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.

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

DataKinetics.

Performance and Capacity Products

- tableBASE – In Memory Tables
  - Performance Challenges
    - CPU
    - Elapsed time
    - Rules based systems
  - From Java Applications to DB2/zOS
    - Java to DB2 Optimizer
  - Cannot change Code for DB2 access
    - SQLKinetics
- SQData – Data Integration and Replication
- InnovizeIT – Optimize DB2
- Professional Services – Leverage our Experience

DataKinetics.

tableBASE™ family of products

DataKinetics

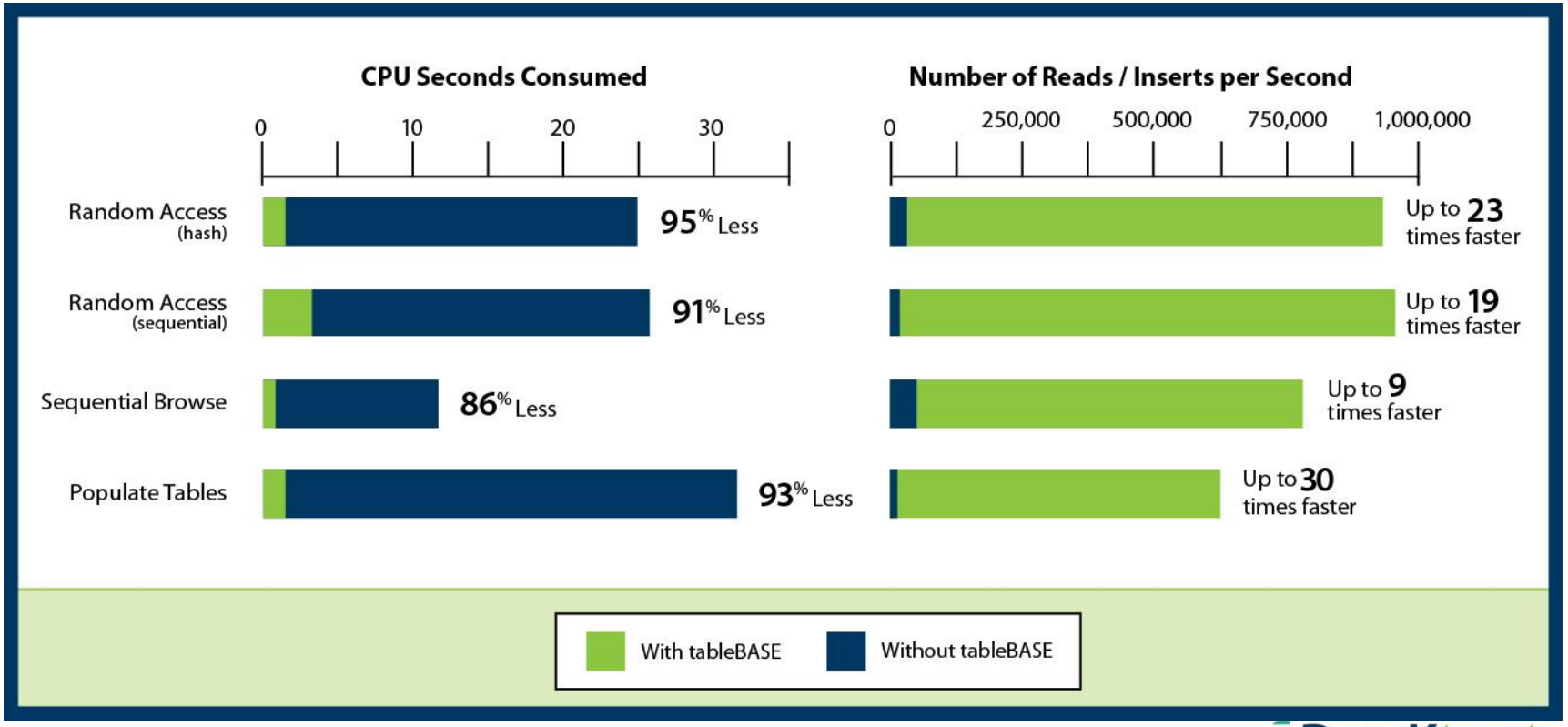
What is tableBASE

- 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

DataKinetics.

