Modernizing CA IDMS™ Databases and Applications

IUA Workshop

October 2007

ca™ Transforming IT Management

Abstract

Your site has adopted SOA as an application strategy, installed an application server such as WebSphere or WebLogic, and now you need to make it all work with CA IDMS™. This session describes how you can use CA IDMS™ SQL and Server and other vendor products to modernize your CA IDMS databases and applications, making them a integral parts of this new application environment.

Agenda

> Modern application environment

> Modernizing CA IDMS™ databases

> Modernizing CA IDMS applications

> CA IDMS SQL and Server

> Partner products

Traditional IDMS Applications
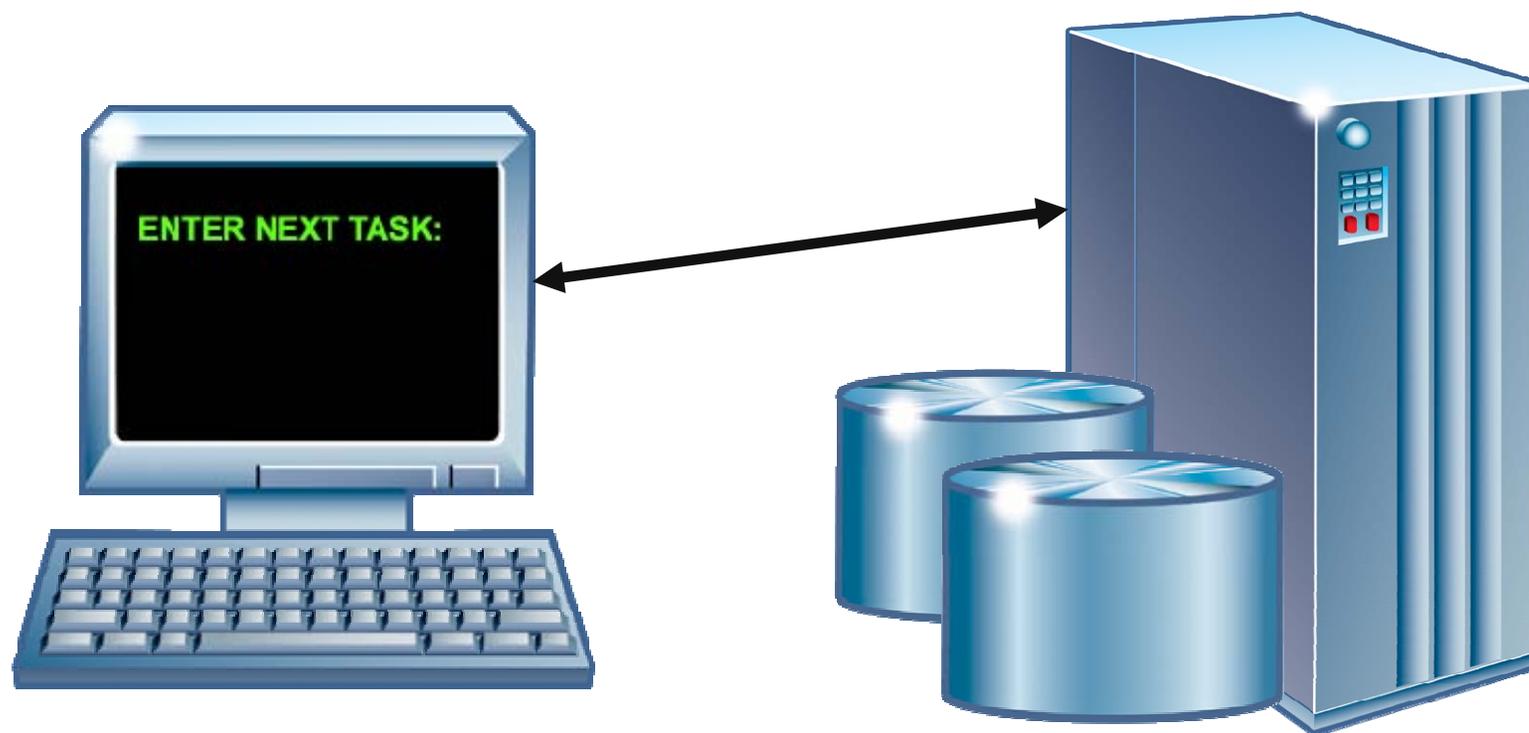
CA IDMS/DB-DC

