Secure Access Control Framework for Fully Fledged Network Security Control

How Machine Learning Algorithms Helps to Improve Security

TutorsIndia
YOUR TRUSTED MENTOR SINCE 2001

EXECUTIVE SUMMARY

1   AI promises to booth data access control incloud computing platforms.

2   Developing a novel algorithm using the ML approach to classify user's behaviour is significant to bridge the gap among theory and real-time application.

3   The access control and security manage ment framework along with effective ML would provide guidance information for the cloud customers and administrators to make decisions.

INTRODUCTION

At the present scenario, the cloud environment widely used in numerous fields, namely, web applications, healthcare, mobile social networks, e-commerce, data storage, gaming, and so on. Thus the huge collection of data becomes complex in terms of data access control and authentication in the distributed environment.

Especially, the data access control is not fine-grained, and this may result in data leakage and other security threats. So apart from the traditional security, there is a special focus
required in the field of data access control in cloud computing platforms.
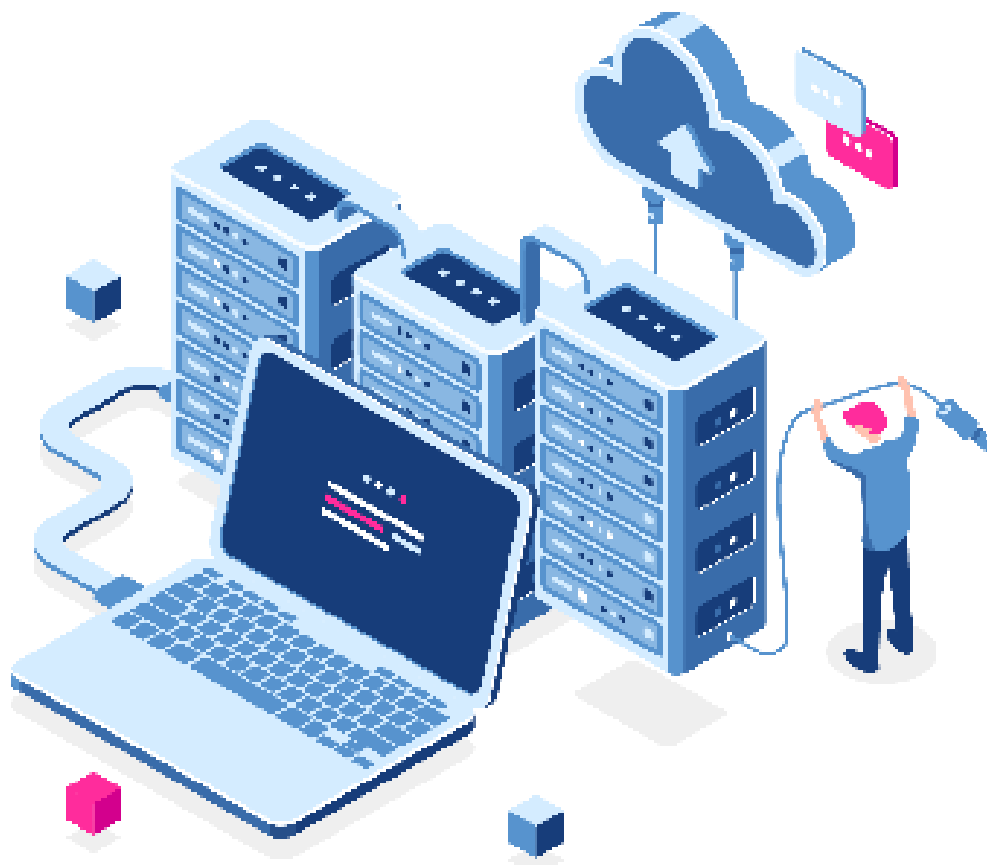
BREIF NOTE OF CLOUD ACCESS CONTROL SYSTEM

Generally, the term data access control system defines the huge collection of components and techniques which define the appropriate administrator to activate valid user on the basis of privileges outlined and preconfigured access permissions in the access security policy. The primary aim of any access control system is restricting a user to exactly what they should be able to do and how can protect data from unauthorized access. There is a wide variety of models, administrative capabilities, methods and technologies are utilized toward design and propose access control systems. Each access control system has its methods and functions, own attributes, that derive from either set of policies or policy. The systematic representation of cloud access control with a service provider is shown below.
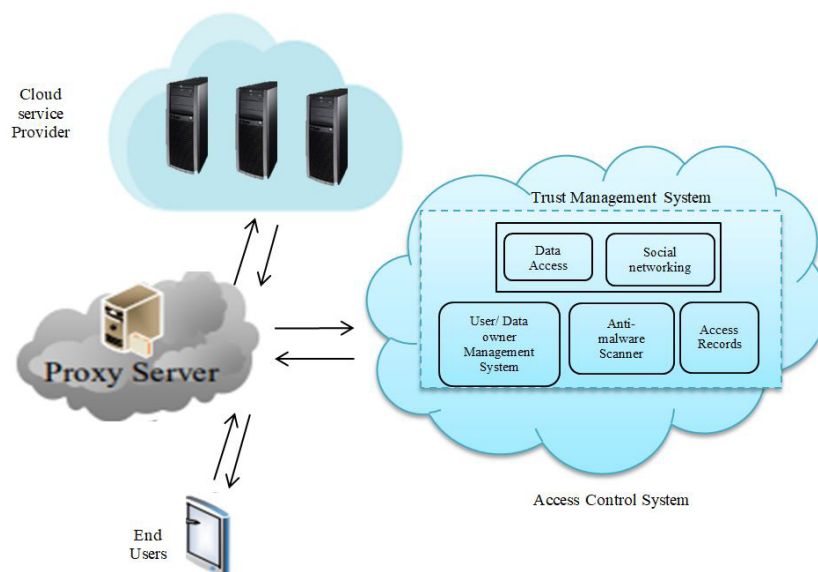
Apart from this, one of the primary issues which we are facing is accuracy while we access the data in terms of detecting user behaviour. For addressing this issue, there is a potential extension by considering multi-authority access control which aggregates data from different resources to profile the user's behaviour. Developing a novel algorithm using a machine learning approach to classify user's behaviour is significant to bridge the gap among theory and real-time application.