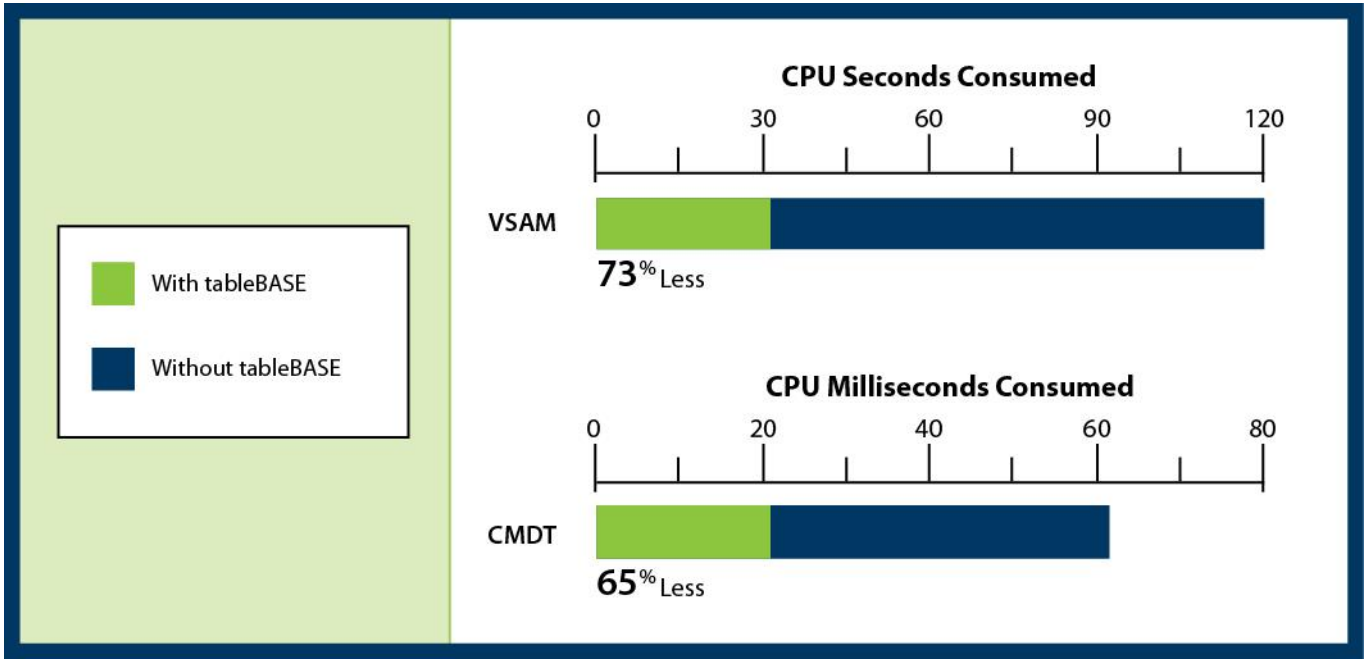
How fast ? IBM benchmark results for DB2

- 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



DataKinetics

tableBASE works for IMS, VSAM and CMDT



tableBASE is faster than VSAM or CICS data tables

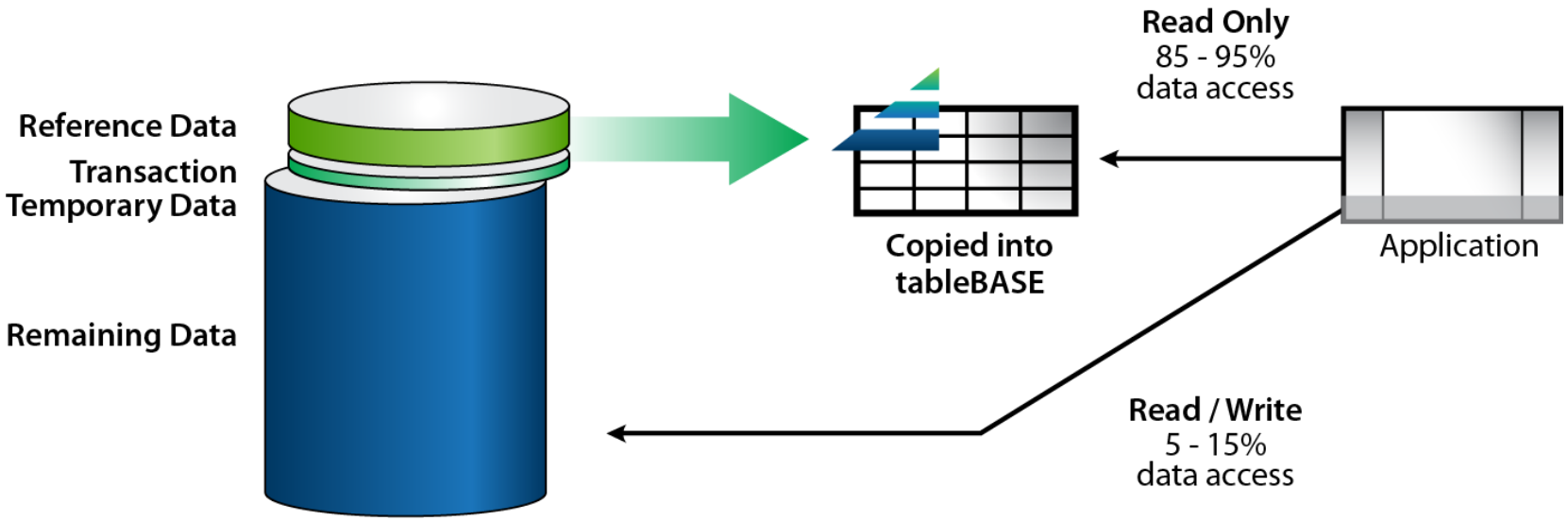
DataKinetics.

