A Unique Approach to Element Management and Secure Cloud Storage Backup for Sensitive Data

Abstract

With dynamic trends and new developments in hardware and software, and the need to manage them efficiently, designing an Element Management System (EMS) for effective management of Network Element’s (NE) is a challenging task. Small and medium businesses may not have the required skills or resources to manage their EMS. Large businesses may also want to use EMS services from skilled vendors. With the emergence of cloud computing technology, EMS can be provided as a service, i.e., SaaS (software as service) to different customers. As promising as it is, this paradigm also brings forth many new challenges for data security and access control when users outsource confidential and old management data for
sharing on public cloud, i.e., which are not within the same trusted domain. In this proposed scheme, the EMS is provided as a service to different sites of the organization using a private cloud. Sensitive data is stored in the public cloud which comprises of the current configuration of the complete private cloud, important disaster recovery data and management data. This would provide a confidential and secure backup of EMS. This would be useful in the case of natural calamities (tsunami, tornado, earthquake, etc.), terrorist attacks and any other disaster that strikes the private cloud. The clients/data owners, who require management data, can access the data from the public cloud. While accessing data from the public cloud, integrity and confidentiality of the data is preserved by using 2 techniques, namely Attribute Based Encryption (ABE) and Proxy Re-Encryption (PRE).

References

- Shucheng Yu, "Achieving Secure, Scalable, and Fine-grained Data Access Control in Cloud Computing".
- Jae-Kyu Chun, Ki-Yong Cho, Seok-Hyung Cho, Young-Woo Lee and Young-Il Kim,” Network Management Based on PC Communication Platform with SNMP and mobile agents” Proceeding of the 22nd international on Distributed systems workshop,(1CDCSW’02),IEEE 2002.

- WebNMS Online at http://www.webnms.com
- OpenNMS Online at http://www.opennms.com
- SNMP4J API Online at http://www.snmp4j.org/
- Cloud Online at http://thecloudtutorial.com/

**Index Terms**

Computer Science

Communication and Networks

**Keywords**

Element Management System  Network Element  Disaster recovery  Attribute Based Encryption  Proxy

Re-Encryption

Disaster Recovery plan

mission critical functions