The novel algorithm should consider the below factors in order to develop a secure access control system:

(1) Should consider different flexible functionalities like self-managed and self-defined access control, user-friendly deletion and addition of group users, separation of access authentication from system authentication and iterative access control proxy server.

(2) Reduce the computational complexity which comprises both encryption and decryption algorithms.

(3) Multi-authority Access Control and Fine-Grained Data Access Control scheme for supporting dynamic behaviours of users over the cloud platform.

(4) To enhance the complexity by fast decryption technique and outsourcing the pairing computations to the cloud by adding dynamic attributes.

SUMMARY

The access control and security management framework along with effective machine learning would provide guidance information for the cloud customers and administrators to make decisions, for instance,migrating tasks from dynamically allocating resources, suspect nodes to trustworthy nodes and managing the trade-off among the cost of resources and degree of redundancy.

Engineering and Technology

REFERENCES

[1] A. Younis, Y., Kifayat, K., & Merabti, M. (2014). An access control model for cloud computing. Journal of Information Security and Applications, 19(1), 45–60. https://doi.org/10.1016/j.jisa.2014.04.003

[2] Anderson, R. (2010). " Security Engineering – A Guide to Building Dependable Distributed Systems , 2nd edition " by Ross Anderson John Wiley & Sons 2008 What the book is about.

[3] Stobert, E., & Biddle, R.(n.d.). The Password Life Cycle : User Behaviour in Managing Passwords, 243–255.

[4] Sasse, M. A., Brostoff, S., & Weirich, D. (n.d.). Transforming the 'Weakest Link' — a Human/Computer Interaction Approach to Usable and Effective Se, 4–6.

[5] Li, F., Rahulamathavan, Y., Conti, M., & Rajarajan, M. (2015). Robust access control framework for mobile cloud computing network. Computer Communications, 68, 61–72. https://doi.org/10.1016/j.comcom.2015.07.005

[6] Ren, W., Liu, R., Lei, M., & Choo, K.-K. R. (2017). SeGoAC: A tree-based model for self-defined, proxy-enabled and group-oriented access control in mobile cloud computing. Computer Standards & Interfaces, 54, 29–35. https://doi.org/10.1016/j.csi.2016.09.001

[7] Ruan, Y., & Durresi, A. (2019). A trust management framework for clouds. Computer Communications, 144, 124–131. https://doi.org/10.1016/j.comcom.2019.05.018

[8] Thota, C., Sundarasekar, R., Manogaran, G., R, V., & M. K., P. (2018). Centralized Fog Computing Security Platform for IoT and Cloud in Healthcare System (pp. 141–154). https://doi.org/10.4018/978-1-5225-2947-7.ch011

ABOUT THE DEPARTMENT

Engineering and Technology Lab at Tutors India is involved in exploring novel research areas for the challenges faced by today's technology-oriented business or organisation, the market, the economy, finance and sales. The research team explores and identifies troubling questions that exist in scholarly literature, in theory, or in practices that needs deliberate investigation.

ABOUT US

Tutors India, is world's reputed academic guidance provider for have guided more than 4,500 Ph.D. scholars and 10,500 Masters Students across the globe. We support students, research scholars, entrepreneurs, and professionals from various organizations in providing consistently high-quality writing and data analytical services every time. We value every client and make sure their requirements are identified and understood by our specialized professionals and analysts, enriched in experience to deliver technically sound output within the requested timeframe. Writers at Tutors India are best referred as 'Researchers' since every topic they handle unique and challenging. We specialize in handling text and data, i.e., content development and Statistical analysis where the latest statistical applications are exhausted by our expert analysts for determining the outcome of the data analysed. Qualified and experienced researchers including Ph.D. holders, statisticians, and research analysts offer cutting edge research consulting and writing services to meet your business information or academic project requirement. Our expertise has passion towards research and personal assistance as we work closely with you for a very professional and quality output within your stipulated time frame. Our services cover vast areas, and we also support either part or entire research paper/service as per your requirement at competitive prices.

Cell:+91-4448137070
Web:www.tutorsindia.com
Email:info@tutorsindia.com