# IBM Data Management

Brant Davison

Product Manager

IBM Data Management

# What is a database?

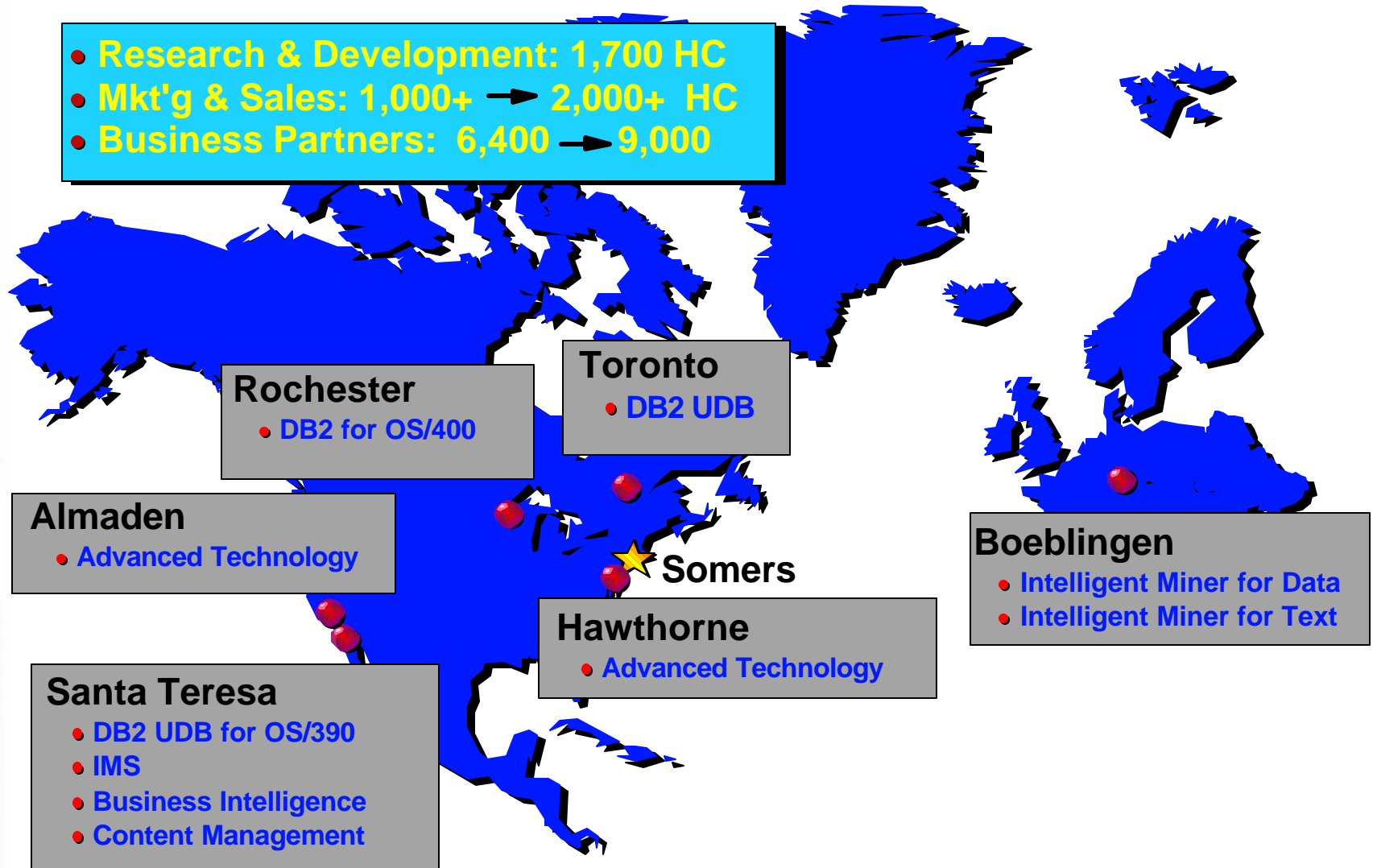| | | |
|---|---|---|
| Format | file | *any* |
| Location | local | *federated* |
| Clients | dedicated | *pervasive* |
| Applications | transactions | *operational and informational* |
| Application Support | data access | *business rules* |
| Scale | fixed | *dynamic* |
| Hardware Architecture | uni-processors | *all kinds of parallel* |
| Integration | proprietary | *vendor independent* |
| Content | alpha-numeric | *rich, standard objects, indices* |

