

# Shadowbase®



## Shadowbase Data Replication VNUG - May 26, 2010



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# Agenda

- Introduction to Gravic
- Shadowbase Product Overview
- Shadowbase Case Studies
- Shadowbase for Application Integration
- What's New



**Questions? Please ask as we go along...**



# Introduction to Gravic

## A History of Excellence

- 1979 – Founded, development organization & service bureau
- 1984 – Log-based replication product **TMF Auditor**
- 1995 – Lowest-latency “process-to-process” replication **Shadowbase**

## Focused Technology Direction

- Product solutions for a wide array of enterprise data replication requirements
- Patents on critical and innovative technology

## Total Replication Solutions®

- Leverage product, services, and partners to offer “complete business problem solution”



# Shadowbase Product Overview

Shadowbase Replication is an Enabling, Extensible Technology!

## Business Continuity & Availability

- Disaster Recovery (Uni-Dir Active-Passive Architectures)
- Sizzling Hot Takeover (Bi-Dir Active/*Almost Active* Architectures)
- Continuous Processing (Bi-Dir Active/Active Architectures)
- Eliminate Application Down-time for Migrations & Upgrades (ZDM)

## Data Synchronization and Application Integration

- Homogeneous & Heterogeneous Environments
- Data Transformation, Scrubbing, Filtering, & Cleansing
- Data Warehouse Feeds, Build OLQP Environments
- Real-Time Business Intelligence, Integrating Modern DB's, etc.
- Event Trigger Processing (Pub/Sub Functionality), Application Modernization

## Utility Uses

- Restore Corrupted Databases On-line
- Audit Compliance Reporting and Analysis
- Test Database Creation, QA Database Refresh, etc.



# Shadowbase Product Overview

## Shadowbase is a *Full-Featured* Replication Engine

- SB extracts data to be replicated from a source environment, and optionally transforms/applies it to a target environment

## Shadowbase Source System *Extract* is based on Source System Capabilities

- SB supports transaction log-based extraction as well as source database trigger extraction, depending on the source environment. For example:
  - NonStop Source – TMF Audit Trail Extraction
    - Source DB either audited, or replicated via SOLV “Snapshots”
    - Or, consider using NonStop AutoTMF
  - Oracle Source – Database Trigger Extraction
  - SQL Server Source – Database Trigger Extraction
  - Sybase Source – Sybase Replication Server Extraction (via Sybase log reading)



# Shadowbase Product Overview

## Shadowbase is a *Software* Replication Engine

- SB is not an embedded device driver or other hardware replication solution
- It installs via normal application software installation techniques

## Shadowbase runs at the *Application Layer*

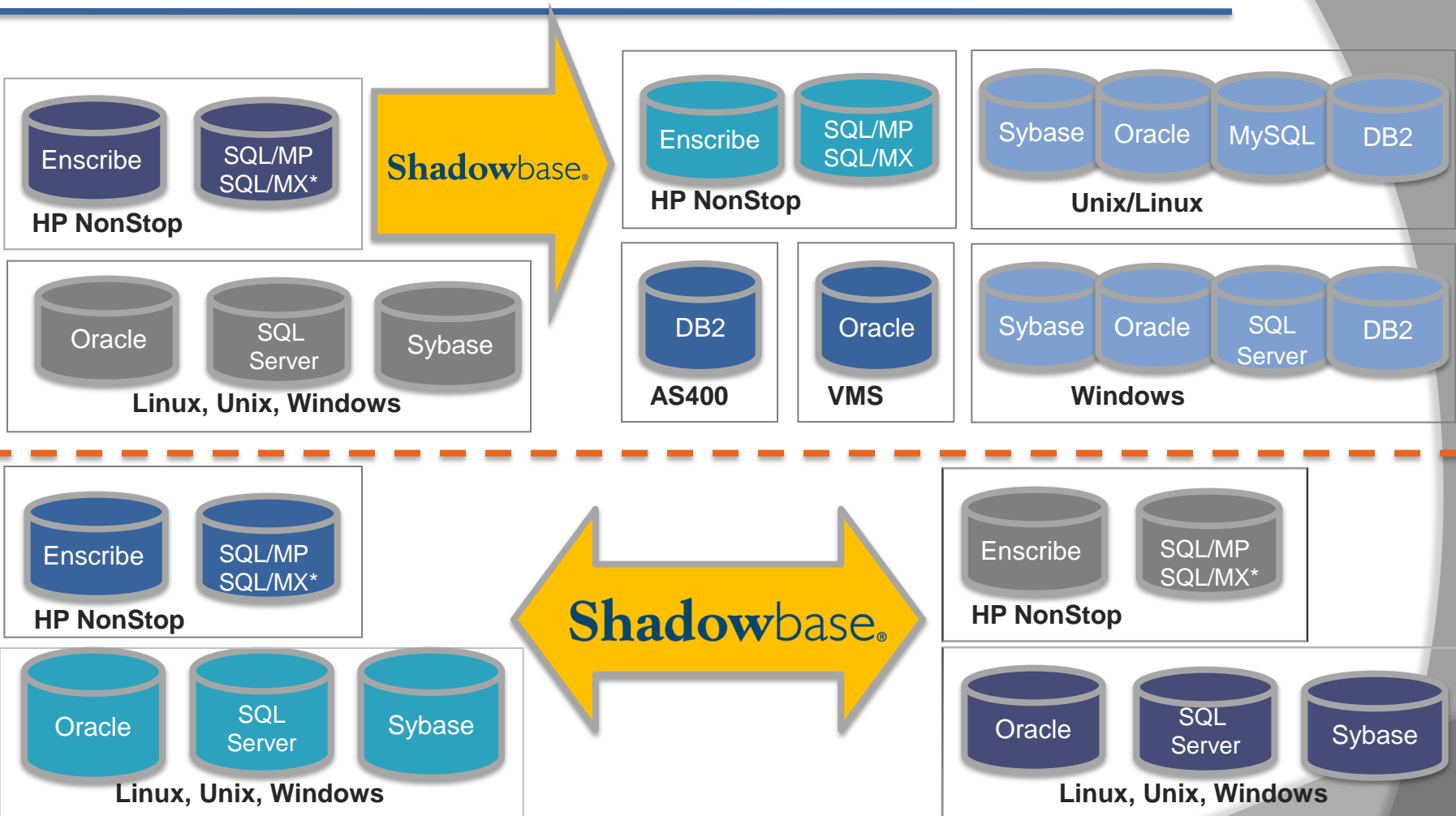
- SB co-exists alongside other system and application processes
- SB uses normal target file system access for locking and applying the transactional data at the target database

