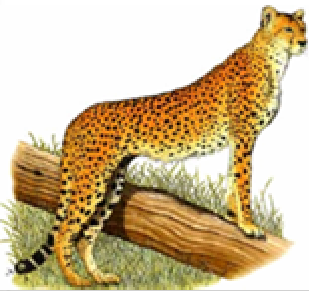




# IBM Informix Dynamic Server (IDS)

**The Data Server Of Choice**



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**Sales Leader IBM Datamanagement**

## Agenda

- Why do we need data servers?
- IDS overview
- IDS for any business
- IDS server, tools and related bundles
- IDS functionality, features and Interoperability
- IDS migration and support

# Why do we need Data Servers?

IBM Terminology refers to Database Servers

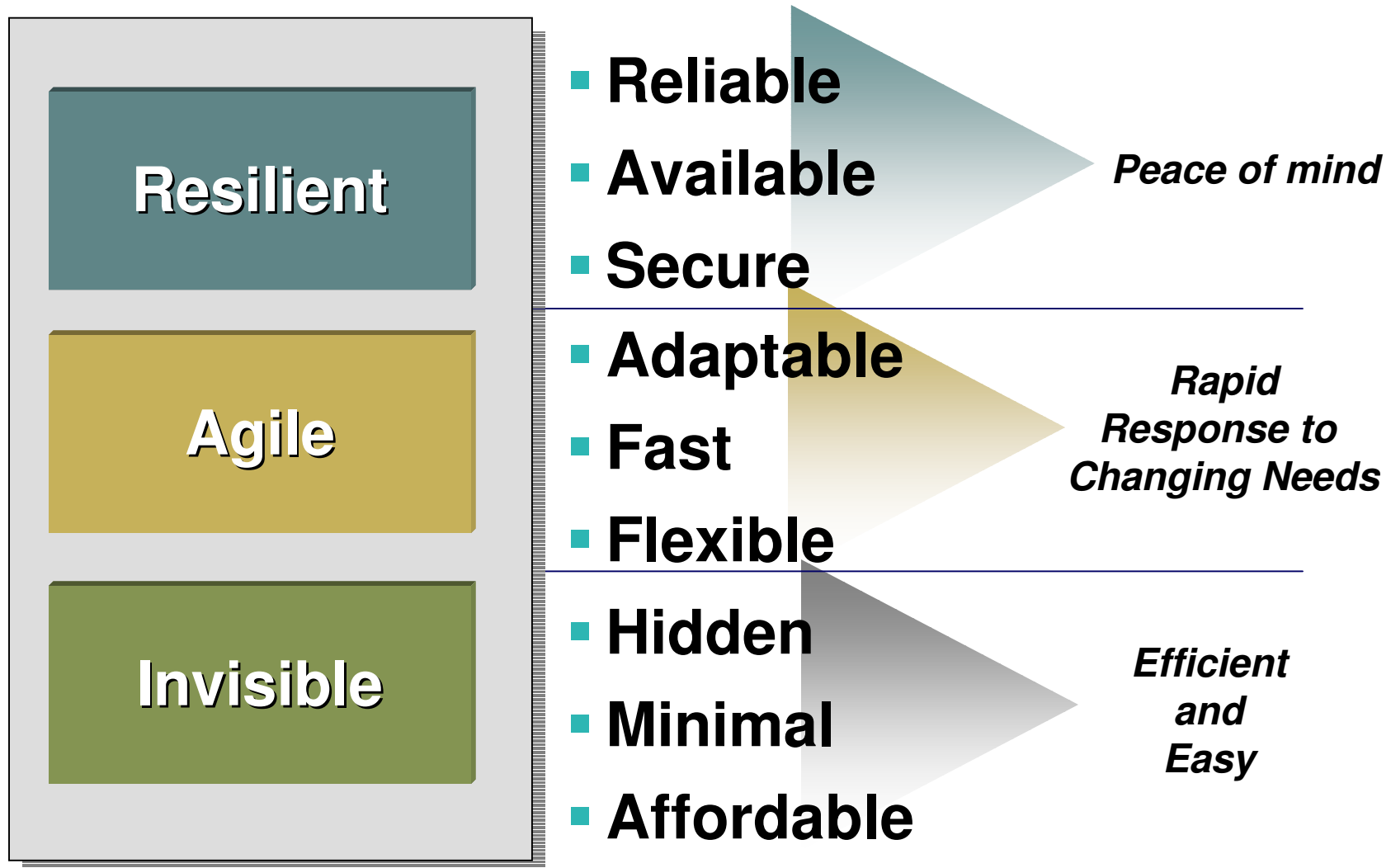
- **A business without data is out of business**
  - Critical Information required for success as a business
    - Customer information
    - Inventory
    - Billing
    - Contact
    - And much more
- **New requirements increase the amount of data**
  - **Radio Frequency Identifier (RFID)**
  - Regulatory Compliance
- **Any software architecture is ultimately about data**
  - Service Oriented Architecture (SOA) is ultimately about data processing

**A Weak Data Server will cost you**

## IBM Informix Dynamic Server (IDS)

- **Fully Integrated OLTP RDBMS:**
  - Industrial Strength
  - Outstanding Performance
  - Reliability
  - Scalability
  - Manageability
- **Designed for and used by:**
  - Large Enterprises
  - Workgroups
  - Midsize Businesses
  - Small Businesses

## Why is IDS Different?



## IDS for Business Advantage

- **High Performance, scalable, relational engine**
  - Use less hardware
  - Delay hardware upgrades
- **Near Hands Free Administration**
  - Manage your Business not your data server
- **Ease of deployment**
  - Easily expand throughout the enterprise
  - Large Geographic disbursement
- **Easily Integrate into Application Design**
  - Adapt the database to the design
    - Not the design to the database

