

# Introduction to Data Management

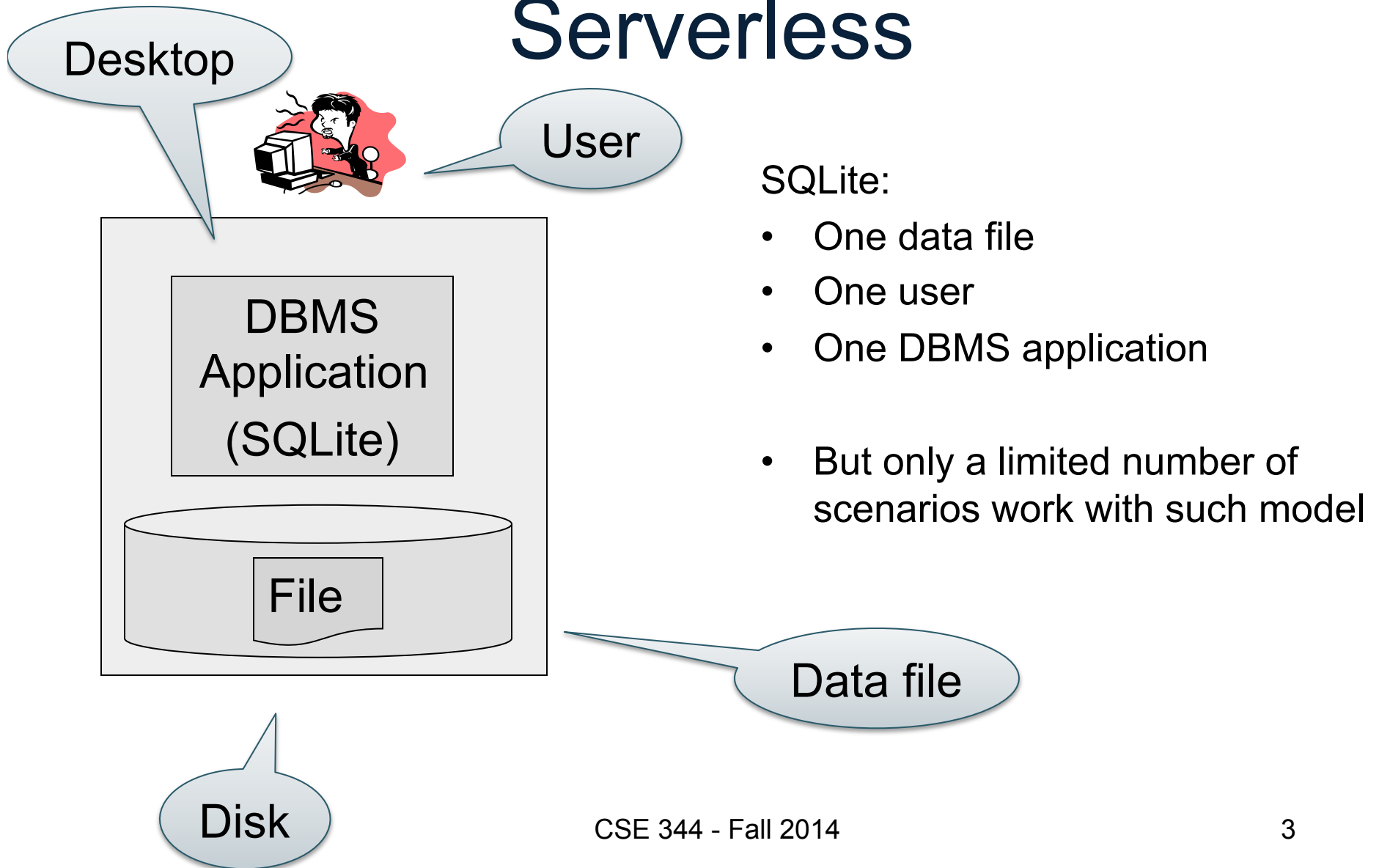
## CSE 344

### Lecture 8: Systems Architecture

# Architectures

1. Serverless
2. Two tier: client/server
3. Three tier: client/app-server/db-server

# Serverless

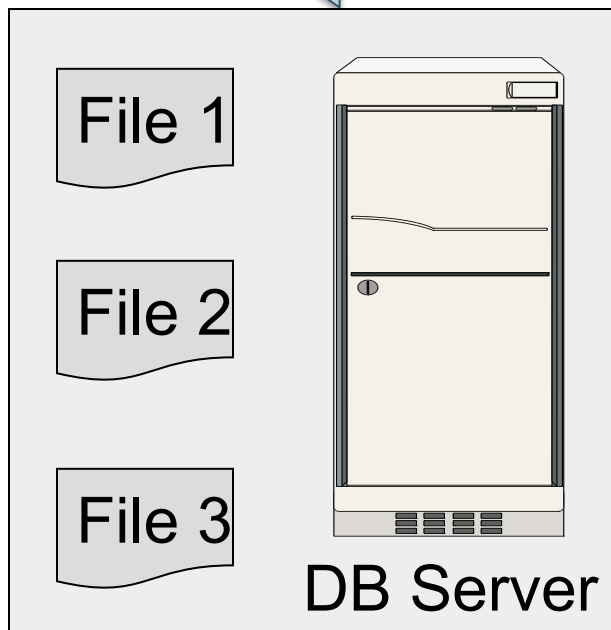


# Client-Server

Supports many apps and many users simultaneously

Server Machine

Client Applications



Connection (JDBC, ODBC)

