

Republic of the Philippines  
CENTRAL LUZON STATE UNIVERSITY  
COLLEGE OF ENGINEERING  
Department of Information Technology

**SAFE DEPARTURE: ANALYZING DEPARTMENT OF LABOR AND EMPLOYMENT VULNERABILITY  
IN NETWORK AND INFORMATION SECURITY**

Callo, Jhopiter  
Juego, Camille  
Mariano, Raniel

In partial fulfillment of the requirements in INTECH 3100 –  
Fundamentals of Information and Network Security

September 20, 2024

## I.Introduction

As the world continue to evolve, the complexity of our digital infrastructure evolves too. Countries across the globe are interconnected through the use of internet, making a lot of people rely in digital ways of doing things. Network and Information security is an essential aspect government should look upon now that we are in the digitalized era where data is more essential than oil (The Economist, 2017) and information is more important than money. The goodness of the internet that drives economic growth can lead to the other side of the growth which are cyber threats, that's why it is important that the government understand how essential to enhance cyber security to protect sensitive data and to maintain the integrity of information systems.

Philippines continue to advance its technology that is why the need for a tight network and information security is very important. The rapid digitalization driven by the internet, mobile technology, and ecommerce makes the Philippines arise huge concern in cybersecurity. There have been tremendous cyber-attacks in the Philippines targeting financial industry since most of the Filipinos love convenience that they still stick to online banking and trust in their security of personal data despite of all the cyber-attacks (Manila Bulletin, 2024). Philippines is still far in achieving a more

secure world in this digital era as it is rank 53rd based on United Nations Global Security Index of 2024 (Iglesias, 2024).

One of the crucial government organizations that needed a tight network and information security is the Department of Labor and Employment (DOLE) where sensitive information is there including wage information, employment records, personal details of millions of Filipino workers, both domestic and abroad that if compromised it can lead to malicious activity like identity theft, financial fraud, and more. In year 2010 have been an attack in Department of Labor and Employment (DOLE) that made the organization strengthen their firewalls to ensure that it will never happen again (GMA, 2010) but just like how the technology evolve, the hackers are also evolving along with it. Recently, there was another news again about the Department of Labor and Employment (DOLE) regarding cyber-attack that led to disruptions in issuing Overseas Employment Certificate s (OEC) and it has been stated that there are approximately 1,800 domestic Filipino workers affected bound for Hongkong (Dimsum Daily, 2024). Furthermore, if the hackers successfully stolen information in DOLE, cyber attackers could potentially exploit stolen information to target job seekers knowing that Filipinos are easy to be hooked in job opportunities online cause by desperation to find

a job, cyber criminals even sold basic information data for 10 dollars in the dark web (Abadilla, 2022).

This paper will tackle the problems and solutions that the Department of Labor and Employment (DOLE) are facing in network and information security, highlighting the challenges and propose different methods that can be effective to strengthen its defense against

cyberthreats. Enhancing network and information security in DOLE is not just about protecting data but more of ensuring the safety and security of Filipino workers in this digital world.

## **II.Organization Overview**

The Department of Labor and Employment (DOLE) is a government body charged with promoting workers' welfare and guaranteeing fair labor practices in the workplace. Its key responsibilities include

developing labor policies, enforcing labor laws, and providing services that improve job possibilities. Given its large operations and sensitive data, DOLE must prioritize network and information security to secure both its staff and the citizens it serves.

## **III.Problem/Challenges**

Cybercrimes in the Philippines is taken lightly as for my observation, it is not something every Filipino is interested in not unless they experience it themselves, losing money because of fake job offerings, fake money maker apps, fake scholarships, and a

lot more. Though the rise of cybercrime cases is evident in the first quarter of the year (Caliwan, 2024) there's still no concrete plan to solve and strengthen the network and information security no matter what organization it is. The main problem of cybercrime in the Philippines is that it is not a center of attention, it is not taken seriously until something big happens.

Many government organizations like Department of Labor and Employment are an organization that needed attention when it comes to network and information security, using outdated system in organizing data is not secured, as these outdated systems are prone to cyberattacks that's why it is important to do system updates to ensure that it is secure to use it, cyber threats will not stop until the very end, there will always be cyber threats as long as people are using digital devices. As the technology evolve, ways of committing cybercrimes will evolve as well.

Multiple authentication is one of the factor set aside for the reason that the system the organization is trying to protect is not funds but if its about funds everyone will be interested. Using multiple authentication isn't only for funds, data can turn into funds

#### **IV.Solution**

To address the ongoing cyber threats to the Department of Labor and Employment, it is crucial to develop strategies that will enhance the network and information security. The Philippines National Security Plan (NCSP) for 2023 up to 2028 includes enhancing infrastructure like GovNet that protect national and local government agencies through Intrusion detection and prevention system

when sold. A lot of people overlook the importance of data, the importance of the data privacy in the Department of Labor and Employment that if exploited will cause a real big problem affecting not only the general public but also the branches of the government.

