

Use of a Cloud Computing Based Email Service Platform for Prospective New Students (CMB) at Darunnajah University

Saffanah^{1*}, Euis Siti Nur Azizah²

^{1,2}Faculty of Science and Technology, System and Information Technology, Darunnajah University, Jakarta, Indonesia
Email: ^{1*}samastronaut.thirty@gmail.com, ²euisitinurazizah98@gmail.com

Abstract– Cloud computing has become a fundamental technology in changing the way educational institutions manage and store data in the digital era. The development of information technology has brought significant changes in various aspects of life, including in the world of education. Technology that offers significant flexibility, scalability and cost efficiency, allowing educational institutions to focus without being burdened by complex IT infrastructure requirements. In the world of education, to form individuals with character, educators must have the right and smart methods. As one of the private universities in Jakarta, Darunnajah University always strives to improve the quality of services to the community, including new student registration process services. With various ways that can be done, utilizing a cloud computing-based email platform is one way to manage communication with prospective new students (CMB). Cloud computing has become a superior solution that allows access and management of data more flexibly, safely and efficiently. This research aims to explore the use of cloud computing-based email platforms in the registration process for new students at higher education institutions. This study analyzes how the integration of cloud computing in an email platform can improve various aspects of the new student registration process such as data collection, verification, and communication between departments. Thus, the implementation of cloud computing in an email platform not only simplifies the administrative process but also improves the overall quality of academic and administrative services. This research suggests that more higher education institutions should consider adopting cloud computing technology to increase their operational efficiency and effectiveness in facing the challenges of the digital era.

Keywords: Cloud Computing, Email Services, Infomation, Systems, Technology

1. INTRODUCTION

Cloud computing has emerged as a superior technology that offers flexibility, security, and efficiency in data access and management (Duha et al., 2022). The application of this technology has opened up new opportunities for educational institutions to improve their administrative and academic services, especially in the process of registering prospective new students (CMB). The process of registering prospective new students is a crucial stage in higher education operations which involves various activities such as collecting prospective student data, document verification, and communication between prospective students and the administration. By utilizing cloud technology, email platforms can function not only as a communication tool but also as a centralized and easily accessible data management system. This allows for more efficient data management, increased security, and ease of sharing information between departments, all of which contribute to improving the overall registration process (Yolanda et al., 2023). This study analyzes how the integration of cloud technology in email platforms can improve various aspects of the registration process, such as data collection, verification, and coordination between departments. In addition, this research will also identify factors that influence the adoption of cloud technology in higher education institutions (Riyadi, 2023).

The registration process for Prospective New Students (CMB) is a very important first step for every higher education institution. However, there are several institutes that still use conventional registration systems so that various obstacles often occur such as queues, data input errors, and limited service time (Ridha & Balqis, 2023).

Darunnajah University, which is one of the higher education institutes in the city center in Indonesia, is one of the users that implements a manual system where registration of prospective new students must communicate with the new student admissions staff directly. This of course can result in several obstacles such as less efficient communication because the communication process becomes hampered due to time and distance limitations, then information is not easily accessible, and the lack of a transparent process for accepting prospective new students, all of which of course will has an impact on the quality of registration services at Darunnajah University and can cause inconvenience for prospective students. In the current digital era, information technology has become an integral part which can cover various aspects of life for all levels of society, especially in the education sector (Irawan et al., 2019).

This information technology itself has spread to various branches with their respective growth and developments, including the most popular currently being a cloud computing-based email service platform which can provide benefits in the form of scalability, accessibility, and most importantly, cost efficiency (Pambudi et al., 2019). At Darunnajah University, communication management and administration for prospective new students (CMB) is a quite complex process and can take time, so implementing a cloud computing-based email service platform in the process of admitting prospective new students can be a solution that has the potential to increase efficiency and effectiveness during the process registration is in progress. However, the use of technology such as email service platforms also does not rule out the possibility of encountering various challenges such as data security, limited storage capacity, system integration, incoming and outgoing email management, and the level of digital literacy for users (Marliana, 2022).

