

Superior Business Intelligence through Algebraic Optimization

Informs NY

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$$\text{s.t. } \sum_{i=1}^n A_{ij} x_i \leq b_j$$

- Why algebra?
 - Information is contained and represented by data
 - You say data, you must say datum
 - Datum best represented as attribute-value pair
 - Data (plural) implies set, sets imply ZF set theory
 - Sets, operations and equivalences - an algebra
- Therefore ... information is naturally algebraic

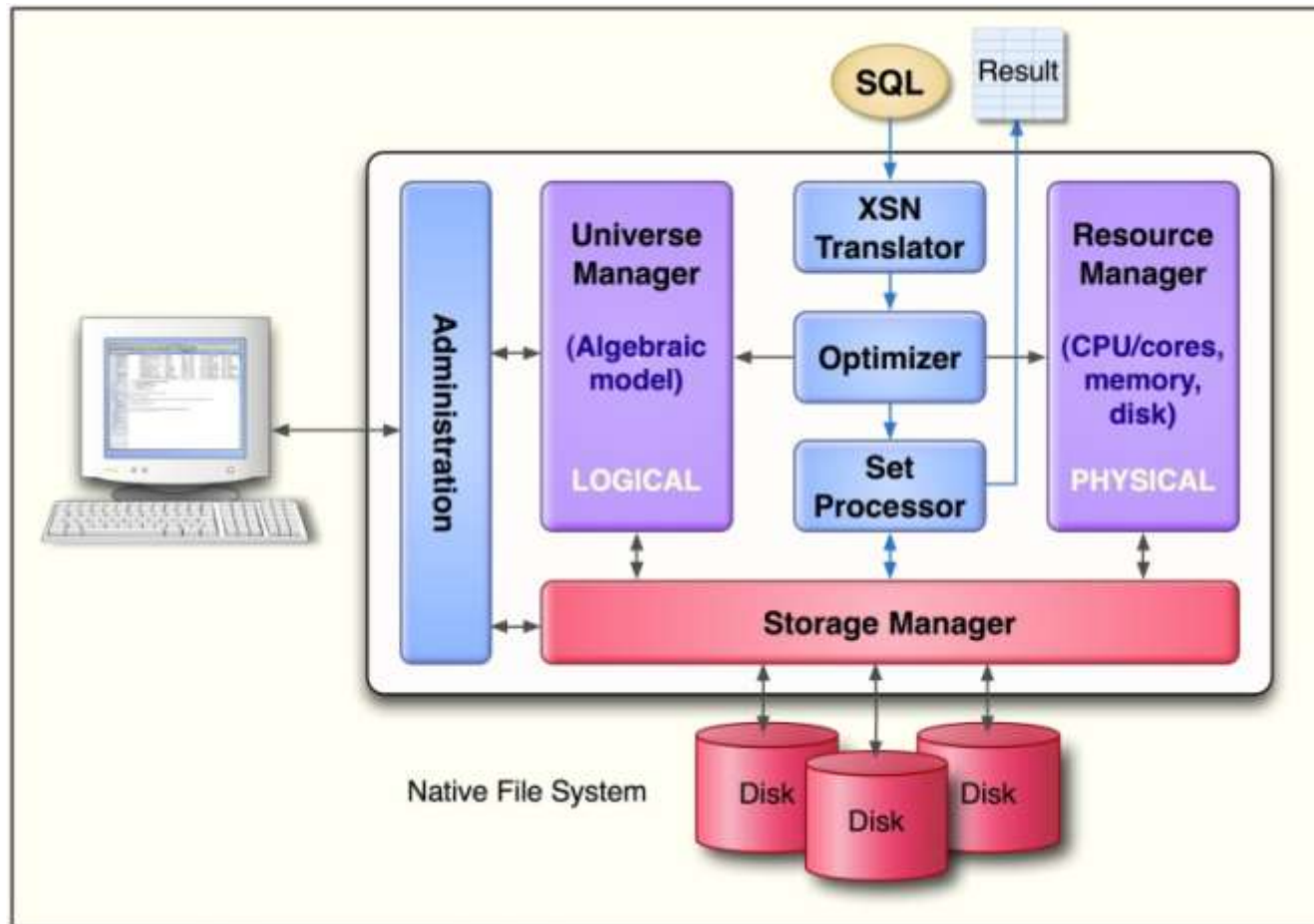
$$\text{s.t. } \sum_{i \in I} \Delta_i x_i \leq b$$

