Requirenment: Develop a “Enterprise Usage Monitoring & Admin Platform”

Functiional Requirement

1. Ingest and track user and feature usage across enterprises in near real time.
2. Usage dashboards showing active users, feature usage and trends
3. Ability to define usage limits and access policies
4. Alerts for high usage or abnormal behavior
5. Maintain audit logs for user and admin actions

Non Functional Requirements:

1. System should scale to large enterprises and high data volume
2.Strong security with tenant isolation and encryption
3.Low latency for ingestion and dashboards
4.Compliant with enterprise privacy and retention requirements
5.Good observability for monitoring system health
6.Highly reliable with no loss of usage data

Capacity Estimation :
Target Customers: Large,small,Mid Scale enterprise

Assumptions:1000Enterprise(small:50%,Mid:30%,Large:20%)
Average user per Enterprise:
small=500
mid=2000
large=10000

Avg usage events per user per day: 40

Avg event size: 1 KB

Peak traffic factor: 5× average
Total small enterprises=500
Total Mid Enterprises=300
Total Large Enterprises=200
Total users= 250000+600000+2000000
≈2.85x10^6

Events per user(Assumption)=40 events/day
Per day usage=2.85x10^6 x40
=114 M/day
Lets Assume 1 req contains**Metadata (userId, orgId, timestamp, action, payload)=1KB/event**
required daily storage(1copy)=114GB/day
Assume replication factor=3

total storage required=342 GB/day
Monthly req storage=10.2 TB/month
yearly storage req=120.2 Tb/yr
Replicated primary storage ≈ 123 TB
Backup storage ≈ 123 TB

Total yearly storage Required=256 TB/yr

Assumption: Designing a system to track usage of multiple enterprises