Introduction to DataKinetics for CMG

Larry Strickland
Chief Products Officer
DataKinetics - Company Highlights

- Solving IT problems and reducing IT costs for the Fortune 500 Who’s Who for over 35 Years
- We have the world’s largest companies as clients:
  - 5 of the top 7 US banks
  - 2 of the top 3 credit card companies
  - 5 of the top 8 US property & casualty insurance companies
  - The top 2 US health insurance companies
  - 8 of the top 22 in the Fortune 500
- We have been working with these companies for a combined 1000+ years
DataKinetics - Company Highlights

We have a long history of customer satisfaction from marquis accounts, and we help them to:

- Solve their batch processing problems
- Quickly adapt business rules to their rapidly changing market environments
- Optimize their Loyalty and Fraud programs
- Manage their data more efficiently
- Provide superlative 24x7 support

We help our customers to:

- Access data faster
- Move data more efficiently
- Save money at the same time
Performance and Capacity Products

• tableBASE – In Memory Tables
  • Performance Challenges
    o CPU
    o Elapsed time
    o Rules based systems
  • From Java Applications to DB2/zOS
    o Java to DB2 Optimizer
  • Cannot change Code for DB2 access
    o SQLKinetics

• SQData – Data Integration and Replication

• InnovizeIT – Optimize DB2

• Professional Services – Leverage our Experience
tableBASE™ family of products
What is tableBASE

- tableBASE is an in-memory accelerator
- Define, build, maintain and manage in-memory tables
  - Phenomenally fast access to data in the tables
  - Optimize table search
- It’s just physics, math and great algorithms
  - Take data that is highly accessed
  - Load it in memory close to the application
  - Repeatedly access this data using the shortest and fastest path
- Decrease elapsed time
- Decrease CPU
Both results use data that is in-memory
Only one uses the **shortest fastest path**
When the amount of time taken for each transaction is reduced, and the number of transactions per unit of time is increased, performance and capacity are increased significantly
tableBASE works for IMS, VSAM and CMDT

**tableBASE is faster than VSAM or CICS data tables**
Uses for tableBASE

- Replacing CICS tables and TS queues with tableBASE tables
- Replace hard coded module tables with tableBASE tables
- Replace VSAM (KSDS and RRDS) files with tableBASE tables
- Unload high referenced DB2 table data into tableBASE tables
- Replace BDAM files with tableBASE tables
- Use tableBASE tables for summarizing and grouping data for reports
- Use tableBASE for DB2 cursor scrolling
- tableBASE is used for storing cursor results for DB2 cursor scrolling in CICS
- Replace COBOL SEARCH with tableBASE search module
- tableBASE can be used to provide session continuation data for online applications
- Replace I/O sort with a virtual sort using alternate indices that can be defined in real time
- Assemble data from multiple sources into a temporary table for subsequent processing or renderings
- Place reference data and business rules in read-only tables
- Replace programmatic logic trees with externalized decision tables
Shortest path to data

Reference Data
Transaction Temporary Data
Remaining Data

Read Only
85 - 95% data access

Copied into tableBASE

Read / Write
5 - 15% data access

Application

Access
RO Data
Access
R/W Data
Application
Processing

Unoptimized

Fastest Data Access

Optimized

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One customer’s experience

**Challenge**

- A COBOL program was using an internal table and a binary search
- The search code was called 1.25 million times and had 4 searches in it
- Took over an hour of CPU to execute

**Solution**

- Replace the 4 searches with calls to tableBASE

**Results**

- 99.98% reduction in CPU seconds
- Now takes less than a minute to execute
Challenge

• Reconciliation batch processing taking too long

Solution

• Move a table describing the credit card options into tableBASE
• Each transaction required data from that table

Results

• 97% reduction in elapsed time
• Batch job that took 8 hours to complete now takes 15 min
DataKinetics Products

- **tableBASE**
  - Local in-memory tables
  - Fastest path to data

- **tableBASE VTS**
  - Shared in-memory tables
  - Enables parallel access to data

- **VTS Manager**
  - Extends table sharing across LPARs
  - Enables 24x7x365 operation

- **Java to DB2 Optimizer**
  - Extends “fastest path to data” to Java access to DB2

**Bottom line:**
- Reduce the time for each transaction,
- Execute more transactions per unit time and
- Realize increased capacity and performance from your existing infrastructure
Java to DB2 Optimizer: Example large bank in US

CPU consumption

DB2 average elapsed seconds
What does SQLKinetics do?

- SQLKinetics intercepts calls between an application and DB2
- SQLKinetics leverages in-memory acceleration to improve data access performance without applications code changes
- Use for packaged applications
- Use for rapid prototyping to test for potential benefits
Four major components:

- **SQL Redirector:** Intercepts SQL requests sends them to SQLKinetics Engine or passes them on to DB2
- **SQLKinetics Engine:** Executes SQLKinetics Plans
- **tableBASE:** in-memory table management system that stores plans and frequently read data
- **SQL Analyzer:** generates plans for SQLKinetics
SQData: Data Integration and Replication
Data optimization advantages

- Single tool that efficiently solves many replication problems
  - Choose the source
  - Choose the destination
  - Choose the transport
  - Only replicate changes
- Transformation
  - Validate data
  - Ensure quality
- Trigger on specific data changes
  - Built in business intelligence
  - Fraud detection
- Selective replication – choose the data that gets replicated
Single script driven engine operates on Change Data Capture

- Diverse platforms
- Diverse data storage technologies
- Select data
Offload analysis from the mainframe

- DB2 optimization is difficult to achieve due to the large volumes of data
- Collecting and analyzing the data on the MF has a cost
Automatic analysis and prioritized recommendations

- The DB2 Performance tool provides 50 Interactive Reports across many areas:
  - Indexes (including Clustering)
  - Structure
  - Query Access
  - SQL Analysis
  - Statistics
- Interactive reports provide:
  - Drill down (e.g. SQL to Table to Index)
  - Filtering (e.g. by program)
  - Grouping (programs impacted)
- Analyze dynamic and static SQL across a workgroup
Challenge

- An international bank with an extensive DB2 database was spending US$40M annually of HW, SW, maintenance and support
- The challenge was to reduce costs

Solution

- Use InnovizeIT to find where DB2 can be optimized to reduce CPU

Results

- Analysis identified sources of savings
- Implementation of recommendations resulted in 30% reduction in MIPS and annual savings of US$13M
Professional Services
We are an integral part of some of the largest most complex transaction processing environments. Our experienced consultants can help optimize performance beyond what our products provide. Here is a sample:

- Identified changes to access methods which resulted in reduced CPU
- Identified how denormalizing data results in faster throughput
- Identified processing modifications that reduced the cost of processing certain data sets
- Identified application modifications to reduce CPU for CICS inter-region communication for data access
- Wasn’t there a missing index?
**Leverage.**
- Legacy applications and mainframe systems
- Current ETL and Data Warehouse systems
- Existing transaction processing applications
- Current application processing

**Optimize.**
- DB2 systems
- Billing processes
- Transaction processing
- Batch processing
- Fraud detection
- Data replication and transformation

**Enable.**
- Real time analytics on live data
- Cloud IT projects
- Big data projects
- Data Warehouse for use as a real time analytics repository
- Seamless integration of all data
- Easily maintained business rules processed at extremely high speed
Thank you for your time.

Larry Strickland
CPO
1-613-523-5500 x 356
lstrickland@dkl.com