

Introduction to Computing Systems.

- s/w + h/w serving some purpose
 - system that helps save time (based on logic & calc.)
- input, process, output
- logic + calculations
- co-ordinating s/w components
- system based on instructions

⊗ a (compute/computer-driven) facility / service / functionality for a set of users.

examples of computing systems.

- Internet
- vending machine
- surveillance n/w.
- self-driving car
- NOR gate ~ CPU
- Operating System
- aircraft system
- e-commerce / web-based applⁿ.
 - └ ticketing
 - └ banking
 - └ course reg.
 - └ retail
- satellite systems
- routers

⊗ requirements of computing systems

(i) functional correctness

(ii) performant / performance

- latency, throughput... fairness

(iii) efficiency ~ CPU utilization, no b/w consumed,

(iv) reliability — failure handling. # servers needed, cost of cooling

(v) ux

execution reqs. (provider)

- scalability, atomicity, consistency, fault tolerance

design principles

⊗

design . build . test . repeat

implement

logic components

principles

state interactions

process for all

computing systems.