

Cloud Computing-based Enterprise XBRL Cross-Platform Collaborated Management

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Abstract. EXtensible Business Reporting Language (XBRL) is expected to develop into the global data standard for business financial reporting with the potential to change the way that accounting data collaborate processing. The improvement of interactivity of the Internet financial report relies on its data presentation standard. This paper attempts to take advantage of cloud computing technology to conduct comprehensive integration of the enterprise information systems according to XBRL classification criterion, and generate XBRL standard instance documents that will be stored in the cloud computing-based enterprise information data cloud. By employing XBRL processing technology, it is able to realize cross-platform XBRL system processing and offer references for the listed companies to realize XBRL cross-platform collaborated data management.

Keywords: XBRL · Collaborated · Cloud computing

1 Introduction

The rapid development of computer network and information technology gives rise to the innovation of the Internet financial report. XBRL makes it possible to realize financial information disclosure which is impossible under the traditional reporting mode. The development of XBRL innovatively transforms the traditional form of accounting reports of listed companies and leads the Internet financial report to develop in depth and breadth. It has become the actual demand for XBRL to enhance the resource integration and use ratio of XBRL report platforms, improve the quality of XBRL Internet financial report and focus on the data co-processing capability of cross-platform accounting information systems. A high-quality information network service platform for listed companies is the foundation for production of high-quality XBRL Internet financial data. The improvement of interactivity of the Internet financial report relies on its data presentation standard. It is very difficult for the traditional enterprise financial information output systems to realize cross-platform collaborated data processing. The differences in interaction among different financial information platforms result in the difficulties in effective utilization and prompt extracting of various financial information and non-financial information. This paper attempts to take advantage of cloud computing technology to conduct comprehensive integration of the enterprise information systems according to XBRL classification criterion, and generate

XBRL standard instance documents that will be stored in the cloud computing-based enterprise information resource pool. By employing XBRL processing technology, it is able to realize cross-platform XBRL system processing and offer references for the listed companies to realize XBRL cross-platform collaborated data management.

2 Technical Analysis for Cloud Computing-based XBRL Cross-Platform Collaborated Management

Designed on the paper-based accounting information, the traditional online accounting information system is the informatized processing of paper-based accounting data. Such preliminary forms of online financial reports only realize presentation of the written content in the traditional paper reports onto the electronic pages, which does not fundamentally improve the accounting information quality or realize capital market value gains. It is still not possible to effectively retrieve the financial information published in such formats or visually obtain the comparison between different indexes. The content and format are fixed. It can only receive information passively instead of customizing personalized financial reports. Traditional financial reports cannot now satisfy the stakeholders' demand in space and time for personalized information. The contradiction between the traditional financial information supply and the demand for personalized financial information and supervision becomes growingly prominent. The information supply and demand in the current capital market are far from reaching the Pareto Optimality. In order to resolve these issues fundamentally and realize free exchange of financial information, there shall be a unified technical standard for financial data.

2.1 Application of Cloud Computing-based XBRL Cross-Platform Collaborated Management

Cloud computing is a network-based, configurable sharing computing resource pool, and also a convenient model for access per demand. Its advantages include low cost and strong sharing capability. Cloud computing has been applied widely now. Through application of cloud computing technology, China generalized the XBRL classification criterion in 2009, and China Securities Regulatory Commission, Shanghai Stock Exchange and Shenzhen Stock Exchange stored XBRL instance documents in the relevant cloud computing accounting data resource pool. Financial information users of listed companies can extract relevant accounting data from the resource pool in the cloud service platform through employing XBRL technology. The data resources in the accounting information resource pool are highly shared. In addition, it is able to realize seamless provision of accounting information and generation of corresponding financial reports with the help of XBRL technology. This report mode works in this way: as the enterprise's financial data is stored in the dynamic data resource pool of the cloud platform, once any user needs to search any financial information, the system will adopt XBRL standard naming to encapsulate financial data and send it to the client in the form of hypertext; then, the client may check information and trace the information source by a browser or other APP.