New Technologies
Almost Everything Has Changed

> User interfaces

- Web, GUI

> Programming languages

- Java, C#

> Development tools

- Eclipse, WebSphere Studio, Visual Studio

> Deployment platforms

- J2EE, .NET

# Modern Applications
Composite Applications

> Multiple tiers

> Web based GUIs

> Application servers

> Legacy enterprise resources

Silos of Incompatibility
Connections Increase Exponentially
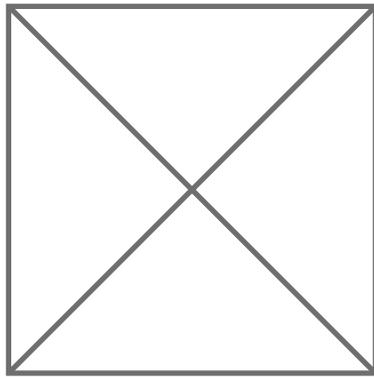
4 Nodes
6 Connections
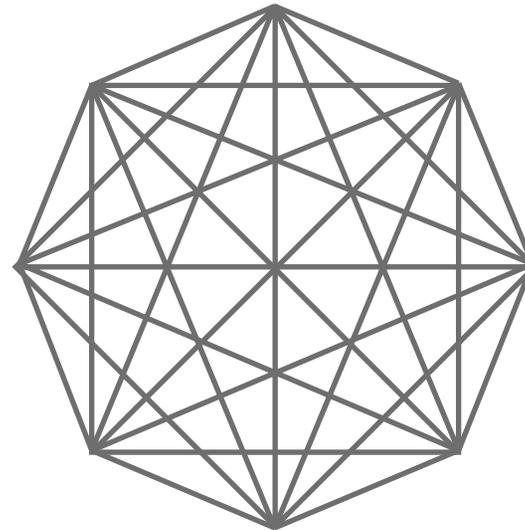
8 Nodes
28 Connections

Service Oriented Architecture
Enterprise System Bus

> Business processes = services

> Standard interfaces

> Platform independent

> Web services

> Based on internet technologies

Challenges of Modernization

> Large investment in legacy applications

> Legacy skills are hard to find

> Pressure to control costs

> How to reuse legacy applications?