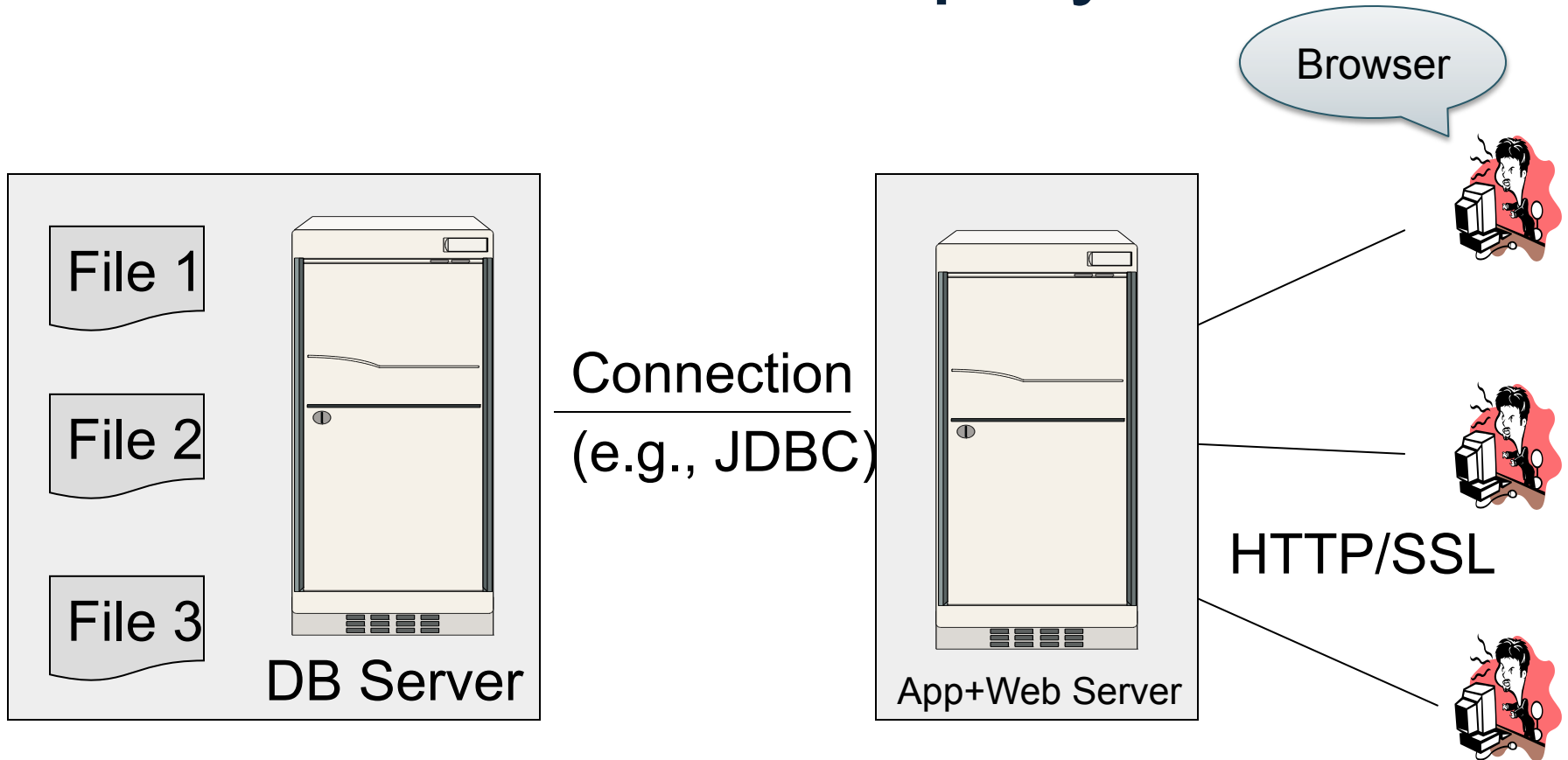


- One server running the database
- Many clients, connecting via the ODBC or JDBC (Java Database Connectivity) protocol

# Client-Server

- One *server* that runs the DBMS (or RDBMS):
  - Your own desktop, or
  - Some beefy system, or
  - A cloud service (SQL Azure)
- Many *clients* run apps and connect to DBMS
  - Microsoft's Management Studio (for SQL Server), or