2.2 Architecture of Cloud Computing-based XBRL Cross-Platform Collaborated Management

The bottom layer of the cloud computing-based accounting information platform for listed companies is the infrastructure composed of hardware and the operating system. On the layer above the bottom layer are various software systems and the management platform, including the deployed various information system management software, virtualized components, cloud computing management system and various virtual machines. Another layer above is XBRL basic data that can be either XBRL standard instance documents directly stored in the cloud platform resource pool or real-time extracted Web Service data provided by the enterprise. The top layer of the architecture is the application software service center made up of software provided by various software developers, as well as the data center. It is the core of the cloud computing, including the application center of financial software and various management software, program integration center and data storage & inquiry center. This kind of architecture, on the one hand, reflects the privacy and security of enterprise accounting data, and, on the other hand, better ensures users of enterprise accounting data to take advantage of XBRL technology in searching the required data and tracing the data sources, finally realizing high level of data sharing.

2.3 Technical Conditions for Development of XBRL Cross-Platform Collaborated Management by Enterprises

XBRL technical framework comprises three parts, namely, XBRL technical specifications, XBRL classification criterion and XBRL instance documents. In recent years, with the rapid development of cloud computing theory and technology, it becomes simple and convenient to realize network information management, and also provides a good data processing platform for the accounting information system and XBRL co-processing of listed companies. Through the data platform of the accounting information system cloud platform supplier, enterprises store the instance documents of accounting data in the accounting information resource pool according to the XBRL classification criterion. By integrating the data in the accounting data resource pool with the help of XBRL software, all kinds of accounting and financial information are offered to various financial data users.

3 Application of Cloud Computing-based Enterprise XBRL Cross-Platform Collaborated Management

Traditional online financial reports are only represented in the electronic form of paper-based financial reports. They are outdated, frequently swapping data, poor in information mining and data collaboration. In addition, they cannot be designed according to the individual demand of users, and data cannot be effectively traced. In contrast, concerning the cloud computing-based XBRL Internet financial reports, according to the global XBRL standard and regional requirements, XBRL instance

documents are stored in the resource pool in a real-time way, so as to realize collaborated management of enterprise accounting data and XBRL.

3.1 Idea of XBRL Cross-Platform Collaborated Management

Different business systems may provide different XBRL presentation forms, realize supply as per demand and enhance cross-trade, cross-sector repeated availability of data information. The existing national XBRL classification criteria include XBRL Global Ledger (XBRL GL) and XBRL Financial Report (XBRL FR). XBRL FR is applied in the corporate financial report to be published to the public, while XBRL GL is used in the corporate accounting process. XBRL GL can present all information in each account and ledger, including both financial information and non-financial information. By using XBRL GL, enterprises can compile cross-platform data information through cloud computing technology, and formulate XBRL data standard form of documents. As XBRL GL classification criterion standardizes the various transaction data of enterprises, information demanders can mine data downward and extract the original data of economic businesses. By employing XBRL GL at the business level, information demanders can precisely extract the matter information of enterprises. XBRL GL can also store the data of the enterprise supply chain system, e-commerce system and other public management platforms in the relevant instance document resource pool according to XBRL classification criterion, so as to realize real-time processing of economic data generated during the production process. Users of statements can utilize XBRL technology to check, track and compile statements on the instance documents in the corporate information resources according to their information demand. Thus, the collaborated management and real-time reporting of various information resources are realized. XBRL can realize cross-platform data transmission and exchange, which is beneficial to share information. The design of XBRL cross-platform collaborated management is shown in Fig. 1.

3.2 Cloud Computing-based Enterprise XBRL Cross-Platform Collaborated Management

- (1) Collaborated management of XBRL and enterprise accounting information system

According to statistics, more than 70% of enterprise information comes from accounting data. In the future, the co-processing of XBRL and accounting information system is inevitable. With the development and perfection of cloud accounting technology, enterprises will store the data of accounting information system as standard document formats in the accounting information sharing resource pool. And users of accounting statements can check and timely know the financial situations of enterprises through XBRL software generally designed by software developers. XBRL has unparalleled advantages in improving the information quality characteristics of accounting statements. Relevant normative studies and empirical studies indicate that XBRL financial reports can evidently improve the reliability, interactivity, real-time performance,

