

Inventory strategy

- Single product
- Time between demands from customers: exponential with mean 0.1 day
- Demand:
 - 1 w.p. $1/6$
 - 2 w.p. $1/3$,
 - 3 w.p. $1/3$,
 - 4 w.p. $1/6$



Inventory strategy (2)

- Ordering cost for quantity Z : $32 + 3Z$
- Delivery time Uniform[0.5 week, 1 week]
- Inventory check = possible order point: beginning of each month
- (s,S) strategy:
 - order $S-I$ if $I < s$
 - 0 if $I \geq s$
- Holding cost: 1 EURO per item per week
- Backlogging: shortage cost 5 EURO per item per week



Inventory strategy (3)

- State $I(t)$ = amount of inventory at time t (can be negative)
- Performance measure: total cost
- Events:
 - Demand from customer
 - Randomly generate amount
 - Add holding cost and backlogging cost from previous event until now.
 - Update $I(t)$
 - Generate next demand event



Inventory strategy (4)

■ Events (2):

■ Inventory evaluation

- Add holding cost and backlogging cost from previous event until now
- If $I < s$, generate order arrival event of $S - I$ at $\text{now} + U[0.5 m, 1 m]$ and add ordering cost
- Generate next inventory evaluation event

■ Order arrival

- Add holding cost and backlogging cost from previous event until now.
- Update $I(t)$

■ End simulation

Always handle earliest event.

