THE INFLUENCE OF THE INDONESIAN ARMY INFORMATION SYSTEM ARRANGEMENT CONCEPT IN REALIZING ONE INTEGRATED, FAST, AND SECURE DATA

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Abstract

Bureaucratic Reform (RB) based on Presidential Decree Number 81 of 2010 concerning the Grand Design of Bureaucratic Reform 2010-2025 in practice must be carried out by all Ministries/Institutions/Dinas/Institutions (K/L/D/I) in an innovative, creative and monitored manner institutional. The government also then issued Presidential Regulation Number 39 of 2019 concerning Data Management. Indonesia's One Data Policy (SDI) is expected to be a strategy for improving data governance to produce data that is accurate, up-to-date, integrated and accountable so that it can become the foundation for determining effective and appropriate policies. Indonesia's One Data Policy (SDI) is expected to be a strategy for improving management data to produce accurate, timely, integrated and accountable data which forms the basis for the creation of effective and targeted policies. The TNI AD Data Center is an Indonesian military facility that contains electronic systems and related components to be used and used for the placement, storage and processing of data in support of the Indonesian military information system. Data center facility infrastructure includes four aspects. First, infrastructure that guarantees the continuity of business processes when something critical and dangerous occurs in the data center. Internalization of RB, SPBE, and realizing SDI within the TNI AD institution must be realized through the arrangement of the Information System in order to further support the implementation of the Main Tasks of the TNI AD. The TNI AD needs to conceptually manage the data center, data processing architecture, network centralization, human resources, software and organizational management.

Keywords: Information Systems, TNI AD, Infrastructure, Data Center, SPBE.

INTRODUCTION

Bureaucratic Reform (RB) based on Presidential Decree Number 81 of 2010 concerning the Grand Design of Bureaucratic Reform 2010-2025 in practice must be carried out by all Ministries/Institutions/Dinas/Institutions (K/L/D/I) in an innovative, creative and monitored manner institutional.

This ensures that all steps are carried out correctly, goals are achieved as planned and deviations are immediately caught and corrected. Breakthrough opportunities are increasingly supported by advances in information and communication technology (ICT) through e-government (SPBE) (Yuhefizar, 2018) or e-governance which promotes and implements open,

participatory, innovative and accountable governance (Azka, 2022). The government also then issued Presidential Regulation Number 39 of 2019 concerning Data Management. Indonesia's One Data Policy (SDI) (Soegiono, 2018) aims to become a strategy for improving data management to provide accurate, timely, integrated and accountable data (Wibowo, 2021) so that it can become the basis for making effective and targeted policies.

Policy. (SDI) One Data Indonesia is very important to support the implementation of development because it provides sector specific information, and statistical information and spatial information. For this reason, synergy is needed between K/L/D/I, between the center and the regions in the implementation of One Data Indonesia (SDI).

The TNI AD has carried out steps to strengthen eight areas of RB so that RB goals can be achieved immediately (Putra, 2015). Likewise, the implementation of monitoring and evaluation of the implementation of RB within the TNI AD, which was carried out by the Kadisinfolahtad as the Head of Monitoring and Evaluation of the RB TNI AD, has been carried out optimally. However, of course there needs to be an arrangement for the TNI AD information system and technology to improve monitoring and evaluation results (Lesmana, 2018), so that it can present valid, accountable and fast report data.

Currently, the TNI AD Information System is not maximized because it is still partial and has not been integrated between networks at the center (Mabesad) and in the regions (Kotama and Balakpus), so it is very difficult to get accountable data in a short time because some parts have incomplete data. Different (Rismanto, 2020).

At least, there are five fundamental problems in realizing one TNI AD data, namely those related to Data Center infrastructure, data processing application architecture, HR, and Software/systems and methods, and organization. There needs to be a conception of structuring the Information System within the TNI AD in the context of implementing RB, implementing SPBE, and realizing one data that is integrated, valid, quickly presented, and secure in data exchange within the TNI AD (Hafied, 2022).

LITERATURE REVIEW

SPBE definition

SPBE stands for Electronic Based Government System, Electronic Based Government System (SPBE) is a government agency that uses information and communication technology to provide services to SPBE users (Ibrahim, 2020).

