

Software Design And Architecture

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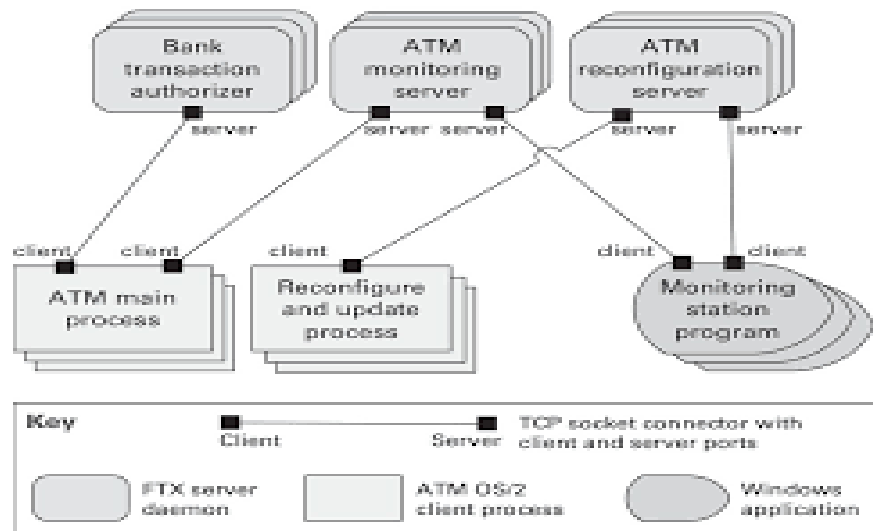
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ATM Software Architecture

The Automated Teller Machine (ATM) banking system developed in the early 1990s. At that time, client-server architectures were the modern alternative to mainframe-based systems. (J2EE and .NET application servers didn't exist and multitier was not yet described as a style.)



1. **Element / components** are specify performance and function of the given system.

Open or withdraw a fixed deposit

You can open a fixed deposit with your bank using an ATM.

Select 'Open Fixed Deposit' on the ATM menu, select the duration, enter the amount and confirm the other necessary details.

Recharge your mobile

Prepaid services of most mobile operators can be recharged from an ATM.

You can also recharge mobile phones of friends or family members in the same manner.

Deposit cash

Many banks have installed cash deposit machines in ATM kiosks.

One can deposit up to Rs 49,900 per transaction.

Denominations of Rs 100, Rs 500 and Rs 1,000 are accepted.

Pay income tax

Some banks offer the convenience of paying income tax using ATMs. This includes advance tax, self-assessment tax as well as tax due after regular assessment.

You need to register for the facility on the bank's website or branch first

Once the amount is deducted from your account, the ATM will generate a unique number (CIN).

You can visit the bank website after 24 hours and print the challan using the CIN.

2. **Connectors** that enable communication, coordination, and cooperation among elements.

the **ATM** has to **connect** to, and **communicate** through, a host processor.

The host processor is analogous to an Internet service provider (ISP) in that it is the gateway through which all the various **ATM** networks become available to the cardholder (the person wanting the cash).

How to cooperate with ATM

Step 1: Insert ATM Card:

Insert your ATM Card in the ATM machine in the slot as marked in the above diagram.

Step 2: Select Language

Select your language from the language options appearing on the screen (shown in the diagram above)

Step 3: Enter 4-Digit ATM Pin

Use the Keypad (as marked in the diagram) to enter your 4 digit ATM Pin Number.

Do not ever share your ATM Pin with anyone. Ensure that nobody is watching you, while you enter the Pin.

Be careful while entering the Pin, as a wrong PIN may lead to the blockage of the ATM card.

Step 4: Select the type of Transaction:

In the ATM screen, you will be able to see different types of transaction options such as Deposit, Transfer, Withdrawal of Money etc.

For cash withdrawal, you will have to select Withdrawal Option.

Step 5: Select the Type of Account:

After selecting the withdrawal option, the screen will display different account types, select your account type.

Step 6: Enter the withdrawal amount:

Now, enter your withdrawal amount.

Make sure that you do not enter a withdrawal amount more than the balance in your account.

Now press enter.

Step 7: Collect the Cash:

Now collect the cash from the lower slot of the machine (as shown in the picture above)

Step 8: Take a printed receipt , if needed

After you collect the cash, you will get an option of whatever you want a printed receipt of the transaction.If you want a printed receipt, click yes and close the transaction.

Step 9: Another Transaction :

If you want to undertake another transaction then select that option.

Withdrawals from an ATM card debit amount from your existing bank account (*either savings or current*), so when you wish to withdraw, ensure that you have sufficient balance in the account.

3. **Constraints** that define how elements can be integrated to form the system

Transactional secrecy and integrity

The security of ATM transactions relies mostly on the integrity of the secure cryptoprocessor: the ATM often uses general commodity components that sometimes are not considered to be "trusted systems".

Encryption of personal information, required by law in many jurisdictions, is used to prevent fraud. Sensitive data in ATM transactions are usually encrypted with DES, but transaction processors now usually require the use of Triple_DES.

Customer identity integrity

There have also been a number of incidents of fraud by Man-in-the-middle attacks, where criminals have attached fake keypads or card readers to existing machines. These have then been used to record customers' PINs and bank card information in order to gain unauthorised access to their accounts. Various ATM manufacturers have put in place countermeasures to protect the equipment they manufacture from these threats.

Alternative methods to verify cardholder identities have been tested and deployed in some countries, such as finger and palm vein patterns. Cheaper mass-produced equipment has been developed and is being installed in machines globally that detect the presence of foreign objects on the front of ATMs, current tests have shown 99% detection success for all types of skimming devices.

Device operation integrity

ATMs that are exposed to the outside must be vandal- and weather- resistant.

Openings on the customer side of ATMs are often covered by mechanical shutters to prevent tampering with the mechanisms when they are not in use. Alarm sensors are placed inside ATMs and their servicing areas to alert their operators when doors have been opened by unauthorised personnel.

4. **Attributes** that describe the advantages and disadvantages of the chosen structure

Advantages of ATM

- Withdrawing money.
- Checking how much money is remaining in the account.
- Round the Clock Services: ATM provides banking services to its customers round the clock, 24 hours a day, 7 days a week and 365 days a year.

- Access to bank from any part of the world: Essential banking services like deposits, withdrawals transfer of funds, etc can be accessed by customers from any part of the world.
- Expansion of Services to any corner of the world: Of the Banks can expand their services to any corner of the world by providing electronic access to its customers.
- For shopping Purpose: Now a day's almost every shopping mall, restaurant and other organizations are accepting debit or credit card payments.

Disadvantages of ATM

- If problem with credit card you cannot withdraw your money.
- If someone watches or hacks an atm machine your details may be taken if you forget your PIN number you cannot use the card.
- Cannot be provided in rural areas: In a country like India, where banks are having large number of rural and non-computerized branches, ATM services cannot be provided.
- Limitation of cash withdrawals: Again there is a limitation of cash withdrawals from ATM. For example, many banks do not permit withdrawal of more than 25,000 at a time.
- Cash deposit facility is not safe: Similarly cash deposit facility is restricted and not safe as dropping of envelope and ATM is not advisable.
- Possibility of misusing ATM card: ATM card, if misplaced, lost or stolen, may be misused. There are number of such reported incidences now a day.
- Loss of personal touch with the Banks: Last but not the least; customers lose personal touch with their bankers.