

Google Professional Cloud Architect

Course Duration ~50 Hours · Exam-Aligned Curriculum

Design & Planning — ~25%

Provisioning — ~17.5%

Security & Compliance — ~17.5%

Process Optimization — ~15%

Implementation — ~12.5%

Operations — ~12.5%

In short: This is an instructor-led certification program mapped 1:1 to the official Google Cloud Certified – Professional Cloud Architect exam guide (v6.1, effective October 30, 2025). You learn to design, provision, secure, and operate scalable Google Cloud solutions and to drive the technical and business processes around them — working the four published case studies (Altostrat Media, Cymbal Retail, EHR Healthcare, KnightMotives Automotive) and applying the Google Cloud Well-Architected Framework pillars throughout, with coverage of Google Cloud generative AI (Gemini, Agent Builder, Model Garden, AI Hypercomputer). The program closes with full-length mock exams and a case-study capstone. On completion you are ready to pass the exam and take on Cloud Architect and senior cloud engineering roles.

Certification	Google Cloud Certified – Professional Cloud Architect	Offered by	Google Cloud
Level	Professional (no prerequisite certification required)	Recommended	3+ years in industry; 1+ years designing and managing solutions on Google Cloud
Format	2 hours; multiple choice and multiple select	Result	Pass/fail (no numeric score); section-level feedback if not passed
Validity	2 years; renewable via a shorter renewal exam	Exam guide	v6.1, effective October 30, 2025
Case studies	Altostrat Media, Cymbal Retail, EHR Healthcare, KnightMotives Automotive — several using Google Cloud generative AI solutions		

Section 1: Designing and Planning a Cloud Solution Architecture

~25%

ESTIMATED TIME

12–13 Hours

1.1 Design infrastructure meeting business requirements

- Business use cases & product strategy; functional/non-functional requirements
- Business continuity; cost optimization; application design support
- Integration patterns; data movement; design trade-offs
- Workload disposition (build/buy/modify/deprecate); success measures (KPI, ROI, metrics)
- Security & compliance; observability

1.2 Design infrastructure meeting technical requirements

- Well-Architected Framework; high availability & failover
- Resource flexibility; scalability; performance & latency
- Gemini Cloud Assist; backup and recovery

1.3 Design network, storage, and compute resources

- On-premises/multicloud integration
- Google Cloud AI/ML: Gemini LLMs, Agent Builder, Model Garden, AI Hypercomputer
- Cloud-native networking: VPC, peering, firewalls, load balancers, Private Service Connect
- Data processing solutions; storage types (object/file/database)
- Mapping compute to platform products (GKE, Cloud Run, Cloud Run functions); compute resources (spot VMs, custom machine types)

1.4 Create a migration plan

- Integrating with existing systems; assessing & migrating systems and data (Migration Center)
- Migration methodologies, testing, network & dependency planning
- Software license & financial implications

1.5 Envision future solution improvements

- Cloud/technology improvements; evolving business needs; cloud-first design approach

HANDS-ON

- Design a full solution architecture for a published case study
- Build a migration plan with Migration Center

Assessment: Case Study Design + Quiz

Section 2: Managing and Provisioning a Cloud Solution Infrastructure

~17.5%

ESTIMATED TIME

8–9 Hours

2.1 Configure network topologies

- Hybrid & multicloud networking; security protection (intrusion protection, access control, firewalls); VPC design and load balancing

2.2 Configure individual storage systems

- Data allocation; processing & compute provisioning; security & access
- Data transfer & latency; retention & lifecycle management; growth planning; data protection (backup & recovery)

2.3 Configure compute systems

- Compute provisioning; volatility (spot vs. standard)
- Cloud-native compute networking (Compute Engine, GKE, serverless, VMware Engine)
- Infrastructure orchestration & patch management; container orchestration; serverless

2.4 Leverage Gemini Enterprise Agent Platform for end-to-end ML workflows

- Agent Platform Pipelines for the ML lifecycle; data integration
- AI Hypercomputer: GPUs/TPUs for training & serving, consumption-model optimization, large-scale training