## Shadowbase uses *Standard Communication Protocols*

- SB uses standard communication protocols for each environment it runs in (e.g. Expand or TCP/IP)



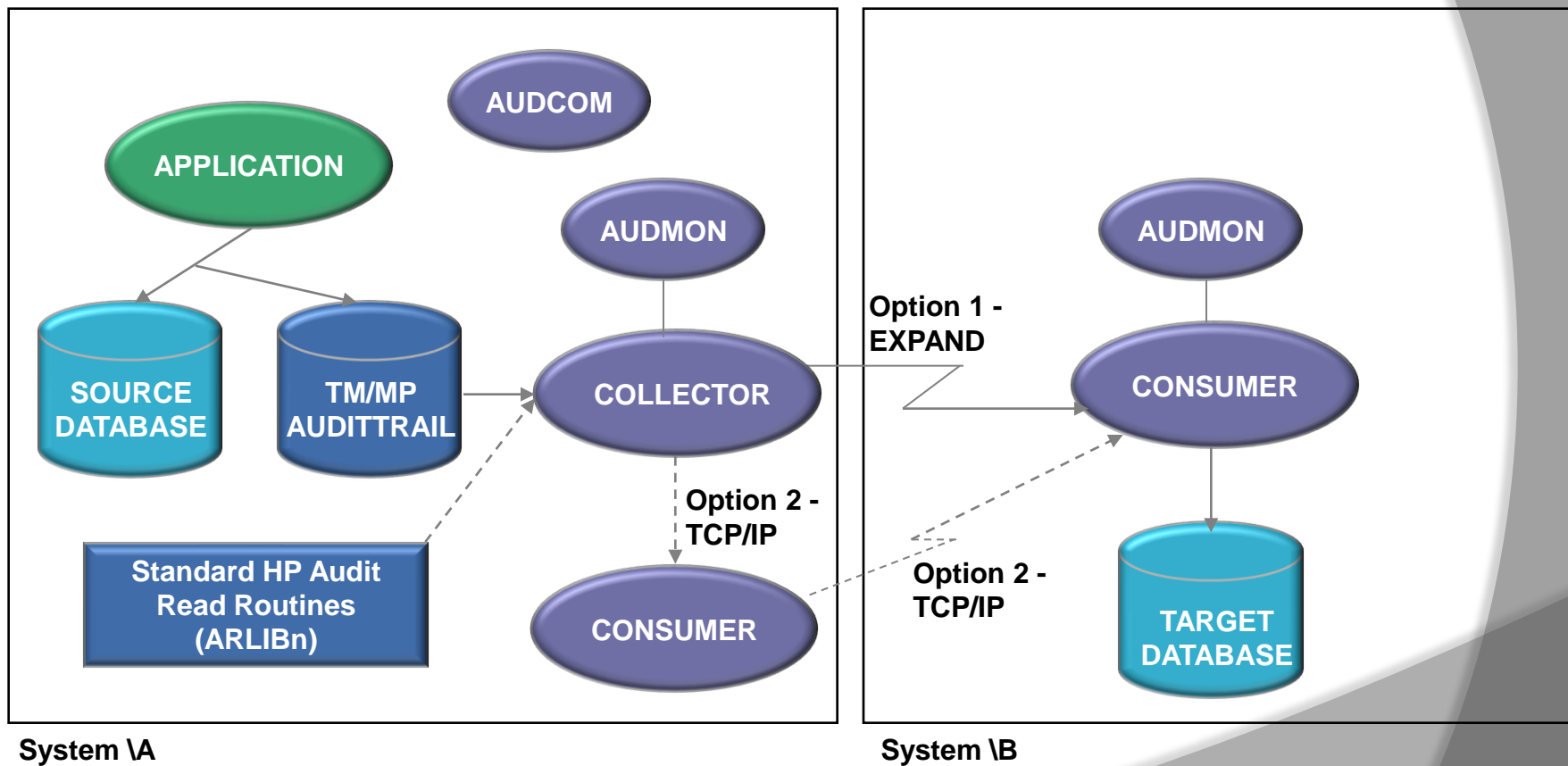
# Shadowbase Product Overview





# Shadowbase Replication Technology

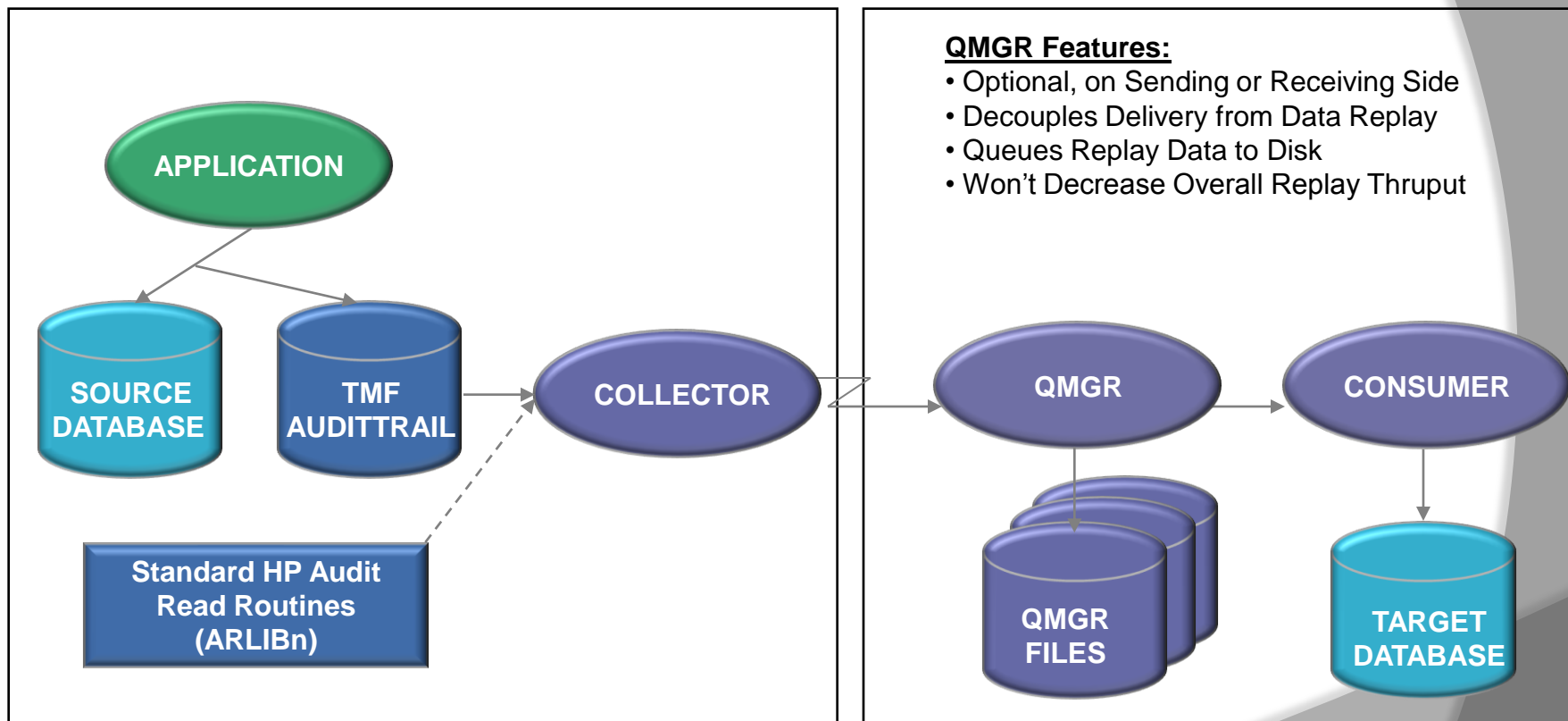
## Shadowbase for NonStop Server to NonStop Server





