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A management system for video networks which dynamically supports retrieval and connection control of resources

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In recent years, the performance of computer and network has improved and infomational electric household appliances has appeared. This makes us to use, more than before, to communicate video data via the network by using computers or electric household appliances as a terminal. It also becomes available for us to communicate with high quality video format such as DV, MPEG2, D1 and so on via the network. Then we can expect of the remarkable improvement of the value and effect of using applications to communicate each other in remote places such as teleconference and distance learning. Further, we will be able to use video communication for some applications which reguires severe quality level like telemedicine.

However, it is very difficult to interconnect with existing network systems each other, because existing ones are tend to be specialize in each purpose.

Communication simply with such heterogenious networks each other makes not only easy to introduce new applications into the system, but also to dramatically improve the system in the scalability and reliability.

It has been seldom to consider about using and connecting effectively the resources on networks. As we arrange the expensive resources, such as a transcoder and a multiplexer, on a network and let them connect easily as

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an intermediate resource, the burden of the end point can be suppressed low. Furthermore, it becomes possible to introduce the mechanism into the system which can flexibly deal with dynamic transition of resource states, such as trouble of the intermediate resources and change of the connection. In this thesis, we especially take up this mechanism.

Improvement of the interoperability between the heterogenious networks and the effective use of resources in the network make the value of communication with video improve remarkably.

Furthermore, we propose a new concept of the connection management. In the existing connection management on video network system, when there are plural connections on the network, man would manage and control every connection one by one. This is because each connection is treated as a unit, though connections should be managed depending on relation of each one. Hence, it is extremely difficult to manage a large scale application which must make use of a large number of stream appliances. Then, we propose new connection unit called session to solve the above problem. Introducing the session makes it possible to set up the mechanisms network system such as making automatic connection of format conversion resources, improving reliability of a system and so on.

Above all, we propose the system which we can connect the functions of "household appliance" and "computer" each other without thinking about the difference among the networks. At last, a design, an implementation and the evaluation of the system are given.