



Integrated Data Solutions for Information On Demand using IBM IDS “Cheetah”

Jerry Keesee, Director, IBM IDS
<http://www.ibm.com/informix>



IDS State of the Business

1

IDS is a strategic data server in the Information Management portfolio

2

IDS is the optimal data server for high-transaction OLTP and integrated environments

3

IDS is growing faster than the database market

4

IDS has a rich history of innovation and technology leadership that will continue well into the future

Why Do Clients Rely on IDS?

- **High Reliability**
- **“Nearly Hands-free”, Scalable Administration**
- **Blazing-fast OLTP**
- **Extensive Platform Coverage**

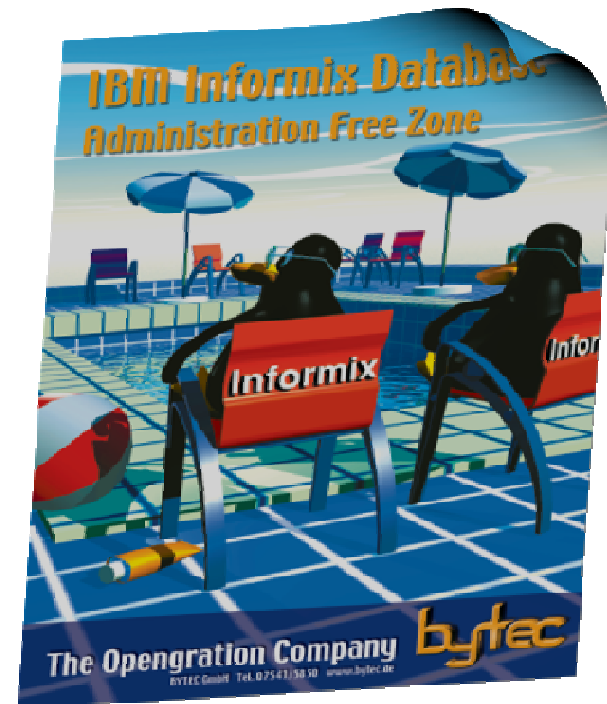
...70% of phone calls worldwide route through IDS...

...IDS powers the world's largest retailers...

*8 of the top 10 U.S. retailers
20 of the top 25 U.S. supermarket*

*...Hotel Reservation Systems...Emergency Phone Systems...Judicial Applications...National Security...
Tax Administration...Customs...and more...*

“... One client runs 4,000 locations and more than 10,000 instances of the current IDS release with just 8 DBAs...”



Recent IDS Advertising

IDS – Value for Your Business

▪ Business Continuity

- ▶ 24 X 7 X 365 availability with legendary reliability
 - *Multiple high availability and replication options with even greater performance*

▪ Administration Free Zone

- ▶ Set it up and forget it
 - *SQL Admin API, Scheduler, automatic tuning, and IDSAdmin tool reduce DBA efforts*

▪ Data Server of Choice for Integrated Solutions – What Makes You Special?

- ▶ Industrial strength OLTP performance with application control of the database
 - *Customized footprint, easy deployment and scalability, application development choices, SOA*

▪ Security, Compliance and Auditing Enhancements

- ▶ Reduce risk of unauthorized access with precise control and encryption
 - *Common Criteria, LBAC, transparent data encryption*

▪ Location Based Web Services

- ▶ Enterprise use of geography or location information and RFID
 - *Extensible data and web services manage and deliver spatial, round earth, timeseries and RFID data*

IDS – Optimized Pure OLTP

Business Continuity

- ▶ **Legendary Reliability**
 - Broad Spectrum of High Availability options to maximize investment and reduce costs
 - Rolling application upgrades
 - Flexible Backup and Restore across platforms

Performance

- ▶ **Blazing Fast OLTP data server**
 - Built-in extensibilities to accelerate performance
 - Exploits Linux Kernel capabilities

Scalability

- ▶ **Scales from small to enterprise business**
 - Self-tuning for performance optimization
 - Available on AMD/Intel, Mid-Range and Mainframe

Security

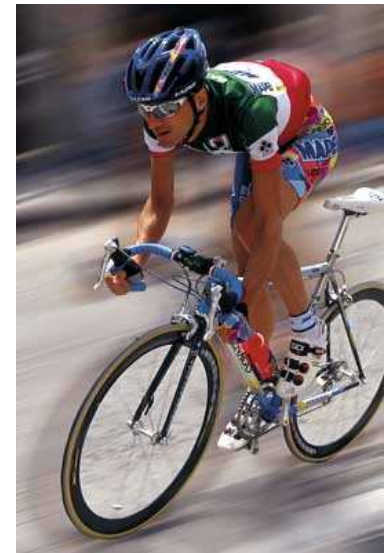
- ▶ **Secured data and access**
 - User access control & column level data encryption
 - Compliance help: PCI, GBLA, HIPPA, Sarbanes-Oxley, Basel II

Manageability

- ▶ **Little or no database administration**
 - “IDS is ‘set it and forget it’ “*, “IDS is fantastic”*
 - Built-in facilities to automate remote administration and upgrades

Application Development

- ▶ **Application Control of the Database**
 - Strong application development (AD) support
 - Small Footprint
 - Ease of administration, Reliability



The Importance of Business Continuity

"In some industries, downtime costs can amount up to 16% of revenue."

Source: "The Costs of Enterprise Downtime: North American Vertical Markets 2005" Information Research

"Nearly 30% of companies do not have a disaster plan in place."

Source AT&T, "AT&T 2006 Business Continuity Study", January - May 2006

99.999% uptime = 5 minutes per year

For 32 percent of organizations, just four hours of downtime could be fatal.

