# Infrastructure Deployment Plan

Objective: Deploy secure, scalable, and high-performance infrastructure to support a real-money gaming application (Aviator, Coin Flip, Color Trading, etc.).

## 1. Cloud Hosting Environment

Platform: AWS (Mumbai region) – primary  
Alternative: GCP (Asia-South1) or DigitalOcean India  
Components to Deploy:  
- EC2 (or Compute Engine) for Node.js server  
- RDS or Cloud SQL for database (PostgreSQL/MySQL)  
- S3 (or GCS) for static content and media storage  
- VPC with private/public subnets  
- Auto-scaling groups for backend services

## 2. DNS and Domain

- Register domain via Google Domains, GoDaddy, or AWS Route53  
- Configure DNS with:  
 - A records → production load balancer  
 - CNAME for subdomains (e.g., api.example.com)  
 - SPF, DKIM, DMARC records for email delivery

## 3. Security Configuration

SSL/TLS:  
- Issue SSL using Let’s Encrypt or AWS ACM  
- Enforce HTTPS with HSTS headers  
  
Firewall & Network Security:  
- Restrict ports (80/443 only open to public)  
- Internal security groups for DB and admin services  
  
Secrets Management:  
- Use AWS Secrets Manager / GCP Secret Manager for API keys  
  
Web App Security:  
- Helmet.js for HTTP headers  
- Rate limiting and DDoS protection via Cloudflare/WAF  
- CSRF/XSS protection in frontend and API layers

## 4. Database Setup

- Cloud-based relational DB (MySQL/PostgreSQL)  
  
Security:  
- Enable encryption at rest  
- Set up daily automated backups  
- Enable audit logging  
  
Scalability:  
- Read replicas for analytics  
- Connection pooling using PgBouncer or ProxySQL

## 5. CDN + Asset Optimization

- Deploy a CDN (Cloudflare or AWS CloudFront)  
 - Cache JS/CSS/images and game animations  
 - Reduce latency for remote users  
- Enable Brotli/Gzip compression  
- Use lazy loading for UI assets

## 6. Monitoring & Logging

- Use Prometheus + Grafana for app metrics  
- Log aggregation with ELK Stack or CloudWatch Logs  
- Set alerts for:  
 - High CPU/Memory  
 - 5xx errors  
 - DB latency  
- Daily status reports to admin email

## 7. CI/CD Automation

- Use GitHub Actions or GitLab CI:  
 - Auto-deploy main branch to production  
 - Run test suite before deployment  
- Zero-downtime deployments using Blue/Green method or rolling updates

## 8. Backup & Recovery

- Daily encrypted backups of:  
 - User data  
 - Game transaction logs  
 - Payment history  
- Store backups in secondary region (e.g., AWS Singapore)  
- Test disaster recovery every 2 weeks

## 9. Access Control

- SSH via key-pair authentication only  
- Role-Based Access Control (RBAC) in cloud console  
- Audit trails for developer/admin logins