pulseNET: High-Quality Sound Streaming System

An enterprise-grade, high-fidelity audio streaming solution designed for businesses and audiophile communities.

Made with GAMMA

Executive Summary

pulseNET is a bespoke audio streaming system built on a custom Flask web application, deployed on an HP Thin Client with Linux (openSUSE or Ubuntu), and enhanced by the FiiO K3 DAC/amplifier. It delivers unparalleled audiophile quality over local networks.

Superior Audio Fidelity

Lossless, high-resolution streaming for an immersive experience.

Enterprise-Ready

Secure, scalable, and compliant for business environments.

Cost-Effective

Affordable hardware with open-source software, no recurring fees.

Core Objectives

Deliver Lossless Audio

High-resolution FLAC and DSD streaming for superior sound quality.

Secure Web Interface

User-friendly music management and playback with robust security.

Enhanced Audio Processing

Noise reduction, loudness normalization, and special effects.

Enterprise Compatibility

Robust OS support and seamless hardware integration.

System Overview: Hardware & OS

HP Thin Client t620 Plus

Compact, energy-efficient, and passively cooled for silent operation. Supports multi-zone audio control with expandable storage and RAM for extensive music libraries.

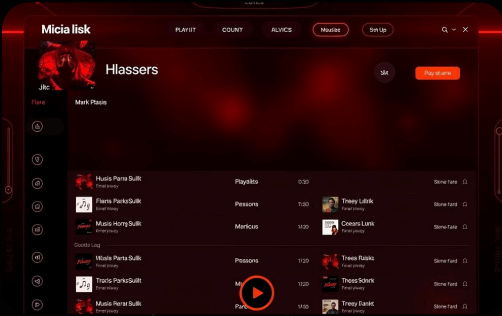## FiiO K3 (2021) DAC/Amplifier

High-performance ESS ES9038Q2M DAC supporting up to 384kHz/32-bit PCM and DSD256. Features dual headphone outputs and versatile digital outputs for audiophile-grade sound.

Operating System

Optimized for audio: openSUSE for enterprise stability and PipeWire integration, or Ubuntu for ease of use and community support.

Software & Key Features

Flask-based Web Application

Intuitive web-based browsing and playlist management with secure user authentication. Supports FLAC and MP3, including automatic conversion and advanced audio preprocessing.

High-Quality Audio Output

Delivers bit-perfect output of lossless FLAC and DSD files through the FiiO K3, ensuring uncompromised sound fidelity.

Advanced Audio Processing

Features like noise reduction, loudness normalization to -23 LUFS, and dynamic effects such as compression for a truly polished and consistent sound experience.

Enterprise Security Features

Robust multi-user authentication, extendable to LDAP/SSO, and comprehensive audit logging to ensure compliance and data integrity.

Benefits & Advantages

pulseNET stands out by combining audiophile-grade performance with enterprise-level features at a fraction of the cost of competitors.

$400

Hardware Cost

Affordable entry point, significantly lower than premium solutions.

$12.99

Subscription Savings

No monthly fees compared to Roon's recurring costs.

This solution offers flexible deployment and local network efficiency, ideal for secure and high-performance audio environments.

Implementation Plan

Hardware Setup

Procurement and assembly of HP Thin Client and FiiO K3.

OS Configuration

Install and optimize openSUSE Leap or Ubuntu for audio output.

Software Deployment

Flask app, dependencies, and production web server setup.

Testing & Deployment

Comprehensive testing and client environment integration.

This phased approach ensures a smooth transition and optimal performance, with a total estimated cost between $5,400–$10,300 per deployment.

Why Choose pulseNET?

Superior Audio Quality

Bit-perfect DSD256/384kHz PCM with integrated noise reduction and normalization, surpassing most competitors.

Cost-Effective

Significantly lower total cost of ownership compared to proprietary solutions like Roon.

Enterprise Fit

Customized software development Operating system optimization Optimization of all tools for existing hardware Adding missing modules and developing new software

Unmatched Customization

Flask-based architecture allows for tailored features and flexible scalability.

pulseNET offers a unique blend of high-fidelity sound, robust enterprise features, and cost efficiency, making it the ideal choice for discerning audiophiles and businesses.

Contact Us

Ready to experience the pulseNET difference? Get in touch with our team to learn more, schedule a demo, or discuss your specific audio streaming needs.

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We look forward to connecting with you!

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