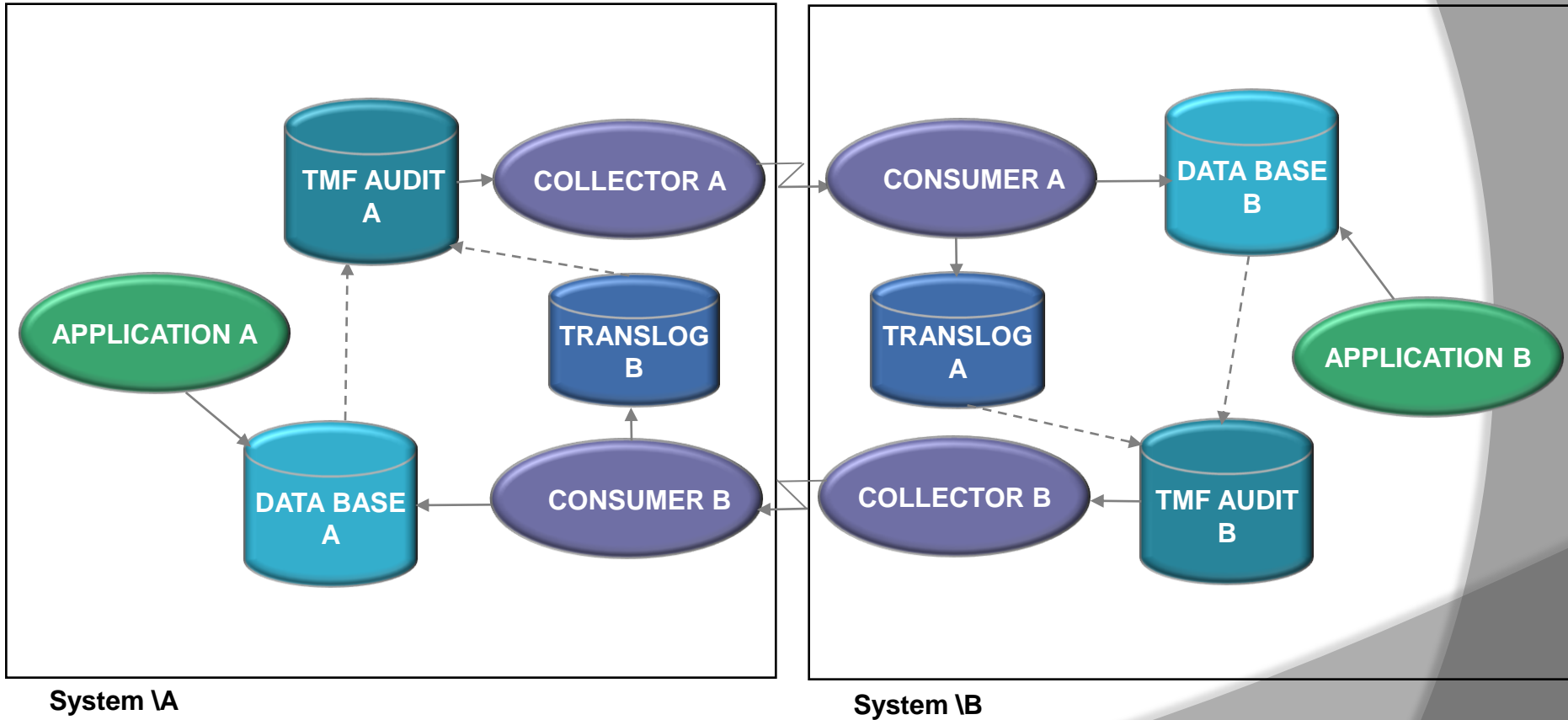
# Shadowbase Replication Technology

## Shadowbase for NonStop Server to NonStop Server Highlighting the QMGR



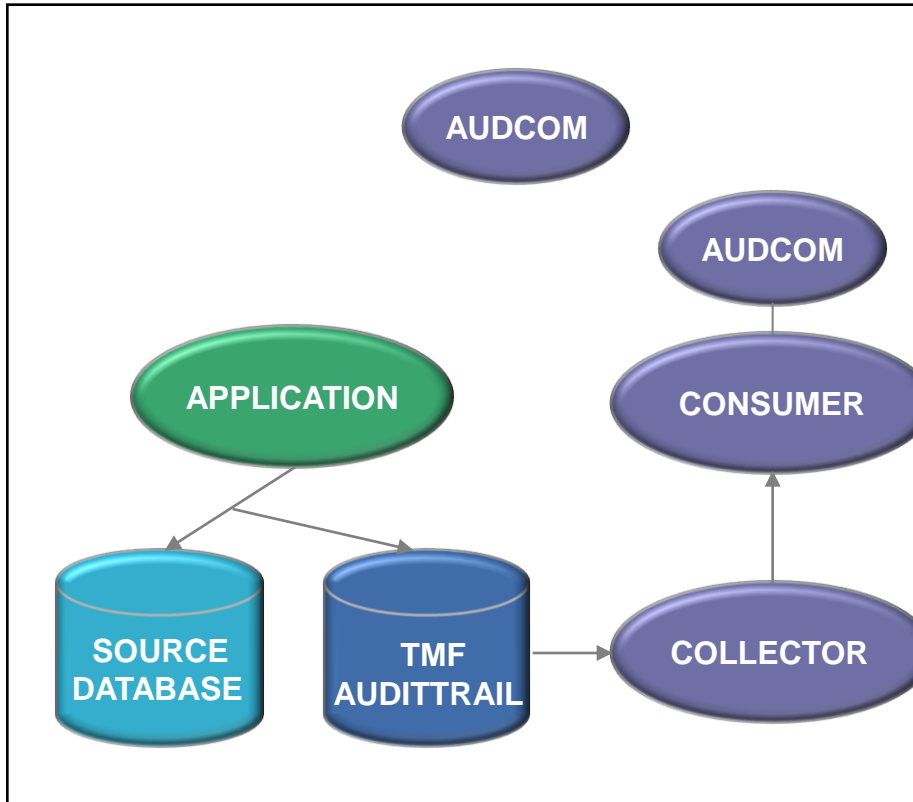
# Shadowbase Replication Technology

## Bi-Directional NonStop Replication Architecture

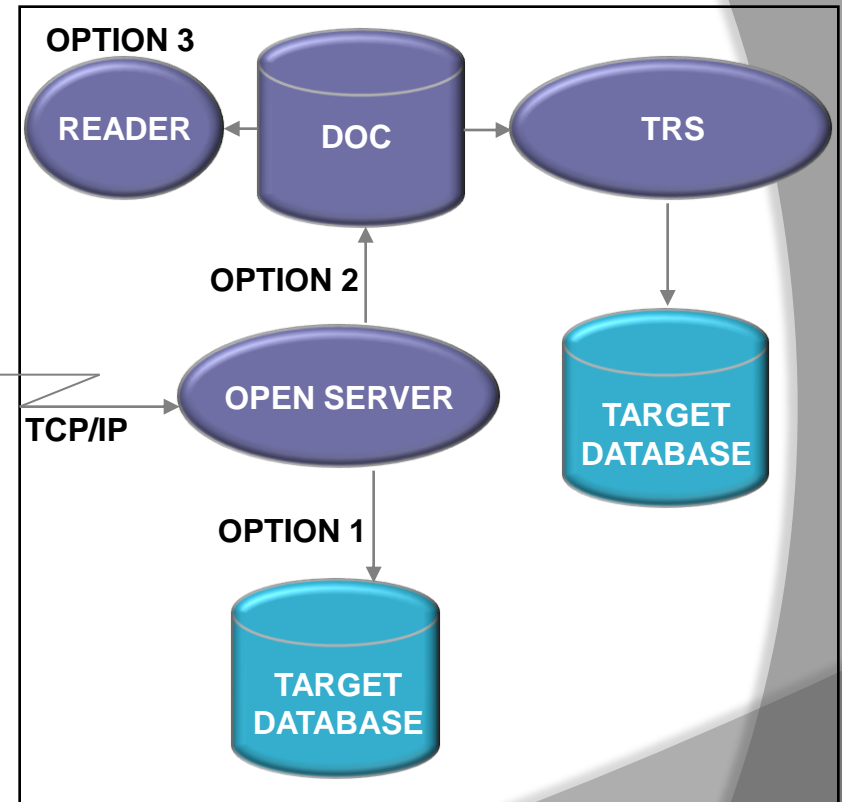


# Shadowbase Replication Technology

## NonStop Server to Other Platforms



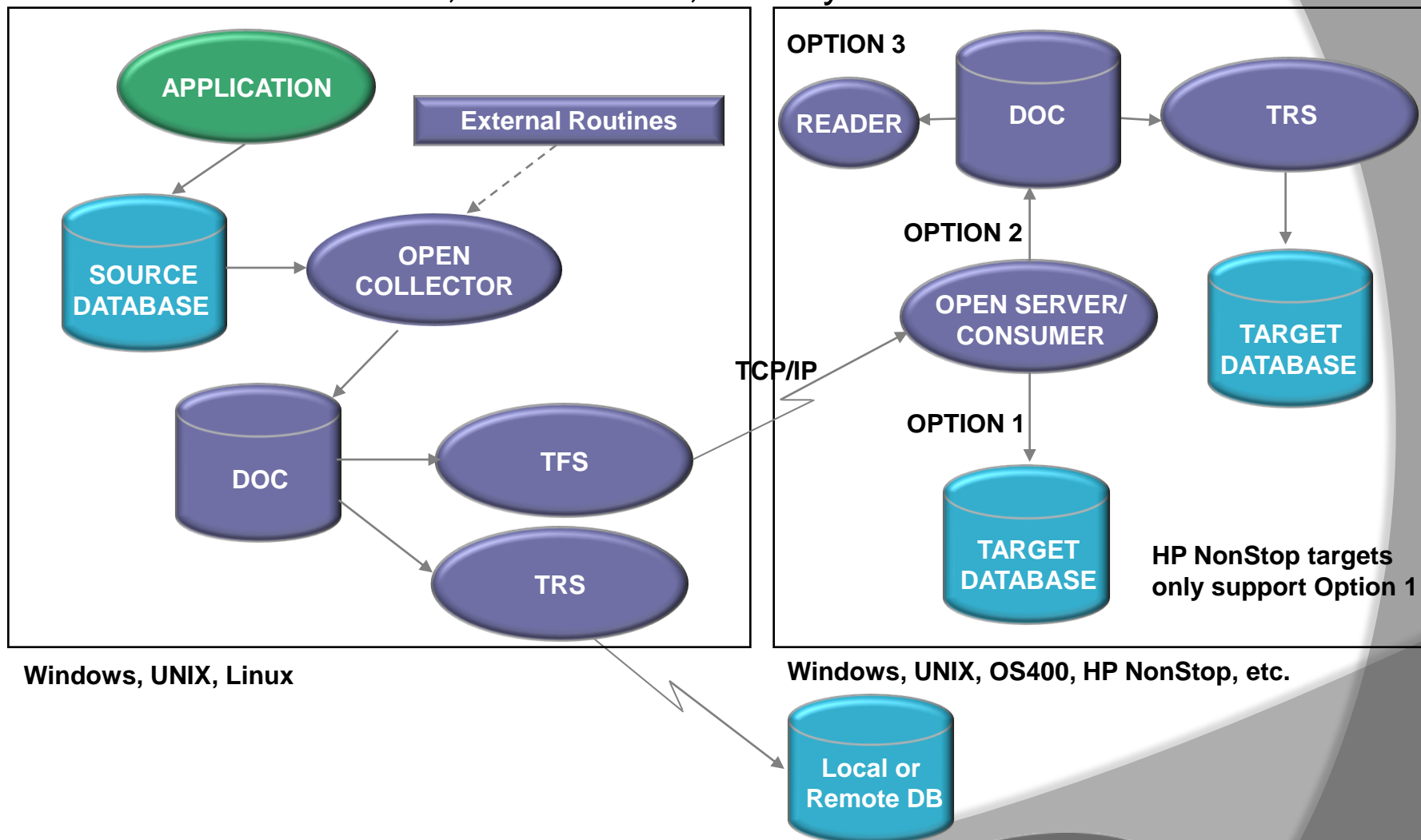
NonStop



Windows, UNIX, OS400, Open VMS, etc.

