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Solihin Bin Ahmad Nasser, M.[a] , Attarbashi, Z.S.[a] , Aman, A.H.M.[b] , Abuzaraida, M.A.[c]

Building an Affordable Portable Storage Area Network (SAN) with Raspberry Pi: Design, Implementation, and Performance Evaluation

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[a] International Islamic University, Malaysia, Faculty of Information and Communication Technology, Selangor, Malaysia
[b] Universiti Kebangsaan Malaysia, Faculty of Information Science & Technology, Bangi, 43600, Malaysia
[c] Misurata University, Faculty of Information Technology, Computer Science Department, State of Libya

Abstract
In a digital landscape demanding cost-effective yet robust data storage solutions, Portable Storage Area Network (SAN) became an affordable alternative for data storage systems. A portable SAN system using the Raspberry Pi solution offers personal users the ability to easily expand their storage capacity, improve data organization and management, protect their data, and have a flexible and mobile solution. Users can share any sort of data. This project aims to address the increasing demand for efficient storage solutions by constructing a portable SAN system using the Raspberry Pi's compact size and budget-friendly hardware. The proposed SAN system enhances data organization, expands storage capacity, and offers secure, flexible data access. Targeting individual users and small to medium-sized enterprises, the project covers hardware specifications, intricate design elements, and the seamless integration of OpenMedia Vault, Raspberry Pi OS, and the iSCSI protocol. Performance, stability, and practicality of the SAN solution are visually presented through extensive testing, to prove its potential benefits for diverse storage needs. © 2024 IEEE.

Author Keywords
iSCSI protocol; OpenMedia Vault; Raspberry Pi; Storage Area Network

Index Keywords
Automata theory, Cost effectiveness, Digital storage, Information management; Data organization, Design evaluation, Design performance, ISCSI protocol, Network systems, Openmedium vault, Raspberry pi, Storage area networks, Storage capacity, Storage solutions; Budget control

References

- Shrivastava, A.R., Gadge, J.
  Home server and nas using raspberry PI
  (2017) *2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, pp. 2270-2275.
  Udupi, India

- Mythili, R., Reddy, P.N., Keerthivasan, B., Sooriya, V.
  Encrypted NAS using Raspberry Pi 4
  (2021) *2021 5th International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT)*, pp. 675-680.
  Mysuru, India

- Prasath Kumar, S., Rayavel, P., Anbarasi, N., Renukadevi, B., Maalini, D.
  Raspberry pi based secured cloud data
  (2021) *Journal of Physics: Conference Series*, 1964 (4), p. 42101.

- Lakshay, C.
  (2021) *Live NAS Server with Raspberry Pi*,
  July www. researchgate. net/publication/353482240_Live_NAS_Server_wit h_Raspberry_Pi

- Chawla, L.
  (2021) *Live NAS Server with Raspberry Pi*,
  Unpublished research paper, Department of Electronics and Communication Engineering, University Institute of Engineering, Chandigarh University, India

- Vishwakarma, S., Bagaria, S.
  ISCSI Simulation Study of Storage System

(2008) *ISCSI Simulation Study of Storage System*,
1 Apr.

- Ravi Kumar, G.M.
  Network-Attached Storage: Data Storage Applications
  (2021) *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12 (12), pp. 2385-2396.
  turcomat. org/index. php/turkbilmat/article/view/7830/6182 23 May

- Ritzkal, R.
  Enhancing Data Storage and Access in CSN Labs with Raspberry Pi 3B+ and Open Media Vault NAS
  (2023) *Information Dynamics and Applications*, 2 (2), pp. 13-26.
  24 May library. Acadlore. com/IDA/2023/2/2/IDA_02. 02_02. pdf. Accessed 10 June 2023

- Princy Emima, S., Gerard Joe Nigel, K.
  Implementation of Cloud Server for Real Time Data Storage Using Raspberry Pi
  (2015) *IEEE Xplore*,
  ieeexplore. ieee. org/abstract/document/7453790. Accessed 30 Nov. 2021, 1 Nov.

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