# IBM's data management team

- **Research & Development: 1,700 HC**
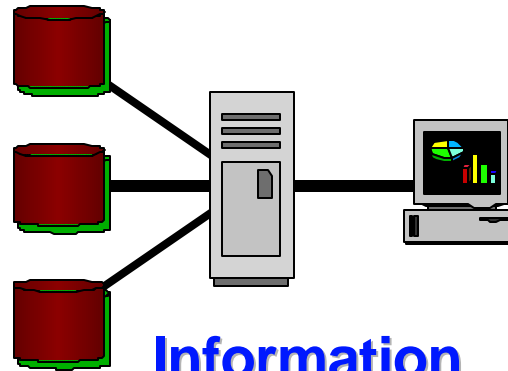- **Mkt'g & Sales: 1,000+ → 2,000+ HC**
- **Business Partners: 6,400 → 9,000**

**Rochester**
- DB2 for OS/400

**Toronto**
- DB2 UDB

**Almaden**
- Advanced Technology

**Somers**

**Hawthorne**
- Advanced Technology

**Boeblingen**
- Intelligent Miner for Data
- Intelligent Miner for Text

**Santa Teresa**
- DB2 UDB for OS/390
- IMS
- Business Intelligence
- Content Management
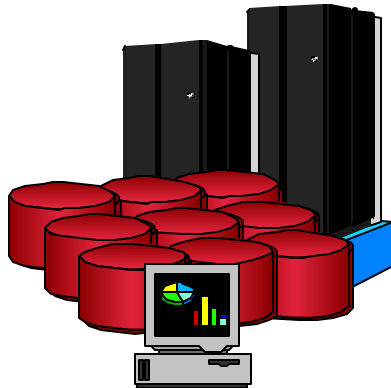
# IBM data management - investment areas

