AI Content Agent Architecture: Pldok (v4)

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1. Overview

The AI Content Agent (v4) is an automated workflow built with n8n to streamline content creation for a WordPress-based migration portal in Poland (Pldok.pl). It aggregates news, generates SEO-optimized articles in Polish and Russian, publishes drafts to WordPress, and sends Telegram notifications. Saves **€5,000/year** and cuts manual content work by **70%**.

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2. Architecture

The workflow is a modular, end-to-end automation pipeline in n8n, integrating multiple APIs, databases, and AI models. It operates in two modes: daily news collection and scheduled (every 3 days) or manual content publishing.

2.1 Key Components

News Aggregation:

- Fetches Google News via SerpAPI for migration topics (e.g., PESEL, ZUS).
- Filters duplicates using JavaScript-based fuzzy-matching (Levenshtein distance).
- Stores curated topics in PostgreSQL with UPSERT logic for reliability.

Evergreen Topics:

- Pulls static topics from Google Sheets, prioritized by 14-day cooldown.
- Merges with news topics for content variety.

Content Generation:

- Uses Claude 3.5 Sonnet (via OpenRouter) for article generation with dynamic prompts (SEO, H1-H3, FAQs).
- Translates Polish to Russian using Gemini or GPT-4o-mini for cost-effective translation, preserving HTML and key terms (e.g., ZUS).

Publication & Monitoring:

- Publishes drafts to WordPress via REST API.
- Sends success/error notifications to Telegram.
- Logs workflow execution in PostgreSQL (JSONB) for debugging.

State Management:

- Tracks API usage (SerpAPI, OpenRouter) in PostgreSQL to prevent rate limits, achieving zero API errors.
- Uses Redis for caching SerpAPI results and WordPress API responses to optimize performance.

2.2 Workflow Structure

Triggers: Daily schedule for news collection; 3-day schedule or manual webhook for publishing.

Conditional Logic: IF-nodes for API status, content validation, and error handling.

Merge Nodes: Combine news, evergreen topics, and WordPress data.

Code Nodes: Custom JavaScript for fuzzy-matching and prompt engineering.

Workflow Flow:

Schedule/Webhook → SerpAPI/Google Sheets (Data) → PostgreSQL (Filter/UPSERT) → Claude/Gemini (Content) → WordPress/Telegram (Publish/Notify)

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3. Technical Stack

- **Automation:** n8n (workflow orchestration)
- **Databases:** PostgreSQL (state management, logging), Redis (caching)
- **AI Models:** Claude 3.5 Sonnet (OpenRouter), Gemini, GPT-4o-mini
- **APIs:** SerpAPI (news), WordPress REST API, Telegram API
- **Languages:** JavaScript (fuzzy-matching, prompt logic)

Core Skills: LLMOps, API Orchestration, Workflow Design

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4. Key Challenges Solved

API Rate Limiting: PostgreSQL-based quota tracking across SerpAPI, OpenRouter, and Gemini, eliminating rate-limit errors.

Duplicate Detection: Custom Levenshtein algorithm filters 95% of redundant topics, reducing unnecessary API calls.

Cost Optimization: Dynamic model selection (Claude for complex generation, GPT-4o-mini for affordable translation) cuts per-article costs.

Reliability: Real-time monitoring via Telegram webhooks and Redis caching ensures smooth operation and fast debugging.

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5. Results

- **Cost Savings:** €5,000/year by automating content creation and translation.
- **Efficiency:** 70% reduction in manual work.
- **Reliability:** Zero API-limit errors via PostgreSQL state management.
- **Scalability:** Ready for multi-language expansion (DE/AT markets).

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6. About the Developer

Denis Tsvetkov is an AI Automation Engineer in Warsaw who builds production-grade workflows for real business problems. This project demonstrates end-to-end automation—from API orchestration to state management—delivering €5,000/year in savings.

Open to opportunities in Poland, Germany (Berlin), Austria (Vienna), or remote EU roles.

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