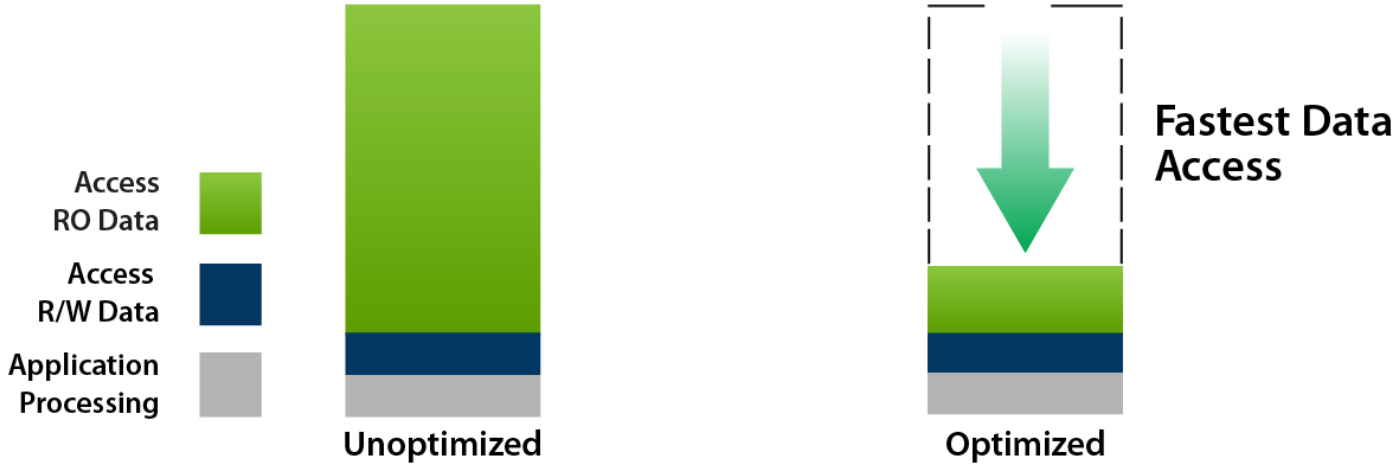
Uses for tableBASE

- 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

DataKinetics.

Shortest path to data





DataKinetics.

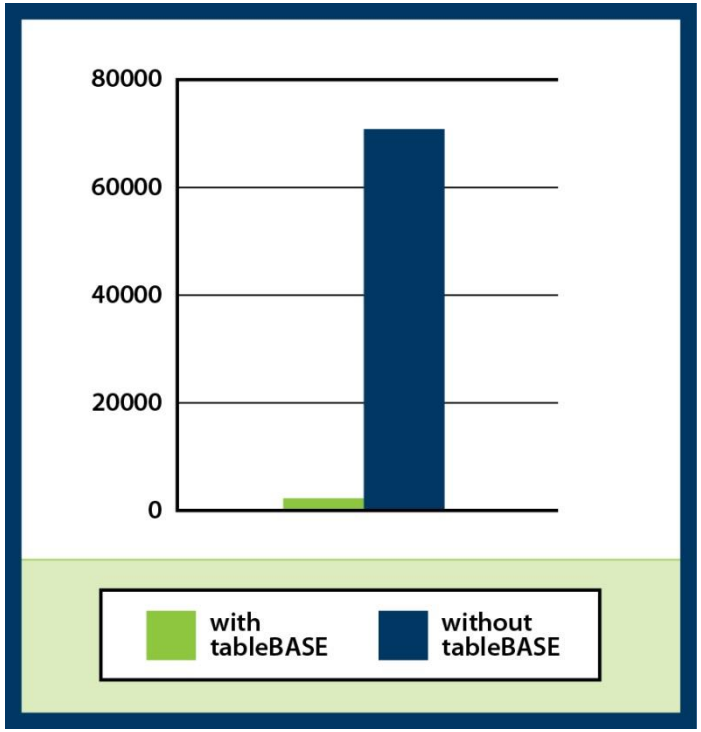
One customer's experience

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

DataKinetics.

