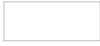


Appendix E - Launch Coordination Checklist



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Launch Coordination Checklist

This is Google's original Launch Coordination Checklist, circa 2005, slightly abridged for brevity:

Architecture

- Architecture sketch, types of servers, types of requests from clients
- Programmatic client requests

Machines and datacenters

- Machines and bandwidth, datacenters, N+2 redundancy, network QoS
- New domain names, DNS load balancing

Volume estimates, capacity, and performance

- HTTP traffic and bandwidth estimates, launch "spike," traffic mix, 6 months out
- Load test, end-to-end test, capacity per datacenter at max latency
- Impact on other services we care most about
- Storage capacity

System reliability and failover

- **What happens when:**
 - Machine dies, rack fails, or cluster goes offline
 - Network fails between two datacenters
- **For each type of server that talks to other servers (its backends):**
 - How to detect when backends die, and what to do when they die
 - How to terminate or restart without affecting clients or users
 - Load balancing, rate-limiting, timeout, retry and error handling behavior
- Data backup/restore, disaster recovery

Monitoring and server management

- Monitoring internal state, monitoring end-to-end behavior, managing alerts
- Monitoring the monitoring
- Financially important alerts and logs
- Tips for running servers within cluster environment
- Don't crash mail servers by sending yourself email alerts in your own server code

Security

- Security design review, security code audit, spam risk, authentication, SSL
- Prelaunch visibility/access control, various types of blacklists

Automation and manual tasks

- Methods and change control to update servers, data, and configs
- Release process, repeatable builds, canaries under live traffic, staged rollouts

Growth issues

- Spare capacity, 10x growth, growth alerts
- Scalability bottlenecks, linear scaling, scaling with hardware, changes needed
- Caching, data sharding/resharding

External dependencies

- Third-party systems, monitoring, networking, traffic volume, launch spikes
- Graceful degradation, how to avoid accidentally overrunning third-party services
- Playing nice with syndicated partners, mail systems, services within Google

Schedule and rollout planning

- Hard deadlines, external events, Mondays or Fridays
- Standard operating procedures for this service, for other services

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