Smart Client, Data Store, Application and Enterprise Server Based Architecture

Lesson 06

Application Framework

Application Framework

- Enables an application developer use Object-oriented approach
- Reuse of previously developed application (software)

Application server

- Software, which executes at a server and serves the application-level logic of the business functions (transactions)

Application-level logic

- The logic commands or instructions which an application server uses for sending and receiving the logic results from a computing system

Business functions

- The logical way in which transactions (business) carried out between server at one end and application at the other

Examples of transactions involving mail application-server

(a) Establishing connection between mail APIs (application program interfaces) and mail server

(b) Updating mails by inserting, adding, replacing, or deleting

(c) Querying for the mails

(d) Terminating the connection between the API and the mail server

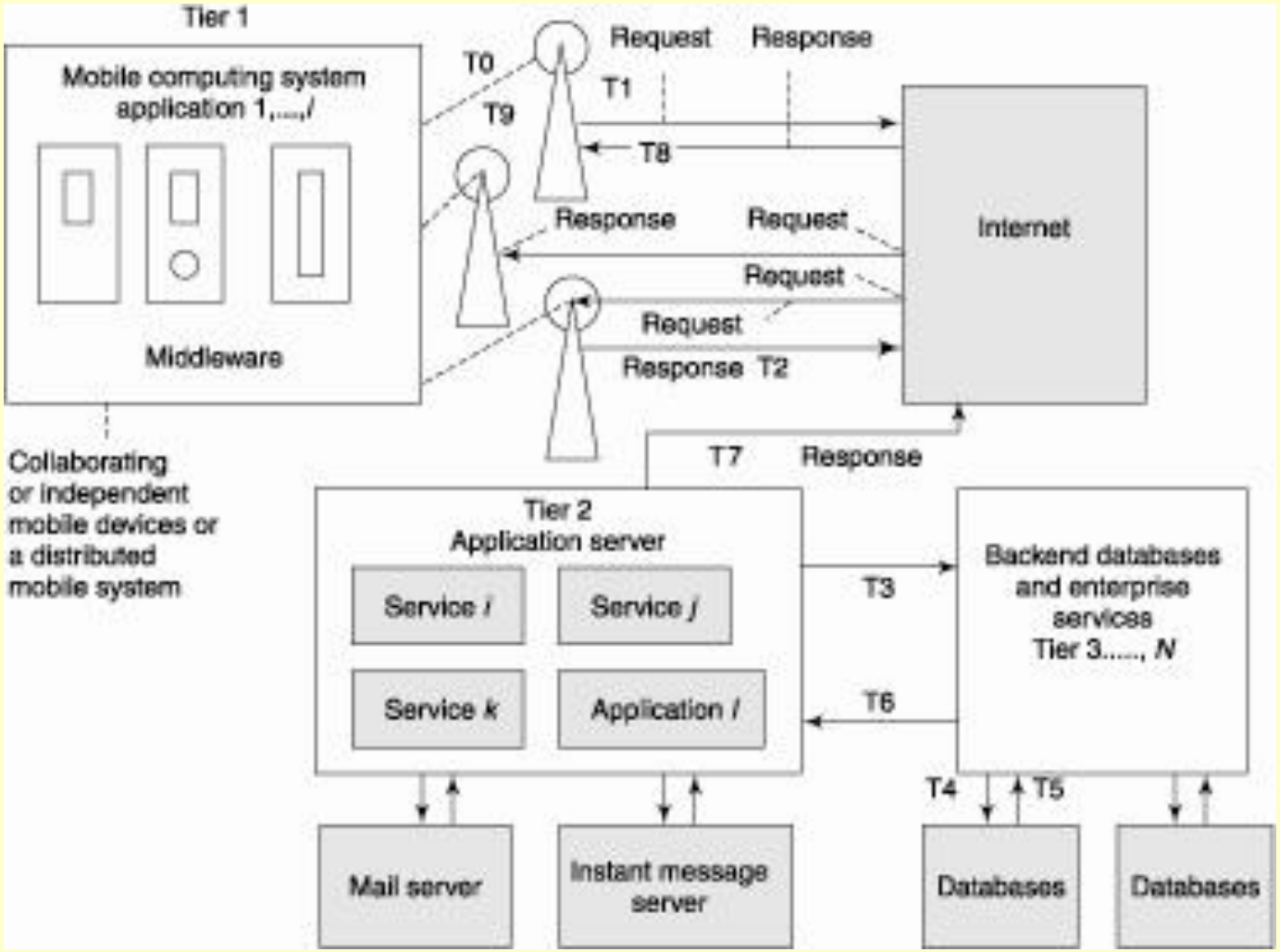
Responses to Requests by an application server

- The server Gets from the collaborating or independent mobile devices of an enterprise
- From a distributed mobile computing system
- The server processes these requests
- Generates responses

Application server additional functions

- Also handles presentation services to the devices or computing systems
- Employs records at the server database(s) for this purpose
- Also integrates itself with the backend databases
- Integrates with systems, for example, an enterprise system

An application-server-based *N*-tier architecture (*N*≥ 3)



Application-server-based *N*-tier architecture (*N* ≥ 3)

- Requests processed at the application server using backend database(s) and systems
- Assume that there are *j* clients which can request to the server
- A client 1 … or *j* sends the request from collaborating or independent mobile devices of an enterprise or from a distributed mobile computing system

The stages of data transmission requests at instants from T0 to T4

- Requests are processed through tiers 1–*N*
- Responses sent from the backend system to tier 1 at instants from T5 to T9

Services provision at the application server at Tier 2

1. Service *i*: application logic processing at the server
2. Service *j*: presentation services for device responses and decoding the device requests (e.g.; presentation service of a middleware application server for universal device access)

Services provision at the application server at Tier 2

3. Service *k* : transaction services with support to pervasive computing model of mobile applications
4. Application *l*: system integration service for backend services and database at Tiers 3, …, N

Examples of web database and enterprise application servers

1. IBM DB2 database server—IBM DB2 is an RDBMS (Relational Database Management System) data server from IBM

- DB2 EveryPlcae version run on handheld devices
- Enterprises application logic processing at the server

Examples of web database and enterprise application servers

2. Oracle 9i database Server— RDBMS
   Oracle9i server has a large number of features and it supports XML documents and has an option for cluster database

Application servers

- Web Generic application servers for Java-based web applications (Microsoft, Sun, and Netscape) with additional support for wireless network and mobile devices

Application servers

- IBM WebSphere Application Server with specialized mobile Web computing application server (it supports J2EE Web applications and XML databases)
- IBM Domino Application Server for workgroups, email applications, and support for handheld and Windows CE devices

Application servers

- Microsoft Mobile Information Server (e.g., for messenger and email)
- Oracle 9i Application Server for database services with mobile support
- Puma and Synchrologic iMobile Suite for data-synchronization services

Application servers

- Nokia WAP (Wireless Application Protocol) Server for wireless Internet WAP applications
- BlackBerry Enterprise Server (BES)
- BES– a middleware software for BlackBerry wireless devices

Summary

- Application framework enables an application developer use Object-oriented approach
- Application server, which is executed on a server and serves the application-level logic of the business functions

Summary

- Application server processing stages of client requests in N≥ 3 tier architecture
- Mail server
- Database server the application logic processing is at the server (IBM DB2)
- DB2e version runs on handheld devices
- Oracle 9i database server with option for cluster databases.

End of Lesson 06
Application Framework