



# Principles of Distributed and Parallel Database Systems

## Introduction to Parallel DBMS

# Objectives

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Objective

Understand major parallel  
database architectures

# Parallel DBMS

## | Pipeline Parallelism

- many machines each doing one step in a multi-step process.



## | Partition Parallelism

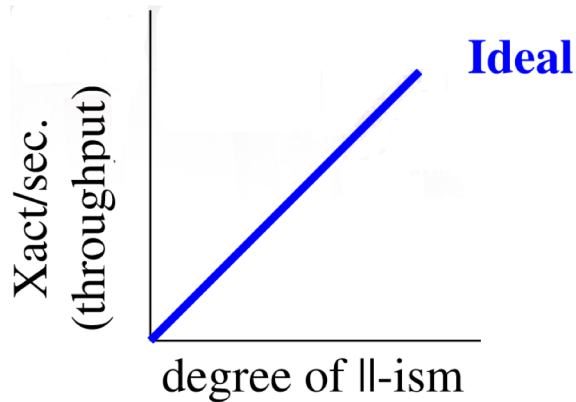
- many machines doing the same thing to different pieces of data.



# Terminology

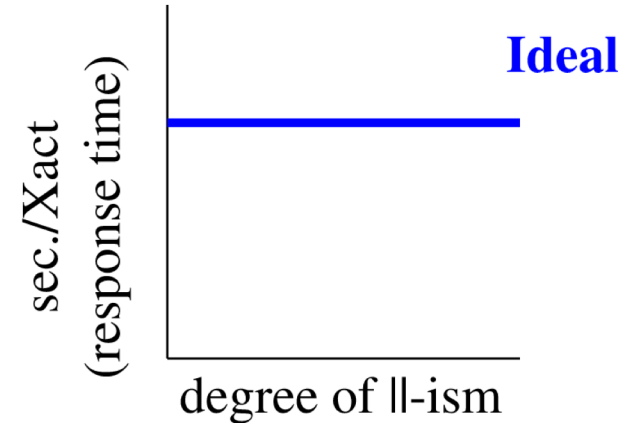
## | Speed-Up

- More resources means proportionally less time for given amount of data.



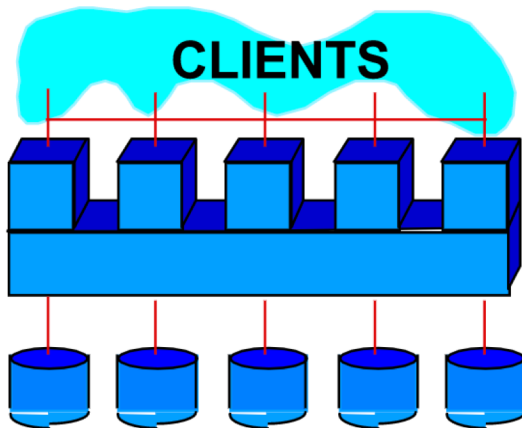
## | Scale-Up

- If resources increased in proportion to increase in data size, time is constant.



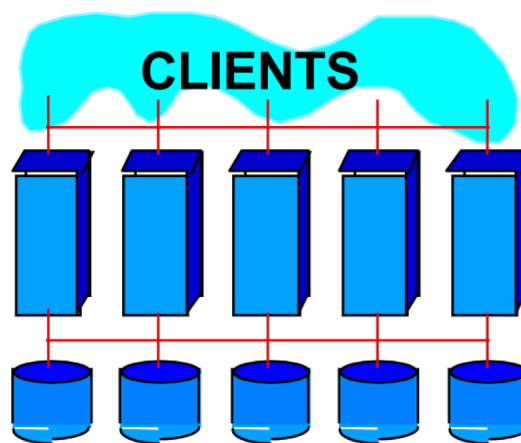
# Architecture Issues: Shared What?

**Shared Memory  
(SMP)**

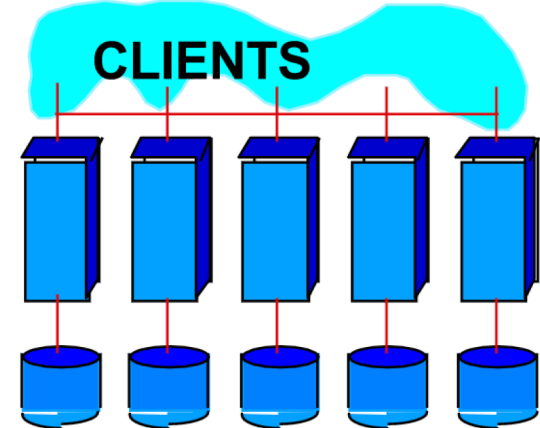


**Easy to program  
Expensive to build  
Difficult to scaleup**

**Shared Disk**



**Shared Nothing  
(network)**



**Hard to program  
Cheap to build  
Easy to scaleup**