

# **EVOLVING PIRANHA CMS FOR “CONTENTS’R’US”**

**Editorial Workflows & Content Approvals**

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# Table of contents

**01**

Overview &  
Recap

**02**

Implementation

**03**

Proposed VS Final  
Architecture

**04**

Cross-Cutting  
Concerns

**05**

Observability

**06**

Demo

01

# Overview & Recap

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# System Overview



Piranha CMS is an open source platform built on .NET designed to be modular, extensible and easy to integrate.

## Our Scenario

### Scenario 2: Editorial Workflows & Content Approvals

This project aims to significantly expand the capabilities of Piranha CMS to support:

- Complete editorial workflows (with multiple approval stages);
- Detailed control over permissions and responsibilities;
- Traceability and editorial governance.

# Initial State & Identified Gaps

## Initial State (Piranha CMS)

Modular architecture (.NET Core + EF Core).

Basic content workflows (Draft & Published).

Claims Based Authorization with configurable Roles.

Built-in authentication and authorization (ASP.NET Identity).

Basic logging (ILogger).

## Identified Gaps

No multi-stage editorial workflows.

No state-based permission control.

No audit trail (no tracking of content changes or approvals).

No workflow orchestration (handoff between different roles).

No collaboration features (e.g., comments, task assignment).

# Our Initial Vision for Piranha CMS

## Robust Editorial Workflows

Enable multi-stage, customizable content approval flows.

## Governance & Security

Enforce fine-grained access control and strict separation of duties.

## Transparency & Accountability

Ensure traceability of actions with comprehensive audit trails.

## Scalability & Performance

Architect the system to scale seamlessly and perform reliably under high load.



# Key Selected Features



**Workflow for  
Publishing  
Content**



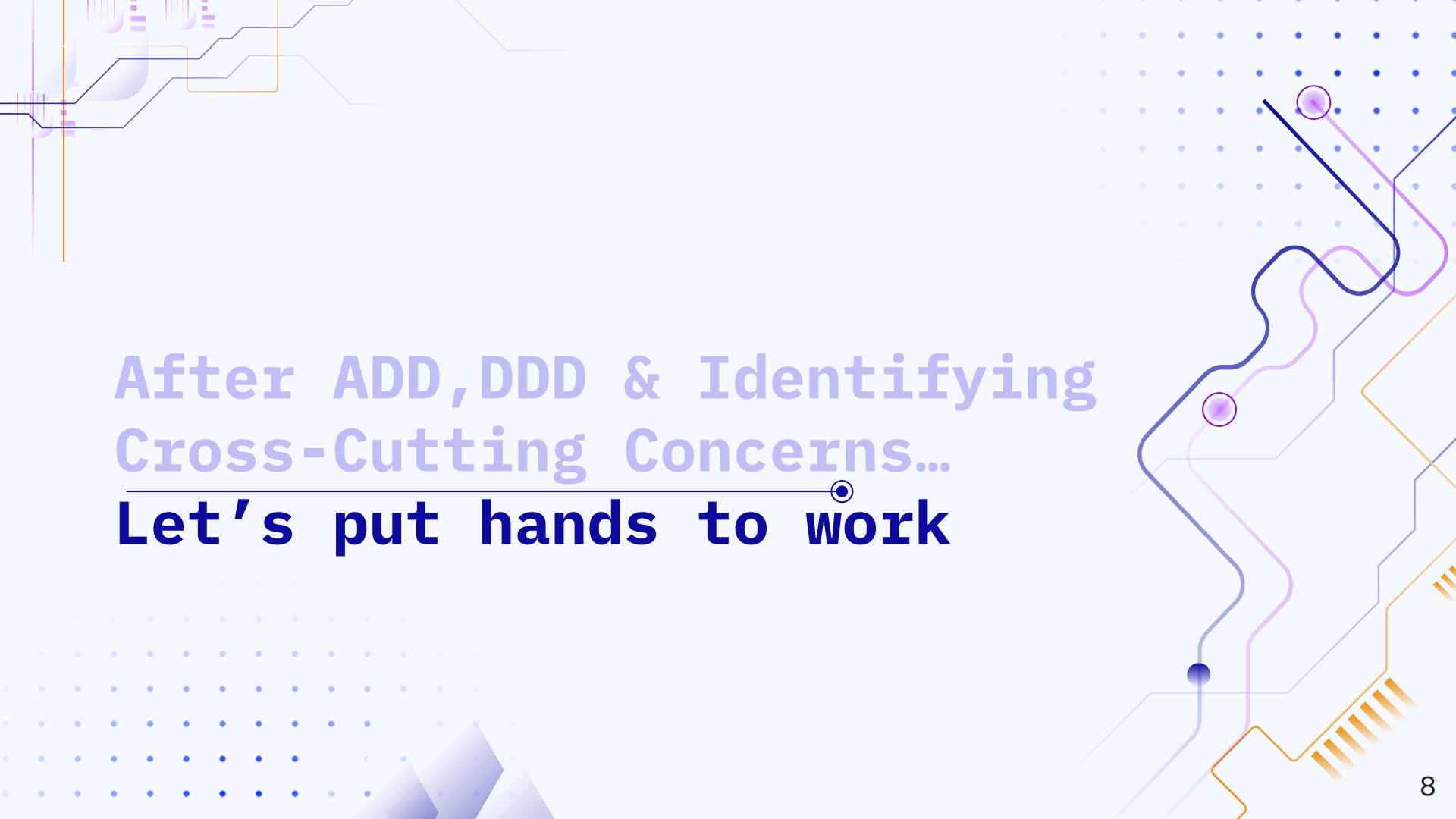
**Permissions  
Control**



**Real-Time  
Workflow  
Dashboard**



**State History &  
Accountability**



**After ADD, DDD & Identifying  
Cross-Cutting Concerns...**

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**Let's put hands to work**

# 02

# Implementation

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# Functionalities Implemented

## Editorial Workflow

Static Editorial Workflow:

*Draft* → *Editorial Review* →  
*Juridical Review* → *Published*

## Dashboard

Dashboard for  
Observability and  
Traceability

## Role-Based Content Access

Only users with correct permissions can perform certain actions on content



## State History & Accountability

Records of each action and the user that performed it

# Personas & Roles



**Mário José**  
Administrator



**Cecília Campos**  
Author



**Joana Brasão**  
Editorial Reviewer

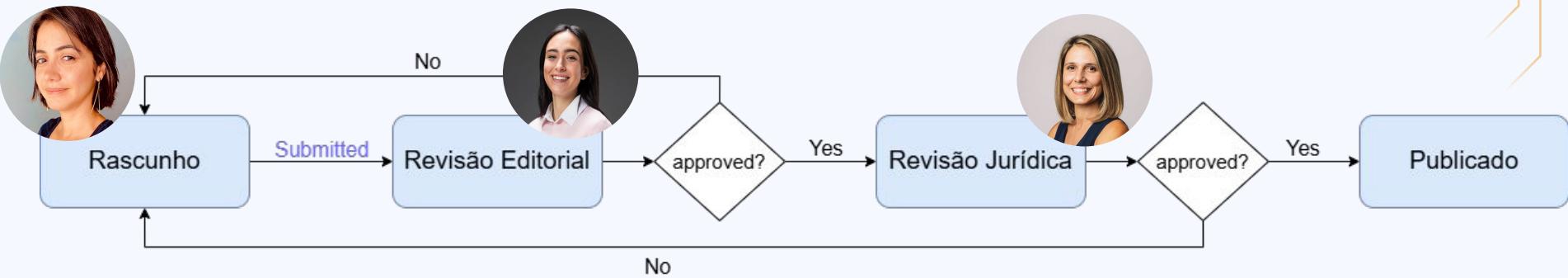


**Arlinda Sousa**  
Legal Reviewer



**Sónia Brás**  
Director

# Editorial Workflow & RBAC



**Director**

- All Workflow Permission
- Add users
- Can't manage roles and other critical configuration



**Administrator**

- All Permissions:
  - All Workflow Permissions
  - Manage users
  - Manage Roles

# 03 Proposed VS Final Architecture

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# Proposed High-Level Architecture Overview

## 01 UI Layer

- Exposes editorial workflows to users. Includes Manager UI, Content Editing UI, WebAPI.

## 03 Domain Layer

- Holds business logic and rules.

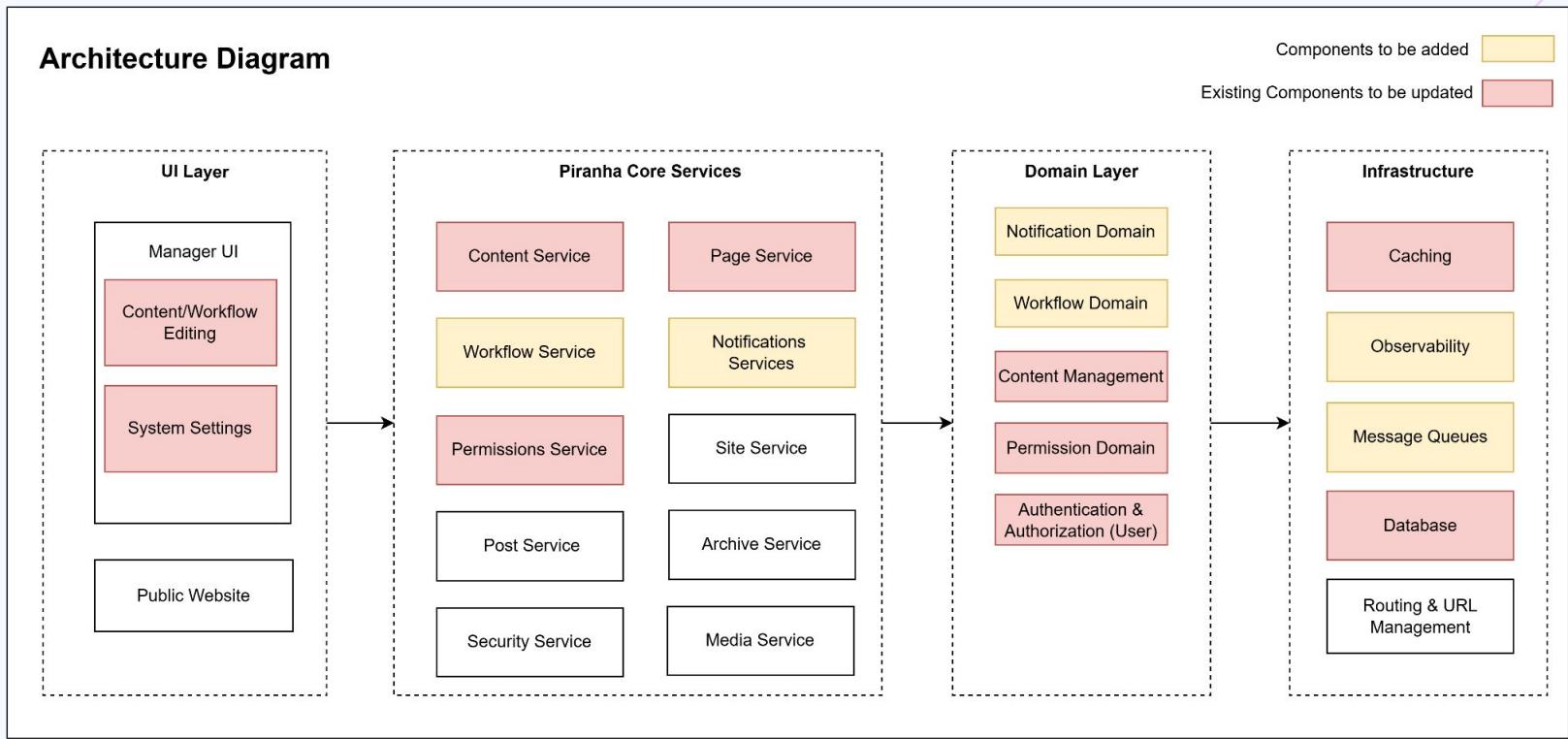
## 02 Application Layer

- Orchestrates business logic and workflows. Bridges UI and Domain Layer.

## 04 Infrastructure Layer

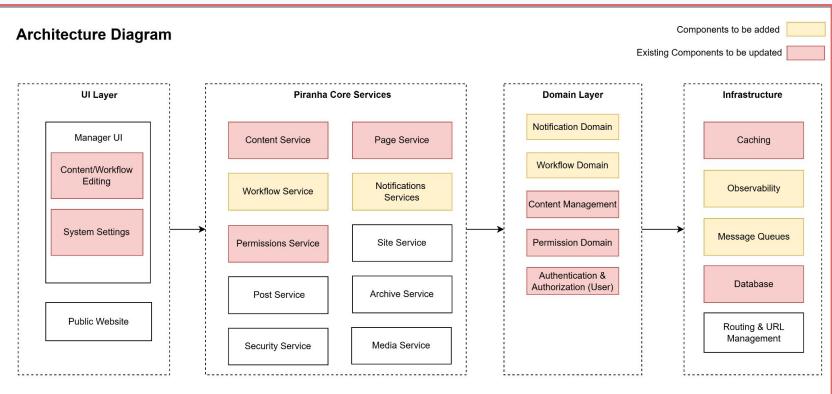
- Provides technical foundations: database, caching, message queues.

# Proposed Architecture

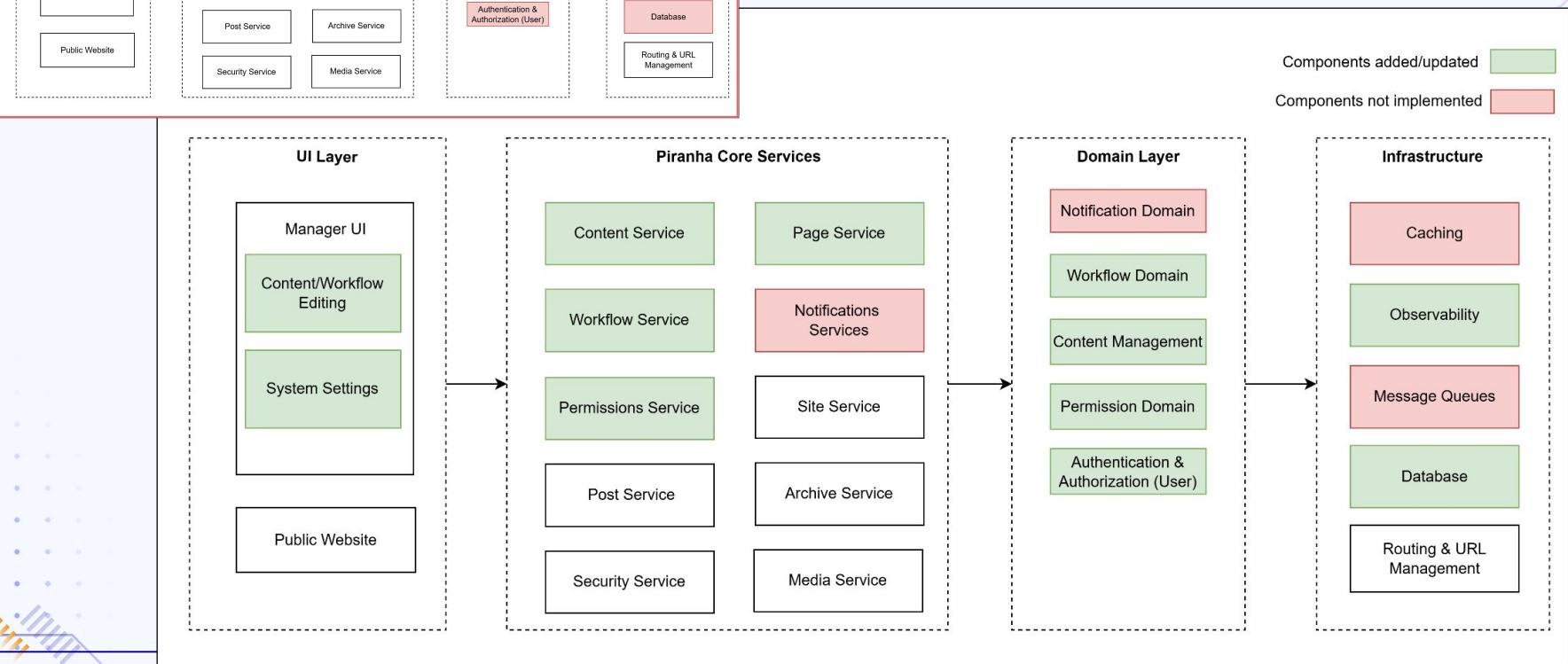




Architecture Diagram



# Final Architecture



# 04

# Cross-Cutting Concerns

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# Security

(Authentication, Authorization, and Access Governance)



## Fine-grained permission

Authorize specific actions (approve, reject, request changes etc...)



## Stage-based content security

Rules based on the current state of the workflow



## Governance & Accountability

Track who performed sensitive actions.

# Security

Fine-grained permission - Authorize specific actions (approve, reject, etc...)

The image shows two screenshots of a web-based application interface for managing security roles and permissions.

**Top Screenshot: CONFIGURAÇÕES : ROLES**

NOME	# OF USERS	ACTIONS
Autor	1	
Diretor	0	
Editor	1	
Jurista	1	
SysAdmin	1	

**Bottom Screenshot: CONFIGURAÇÕES : PAPÉIS / EDITAR**

**GERAL**

Name	Normalized name
<input type="text" value="Diretor"/>	<input type="text" value="DIRETOR"/>

**CORE PERMISSÕES**

<input checked="" type="checkbox"/> Page Preview	<input checked="" type="checkbox"/> Post Preview
--	--

**MANAGER PERMISSÕES**

<input checked="" type="checkbox"/> Admin		
<b>Aliases</b>		
<input checked="" type="checkbox"/> Delete Aliases	<input checked="" type="checkbox"/> Edit Aliases	<input checked="" type="checkbox"/> List Aliases
<b>Comments</b>		
<input checked="" type="checkbox"/> Approve Comments	<input checked="" type="checkbox"/> Delete Comments	<input checked="" type="checkbox"/> List Comments

Salvar

# Security

Stage-based content security - Rules based on the current state of the workflow

The screenshot shows a content management interface. On the left is a vertical toolbar with various icons: a blue document, a pencil, a folder, a camera, a wrench, a gear, a person, a magnifying glass, a gear, a play button, a square, and a power button. At the top, there's a navigation bar with 'CONTEÚDO : PÁGINAS / EDITAR' (Content : Pages / Edit), 'RASCUNHO' (Draft) in a blue button, 'NÃO PUBLICADO' (Not Published) in a green button, and three other buttons: a gear, an eye, and a trash can. To the right of these are 'Salvar' (Save) and 'Submeter para Revisão Editorial' (Submit for Editorial Review). The main area has a title 'A Minha Primeira Pagina' and a large dashed box with a plus sign, indicating where to add content. Below the box is the text 'Bem-vindo à sua nova página. Clique no botão acima para adicionar o seu primeiro bloco de conteúdo!' (Welcome to your new page. Click the button above to add your first content block!).

# Security

Governance & Accountability - Track who performed sensitive actions.

The screenshot shows a SharePoint interface for tracking content status changes. On the left is a vertical toolbar with icons for ribbon, document, list, chart, user, settings, and power bi. The main area has a header 'CONTEÚDO : ESTADO EDITORIAL DAS PÁGINAS' and a breadcrumb 'Default Site'. Below is a list item 'Teste' with last updated date 'Atualizado: 06:11 - 04/06/2025' and a 'PUBLICADO' button. A large table below details the audit log:

AÇÃO	DE	PARA	POR	DATA
Publicar Conteúdo	Approved	Published	admin	05:11 04/06/2025
Aprovar para Publicação	LegalReview	Approved	admin	05:11 04/06/2025
Enviar para Revisão Jurídica	EditorialReview	LegalReview	admin	05:11 04/06/2025
Submeter para Revisão Editorial	Draft	EditorialReview	admin	05:10 04/06/2025
Rejeitar	LegalReview	Draft	admin	05:08 04/06/2025
Enviar para Revisão Jurídica	EditorialReview	LegalReview	roberto	05:08 04/06/2025
Submeter para Revisão Editorial	Draft	EditorialReview	roberto	05:08 04/06/2025
Rejeitar	LegalReview	Draft	admin	05:01 04/06/2025
Enviar para Revisão Jurídica	EditorialReview	LegalReview	roberto	05:00 04/06/2025
Submeter para Revisão Editorial	Draft	EditorialReview	roberto	04:58 04/06/2025
Criação Inicial	Draft	Draft	roberto	04:58 04/06/2025

# Auditing and Logging

## Audit trails editoriais

Track who  
approved/rejected  
and when

## System-wide logging

Log logins,  
permission  
changes, etc.

## Compliance- grade logs

Immutable  
records for  
audits.