This is stated in Presidential Regulation Number 95 of 2018 concerning Electronic Government Systems. The goal of SPBE is to administer clean, efficient, transparent and accountable government as well as quality and reliable public services. There is also a national need for e-government management and administration to enhance the integration and efficiency of e-government systems. (Saputra, 2020).

SPBE is not just the use of applications or information systems in daily government operations. In addition, SPBE covers various fields including management, technology, and information

and services. Within the scope of government, the scope of SPBE includes the SPBE master plan, business processes, SPBE budget and spending, as well as electronic data and information.

In the realm of technology and information, SPBE includes the provision of integrated data centers, government internal networks, state administration interconnection systems, SPBE service applications, and government information security. The SPBE service area includes electronic public administration services and electronic public administration services (taqiya, 2020).

The information and communication technology (ICT) revolution has opened opportunities for the government to renew the development of the state apparatus through the introduction of an electronic government system (SPBE) or electronic administration, apparatus, business actors, communities and other units.

SPBE provides an opportunity to promote and implement open, inclusive, innovative and accountable governance, increase cooperation between government agencies in implementing government affairs and tasks to achieve common goals, improve the quality and reach of public services to the wider community and reduce the level of abuse of power in the form of collusion, corruption and nepotism through the introduction of electronic controls and public complaint systems (Septiani, 2022).

The government understands the important role of SPBE in supporting all areas of development. The government has attempted to encourage the implementation of SPBE by enacting sector-specific laws and regulations that require the implementation of an information system or SPBE. (awaludin, 2019).

Definition of Bureaucratic Reform

Bureaucratic reform is one of the government's efforts to realize good governance and carry out fundamental reforms and changes in the state administration system, especially those related to institutional (organizational) aspects, management and equipment as well as human resources. An efficient and functioning administrative system was provided through bureaucratic reform. Bureaucratic reform is the backbone of changes in the life of the nation and state (Akny, 2014).

Definition of Data Center

A data center, or better known as a data center, is a room specifically designed to store data, business information, and company computer servers connected to the Internet. Data centers are often referred to as a single object, but in fact data centers consist of many technical elements such as switches, routers, switches, servers, security devices, storage systems and application delivery controllers (Yulianti, 2008).

Definition of Infrastructure

Infrastructure is all basic structures and facilities, both physical and social, such as buildings, electricity networks, irrigation, roads, bridges and other facilities needed for the functional

functioning of society and the economy. Physical and social infrastructure can be defined as the basic physical requirements for an organizational structure system, such as: Essential services and facilities required for the economic operation of the public sector and the private sector.

Network structures such as facilities, railroads, clean water, airports, canals, reservoirs, embankments, waste disposal, electricity, telecommunications, work ports, supporting infrastructure not only facilitate but also facilitate the smooth running of the community's economic activities. For example, by supporting the flow of production of goods and distribution of services, roads can facilitate the transportation of raw materials to factories and their subsequent distribution in markets to reach the public.

In many respects, the term infrastructure includes social infrastructure in the form of basic needs, including roads to schools and hospitals. In the military context, the term can also refer to permanent buildings and facilities that support operations and missions (Sukwika, 2018).

Definition of Information Systems

In general, the concept of an information system is something that provides information to management through a combination of people, technology, and organized processes to enable it to make decisions or act and carry out activities. Information systems can also be interpreted as a combination of technologies that support operations and management.

The system is an important tool needed by a company or agency. Because with an integrated system, company or agency operations become more detailed and systematic. However, to get a positive effect from using the system, all elements involved must work together to achieve the goals set (Sudjiman, 2018).

METHODS

The research method used in this journal is a literature study or literature review research method (Darmalaksana, 2020). Studying literature can be interpreted as activities related to library information collection methods, reading and storing research materials, and processing (Ulfah, 2022).

RESULT AND DISCUSSION

Development of TNI AD Data Center Infrastructure

The TNI AD Data Center is a facility owned by the TNI AD which contains electronic systems and related components that are used to search, store and process data in support of the TNI AD Data System. (Susetyo, 2022).