Modernizing CA IDMS
What We Mean

> CA IDMS enterprise information system resources

- Databases

- Business logic

> Service Oriented Architecture

> Web applications

- Access CA IDMS

> Web services

- Encapsulate CA IDMS

Benefits of Modernization
CA IDMS as an EIS Resource Manager

> Use current developer skills

- Modern languages

- Popular development environments

> Deploy on current platforms

- J2EE

- .NET

> Preserve existing applications

Modernizing CA IDMS
## How You Can Do It

> Use industry standard APIs

- SQL

- ODBC, JDBC, and .NET

- Web services

> Enabled by

- CA IDMS SQL

- CA IDMS Server

- Partner Solutions

Modern Application Architecture

Web Applications

CA IDMS

SOA

Internet

SQL
JDBC
ODBC

WS

ESB

WS

Application Servers
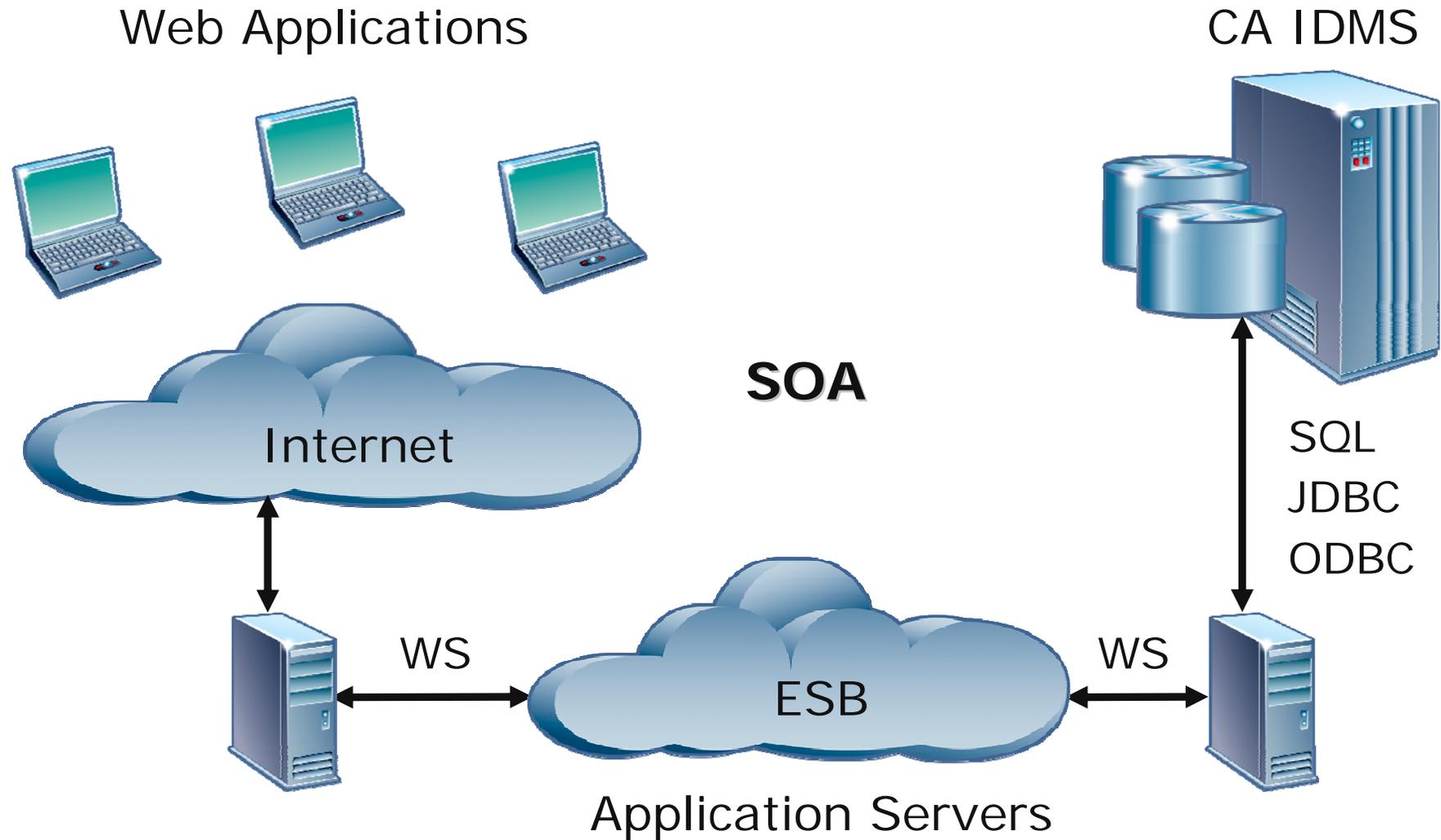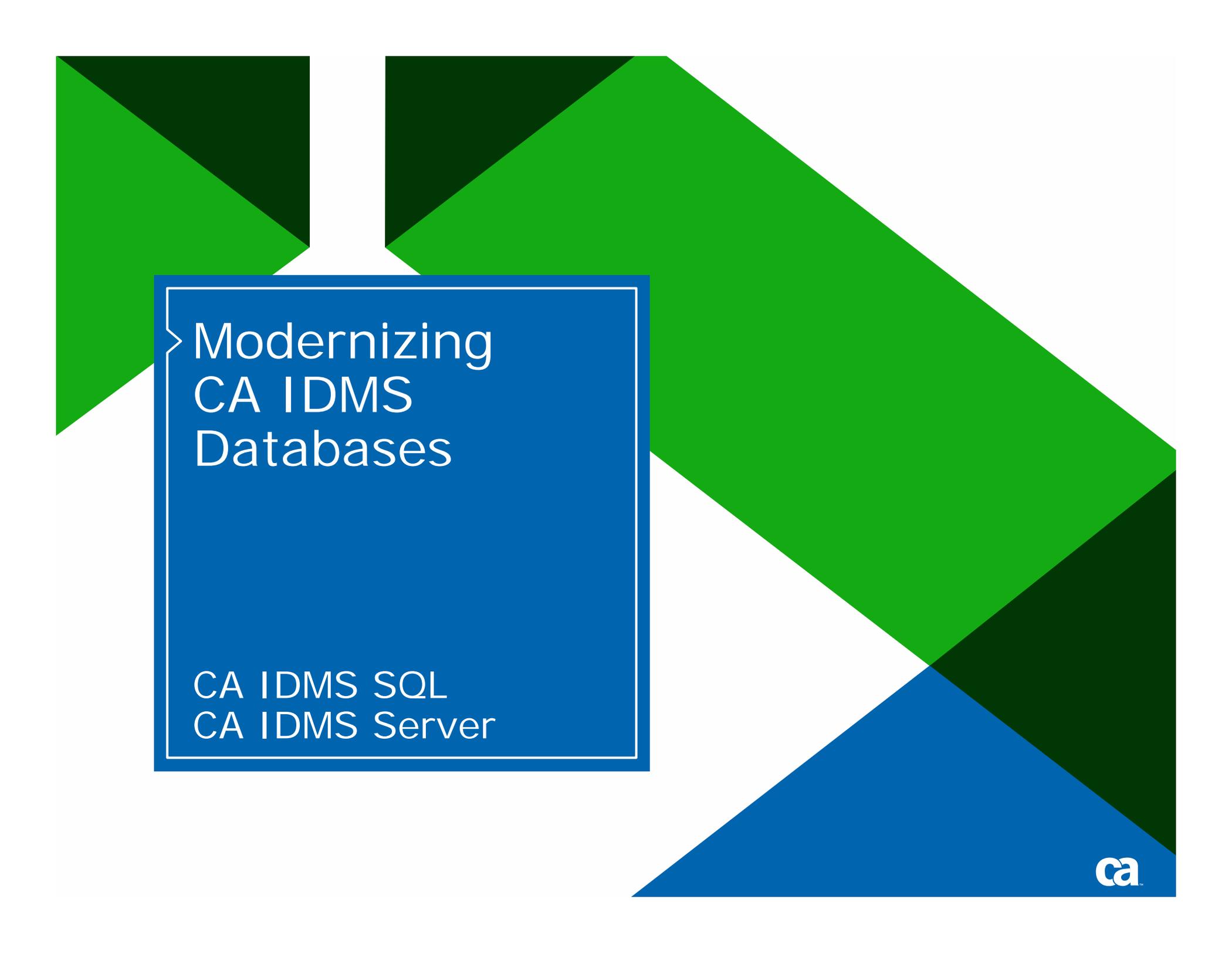
Modernizing CA IDMS Databases

CA IDMS SQL
CA IDMS Server

SQL and Network Databases
Network to Relational Mapping

> Schema = schema

- Network schema
- Database instance

> Record = table

- Names preserved

SQL and Elements

Network to Relational Mapping

> Element = column

- Lowest level element
- Names translated
- Element synonyms for SQL
- COBOL to SQL types