  - psql (for postgres)
  - Some Java program (HW5) or some C++ program
- Clients “talk” to server using JDBC/ODBC protocol

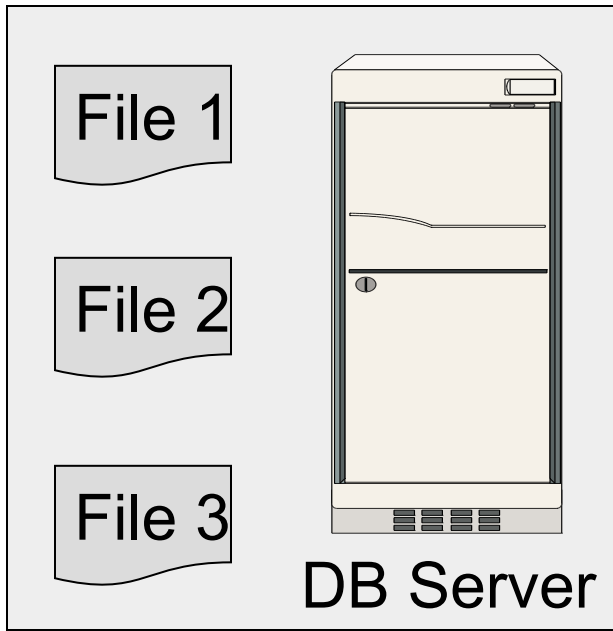
# 3-Tiers DBMS Deployment



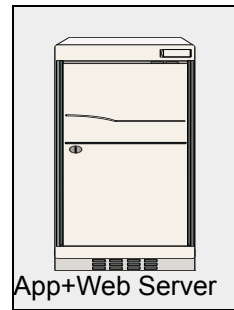
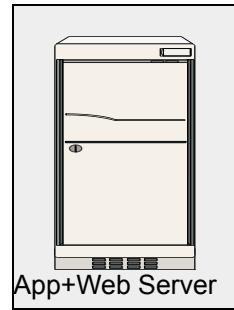
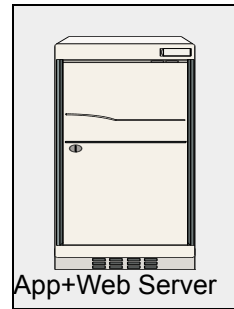
Web-based applications

# 3-Tier Deployment

Replicate  
App server  
for scaleup



Connection  
(e.g., JDBC)