Data center facility infrastructure includes four aspects (Asali, 2017). First, infrastructure that guarantees the continuity of business processes when a critical and dangerous thing or condition occurs to the data center. This includes standard positioning or placement locations, space quantification, laying-out space and data center installations, necessary electronic systems, development of scalable network infrastructure, construction of cooling and fire

protection systems. (Utomo, 2018). Second, Data Center Security Infrastructure, which includes physical and non-physical data center security systems. Physical security system features include user access to the data center in the form of room access tokens (access cards or biometrics) and security guards monitoring the data center space (both inside and outside).

Can also be applied to specific infrastructure by locking it with a specific padlock. Non-physical protection is applied to software or system components running on the device, including the installation of various security software such as access control lists, firewalls, IDS and IDS hosts, layer 2 security (data link layer) and layer 3 (network layer) and features and security management.

Third, Application Optimization. Layer 4 (transport layer) and layer 5 (session layer) Will be related to application optimization to increase the response time or loading of a server. The lowest end-to-end layer between source and destination applications is layer 4, this layer provides end-to-end flow control, end-to-end error detection and correction, and provides additional congestion control.

Meanwhile, the layer that provides dialogue rituals (who has turns to speak/send data), token management (who has access to shared resources) and data synchronization (last status before the link breaks) is layer 5. Various related issues include load balancing, SSL caching and termination aims to optimize the performance of applications on the system.

Fourth, IP Infrastructure (internet protocol). The main service or feature contained in the data center (data center) is the IP Infrastructure (internet protocol). Layer 2 and layer 3 are layers that provide IP (internet protocol) infrastructure services. A layer 2 issue to consider is the relationship between the domain server and the service device that enables media access and supports centralization that is reliable, loopless, predictable, and scalable.

Meanwhile, at Layer 3, issues related to enabling rapid convergence of routed networks (eg support for default gateways). There is also an additional service called Smart Network Services which includes functionality that enables application services across the web. The most common features are QoS (Quality of Services), multicast (allows to handle multiple users at the same time), private LAN, and policy-based routing.

Fifth, Storage (Storage). Related to everything about storage infrastructure (Storage). Problems or cases that need to be discussed include SAN architecture, fiber channel switching, replication, backup and data archiving (Rozikin, 2021).

Arrangement of Data Processing Application Architecture

Application architecture is the overall design plan of the application system and its supporting infrastructure that is able to meet business needs or business support that is embedded in the application. The application architecture serves as a blueprint for the application system and forms the basis for all application design guidelines, which include goal setting, strategy development, division of tasks and their implementation by each work environment unit.

When implementing application architecture planning, guidelines are needed to ensure that the implementation is targeted and standardized. These guidelines consist of main guidelines and implementation guidelines or often referred to as standardization (Alrizkie, 2022). To understand more about the Main Information System Data Processing Architecture, see Figure 1 in the attachment.
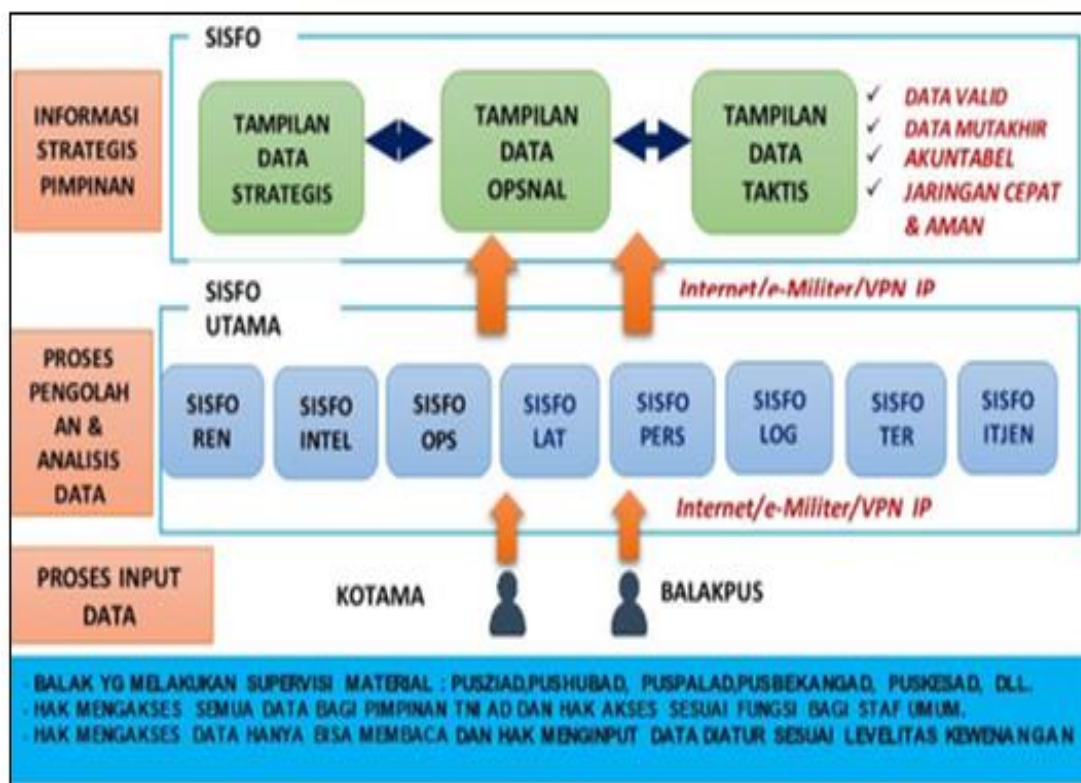