> Some structures not mapped

- Group items
- Occurs depending

SQL and Sets

Referential Constraints

Referenced table

CUSTOMER TABLE

Primary key

ACCOUNT	NAME	ADDRESS
100100	BILL	HERE
102030	DAVE	THERE
230504	FRED	NOWHERE

TRANSACTION TABLE

ACCOUNT	DATE	AMOUNT
102030	20070130	200.00
230504	20070212	147.50

Foreign key

Referencing table
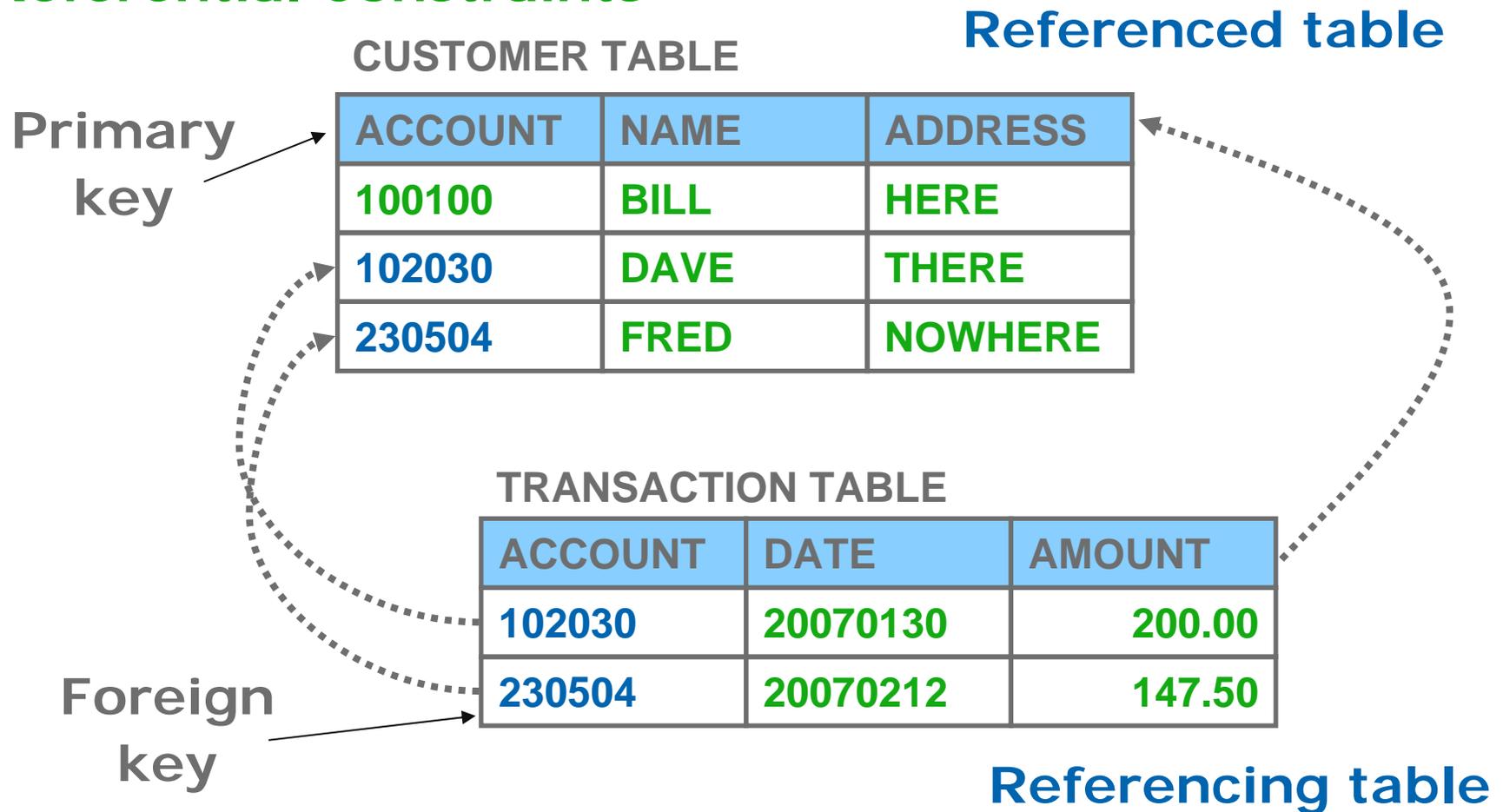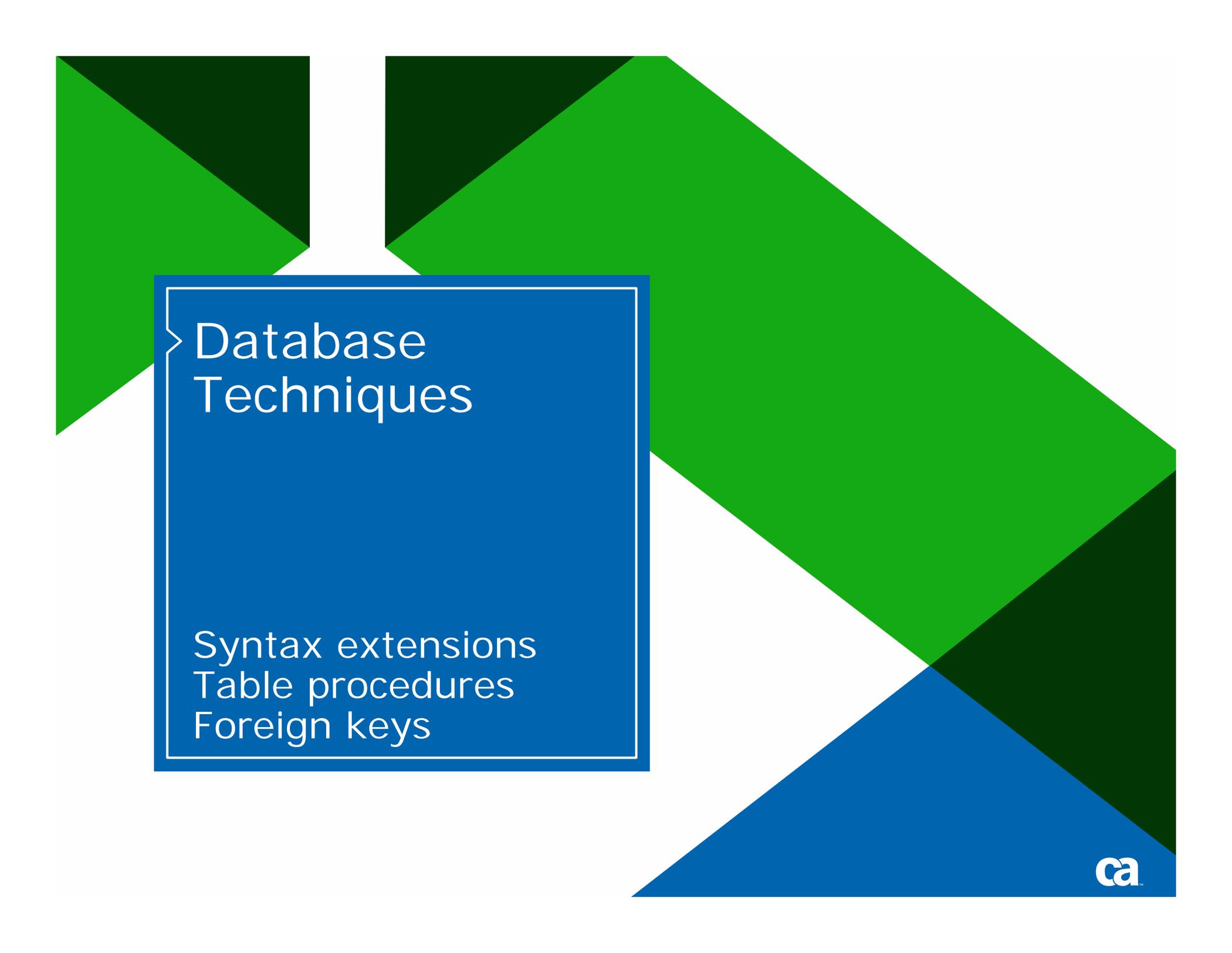
Database Techniques