**Low Total Cost of Ownership**

## IDS for Enterprise Needs

- **Business Continuity**
  - Resilient to Failure
  - Online Systems Management
- **Security**
  - Encrypted Communication
  - Label Based Access Control
  - Column Level Encryption
  - Common Criteria (ISO/IEC 15408)
  - Resilient to denial-of-service attacks

## IDS for Enterprise Integration

- **IBM Software Group Offerings**
  - WebSphere Products including MQ
  - Information Server
  - Optim for data governance
  - Cognos for Business Intelligence
  - IBM Data Studio, easy web services creation
- **Standard API Access**
  - JDBC
  - ODBC
  - .NET
  - PHP/PDO
  - Ruby
  - and more
- **IDS Web 2.0 mashups feature**
  - Web Feature Services

## IDS for Integrated Systems

- **Silent Install**
- **Small Footprint**

## IDS for Application Development

- **Programming API's**
- **IBM Data Studio**
- **Pure Query**
- **Data Blades and database extensibility**

## IDS Server

- **Core Database Server Providing**
  - Blazing Fast OLTP Performance
  - Legendary Reliability
  - Continuous Availability
  - Scalability
  - Nearly Hands Free Administration

**For Businesses Of All Sizes**

## IDS Tools

- I4GL
- Client SDK
- iConnect
- iSQL
- PHP driver for PDO
- PHP/Ruby Rails
- Ruby/Informix Driver
- Informix Data Director for Web
- Open Admin Tool
- Enterprise Gateway Manager (EGM)
- EGM with DRDA
- ESQL/C and ESQL/COBOL
- I-Spy
- JDBC
- MaxConnect
- Informix Server Administrator (ISA)

## IDS Bundles

- **Express Edition**
  - Self managing data server
  - Mid-market businesses
- **Workgroup Edition**
  - A low maintenance OLTP data server
  - Workgroup computing
- **Enterprise Edition**
  - Continuous availability
  - Blazing OLTP performance
  - Global enterprise
- **Developer Edition**
  - Available free of charge
    - No time limits
    - No support
  - Development use only

## Design: Architecture

- **IDS uses a Dynamic Scalable Architecture (DSA)**
  - A three prong approach
    - CPU
      - Fully multi-threaded processing engine utilizing Virtual Processors (VPs)
      - Provides capability to add extended functionality
        - > Integral component of the engine
        - > Not an add-on service
    - Memory
      - Automatically Allocates and de-allocates based on load
    - Disk
      - Intelligent data fragmentation based on customer needs
      - Enables data elimination, simplified archiving and roll-off functionality

**Allocates Resources that dynamically  
adjust to workload demands**

# IDS Functionality: Overview

## Reliability

- Rolling Application Upgrades – Schema Evolution
- Online Index Rebuild Reduces Downtime
- Backup and Restore Flexibly Across Platforms
- Continuous Availability

## Performance

- Faster than previous IDS releases
- Exploits capabilities of the Linux 2.6 Kernel

## Scalability

- Supports Configurable Page Sizes/Buffer pools
- Available for Intel, Mid-Range and Mainframe

## Security

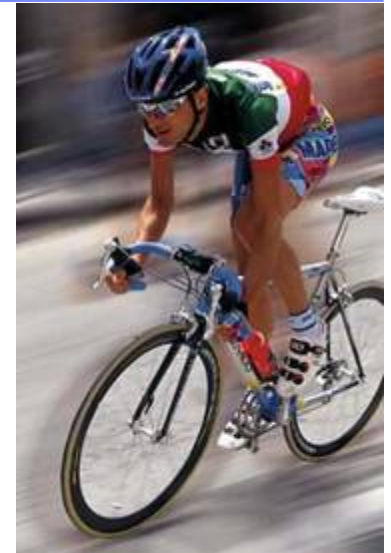
- Column level encryption helps business meet compliance issues
- PAM Authentication, LBAC

## Manageability

- Install time is drastically reduced with new installer
- New single user mode for administration
- Autonomics

## Development

- Develop using the tools of your choice:
  - Supports .Net and Microsoft Integrated Development Environment
  - Supports latest Java levels, Rapid Application Development & PHP



## Business Continuity

- **Disaster Recovery (HDR)**
- **Enterprise Replication (ER)**
- **Remote Standalone Server (RSS)**
- **Shared Disk Secondary (SDS)**
- **Continuous Log Restore (CLR)**