With the many obstacles explained from the research results above, one solution that can be implemented is the use of a cloud-based email service platform (Nazli, 2019). With a registration system for prospective new students using an email service connected to the cloud, this platform can provide greater storage capacity, more efficient communication, easier access and management, increased data security guarantee infrastructure, transparency throughout the process, as well as better system integration. better than the previous administration (Panggabean et al., 2023).

The many benefits provided through the implementation of this technology mean that the process of accepting prospective new students at Darunnajah University can be done online and is more flexible (Syarif & Samsuri, 2023). In addition, prospective students' data can be archived more securely in the cloud and access is limited to only a few related parties. With the solution provided, it is hoped that Darunnajah University can maintain the quality of service in the process of admitting prospective new students with efficiency and effectiveness from the communication process to the administrative process which will provide a better experience for prospective students (Asmawati et al., 2019).

This research was carried out for several other main purposes, such as analyzing the efficiency and effectiveness of using cloud-based email services implemented for the CMB registration system at Darunnajah University. By analyzing systems connected to the cloud, researchers can identify problems and challenges during the use of managed email services for the process of accepting prospective new students at Darunnajah University as well as the opportunities provided through this system (Ginanjari & Setiyadi, 2020).

All results from analysis to identification of problems and opportunities will result in an evaluation of the level of security and reliability in storing data as well as the stability of system performance (Sholikatin & Prasetyo, 2020). Thus, the development of a prospective new student registration system (CMB) at Darunnajah University is easier to design because it has gone through the stages of analysis, identification and evaluation which will have an impact on the services provided by Darunnajah University to the community, especially prospective new students (CMB) and will be a useful recommendation in improving the quality of cloud computing-based email service platform management in the process of admitting prospective new students to other higher education institutes (Susanti & Putri, 2020).

By implementing a cloud-based email service platform in the process of accepting (registration) prospective new students (CMB) at Darunnajah University, it is hoped that it can provide security, comfort, efficiency and effectiveness at every stage of the registration process for both prospective new students and the administration (Raseuki, 2024). And it is also hoped that it can provide the best experience as new insights and recommendations for other educational institutes in the operations of accepting (registration) prospective new students by optimizing cloud computing-based technology (Ramsari & Ginanjari, 2022).

2. RESEARCH METHODOLOGY

To obtain comprehensive information regarding the use of cloud computing-based email service platforms for CMB admissions at Darunnajah University (Riana, 2020). The stages in collecting qualitative data are;

2.1 Data collection

a. Observation

Researchers observed or directly observed email platform users to find out what the advantages and disadvantages of using the email platform were to implement with prospective new students at Darunnajah University. This observation aims to understand the context of user use and interaction with the email platform (Febriani & Purwaningtyas, 2022).

b. Interview

In-depth interviews were conducted with lecturers, administrative staff, and prospective new students at Darunnajah University. Questions asked included user experience, ease of use, data security, and impact on productivity. Interviews will be recorded and transcribed for further analysis (Ramadhani et al., 2019).

c. Documentation

Documentation here is data collection by looking directly at the relevant document sources. In other words, documentation is data collection through written or electronic documents. Analyze documents such as usage policies, user guides, and technical reports related to cloud computing-based email platforms. This document will provide additional information regarding implementation and internal regulations. Researchers carry out documentation to support the completeness of other data (Khaliq, 2021).

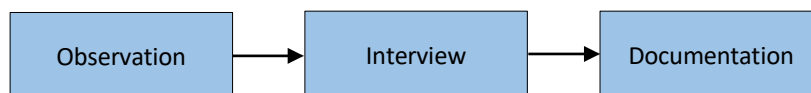


Figure 1. Data Collection Steps

2.2 Activity Diagram

In the context of this research, the activity diagram describes the work flow of managing the process of admitting prospective new students (CMB) at Darunnajah University by utilizing cloud computing-based email service technology. The following is an activity diagram that shows the flow of the process for accepting prospective new students (CMB) at Darunnajah University:

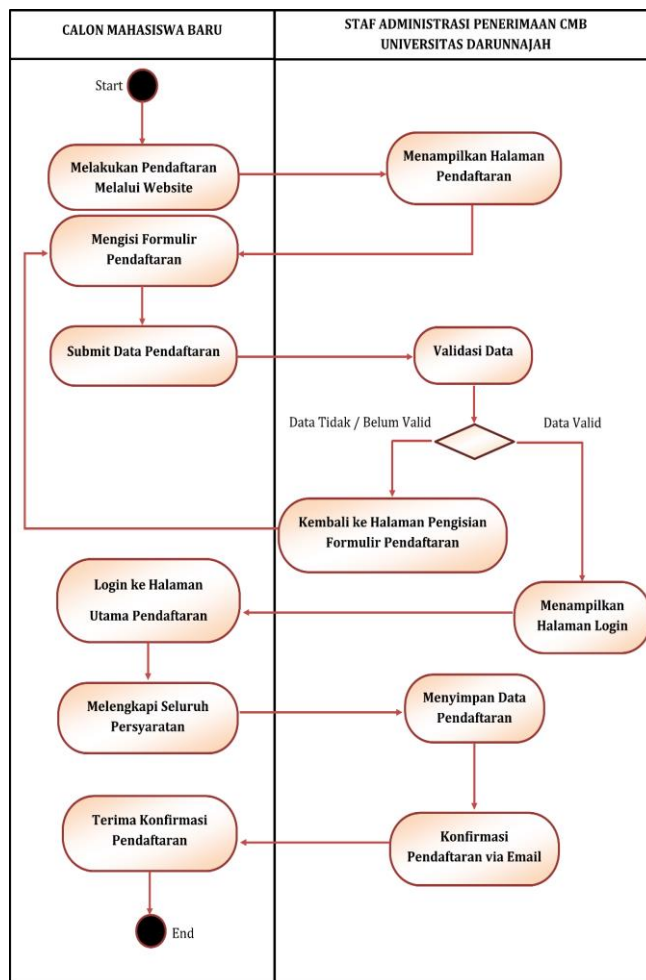


Figure 2. Activity Diagram for Darunnajah University CMB Admissions

The Activity Diagram in Figure 2 shows the work flow during the registration process for prospective new students (CMB) at Darunnajah University. The process starts with prospective new students who want to register at Darunnajah University by accessing the university website to get a link to the registration form, then the CMB admissions administration staff or the system that has been designed for the CMB registration process will display a page where CMB can start filling out the form. that has been provided then submit the form. After registering by completing the data requested on the form, the administrative staff (system) will first verify all the data that has been input to ensure in its entirety whether the data can be said to be valid or whether it is possible that some invalid data may still be found. If data is found that does not meet the validation requirements, there will be a repetition of filling in the form or correction of data that has been previously entered, in other words the page will be returned to the previous form filling for correction. And if the data has been declared valid according to the requirements, CMB can go to the main page to complete several other requirements to complement the CMB data. All registration data that has been filled in will be immediately stored in the cloud. The technology system used in this process is a cloud-based email service platform, after the data is automatically saved to the cloud, the system will send a registration confirmation via CMB email as a form of verification. The email registered by CMB on the form will become a communication channel between administrative staff to CMB Darunnajah University both to convey information, carry out verification, synchronize data, and make it easier for CMB to know the progress of each stage of the admissions process.

3. RESULT AND DISCUSSION

After successfully going through a series of stages and several methods, the research results show that the use of a cloud computing-based email service platform for registration (acceptance) of prospective new students (CMB) at Darunnajah University provides many benefits for Darunnajah University administrative staff and prospective new students.

3.1 Implementation

Prospective new students (CMB) can always access the registration website provided by Darunnajah University 24 hours non-stop anytime and anywhere as long as the internet can reach it. The website provided by Darunnajah University seeks to help prospective new students register and fill out forms online, this is to help with limitations in reaching the university location directly, namely in the center of the Indonesian economy, namely Jakarta, to register directly. All data entered will also be saved automatically because the system used by Darunnajah University in the process of accepting prospective new students is a cloud-based email service. The following is an example of the stages of the registration process for prospective new students which can be accessed via the Darunnajah University website:

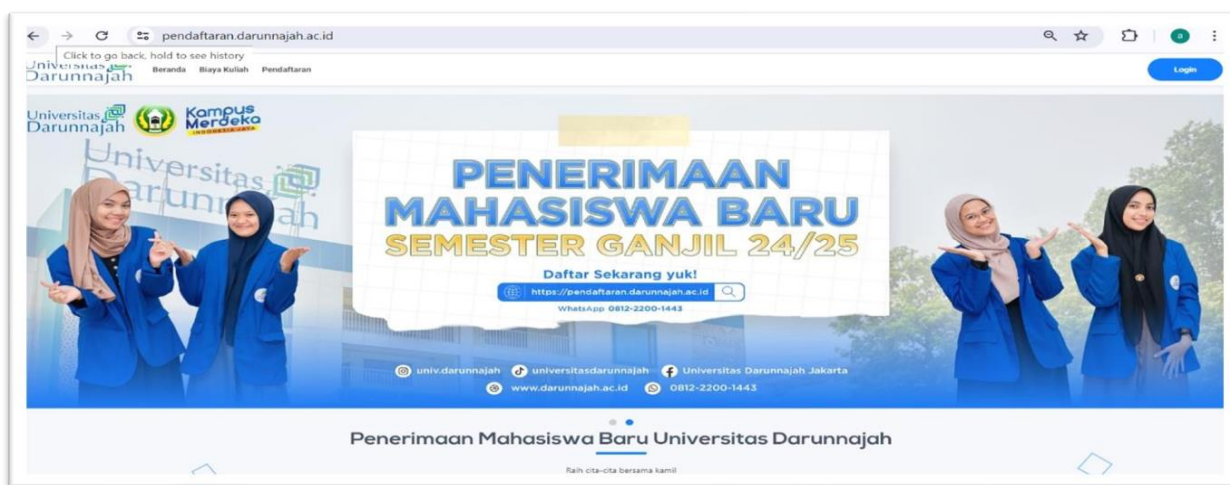


Figure 3. Display of The Darunnajah University Registration Website

Figure 3 To reach more deeply about Darunnajah University, especially in terms of new student registration, visiting the university website is the most important first step or stage to access various information related to Darunnajah University. On the first page of this registration website there are several items that can be easily accessed by anyone, including: tuition fees, registration link (the most important), WhatsApp contacts as the information center for new student admission services, and several official social media belonging to Darunnajah University which are listed at the bottom of the screen. With the registration link provided by Darunnajah University on the home page of the website, this can make it easier for anyone to register in stages, in other words the display on the start page of this registration website is user-friendly which makes the registration process easier and can provide the best experience for prospective new students who want to register.