# Shadowbase Replication Technology

## Shadowbase for Oracle, SQL Server, and Sybase



# Shadowbase Success Stories

## Case Studies

- **Application and Data Synchronization – First Data Corporation**



- **Availability Modernization – Royal Bank of Canada**



- **Application Integration- Rabobank**

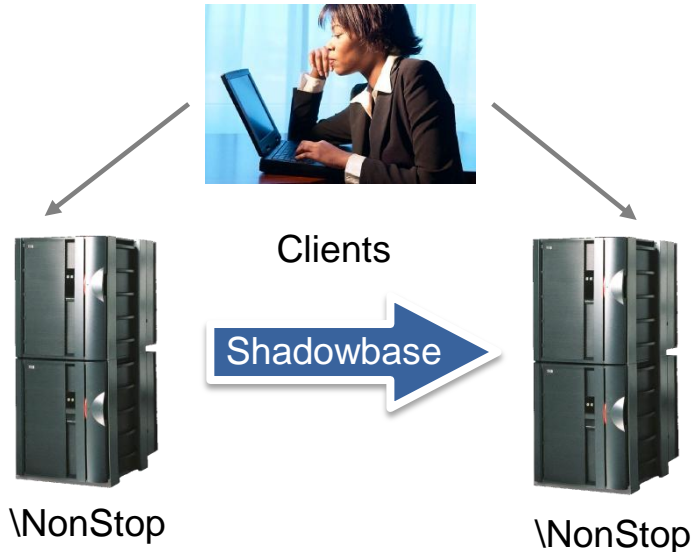


## Implementations at First Data Corporation

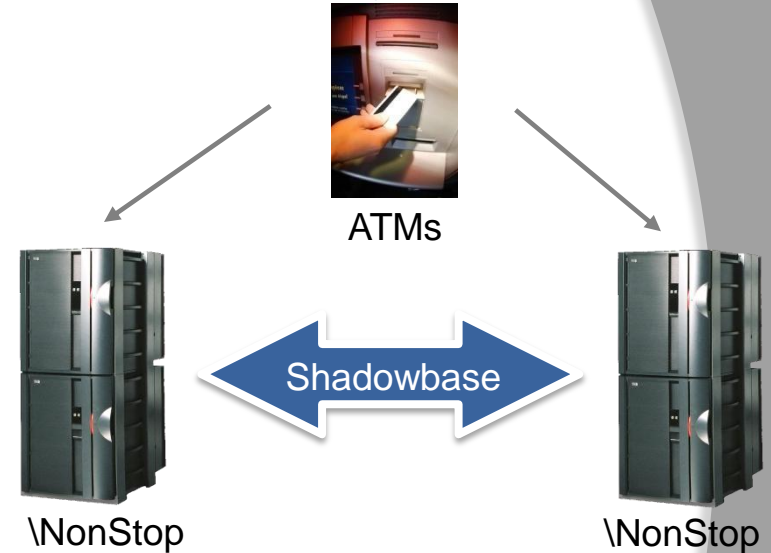
- **Traditional Disaster Recovery**
- **Bi-Directional Active/Active Business Continuity**