Figure 1: Main Information System Data Processing Architecture

A centralized (centralized) network is a network of information systems controlled by a central authority that makes decisions on behalf of the entire network. Centralized network architectures are usually built around a single server (or set of servers) that handles all the main processing of the network (Prakasa, 2019).

The central server has an application that controls the network (Husna, 2021). These servers usually have large computing resources, storage space, and other powerful features. Other, less powerful computers can connect to the central server and send requests, which the powerful central server can do.

Large services such as social media, message boards and search engines often use centralized servers. Integrated, fast and secure Sisfo TNI AD data communication network (Jarkomta) conception is a centralized network. This conception is visualized in figure 2 in the attachment.
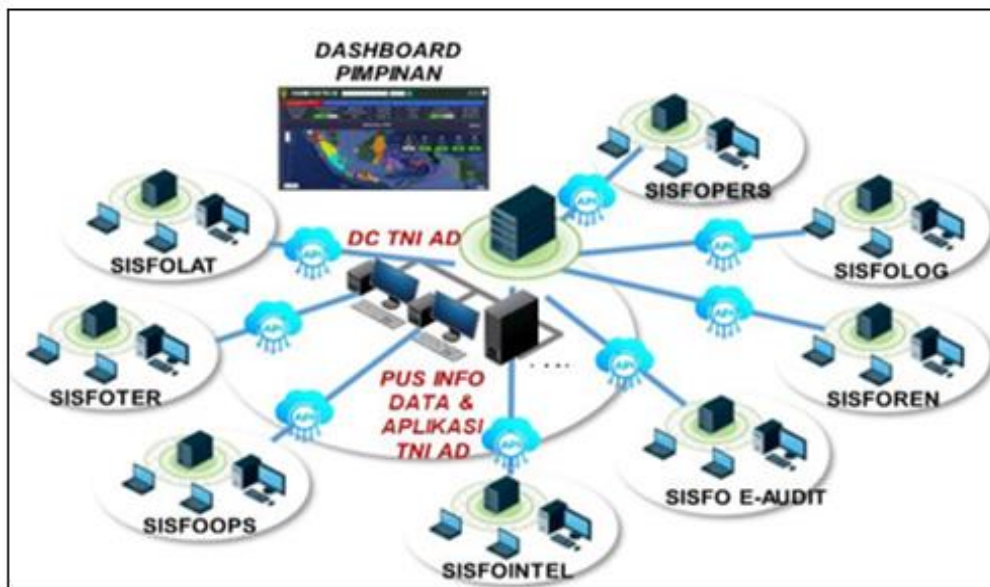
Figure 2: Main Information System Centralized Data Communication Network Topology