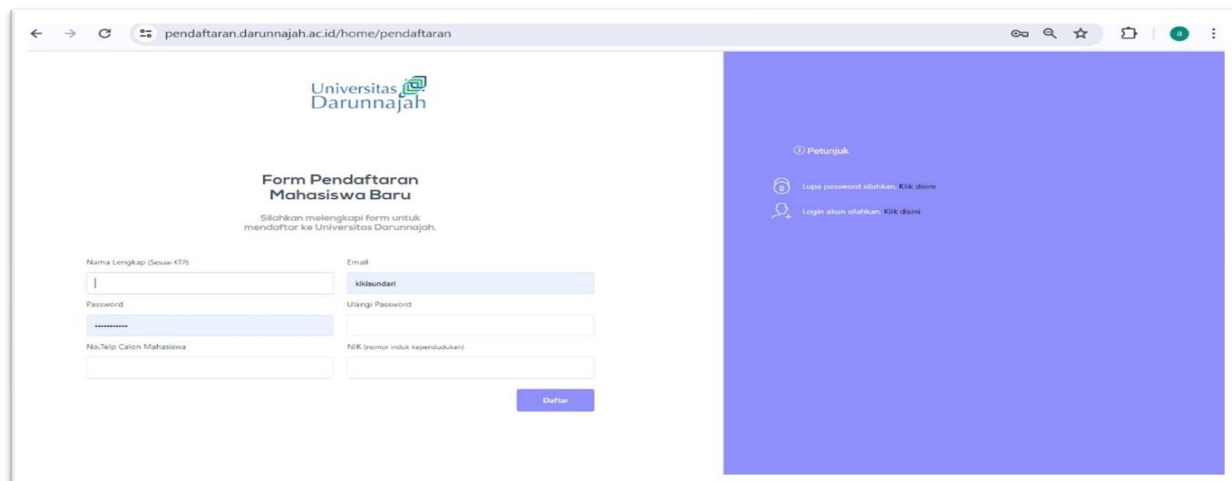


Figure 4. Display of the New Student Registration Form

Figure 4 the page shown indicates that CMB can immediately fill out the form by inputting data accurately and precisely because the input data will be saved automatically to cloud storage, and data input is expected to go through a careful process because data validation will be checked by the system shortly after CMB Fill in all the requested data and continue by clicking the purple button that says "Register" which means the data will immediately be checked by the system. If the data input process experiences an error or is unsuccessful, it is possible that an error occurred in inputting the data, so it is hoped that CMB will recheck all data that has been previously input and can try again. However, if the data input process successfully meets the validation requirements, CMB can immediately enter their respective profiles to fulfill other requirements.

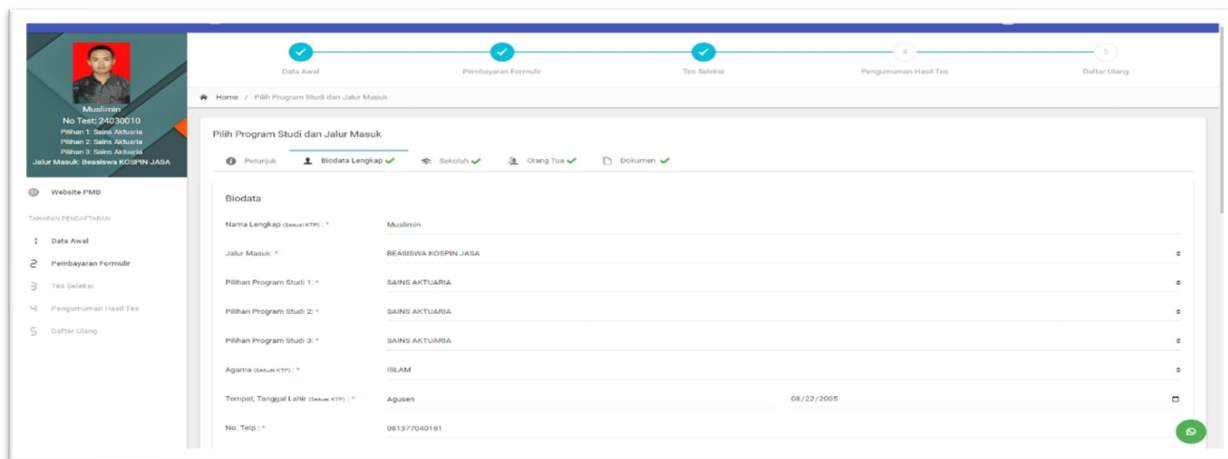


Figure 5. CMB Biodata Display and Several Other Requirements

Figure 5 registration on the home page of the website displays several mandatory data that must be filled in before continuing the registration process. Meanwhile, filling in all CMB personal data can be done directly on their respective websites, provided that the data input has previously gone through a validation and verification process. So to return to this page, CMB simply needs to enter via the Sign Up page, no longer by accessing the registration form page. The system used in the registration process for prospective new students at Darunnajah University is cloud computing-based email service technology. So, all data, information and progress at each stage of the process will be communicated via the email that was registered at the start.



Figure 6. CMB Academic Potential Test Schedule

Figure 6 is the flow of the academic potential test schedule process displayed by the system and the test schedule will be delivered to applicants who will then carry out an academic potential test in Darunnajah University CMB admissions.

