
Question(s):	VQEG	Meeting, date:	Sep. 10-14, 2007
Study Group:	Working Party:	Intended type of document (R-C-TD):	C
Source:	Nippon Telegraph and Telephone Corporation (NTT), Japan		
Title:	Input parameters for P.NAMS		
Contact:	Mr. Kazuhisa Yamagishi NTT Japan	Tel: +81-422-59-4397 Fax: +81-422-59-5671 Email: yamagishi.kazuhisa@lab.ntt.co.jp	
Contact:	Mr. Takanori Hayashi NTT Japan	Tel: +81-422-59-3688 Fax: +81-422-59-5671 Email: t.hayashi@lab.ntt.co.jp	
Contact:	Mr. Keishiro Watanabe NTT Japan	Tel: +81-422-59-7204 Fax: +81-422-59-5671 Email: watanabe.keishiro@lab.ntt.co.jp	

Please don't change the structure of this table, just insert the necessary information.

Summary

Q.14/12 has been discussing P.NAMS, which is used for monitoring the quality of IPTV. However, the input parameters for P.NAMS have not been discussed or determined. This contribution proposes input parameters for P.NAMS.

1. Introduction

There are several video quality estimation models that are possible candidates for P.NAMS. They are the parametric packet-layer model, parametric bit-stream-layer model, and hybrid model (See Figure 1 and Table 1):

- 1) The parametric packet-layer model can estimate video quality using IP packet information that excludes payload information. The model needs some assumptions with respect to video content because it does not have access to the payload information. Therefore, resultant estimations are not accurate if the actual content is not like that assumed by the model.
- 2) The parametric bit-stream-layer model can estimate the quality of each video sequence using IP packet information that includes payload information. Since the model has access to payload information, it can take into account the content dependence of video quality. It can be used in situations where one does not have access to decoded video sequences.
- 3) J.bitvqm, which is one of the hybrid models and has been studied in VQEG, can estimate video quality using the video sequence and IP packet information that includes payload information. Because the model uses the decoded video sequence, it can take into account the decoder characteristics such as using a packet-loss concealment algorithm.

2. Discussion

Because the video sequence is often unavailable in in-service non-intrusive quality monitoring scenarios, P.NAMS should be based on only IP packet information. Therefore, the candidates are the parametric packet-layer model (mode A) and parametric bit-stream-layer model (mode B). Although mode A is inferior to mode B from the viewpoint of the estimation accuracy, both modes A and B should be included in the scope of P.NAMS because payload information is often encrypted.

3. Proposal

We propose two modes for P.NAMS: a parametric packet-layer model (mode A), which takes IP packet header information as input, and a parametric bit-stream-layer model (mode B), which takes IP packet information as input.

Input parameters

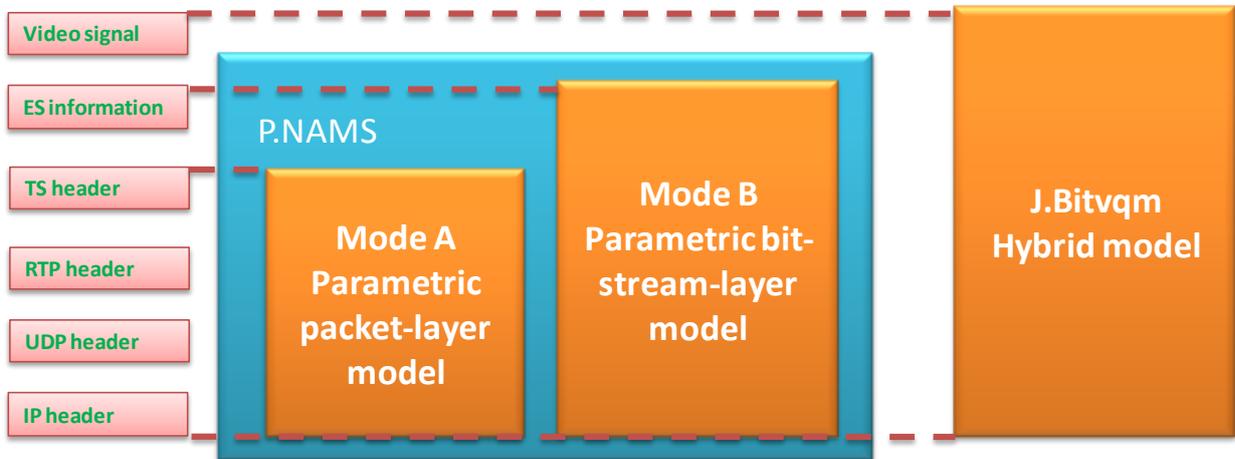


Figure 1 Input parameters for each quality-monitoring method for IPTV.

Table 1 Features of each quality-monitoring method.

	Parametric packet-layer model	Parametric bit-stream-layer model	Hybrid model
Average quality	○	○	○
Packet-loss pattern	○	○	○
Content dependence	-	○	○
Decoder characteristics	-	-	○
Display characteristics	-	-	△