# Implementation of a Private Cloud for Sales Data Management Using Nextcloud at Dvapor Palembang

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## Abstract

The implementation of Nextcloud on Ubuntu provides an effective solution for building a secure and flexible private cloud storage system. As an open-source platform for file storage and collaboration, Nextcloud offers a robust and cost-efficient alternative to commercial cloud services. The implementation process on Ubuntu involves several essential steps, including system preparation, installation of required dependencies, and configuration of Nextcloud along with user access settings. These steps include installing LAMP (Linux, Apache, MySQL, PHP), downloading and installing Nextcloud, and configuring security parameters and access controls. In addition, backup setup and routine maintenance are necessary to ensure data integrity and operational continuity. Through Nextcloud, users can take advantage of features such as file synchronization, file sharing, and online collaboration while retaining full control over stored data. This implementation provides a customizable solution for organizations or individuals, enhancing operational efficiency and data security.

## Keywords

Apache; Linux; MySQL; Nextcloud; Ubuntu

## Article History

Received 29 November 2023
Accepted 21 February 2024

## How to Cite

Hudhuri, A.A. (2024). Implementation of a Private Cloud for Sales Data Management Using Nextcloud at Dvapor Palembang. ***Jurnal Jaringan Komputer dan Keamanan,*** *5*(1), 32-39.

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## Introduction

Rapid technological advancements have fundamentally transformed modern human life, influencing how people communicate, work, learn, and store information. Technology is now deeply integrated into daily activities, enabling tasks to be completed more efficiently and accurately. Among these technological innovations, computer technology plays a critical role as an electronic tool capable of performing complex operations, including receiving input, processing data, and producing meaningful information based on user instructions. Through its ability to store commands and processing outputs, computer systems have become indispensable tools for supporting a wide array of human activities.

In various sectors—education, business, government, and industry—technology, particularly computing, has become a core component in operational processes. Computers facilitate a multitude of tasks, ranging from document creation to data management and large-scale information processing. As digital transformation continues to evolve, the need for efficient and secure data storage systems has become increasingly important. This development, combined with the widespread availability of the internet, has led to the emergence and rapid adoption of cloud storage systems, which offer more flexible and scalable alternatives to traditional local storage solutions.

Cloud storage represents a modern data storage model in which digital files are stored on remote servers that are accessible via the internet. Instead of relying solely on local hardware such as hard drives or physical servers, users upload data to cloud service providers, who are responsible for managing storage capacity, ensuring data availability, and maintaining system security. Through this model, users can access their stored data anytime and from various devices, making cloud storage an essential solution for modern computing needs.

The popularity of cloud storage continues to increase due to its practicality and ease of use. Systems such as Google Drive, OneDrive, and Dropbox offer user-friendly interfaces, cross-device accessibility, and integration with various applications, making data management more efficient. Cloud storage is particularly advantageous in supporting remote work, collaboration, and digital learning. As highlighted by Santiko & Rosidi (2018), cloud-based systems also incorporate strong security mechanisms, especially in private cloud implementations, ensuring that sensitive data remains protected even when accessed across multiple platforms.

One key factor contributing to the widespread adoption of cloud storage is its high level of accessibility. Users can retrieve files from computers, laptops, and smartphones, whether they are at home, in the office, at school, or on the move. Sharing features further simplify collaboration by allowing multiple users to access and edit files simultaneously. This level of accessibility and convenience makes cloud storage a vital tool for personal productivity, organizational workflows, and educational processes.

The concept of cloud storage itself originates from the early innovations in networked computing during the 1960s. ARPANET researchers, most notably Joseph Carl Robnett Licklider, envisioned a future in which computer users could access information from anywhere in the world. This vision evolved through decades of technological progress, including the introduction of floppy disks in 1983, which marked a crucial step in digital storage innovation. Cloud storage gained widespread attention in the early 2000s with the

launch of Amazon Web Services (AWS) in 2000, followed by the emergence of major cloud platforms such as Google Drive, Dropbox, OneDrive, and iCloud between 2005 and 2009. Today, these platforms underpin countless digital systems and services across the globe, shaping the way individuals and organizations manage information in the digital era.

## Methodology

### *Research Methode, and site*

According to Sugiyono (2011), the Research and Development (R&D) method is used to produce specific products and evaluate their effectiveness. This study employs the R&D approach to develop and evaluate a private cloud storage system using Nextcloud. This research was conducted at Dvapor Palembang from June to August 2024.

### *Data collection and analysis*

Data collection methods were conducted to gather information required for system development, as illustrated in the research flow below.