## Fail Over: High Availability Data Replication (HDR)

- **Two identical Servers on two identical machines**

- Primary Server
- Secondary Server

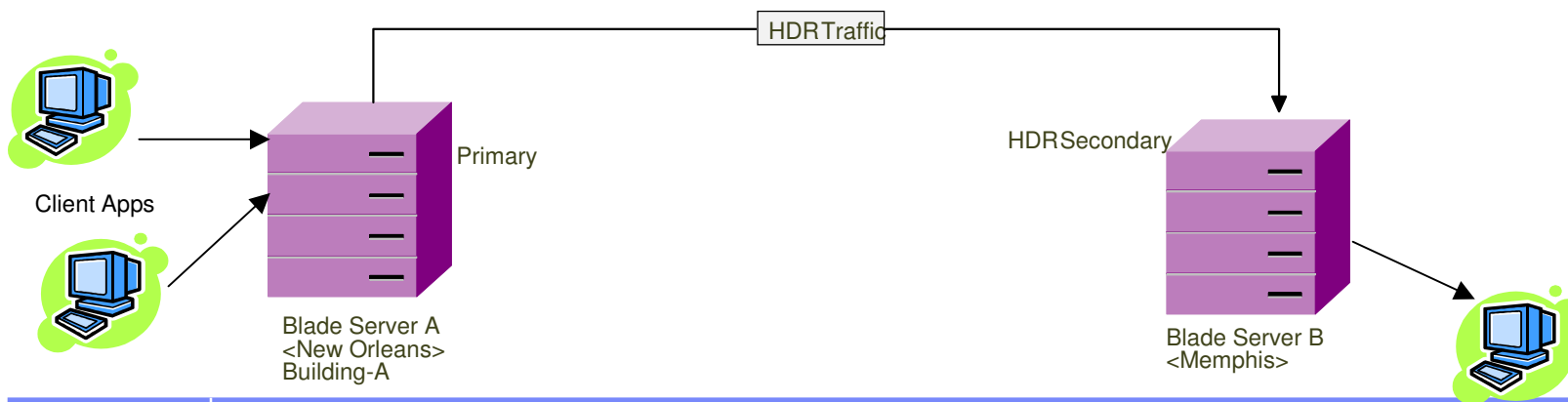
- **Primary Server**

- Fully Functional Server
- All data modification activity
  - inserts/updates/deletes are performed on this instance
- Sends logs to secondary server

- **Secondary Server**

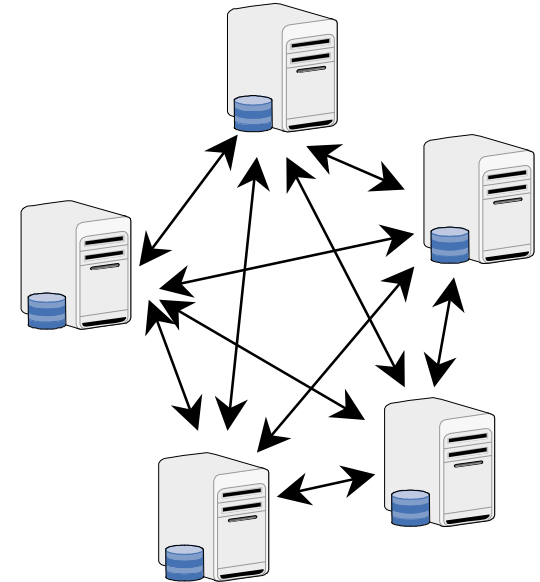
- Read only Server: allows read only queries
- Always in recovery mode
- Receives logs from primary and replays them to keep in sync with primary

When Primary server goes down, secondary server takes over as Primary server.



## Enterprise Data Replication (ER)

- **Uses workload partitioning**
  - Capacity relief
  - Active/active updates
- **Flexible and scalable to use subset of data**
- **Supports update anywhere**
  - Synchronizing local with global data
  - Very low latency
- **Integrated to be compatible with all IDS availability solutions**
  - Option of secure data communications
- **Updates target tables in parallel**
  - Reduces response latency back to the source
- **Triggers during Synchronization on ER Servers**
- **Built-in checksum**
  - No need for private checksum function



# Remote Standalone Server (RSS)

## ■ Similar to HDR

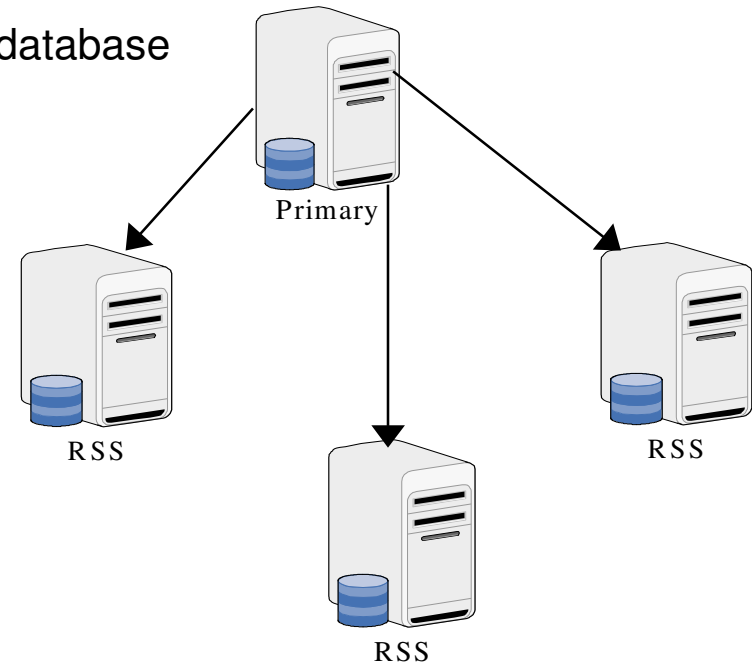
- Maintains a full disk copy of the database
- Created by performing a backup/restore of the database
- Can be used for:
  - Additional Backup
  - Report Processing
  - Load Balancing
- Ideal for Disaster Recovery

## ■ Distinct from HDR

- Uses full duplex communication(SMX)
  - Better throughput over slower lines
- Does not support sync mode
  - **Not even for checkpoints**
- Cannot currently be promoted to primary
  - Can be promoted to HDR secondary
    - Focus is Disaster Recovery not HA
- Can be any number of RSS instances
- Index Page logging must be turned on