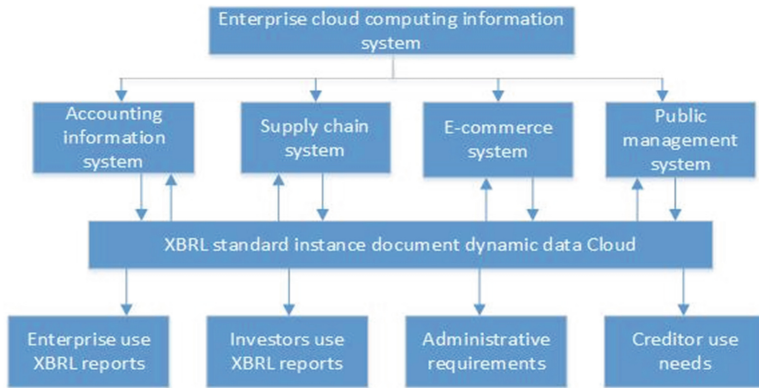


Fig. 1. XBRL cross-platform collaborated management design

comparability and understandability of accounting information. The idea of co-processing of XBRL and accounting information system transforms the previous management ideas of the accounting information system, and elevates the user satisfaction for statements, realizing balanced benefits among them. Therefore, XBRL technology is the technical guarantee for global and regional accounting informatization.

(2) Collaborated management of XBRL and enterprise supply chain system

The enterprise supply chain system reflects the production and commodity circulation process through controlling the product value-added process and distribution channel process. It starts from the origin of product production and ends at the consumers. Enterprises share demand information, inventory, production plan, sales plan and delivery plan by VLC for reflecting the supply chain process and realizing collaborative forecasting. This kind of collaborated management can reflect the optimized configuration process of production capacity in a systematic way, timely master the status of commodity circulation, effectively improve the capital turnover, and systematically analyze the liquidity and profitability of the enterprise in the future. It can also make accurate prediction of the capabilities of the external suppliers and dealers. The commodity purchase information, inventory information and production information in the supply chain system can effectively reflect the operational capability of the enterprise. Through the single standard and planning of XBRL, enterprises can generate instance documents based on the real-time data from the supply chain, and store them in the dynamic resource pool. By employing XBRL technology, we can realize collaborated management of XBRL and the supply chain system. It is of practical significance for users of statements to timely know the configuration status of enterprise resources and capital turnover efficiency.

(3) Collaborated management of XBRL and e-commerce platform

The data of e-commerce transactions are normally dynamic data. Through the co-processing of XBRL and e-commerce, the dynamic profitability of the enterprise

can be more timely represented. Based on the records of the transaction platform, e-commerce platform uses XBRL technology to convert transaction data to standard XBRL dynamic instance documents, and publish the dynamic instance documents of transactions to the dynamic electronic preparation information resource pool, thus improving the dynamic decision-making ability of the users of statements.

(4) Collaborated management of XBRL and other organizations

The subjects that use XBRL not only involve the providers of financial reports and business reports, but also involve their receivers and users, including listed companies, investors, accounting firms, regulatory organizations and other stakeholders. The enterprise operations must meet the demand for sustainable development. In addition to considering the state of operation, the responsibilities undertaken by enterprises for the social and natural environment should also be examined comprehensively, including environmental protection, public benefit and business reputation. Then, the corresponding instance documents will be generated. Through the collaborated management of XBRL and other organizations, investors can understand the relationships between enterprises and the government, as well as between various associations and the market; the information users can understand the financial information and non-financial information of enterprises as a whole.

4 Conclusion

In this paper, we investigate how the core value of XBRL to improve the financial information quality of listed companies. The purpose of XBRL collaborated management is to make the demanders of accounting information timely obtain real-time, dynamic original data, and allow the users of financial reports to track the information sources. XBRL provides technical support for the accounting information reports of enterprises. The idea of collaborated management expands the classification criteria of XBRL. Through the collaborated management of XBRL and other systems, we can realize better data exchange between financial systems and other management systems, integrate information resources, analyze the micro-economic activities of enterprises and support the decisions related to operational management. The cross-platform collaborative application of the cloud computing-based XBRL technology at the business level will play a positive role in comprehensive elevation of the accounting information quality of listed companies, the competitive edges of enterprise in the market and enterprise informatization.

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