In addition, lack of trainings for the organization staffs are also one of the problems, no matter how good the system is if the one using the system is not properly trained and not well aware about the things at stakes if they made a mistake it will all be useless. If the staffs aren't mentally prepared when cyber attacks happens not knowing what to do, all the system updates will be set aside. Proper training for basic awareness on what to do should be included in training the government staffs, for sensitive information is at stake.

(IDS/IPS)securing routing protocols aiming to strengthen Philippines overall security with its real-time detection of suspicious patterns beyond simple signature-based detection, establishing a National Computer Emergency Response Team (NCERT)that will focus on response and investigation, other plans included are to create database for list of threats and their weaknesses, create partnerships with Private

Sector Entities (PTEs) to mitigate threats and manage network segments (Digwatch, 2024).

Though the plans of Philippines National Security Plan (NCSP) for 2023 up to 2028 may secure the network and information security at some point, having to start from the bottom of the problems may have higher chance to be effective. Starting with conducting risk assessments of the current cybersecurity system of the Department of Labor and Employment (DOLE), evaluating all aspects of network infrastructure and access control mechanism before establishing an upgraded version of the system. After generating upgraded system based on the identified weaknesses of the old version of the system, the organization can put up an IT personnel to observe how the upgraded system take effect, potential weaknesses of the system to observe, and other functionalities to include for a more reliant system.

We are on the digital age now where prevention is better than cure in terms of sensitive information (Godugula, 2022) the continues verification of the user can add up to strengthen the cybersecurity of Department of Labor and Employment (DOLE), trusting no one is better than losing the trust of Filipino workers. Just like Gcash application, its way of securing funds can be incorporated into the system where authentications are tight, one account for one phone made it more secure. Things will be at

place if the government not only focus on the network and information security of the financial organization but to also include other organizations like the Department of Labor and Employment, for it is not always about money but also about the harm it can cause to normal people if data breach happen. Breaking down network into smaller segments may help the Department of Labor and Employment (DOLE) avoid huge case of data breach if it were to happen. Dividing network into smaller isolated segments can ensure that when cyberattack happen the smaller segments will only be affected. Using biometrics authentication can be incorporated as well for additional security, multiple types of authentications just to avoid cyberattack is better than considering endless complaints of people about the multiple authentications when it is for their own sake.

Moreover, the cyberattacks aren't only because of the system itself but also the people handling the system. To upgrade the overall security of the Department of Labor and Employment (DOLE) the organization should also focus on mandatory training for its staffs emphasizing different cybercrimes, how to securely handle data, the pattern of seeing when something is a potential threat, and upgrading the training depending on the latest factors to look at. The system cannot handle the security itself that's why training is essential to keep up with different cyber threats.

## **V. Outcomes**

The investigation of DOLE's weaknesses in network and information security will produce various significant outcomes, including the following:

To discover some vulnerabilities, a thorough examination will disclose particular flaws in current security processes, such as obsolete software, insufficient access controls, and potential threats in third-party services.

To create measures to solve identified weaknesses, such as improving employee training, implementing advanced security technologies, and conducting frequent security audits.

To develop policy recommendations for strengthening DOLE's cybersecurity framework, guaranteeing regulatory compliance, and improving incident response strategies.

To increase employee awareness and training programs in order to promote a security culture and reduce the chance of data breaches caused by human error.

To provide a long-term network and information security framework that can adapt to changing threats and incorporates best practices from industry standards.

## **VI. Conclusion**

The Department of Labor and Employment (DOLE) plays a vital role in the government just like the other organizations existing. It can be a prime target of cyber

attacks if not taken seriously, the vulnerabilities it has can cause a lot of problems in the future if set aside, from outdated systems, to insufficient trainings of the staffs, small cyber attacks can eventually become big when the cyber criminals realize the importance of data in Department of Labor and Employment (DOLE), significant risks may occur as consequence of not taking this issue seriously. Identity theft, fraud, and disruption of services that can cause problems to Filipino workers. To be dependent on the digital devices and what can it can do should not cover the fact that as long as it is digital it is not purely safe.

By implementing a more secure environment through security measures such as segmenting networks, using multiple authentication, ensuring that the system is regularly updated, and enhancing the Department of Labor and Employment (DOLE) staffs by establishing mandatory trainings, DOLE can become safe environment of data and services. Looking at every aspects of securing network and information with the help of private sectors.

In conclusion, the journey of DOLE to become an organization of safely handling sensitive information isn't just about

technological advancement but more of a cultural shift towards awareness that the organization's responsibility does not end in collecting data but ensuring that those data will be safe. The implementation of the solution suggested in this paper can be incorporated to any organization to protect not only the data itself but the millions of Filipino workers entrusting their privacy to the Department of Labor and Employment.