Source: Continuity Central, "Business Continuity Unwrapped," 2006;

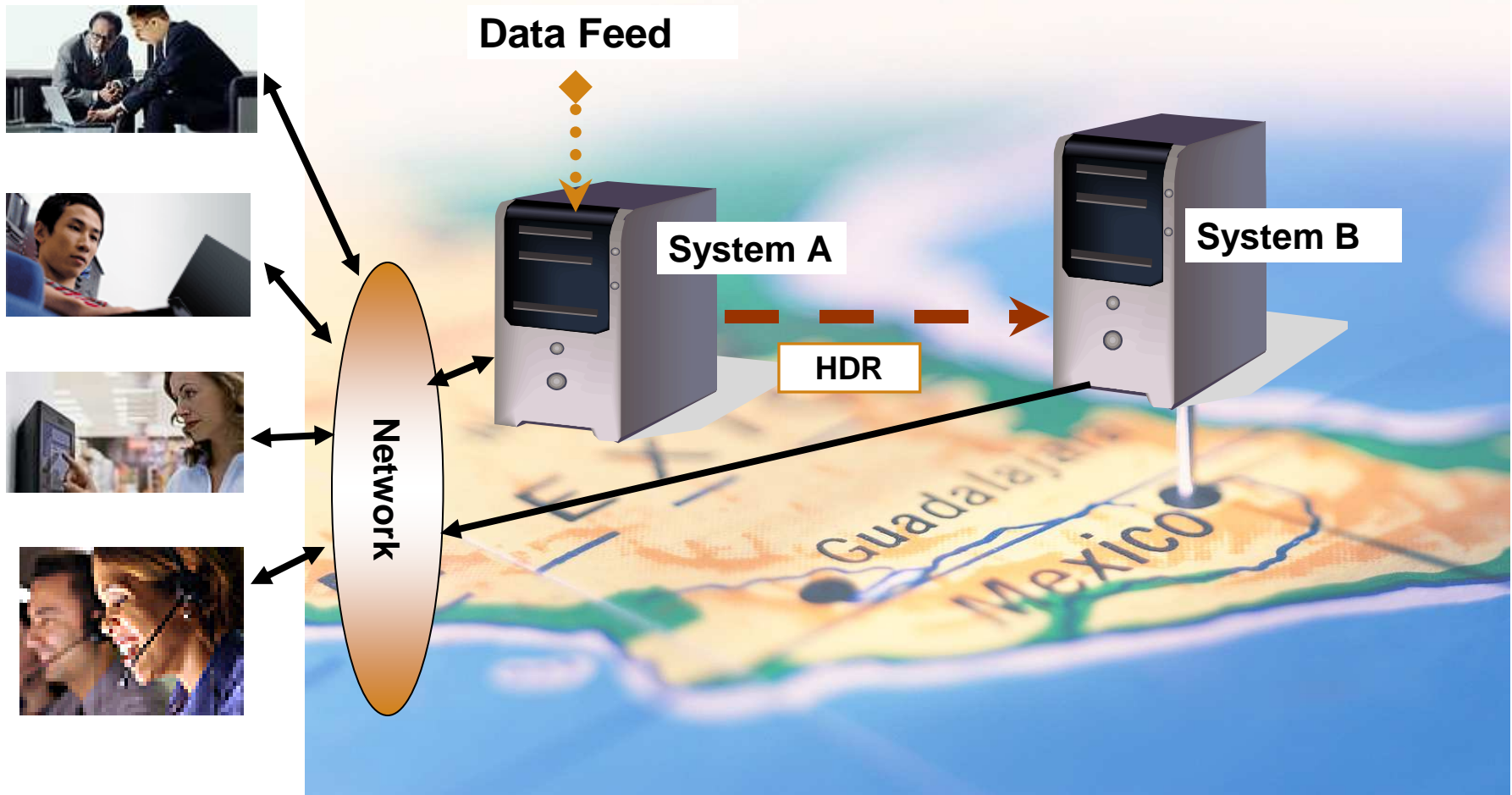
"Companies can expect staff absences up to 40% during a pandemic."

Source: U.S. Homeland Security Council, "National Strategy for Pandemic Influenza", May 2006

