

Distributed Database

Munawar, PhD



Review of Relational Databases



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What is a distributed DBMS

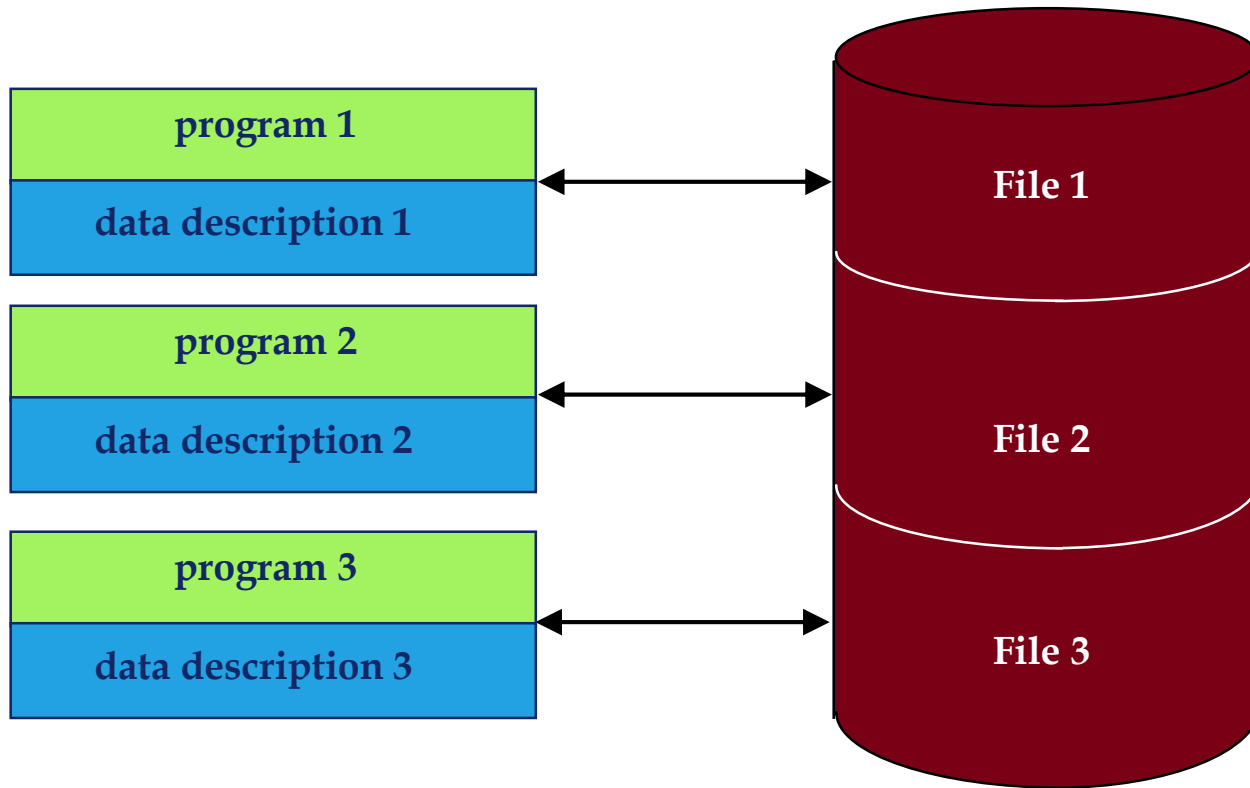
A distributed database (DDB) is a collection of multiple, *logically interrelated* databases distributed over a *computer network*.

A distributed database management system (D – DBMS) is the software that manages the DDB and provides an access mechanism that makes this distribution *transparent* to the users.

Distributed database system (DDBS) = DDB + (D – DBMS)