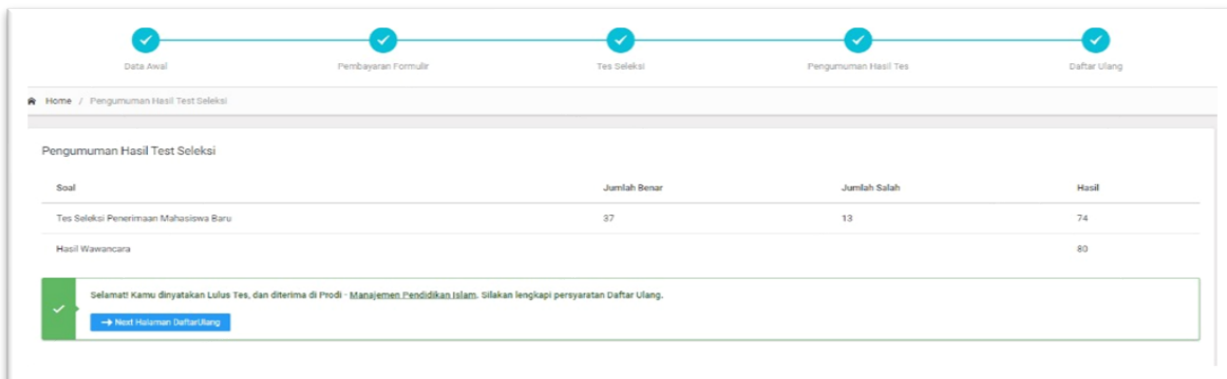


Figure 7. Selection Test Results

Figure 7 is the results of the academic selection test displayed by the system and the results of the academic selection test will be conveyed in Darunnajah University CMB admissions.

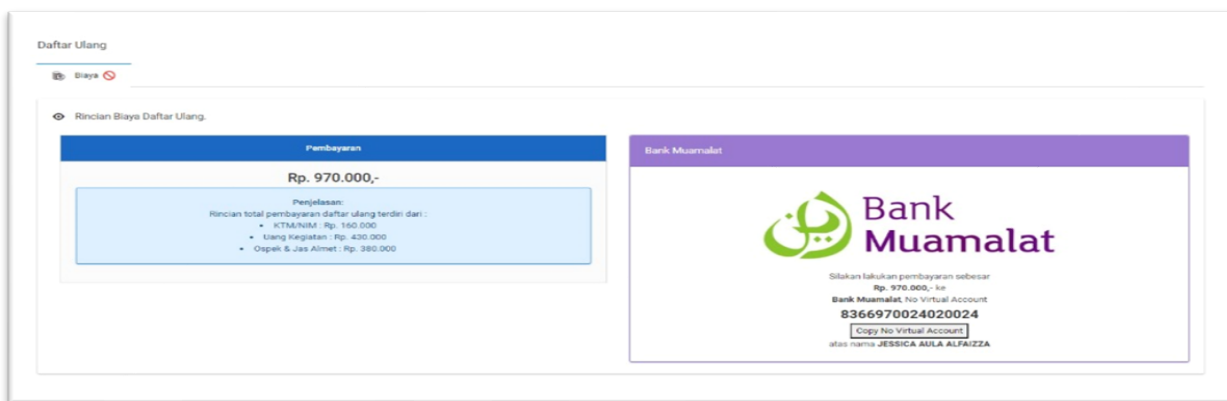


Figure 8. Payment Bill

Figure 8 is an academic payment bill that is displayed by the system and the amount that must be paid will be conveyed along with the bank invoice receipt when accepting CMB at Darunnajah University

No	No Test	Nama	Email	JK	No.Telp/HP	No.Telp ORTU	NamaSekolah	Pengabdian	Tahun Lulus Sekolah	Jalur Masuk	Pilihan 1
1	XXX001	bangsate	XXXXXXXX@telvetto.com	Laki-laki	0812XXXX		SMA NEGERI 2 SEBULU		2011	Reguler Pagi	Bisnis Digital
2	XXX004	Nida Nadhifah	XXXXXXXX@gmail.com	Perempuan	0851XXXX		PKBM EDUKASI JAKARTA		2022	Reguler Pagi	Pendidikan Guru Madrasah Ibtidaiyah
3	XXX003	Agus Marsono	XXXXXXXX3@gmail.com	Laki-laki	0895XXXXXX		MAN 1 PONOROGO		1999	Kelas Karyawan	Manajemen Pendidikan Islam

Figure 9. Some CMB data that has gone through a cloud-based email verification process

Figure 9 is some CMB data displayed by the system that has registered for Darunnajah University CMB admission.

