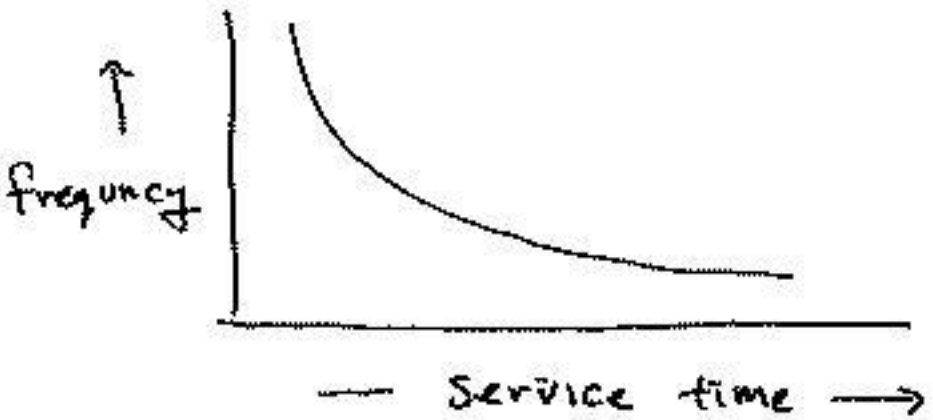
What about the ATM?

(we've taken care of simulating arrival)

Measurements of the "service time" at ATMs indicate this kind of distribution:



Again, exponential distribution!

To simulate this, the ATM object has a "queue" (variable) of customers — we'll use FIFO as a policy for service. Each simulated customer in the queue occupies some random service time.

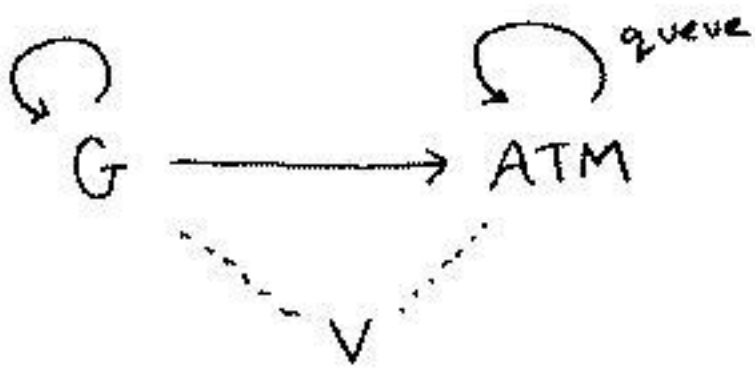
Overall Plan of Simulation

G - customer generator object; initially one event (each event schedules next event when fired)

Also: when customer arrival event fires, place customer in ATM queue

ATM - event for this is scheduled at time that next customer will finish business and leave

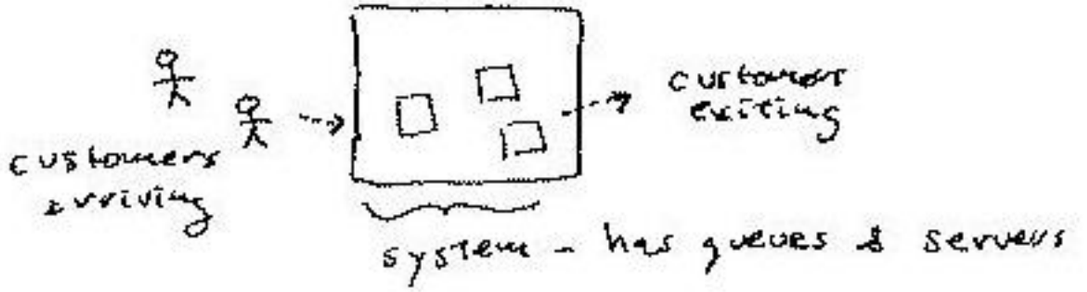
V - "visualizer" - schedule events at regular times (say one per minute) to print out the simulation state.



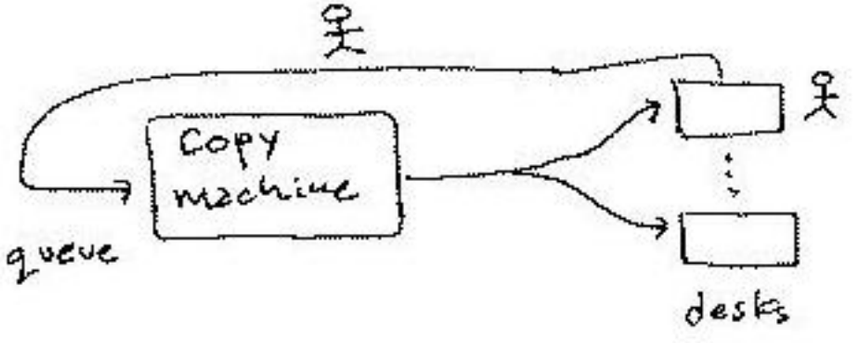
The ATM example is a simulation of a "queuing system"

There are two general types

- Open – customers come from outside the system, get service, leave the system



- Closed – fixed set of recycling customers



Other examples: fleet of aircraft flying, landing, taking off from airports

jobs in a computer system

For closed systems, another way of programming event-driven simulation is popular: "process-centric"

EXAMPLE:

```
model worker by

    while True:
        wait Until ( Copy Machine is free )
        Use Copy Machine for T time units
        Work at Desk for T' time units
```

Some simulators allow us to specify "processes" in this style — much like threads. Inside the simulator, it is the same logic of event-list deciding what goes next, advancing simulation time, etc.