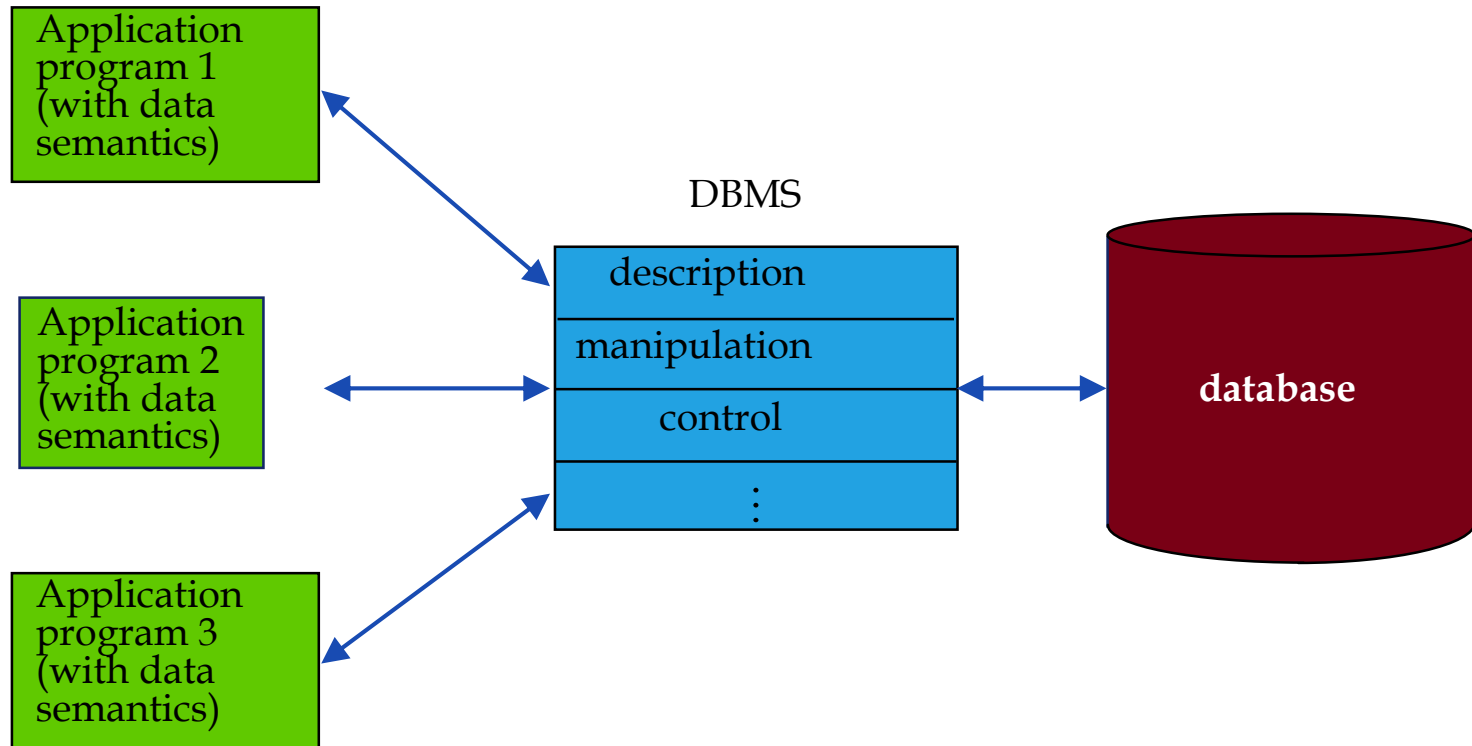


File Systems



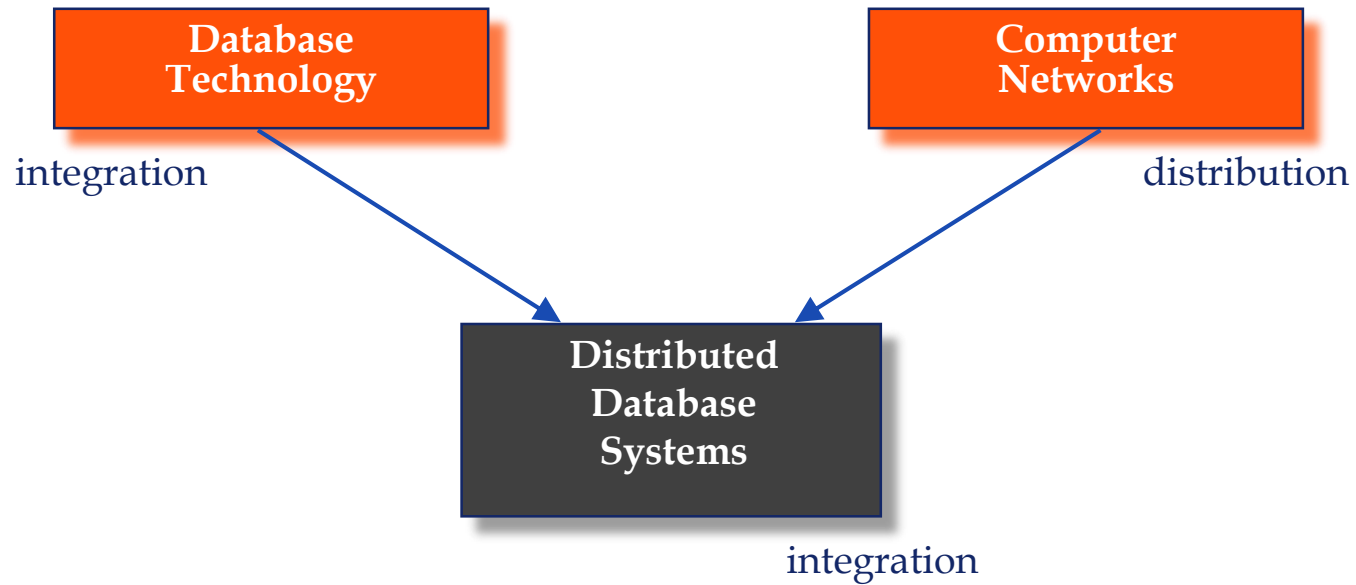


Database Management





Distributed DBMS



integration \neq centralization

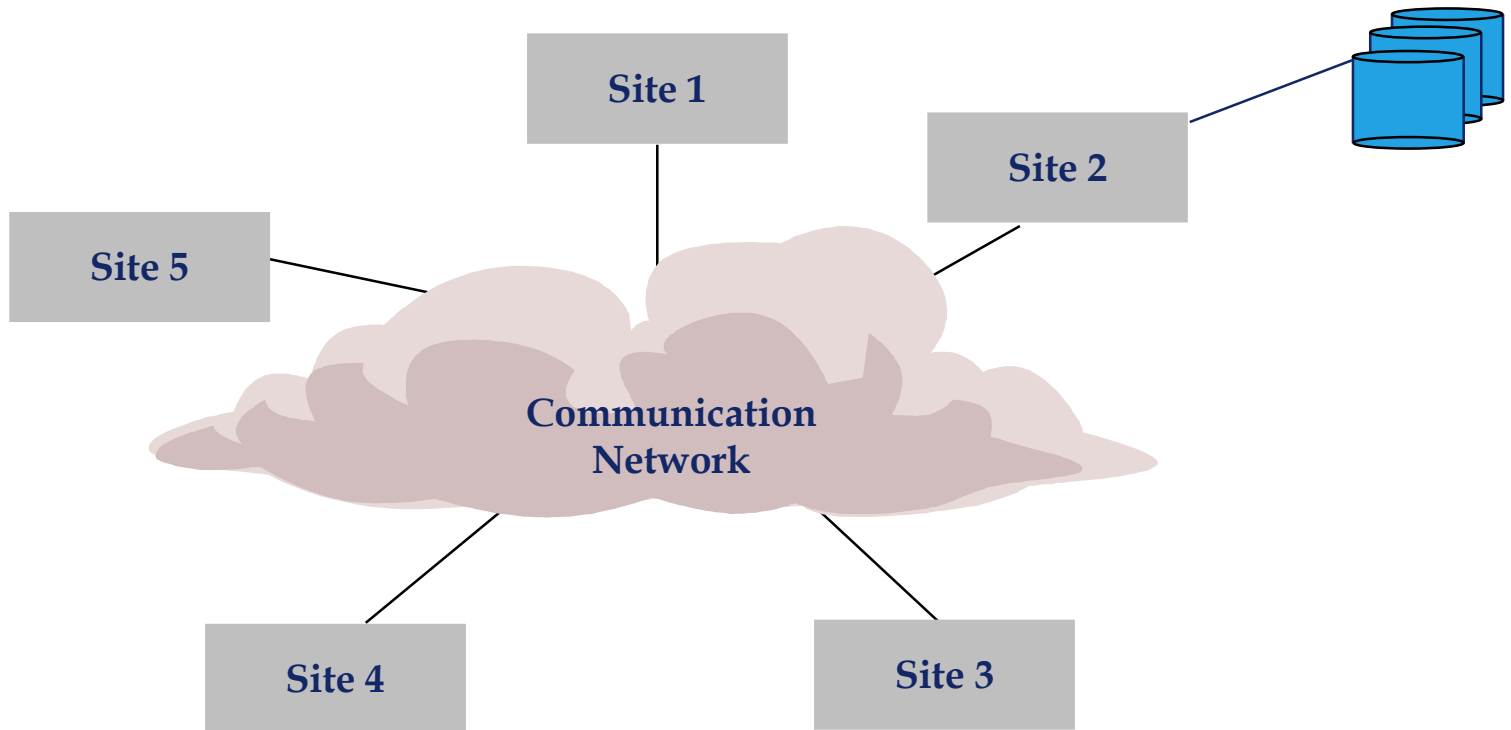


What is not a DDBS?

- ❖ A timesharing computer system
- ❖ A loosely or tightly coupled multiprocessor system
- ❖ A database system which resides at one of the nodes of a network of computers - this is a centralized database on a network node