- **Bi-Directional Integration with Active Data Warehouse and Real-Time Fraud Detection**

## Implementations at First Data Corporation

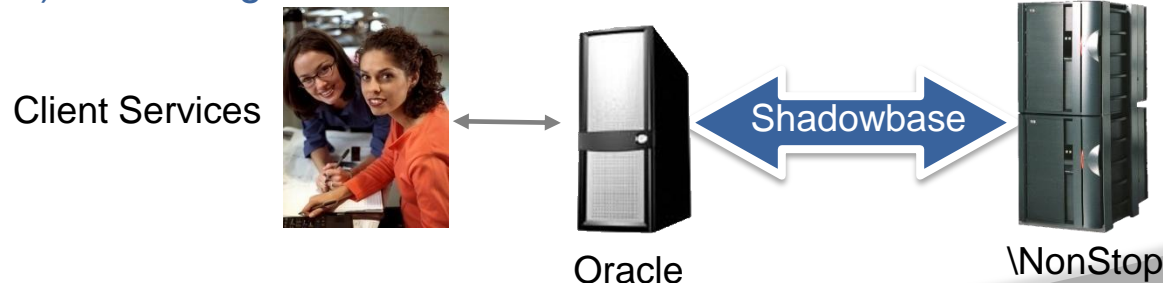
### 1) Business Continuity – Disaster Recovery



### 2) Business Continuity – Active/Active Switch



### 3) Data Integration – Active Data Warehouse/Real-time Fraud Detection





# Shadowbase Success Stories



## Availability Modernization at Royal Bank of Canada

- **Traditional Disaster Recovery**
- **Bi-Directional Active/Active Business Continuity**