Results from credit card processing

Challenge

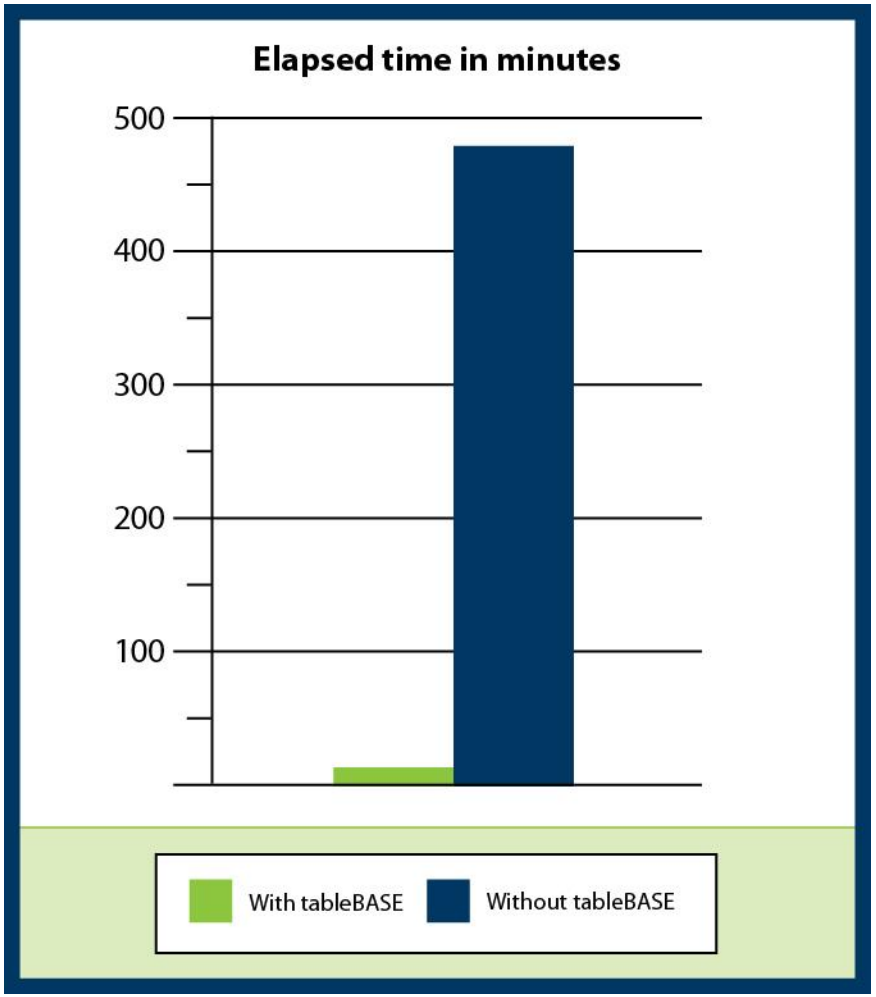
- Reconciliation batch processing taking too long

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.

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

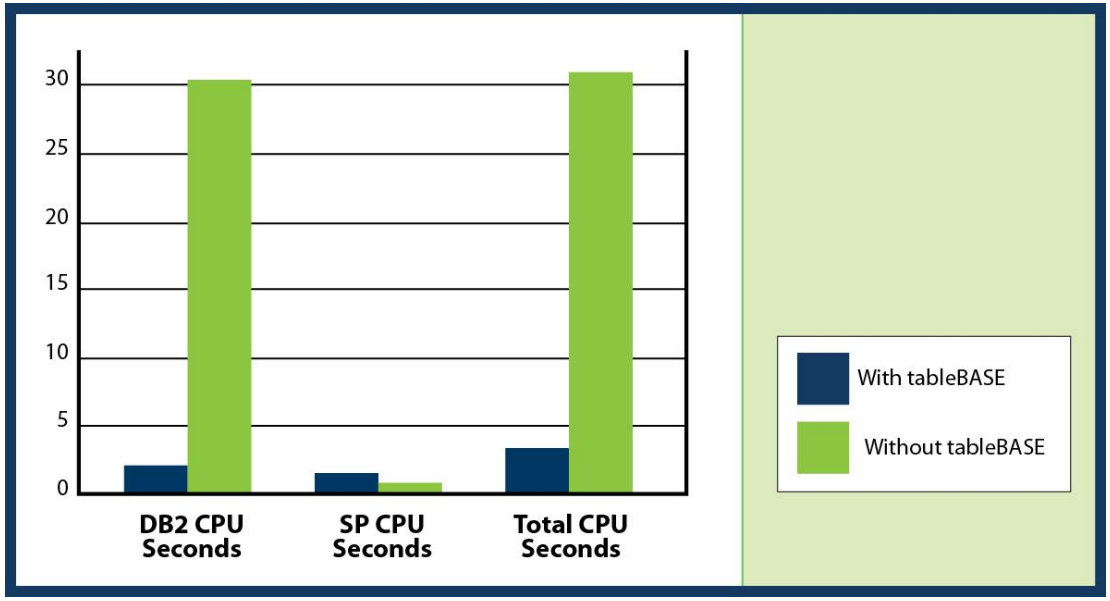
Extends “fastest path to data” to Java access to DB2

