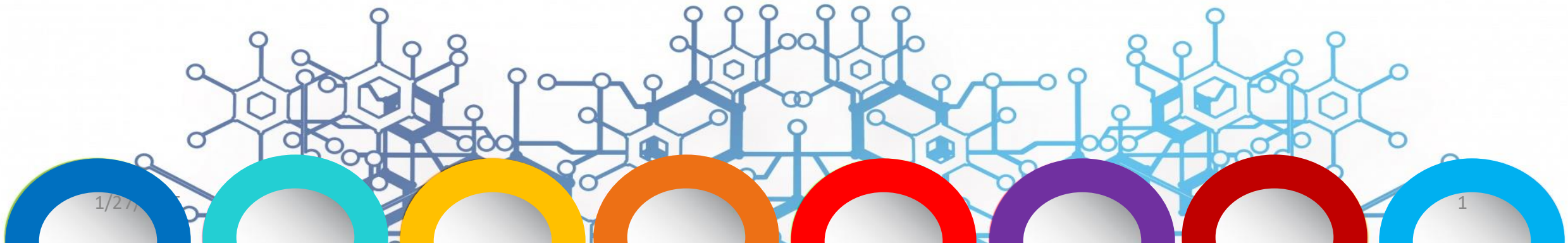
Active Learning

Network . Compute . Store



Question (1)

Remember our discussion on VL2!

For each of the items below, discuss how it helped achieving service agility in VL2:

- OSPF
- AnyCast
- H(ft)
- ECMP

Question (2)

(local variables)
int length $\leftarrow \infty$
set of int Neighbors $\leftarrow$ *set of neighbors*
set of int $\{weight_{i,j},\ weights_{j,i} \mid J \in Neighbors\}$ $\leftarrow$ *The known values of the weights of incident links*

(message types)
UPDATE
If $i=i_0$ ***then***
    length $\leftarrow 0$;
    send UPDATE$(i_0, 0)$ *to all neighbors; terminate.*
When UPDATE$(i_0, length_j)$ ***arrives from j:***
    if $(length > length_j + weight_{j,i})$ *then*
        $length \leftarrow length_j + weight_{j,i}$; $parent \leftarrow j$;
        send UPDATE$(i_0, length)$ *to all neighbors;*

Pseudocode from: *Distributed Computing: Principles, Algorithms, and Systems, Kshemkalyani & Singhal (2008)*
Reference (2)*: Distributed Computing: Fundamentals, Simulations, and Advanced Topics, Hagit Attiya and Jennifer Welch, Section 11.3.2 (2004)*

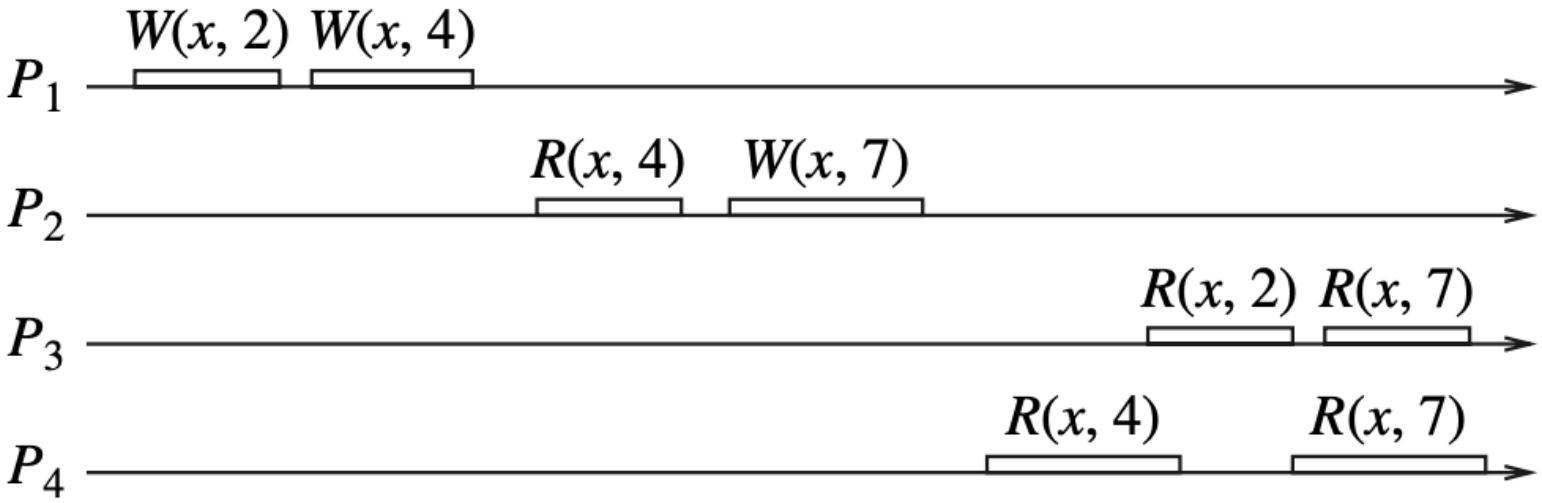
Question (2)

