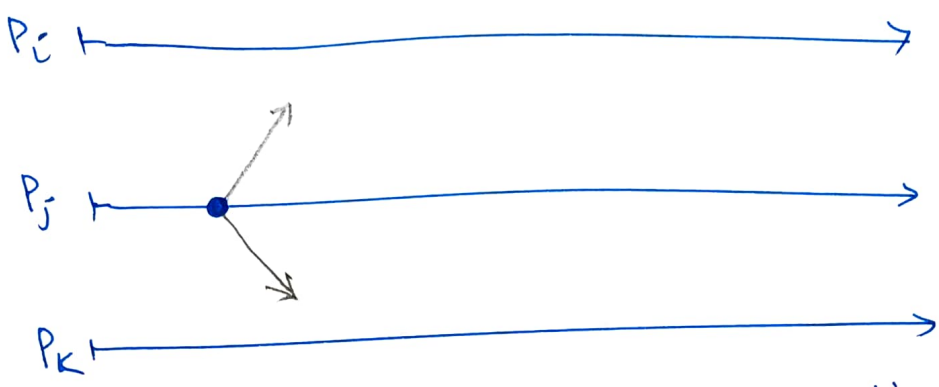
Group:

08 MAR 2022
12-1 PM



$G = \{P_i, P_j, P_K\}$

$K < n$ PEs in a group

$(K-1) \rightarrow 1-many$

$|G| = n$ PEs. (broadcast)

$G = \{P_1, P_2, \cdots P_{i-1}, P_i, P_{i+1}, \cdots P_{j-1}, P_j, P_{j+1}, \cdots P_n\}$

$G_1 = \{P_1, P_2, P_4, \cdots, P_K\}$ (random)

$G_2 = \{P_j\}$, $1 \le j \le K \le n$

Primitives:

- join
- leave
- send
- query

open / closed

P2P | Hierarchical

ACLs. Refer to Dentograms

normal send msg.

send(ID_S, ID_R, msg, −, −) → 1 − 1

Group

send(ID_S, ID_G, msg, −, −, −)

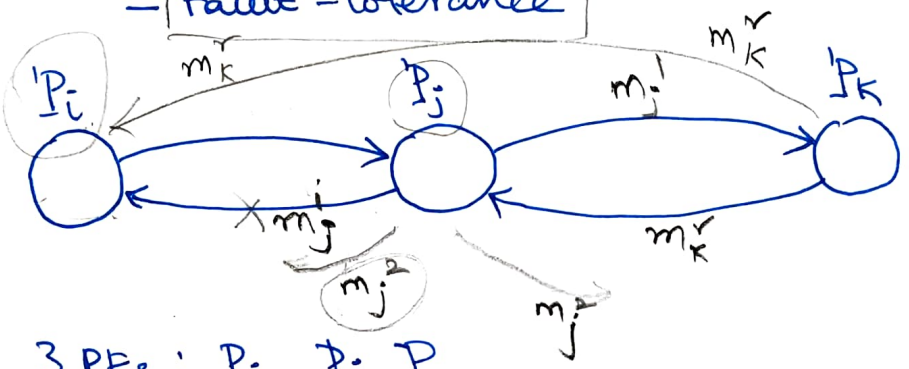
K PEs.

1 − Many.

Design Issues:

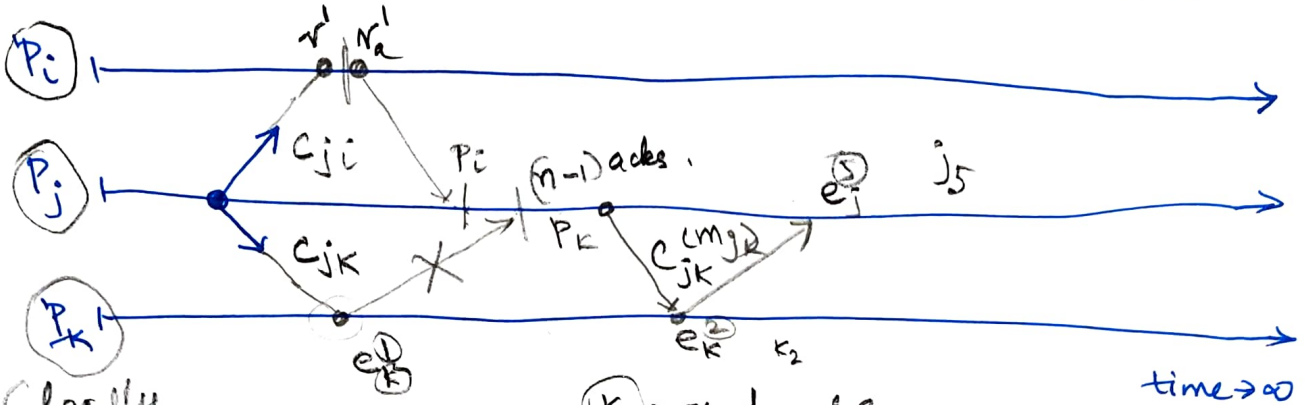
- open / closed
- P2P / Hierarchical
- Creation / Deletion / Manage
- Leaving / Joining (Atomic Events)
  - ↳ synchronous

- Fault-tolerance



3 PEs : P_i, P_j, P_K

→ Unreliable network



(locally stored log)

K-ary d-cube

d = 4

(d-1) failures

Min guarantee

Message Ordering

→ Send $(P_i \xrightarrow{c_{ij}} P_j)$] $\forall i, j \in S$

→ Delivery (receive) $(P_j \leftarrow P_i)$] Two synchronous events.

c_{ij}

→ Types of Ordering:

Good / Bad

- → Global time
- → Total
- → Causal
- → Sync
- → FIFO
- → Unordered multicast

→ Will continue @ 3pm today !!