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Republika ng Pilipinas
Kagawaran ng Edukasyon
Tanggapan ng Pangalawang Kalihim

AIDE MEMOIRE
7 September 2020

**PUBLIC EDUCATION NETWORK
(PEN)**

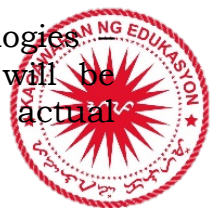
The Department of Education (DepEd,) in collaboration with the Department of Information and Communications Technology (DICT) and the National Transmission Corporation (TransCo), will establish the Public Education Network (PEN) to address the problems of connecting schools to the internet.

The PEN is in line with the President's directive to both Agencies announced during his State of the Nation Address last 27 July 2020 to connect all schools and DepEd Offices nationwide. This also includes the prioritization of "Last Mile Schools" by providing them access to electricity and internet.

The PEN started two (2) years ago, when the connectivity program of the DepEd was initiated. It was continuously developed until the final framework was finalized with the collaboration from DICT and TransCo.

The PEN, as illustrated in the figure below, includes the following major components:

- 1) A redundant **Core Network** that will house all the Education Systems;
- 2) A **Wide Area Network (WAN)** that will connect schools to the Core Network and allow them to access Education Systems without the need for internet bandwidth;
- 3) A **Customer Premise Equipment (CPE)** in each school that will establish a Virtual Private Network (VPN);
- 4) A **Virtual Private Network (VPN)** to secure network traffic;
- 5) A **Caching Device** in each school that will improve the responsiveness of systems;
- 6) A **High Speed Internet** connection from all available technologies broadband, digital, transmission lines, fiber, etc. - that will be distributed by the Core Network to schools based on actual consumption requirements; and



Office of the Undersecretary for Administration (OUA)

[Administrative Service (AS), Information and Communications Technology Service (ICTS), Disaster Risk Reduction and Management Service (DRMMS), Bureau of Learner Support Services (BLSS), Baguio Teachers Camp (BTC), Central Security & Safety Office (CSSO)]

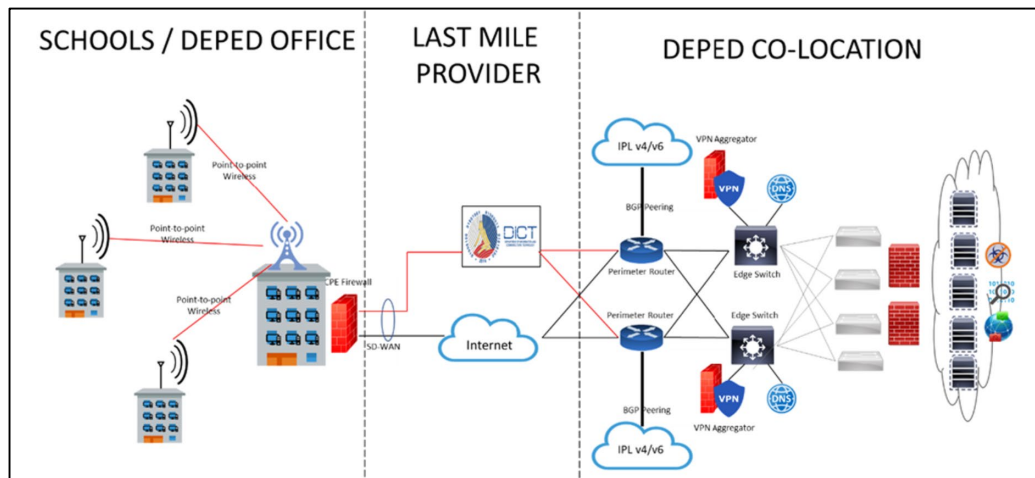
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- 7) The **School Network**, a set of networking equipment that will be needed to connect all classrooms to the internet.



The PEN has six phases that will take three years to implement. As announced by the President, the PEN will be completed before his term ends on June 30, 2022.

Phase I of the project is already ongoing with the establishment of a Core Network in Subic. DepEd opted to co-locate its core network in a private data center that has the manpower and infrastructure to ensure high availability and reliability of services. Subic was chosen over other sites in Luzon because of its proximity to DICT facilities as well as availability of land, air and sea access that would facilitate moving in and out of the area should a disaster occur.