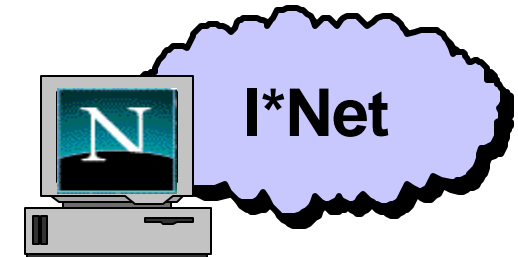**DB2 & IMS Families**

**Information Integration**

**Industry Applications**

**Business Intelligence**
Warehouse Mgmt.
Advanced Analytics
Knowledge Navigation

**Content Management**
Media Asset Mgmt.
Production Imaging

**e-commerce**
Net.Commerce
Net.Data
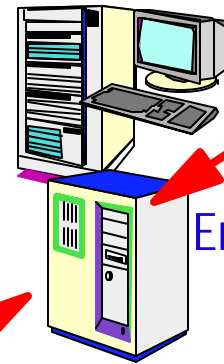
I*Net

# DB2 Universal Database

**Hosts**
- DB2 UDB for OS/390
- DB2 for VM and VSE
- DB2 UDB for OS/400

**Enterprise**
- OS/2, Win NT
- AIX, HP-UX, Solaris
- Linux

**Satellite**
- Win 95, 98
- Win NT

**Workgroup**
- OS/2
- Win NT
- Linux

**Enterprise - Extended**
- AIX
- Solaris
- Win NT

**Clients**

**Personal**
- OS/2
- Win 95, 98
- Win NT
- Linux

**Everywhere**
- PalmOS
- Widows CE
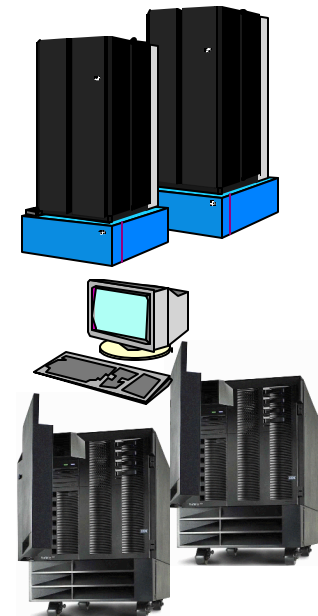
# DB2 - *proven technology and experience*

**Solution focused - CRM, SCM, ERP, e-commerce, BI**
**Integration with IBM's Application Framework for e-business**
**Solid e-business foundation - based on IBM invention**

*more coming...*
Heterogeneous integration
Integrated analysis
Federated data
Deep computing
+++

**1999**
- Java SP builder
- Java-based CC
- XML extender
- LDAP
- OLE DB
- Web AD and Mgmt.
- Portability enhancements
- Integrated analysis
- Pervasive computing
- LINUX, Sequent
- Siebel
+++

**1998**
- SQLJ
- Browser-based CC
- Intel parallelism
- O/R enhancements
- Spatial extender
- Data Links
- Web appl. servers
- OLAP
- Text mining
- BI partnerships
- Commerce partnerships
+++

