International Telecommunication Union

# ITU-T G.7715/Y.1706

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

**Amendment 1**

(02/2007)

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# Architecture and requirements for routing in the automatically switched optical networks

## Amendment 1

ITU-T Recommendation G.7715/Y.1706 (2002) – Amendment 1

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# ITU-T Recommendation G.7715/Y.1706

## Architecture and requirements for routing in the automatically switched optical networks

## Amendment 1

**Summary**

This amendment provides updated material pertaining to the architecture and requirements for routing in automatically switched optical networks as described in ITU-T Recommendation G.7715/Y.1706.

**Source**

Amendment 1 to ITU-T Recommendation G.7715/Y.1706 (2002) was approved on 6 February 2007 by ITU-T Study Group 15 (2005-2008) under the ITU-T Recommendation A.8 procedure.

## 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.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

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### 1) Additions to clause 6.2, Protocol requirements

*Add the following two bullets after the fourth bullet*:

- The routing protocol shall be capable of supporting flexible distributions of ASON (ITU-T Rec. G.8080/Y.1304) functional components to different physical systems.
- The routing protocol shall be capable of supporting flexible cardinality (i.e., m:n) between the RC and ASON functional components as well as between ASON functional components and G.805 sub-networks.

### 2) Additions to clause 7.2.3, Other attribute information

*Add the following two paragraphs after the last paragraph:*

Another example is the inclusion of technology-specific attributes. For example, in a photonic network, optical constraints may need to be reported to allow the proper routing of a connection.

The specific attributes required to convey this type of information are not covered in this Recommendation.

### 3) Additions to clause 8, Routing messages

*Add the following two sentences to the end of the second paragraph*:

Routing information may be exchanged by PCs that are not dedicated to Routing Message exchange. For example, a signalling message causing crankback can contain an RI_UPDATE providing additional information regarding the state of links and/or nodes that were specified in a signalling message's Explicit Resource List.

### 4) Change to clause 8.2, Routing information messages

*Update the description for RI_UPDATE as follows:*

- RI_UPDATE: This message conveys information about network resources that are available for satisfying connection requests. The received information is stored in the RDB. When this message is generated is not specified by this Recommendation. One common usage is for an RI_UPDATE message to be generated containing information regarding a resource once the routing information of an existing network resource is changed. An RI_UPDATE message may also be generated as the result of an RI_QUERY message, and in this case the information received can be transient in the RDB or aged quickly.

**5) New clause 8.5**

*Add the following new clause after clause 8.4*:

## 8.5 Routing messages in support of Remote Route Query

There are cases where a Routing Controller will not have adequate information or capability, thereby needing the cooperation of another Routing Controller to determine the end-to-end path. In these cases, the Routing Controller may send a RI_QUERY message to another Routing Controller. The RI_QUERY message must include adequate information to perform the path computation, including the points between which the path is to be computed and any constraints that need to be satisfied, adequate information to authenticate the requestor and information about where the response should be sent.

When such a message is received by another Routing Controller, it must first be authenticated to determine the context the path computation must be performed in. The path computation is then performed with the constraints specified as modified by the path computation context. Finally, an RI_UPDATE message with the resources identified by the path computation is sent to the Routing Controller specified in the RI_QUERY message.

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