IDS Sweet Spots – Business Continuity

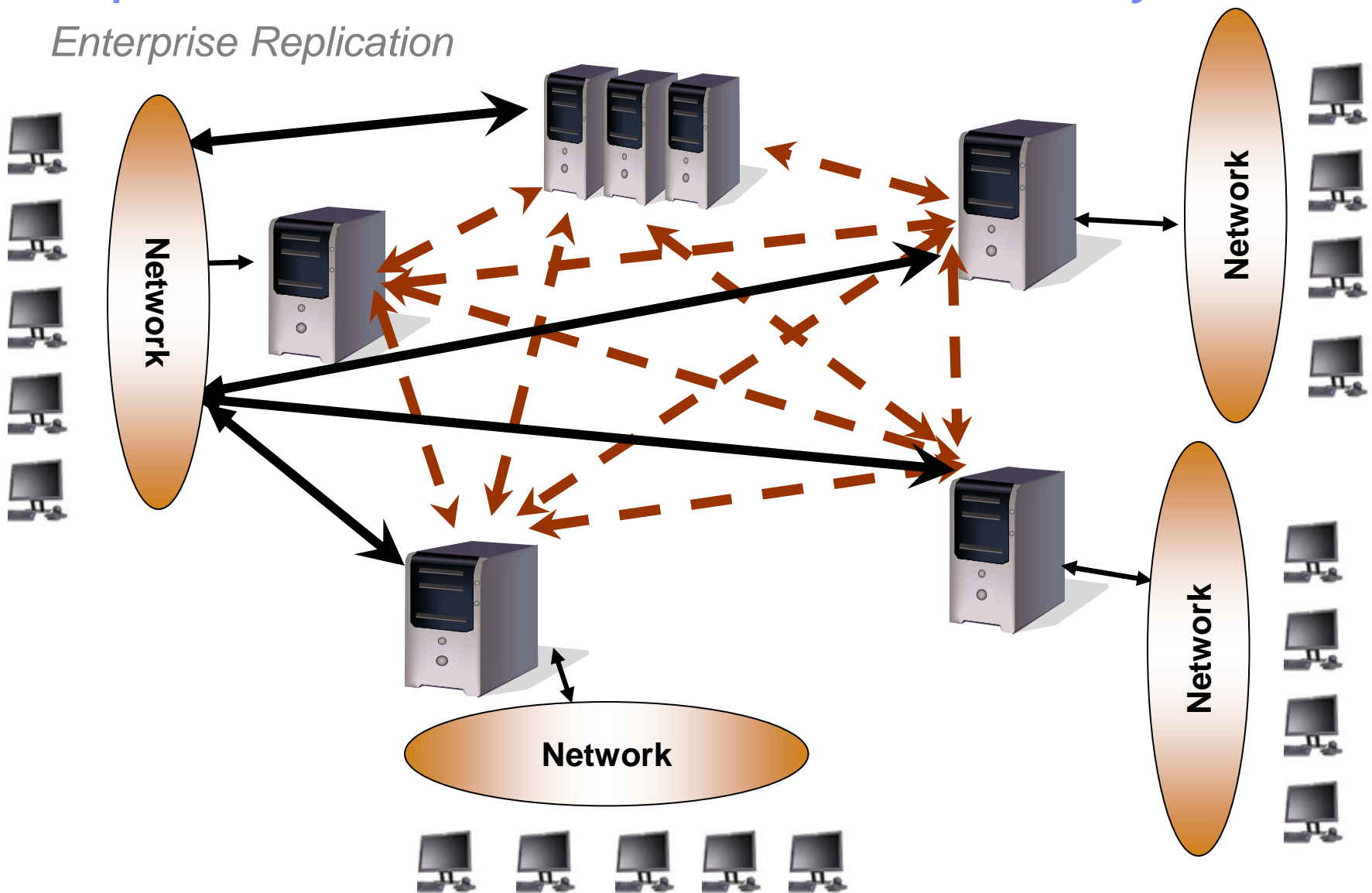
Replication and Continuous Availability

HDR provides hot site failover **with an active secondary**



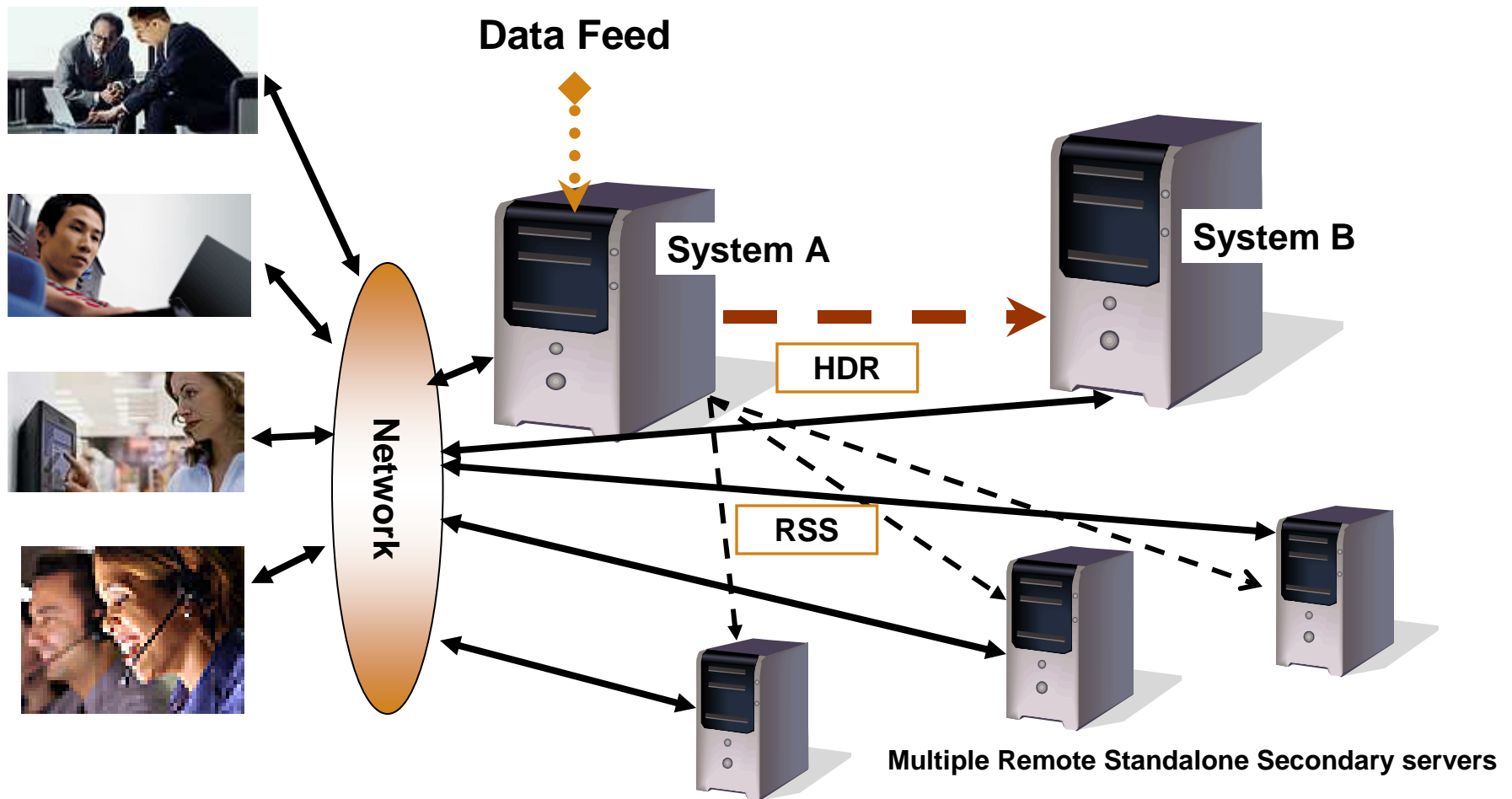
Replication and Continuous Availability

Enterprise Replication



New IDS Cheetah: Remote Secondary Servers

- HDR provides hot site failover **with an active secondary**
- **Remote Standalone Secondary** provides **bunker backup** and read access for **load balancing**



Customer Survey Comments – Last Outage

“Can't remember ever having an IDS related outage”

Brian Grellinger, Doosan, Infracore America Corp

“This database has never been down except for server OS upgrades”

Bob Ungaretti, CTO, Garrett Group Inc.

“Informix IDS has been approved as a very solid DBMS”

James Xu, Safeway

“ Can't remember the last outage...over 5 years ago ”

Rich Campbell

“The last unplanned outage was in 2004 when we had a massive power failure”

Lennie Jarratt

“Been extremely reliable and low maintenance”

BG, Construction

“Informix is very stable - very mature and very efficient”

Anon

“ “I have clients who have over 500 days of uptime.”

MM, Financial Software

“I have worked here for almost 4 years and we have never had an outage”

MG, Manufacturing



Better with every release

DG, Logistics



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Performance

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Security

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Manageability

▶ **Little or no database administration**

Integrated Solutions

▶ **Application control of the database**



Performance

- Threaded architecture
 - ▶ Allows quick and inexpensive parallelism
 - ▶ Enables non-blocking I/O
 - ▶ Fast thread switching
- Storage management
 - ▶ Intelligent buffer management – similar to DB2-Z
- 64 bit address space
 - ▶ Allows more database to fit into memory
- Extensibility enables operations that most RDBMS's cannot do

Financial Brokerage Firm

- Takes in all stock quotes from every market around the world
 - ▶ 6 days/week
 - ▶ 24 hours/day
- Need < 1 sec lag between data being received and being available for queries
 - ▶ Need to run both historical and real-time queries
- Data rate is > 100,000 messages/sec for much of the day
- Messages kept for many years; >5 TB of history kept online
- Runs on a 4 CPU Linux box!
- Uses TimeSeries and RealTime Loader Datablades