3.2 Discussion

The use of technology with a cloud computing-based email service platform in the registration and acceptance process for prospective new students at Darunnajah University has proven to provide many benefits and helps improve the quality of the registration process when compared to the previous process, namely the conventional system. From the results obtained there is further discussion regarding the technology system with a cloud computing-based email service platform which was adapted to carry out the Darunnajah University CMB registration and acceptance process, the following is the discussion:

a. Process Efficiency

The operational system used in the registration and acceptance process for prospective new students at Darunnajah University with the integration of a cloud computing-based email service platform makes each stage of the process much more efficient and faster, thus helping CMB to be able to carry out the process from a distance that is not binding and in unlimited time. CMB no longer needs to worry about long queues to register, just access the website and be assisted by the contact person provided as long as it is accessible via the internet. This is to save time, energy and costs while providing comfort for every CMB. From an administrative perspective, CMB Darunnajah University admissions staff can also work more efficiently because all data registered directly will be organized in the cloud and can be accessed easily. The verification and communication process between CMB admissions administration staff and applicants has also become more coordinated.

b. Data Security

This is one of the main advantages of using cloud-based email services because data security is guaranteed [13]. By inputting the requested data on the form and other complete biodata, it will be stored directly in the cloud so that it is protected from the risk of loss, damage and data leakage. This is because cloud services provide security features such as data encryption, user authentication, and strict access control rights. Data security is the most important aspect in storing large amounts of data, in the context of this research it refers to the CMB registration process at Darunnajah University. Bearing in mind that this data contains sensitive personal information such as identity numbers, addresses, and so on. Using an email service platform is an advantage for minimizing these risks.

c. Scalability and Flexibility

The cloud-based email service used in the CMB admission process at Darunnajah University provides the advantages of scalability and flexibility [14] when the number of CMBs increases every year. By increasing the number of CMBs, the capacity of computing and storage services can be easily handled according to needs without additional large infrastructure investments [15]. Flexibility is also being able to access and manage all CMB data anytime – anywhere as long as it is still accessible by the internet. This capability gives the CMB admissions administration staff at Darunnajah University the freedom to work remotely or from different locations.

d. Communication Integration

The CMB registration system at Darunnajah University integrates with cloud-based email services with the availability of more regular communication facilities between related parties in each registration process. CMB admissions administration staff can also easily share data information with colleagues or certain staff who have authority over access to data information in the cloud. Apart from that, communication with CMBs will also be more organized with automatic notifications that will be sent to each CMB's email, so that CMBs can also receive the latest information regarding their registration process in a timely manner.

e. Cost Optimization

The use of email services in the process of accepting registration for prospective new students (CMB) at Darunnajah University requires subscription fees to be incurred because the system is connected to the cloud, but implementing this system can help in saving costs compared to having to build a large local IT infrastructure and add maintenance costs. Overall, using cloud-based email services in this process can optimize resources and incur costs only according to the needs used (pay-as-you-go).

f. Development Opportunities

Further advantages related to this research focus on the implementation of a cloud computing-based email service platform in the process of accepting registration for prospective new students (CMB) at Darunnajah University. The results obtained from the research show that there is an opportunity to develop further information by utilizing cloud computing at Darunnajah University. For example, the system that has been designed has been developed to be more advanced.

4. CONCLUSION

This research produces solutions to problems in CMB email management operations such as limited storage capacity, disorganized incoming and outgoing emails, and data security that can be solved with an email service platform based on cloud computing. The implementation of this system has proven effective in improving the quality of CMB email management at Darunnajah University. Overall, this research is sufficient to provide knowledge and insight regarding the advantages provided by technology systems using cloud computing-based email service platforms at higher education institutes that focus on the CMB admission process. It is hoped that further research will be conducted to obtain in-depth information about the use of cloud computing-based email service platforms in the upcoming registration process for prospective new students (CMB).

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