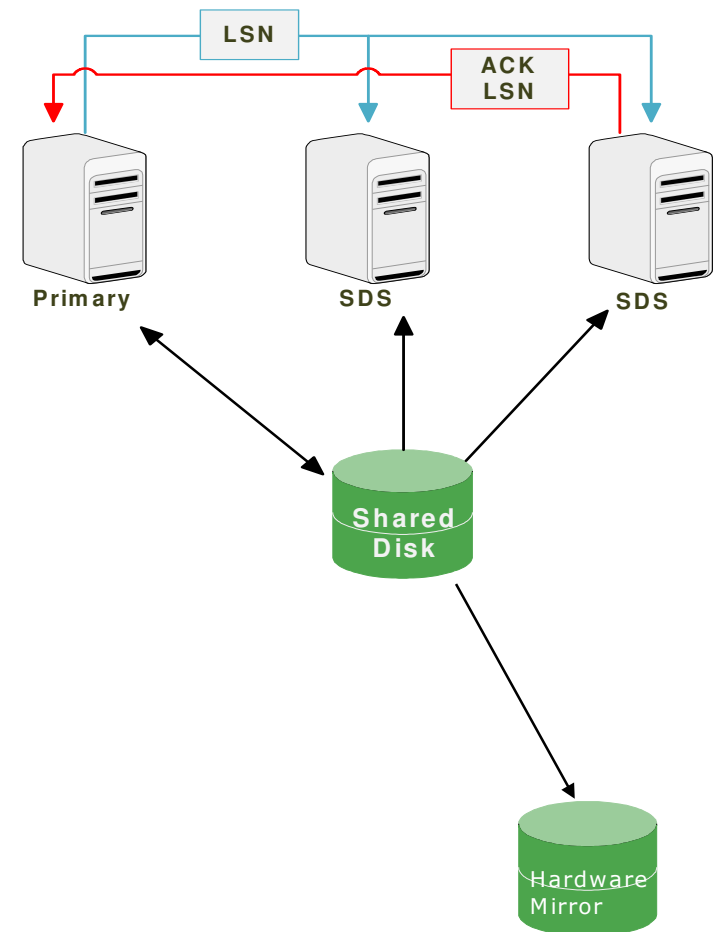
## ■ RSS can be combined with HDR Secondary

- RSS can be converted into HDR Secondary
- HDR Secondary can be converted into RSS



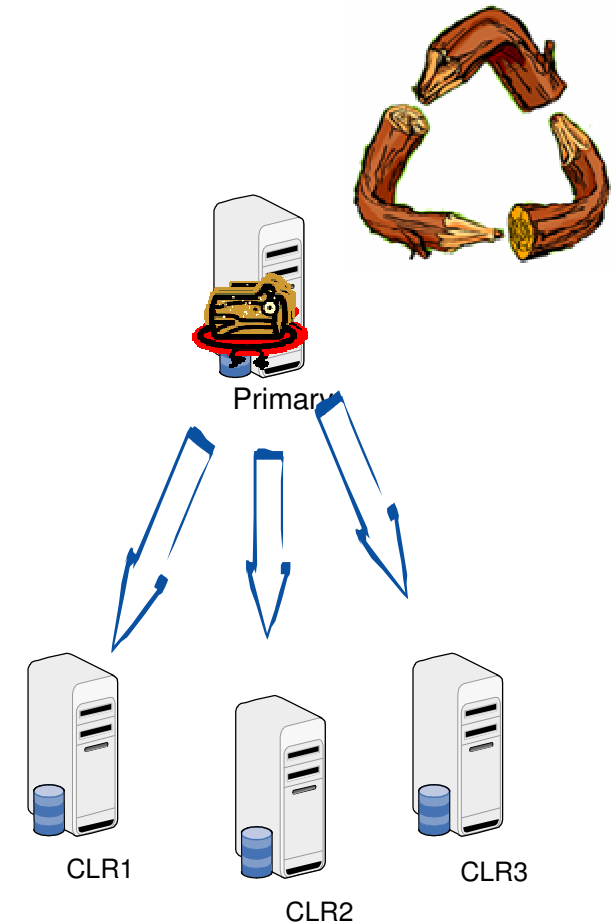
## Shared Disk Secondary (SDS)

- HDR on top of a Shared Disk Subsystem
- Primary transmits the current log sequence number (LSN) as it is flushing logs
- SDS instance(s) receives the LSN from the primary and reads the logs from the shared disk
- SDS instance(s) applies log changes to its buffer cache
- SDS instance(s) resync processed LSN to primary

