frame exchanged between transcoders when tandem free operation is active.

3.1.4 tandem free operation [ETSI TS 128062]: A call configuration where no transcoder device is physically present and hence no control or conversion or other functions associated with it are activated.

3.1.5 TFO speech frame [ETSI TS 128062]: A speech frame exchanged between transcoders when tandem free operation is active.

3.1.6 transcoder [ETSI TS 128062]: A device that converts the encoding of information from one particular scheme to a different one.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms: