



BlackFlag HR

Secure Cloud-Native HR Portal

Presented by Prompt Pirates

Project Overview

BlackFlag HR is an enterprise-grade cloud-native HR management portal designed with security at its core. Built on modern microservices architecture, it delivers seamless single sign-on, granular role-based access control, and encrypted API communications—all wrapped in an intuitive user experience.

Our mission: Empower organizations to manage their workforce data with confidence, compliance, and complete control.



The Problem We're Solving

Enterprise HR systems face critical challenges that put organizations at risk:



PII Exposure

Sensitive employee data vulnerable to unauthorized access and breaches



Role Misuse

Inadequate access controls allow privilege escalation and data misuse



Legacy Systems

Outdated HR portals lack modern security protocols and user experience



Weak Authentication

Traditional login systems fail to provide enterprise-grade identity management

Key Features & Capabilities



Enterprise SSO

Seamless integration with Azure AD using OIDC and SAML protocols for frictionless, secure authentication



Role-Based Access

Granular RBAC with three tiers: Admin, Manager, and Employee—each with precisely defined permissions



Employee Management

Comprehensive directory with profile management, search capabilities, and self-service updates



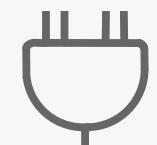
Manager Dashboards

Real-time insights and team management tools with actionable analytics for workforce oversight



End-to-End Encryption

TLS 1.2+ everywhere with encrypted data at rest and in transit, ensuring complete data protection



Enterprise Integrations

Optional connectors for SharePoint, Salesforce, and Slack to streamline workflows across platforms

Modern Tech Stack

Built with industry-leading technologies for performance, security, and scalability:



Frontend Layer

React with **TypeScript** for type-safe development

Tailwind CSS for responsive, modern UI design



Backend Services

FastAPI for high-performance Python REST APIs

PostgreSQL for robust relational data management



Cloud Infrastructure

AWS suite: CloudFront, ECS, ALB, WAF, RDS, Secrets

Manager
Docker containers for consistent deployments



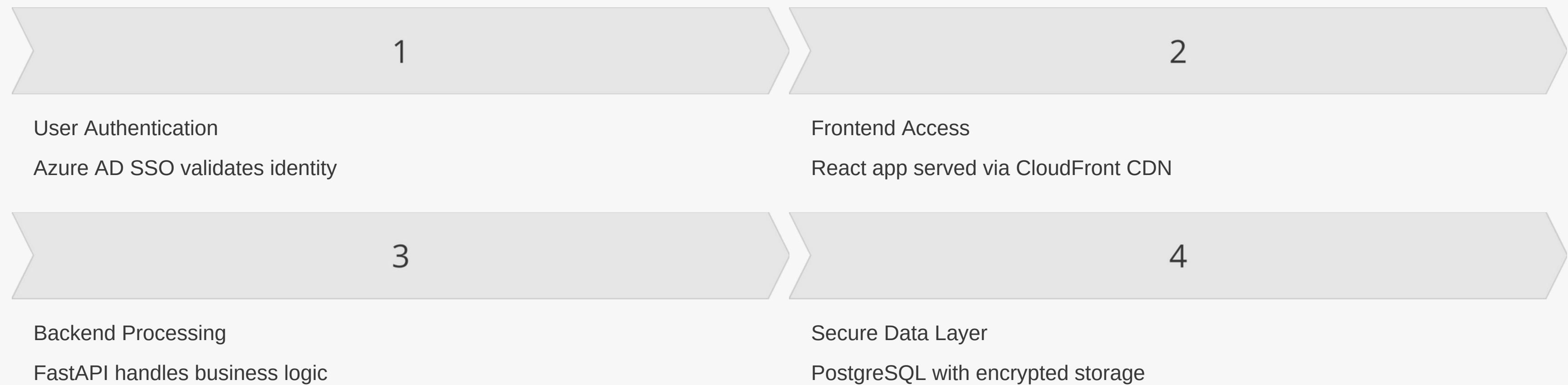
DevOps Tooling

Terraform for infrastructure as code

GitHub Actions for automated CI/CD workflows



System Architecture



All components run within isolated AWS VPC with network segmentation, load balancing via ALB, and protection through AWS WAF—ensuring defense-in-depth security architecture.

