

# System Architecture Overview

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### High-Level Architecture

ClearPath uses a microservices architecture deployed on AWS. Key components: React frontend, Node.js API servers, PostgreSQL database, Redis cache, S3 storage.

### Frontend

React 18 with TypeScript, Redux for state management, React Query for API caching. Hosted on CloudFront CDN. Build process: Vite for dev, Webpack for production.

### Backend

Node.js 20 with Express framework. Microservices: API service, webhook service, notification service, file processing service. Communication via RabbitMQ message queue. Deployed on ECS Fargate.

### Database

PostgreSQL 15 (RDS) for primary data. Redis for session storage and caching. Elasticsearch for full-text search. Daily automated backups retained for 30 days.

### Infrastructure

AWS: Application Load Balancer, ECS, RDS, ElastiCache, S3, CloudFront

Monitoring: DataDog for metrics, Sentry for error tracking

CI/CD: GitHub Actions, ArgoCD for deployments

Infrastructure as Code: Terraform