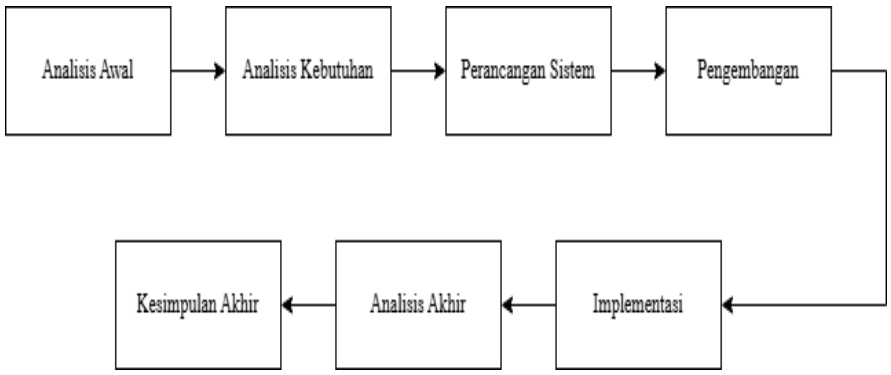



Figure 1. Research Flow

## Results

System design aims to define necessary processes and data for the development of a new system. The goal of system design is to meet user requirements and provide a clear and complete blueprint (Mulyani, 2017). Design refers to the planning of system creation involving various components to produce a system aligned with analytical outcomes (Rianto, 2015).

## Nextcloud Installation

The Nextcloud installation process was performed through several stages. Once the display shown below appears, Nextcloud is ready for use.


Figure 2. Nextcloud Installation

**Public IP Configuration**

Next, the system's public IP was configured to allow external access to the private cloud server.

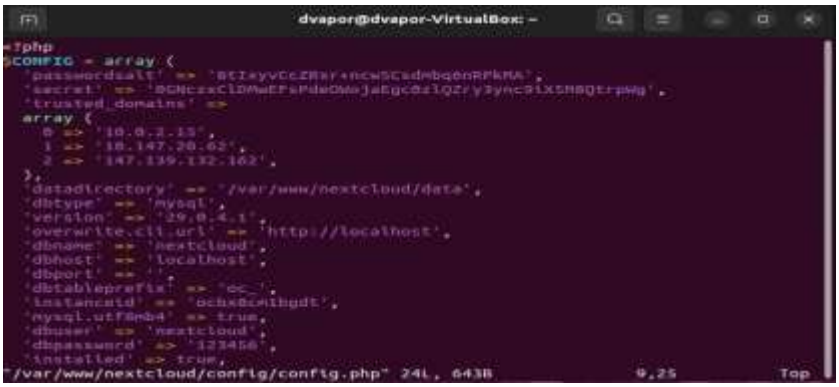



Figure 3. Public IP Configuration.

**System Testing**

System testing was conducted to determine whether the developed cloud storage system functioned according to the design. Several tests were performed as follows.

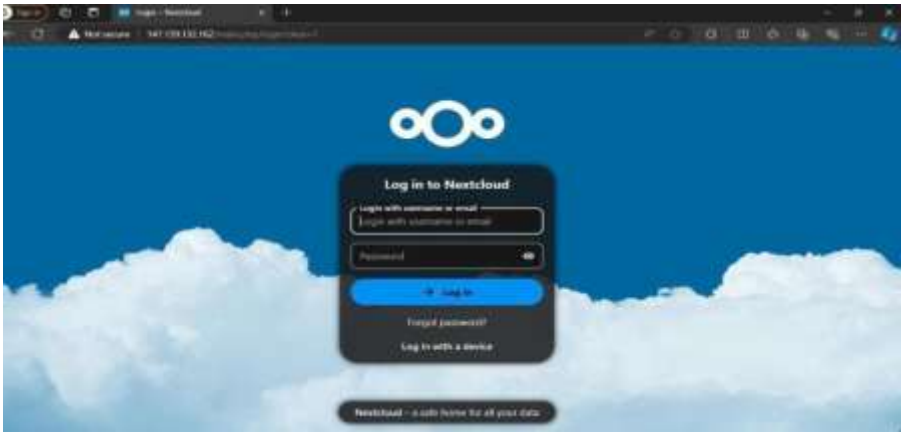
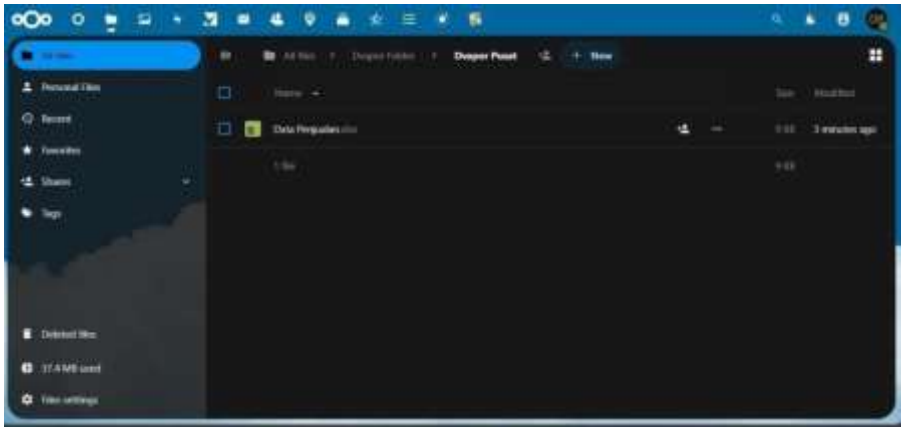