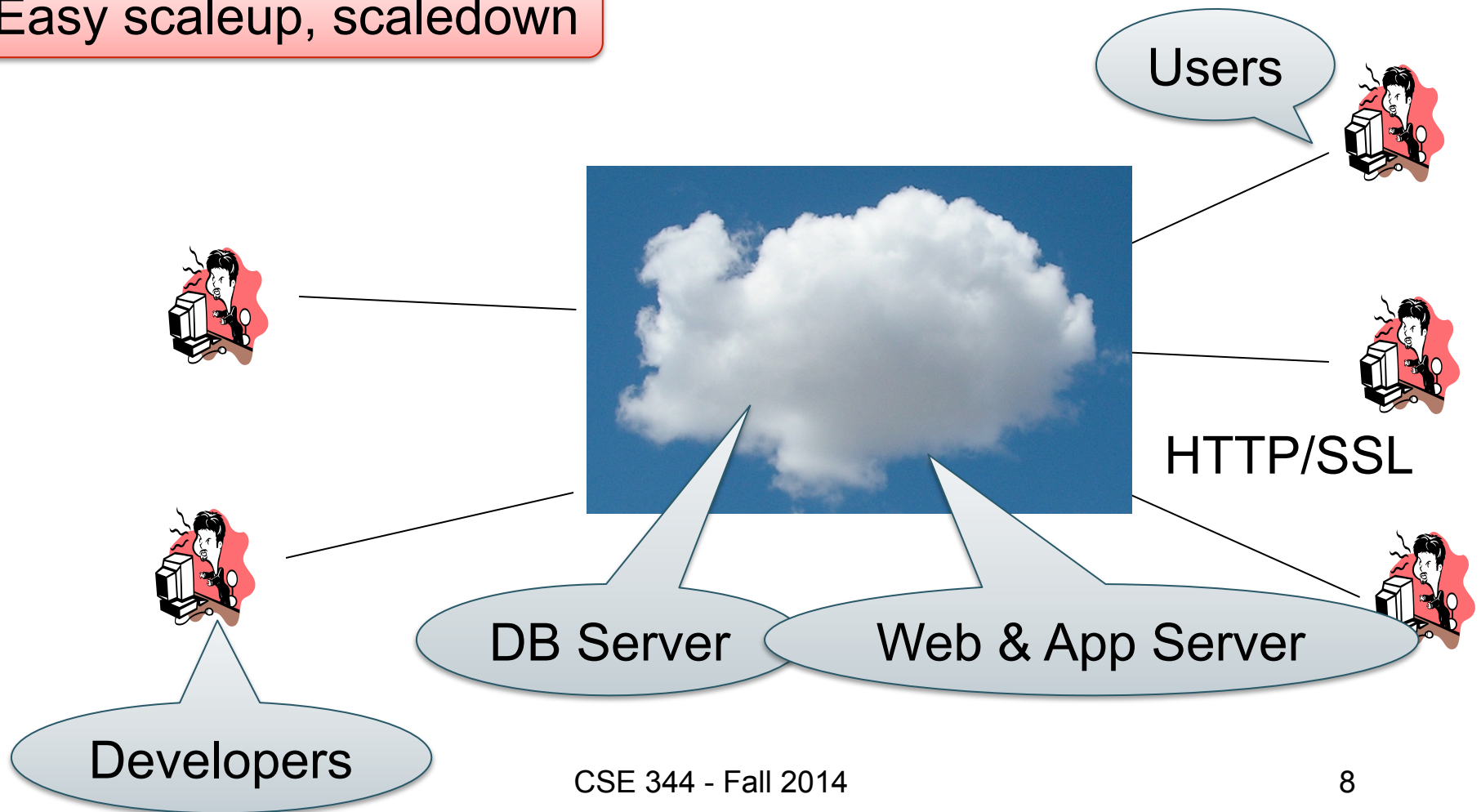
HTTP/SSL



Why don't we replicate the DB server too?

# DBMS Deployment: Cloud

Easy scaleup, scaledown





# Using a DBMS Server

1. Client application establishes connection to server
2. Client must authenticate self
3. Client submits SQL commands to server
4. Server executes commands and returns results