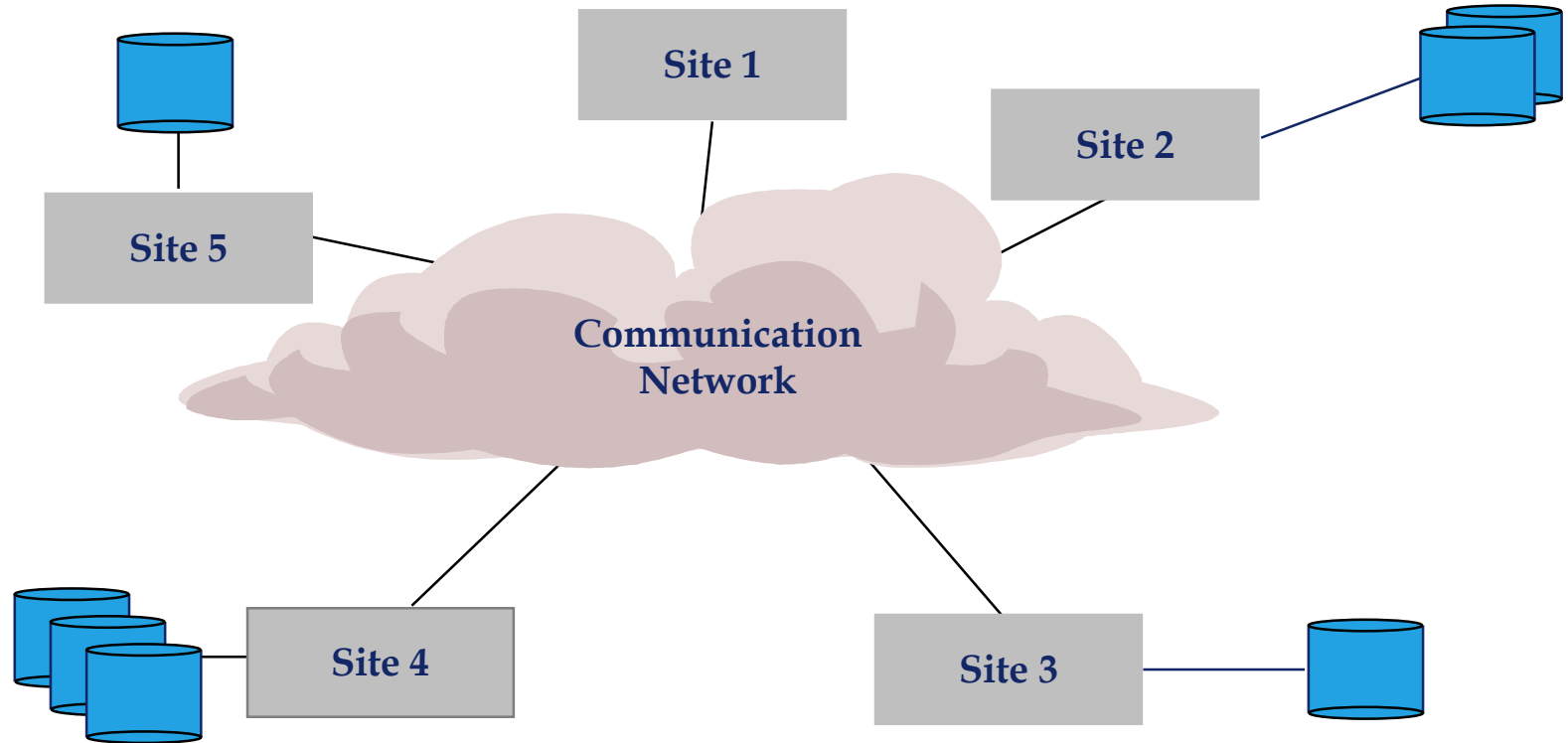


Centralized DBMS on a Network





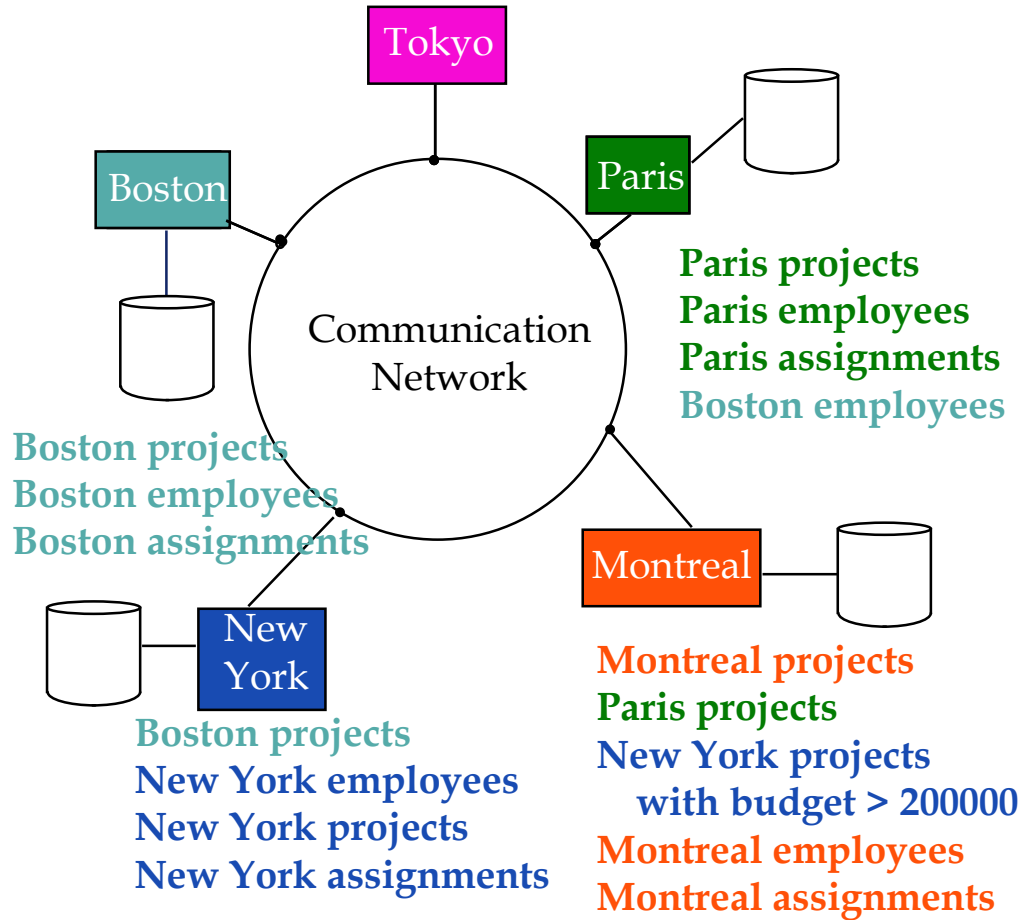