Figure 4. Browser



Testing Figure 5. File Upload

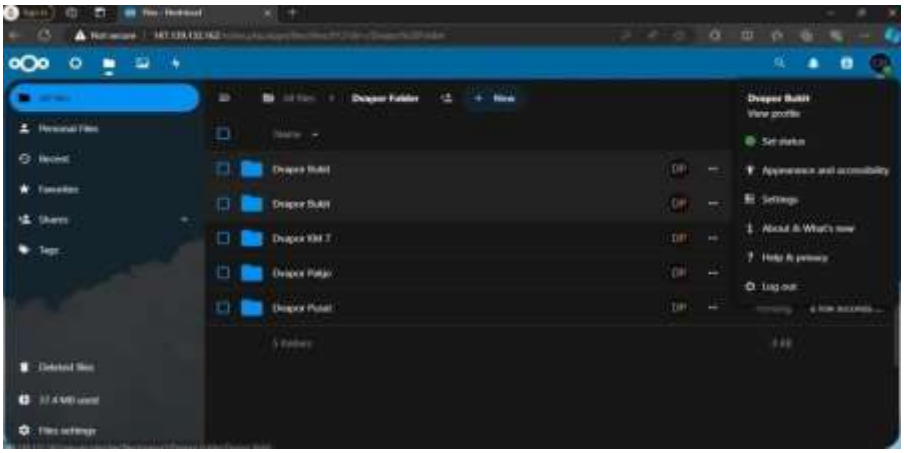


Figure 6. File Sharing

### Functional Testing

Functional testing was conducted to identify whether the private cloud storage system could run properly for users. The test results are presented below.

Table 1. Functional Testing Results

| No | Performed Test | DP1 | DP2 | DP3 | DP4 |
|---|---|---|---|---|---|
| 1 | Nextcloud Login | √ | √ | √ | √ |
| 2 | File Storage | √ | √ | √ | √ |
| 3 | File Sharing | √ | √ | √ | √ |

All branches of Dvapor Palembang successfully logged in and used the private cloud system with their respective created accounts.

### Discussion

The server for the private cloud storage system using Nextcloud was developed using the R&D approach and implemented through VirtualBox. The initial stage involved needs analysis and observation at Dvapor Palembang. VirtualBox was used to create a virtual machine running Linux Ubuntu Server, followed by installing Nextcloud using Apache as the web server and MariaDB as the database.

Functional testing confirmed that users could log in, store data, and share files successfully. However, a limitation was identified: VirtualBox caused significant load on the host system. Because the private cloud server operates on a VirtualBox instance, shutting down the laptop results in discontinuation of the cloud service, making it less effective for continuous real-time operations. This highlights a limitation of using VirtualBox as a server solution.

### Conclusion and Recommendations

Implementation of Nextcloud on the Ubuntu Operating System provides a reliable, secure, and flexible solution for data management. Ubuntu offers a stable environment with extensive support for Nextcloud, making it an excellent choice for both personal and organizational use. Based on the development process of private cloud storage using Nextcloud at Dvapor Palembang, the conclusions are as follows:

1. Users can access Nextcloud anytime and anywhere as long as an internet connection is available.
2. Users can also access the system through a local network.
3. Users have full control over stored data.
4. Nextcloud-based cloud storage enables users to share files easily.
5. The system is built using the Ubuntu Operating System.
6. Cloud storage is more efficient for data management compared to physical storage.

### Disclosure Statement

The authors declare no conflicts of interest regarding this research.

**Acknowledgments**

The authors express appreciation to Dvapor Palembang and Universitas Bina Darma (UBD) for their support and assistance throughout the implementation of this research.

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**Biographical Notes**

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