Syntax extensions
Table procedures
Foreign keys

ca

CA IDMS SQL Extensions

No Database Changes

> WHERE <set name> predicate

- Join criteria
- Most useful for retrieval

> ROWID column

- Based on DBKEY
- Stable within transaction
- Can use for updates

Table Procedures

**Encapsulate Native DML**

> Appear like table

  - SELECT

  - INSERT

  - UPDATE

  - DELETE

> Enabled by CA IDMS™ SQL QuickBridge

> Encapsulate relationships

Foreign Keys
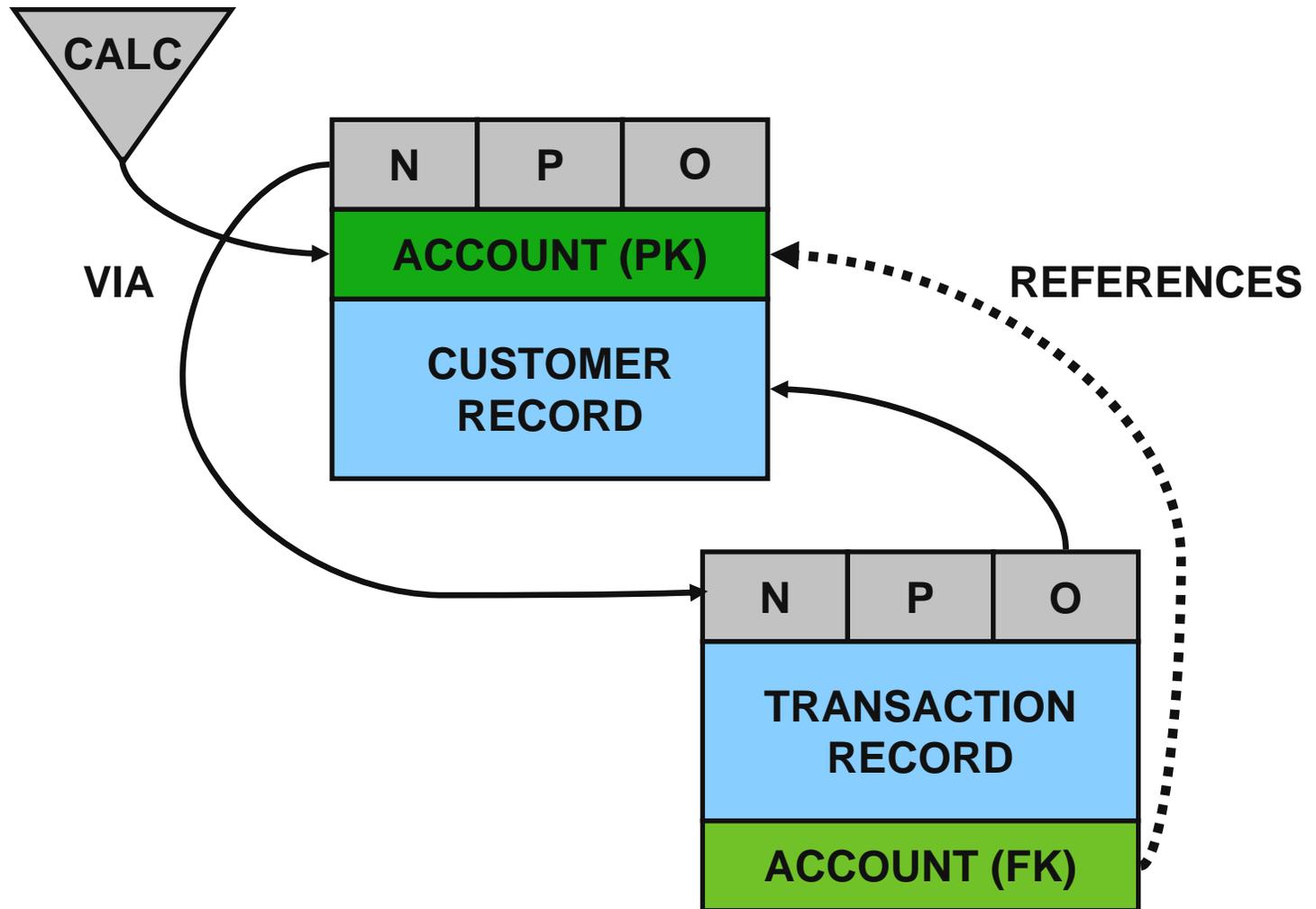
Benefits of Foreign Keys

Standard SQL

> Referential constraints enforced
  - INSERT
  - UPDATE
  - DELETE

> Standard metadata
  - ODBC