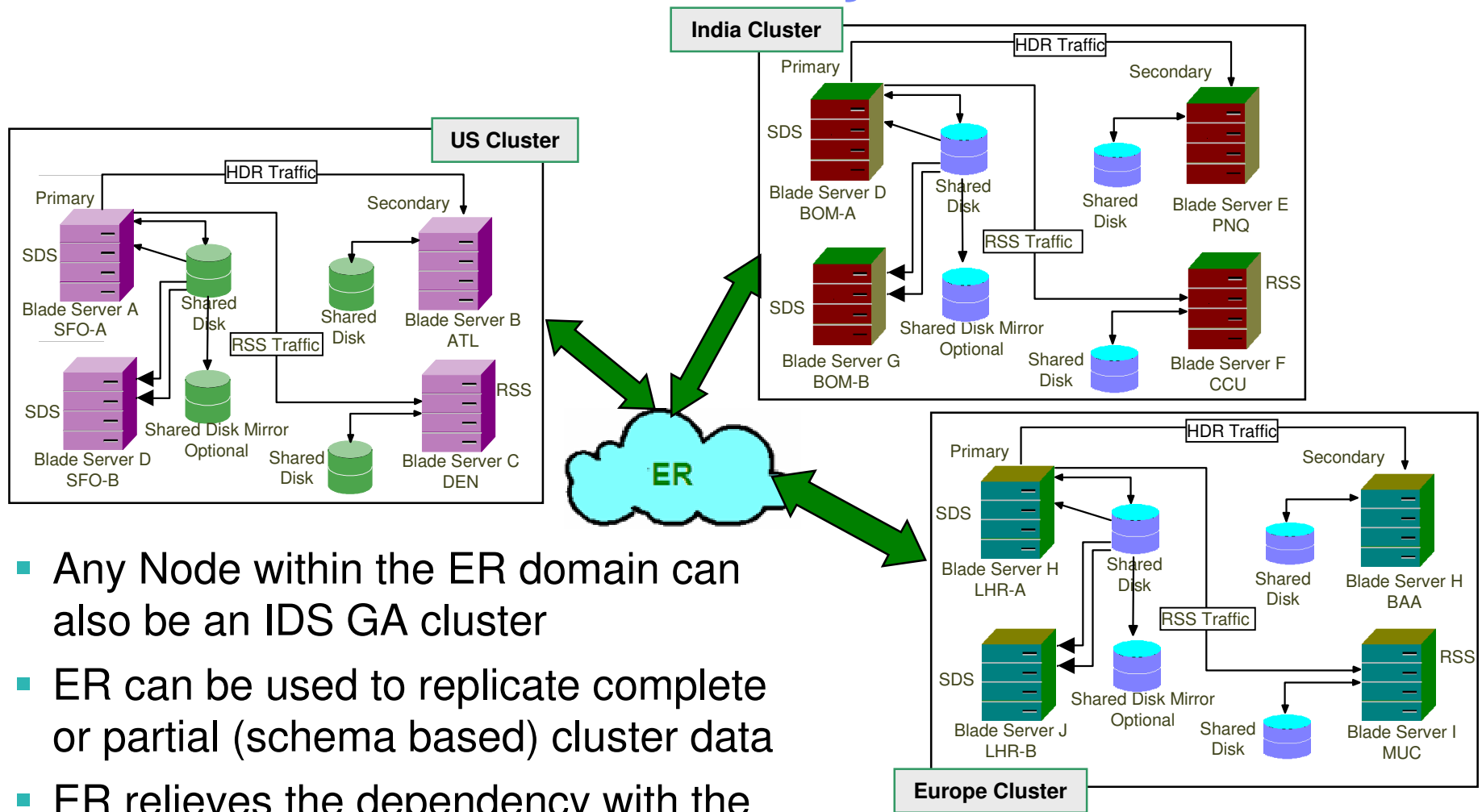


## Continuous Log restore (CLR)

- Also known as “Log Shipping”
- Allows Logical recovery to span multiple ‘ontape/onbar’ commands
- Provides a secondary instance with ‘log file granularity’
- Does not impact the primary server
- Can co-exist with “the cluster” (HDR/RSS/SDS) as well as ER
- Can be automated by scripting the log backup alarms
- Useful when backup site is totally isolated
  - i.e.. no network
- Ideal for disaster recovery



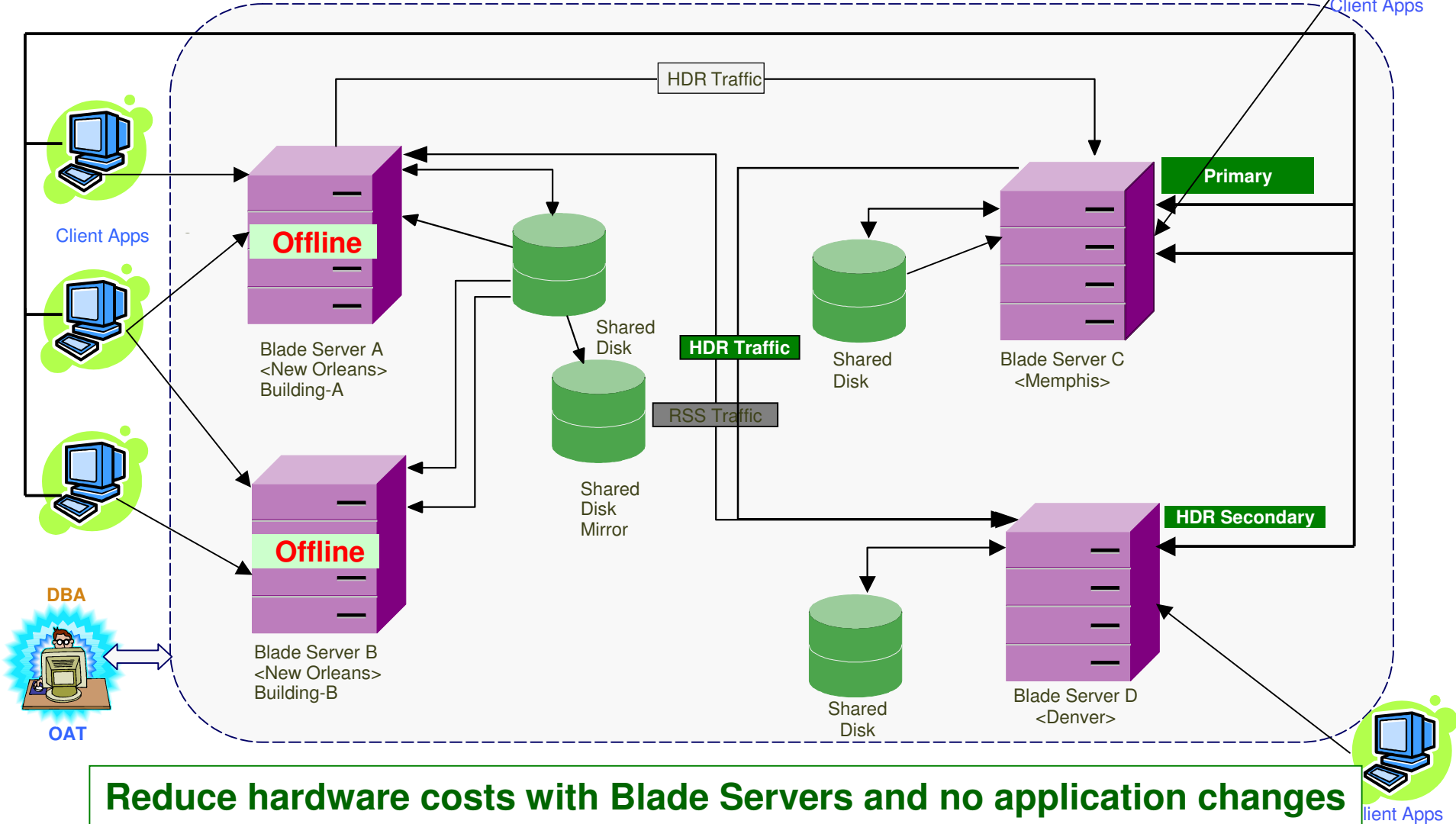
# Combination of the Availability Features



