Production-grade cloud application checklist

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ABOUT ME

Former Full-stack developer & Cloud architect

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PRODUCTION READY?

CLOUD?

1. CLOUD NATIVE APPLICATION CODE

- **Able to run on ephemeral (short-lived) instances**

- **Can scale horizontally**

- **Stores data in database, files on object storage/block storage**

- **No in-memory session data**

2. SOURCE CODE BUILDS

- **Automated (scripted)**

- **Fast**

- **Optimized output**

- **Secure**

- **Runnable on a CI/CD server**

3. DEPLOYMENT ARTIFACT MANAGEMENT

- **Reliable**

- **Secure**

- **Fast uploads**

- **Caching**

AWS ECR, Docker registry, S3 buckets for AWS Lambda

4. INFRASTRUCTURE PROVIDER

Choose the right cloud provider

AWS/Azure/GCP, PaaS, BaaS,...

5. INFRASTRUCTURE PROVISIONING

- **Repeatable**

- **Auditable**

- **"Reviewable", codified (IaaC)**

AWS Cloudformation, Terraform

6. SERVICE DEPLOYMENTS & ORCHESTRATION

- **Support sufficient deployment strategy** (rolling, Blue/Green, Canary)
- **Support rollbacks**
- **Self-healing**
- **Circuit breaker**

Orchestration tools: Docker compose, Docker Swarm, Hashicorp Nomad + Consul, K8S
Managed services: AWS ECS, Google Cloud Run, AWS Lambda

7. LOAD BALANCING

- **API Gateway**

- **Application layer (L7) vs network (L4) load balancing**

8. SCALING

- **How fast? Spikes?l.**

- **Workloads scaling (containers, FaaS) - horizontal**

- **Load balancer/API Gateway scaling**

- **Database scaling (performance, storage, read-replicas)**

- **Auto-scaling based on configurable metrics**

9. HIGH AVAILABILITY AND FAULT TOLERANCE

"Everything fails, all the time" - Werner Vogels, AWS CTO

- **Data-replication**
- **Automatic (scheduled) DB backups**
- **Multi-zone deployments**
- **Automatic failover**
- **Point-in-time recovery**
- **Multi-region deployments**

10. SECURITY

- **OS-level security**

- **Automatic patching**

- **Secrets management**

- **Firewalls**

- **Least privileged permissions (IAM)**

11. LOGGING

- **Aggregate data to a central location**

- **Searchable and queryable logs**

- **HA log storage**

AWS CloudWatch, ELK stack, Papertrail, Sumo logic

12. MONITORING

- **Availability metrics**

- **Application metrics**

- **Usage metrics**

- **Automatic alerts**

- **Distributed tracing**

AWS CloudWatch, Datadog, New Relic, Honeycomb

13. DOCUMENTATION

- **Explained current setup**

- **Deployment guides**

- **Troubleshooting**

AWS CloudWatch, Datadog, New Relic, Honeycomb

14. COST EFFICIENCY

- **Overview of resources**

- **Budgets, alerts**

- **Right-sizing**

- **Serverles, scale-to-zero**

- **Reserved capacity**

- **Spot instances**

15. DEVELOPER EXPERIENCE

- **Fast provisioning**

- **Fast feedback loop**

- **Easy to run and debug in development mode**

- **Ability to spin-up dev environments with dev-prod parity**

- **Deployable by developers**

Too complicated?

STACKTAPE

97 % OF AWS CAPABILITIES, 3% COMPLEXITY

https://stacktape.com

Time for your questions

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