

Passive Optical Network User Authentication



Overview

TL;DR: In this article, a passive optical network terminal authentication and authorization system is described, which consists of a registration unit, an authentication unit, and a service configuration unit, where the registration unit reports the discovery information. TL;DR: In this article, a passive optical network terminal authentication and authorization system is described, which consists of a registration unit, an authentication unit, and a service configuration unit, where the registration unit reports the discovery information. The invention provides a method for authenticating the identity of optical network units (ONUs) in a gigabit passive optical network (GPON) system. The GPON system comprises an optical line terminal (OLT) and a plurality of the ONUs connected with the OLT, a physical operation management and. Passive Optical Networks (PON) is a promising solution of FTTH the passive splitting of optical signals in PON gives flexibility, low cost ness. Especially, Ethernet PON (EPON) is a solution considered by 802. In this use, a PON. In the context of increasing demand for secure and efficient communication networks, addressing the issue of mutual authentication in ethernet passive optical networks (EPONs) has become both valuable and practically significant.



Article Content

May 30, 2026

Multiaccess in Ethernet Passive Optical Networks (EPON)

What is Passive Optical Network (PON)? Passive Optical Network (PON) implements a point-to-multipoint fiber-based access architecture Passive fiber splitters are used to split a single optical fiber

Dec 09, 2025

What is PON? Passive Optical Networks Explained Global

Summary: What is PON and why should you care? A passive optical network (PON) is a shared, fiber optic access network that uses unpowered optical splitters to connect many users to a

May 21, 2026

What is A Passive Optical Network (PON)?

Passive Optical Network On the other hand, a PON delivers fast internet speeds to users and uses a single strand of optical fiber to connect a

May 25, 2026

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The invention provides a method for authenticating the identity of optical network units (ONUs) in a gigabit passive optical network (GPON) system.

Nov 26, 2025

Design of authentication and key exchange protocol in ethernet

In this paper, we analyze general and EPON-specific threats and propose an authentication and key exchange protocol based on the public key mechanism. We design the

Aug 03, 2025

Passive optical network terminal authentication and authorization ...

The invention discloses a passive optical network terminal authentication and authorization system, and a method thereof.

Nov 21, 2025

Gigabyte Passive Optical Network (GPON)

GPON (Gigabit Passive Optical Network) is a prominent technology for delivering broadband services, especially in fiber-to-the-home (FTTH) deployments. Like all network infrastructures, ensuring

Oct 24, 2025

What is Passive Optical Network (PON)? Everything

Passive Optical Local Area Network, or POL for short, is a novel PON-based LAN networking solution. Using fiber optic and P2MP, POL can carry

Apr 12, 2026

Introduction to Passive Optical Network

Introduction to Passive Optical Network A passive optical network (PON) or Gigabit Passive Optical Network (GPON) is a point-to-multipoint (P2MP) network that uses a combination of active

Aug 25, 2025

A Guide to Passive Optical Networking | Morefield

Maximize your network efficiency and performance. Learn about the power of Passive Optical Networking (PON) with our comprehensive expert guide.

Feb 23, 2026

Pragmatic Authentication Technique in Fiber Optical Networks

The Passive Optical Network (PON) is recognized as a crucial facilitator of broadband optical access networks globally. The enhanced bandwidth demand has led to generational upgrades in PON

Jan 30, 2026

Passive Optical Networks (PON): Components and

Conclusion Passive Optical Networks (PON) are key to enabling the high-speed, high-bandwidth, and efficient network connections that our

Oct 17, 2025

Passive optical network

A passive optical network (PON) is a fiber-optic telecommunications network that uses only unpowered devices to carry signals, as opposed to electronic equipment.

May 09, 2026

New Security Improvements in Next-Generation Passive

Passive optical networks are currently the most promising solution for access networks. These networks rely on broadcast signal distribution in the

Nov 22, 2025

Ethernet Passive Mutual Authentication Scheme on

In this paper, we have presented an ethernet passive optical network (EPON) mutual authentication scheme based on ideal lattices. The scheme

Jan 18, 2026

Enhanced authentication technology based on deep neural network in

Abstract To solve the problem of device identity security management in Passive Optical Networks (PON), this study proposes an enhanced authentication technique based on Deep Neural

Aug 01, 2025

What is a passive optical network

What's a passive optical network (PON)? A passive optical network (PON) is a fibre optic network that uses passive (unpowered) optical splitters to

Dec 03, 2025

What Are Passive Optical Networks (PON) and How Do

Passive optical networks use fiber and unpowered splitters to deliver fast, reliable internet from providers to multiple users efficiently.

Mar 22, 2026

An efficient and secure authentication scheme based on NTRU for

Ten gigabit ethernet passive optical network (10G EPON), which is viewed by many as an attractive solution to deliver very high-speed broadband access, is widely deployed in some data

Sep 19, 2025

Design of Authentication and Key Exchange Protocol Ethernet

User authentication and ONU authentication are performed separately for efficient key management and strong authentication service. We design efficient key exchange protocol using derived session key

Oct 23, 2025

Pragmatic Authentication Technique in Fiber Optical Networks

In this paper, we propose a novel authentication technique for enhancing physical layer security in fiber optical networks. This technique enables authentication for the user end, network

Aug 03, 2025

What Is Passive Optical Networking (PON)?

What Is Passive Optical Networking (PON)? Passive optical networking (PON), like active optical networking, uses fiber-optic cabling to provide Ethernet connectivity

Aug 09, 2025

(PDF) Passive Optical Networks Progress: A Tutorial

For many years, passive optical networks (PONs) have received a considerable amount of attraction regarding their potential for providing

Jul 24, 2025

Passive Optical LAN: The What, How and Why

This informative white paper covers what Passive Optical LAN is, how it works and why it benefits you, your company and the industry.

Dec 04, 2025

Passive Optical Networks (PONs)

Passive optical networks (PONs) are a fiber-optic access technology that can be used for residential and business access, and also for certain backhaul applications and data communications. These

Dec 27, 2025

Consolidated_Version_Passive Optical Networks

After three decades of dynamic research, Passive Optical Network (PON) has been considered as the most promising broadband access solution for its wide bandwidth, low-cost deployment and

Jun 16, 2026

Security solution with signal propagation measurement for Gigabit ...

The paper deals with the security of Gigabit Passive Optical Networks (GPON) and presents a novel robust security solution. The solution provides secure mutual authentication and

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