One of the weaknesses of a centralized network is that it is very vulnerable to data and information security problems (Amarudin, 2019). More hacker attacks will occur on centralized networks than decentralized networks because the effect of the attack will have a greater quality impact (Fadhillah, 2022). To secure a centralized network, a concept like Figure 3 is offered in the attachment.
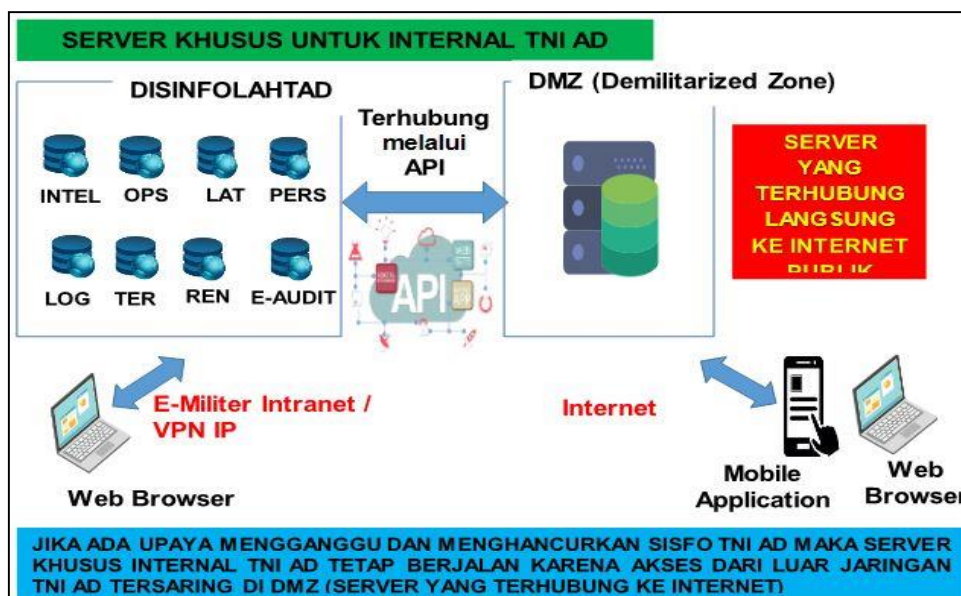
Figure 3: Special Server for Internal TNI AD

Arrangement of Human Resources Systems and Information Technology of the Indonesian Army

Even though it is recognized as a valuable asset, the management of the TNI AD's HR Information System still leaves problems in the aspects of quantity and quality. From the recruitment activities for prospective enlisted officers, non-commissioned officers and officers, to obtain adequate quality and quantity, this can be done in several ways even with the same general requirements, namely having talent in the field of Information Systems (Siagian, 2021).

In recruiting enlisted candidates, focus on fulfilling personnel for technical tasks, such as servicing tools, repairs or workshops, and installing tools. To find out the amount needed, Spersad can carry out coordination with Pushubad, Disinfolahtad, Pussensiad, Dispenad, and other Balakpus related to Information Systems and Technology.

For Bintara candidates, the focus is on fulfilling personnel for duties as operators and task leaders at the team/team level who operate Info System equipment. To get a Bintara candidate with the required qualifications, there needs to be a special recruitment/werving as was done by the TNI AD Personnel Staff through Caba Talenta werving but now it is no longer ongoing. Meanwhile, for officer candidates, the focus is on fulfilling personnel for duties as Danton and Paur in charge of ICT, Programmer Officers, and others.

In terms of increasing the ability of Information Systems, it is necessary to carry out coaching to maintain and improve the knowledge and skills possessed. There are several methods that can be carried out, namely through (a) Specialization development education at the Non-commissioned Officer and Officer level, training in units, upgrading, workshops, apprenticeships and Technical Guidance to Info System operators, (b) Participating in Seminars, Focus Group Discussions (FGD) and educational scholarships at tertiary institutions, (c) A linear career pattern for non-commissioned officers serving at the Disinfolahtad and Infolahta Kotama/Balakpus, (d) There is a definitive position for the information system operator of the Indonesian Armed Forces up to the Battalion/Detachment and Kodim levels.

