

# Google Cloud Professional Cloud Architect Cheat Sheet

High-yield review for enterprise architecture, IAM, networking, data, resilience, and cost decisions on Google Cloud.

<b>Best for</b> as a review before architecture practice	<b>Focus</b> requirements mapping, IAM, service selection, resilience	<b>Use with</b> quick summary + service map
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## 1. Design principles

<b>Business and technical requirements</b>	Translate reliability, security, cost, performance, and compliance into architecture choices before selecting services.
<b>Google-recommended architecture</b>	Favor managed services, loose coupling, autoscaling, and failure isolation over custom infrastructure.
<b>Shared responsibility</b>	Google secures the cloud; you still design IAM, data protection, org policy, and workload controls.
<b>Trade-off thinking</b>	Professional Cloud Architect questions often force a best-fit answer across cost, agility, and operational overhead.

## 2. Identity, governance, and security

<b>Resource hierarchy</b>	Organization, folders, and projects provide policy boundaries for IAM, budgets, and org policies.
<b>IAM model</b>	Use least privilege with predefined roles, service accounts for workloads, and groups for human access.
<b>Org Policy and tags</b>	Use org policies to restrict risky configurations; use tags or labels for control, grouping, and automation.
<b>Data protection</b>	Pick CMEK when customer-controlled keys are required; pair with Secret Manager, Cloud KMS, and audit logging.

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## 3. Core platform choices

<b>Compute Engine vs GKE vs Cloud Run</b>	Choose VMs for low-level control, GKE for container orchestration, Cloud Run for serverless HTTP/container workloads.
<b>Cloud Storage vs Filestore vs Persistent Disk</b>	Object storage for durable blobs, Filestore for managed NFS, Persistent Disk for VM-attached block storage.
<b>Cloud SQL vs Spanner vs Bigtable vs BigQuery</b>	Cloud SQL for simpler relational apps, Spanner for global relational scale, Bigtable for wide-column scale, BigQuery for analytics.
<b>Pub/Sub and Eventarc</b>	Use event-driven designs to reduce coupling and improve scalability between producers and consumers.

## 4. Networking and resilience

<b>VPC design</b>	Use shared VPC, regional subnets, firewall rules, and private connectivity to separate teams and environments cleanly.
<b>Load balancing</b>	Global load balancing improves availability; pair with health checks, Cloud CDN, and autoscaling where relevant.
<b>Hybrid connectivity</b>	Use Cloud VPN for simpler encrypted links and Interconnect for higher throughput and steadier hybrid networking.
<b>BCDR</b>	Design around RPO and RTO with regional or multi-region services, backups, and tested failover procedures.

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## 5. Operations and cost

<b>Observability</b>	Use Cloud Monitoring, Logging, Error Reporting, and trace data to verify SLOs and speed incident response.
<b>Automation</b>	Use Infrastructure as Code, templates, policies, and pipelines to reduce manual drift and improve repeatability.
<b>Cost control</b>	Rightsize resources, use committed use discounts where stable, and prefer managed/serverless services when ops cost matters.
<b>Exam habit</b>	Pick the answer that satisfies stated constraints with the least operational burden and strongest long-term fit.