IDS Provides Unique Capabilities

IDS Scores with German Soccer League and Radio-based Tracking System

- **Requirements**

- ▶ High availability & performance
- ▶ Real-time data management

- **Partnering for Solutions on IDS**

- ▶ *IMPIRE Technologies AG*
 - Radio-based tracking systems
 - Exact position, In real-time
 - Sporting events & industrial sector

- **Solution**

- ▶ IDS 10 accumulates, evaluates and publishes data live during the matches



IDS: The Official German Bundesliga Soccer Database 2006

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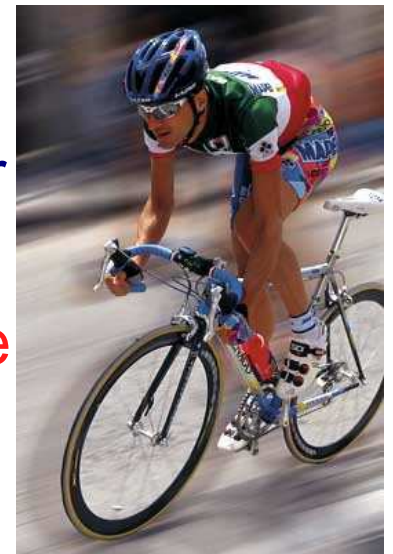
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IDS Scalability

- Designed to perform well on SMP boxes
 - ▶ Multiple processes plus threaded architecture
 - ▶ Thread migration for load balancing
 - ▶ “Virtual processes” can be added dynamically
 - ▶ Spinlocks used for shared memory contention
- Scale Number of users
 - ▶ Can configure number of threads handling connections
- I/O scalability
 - ▶ Threads spawned to enable parallel I/O
 - ▶ Disk space can be added dynamically



WorldWinner – Scalability drives business

- Supports more than 14 million registered users
- Hosts 1,600 concurrent games and approximately 450,000 games per day

WorldWinner is the leading international provider of online game competitions for cash and prizes. When the company first entered the market in 2001 there were 16 competitors and now there are only four.

WorldWinner
It's Only A Game. Until You Play It.
A FUN Technologies Company

To Compete Against Other Players
[Set-Up FREE Account](#) or [Sign-In](#)

Home Help Show All Games ▾

Compete in Your Favorite Online games to win **\$100,000 in prizes every day**

Choose a Competition
Pick your favorite game to play for cash or just for fun

Play Your Game
You'll get a competition score based on how well you play

See Who Wins!
Once enough players have entered, the one with the highest score wins

Card Games

- Solitaire Rush**
- Catch-21**
Speed through the deck making as many 21's as you can.
- Free Cell**
The world's most addicting solitaire game.
- Dual Flush**

Arcade Games

- BEJWELED**
- Chuzzle**
What the heck is a Chuzzle? Fuzzy furballs? Furry fuzballs?
- Big Money**
Show us the money! Get rich by collecting as many coins and moneybags as you can.

Strategy Games

- Dynomite**
Get ready for fast and furious egg-busting action in this prehistoric puzzler!
- Cubis**
Clear the colored cubes to win the level!

Customers depend on IDS Scalability

- Telecom
 - ▶ AP telephone company has 50 million subscribers and 5 TB disk space
 - ▶ Another telecom has 200 - 300 systems on an estimated 20,000 cpus. The Helpdesk system has 426,000 concurrent sessions (with 142,000 individual users on a single 12 cpus system)
- Banking
 - ▶ One bank powers their internet banking application with IDS – 15M+ users, superb performance, minimal administration and high availability, providing an unbeatable TCO
 - ▶ Another Bank has 1500 instances => 1 DBA
- Hotel Chain
 - ▶ 2,250 locations. Industry's first totally integrated IT platform that connects every guest touch point and database, every brand and each individual hotel. Total of 5 TB's with only 2 DBA's.
- Major Retail Chain
 - ▶ 10,000 Instances of IDS in 4,000 physical locations
 - ▶ 99.999% availability
 - ▶ Managed with only 8 DBAs

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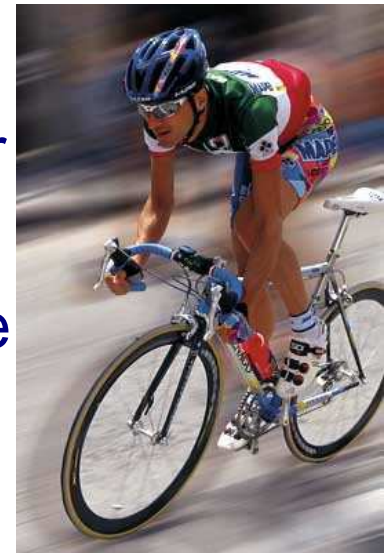
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IDS Security Features

- Role separation
- Auditing
- Encrypted Communications
- Enterprise Replication – ER
- High-Availability Data Replication - HDR
- Controls on who can load extensions
- Controls on who can create databases

