Production-grade cloud application checklist

ABOUT ME

Former Full-stack developer & Cloud architect

Almost 10 years developing cloud applications

CEO @ **Stacktape**, helping teams develop and run cloud applications

https://linkedin.com/in/matus-congrady https://twitter.com/matus_congrady





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, S S3 buckets for AWS Lambda



4. INFRASTRUCTURE PROVIDER

Choose the right cloud provider

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



5. INFRASTRUCTURE PROVISIONING

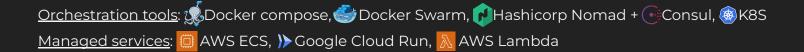
- Repeatable
- Auditable
- "Reviewable", codified (laaC)

AWS Cloudformation, Terraform



6. SERVICE DEPLOYMENTS & ORCHESTRATION

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





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





12. MONITORING

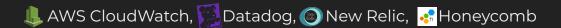
- Availability metrics
- Application metrics
- Usage metrics
- Automatic alerts
- Distributed tracing

👢 AWS CloudWatch, 🎇 Datadog, 🍥 New Relic, 😽 Honeycomb



13. DOCUMENTATION

- Explained current setup
- Deployment guides
- Troubleshooting





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?





97 % OF AWS CAPABILITIES, 3% COMPLEXITY

https://stacktape.com

Time for your questions

Matúš Čongrády, 👉 STACKTAPE