# Shadowbase Case Studies

## Active-Passive: Uni-Directional Disaster Recovery



### Availability Modernization – The Old Way

**BASE24**

**Regions 1,2,3,4,5**



**Non-Shadowbase**

**Uni-Directional Replication**



#### **Key Features:**

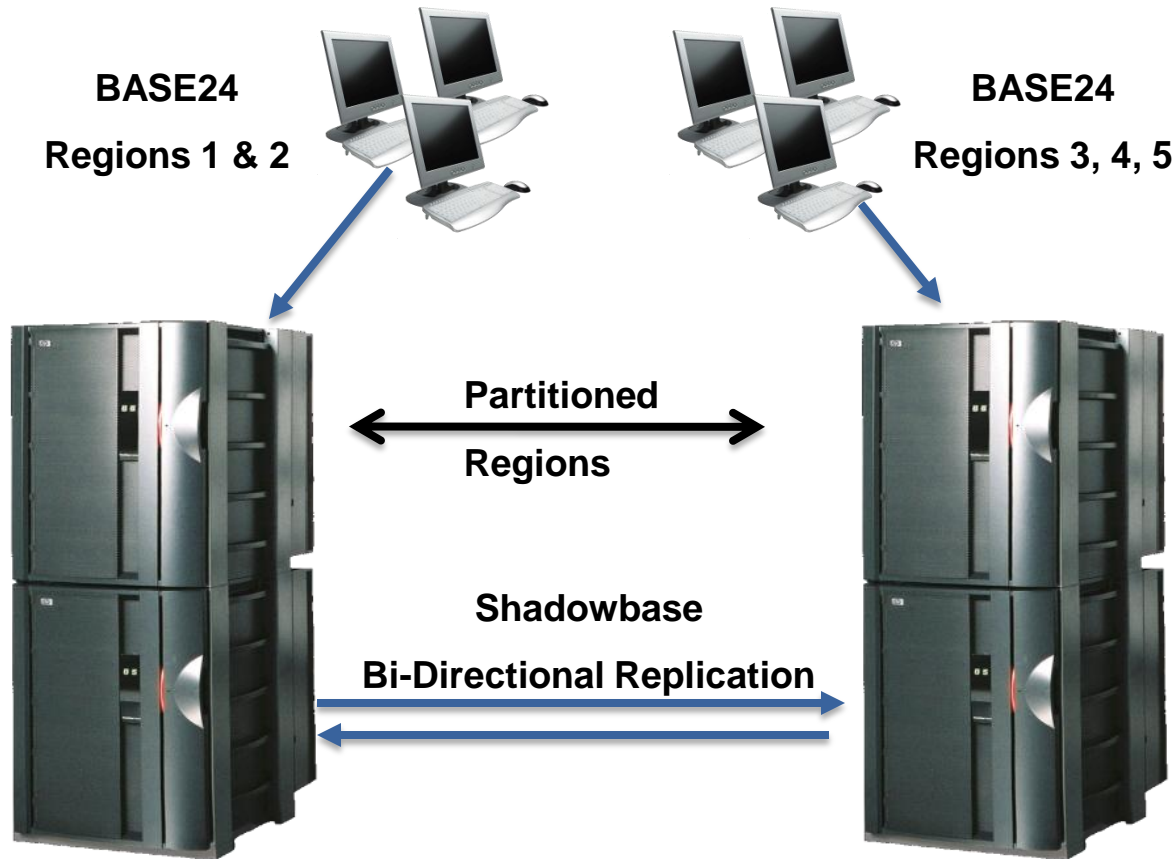
- **Paying for Idled System Capacity/Licenses**
- **All Users Affected at Failure**
- **More Data Loss at Failure**
- **Worse Recovery Time – Application Not Running**
- **Will Target Application Come Up???**
- **Target DB Read-Only (Inconsistent for Reporting)**



# Shadowbase Case Studies

## Active-Active: Partitioned Application Users

### Availability Modernization – The New Way



#### Key Features:

- No Idled System Capacity
- Fewer Users Affected at Failure
- Less Data Loss at Failure
- Faster Recovery Time - Application Already Running
- Failover to Known-Working System
- Both DB's Active/Available for Application Work