Bottom line:

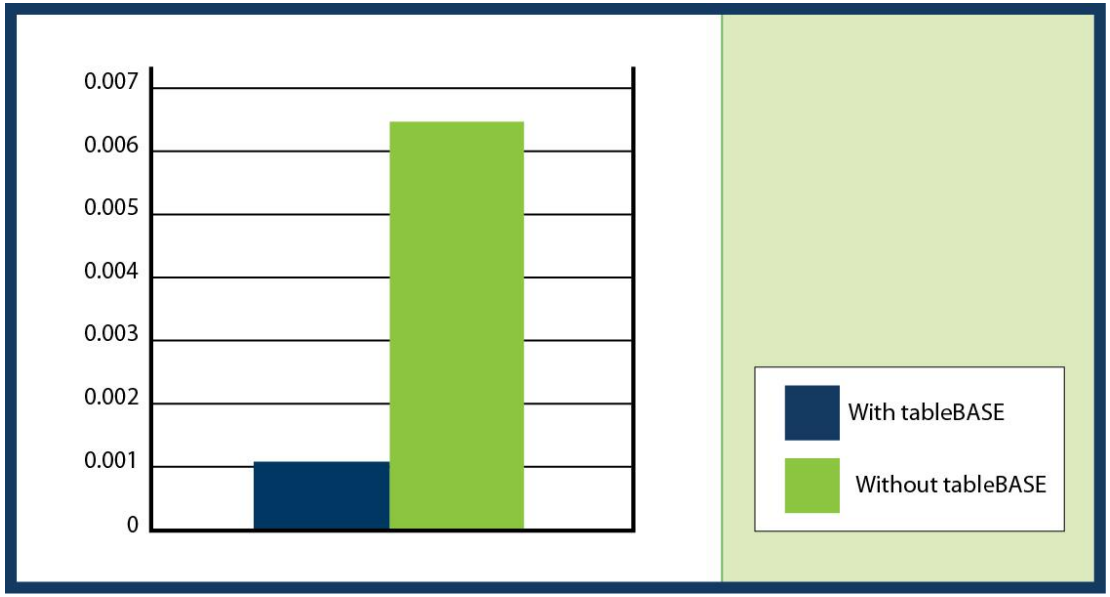
- ***Reduce the time for each transaction,***
- ***Execute more transactions per unit time and***
- ***Realize increased capacity and performance from your existing infrastructure***

DataKinetics.