  - JDBC

> Compatibility with common tools
  - Application generators
  - Data warehousing

Implementing Foreign Keys

Not Quite Automatic

> Define foreign keys for set

> Restructure member record

> Populate foreign keys in member

> Maintain foreign keys in member

> Alternative to migration

- Can do incrementally

- Less cost

- Less effort

Tradeoffs

	Standard SQL	New programs	Application changes	Restructure	Sets
SQL extensions	No	No	No	No	Limited
Table procedures	Yes	Yes	No	No	Encapsulate
Foreign keys	Yes	No	Limited	Targeted	Referential constraints
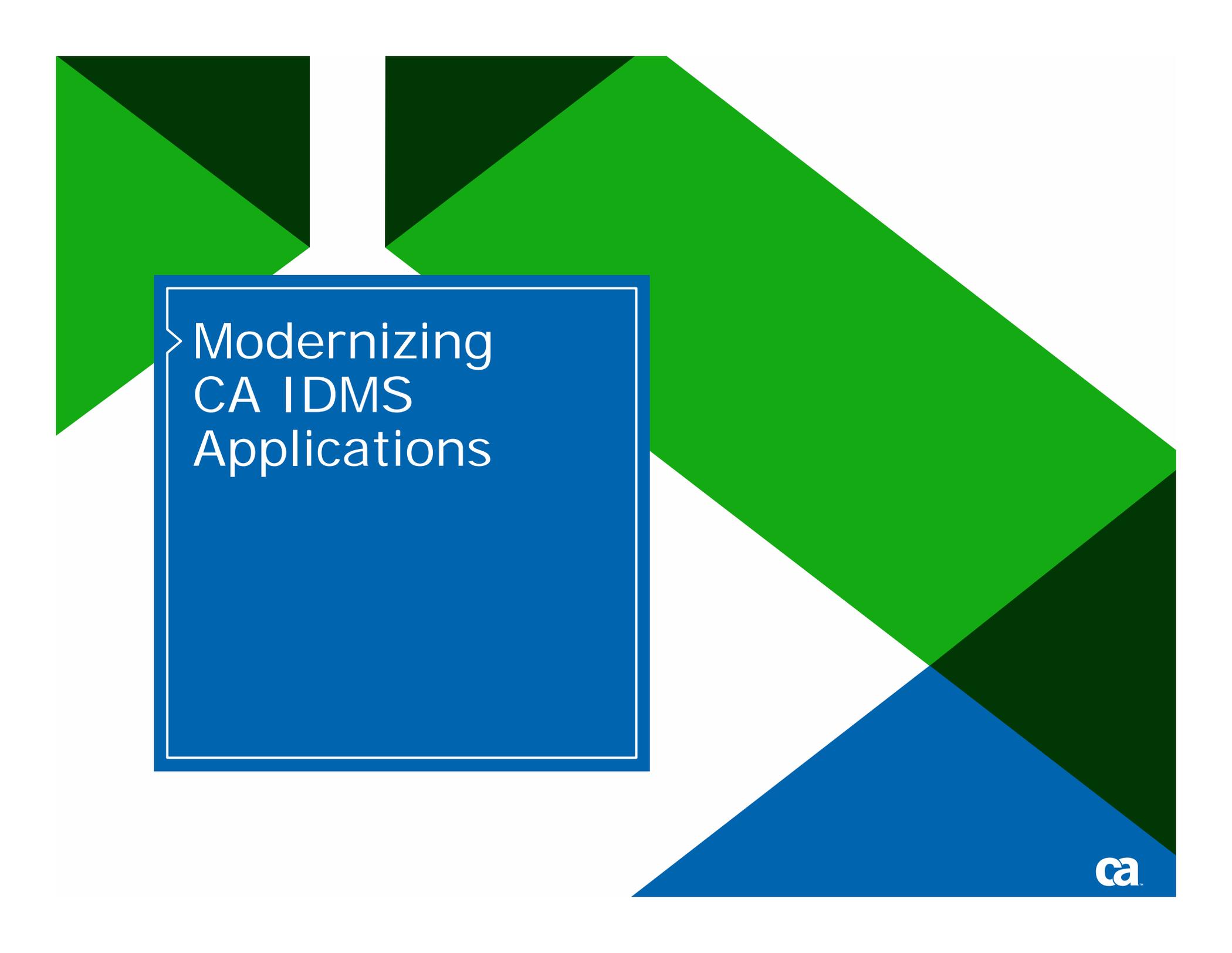
Modernizing CA IDMS Applications

