

STATISTICAL TIME DIVISION MULTIPLEXING ARCHITECTURES AND DESIGN

A2

15 mV

Asadullah Shah
Asadullah Shaikh
Muniba Shaikh
Zeeshan Bhatti
Nuha Abdullah Zammarh
Dini Oktarina Dwi Handayani
Zoya Shah

200mV

20mV



0.1 500ns

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Editors

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25. Cyclic Frame Discarding Multiplexer Design

Asadullah Shah, Dini Oktarina Dwi Handayani

Department of Computer Science,

Kulliyyah of Information and Communication Technology,

International Islamic University of Malaysia,

Malaysia

25.0 Abstract

The cyclic frame discarding is an approach in which at least for each user a packet is discarded before attempting to discard a second packet from the same. The idea is to avoid consecutive packet discarding from a single user when there is higher load. To do so, a slightly better performance, in terms of speech quality is achieved than a random packet dropping that suffers from consecutive packet losses. This chapter explains the benefit that can be achieved by controlling the packet discarding mechanism in a cyclic way.

25.1 Adjacent frame losses

Adjacent frame losses have been encountered in the random scheme. By regulating that loss better performance can be achieved. The problem of loss of adjacent frames is tackled by a frame discarding mechanism in which the loss frame control mechanism goes through all the active users first and only then returns to discard the next frame. Two control parameters are set to accomplish this task: one to monitor the activity and another to discard frames as follows:

1. A loss pointer is set at the first user at the beginning. As soon as higher activity is informed to the pointer, a single frame is discarded.
2. After discarding the current positioned user frame, the loss pointer jumps to the next active user in the queue and discards a frame and so on, until the required number of frames is discarded.

Successive frame loss may occur only when the number of users on the link is: (a) raised high enough and (b) all users are active simultaneously for a longer duration.

25.2 Frame Loss for Cyclic Design

A comparison of frame loss statistics for analysis and simulation is shown in figure 6.5. The graph indicates consistency in the frame loss statistics. Although for 11 users 3% frame loss is received which is higher than the random technique for the same number of the users. But this