Distributed DBMS Environment





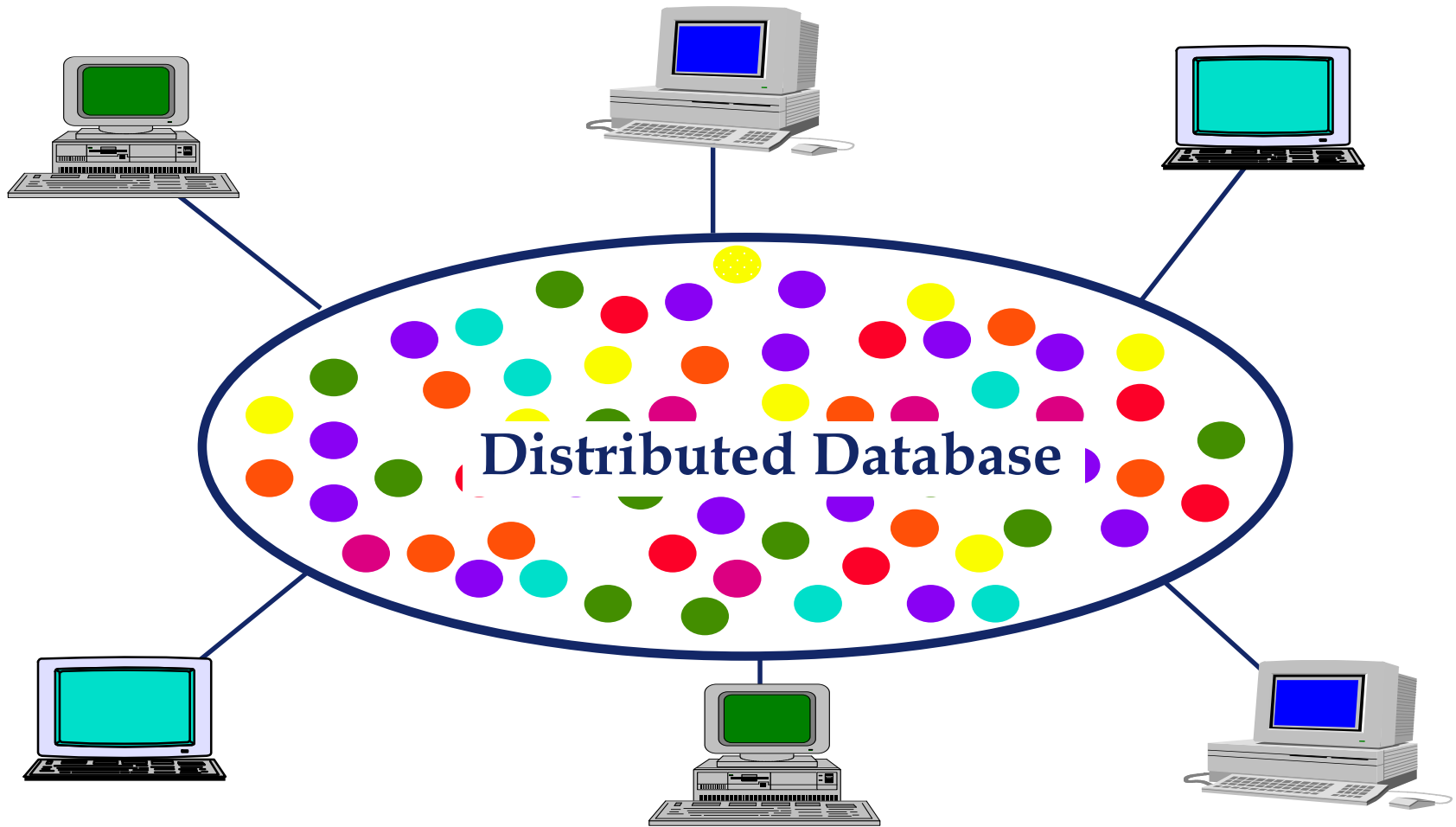
Transparent Access

```
SELECT      ENAME,SAL
FROM        EMP,ASG,PAY
WHERE       DUR > 12
AND        EMP.ENO = ASG.ENO
AND        PAY.TITLE = EMP.TITLE
```