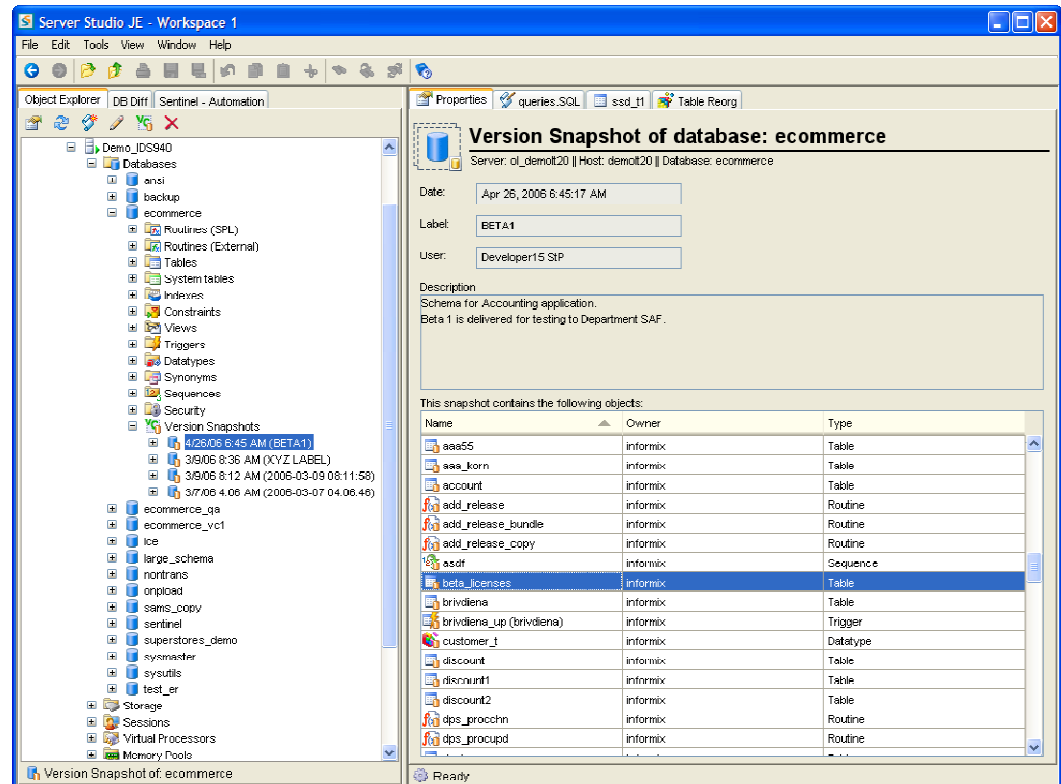


Sentinel™

Configuration & Regulatory Compliance Auditing – Version Control



- Create snapshots of database schema for versioning of database changes in a built-in Version Control Snapshots repository.
- Create versions of individual objects such as stored procedures, tables, views, etc.
- Maintain versions of database security states, such as user's and role's permissions and track security changes for audit purposes.
- Preview versions of database schema objects using graphical tools and recover selected objects' schema
- Compare database versions with a current database state as well as between the schema snapshots stored in the Version Control Repository .
- Share the Version Control Repository among groups of DBAs and developers to support team work.
- Auto-detect any changes in the server or specified databases configuration.



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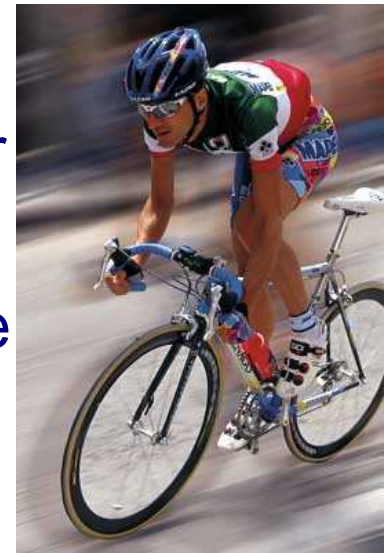
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IDS Cheetah – Administration Free Zone

IDS Administration Made Even Easier with *SQL Admin API + Admin Scheduler*

- Perform administrative tasks within application via SQL
- Admin API is open for use by any user interface program
- Admin Scheduler - schedule standard tasks automatically or conditionally

“We hardly ever use DBA time. The database simply keeps running.” NM, Media*

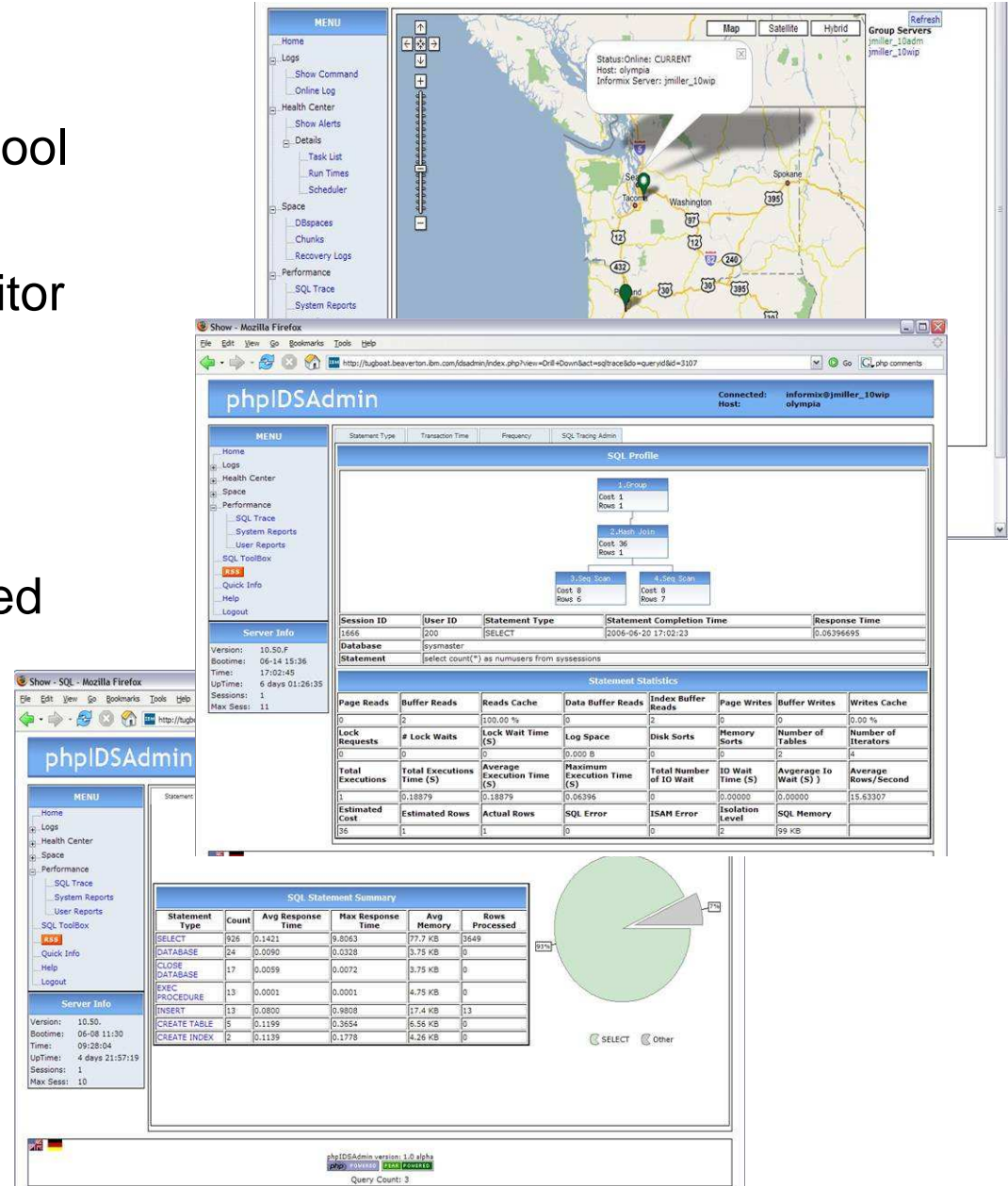
Customer Survey:*

- 25% report no DBA time at all
- An Average of 7 minutes per user week

*Oninit/openpsl Survey 2006

IDSAdmin Tool

- Web-based administration tool for IDS
- Single web server can monitor many IDS data servers
- Graphical location-based information
- Drill down to SQL for detailed analysis
- Monitor the health of each database instance



The screenshots illustrate the IDSAdmin tool's capabilities. The top screenshot shows a map interface with a popup for a server location in Olympia, WA, displaying status (CURRENT), host (olympia), and server name (jmliller_10wip). The middle screenshot shows the 'phpIDSAdmin' web interface with an SQL Profile for a 'SELECT count(*)' query, including a query plan diagram and a table of session statistics. The bottom screenshot shows the 'SQL Statement Summary' table and a pie chart of statement types.

