Parallel Database Management System: Kappa

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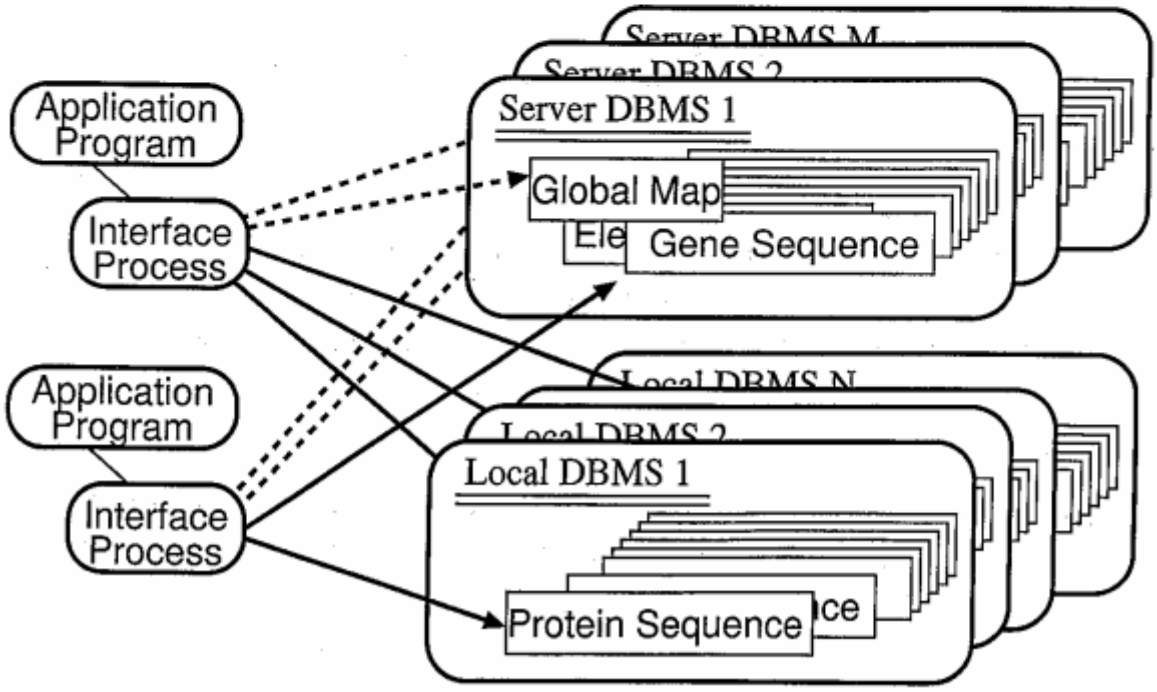
Purposes and Goals

- Purposes
  - Providing Experimental Database Management Facilities for Knowledge/Genetic Information Processing Systems on Parallel/Distributed Environments of Unix Machines with KLIC
- Goals
  - Efficient Processing for Large Amounts of Complex Structured Data to be Comparable to Relational DBMSs on the Same Machines

