



Student Engagement & Mentoring in Technology

Study Guide: Application Architecture and Delivery

Overview

This study guide covers two fundamental aspects of IT application management:

1. **Application Delivery Methods** – The different ways applications are deployed and accessed by users.
2. **Application Architecture Models** – The structure of applications and how they interact with servers.

Understanding these concepts is essential for the **ITF+ exam** and for IT professionals managing software deployment and system architecture.

Application Delivery Methods

1. Locally Installed Applications

- Run **entirely** on the end-user's computer.
- Do **not** require network access.
- Examples: **Microsoft Word, Apple Pages, Adobe Photoshop**
- Files created are stored **locally** and must be backed up to prevent data loss.

2. Local Network-Hosted Applications

- Installed on a **server** within the local network.
- Accessed via a **web browser** or client software.
- Requires **network access** but **not Internet access**.
- **VPN (Virtual Private Network)** allows remote users to securely connect to the local network.

3. Cloud-Hosted Applications

- **Managed by vendors** and run on cloud servers.
- Delivered via the **Software as a Service (SaaS)** model.
- Requires **Internet access**.



Student Engagement & Mentoring in Technology

- Vendors handle **maintenance and updates**.
 - Example: **Google Docs, Dropbox, Salesforce**.
-

Application Architecture Models

1. One-Tier Applications

- The entire application runs on the **local user's computer**.
- Includes **processing, data storage, and user interface** in one system.
- No servers are involved.

2. Two-Tier Applications

- Uses a **client-server** model.
- **Example:** A simple website where:
 - A **web server** processes requests and delivers content.
 - A **web browser** on the user's computer displays the data.
- **Exam Tip:** The **user's computer** always counts as the **first tier**.

3. Three-Tier Applications

- Includes an additional **database server**.
- **Example:** An e-commerce site where:
 1. The **web browser** (first tier) displays the data.
 2. The **web server** (second tier) processes requests.
 3. The **database server** (third tier) stores user data, orders, etc.

4. N-Tier Applications

- Extends beyond three tiers, adding **additional servers** to optimize performance.
 - Can include: **load balancers, caching servers, API gateways, and microservices**.
 - Used in **large-scale enterprise applications**.
-

Key Exam Tips

Locally installed applications do not require network access.

Local network-hosted applications need network access but not Internet access.



Student Engagement & Mentoring in Technology

Cloud-hosted applications need both network and Internet access.

One-tier applications run entirely on the local user's computer.

Client-server models are at least **two-tier applications**.

A **database-driven web application** is a classic example of a **three-tier application**.

Practice Questions

Question 1

Scenario: You are working with a development team designing an application that uses a **web server** to answer user requests and a **database server** to store information. What type of architecture is this?

- A. One-tier application
- B. Two-tier application
- C. Three-tier application
- D. Four-tier application

Answer: C – Three-tier application

- The **web browser** (user's system) = First tier.
 - The **web server** = Second tier.
 - The **database server** = Third tier.
-

Question 2

Scenario: A team of salespeople needs an application for **producing estimates** while working in remote areas **without network access**. Which delivery model is best?

- A. Three-tier application
- B. Local network-hosted application
- C. Locally installed application
- D. Cloud-hosted application

Answer: C – Locally installed application



Student Engagement & Mentoring in Technology

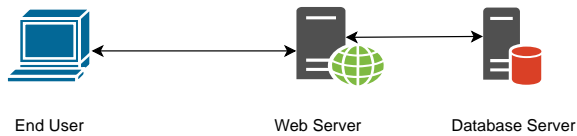
- The sales team **does not have network access**, so cloud or network-hosted applications will not work.
 - A **locally installed application** allows offline functionality.
-

SEMtech!

Student Engagement & Mentoring in Technology



Two-Tier Applications involve a client and one server.



Three-Tier Applications involve a client and two tiers servers.