Statement Type	Count	Avg Response Time	Max Response Time	Avg Memory	Rows Processed
SELECT	926	0.1421	9.8963	77.7 KB	3649
DATABASE	24	0.0090	0.0328	3.75 KB	0
CLOSE DATABASE	17	0.0099	0.0072	3.75 KB	0
EXEC PROCEDURE	13	0.0001	0.0001	4.75 KB	0
INSERT	13	0.0800	0.9808	17.4 KB	13
CREATE TABLE	5	0.1199	0.3654	6.56 KB	0
CREATE INDEX	2	0.1139	0.1778	4.26 KB	0

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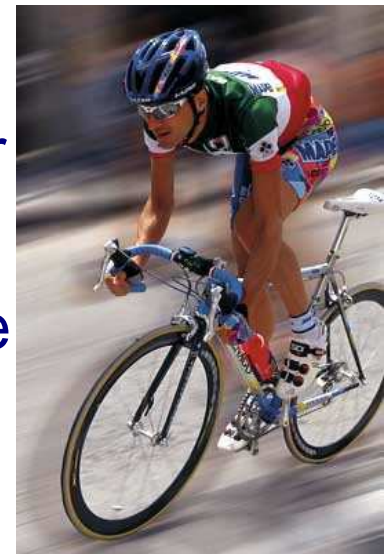
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Integrated Solution Requirements

- Small footprint
 - ▶ Less than 100 MB depending on features
 - ▶ Deployment Wizard will allow even more flexibility
- Low administration cost
 - ▶ Administration from within the application
 - ▶ Most operations can be done online
 - ▶ Most operations can be issued by another program
- Reliability and High Availability
 - ▶ Many customers go years without zero unplanned down time.
- Performance
 - ▶ Performance on industry benchmarks such as the BAAN benchmark demonstrate the power of IDS

IDS Application Development



The freedom of Linux
The power of IDS



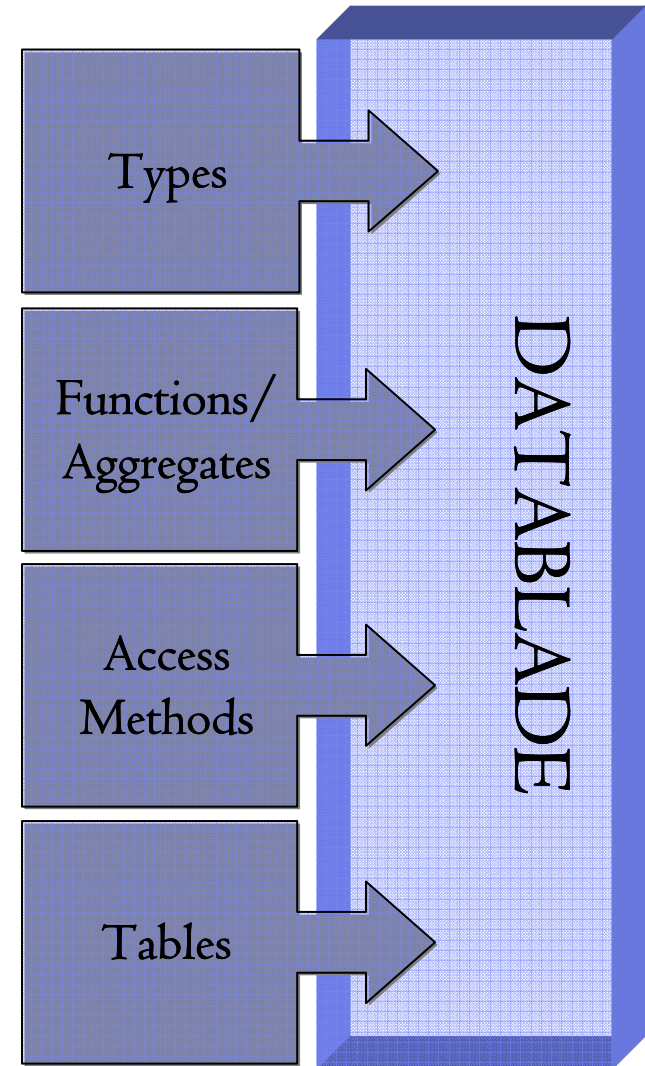
Strategy

- ▶ Deliver superior AD capabilities
- ▶ Provide comprehensive tooling
- ▶ Create business applications (including Web services) with ease



Extensibility

- IDS allows users to enhance their databases with:
 - ▶ Proprietary datatypes, functions, aggregates, and indexing mechanisms, virtual table/index interface (VTI/VII)
- A package bundling these features is called a datablade and can be written in:
 - ▶ Java, C or SQL
- Informix has developed a number of prepackaged datablades:
 - ▶ Spatial, Geodetic, TimeSeries, Realtime Loader, Text Search, MQseries, Web and others
- Functions performed as part of the server
 - ▶ **Increased performance**
 - ▶ **Easier application development**