# Performance & Scalability

## Improved Caching

Reduce load on the database

## Asynchronous Operations

Move time-consuming tasks to the background

## Database query optimization

Ensure fast consultations under high demand

# 05

# Observability

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# Added Telemetry

## 01 Traces

- EnsurePageStatus
- GetPageEditorialStatus

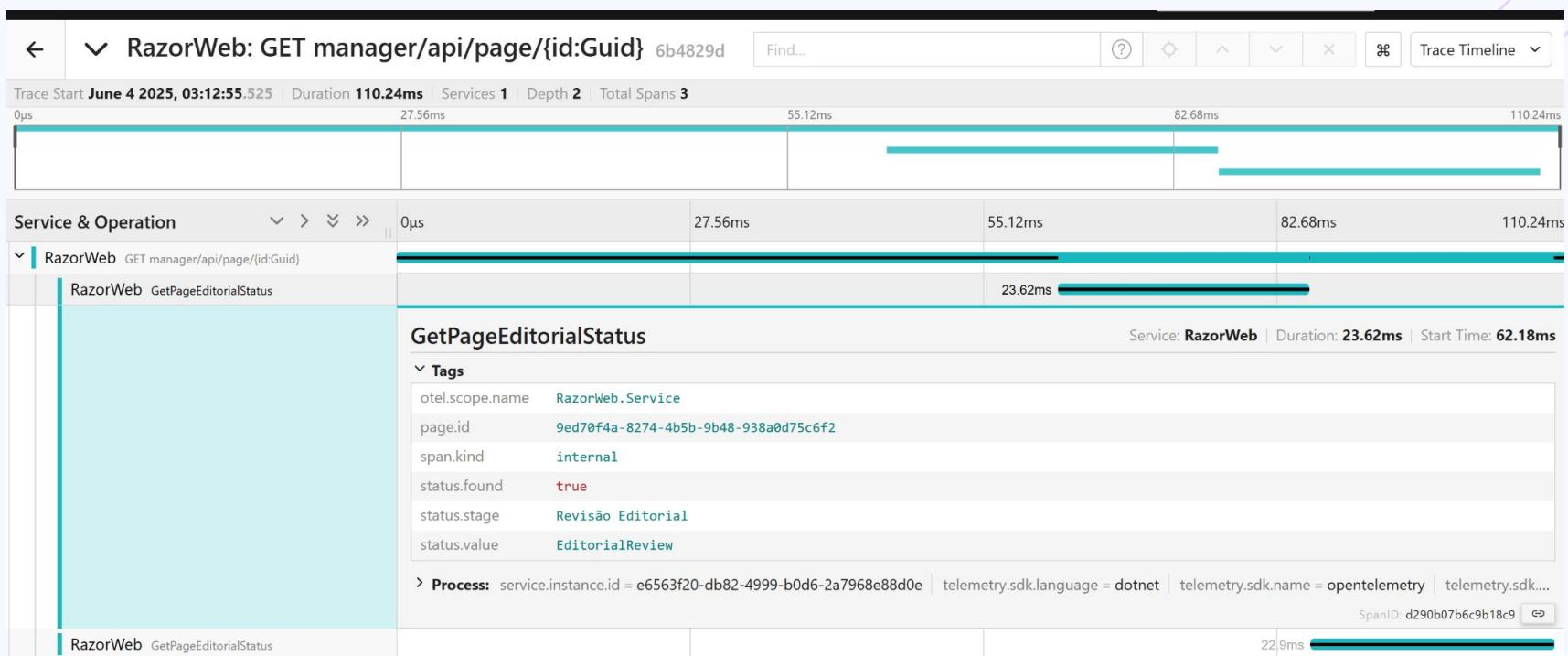
## 03 Logs

- Workflow service

## 02 Metrics

- workflow\_total
- workflow\_transition\_total
- workflow\_transition\_duration\_seconds
- workflow\_time\_to\_publish\_seconds
- workflow\_rejected\_pages\_total

# Traces Example



# Grafana Dashboard - Metrics Example



# Logs Example

```
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Status atual da página 6a956556-7b12-4979-8598-28f701d5eb04 é LegalReview na etapa Revisão Jurídica
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Applying transition to status 'Approved' for page 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Successfully transitioned page 6a956556-7b12-4979-8598-28f701d5eb04 to status Approved
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Getting editorial for a página 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Status atual da página 6a956556-7b12-4979-8598-28f701d5eb04 é Approved na etapa Aprovação Final
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Getting editorial for a página 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Status atual da página 6a956556-7b12-4979-8598-28f701d5eb04 é Approved na etapa Aprovação Final
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Applying transition to status 'Published' for page 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Page 6a956556-7b12-4979-8598-28f701d5eb04 published after 38.9898942 seconds
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Successfully transitioned page 6a956556-7b12-4979-8598-28f701d5eb04 to status Published
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Getting editorial for a página 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Status atual da página 6a956556-7b12-4979-8598-28f701d5eb04 é Published na etapa Publicado
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Getting editorial for a página 6a956556-7b12-4979-8598-28f701d5eb04
info: Piranha.Editorial.Services.EditorialWorkflowService[0]
    Status atual da página 6a956556-7b12-4979-8598-28f701d5eb04 é Published na etapa Publicado
```

# 06

# Demo

# Thanks !

Do you have any questions?

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