**1997**
- Web access
- Control Center
- SMP parallelism
- Sysplex parallelism
- Data mining
- Document mgmt.
- Baan
+++

**1996**
- JDBC
- Java SP
- Java UDFs
- MM extenders
- Digital libraries
- SAP
- PeopleSoft
+++

**1995**
- Optimization
- Rich objects
- Cross platform
- Cluster parallelism
+++

*Increasing performance and scale*

*More applications and partners*

*Marketing. sales, support investment*

# IBM data management



e-business

Content Management

Business Transactions

- EDM
- MAM

DB2 Family

- OLTP
- ERP, CRM...
- Commerce

Business Intelligence
- Warehousing
- OLAP, Mining
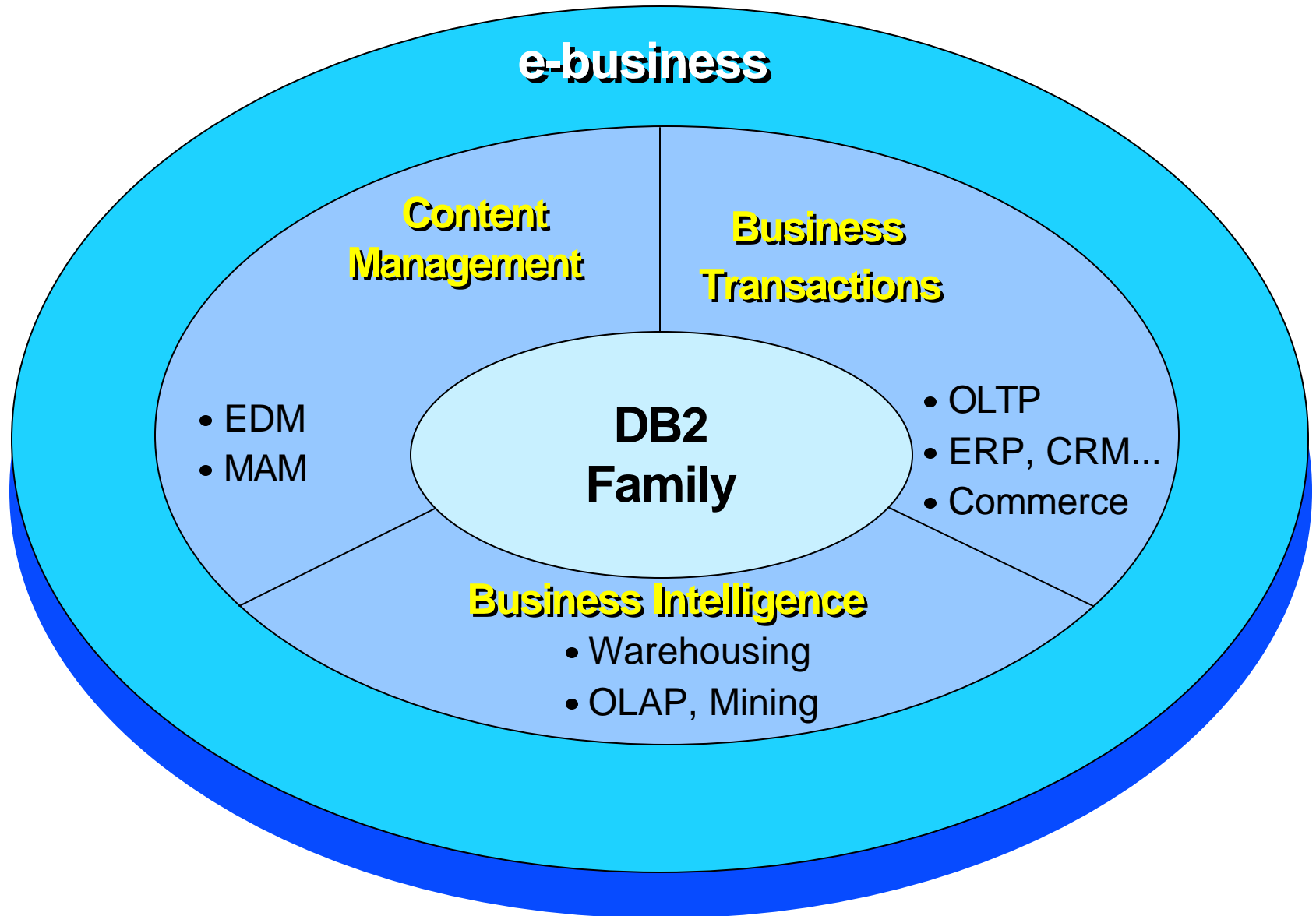
# Worldwide Database Market Revenue Share