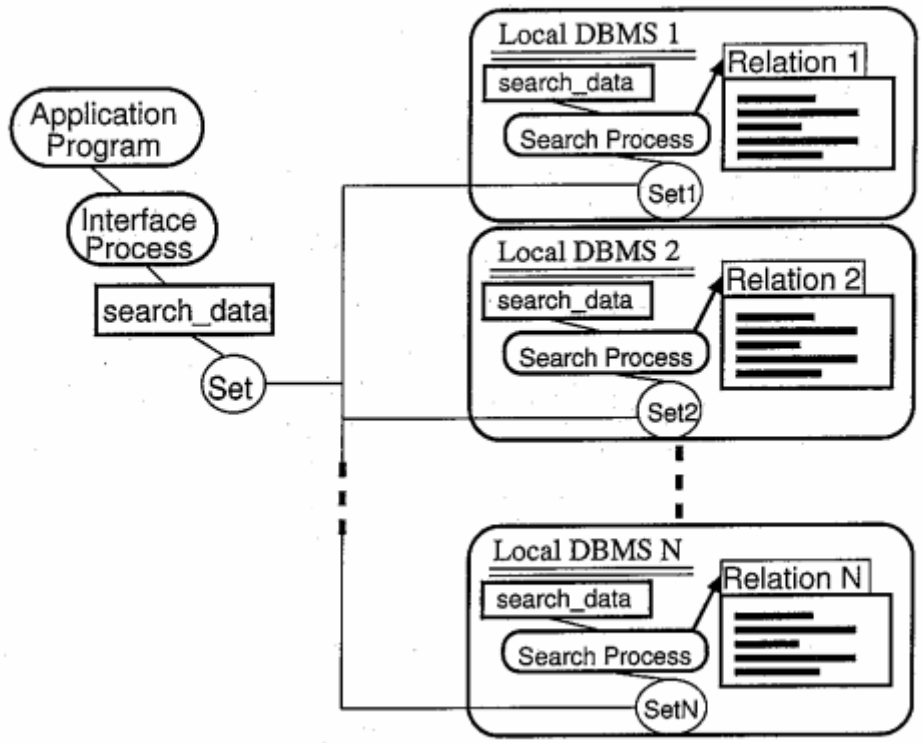
Features of Kappa

- Nested Relational Model
- Parallel Processing Depending on Data Placement
  - Distribution of Relations
  - Horizontal Partition of Relations
  - Replicated Relations Based on the Weighted Voting Protocol
- Mechanisms to Reduce Communication Overhead between Kappa and Applications

