ATM system

Describe construction and operation of an ATM system. Use following diagrams:
– timing diagram. Describe timing dependencies between user, user interface (screen, keyboard and card reader), bank link subsystem and cash dispenser subsystem. Assume that no errors occur, but include information about maximum time span of selected operations. Order of operations should be following:
  – UI is waiting for card
  – user inserts card
  – card is analysed, maximum time is 1s
  – UI is waiting for PIN, maximum time is 30s
  – user enters PIN
  – UI is waiting for amount, maximum time is 30s
  – user enters amount
  – bank is contacted, maximum time is 60s
  – cash is dispensed
– component diagram.
  – Following components are present in an ATM:
    – main executable, it requires components implementing interfaces for text input, graphical output, card reading, bank communication and dispensing cash
    – UI module, it implements interfaces for text input and graphical output, requires components implementing drawing functions and text functions
    – cash dispenser module, it implements interface for cash dispensing
    – bank link module, it implements interface for communication with bank, requires component implementing interface for secure communications
    – libraries required by abovementioned components
  – Following components are present in the bank:
    – several server applications for handling ATM requests, they require connection to bank's database holding account data
    – bank's database (DB engine and DB files)
    – two mirrored backup databases (DB engine and DB files)
– deployment diagram
  – ATM components are located in the ATM node, in the ATMApp artifact
  – Bank components are located on separate nodes (servers)
  – Bank components are interconnected by Gbit Ethernet
  – ATMs are connected to a concentrator, which in turn has connections to all the ATM servers. The connections between ATMs and concentrator can be leased lines or telephone lines (two types possible)