2.5 Configure prebuilt solutions or APIs with Agent Platform

- Google AI APIs (Search, Conversation, Vision, Image, Video, Audio)
- Gemini Enterprise features (AI Agents, NotebookLM); integrating Model Garden models

HANDS-ON

- Provision a hybrid VPC topology with load balancing
- Deploy compute across GKE, Cloud Run, and spot VMs

Assessment: Quiz + Lab

Section 3: Designing for Security and Compliance

~17.5%

ESTIMATED TIME

8–9 Hours

3.1 Design for security

- IAM; resource hierarchy (organizations, folders, projects)
- Data security: key management, encryption, secret management; separation of duties
- Security controls: auditing, VPC Service Controls, context-aware access, org policy, hierarchical firewall
- Cloud KMS / customer-managed keys
- Secure remote access: Identity-Aware Proxy, service account impersonation, Chrome Enterprise Premium, Workload Identity Federation
- Securing the software supply chain
- Securing AI: Model Armor, Sensitive Data Protection, secure model deployment

3.2 Design for compliance

- Legislation & regulation: health/children's/data privacy, ownership, data sovereignty
- Commercial: credit card data, PII; industry certifications (e.g., SOC 2); audits and logs

HANDS-ON

- Design a resource hierarchy with IAM, org policy, and VPC Service Controls
- Configure CMEK encryption and Identity-Aware Proxy access

Assessment: Quiz + Lab

Section 4: Analyzing and Optimizing Technical and Business Processes

~15%

ESTIMATED TIME

6–7 Hours

4.1 Analyze and define technical processes

- SDLC; CI/CD; troubleshooting & root cause analysis
- Testing & validation of software and infrastructure; service catalog & provisioning; disaster recovery

4.2 Analyze and define business processes

- Stakeholder management; change management; team assessment/skills readiness
- Decision-making; customer success management; cost/resource optimization (CapEx/OpEx); business continuity

HANDS-ON

- Design a CI/CD + DR process for a case-study workload
- Run a stakeholder/change-management exercise for a migration

Assessment: Case Study + Quiz

Section 5: Managing Implementation

~12.5%

ESTIMATED TIME

5–6 Hours

5.1 Advise development and operations teams

- Application & infrastructure deployment; API management best practices (Apigee)
- Testing frameworks (load/unit/integration); data & system migration tooling; Gemini Cloud Assist

5.2 Interact with Google Cloud programmatically

- Cloud Shell Editor, Cloud Code, Cloud Shell Terminal
- Google Cloud SDKs (gcloud, gsutil, bq); Cloud Emulators (Bigtable, Spanner, Pub/Sub, Firestore)
- Infrastructure as Code (Terraform); Google API best practices and client libraries

HANDS-ON

- Deploy infrastructure with Terraform and the gcloud SDK
- Develop against Cloud Emulators from Cloud Shell

Assessment: Quiz + Lab

Section 6: Ensuring Solution and Operations Excellence

~12.5%

ESTIMATED TIME

5–6 Hours

TOPICS

- Operational excellence pillar of the Well-Architected Framework — principles & recommendations
- Google Cloud Observability: monitoring & logging, profiling & benchmarking, alerting strategies
- Deployment and release management; supporting deployed solutions
- Evaluating quality control measures
- Ensuring production reliability: chaos engineering, penetration testing, load testing

HANDS-ON

- Build monitoring dashboards and alerting policies with Google Cloud Observability
- Run a load test and a reliability (chaos) drill against a deployed service

Assessment: Quiz + Lab

Exam Readiness & Mock Exams**ESTIMATED TIME**

3–4 Hours

TOPICS

- Case-study strategy: Altostrat Media, Cymbal Retail, EHR Healthcare, KnightMotives Automotive
- Section-by-section exam strategy and elimination techniques
- Renewal path: 2-year validity and the shorter renewal exam

HANDS-ON

- Full-length timed mock exams with detailed review
- Capstone: end-to-end architecture for one case study

Assessment: Capstone Design + Mock Exams