Introduction to Mosir project: technical background of the movie broadcasting system for our reserch

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1. Introduction

Electronic media and its broadcast through network become to be useful for opening our research to the public and education, because high performance personal computer (PC) and broadband network can be available now. The goal of Mosir project is constructing the system of opening research to the public and education using Web and streaming technology.

In this study, we show the technologies and actual procedures required for construction and management of the Web/streaming system, and report of our experiences in operating the system.

The outline and results of Mosir project can be seen in Nakagami et al. (2002).

2. Outline of System

The system is required to provide movies about our research and educational activities for the public.This purpose is achieved by using Web server and streaming server.Apache and RealServer are used for a Web and streaming server software respectively. RealServer and softwares which decode or encode RealMedia (rm) file are provided by RealNetworks Inc. with free of charge. These softwares support standard PC operation systems, such as Linux, Mac, and Windows.

In the following sections, we show actual procedures, using equipments and softwares required to manage the system.

2.1 Recoding

Recording of lecture or workshop is performed by using digital video (DV) camera and microphone.When many people's questions or comments is recorded, several microphones and a mixer which adjusts recording levels are prepared.

It is good for recording a lecture to prepare a high quality microphone. Because broken sound of lecture and noise mixing decrease the value of the data.

2.2 Encoding and edit

Encoding from DV tape to rm file is performed by using PC with a video capture card and a sound card. The encoding software is RealProducer.

Our PC using for encoding has Pentium III 1.0 GHz processor with 512 MB main memory. The low performance computer possibly fail to produce sufficient quality movies.

In order to decrease cost of edit movies, we use the tag language SMIL. The SMIL is a language for combining movies, sounds, pictures, and text into one data file very easily.

2.3 Broadcasting

The computer used as a streaming server has large storage media to archive movies. The size of a rm file for 90 minutes lecture, which is multi-encoded for 56 Kbps, 256 Kbps, LAN, is about 200 MB. The whole size of rm files which records a series of lectures for 4 days is about 3 GB.

3. Running Costs

The total amount of cost to supply server PC, DV camera, microphones and softwares for is about 200,000 yen. The operator of this system must learns knowledge of DV camera

operating, audio mixing, network, and UNIX system computer. According our experience, it takes about half a year to understand and runnig this system in the case of recording a seminar once a month.

4. Conclusion

In order to construct this system, it is necessary to learn knowledge of DV camera operating, audio mixing, network, and UNIX system computer. The cost is slightly high, but once acquired the ability to manage this system, it is useful for opening research to the public and making educational resources. We wish our experience is useful for opening our science community to the public.

5. References

Nakagami et al., 2002: The joint meeting of Earth and Planetary Science

RealNetworks http://www.realnetworks.com/
Apache http://www.apache.org/