**🔧 Updated DevSecOps Tech Stack (with Kubernetes)**

**Application Layer**

| **Layer** | **Stack** |
| --- | --- |
| Frontend | Astro, TailwindCSS |
| Backend | Node.js (Express), JWT, OAuth, Helmet, Joi |
| API Security | Rate limiting, input validation, headers |

🔁 DevSecOps Pipeline Phases

| **Phase** | **Tools** |
| --- | --- |
| **Plan** | OWASP STRIDE, DFD, Risk Matrix, draw.io |
| **Code** | ESLint, Pre-commit, detect-secrets, Semgrep |
| **Test** | Jest (unit), TruffleHog, OWASP Dependency-Check, Snyk |
| **Build** | Docker (multi-stage), Trivy (image scan), Syft (SBOM) |
| **Release** | GitHub Actions CI/CD, ZAP Baseline |
| **Deploy (Option 1)** | AWS EC2 via Terraform, Nginx, ACM (HTTPS) |
| **Deploy (Option 2)** | Kubernetes (EKS / minikube), kubectl, Ingress, Helm (optional) |
| **Operate** | CloudWatch Logs, Falco (optional), Trivy Operator (K8s) |
| **Monitor** | DAST (ZAP), Alerting via Prometheus/Grafana (K8s phase) |

☁️ Cloud & Infra

| **Category** | **Tools** |
| --- | --- |
| IaC | Terraform |
| IaC Security | Checkov |
| Kubernetes Platform | EKS (AWS) or minikube (local), kubectl |
| GitOps (optional) | ArgoCD or Flux |
| Container Registry | Docker Hub or GitHub Container Registry |
| Secrets | Kubernetes Secrets, GitHub Actions Secrets |