

A Design of a VOD DB

Jaegeol Yim, Gyeyoung Lee, Thanh Le

Dept. of Computer Engineering,
Dongguk University at Gyeongju, Korea
{yim, lky, lct}@dongguk.ac.kr

Abstract. A number of VOD database systems have been developed. This paper comprehensively surveys the existing VOD database systems and derives a standard one. The database provides directory, videos, search, recommendation, database management, history, rating, user, and file upload services. Our design of the database system is discussed in detail.

Keywords: VOD, Database system.

1 Introduction

An interactive VOD service, which supports VCR-like functions, is described in [1]. To manage the database system they developed a client application that can be used to create or drop a table and insert, modify or delete video records and their associated information.

There are so many web service providers. Sabre[2], Datalex[3], and Galileo[4] provide web services for traveling and tourism businesses. Amazon web service provides web services for commerce [5]. [6] introduced a Web-based Geo-spatial Service Platform using GML (Geography Markup Language) and Microsoft .NET.

The next generation database management systems (DBMS) should be a federation of distributed, heterogeneous and autonomous components. Such components constitute web database services. In [7], they presented the full spectrum of possible DBMSs based on such a Service-Oriented Database Architecture (SODA).

SOAP-based services are heavy-weighted services which are not applicable for mobile services in comparison to light weight RESTful services[8]. Therefore, we develop RESTful web services for VOD DB systems.

2 Survey

A presentation plan is a sequence of steps that the local server must perform in order to present the requested movie to the customer. In [9], they present different types of presentation plans that a local server can construct in order to satisfy a customer request. A VOD system for elementary schools has been introduced in [10].

A new schema for online VOD system, which is developed with ASP.NET and SQL Server 2005, based on Flash Video and Flash Media Server is proposed in [11]. A distributed storage VOD system for delivering generated video content is proposed in [12, 13]. In [14], they proposed a unique VOD architecture and implementation for efficient QoS. A new proactive data replication mechanism is proposed and implemented in existing P2P on-demand system [15].

In [16], they developed a new way of viewing TV, CurioView, which uses metadata and retrieval technology to satisfy viewers' curiosity by recommending wide-ranging video content related to the content the viewer is currently watching. Series of technologies, such as P2P [17], CDN [18] and CSMS [19] have been proposed and developed to enhance the performance of VoD systems. In [20], they present the design and implementation of a performance monitoring tool for clustered streaming media server systems.

In [6], they analyze the Geo-spatial information Web Service architecture of OGC (OpenGIS Consortium), and then they design and implement a Web-based Geo-spatial Service Platform using GML (Geography Markup Language) and Microsoft .NET. Geospatial data and services sharing framework based on Web portal technologies, Web services, OGC, and W3C Standards are proposed in [21].

3 Our Design

Considering the user's requirements of the existing database systems, we propose a standard VOD database system. A database server should provide directory, videos, search, recommender, database management, history, rating, users, file upload RESTful web services.

4 Conclusion

It is well known that SOAP-based web services are too heavy to be used in mobile applications. This paper introduces a database system based on RESTful web services.

Acknowledgments. This work (R00046281) was supported by Business for Cooperative R&D between Industry, Academy, and Research Institute funded Korea Small and Medium Business Administration in 2011. Lee's work was supported by 'Development of Global Culture and Tourism IPTV Broadcasting Station' Project through the Industrial Infrastructure Program for Fundamental Technologies funded by the Ministry of Knowledge Economy(10037393)

References

1. Diamantis, I., Ntalakas, A., Strintzis, M.G.: Real time video distribution using publication through a database. International Symposium on Computer Graphics, Image Processing, and Vision, pp. 208-215 (1998)

2. Sabre, <http://www.sabre.com>
3. Datalex, <http://www.datalex.com>
4. <http://xml.coverpages.org/GalileoGlobalWS.html>
5. Amazon Web Services, <http://aws.amazon.com/>
6. Guo, Z., Wang, X., Sun G.: Research and application on spatial data Web service based on .Net platform. IEEE International Geoscience and Remote Sensing Symposium, IGARSS '03, vol. 6, pp. 3709 – 3711 (2003)
7. Tok, W., Bressan, S.: DBNet: A Service-Oriented Database Architecture. 17th International Workshop on Database and Expert Systems Applications, pp. 727 – 731 (2006)
8. Upadhyaya, B., Zou, Y. Xiao, H. Ng, J., Lau, A.: Migration of SOAP-based services to RESTful services. 13th IEEE International Symposium on Web Systems Evolution (WSE), pp. 105 – 114 (2011)
9. Hwang, E. Prabhakaran, B. Subrahmanian, V.: Presentation planning for distributed VoD systems. IEEE Transactions on Knowledge and Data Engineering, Volume: 14, Issue: 5, pp. 1059 – 1077 (2002)
10. Li, C. Cui, H.: Design and implementation of video-on-demand system for elementary and secondary schools. IEEE International Conferences on Multimedia Technology (ICMT), pp. 4891 – 4893 (2011)
11. Jin F.: Design and Implementation Video on Demand System Based on FMS +FLV. Fourth International Conference on Genetic and Evolutionary Computing, pp. 398 – 401 (2010)
12. Nomoto, Y. Kuzukawa, T. Ishibashi, Y.: Distributed storage VOD system using XDMS: Implementation and performance evaluation. IEEE Region 10 Conference, pp. 1438 – 1443 (2010)
13. Nomoto, Y. Kuzukawa, T. Ishibashi, Y.: IP storage and stored content management using SIP presence server with XML database. Australasian Telecommunication Networks and Applications Conference (ATNAC), pp. 1 – 6 (2011)
14. Dakshayini, M. Guruprasad, H. Maheshappa, H. Manjunath, A.: Load Balancing in Distributed VoD Using Local Proxy Server Group [LPSG]. International Conference on Computational Intelligence and Multimedia Applications, Vol. 4, pp. 162 – 168 (2007)
15. Liao, X. Zhang, F. Jin, H. Yu, L.: iDARE: Proactive Data Replication Mechanism for P2P VoD System. IEEE 10th International Conference on Computer and Information Technology (CIT), pp 682 – 689 (2010)
16. Sumiyoshi, H. Sano, M. Goto, J. Mochizuki, T. Miyazaki, M. Fujii, M. Shibata, M. Yagi, N.: CurioView: TV recommendations related to content being viewed,” IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), pp. 1 – 6 (2010)
17. Lua, E. Crowcroft, J. Pias, M. et al: A survey and comparison of peer-to-peer overlay network schemes. IEEE Communications Surveys & Tutorials, vol. 7, pp. 72-93 (2005)
18. Broberg, J. Buyya, R. Tari, Z.: MetaCDN: Harnessing 'Storage Clouds' for high performance content delivery: Journal of Network and Computer Applications, vol. 32, pp. 1012-1022, (2009)
19. Chai, Y. Du, Z. Chen, Y.: A stepwise optimization algorithm of clustered streaming media servers. Journal of Systems and Software, vol. 82, pp. 1344-1361, (2009)
20. Wang, X. Liu, X. Xie, H. Du, Z. Jin, L.: Design and Implementation of a Performance Monitoring Tool for Clustered Streaming Media Server Systems. International Symposium on Information Science and Engineering (ISISE), pp. 314 – 318 (2010)
21. Jie, Y. Yue, P. Gong, J.: Integration of geospatial Web services and Web portal technologies for geospatial Information sharing and processing: 17th International Conference on Geoinformatics, pp. 1 – 4 (2009)