Java to DB2 Optimizer: Example large bank in US



CPU consumption

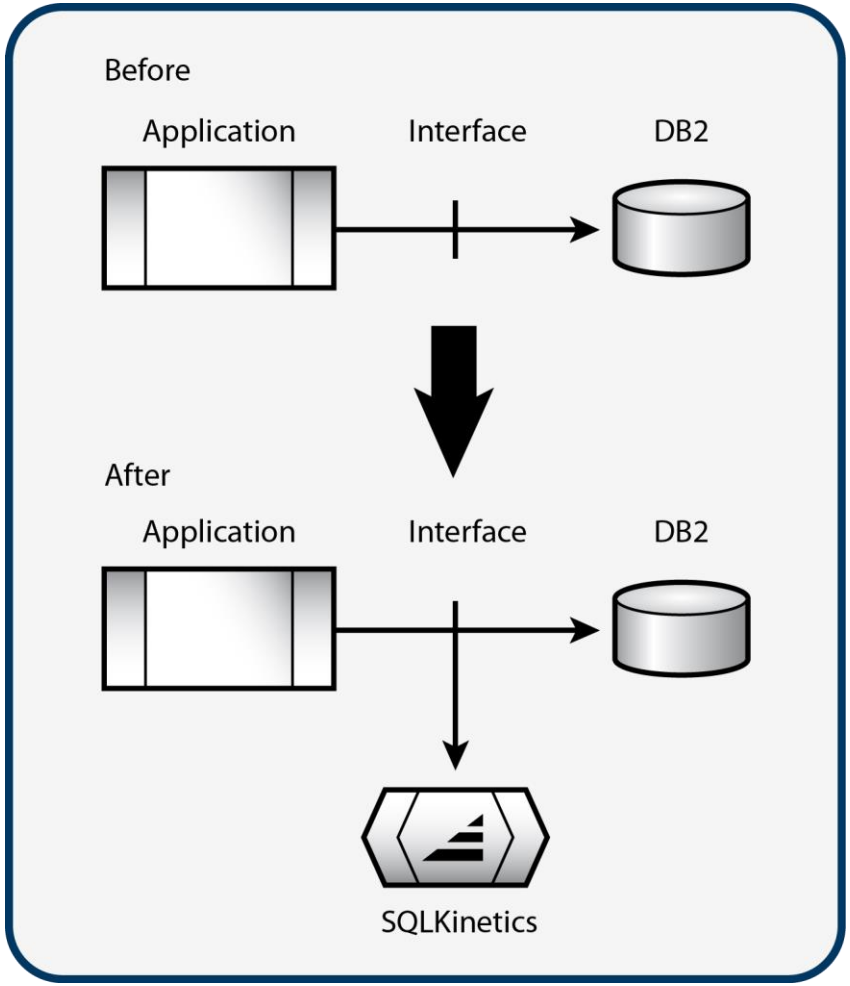


DB2 average elapsed seconds

SQLKinetics

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

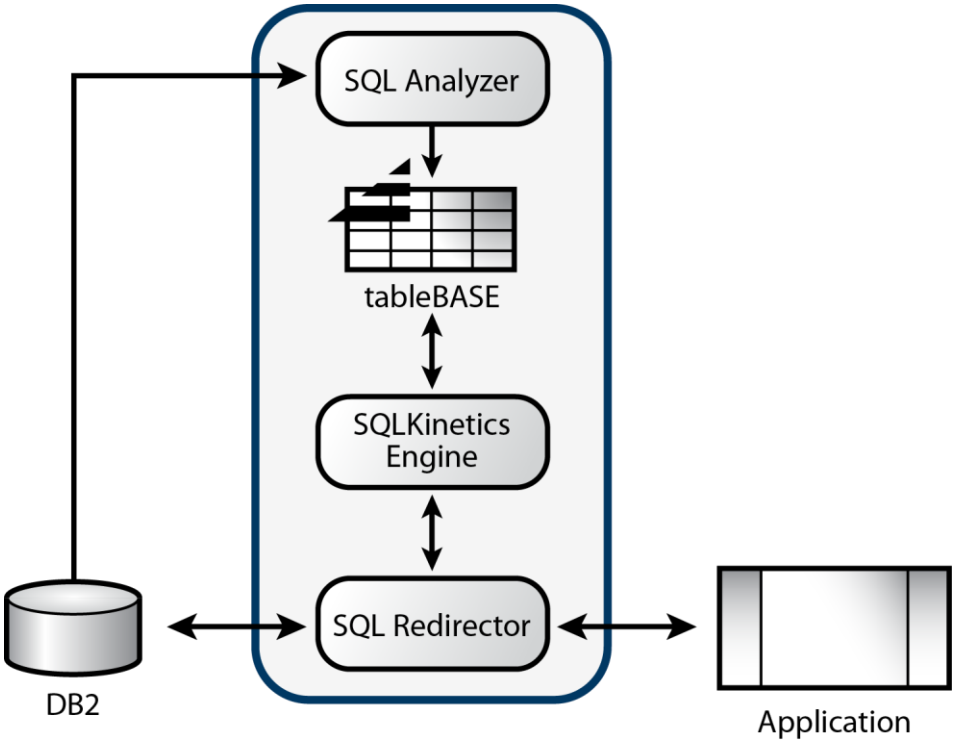


DataKinetics.

SQLKinetics Components

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



DataKinetics.