- Is this a synchronous or an asynchronous algorithm? How did you know?
- What is the termination condition of this algorithm?
- Can you run this algorithm on asynchronous systems? How?
- Do you know a distributed and/or cloud system/service that uses this algorithm in practice?
- Is there any other way to design an algorithm that performs the same task?

Question (3)

Determine the consistency level (Strict, Sequential, Causal, PRAM).

- P1-P4: Distributed Processes
- W(x,v): Write value v on resource x
- R(x,v): Read value v from resource x



Reference: *Distributed Computing: Principles, Algorithms, and Systems, Kshemkalyani & Singhal (2008)*

Question (4)

Determine the consistency level (Strict, Sequential, Causal, PRAM).

- P1-P4: Distributed Processes
- W(x,v): Write value v on resource x
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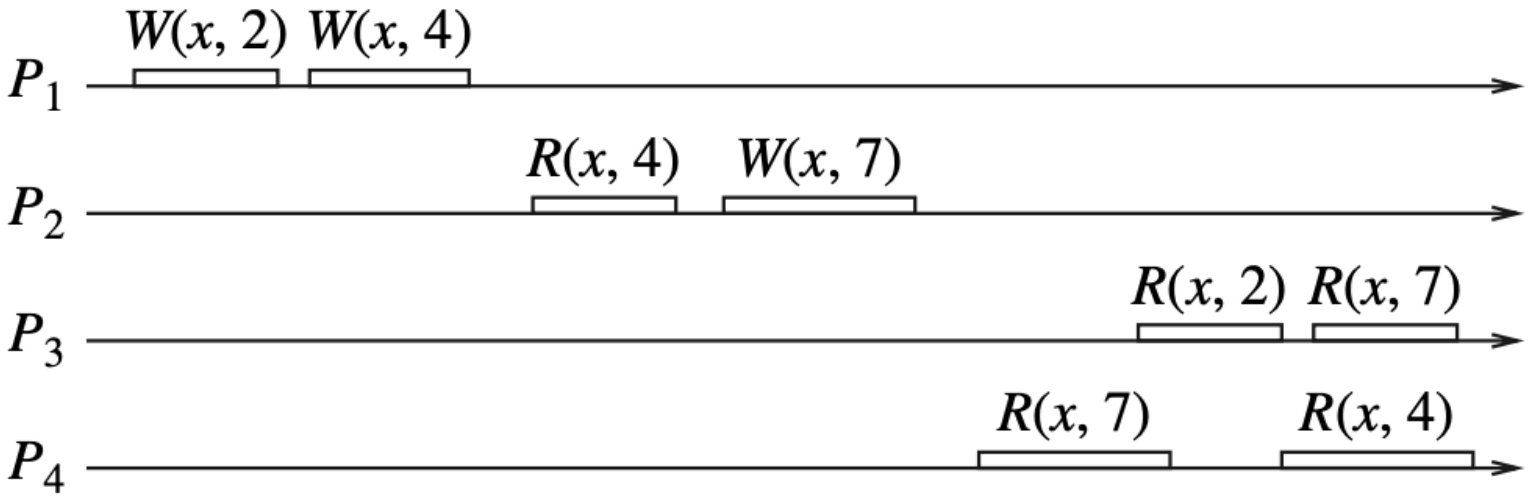

Reference: *Distributed Computing: Principles, Algorithms, and Systems, Kshemkalyani & Singhal (2008)*

Acknowledgement

The list of resources used in preparation of this slide set are provided on:

https://canvas.sfu.ca/courses/88212/pages/references

Pictures and quoted resources are mentioned in each use.