Software Setup

Identification, synchronization, and integration of ICT Software (Penak) is a must considering that there are several agencies/stakeholders related to the development and development of Information Systems within the TNI AD. Regarding the integration and interoperability of Info Systems within the TNI AD, it is necessary to identify the applicable software and synchronize it, although it is not easy because it is related to the stratification and quantity (amount) of Penak made by each stakeholder. The concept offered is the establishment of a special Working Group to identify, synchronize and integrate ICT software consisting of Srenaad, Pushubad, Disinfolahtad, Pussansiad, and Puskodalad.

Srenaad has the authority to compile and revise Penak related to Info Systems at the policy level regarding the general policy of Info System development which consists of 13 Info System administration developments, informatics resources, supervision, control and analysis and evaluation of Info Systems in accordance with the provisions of the implementation of

doctrine within the TNI AD. Disinfolahtad compiles and revises Penak related to technical Information System development; and Pushubad to compile and revise software related to the use and provision of data communication networks to support the implementation of Info System development within the Indonesian Army.

Furthermore, Pussansiad compiles and revises the software regarding security technical policies related to the development of Information Systems within the TNI AD, while Users have the authority to compile and revise the regular procedures for the use of Info Systems in accordance with the classification of the fields of discussion of Info Systems that are used. Within the TNI AD.

Organizational Arrangement

Presidential Decree No. 39/2019 states that data trustees are units in central agencies and regional agencies that carry out activities of collecting, checking and managing data submitted by data producers and disseminating data. The data guardian within the TNI AD is the Disinfolahta TNI AD. To maximize this role, the Disinfolahtad organization must be well organized at the central level (Madisinfolahtad) and at the Kotama level (Infolahtadam) so that it is able to support the implementation of the main tasks.

At the central level, the structuring concept offered is sharpening the implementation of the main functions by adding implementing units that are directly under the Kadisinfolahtad. Among them, (a) Head of Data Center (Kapusdata), responsible for organizing activities in the field of data operations, (b) Head of Information System Material Maintenance Workshop (Kabengharmatsisfo), responsible for organizing activities in the field of workshop and maintenance of Matsisfo, and (c) Kagudbekmatsisfo, is responsible for organizing activities in the field of warehousing and supply of Matsisfo.

Meanwhile, the organizational arrangement at the regional level (Kotama), where there are the addition of two implementing elements in the context of sharpening the main tasks and functions of Infolahtadam. The two elements are (a) the Head of Field Provision and Maintenance Team (Katim Bekharlap) who is responsible for organizing activities in the field of maintenance administration and (b). Katim Multimedia, is responsible for organizing activities in the field of maintenance administration.

Concept of Data Center Security (Physical Security)

The location of the TNI AD data center is outside the earthquake path. The first thing that must be considered is the location where the Data Center is located. The selected location should have minimal risk from various security threats, for example natural disasters such as earthquakes, floods, fires and tornadoes, to various threats such as terrorism and vandalism. It would be better to build a Data Center that is separate from the head office. In addition, several things that can be considered are not building Data Centers near airports, gas pipelines, chemical factories, public gathering centers, and also the center of power plants. Not only that, pay attention to the facilities you use. Make sure it has adequate facilities such as sufficient electric power.

Building construction. After discussing the location of the building, now what should be considered next is the construction of the building. The building for the Data Center must have good and sufficient air circulation. Several things in this aspect that must be considered are room ventilation, temperature, use of air conditioning or air conditioning, all of which must be planned carefully and properly. It would also be better if you use buildings that are earthquake resistant and non-flammable. In addition, as much as possible separate the administrative room from the server and data room. The standard air conditioner that can be used is TIA-942 which uses a cable arrangement that is placed under the floor of the room. The door is also an important aspect as well. Build limited entrances and fire doors as much as possible only function as exits. Security around the building. For security aspects around the Data Center building, it would be better if the environment around the Data Center building is an empty field. A good data center building is about 10 meters away from other buildings or trees and other plants. The goal is to facilitate supervision of the Data Center building. In addition, try to always keep a good eye on the walls and walls around the building. At a minimum, you must use a surveillance camera or CCTV to facilitate surveillance around the Data Center. Choosing a surveillance camera is not arbitrary. Try to choose a surveillance camera that is sensitive to low light and can withstand a variety of weather and temperatures. Apart from that, it is also necessary to be able to make some views around the Data Center building such as making parks and trees. This is intended so that the existence of the Data Center is hidden and does not attract the attention of people passing around it and protects it from the dangers of prying eyes. This will make the existence of the Data Center building more secure.