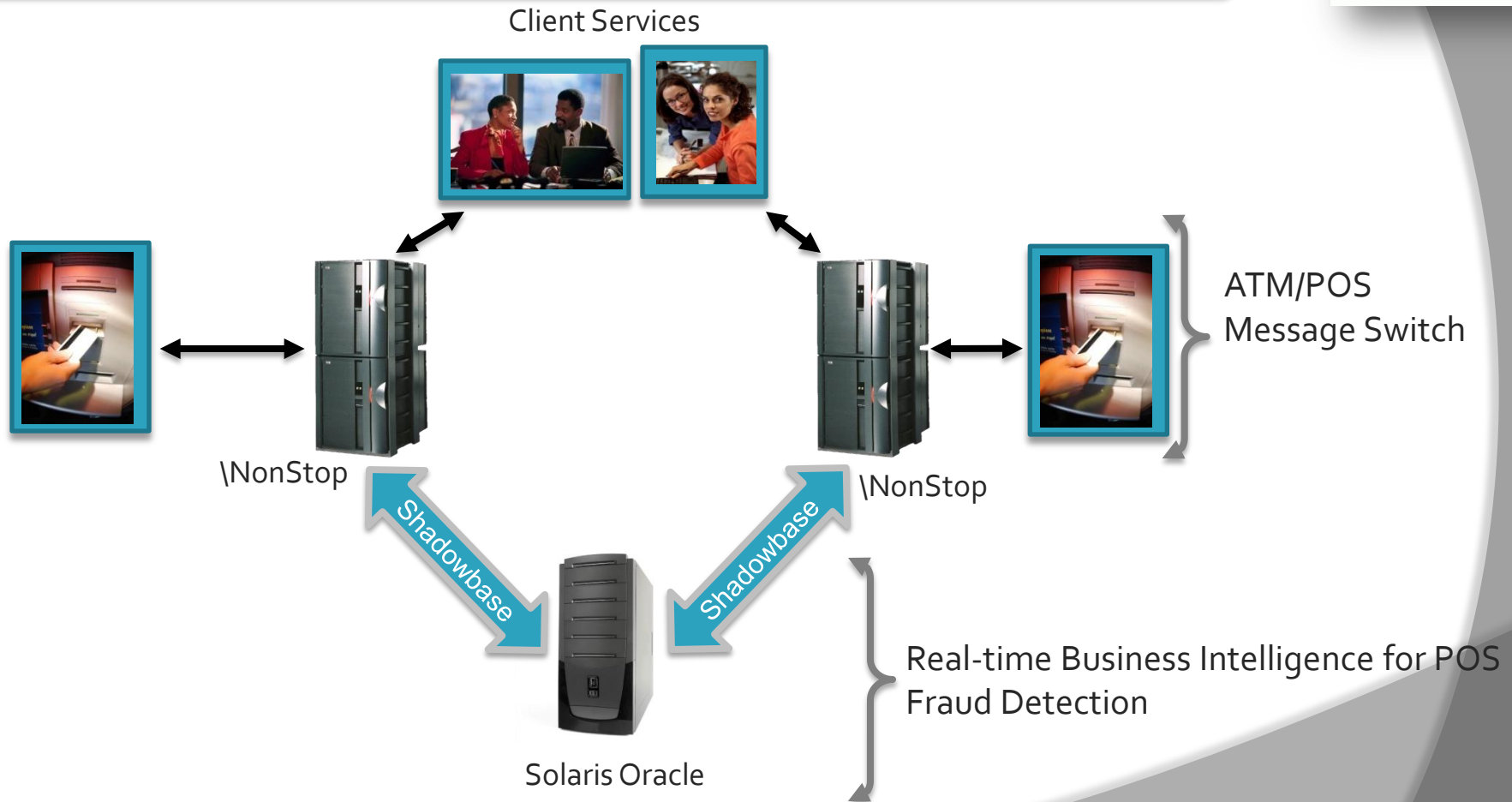




Rabobank

# Shadowbase Success Stories

## Application Integration: Fraud Detection



# Shadowbase for Application Integration

## Shadowbase Enables *Event Driven* Architectures

- Shadowbase monitors the TMF transaction log and can “trigger” on all DML or DDL database activity (e.g., inserts, updates, or deletes)

## Shadowbase Provides *Real-Time* Data Delivery

- As soon as the event occurs in the database, Shadowbase processes it

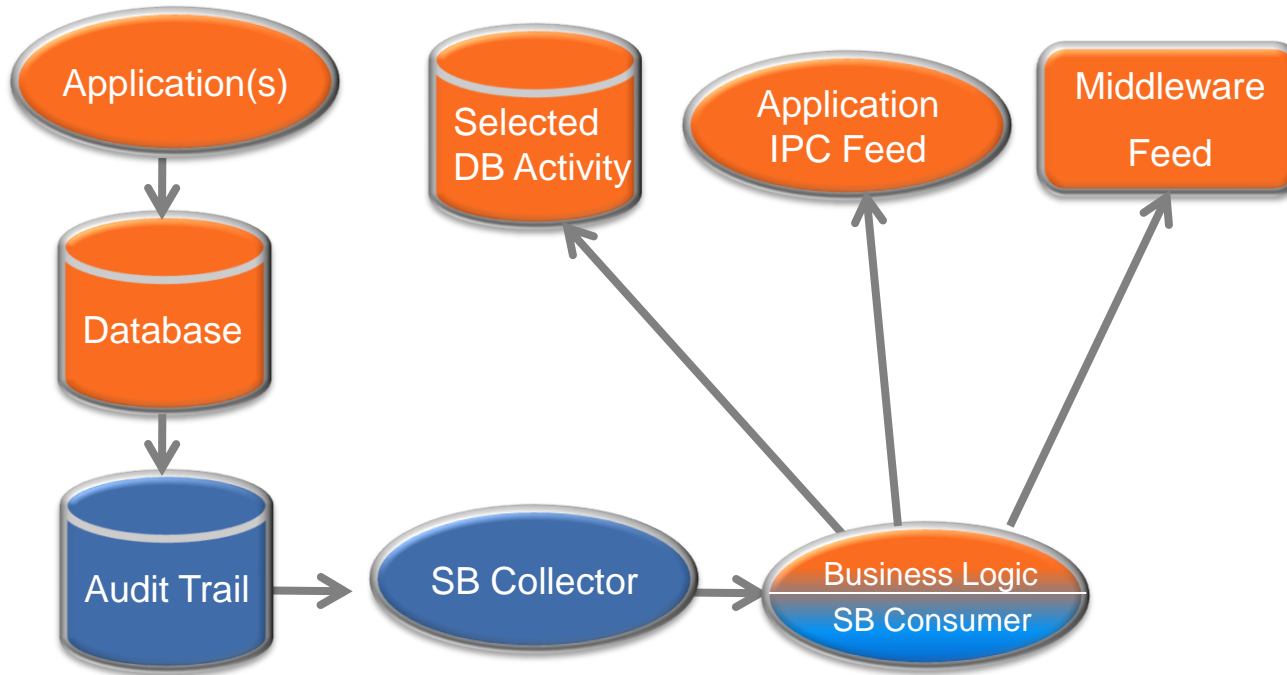
## Shadowbase Integrates at the Data Layer

- No need to modify application code (assuming you *\*have\** the code)
- Avoid inefficient polling of the database for changes
- Shadowbase acts as the hub, feeding pertinent database change events to all other system(s)...
- Build efficient data-driven Pub/Sub architectures using replication