SQData: Data Integration and Replication

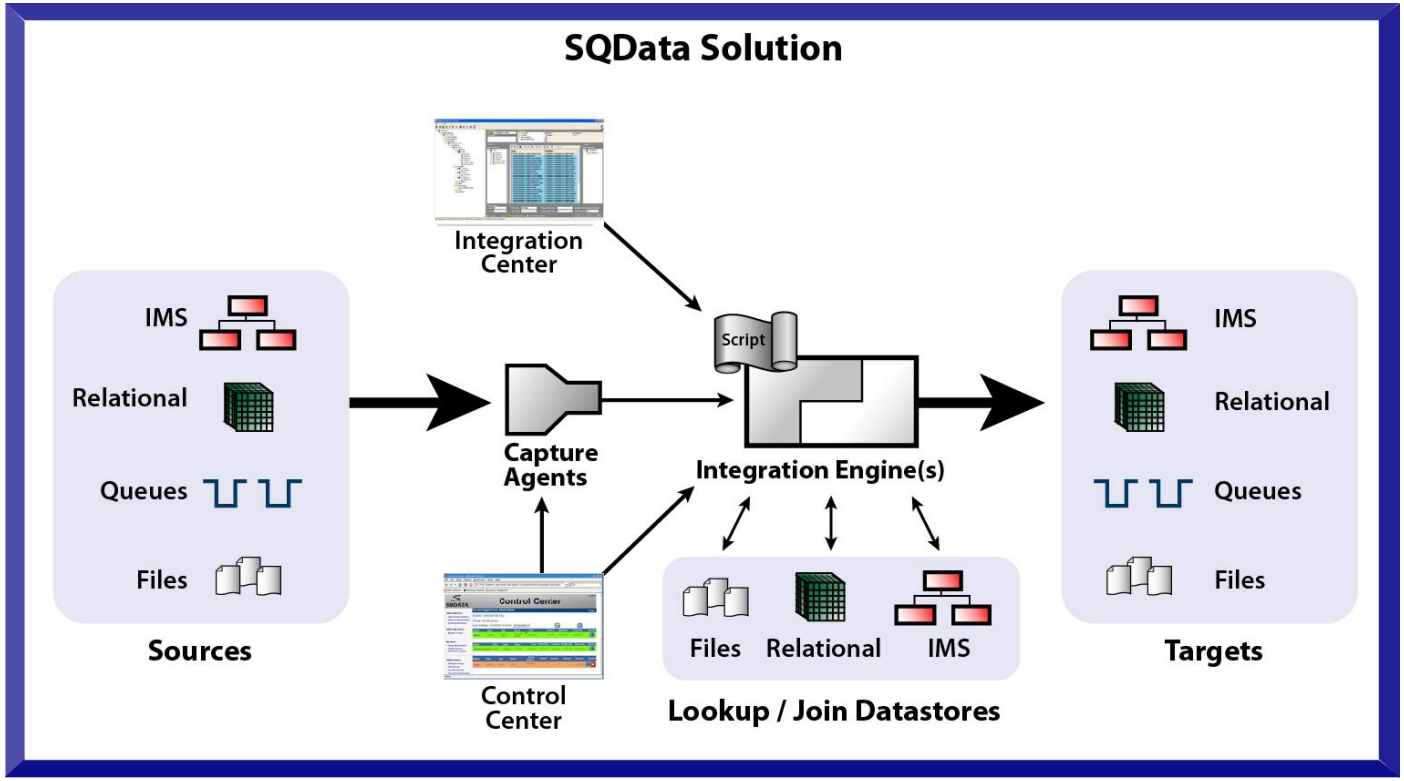
DataKinetics

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

DataKinetics.

Data replication and transformation



Single script driven engine operates on Change Data Capture

- **Diverse platforms**
- **Diverse data storage technologies**
- **Select data**