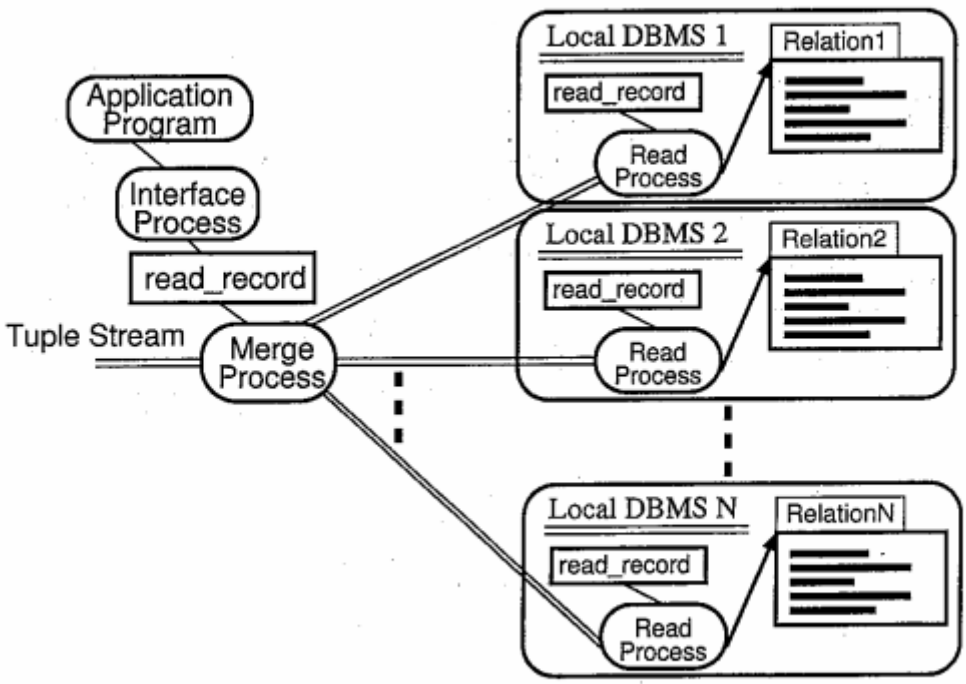
Configuration



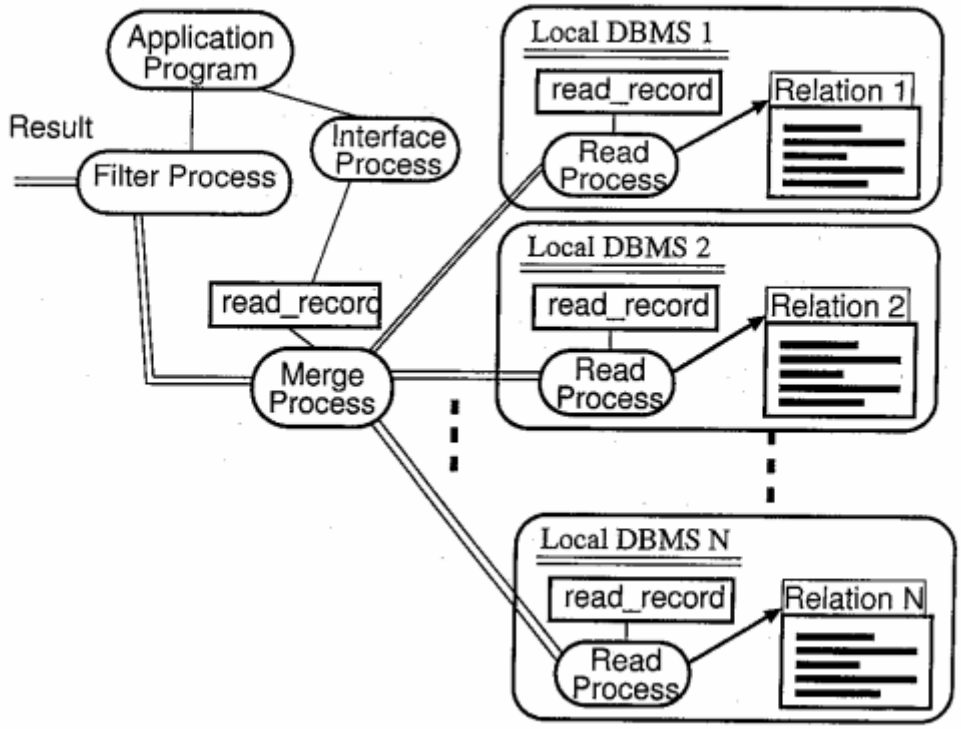
Operation on Horizontally Partitioned Relation (1)



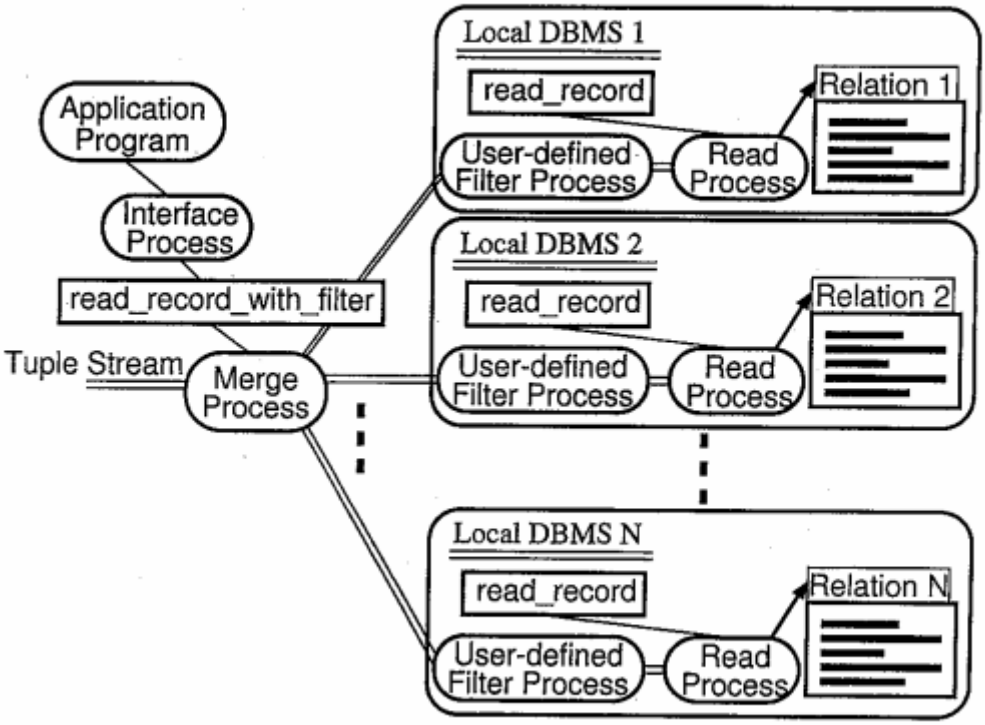
Operation on Horizontally Partitioned Relation (2)



Operation on Horizontally Partitioned Relation (3)



Operation on Horizontally Partitioned Relation (4)



Conclusions

- Providing Experimental Database Management Facilities
  for Knowledge/Genetic Information Processing Systems
  on Parallel/Distributed Environments of Unix Machines with KLIC
- Efficient Processing for Large Amounts of Complex Structured Data
  to be Comparable to Relational DBMSs on the Same Machines
- Nested Relational Model
- Various Parallel Processing