

**Designing a Web-Based Customer Management System for ISP Resellers
Using the SNMP Method**

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ABSTRACT

Reseller-scale internet service providers (ISPs) often face the challenge of system fragmentation, where network monitoring tools run separately from the Enterprise Resource Planning (ERP) applications that manage administration. This disconnect leads to data inefficiencies, technical configuration complexity, and the absence of ISP-specific features such as bandwidth control and automated network suspension (isolation). This research aims to design and build a fully integrated web-based Customer Management System, using Iboy Network, a reseller ISP in Mojokerto Regency, East Java, as a case study.

The system was developed using a Single Page Application (SPA) architecture. The system utilizes SNMP to monitor bandwidth consumption and device connection status in real time, and is integrated with Mikrotik's RouterOS API to automate isolation and control of subscription packages. The system also features the Midtrans Payment Gateway for automated billing and a Geographic Information System (GIS) feature for mapping customer locations and Optical Distribution Point (ODP) infrastructure. Test results demonstrated that the application is capable of unifying technical network management and customer administration into a single solution, providing full visibility into real-time network conditions, simplifying operational workflows, and reducing software maintenance complexity. This system has proven to be a relevant and adaptive technology solution for supporting reseller-scale ISP operations in a competitive industry environment.

Key words: *ISP Reseller, Network Management, SNMP, Mikrotik API, Single Page Application, Billing System, GIS.*