- Any Node within the ER domain can also be an IDS GA cluster
- ER can be used to replicate complete or partial (schema based) cluster data
- ER relieves the dependency with the Primary in situations such as network outages

# IDS Global Availability Fabric

## Full Suite of High Availability Options to Lower Costs



**Reduce hardware costs with Blade Servers and no application changes**

## Brand new

- **Data Compression**

- Deep compression saves 50% - 80% of disk space

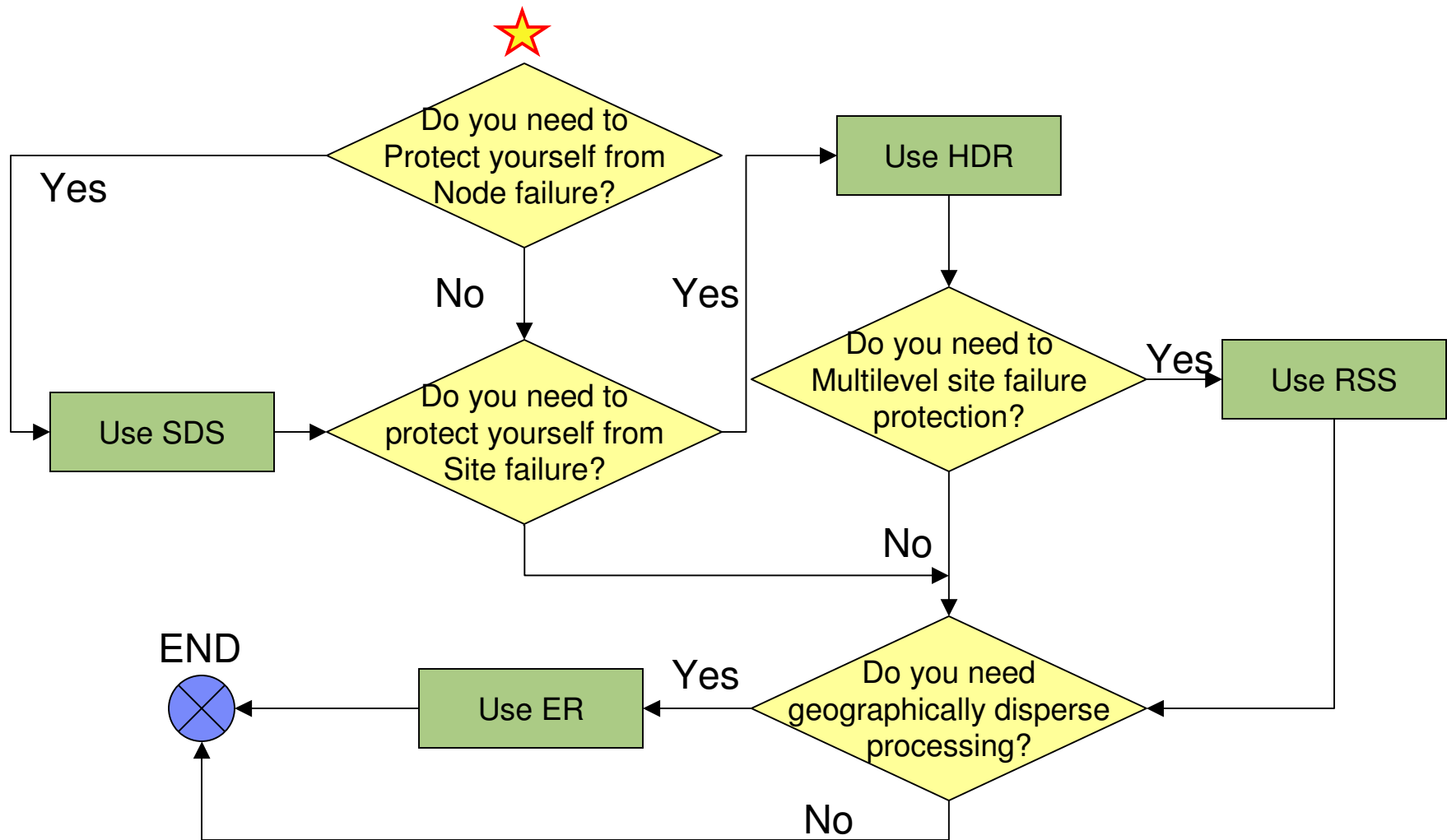
- **Warehouse feature now integrates:**

- Data design tool

- ETL tool

- Uses Cognos TM1 for cubing

