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Research on the Communication Management System based on NGOSS

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Abstract. With high voltage network as the core, the coordinated development of all levels of the grid, unified strong smart grid construction, the demand as a foundation for power grid intelligent base support of power communication transmission network development at a high speed. The expansion of the scale of electric power communication network, transmission network level increases gradually and increasingly complex network structure, the comprehensive monitoring and operational management of electric power communication system puts forward a new challenge. In this paper, the communication management system based on NGOSS was investigated, and it will provide support for the electric power communication network operation, maintenance and management.

Introduction

Power system communication is an important and indispensable component of power system. It's the foundation of the power grid dispatching automation and modernization of production management. It's to ensure that the grid security, economic and stable operation of important technical means[1-2]. Electric power communication network as the building a unified strong smart grid, and the basis of the enterprise information support, for the whole power system of power grid scheduling, automation, relay protection and safety automatic control, electric power market and enterprise information, such as the provision of security information transmission channel, its varieties management is the key to the whole grid keep smooth.

The Next Generation Operation Support System (NGOSS)

NGOSS is TMF put forward a new generation of telecom OSS/BSS system architecture of the system, it from the system (plug and play rules), process (business process model) and information (associated with public data), product four aspects to ensure the OSS system with standardization, can gradually evolution, guarantee the interconnection interoperability, achieve end-to-end management and the characteristics of highly automated. NGOSS proposed a series of documents, information model and code, analyzed the enterprise core business flow and information technology, and puts forward a set of instruction system framework and design of the construction of the OSS plug-and-play OSS component parties, so that the OSS system design, development, meet the individual needs of individual operators from development to the scope of the overall demand analysis of telecom operators, further make the OSS system design, development into a new era.

NGOSS Architecture Including Five Parts. the NGOSS lifecycle and methodology, eTOM Shared information data (SID), TNA and conformance testing system.

NGOSS Lifecycle and Methodology. For telecom enterprises from the business design, system analysis, system development and business process design and OSS/BSS system monitor provides a set of methodology and basic concepts.

eTOM. Define a new generation of business process standardization of description, determine the related to business support system framework, improve operators, equipment manufacturers, software developers and partners of effective communication and mutual understanding.

SID. Applied to the analysis of telecom enterprise's core business processes, differentiate the management functions of different regions, for the development of a practical OSS/BSS system provides a common information model framework.

TNA. Used to describe telecommunications enterprise internal between various systems and

business processes of interface definitions, components, contract, document and communication rules and the way.

Conformance Testing System. To conform to the NGOSS system, regardless of technical implementation method, the system of communication mechanism (or bus) interface, system or components, business processes, the interaction between the information/data model and cover domain is in line with the relevant provisions of the NGOSS, adopt the way of test matrix for validation test.

NGOSS methodology from the business, system, implementation and operation of NGOSS four aspects of knowledge, to form the corresponding business view, system view, the view and run the view, as shown in the figure 1 below.

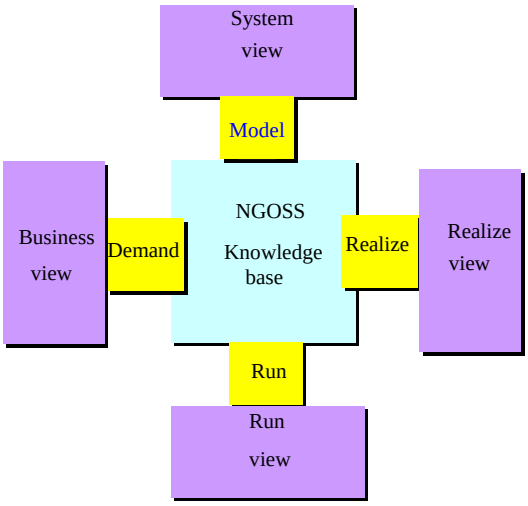

Figure1 NGOSS architecture diagram

Under the NGOSS system framework, the focus of the international and domestic standardization of communication network operations from the management interface communication protocol and information model gradually standardization for business-oriented Shared information model (ITU-T M.3190), the business measure (ITU-T O. 200 series standard), business level agreement (ITU-T M. 3300 series, TMF 506 series standard), operational knowledge base (TMF), operational process (TMF GB921 series standards), operational quality evaluation (ITU-T E. 800 series standards, the ITU-T E. 410 series standard), customer experience (ITU-T TR149), etc.

Communication Management System Construction

According to the current situation and requirements, on the basis of using the experience of informationization construction, timely put forward the construction of communication network facilities management, carry business management, communication resource management, career management functions in the integration of communication management system, realize intensive management of electric communication from top to bottom, collectivize operation[3]. Communication management system in technical service architecture based on SOA, fully absorb and continue with the company independent intellectual property rights of business infrastructure software platform software, is mainly composed of network control and data acquisition layer, platform layer, application layer three layers of management, key units to be complete at the provincial level and above in nationwide communication management system construction, one, two, three, four backbone transmission network data, information comprehensive management and communication of the data visualization[4]. And connected through the system, complete the communication management system, and other system between higher and lower information sharing and application of the horizontal cooperation, improve communication throughout the entire network fault location processing ability, cross major and across the network resource management

and optimizing the allocation of ability, the whole process of the closed loop communication business management skills, ability to panorama integrated information and communication, etc.

Eliminate Island, Information Sharing. In unified leadership, unified planning, unified standards, and organize the implementation of the construction principle, for the first time to eliminate the previous construction of fragmented, are independent of each other as a result of a large number of information island, the realization of the entire network information sharing, greatly improve the concentration of management, within the scope of the whole system has realized the unified specification of real-time monitoring, resource management and the operation management application, improve the management level of the whole of the electric power communication professional.

Centralized Management, Operational Flat. Communication management system adopts the application of "the application" secondary deployment, three layer model, realized the communication backbone at the level of the real time monitoring of the concentration of perfected the communication means of operational technical support, promote the centralized monitoring and remote operations at the provincial level for communications professional, unified regulation, graded and maintenance, implement operations intensive laid a foundation.

Horizontal Integration, Vertical Penetration. Through the system interconnection, breaking the original traditional habit of consciousness and the management of regional segmentation and form management barriers, information more unobstructed. Through longitudinal sharing, to realize automatic run data cut in analysis, statistics report, network status monitoring, closed-loop management and so on the work order process. Through horizontal integration, the realization of maintenance department for examination and approval. The management of change and ascension, and promote the communication of professional management to the intensive, to realize the lean, the comprehensive transformation of standardization.

Intelligent Auxiliary Functions, Improve Service Efficiency. Using informatization level to realize the automation and intelligent communication management, greatly ease the contradiction between the increased enough staff and equipment. Through data analysis and data mining technology, analyzes the relationship between all kinds of data, improve the level of communication professional management; Through the transmission network layer of the comprehensive monitoring, as well as the important business management monitoring, improve the system's ability to support failure analysis; Through early warning analysis, resources intelligent scheduling, unified deployment across the network resources and the physical and logical integration management, business resources, realize the integration of multi-level resource allocation.

Conclusion

The communication management system based on NGOSS was investigated in this paper. And through the provincial company to pilot application, then the entire network promotion step by step, it will provide support for the electric power communication network operation, maintenance, management, planning. This study also can support for the electric power communication network management field a significant economic benefit, social benefit and management benefit, operation management for the safe and stable operation of power grid and the company to make a greater contribution.

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