

Google Cloud Platform Proposed Architecture Diagram

Architecture Components:

- **Cloud Armor:** Provides Layer 3 and Layer 4 DDoS protection at the edge
- **Cloud Load Balancer:** Global load balancing with SSL termination
- **Cloud CDN:** Content delivery network for static assets caching
- **Cloud Storage:** Hosts static content (HTML, CSS, JS, images)
- **Cloud Run:** Serverless platform for web and application servers
- **Cloud Memorystore for Redis:** Managed Redis service for user profiles and session data
- **Cloud SQL:** Fully managed relational database service
- **VPC Network:** Private virtual network with firewall rules

Data Flow:

1. User requests enter through Cloud Armor for DDoS protection
2. Requests are routed to Cloud Load Balancer
3. Static content requests are served via Cloud CDN from Cloud Storage
4. Dynamic requests are forwarded to Cloud Run services
5. Application server retrieves user data from Cloud Memorystore (Redis)
6. Application server retrieves other data from Cloud SQL
7. Response flows back through the same path to the user

Security Features:

- End-to-end encryption with SSL/TLS
- Identity-Aware Proxy (IAP) for application-level access control
- VPC Service Controls to prevent data exfiltration

- Private Google Access for secure API calls
- Cloud Security Command Center for monitoring