Phase II is currently being procured to connect 3,332 remote schools to the Core Network and the internet through satellite technologies.

Phase III will connect 21,306 schools that currently have no internet through cable, powerlines, and wireless technologies.

Phase IV will cover 22,645 existing schools that already have internet and gradually phase out these connections in favor of the PEN.

Phase V of the project will establish another Core Network in Visayas and Mindanao to ensure redundancy and optimize network traffic by confining it to a geographic area.

Phase VI will cover the internal network of the schools that will connect all classrooms and make education technology accessible to all learners.

Phases II to IV are concerted efforts by DepEd, DICT and TransCo, through the **Project Lightning**, to establish the wide area network, connect the Core



Network to a high-speed internet connection, install CPEs that will secure the connection of schools and install caching devices that will improve the performance of systems. It will also include the **co-location of telecommunications infrastructure in public schools** to accelerate the establishment the PEN. As such, all DepEd-DICT proposed Memoranda of Agreements (MOAs) and others with the private sector are needed to be finalized.

Project Lightning involves the provision of high speed internet connection thru transmission lines. DepEd schools and offices are the top priorities in the implementation of this project. The project has already started its **Proofs of Concept (POCs)** in the Philippines at the following areas:

Baguio City – on August 27, 2020, the project was presented to Baguio City LGU. All DepEd schools and offices in the city are the priority targets of the POC, which is expected to light up anytime in September 2020; and

Davao City – on September 21, 2020, the project will be presented to members of the Cabinet and Davao City LGU. All DepEd schools and offices in the city are the priority targets of the POC, which is expected to light up in a month's time after presentation.



The PEN will result in the following advantages to the education system:

- Allow teachers and learners to **access the DepEd Commons and LR Portal which contain teacher guides, Open Educational Resources (OER), Video/Audio Lectures and electronic Self Learning Modules (e-SLM)** that are mapped against the curriculum. These materials will allow teachers to move away from relying on manila paper for visual aids into using e-learning resources that have rich graphics and interactive components.
- Allow teachers and learners to **access the DepEd Learning Management System (LMS)** that will facilitate blended learning and allow teachers to create tests with PISA like questions that will potentially improve the ranking of the country in next PISA exam. The LMS will also facilitate distance learning making the education system more resilient to disasters like the COVID-19 pandemic and typhoons which normally results in the suspension of classes that rely only on face to face modalities.
- Allow schools to **access the DepEd Enterprise Resource Planning System (DERPS)** that automates organizational processes such as asset management, HR transactions, payroll, procurement, and project monitoring.
- Complement **TV and Radio Based Education** by allowing learners to use a Netflix-like application that will access video and audio lectures on demand.



- Allow the Department to conduct **large scale teacher trainings** with minimal costs as demonstrated by DepEd when it trained 337,486 public school teachers on distance learning modalities in just a span of 2 months during community quarantine. The said trainings would have reached more teachers in the same period time if the internet penetration was more widespread.
- Substantially **reduce the cost of internet connection** by allowing teachers and learners to access educational systems that are housed in the Core Network through the wide area network without the need for internet bandwidth. Video conferencing can operate within the same network and commonly accessed websites can be cached to substantially reduce the need for network traffic to go out of the wide area network and access internet. Additionally, high speed internet can be bought at bulk, bringing down costs by connecting it only to the core network which will distribute internet to the schools based on actual consumption.
- **Allow security management to be centralized and ensure that teachers and learners will be safe from cyber-attacks and harmful websites.** It will also allow schools that are used as precincts to send election results through a VPN that is secure and protected from external attackers.
- Provide a **centralized view of the entire network allowing DepEd** to automatically identify disconnections even without feedback from the schools and thus make the appropriate response to reconnect the disconnected schools.

The Public Education Network is a collaborative project between DepEd and DICT that will modernize the education system and make Filipino graduates more competitive in the international market. It is an investment that is needed to respond to the growing challenges of a world that has grown more unpredictable and uncertain. It will build the foundation for the next generation of Filipino leaders.

ALAIN DEL B. PASCUA
 Undersecretary



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