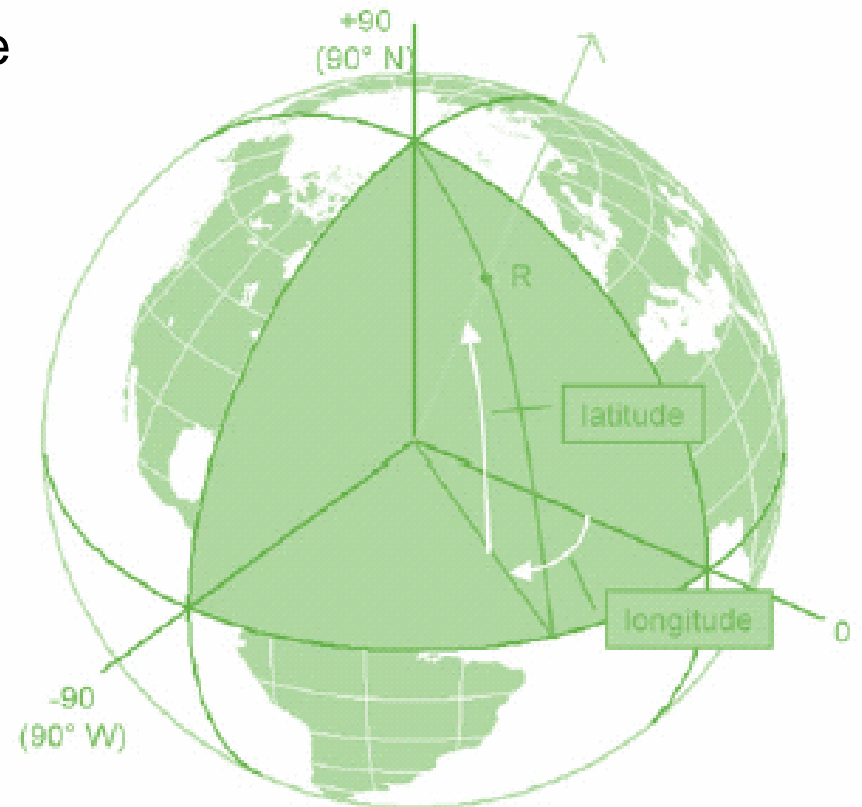
Spatial Datablade Example

- A map is a collection of polygons
- Direction queries:
 - Shortest distance between two polygons
 - Nearest Neighbor searches
- Data types to model Spatial Data
 - Point, line, circle, polygon
- R-Tree based Spatial Indexing
- Works with ESRI's ARC-SDE
- Integrated with SQL



Geodetic Datablade Example

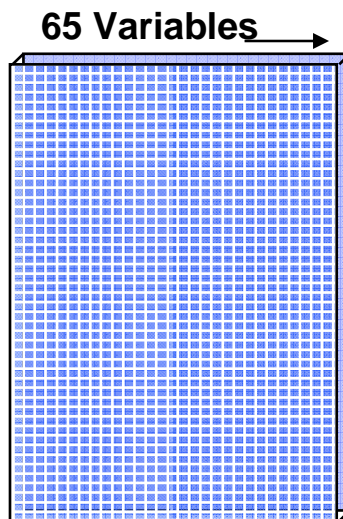
- Shortest distance between two points is NOT a straight line!
- Treats Earth as a globe – not a plane
- R-Tree based spatial Indexing
- Supports Nearest Neighbor Search
- Uses 3rd party library for support functions



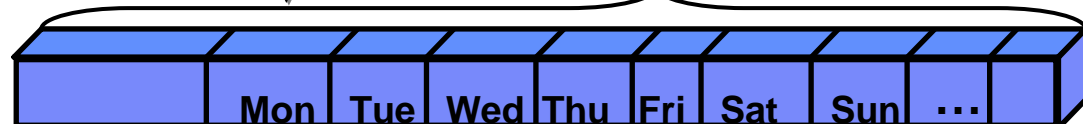
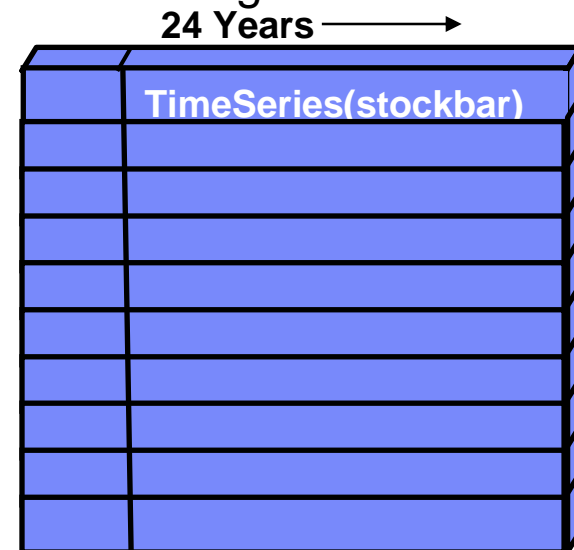
TimeSeries Datablade + Real Time Loader

- TimeSeries - Specialized clustered storage
 - ▶ Highly tuned for handling temporal range queries
 - ▶ TimeSeries API allows custom analytics to be written and run in the database
- Real Time Loader – real time storage of streaming data
 - ▶ Financial Services company can continuously load ~ 100,000 msgs/sec with 4 cpu Linux box into time series storage

3,000
Securities
for
24 Years
=
18,000,000
Rows



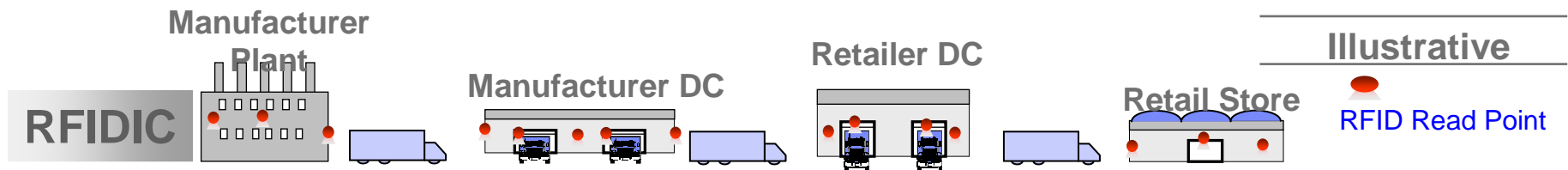
3,000
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=
3,000 Rows



Location-Based Services with IDS

Location, Location, Location

- Real-time location tracking, sensing, and communicating
- New class of services to add business value
- RFID and mobile devices with network connectivity lead the way
- Broad spectrum of emerging real-world Web applications
- **EPCIS/RFID product from Websphere**



*“Enterprise use of spatial information, representing geography or location, is one of the largest untapped resources available for bottom-line improvements.”**

*Robert Frances Group 02/20/2007 (www.rfgonline.com)



“IDS Cheetah” Beta Testing

Presented by: Syed Kamal, CEO

Gillani, Inc.