# Shadowbase for Application Integration

## Database Event Capture and Delivery



### **Function:**

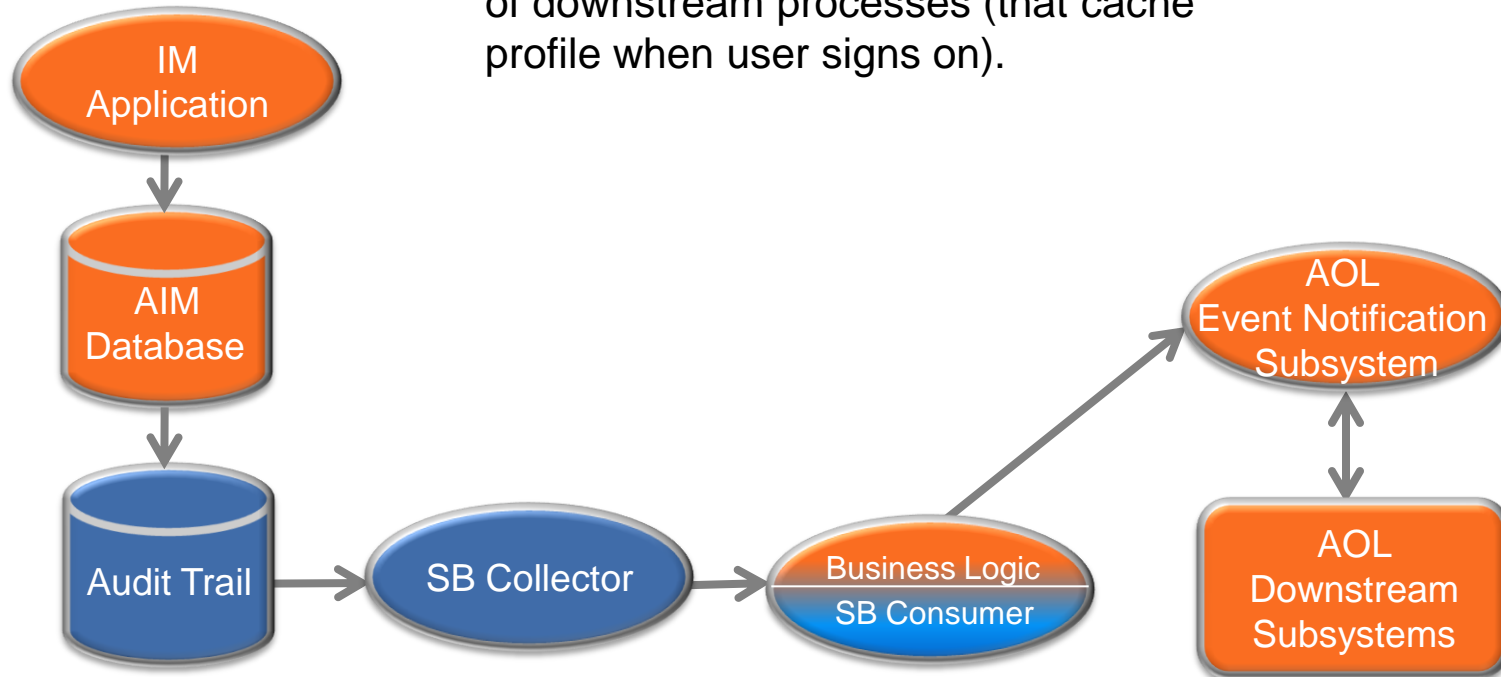
Shadowbase “sees” all changes to the application’s data...and can act on them.

### **Uses:**

- Shadowbase acts as a *capture process* for change events from the database/audit trail and notifies or delivers them to downstream files, applications, or middleware.

# Application Integration–Account Profile Change Notification

NonStop-based account profile database changes need to be sent to large numbers of downstream processes (that cache profile when user signs on).

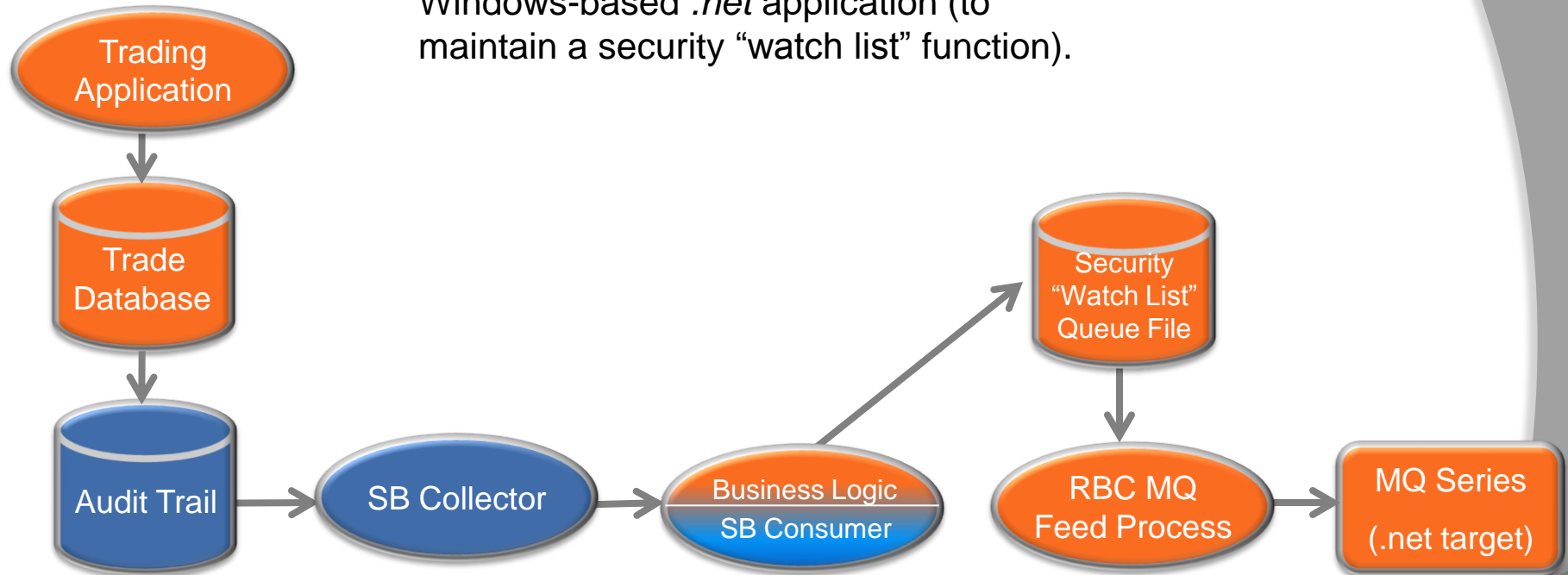




# Application Integration–Trading System “Watch List”



NonStop-based trading application security buy/sell orders need to be fed into Windows-based *.net* application (to maintain a security “watch list” function).



# What's New for Shadowbase (1 of 2)

## Shadowbase Online Verification

- Database Compare (Controlled Release 2010)
- Enscribe-to-Enscribe First
- SQL-to-SQL Next
- NonStop to Open Server

## Shadowbase Online Resynchronization

- Database Repair (Controlled Release 2010)

## Shadowbase SOLV ETL

- Snap-shot loading of target databases (Available Now)

## ACI BASE24 Support

- Disaster Recovery - Active/Passive (Available Now)
- Sizzling Hot Takeover - Active/"Almost" Active (Available Now)
- Active/Active (TBD)



# What's New for Shadowbase (2 of 2)

## NonStop Target Side Disk Queuing Option

- Available Q2 2010

## Sync Replication – Shadowbase Zero Data Loss™ (ZDL)

- Shadowbase Asynchronous Data Replication Engine with Guaranteed Delivery (No Data Loss)
- Incorporates HP TMF Synchronous Gateway API
- Beta Available Q4, 2010

## Sync Replication – Shadowbase Plus SR™

- Leverages Shadowbase ZDL Architecture to provide full active/active capabilities
- Beta Program 2011



Questions?

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