## **VII. Recommendation**

To Government Officials, take action on the cyberattacks happening in the Philippines, more than the physical attack in west Philippine sea cyber attacks can bring down economy if not take action of. Implement a more secure systems for all the organizations, regularly update systems, and

promote public awareness campaign about cyber security risk.

To Department of Labor and Employment Staff (DOLE), regular participation on the suggested trainings to stay updated on basic cyber practices to ensure the network and information security, considering using strong passwords for each every one of the staffs and to always stay vigilant against sudden cyber threats.

To Digital Users, practice regular cyber security habit like using strong passwords, being careful about clicking random links, to be cautious in sharing personal information online and to not always trust on the systems of security. Update the system of digital devices for a latest feature that will be more secure to use.

## VIII. Reference

[https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data?fbclid=IwY2xjawFZPfxleHRuA2FlbQlxMAABHTgpT3qxK0leKQLDRffbHoIntF9CSWXPUIQx7QNA75WDKYnNyzBQw7\\_QAw\\_aem\\_QxMp3e\\_5Q5vxJ9OR2Qpy-g](https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data?fbclid=IwY2xjawFZPfxleHRuA2FlbQlxMAABHTgpT3qxK0leKQLDRffbHoIntF9CSWXPUIQx7QNA75WDKYnNyzBQw7_QAw_aem_QxMp3e_5Q5vxJ9OR2Qpy-g)

[https://malaya.com.ph/news\\_business/ph-moves-up-to-53rd-in-cybersecurity-ranking/](https://malaya.com.ph/news_business/ph-moves-up-to-53rd-in-cybersecurity-ranking/)

<https://mb.com.ph/2024/09/17/cyber-threats-continue-to-plague-philippine-financial-institutions>

[https://www.gmanetwork.com/news/topstories/nation/181180/dole-beefs-up-website-security-after-hack-attack/story/?fbclid=IwY2xjawFZPIJleHRuA2FlbQlxMAABHTgpT3qxK0leKQLDRffbHoIntF9CSWXPUIQx7QNA75WDKYnNyzBQw7\\_QAw\\_aem\\_QxMp3e\\_5Q5vxJ9OR2Qpy-g](https://www.gmanetwork.com/news/topstories/nation/181180/dole-beefs-up-website-security-after-hack-attack/story/?fbclid=IwY2xjawFZPIJleHRuA2FlbQlxMAABHTgpT3qxK0leKQLDRffbHoIntF9CSWXPUIQx7QNA75WDKYnNyzBQw7_QAw_aem_QxMp3e_5Q5vxJ9OR2Qpy-g)

<https://www.dimsumdaily.hk/cyber-attack-on-philippine-labour-department-disrupts->

[issuance-of-overseas-employment-certificates-affects-1800-workers/](https://www.pna.gov.ph/articles/1222307?fbclid=IwY2xjawFZPxdleHRuA2FlbQlxMAABHeN0N4XnGWOqg-mQGK1tAPy3AY8Rww0CeCS2x2aUrSufbRr7KHixf4X_xA_aem_BhTKFuOqGHI5birVYPihbw)

<https://mb.com.ph/2022/05/30/cybercriminals-continue-preying-on-filipino-job-seekers-report/>

<https://dig.watch/resource/philippines-national-cybersecurity-plan-ncsp-2023-2028>

[https://www.linkedin.com/pulse/data-breach-part-1-prevention-better-than-cure-harshavardhan-godugula?fbclid=IwY2xjawFZPwFleHRuA2FlbQlxMAABHQ07s1m0yzXUSITNM0ALIE6n1qV05AqFTBAeb6KDiJZFnx4fVl6o3Yw\\_aem\\_LPCH6TnudKVGWSzZB\\_Wg1A](https://www.linkedin.com/pulse/data-breach-part-1-prevention-better-than-cure-harshavardhan-godugula?fbclid=IwY2xjawFZPwFleHRuA2FlbQlxMAABHQ07s1m0yzXUSITNM0ALIE6n1qV05AqFTBAeb6KDiJZFnx4fVl6o3Yw_aem_LPCH6TnudKVGWSzZB_Wg1A)

[https://www.pna.gov.ph/articles/1222307?fbclid=IwY2xjawFZPxdleHRuA2FlbQlxMAABHeN0N4XnGWOqg-mQGK1tAPy3AY8Rww0CeCS2x2aUrSufbRr7KHixf4X\\_xA\\_aem\\_BhTKFuOqGHI5birVYPihbw](https://www.pna.gov.ph/articles/1222307?fbclid=IwY2xjawFZPxdleHRuA2FlbQlxMAABHeN0N4XnGWOqg-mQGK1tAPy3AY8Rww0CeCS2x2aUrSufbRr7KHixf4X_xA_aem_BhTKFuOqGHI5birVYPihbw)