Concept of Data Center Security (Non Physical / Cyber Security)

Access Control List / ACL is an access control list that contains permissions and data where the user will be given permission. If the data already has permission, it can only be accessed by a number of users who have been granted access and of course have been controlled by the access control. In this case, an administrator is needed to secure information and regulate the rights to what information can be accessed and when this information can be accessed. In simple terms, ACL is a security standard. The way ACL itself works is that it always reads each list sequentially or sequentially from top to bottom. When there is a data packet ACL will read and compare every list that has been created. If it finds suitable conditions, the package will follow the existing rules in the Access List. However, if the packet does not find the appropriate conditions, the packet cannot get access. The most common and easiest to understand use is doing unwanted packet filtering when you implement security policies, such as setting up an Access Control List to make very specific decisions about traffic patterns so that only certain hosts can access these resources, whereas the others were rejected. Access lists can also be used in other situations, which do not necessarily involve packet rejection, such as controlling which networks will or will not declare dynamic routing protocols by configuring the access lists in the same way as before where the application is made to routing protocols rather than to interfaces. In addition, we can also use this ACL to categorize packets or queues or QOS services and control the type of name data traffic that will activate an ISDN link. The ACL statement is basically a packet filter, where packets will be compared, categorized and taken action on the packets sent. The lists that have been created are then applied to both inbound

and outbound traffic on any interface. By implementing ACLs, the router will be able to analyze each specific direction packet that passes through that interface and take appropriate action.

A firewall is a system or device that allows network traffic that is considered safe to pass through and prevents unsafe network traffic. Generally, a firewall is implemented on a dedicated machine, which runs as a gateway between the local network and other networks. Firewalls are also generally used to control access to anyone who has access to a private network from outsiders. Currently, the term firewall is a generic term that refers to a system that manages communication between two different networks.

Virtual Private Network (VPN) is a communication technology that allows you to connect to a public network and use it to join a local network. In this way, we will get the same rights and settings as in the LAN itself, even though we are actually using a public network. From a network perspective, one of the problems of the internet network (public IP) is not having good security support. Meanwhile, from the company's point of view, IP is a basic requirement for exchanging data between branch offices or with company partners. A VPN emerged to solve this problem. A corporate network that uses IP infrastructure to connect with its branch offices by means of private addressing by securing the transmission of data packets.

CONCLUSIONS

Internalization of RB, SPBE, and realizing SDI within the TNI AD institution must be realized through the arrangement of the Information System in order to further support the implementation of the Main Tasks of the TNI AD. The TNI AD needs to conceptually manage the data center, data processing architecture, network centralization, human resources, software and organizational management. The goal is to build an ideal data center from the aspect of infrastructure and high technology (Tier 4), integrate the Sisfo TNI AD application which can be shared by stakeholders, is safe, and is able to become a reference for leaders in making decisions, centralizes the network so that it is integrated, fast and safe, and has superior human resources in terms of quantity and quality obtained from recruitment, educational development and career development. In addition, the identification, synchronization and integration of Software by related agencies/stakeholders and the addition of implementation elements in the organizational structure at the central level (Disinfolahtad) as well as at the Kotama and Balakpus levels.

As a follow-up, it is necessary to revitalize the TNI AD data center so that it is able to process and share data and information within the TNI AD quickly and safely. Integration of the data processing architecture was also carried out to facilitate data integration and data interoperability with related stakeholders in the framework of achieving one TNI AD and SDI data and integration and modernization of the data processing network (Jarkomta) was carried out so that it could reach all TNI AD units that input data. Finally, increasing the quality and quantity of Info System human resources through special recruitment (talent) at the enlisted, non-commissioned officer and officer levels.

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