## Business Continuity: Availability Decision Tree



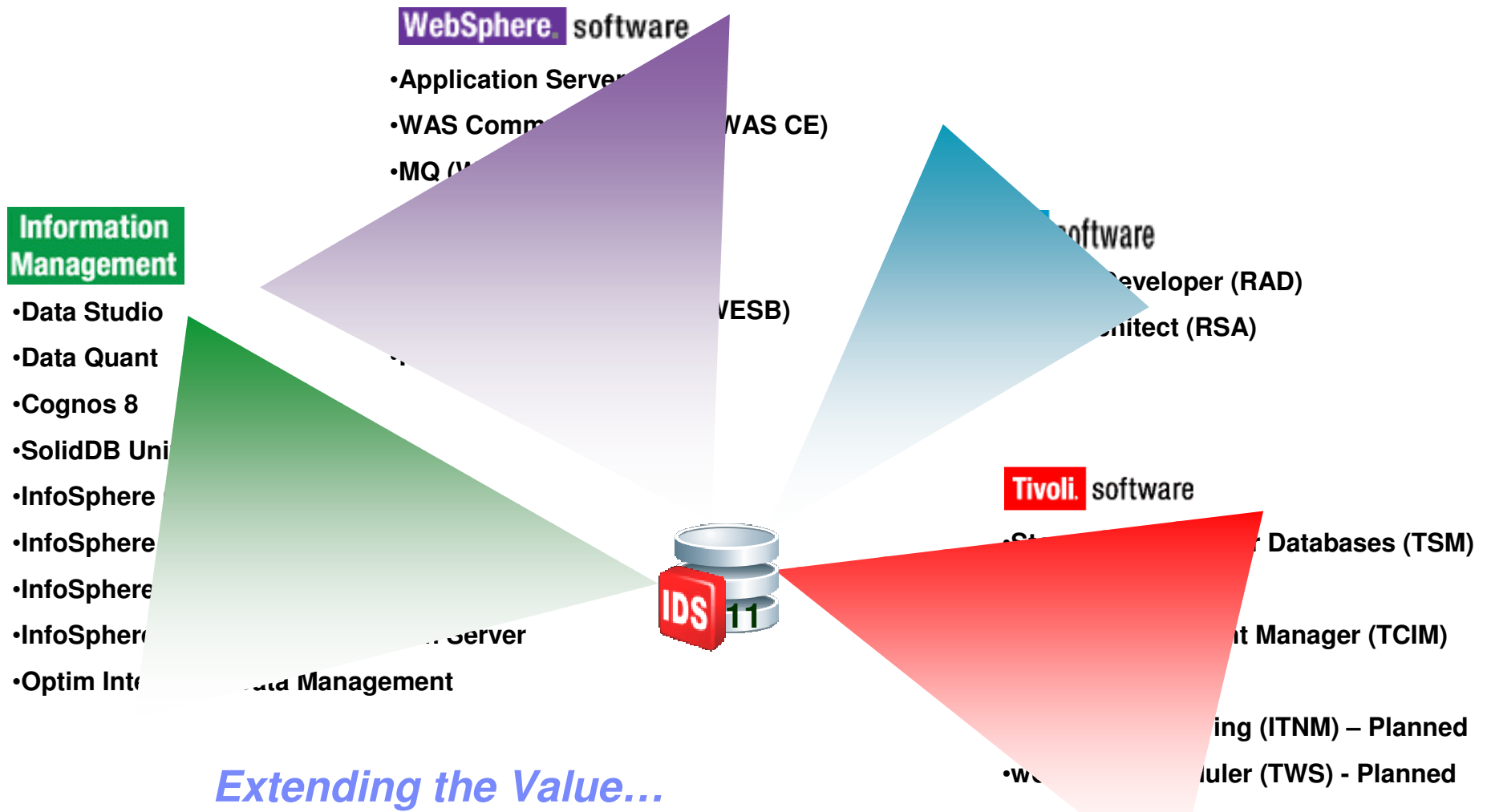
## Embedded / Integrated Functionality

- Functional extensions to the IDS server that support new data domains
- New embedded/integrated data types and operators added to IDS
  - enables intelligent and optimized processing of new rich data

### The new functionality includes

- Basic Text Binary (BTS)
- Binary (BINARYUDT)
- Built-in (IFXBUILTIN)
- C-ISAM
- Excalibur text
- Geodetic
- Image foundation
- Lob Locator (LOB)
- MQ-Series
- Node
- R-Tree Access (IFXRLTREE)
- Spatial
- TimeSeries
- TimeSeries Real Time Loader (RTL)
- Video foundation
- Web & Web Feature Service (WFS)