Modernizing CA IDMS Applications

Make Them Services

> Issues

- Separation of business from presentation logic
- Invoking the business logic from the modern environment

> Think in terms of components

Call Interface

Like a Remote Procedure Call

> Extract logic from application

- Subroutines

- Map-less dialogs

- Extracted code

> Invoke using

- SQL procedures

- Socket programs

- JCA adapters

- Web services

CA IDMS Socket Programs

CA IDMS r16 TCP/IP

> Define client-server protocol

> Write server task

> Write client program

> Wrap in web service

> Consume web service

CA IDMS SQL Procedures

CA IDMS SQL and CA IDMS Server

> Define with CREATE PROCEDURE

> Implement with

- CA ADS™ map-less dialog
- Small wrapper program

> Call with standard APIs

- SQL CALL statement
- ODBC/JDBC/ADO.NET

> Wrap in web service

Presentation Interface

Avoids the Logic Separation Issue

> Find the data in the screen buffer

- Screen geometry
- Field names

> Control the flow of screens

- Scripting language

> Can be sensitive to changes

> Think in terms of components

Vendor Solutions

CICS Gateway
HostBridge
DataDirect Shadow

CICS Transaction Gateway

CICS Applications

> Java Connector Architecture

> Web services

- Java components

- Deployed in WebSphere

> WebSphere Studio "service project"

CICS JCA Adapters

What the CTG Provides

> External Call Interface Adapter

- CICS COMMAREA applications

> External Presentation Interface Adapter

- CICS 3270 applications
- Field order
- BMS map converter for field names
- Scripting language is Java

HostBridge

CICS and CA IDMS/UCF Applications

> Runs in CICS

> Web services, XML documents

> COMMAREA

> BMS

- Field names

> UCF

- Row, column

> JavaScript

DataDirect Shadow

CA ADS, CA IDMS™/DC Applications

> Runs in its own address space

> Web services

> Development plug-ins

- Reads dictionary

- Field names from maps

- Scripting language

> CA IDMS as web service consumer
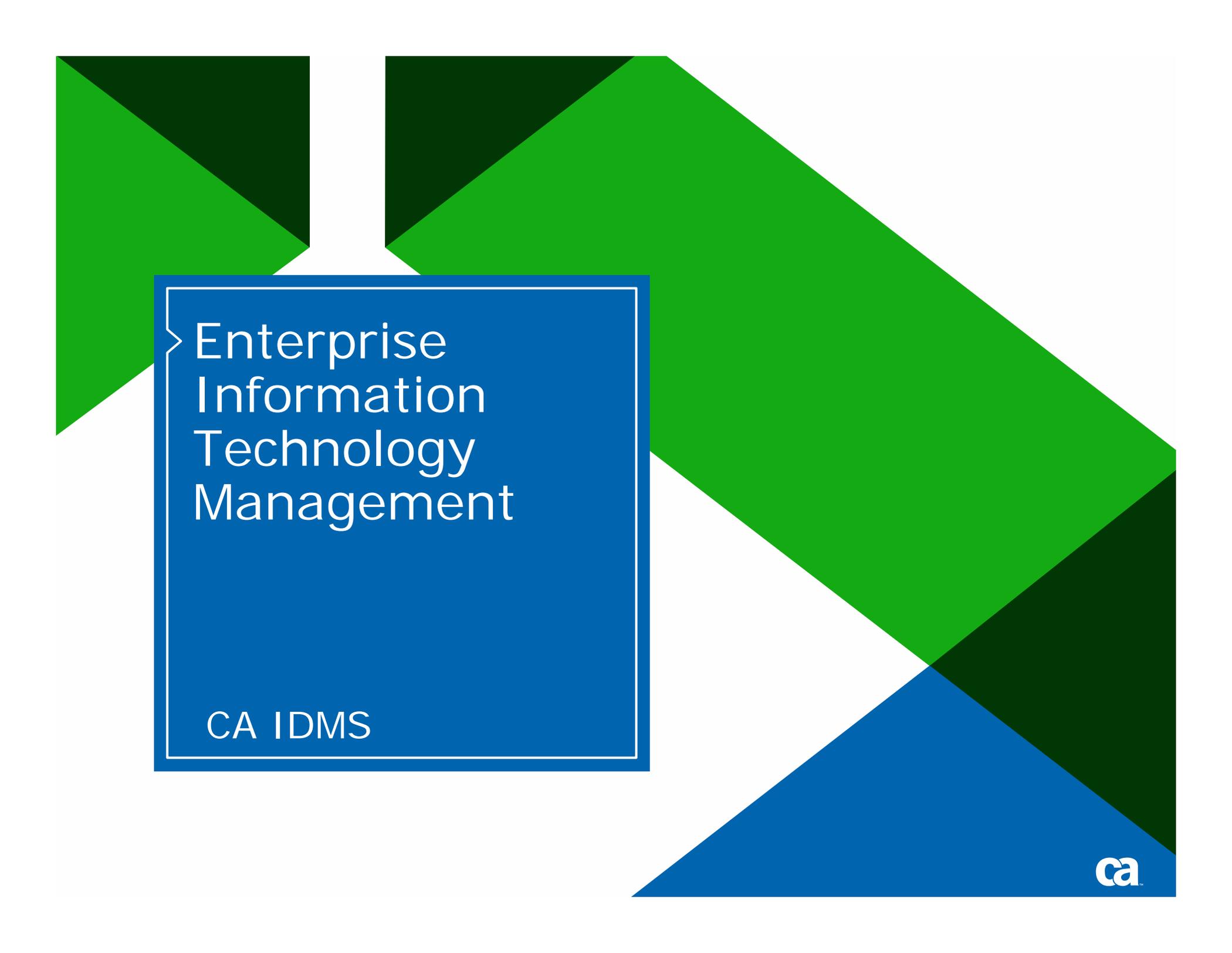
# Enterprise Information Technology Management

