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On Wireless Management to DataCenter Networks

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Data center has been used to provide hosting and housing of information processing resources efficiently for business. Data center is a specialized facility that integrates operations and manages a large number of ICT devices such as computer and network devices. This facility has been substantial building for disaster. Also air-conditioning is deployed to maintain the efficient operation of the ICT devices. Thus, the data center has become possible to provide services with highly available facilities. The use of such facilities comes by integrating multiple ICT devices. By integrating the operations it becomes possible to reduce the essential cost that is required to operate then such as land price and electricity charges. Certain amount of efficiency by integrating and managing a large number of ICT devices ,can be achieve it is not simple problem.

I focused on wired connection in order to reduce operating costs in the data center. The data center of ICT devices has wire connection. Initially, for wiring to these devices a large number of labor cost is required. It is impossible to prevent by failure due to artificial work. Also the density of the the wires can increase the affects of airflow for keeping the temperature optimal level. These problems can be improved by replacing wired connection with wireless connection. I can predict some issues for transforming wireless communication. First, the wireless network is a low bandwidth and high latency compared to a wired network. Second, there is a restriction of distance between nodes and wireless access point, in the rack and channel

assignment for large number of nodes. Third, the data center consists on rack of servers for installing computers and network device and that rack is covered by metal. Wireless communication is affected by metal objects. I do not predict what effect the wireless communication.

The datacenter network is dvide two type. First ,network for providing a service for customers . Second,network for manage to the datacenter network. In this paper, the former is defined as a service network, was defined the latter as management network. Service network, since the customers for performing the provision of services, low delay and high bandwidth network is required. Management network for it, there is no stringent requirements with respect to the to bandwidth and delay compared to the service network. In this research, it was radio of as being limited to the management network requires non-strict for bandwidth and delay. At that time that may affect the physical communication, order to reveal the arrangement of the access point to the access point is installed inside the server rack, using IEEE802.11g standard in measured experimental performance of wireless communication. As a result, sufficient bandwidth 30Mbps using management network service of transmitting a UDP datagram to a single node. However, in case of transmitting a UDP datagram to multiple receiver, phenomena that can not be correctly received, is obtained.

Also, I experiment shielding noise to use alminium foil. In order to affect by noise received from the server rack outside the wireless communication to the rack. And deploying access points to multiple racks, The resulting simple radio wave shield using aluminum foil, wave separation radio at the physical layer level It is difficult to manage a large of nodes because of complexity. I used physical experiment results, as a method for using the service to be used in the management network accesses a server device from the wireless network, it was proposed and implemented Unwired Management Access (UMA). The proposed method UMA enables the use of service used in the management network in placing the UMA box having a function of converting the wireless interface and a wired interface between the experimental nodes and the access point. The service in the management network is not only providing network layer level communication network layer level, but also providing data link layer level communication. the data link layer must be able to level of communication.

The proposed method UMA is provide data link layer level of service by using the L2TPv3. By using the proposed system can replace wired communication with wireless communication in the management network. thus, it becomes possible to use the service to be used in the management network via a wireless network to the server device. If it has a number of nodes, such as data centers, reduction of one wired per node, it becomes significant reduction in wired. Thereby eliminating the complication of the device management in the data center, it becomes possible to more efficient management.