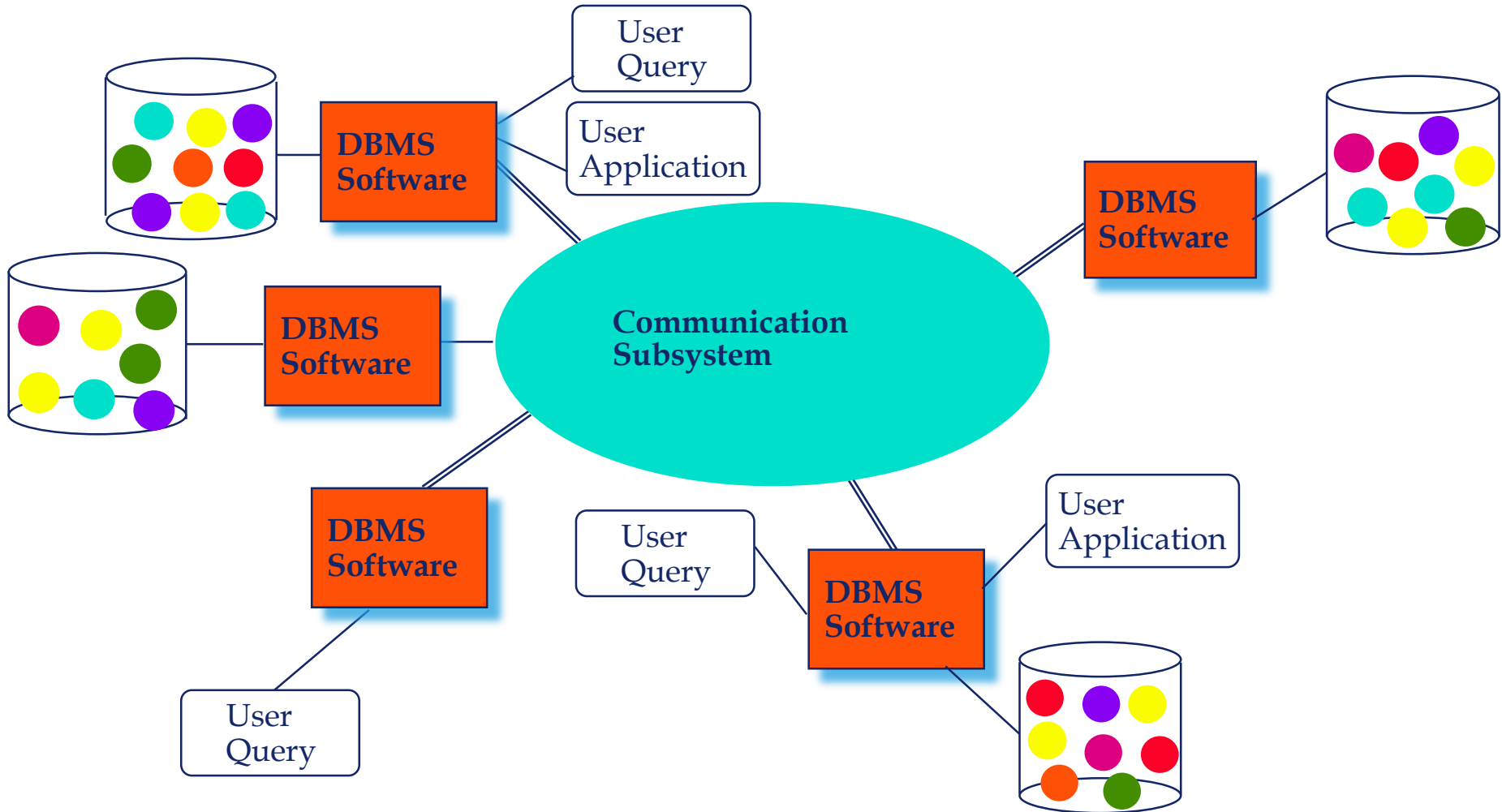


Distributed Database - User View





Distributed DBMS - Reality





References

Ebook ;

Peter L Dordal (2017), An Introduction to Computer Networks Release 1.9.4,

P M. Tamer Özsu and Patrick Valduriez, (2011), Principles of Distributed Database Systems, Third Edition, Springer Publishing ISBN 978-1-4419-8833-1

Abraham Silberschatz, (2011), Database System Concepts, Sixth Edition, Published by McGraw-Hill, ISBN 978-0-07-352332-3

Ajay D. Kshemkalyani and Mukesh Singhal, (2008), Distributed Computing - Principles, Algorithms, and Systems, Cambridge University Press, ISBN-13 978-0-511-39341-9

New Algorithms for Fragmentation, Allocation and Redistribution in DDBSs (2011)

<http://fac.ksu.edu.sa/sites/default/files/Sample%20of%20MS%20Research%20Proposal.pdf> (sample proposal research)

Youtube ;

Top Down vs Bottom Up Design, <https://www.youtube.com/watch?v=otBgANxooPI>

Query Processing & Optimization Introduction <https://www.youtube.com/watch?v=GPz7RgBNEYE>

Distribution System Reliability Analysis <https://www.youtube.com/watch?v=S70BlOEXLlk>

Thank You !

Munawar, PhD