Gillani.
ERP & Distribution Management Solutions

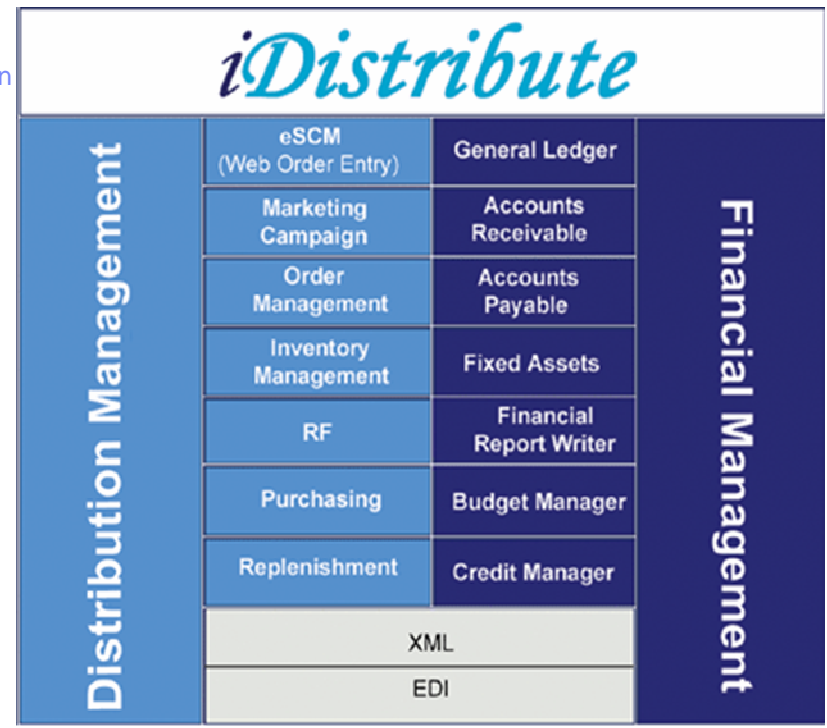
Gillani Profile

Company

- IBM Premier Business Partner and Informix Legacy Partner
- Software and Services Provider of ERP and Distribution Management Solutions based on IBM technologies
- Over 20 years helping distributors manage supply-chain processes
- Started with first version of Informix 4GL and database in 1986 as FourGen
- Distribution Industry Expertise within Wholesale and Retail markets

Solutions

- iDistribute® –Distribution Management
- Gillani Financials – ERP/Accounting
- FourGen® CASE Tools – Rapid Application Development
- FourGen® Business Accounting



Gillani Achievements

- IBM Premier Business Partner
- 2006 IBM Beacon Award 2006 finalist
- IBM PartnerWorld Ready for IBM Retail Store Innovations Store Integration Framework
- Built on IBM Express Advantage Offerings
- Ready for IBM DB2 data server software
- Certified IBM ECIS – Education Center
- Achieved Optimized Level in PWIN Wholesale Distribution Industry and Retail Industries
- Council Member – Specialty Tools and Fastener Distributor Assoc (STAFDA), Distribution Software Council

Beta Testing with Cheetah by Gillani

- Accelerated Performance
 - ▶ iDistribute Customer Aging Report
 - 415 seconds on IDS 10 vs. 75 seconds on Cheetah
 - Multi-table joins
 - More than 100 tables accessed
 - Complex SQL
- Dynamic SQL Tracing Ability
 - ▶ Turn Tracing off/on as needed
 - ▶ Trouble shooting critical performance issues in OLTP environments, with Gillani iDistribute
 - ▶ Provides consolidated detail information about SQL statements

Beta Testing with Cheetah by Gillani

- Task Scheduling
 - ▶ Task Scheduling
 - Unattended monitoring of database
 - Scheduling of standard DBA tasks
 - ▶ Sensors – Easy to use snapshots of database activity
- Network Administration Console
 - ▶ Remote Administration
 - ▶ Integrates admin tasks in easy to use screens
 - ▶ Data Visually Reported with Graphs/Maps/Charts

Customer Quotes

- "The visual reporting capabilities of the Cheetah network administration console with Graphs/Maps/Charts makes it much easier to support our databases"

Bill Percival, Gillani, Inc.

- "The Gillani iDistribute Accounts Receivable aging report (a complex SQL using multi-table joins and accessing more than 100 tables) runs six times faster with Cheetah than with IDS 10."

Sandy Livingston, Tierney Brothers



Customer Quotes

- "We expect our support costs to significantly decrease using FourGen CASE Tools for development, the network admin console capabilities of Cheetah and the increased performance experienced with Cheetah."

Ralph Callisto, Rol Manufacturing

Cheetah Launch Web Site – Take a Test Run



The screenshot shows the IBM Informix Dynamic Server 'Cheetah' launch website. The main heading is "GET READY CHEETAH IS COMING". Below this, there is a section titled "What is Informix Dynamic Server 'Cheetah'?" which describes it as the next evolution of the IBM Informix Dynamic Server (IDS). A quote from Markus Holzbauer, senior database administrator for ProSiebenSat.1 Produktion, is featured: "As a participant of the 'Cheetah' closed beta program, we are impressed with the new capabilities that IDS will offer. Specially, the high reliability and superb transaction throughput really appealed to us. With the development of 'Cheetah', IBM makes it clear that IDS continues to be a key strategic product in its portfolio." There is also a "Free trial" section with a "Download now" button. The website includes a navigation menu, a search bar, and various utility links like "Call me now" and "E-mail us".

- "... we are impressed with the new capabilities that IDS will offer...."
-- **Markus Holzbauer, senior database administrator for ProSiebenSat.1 Produktion**
- "... our major focus was the non-blocking checkpoints in "Cheetah" which will bring our customers additional performance boost.. New features [justify] the new IDS slogan "Administration Free Zone". --
Wolfgang Kraus, Bytec GmbH, Head of IT-Services

<http://www.ibm.com/informix/new>

IBM Information On Demand 2007
ibm.com/events/InformationOnDemand



IBM Information On Demand 2007
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Las Vegas, Nevada

- The premier information management event for business and IT executives, managers, professionals, DBA's and developers.
- Select from over 600 sessions: a 2-1/2 day business leadership track with 120 sessions and a 5 day technical track with 480 sessions.
- Latest strategy and product announcements
- Huge Expo Solution Center
- Hands on labs
- One-on-ones with executives and specialists
- Birds of a Feather roundtables



Why attend:

- Participate in discussions on the future of Information Management
- Experience the entire Information Management portfolio – Software, Hardware and Services
- Learn how to unlock business value and drive competitive advantage
- Hear how your peers are realizing ROI
- Understand the roadmap to long term strategic advantage
- Learn best practices in your industry
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