CA IDMS

EITM: Transforming IT Management

Enterprise IT Management (EITM) is CA's vision for how to unify and simplify IT management to maximize the value to the business.

To transform IT management, CA delivers solutions that effectively govern , manage and secure IT.

CA SiteMinder®

CA IDMS Server r16.1 Identity Auditing
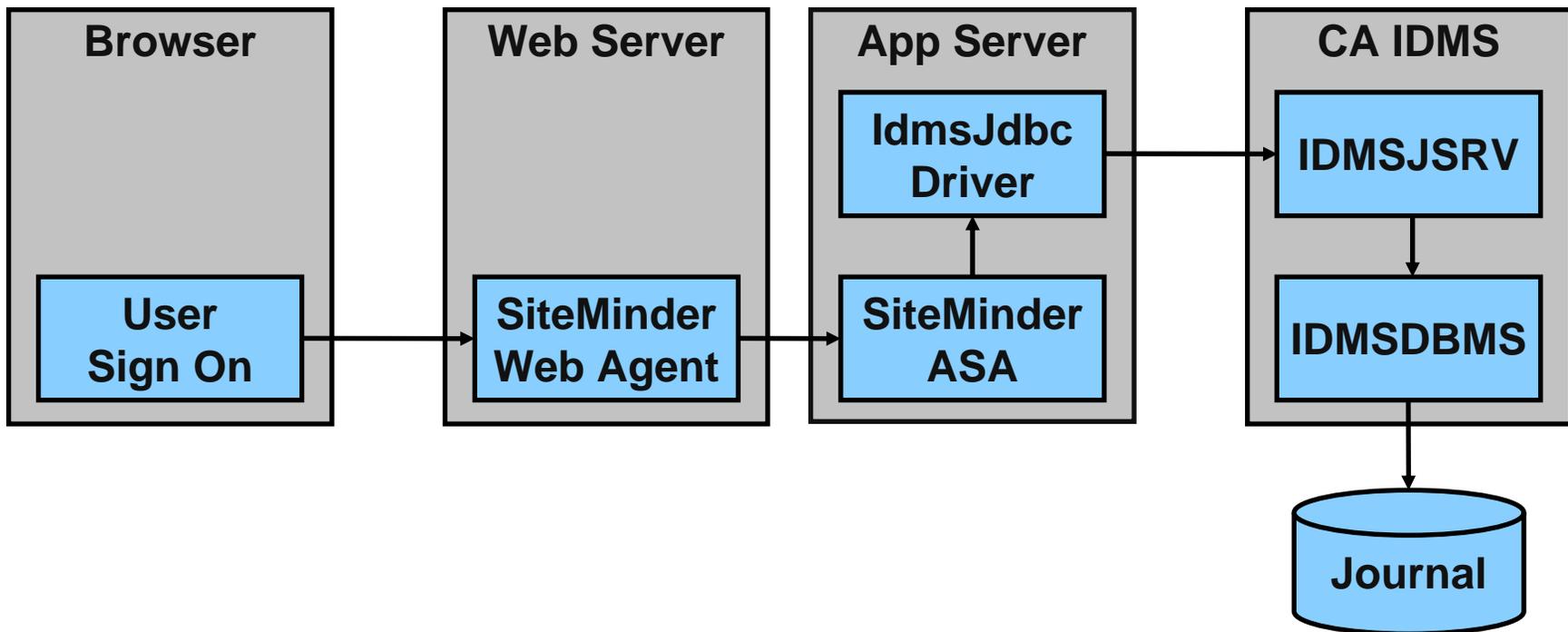
CA Wily Introscope®

Application Performance Management

> J2EE Application Servers

> Transaction Tracer

- Identify problem transactions

> SQL Agent

- Individual SQL statements
- SQL and application server interactions
- Any JDBC connected application

Summary

> ## More than one way to modernize

- Databases
- Applications

> ## Tools and techniques

- CA
- Partners

> ## Modernization can be incremental

> ## Modernization can be done

> ## Modernization is worth it

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Questions & Answers