Security & Compliance



Enterprise-grade security built into every layer:

- Transport Layer Security
TLS 1.2+ enforced across all connections—no exceptions
- Secrets Management
AWS Secrets Manager rotates credentials automatically
- Network Isolation
Private VPC architecture with strict security groups
- Access Control
Multi-tier RBAC with least-privilege principles
- Audit Logging
Comprehensive activity tracking for compliance reporting
- OWASP Standards
Built following security best practices and threat mitigation

Automated CI/CD Pipeline

Continuous integration and deployment powered by GitHub Actions ensures rapid, reliable releases:

01

Code Commit

Developers push changes to GitHub repository triggering automated workflows

02

Build & Test

Docker containers built, unit tests executed, security scans performed

03

Infrastructure Provisioning

Terraform applies infrastructure changes to AWS environment

04

Automated Deployment

Containers deployed to ECS with zero-downtime rolling updates

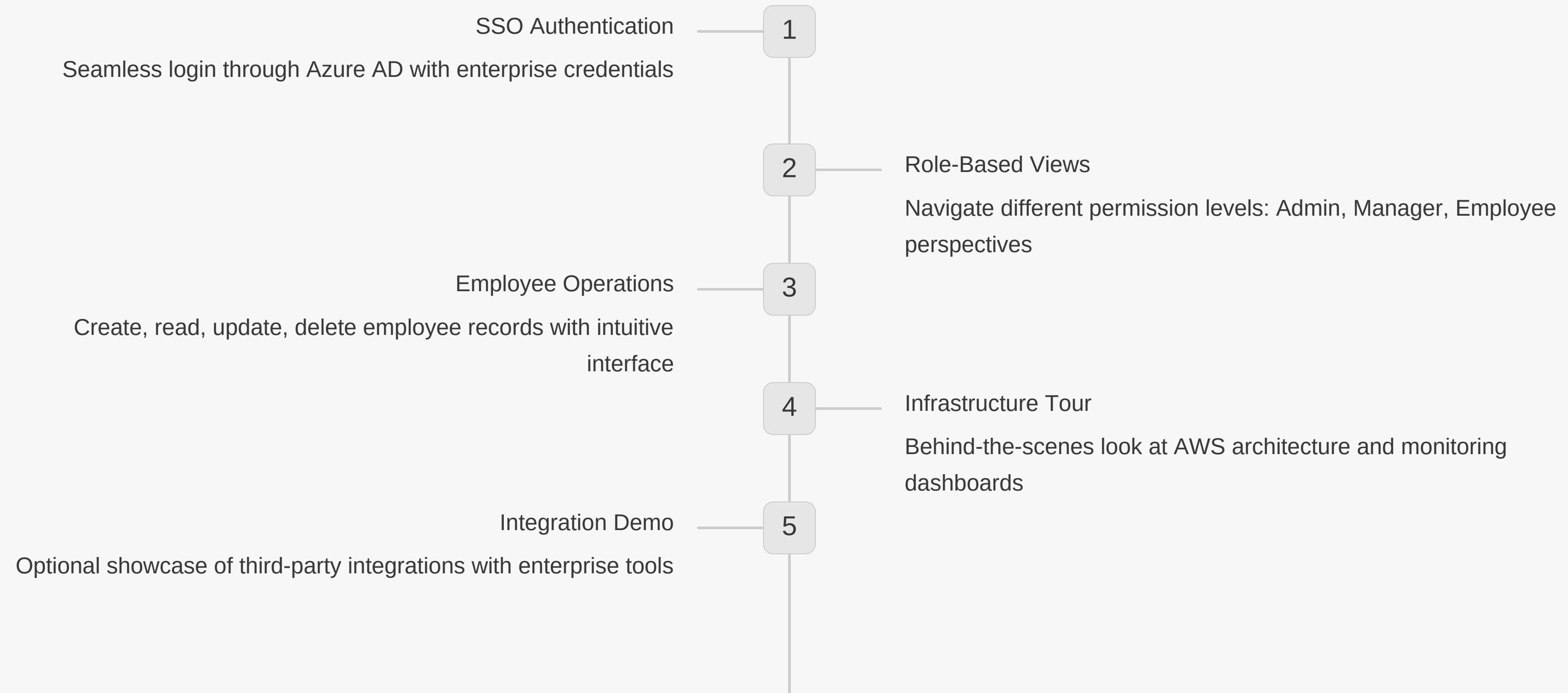
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Verification

Health checks confirm successful deployment and service availability

Live Demo Walkthrough

Experience BlackFlag HR in action with our comprehensive demonstration:



Looking Ahead

What We've Achieved

- Enterprise-grade secure HR portal deployed on AWS
- Modern architecture with SSO, RBAC, and encrypted communications
- Automated CI/CD pipeline for continuous delivery
- Production-ready infrastructure with monitoring and compliance

Future Enhancements

- Advanced SSO federation with multiple identity providers
- Enhanced audit trails with real-time alerting
- Expanded analytics dashboards with predictive insights
- Automated HR workflow orchestration
- Mobile application for on-the-go access

Thank You

Questions? Let's discuss how BlackFlag HR can secure your workforce management.