# IDS & IBM SWG S/W Integration



## Extensive Platform Support



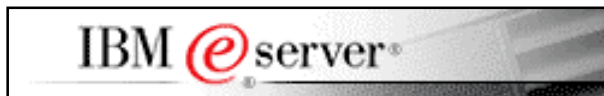
HP-UX on PA-RISC  
and Itanium



Solaris on SPARC/x64



X86-64



AIX on pSeries/iSeries  
Linux on xSeries, zSeries,  
POWER



Windows 2003, Vista  
and XP on x86/x64

## Migration from Other Databases

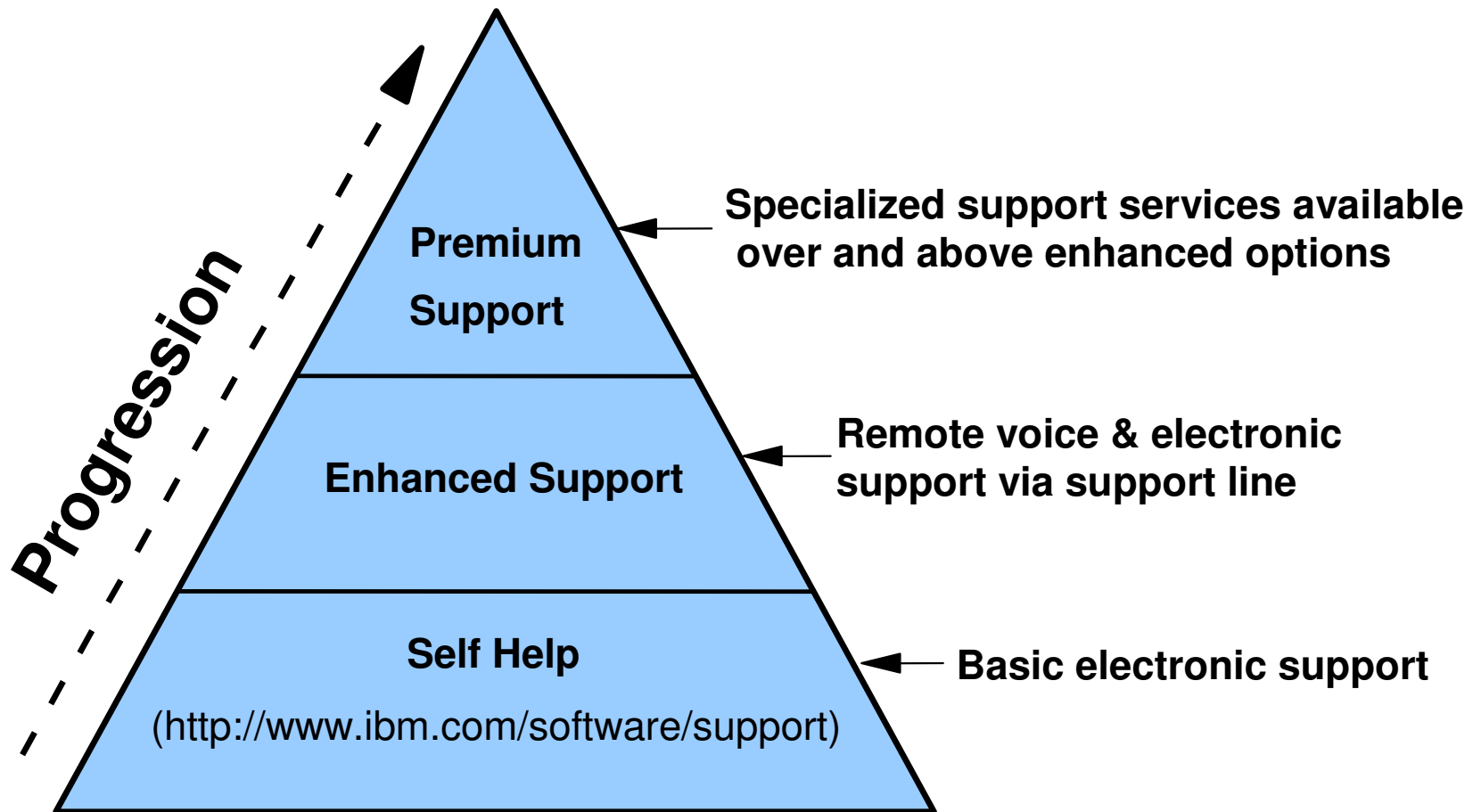
- **IBM Migration Toolkit (MTK) 2.0**
  - Helps migrate to IDS 11 from the following
    - Oracle versions 8i, 9i and 10g
    - Microsoft SQL Server versions 7, 2000 and 2005
    - MySQL versions 4 and 5
    - Sybase SQL Anywhere (ASA) version 9



## Pre-Sales Support

- **Proof of Technology (POT)**
  - Demonstrates product features
  - IBM Provides
    - Data set, application, hardware, software
- **Proof of Concept (POC)**
  - Defines scope and timeframe of the project
  - IBM provides
    - Project manager
    - Lab resources
    - Consultants
  - Customer provides
    - Hardware
    - Business Analyst (BA)
    - Database Administrator (DBA) and System Administrator (SA)
- **Techworks**
  - Team of IBMers who can answer “How to”, FAQ’s etc

# Post-Sales Support Offering Model



<http://www.ibm.com/software/support/offerings.html>

## Other Resources

- **Product Family Homepage:**  
<http://www.ibm.com/software/data/informix/>
- **Platform Roadmap:**  
<http://www.ibm.com/software/data/informix/pubs/roadmaps.html>
- **Product Life Cycle (PLC) Roadmap:**  
<http://www.ibm.com/software/data/informix/support/plc/>
- **Developer's Homepage:**  
<http://www.ibm.com/developerworks/db2/zones/informix/>
- **International User Group (IIUG):** <http://www.iiug.org>
- **Interoperability:**  
<http://www.ibm.com/software/data/informix/ids/interop/>

## Other Resources

- **Documentation/Manuals:**

<http://www.ibm.com/software/data/informix/pubs/library/>

- **Product Webcasts:**

<http://www.ibm.com/software/data/informix/webcasts/>

- **IDS Redbooks:** <http://www.redbooks.ibm.com/cgi-bin/searchsite.cgi?Query=Informix&SearchMax=250&SearchOrder=4>

- **Education/Training:** <http://www.ibm.com/software/data/education/>

- **IDS Success Stories :**

- [http://www.ibm.com/software/success/cssdb.nsf/softwareL2VW?OpenView&Count=30&RestrictToCategory=dmmain\\_InformixDynamicServer](http://www.ibm.com/software/success/cssdb.nsf/softwareL2VW?OpenView&Count=30&RestrictToCategory=dmmain_InformixDynamicServer)
- <http://www.ibm.com/press/us/en/pressrelease/23545.wss>

## Summary

- blazing online processing capabilities
- ‘hidden’ embedded database
- low maintenance online transaction processing (OLTP)
- very small footprint: embedded solutions and small to medium business
- very high availability in complex global set-ups