

DNY

Dynamic Domain Name for You

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Computer Communication Workshop



The Problem

Access to websites and online **services can be blocked** due to:
Governmental censorship, ISP-level filtering, Geographical
content restrictions

DNS failures (downtime, overload) - Inability to resolve domain
names

Impacts:

Limits freedom of information
Disrupts productivity and communication
Compromises open internet access

Our Idea

An intelligent tool that ensures seamless access to blocked websites while maintaining user safety and system integrity.

DNY automatically detects and bypasses DNS-based restrictions by switching to an optimal resolver on a per-request basis, combined with AI-powered content safety analysis.

All DNS query data is securely stored in the cloud, where an analytics engine identifies browsing patterns and user behaviors.



DEMO

Target Market

General Internet User

Non-technical individuals who primarily use the internet for browsing, streaming, and social media.

People in Authoritarian Regimes

Individuals living under restrictive governments who face censorship and need tools to bypass blocked websites and access unrestricted information.

Journalists and Human Rights Activists

Journalists, bloggers, and activists working under repressive regimes. who need secure and reliable access to share information and report freely while maintaining privacy.

Businesses Interested in User Data

Companies and advertisers looking for insights into user browsing patterns, to better understand user preferences, inform targeted advertising strategies, and optimize their digital offerings.

Competitors:

- Manual DNS Switching
 - Browser Extensions
 - VPN Services
 - Third-Party DNS Changers
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Our Value Proposition:

- ✓ Dynamic DNS Switching for Specific Use
- ✓ Fully automated detection
- ✓ Zero technical knowledge required
- ✓ Cross-platform compatibility
- ✓ Centralized Cloud Data Storage & Analytics

Main Features

Intelligent DNS Proxy Service

Local DNS proxy intercepts all DNS queries

Network Connection & Disconnection

Automatic network interface detection and selection and restore when stopped

Block Detection & Dynamic Switching

Automatically detects DNS resolution failures and dynamically switches to alternative DNS servers

User Notification System

Service status updates, DNS switching and content warnings.

