Toward A Web Based Model Research for Distributed Computer Network: A Technique Review

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Abstract. With the maturity of Web technology and its application in the wide application of Internet, Web based distributed management mode because of its unique flexibility and simplicity have been popular with more and more people, the function of network management from the traditional network equipment management to an extension of the host and network application management is also a research focus in the current computer network management. In this paper, on the basis of the research on distributed and web management style, designed a hierarchical distributed network management model based on web, can be the core of administrative tasks on the web server, the client does not need additional configuration software or hardware, and only need a simple browser can work, has a great practical value.

Keywords: Network Management; Distributed Network; Web Management.

1. Introduction

With the rapid development of network technology, as well as optical fiber communication technology, especially the DWDM optical fiber communication system in recent years, the scale of the network system is more and more big, the complexity is higher and higher, the maintenance of computer network management put forward higher requirements [1-3]. Traditional network management is almost based on independent application development, this limits the only equipped with the application of the machine for network management. Expansion of network technology to the Internet has almost become the minimum requirement for computer today [4]. Therefore, if you can through the browser to realize network management, it is a very have the practical significance of work.

In order to achieve any time any place to manage network laid the foundation. This paper proposes a distributed network management framework based on WEB, WEB based network management model mainly combines the ideas of the WEB and the core technology of network management, enables the administrator to any node in the network convenient access and manage the network in a timely manner. Client/server mode which is different from traditional network management, network management system based on Web can be the core of administrative tasks on the Web server, the client does not need additional configuration software or hardware, and only need a simple browser can work.

2. Distributed network technology

RM - the ODP (Reference Mode - the Open Distributed Processing) for Open Distributed Processing provides a series of concepts and rules, defines a basic for the development of Distributed system architecture, using five different viewpoints and their language from different perspectives to describe the Open Distributed Processing system and model for the lower support, namely distributed transparent related concepts [5]. Open distributed processing (ODP) is an attempt to solve the problem of distributed environment software interface of a technology, its structure is to in figure 1. Not only depicts the ODP a public interaction model is used to support the organization and organization between the heterogeneous distributed processing of open system, and put forward a framework of distributed system is constructed, the ODP makes the application block in the

implementation of the distribution of technical details, offer selectively access transparency, location transparency, concurrent migration of transparency, transparency, transparency and the joint distribution of transparency, making the application portability and can be used to load balancing in the system and improve the availability and reliability [6]. It uses ODP technology design of the distributed system, can the lack of traditional network management system can be integrated and flexibility to provide a strong support.
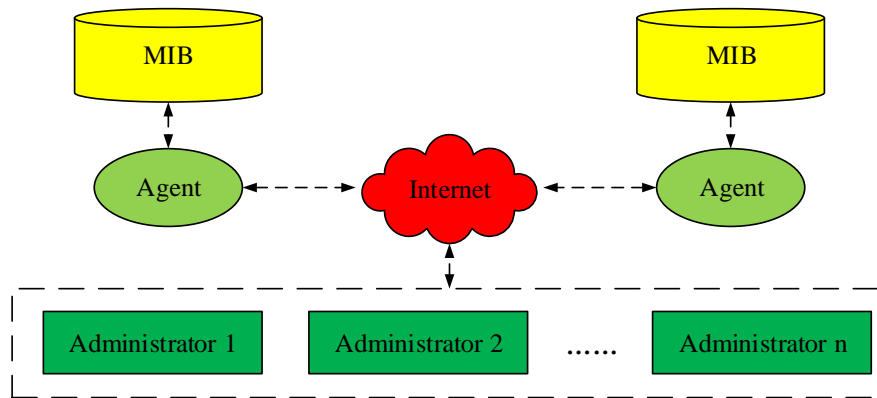

Figure 1. The technology principle of distributed network

Because each domain setting a manager, the advantages of distributed network management model are: First, the scale of adjustment needed to fully decentralized network / resource load, according to NMS; second, the manager of distributed network management across multiple workstations increase the reliability and robustness, management while reducing communications needs. This is the rapid development and wide application of a new network management techniques. Distributed network management as the future development direction of network management has become the international and domestic research focus.