- How do you manage data algebraically?
 - Extended set based representations via
 - enumeration of membership
 - predicate definition
 - Hierarchy of algebras on power sets
 - operations on sets, extended sets, clans, etc.
 - functional equivalences and partitioning
 - Logical and physical models functionality related and manipulated while preserving equivalence

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- Enough theory, explain how this works
 - Modern digital computers and networks are an extended set algebraic machine
 - Architecture of software solution respects and implements the mathematics
 - Interfaces and models exposed are compatible with existing industry standards and applications

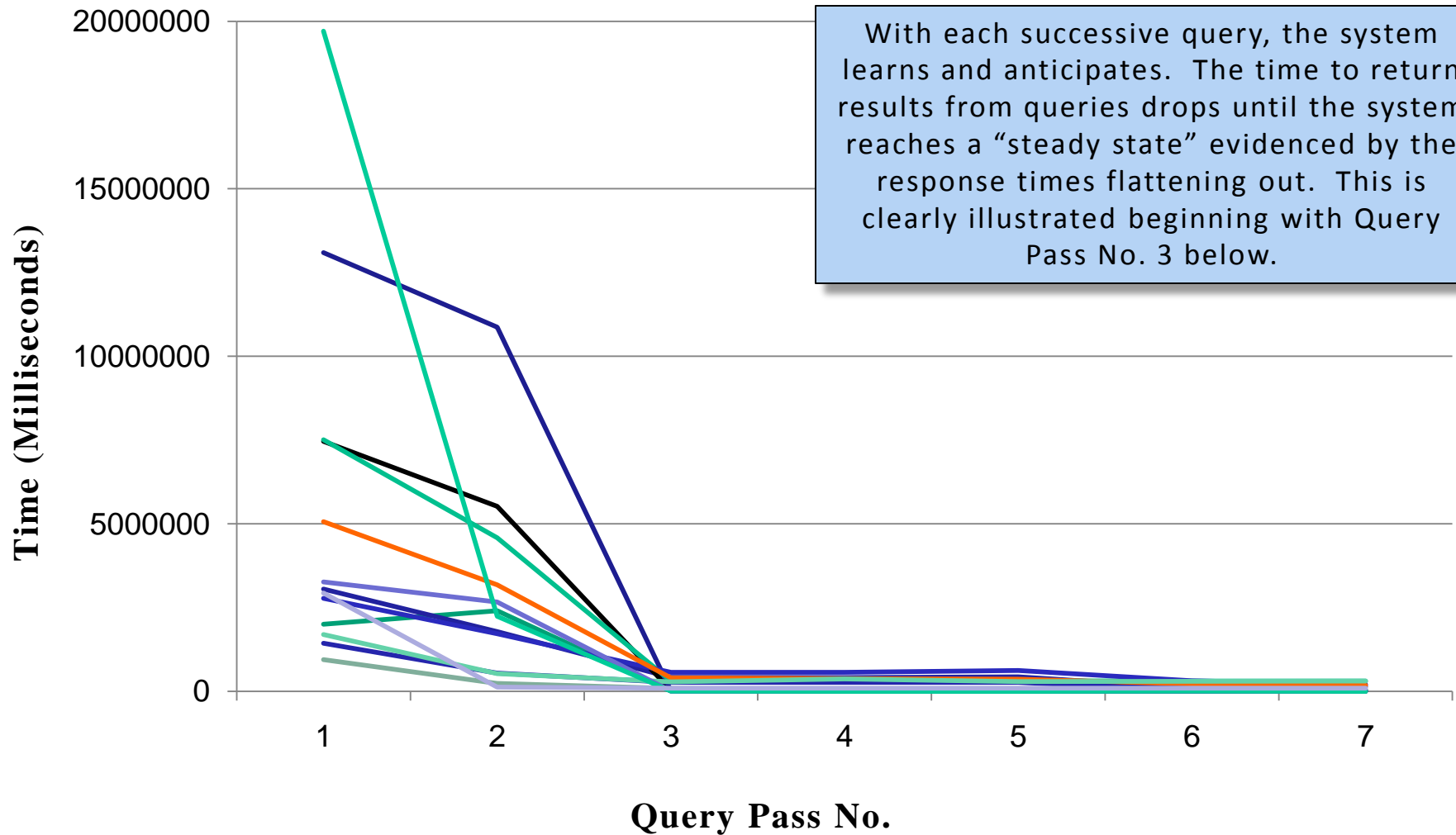
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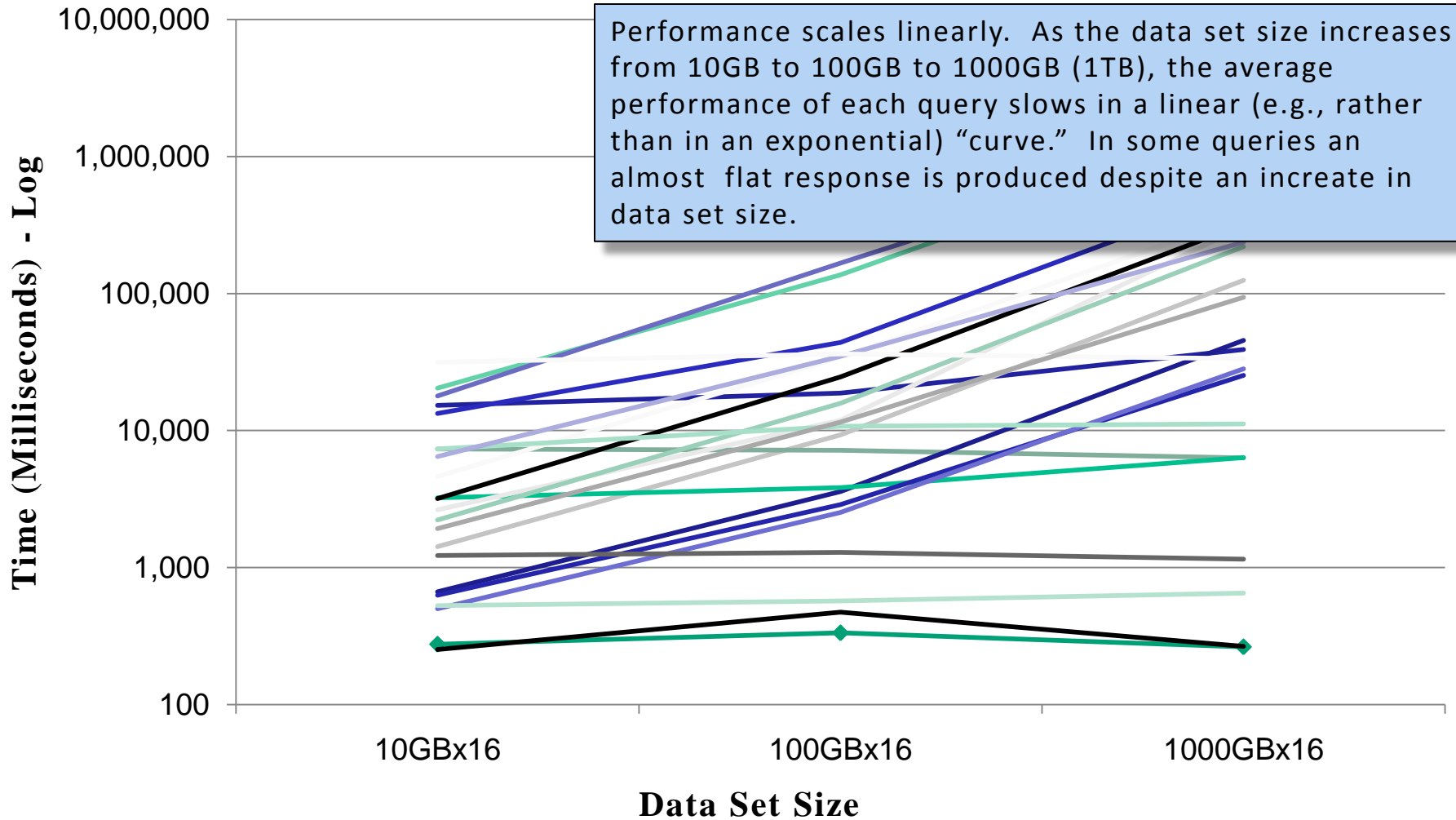
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- Benefits
 - Universal data model
 - Distributable and scalable
 - Superior cost-performance
 - Self-tuning and self-managing
 - Near instantaneous load
 - Temporal data capabilities
 - Commodity or specialized hardware
 - Frees DBAs from tuning and maintenance