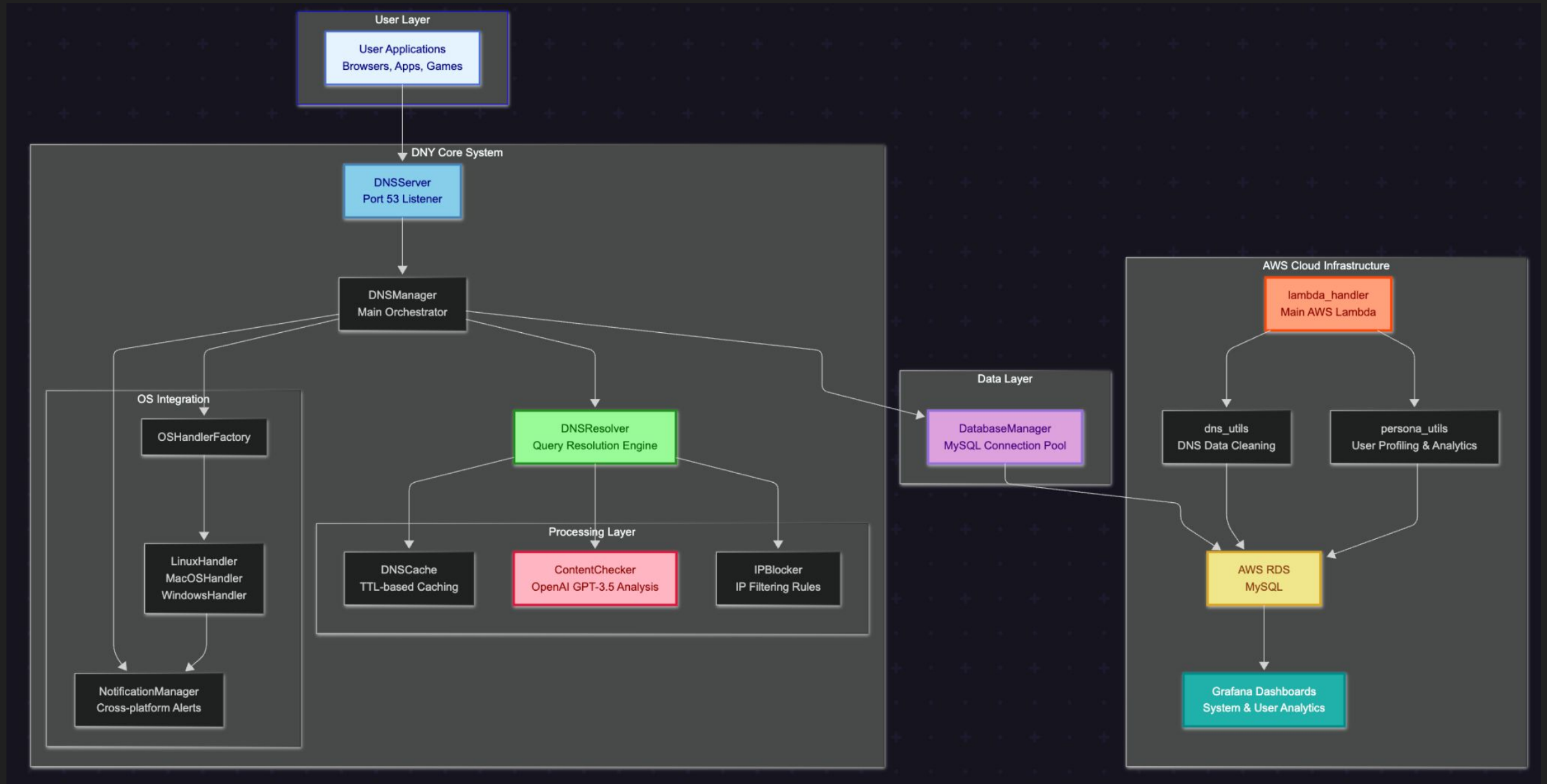
Ethical Content Analysis

Use LLMs to analyzes content and risk level classification and clear warnings

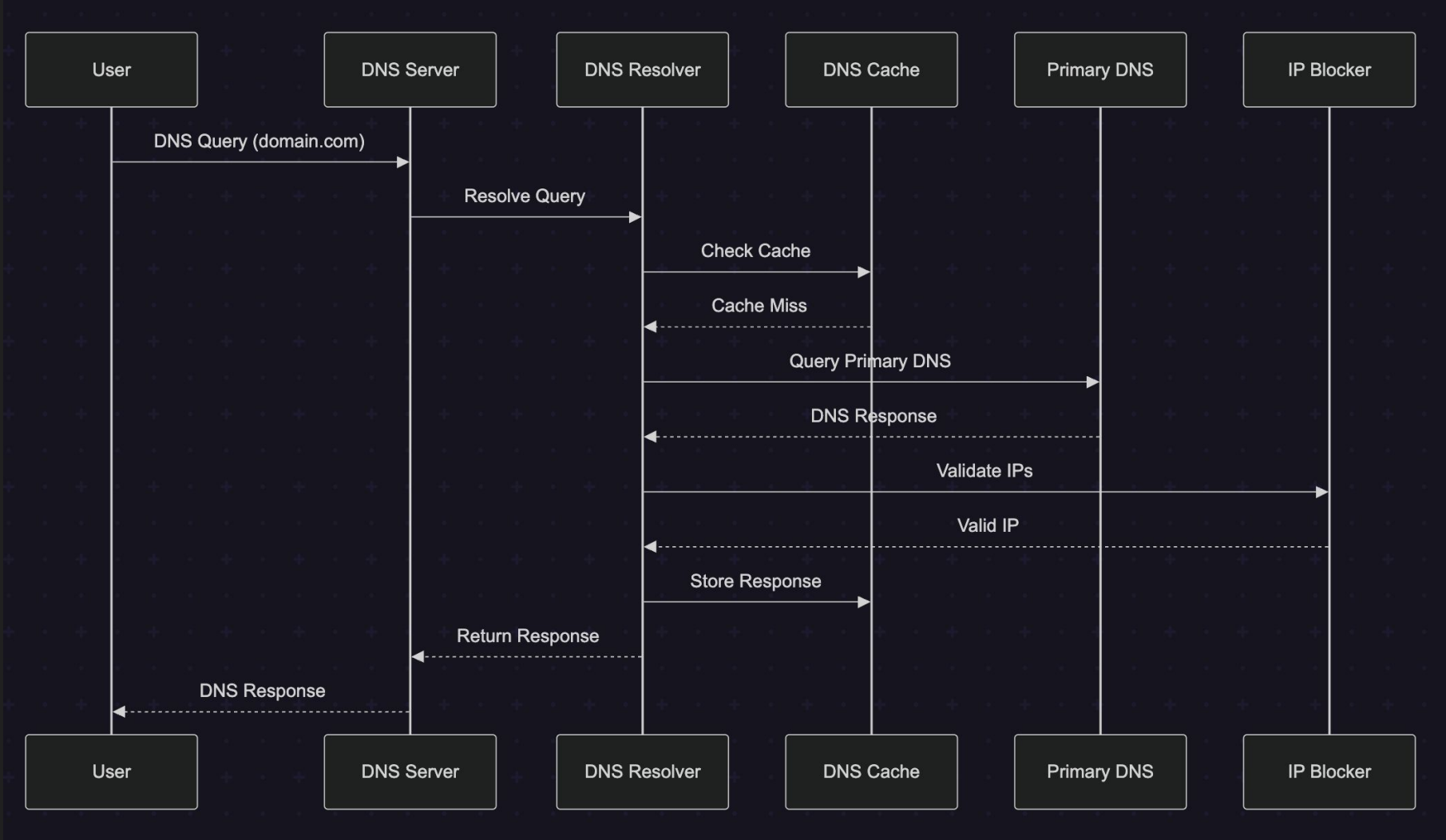
User-Wide Analytics & AI Insights

Identify browsing patterns, peak access times, and content demand trends

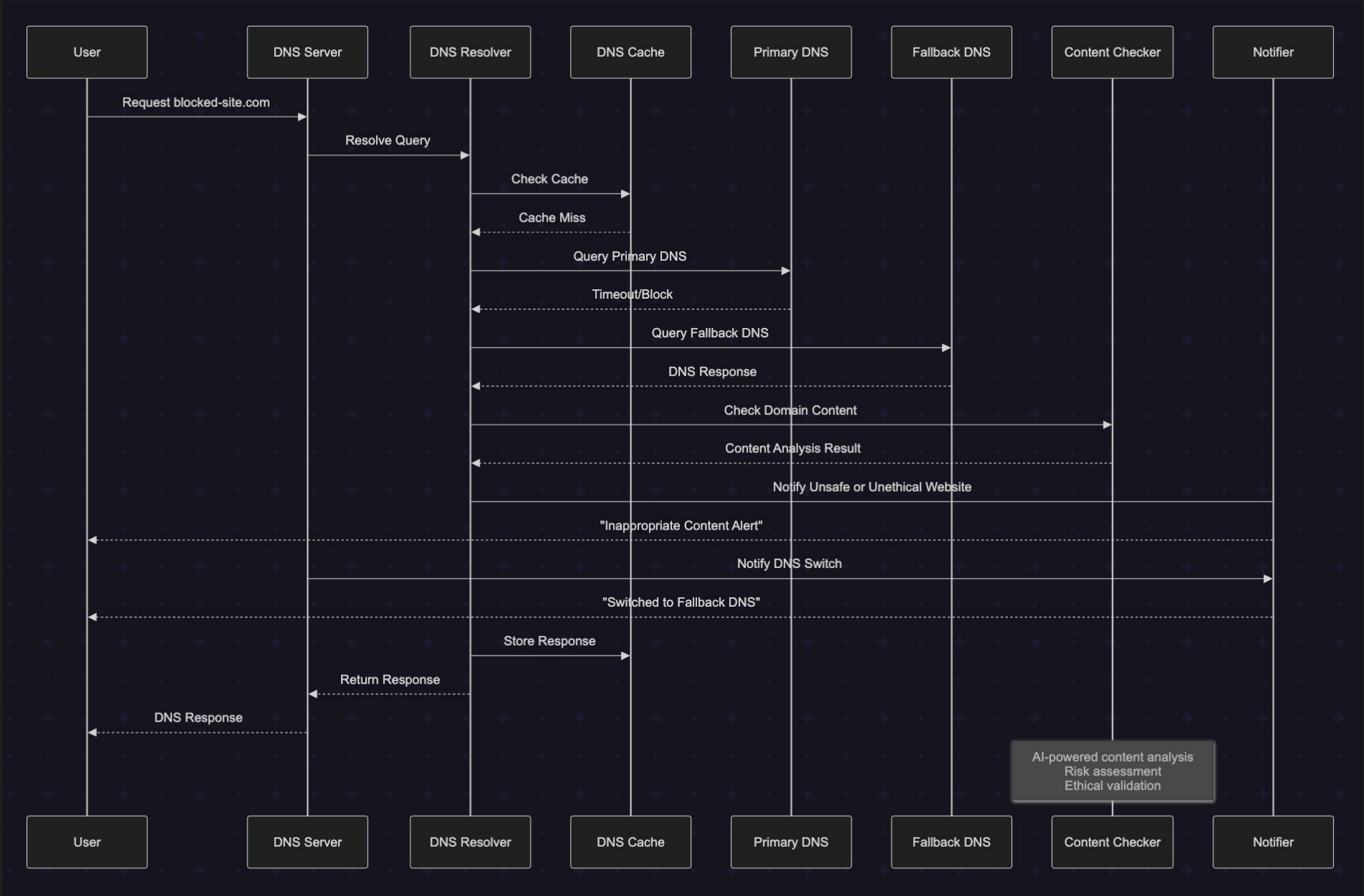
Architecture



Normal Domain Access



Blocked Domain



TECHNOLOGY



DNS Server:

dnslib, psutil, socket, threading



Cloud Infrastructure:

AWS Services



Grafana



Monitoring & Visualization:

Grafana, Docker



Database & Analytics:

MySQL 8.x on AWS RDS



AI Content Filter:

GPT-3.5



System DNS Integration OS-specific handlers for:

Windows (netsh), macOS (networksetup), and Linux (resolv.conf)

Robustness & Reliability

Self-Healing Mechanisms

- Automatic Restart on service failure
- Backup & Restore: Saves and restores original DNS settings
- Graceful Shutdown with full resource cleanup

Fallback & Recovery

- Multi-Tier DNS Fallback
- Cache-Based Offline Access

Monitoring & Logging

- Structured Logging with severity levels

Questions?