3. Topology design for distributed computer network based on Web
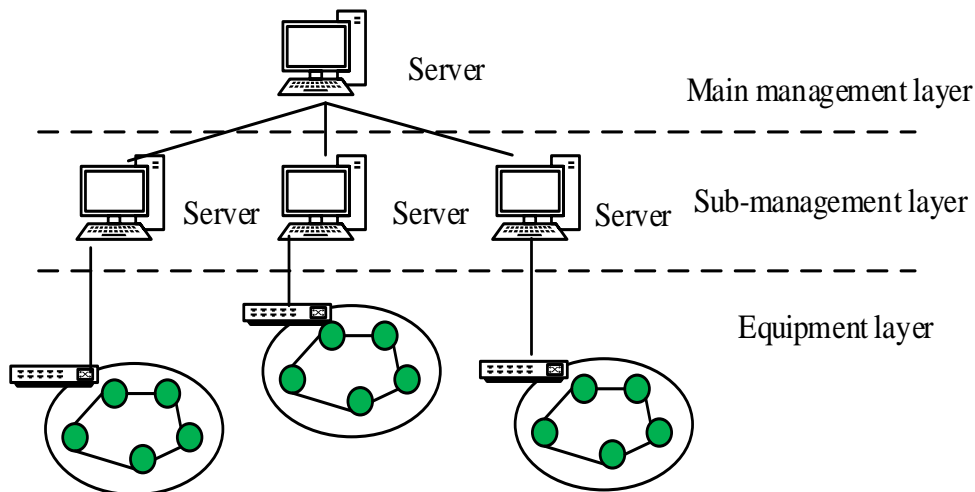

Figure 2. Topology for distributed computer network based on Web

Web-based technology network management system, there are two solutions: The first method is to use a proxy service plans. Through a proxy server to the Web, on the one hand, you can request to receive the user's browser, on the other hand can communicate via SNMP and producers / network elements with the original network equipment, network management platform, access to information, the network administrator. The second method is embedded mode, the ability to network is really embedded into network elements that network element has its own web site, the manager can access the network elements and management via a browser [7-8]. We use the three-layer structure shown in figure 2.

According to the definition in some way different domains, and use each domain administration server, manager, each management server uses polling Management Information collected will be deposited into the appropriate database. The top is a network server, or the main managers, mainly collected on a per-domain management server, management information on the entire network for further analysis in order to take some control strategies. Network administrators can through any browser and Java can manage the entire network. The system consists of data acquisition and pre-processing module, network management module and the network module parts.

The main function of performance management module include the fact that observation network utilization, error rates, relevant performance data within a set range of browsers, set alarm thresholds, and so on. The main function of the fault management module includes training polling and receiving network equipment network equipment failure trap, failure to maintain a log. The main function modules include security management view the user's legitimacy, users can restrict access rule action.

4. The distributed computer network management model based on Web

Basic Web-based network management model shown in Figure 3. The whole model including Web browsers, Web servers, databases, and network service management system, management information management platform and resource management.
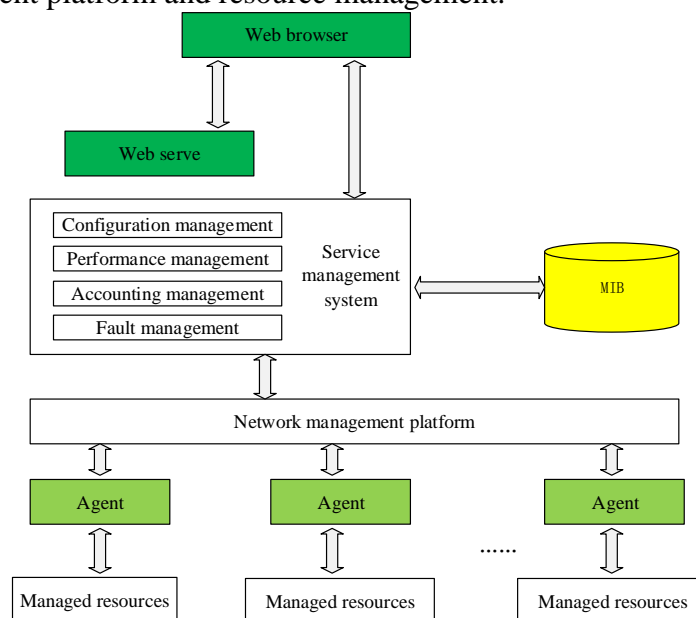
Figure 3. The distributed computer network management model based on Web

4.1 Web browser.

For network and system administrators to perform management tasks provides a flexible, unified user interface.

4.2 Web server.

Web browser as communication, receiving and responding to the browser request and set the various service interaction module and management services, and is the basis for Web interaction. Service Set.

4.3 Service management system.

It provides a comprehensive range of services and effective management of networks and systems, such as network topology discovery, network configuration, performance, fault detection and recovery, security measures, such as billing account traditional network management functions, but also provides users a variety of effective management tool, based more on other systems integration services to provide development interface.

4.4 Management Information Base.

Collect network data storage management agencies, such as the routing table, the address table, port, data flow and device information, etc., can also store performance reports, fault information

table, and so on. You can select the DMTF CIM management information base model nests. At the same time, users can define their needs according to your own data model, such as the use of a relational database, the database is to use the information in this article use the SQL 2000 database.

4.5 Network management platform.

Network Management Services provide access interface agents, and agents to achieve communication port, resource management information collection tubes.

4.6 Resource management.

Retain existing Web-based network management model all the advantages of workstations NMS and equipment based, but also increase the flexibility of obtaining advantages, providing an integrated network management solutions, most Web-based network management system currently used model.

5. Conclusion

With the rapid development of network technology, network scale, the increasing complexity, traditional centralized network data collecting the methods already cannot adapt to this situation, so the distributed network management system arises at the historic moment. Distributed system, greatly enhance the system to the outside world for the traditional centralized management system of communication ability, in this way, can greatly enhance the system's ability to data collection. In addition, the distributed system is easy to realize the modular design, very conducive to the maintenance of the system and to upgrade. Distributed network management system based on WEB, greatly improve the system's processing power at the same time, can realize to manage the network at any time any place. We believe that through a unified platform -based on Web service to the network and its management method has a good prospect.

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