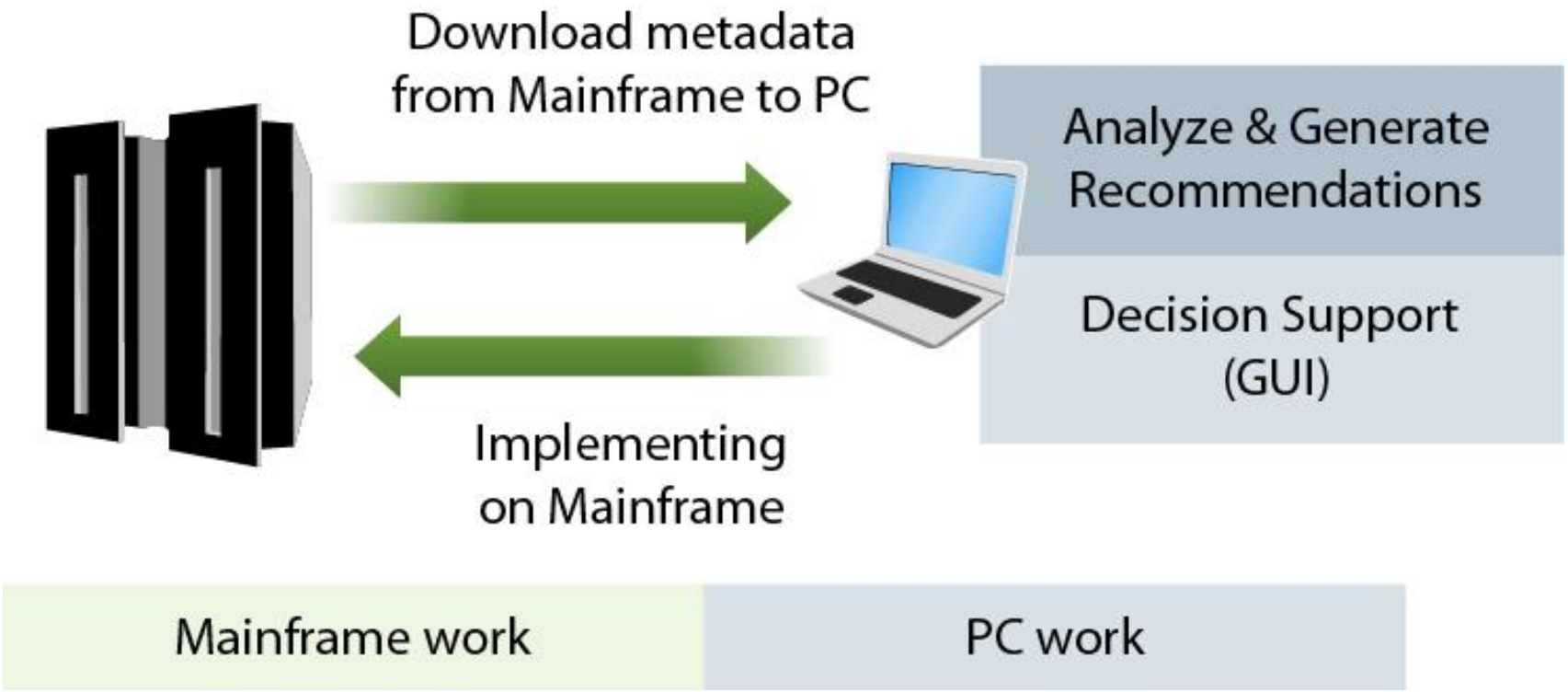
DataKinetics

InnovizeIT: Off line DB2 performance analysis

DataKinetics

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**



DataKinetics.

Automatic analysis and priortized 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

DataKinetics.

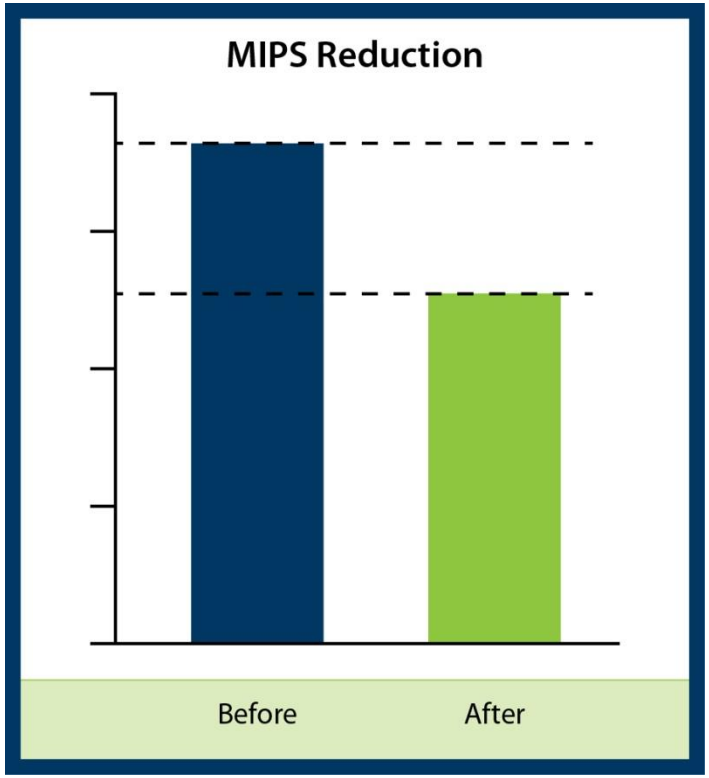
Results from an international bank

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

DataKinetics.

Professional Services

30

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?

DataKinetics.

Summary

DataKinetics: What we do for You.

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

DataKinetics.

Thank you for your time.