(a) The Synapse Architecture

Publisher / Subscriber diagram labels:

- **Publisher**
  - App Models
  - ORM 1
  - Synapse Query Intercept
  - Synapse Publisher
  - DB 1 (e.g., PostgreSQL)
  - Version Store
- **Reliable Pub/Sub** — reliable, potentially slow (e.g., Kafka, RabbitMQ, SQS)
- **Subscriber**
  - App Models
  - ORM 2
  - Synapse Subscriber
  - Version Store
  - DB 2 (e.g., MongoDB)
- fast, sharded, can fail (e.g., Redis)

(b) Sample Write Message

```
{ app: "pub3",
  operations: [ {
    operation: "update",
    type: ["User"],
    id: 100,
    attributes: {
      interests: ["cats", "dogs"]
    } } ],
  dependencies: {
    "pub3/users/id/100": 42 },
  published_at: "10/11/14 07:59:00",
  generation: 1 }
```