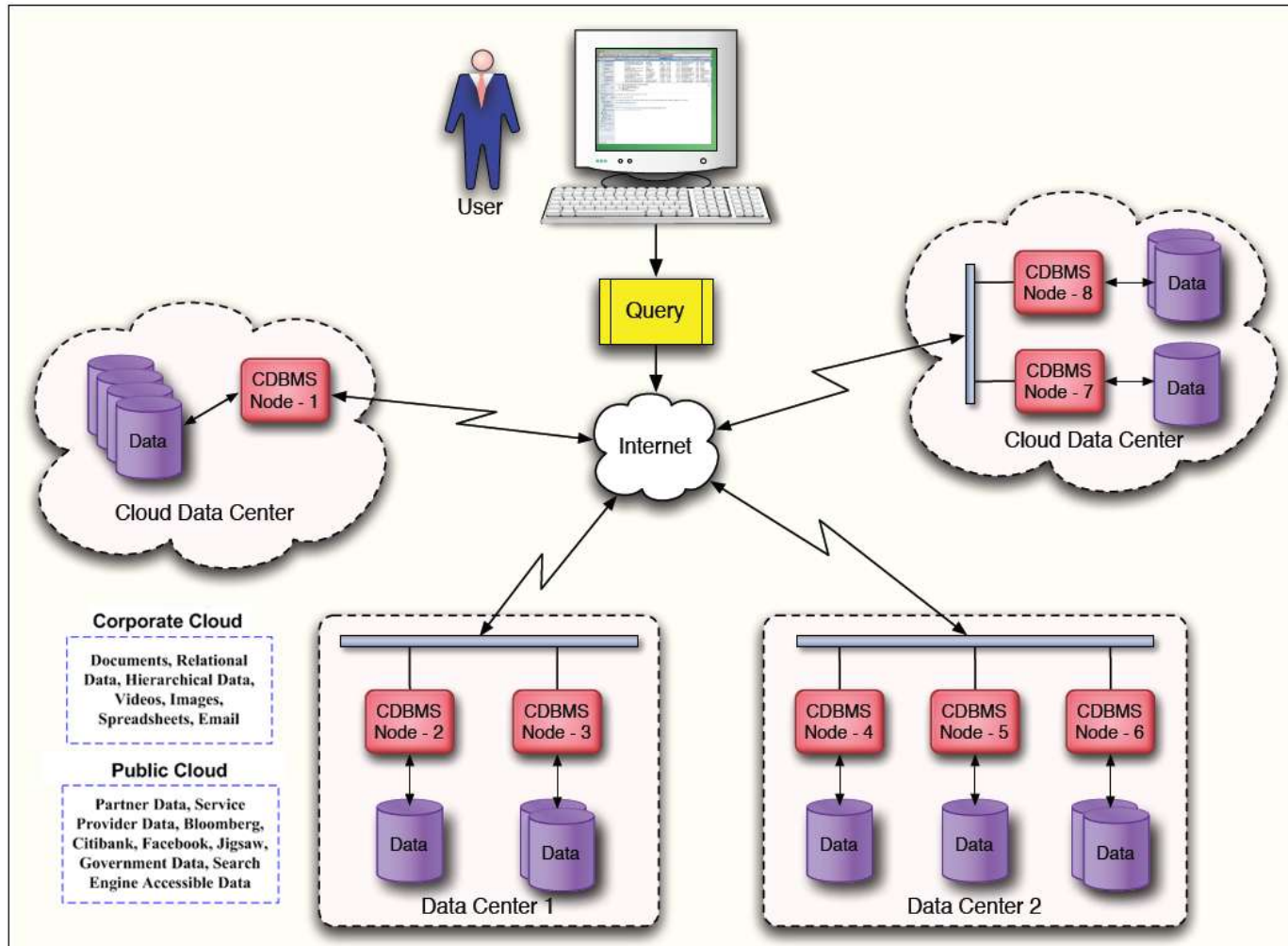
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- How can I get involved?
 - Evaluation of A2DB for business intelligence, data mining and decision support applications
 - Advisory committee for the distributed cloud-based data management system
 - Contact me at chris@algebraixdata.com or (512) 809-4261