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On Optimal Use of Experiment Resources in Large Scale Network Testbed

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There are many service on the Internet. Those service consist software using network. Such software need high quality, because software causes trouble on the Internet, and there is danger of giving extensive damage. Therefore when developing software, verification of working is important key. To repeat verification, the quality of software can be improved. Danger of happening on the Internet is evaded by developing software with high quality. Software using the network is verified in the assumed network environment. However, it is dangerous in operation to handle unwarranted software on the Internet. Therefore, it verifies software in the environment that imitates the assumed network. However, it is difficult that to prepare large-scale network like the Internet. It is not realistic by economical cost and time cost. Then, those who verify it about software use experiment facility that large-scale network can be constructed. This research, such facility is called network experiment facility.

Network experiment facility is to verify software on imitation of assuming network. Those facility prepare many node and network equipment. This research, those called experiment resources. Experiment resources is difficult to managing and controll, because exist a lot of it. Therefore, experimenter use supporting software that preparing in facility. Experimenter can do efficiency to using supporting software. It exist limitation cause of management system in network experiment facility. Management

system set up static and using jointly by experimenter. Therefore, If experimenter add experiment resources, it cannot control by supporting software. And, It is difficult to change use of experiment resources that set up static. If experimenter can change use of resource experiment, it can construct more experiment environment. If it can take away those limitation, it can verify more efficiency than in the past.

This research, It take away limitation of experiment resources and it toward system for optimal use experiment resources. Therefore, it review management system that cause of limitation. It need management system to use experiment that experimenter bound rule of network experiment facility. Therefore, I propose system of dividing at management system. It realize to construct management system for experimenter. If it exist management system for experimenter, it not interfere operation of facility and other experimenter. Therefore, It is possible addition and changing of experiment resources It need dynamic management system that is not static it in the past. In Proposed system, it construct management system for experimenter by dynamic management system.

This research , it realize proposed system to extension SpringOS that existing supporting software. Proposed system have two element that group of management nodes and management network. When it construct management system, at first making group of management nodes. And, it construct divided management network by group of management nodes. By those process, it realize divided management network. It realize installing virtual node as addition of experiment resources. Virtual node that made by virtualization software. Experimenter can use virtual node as experiment resources.

As evaluate in this research, i experiment using proposed system. In the result, i confirm to realize divided management system. And, i experiment about addition of experiment resources. It experiment on combination of the physical node and virtual node. And, I consider to use virtual node as experiment resources.

I realized optimal use for experiment resources for software on Internet. And, It can construct more flexible network experiment environment by those system. In the result, it efficiently became possible to verify software.