## Market Share (%)

$7.1B market in 1998

| | IBM | Oracle | Microsoft | Sybase | Informix | Other |
|---|---|---|---|---|---|---|
| 1996 Final | 27 | 25 | 12 | 6 | 6 | 24 |
| 1997 Final | 29 | 29 | 10 | 5 | 5 | 23 |
| 1998 Prelim | 32 | 29 | 10 | 4 | 4 | 20 |
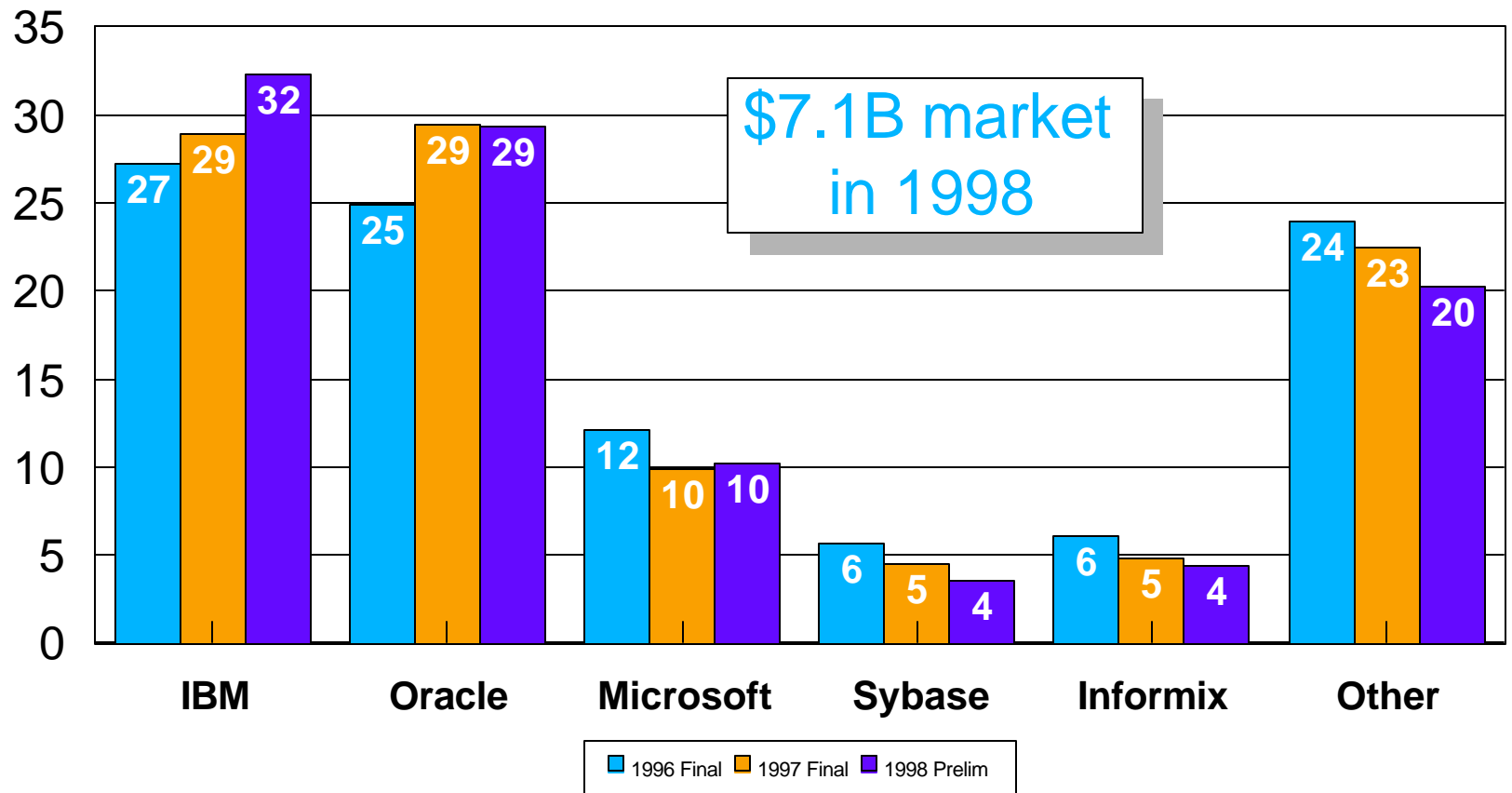
Source: Dataquest Postings on Business Wire (3/17/98, 3/22/99)

# 1998 business highlights

- Market Penetration
  - ► 1.1M+ DB2 Servers
  - ► 40M+ Users; 225,000+ Companies
- Revenue Growth for DBMS
  - ► IMS                    12%
  - ► DB2 for OS/390         15%
  - ► DB2 for AS/400         20%
  - ► DB2 for UNIX           70%  (700% on Sun Solaris)
  - ► DB2 for NT             100%
- Warehouse Mgmt.          42%
- BI Analysis Tools        25%
- Content Mgmt.            293%

# Results = customers

**www.software.ibm.com/casestudies**

# 1H 1999 business highlights...

- Revenue growth for DBMS ('98-'99)
    - ▶ DB2 for OS/390                14%
    - ▶ IMS                                4%
    - ▶ DB2 for AS/400              12%
    - ▶ DB2 for Unix                  45%
    - ▶ DB2 for NT                     54%
    - ▶ Business Intelligence     13%
    - ▶ Content Management      34%
- Channel driven revenue share
    - ▶ Unix and NT                   41%

*2nd quarter = largest absolute quarter ever
for distributed...*

# Increase in marketing spending

**Marketing $$**



170% CGR

1996   1997   1998   1999
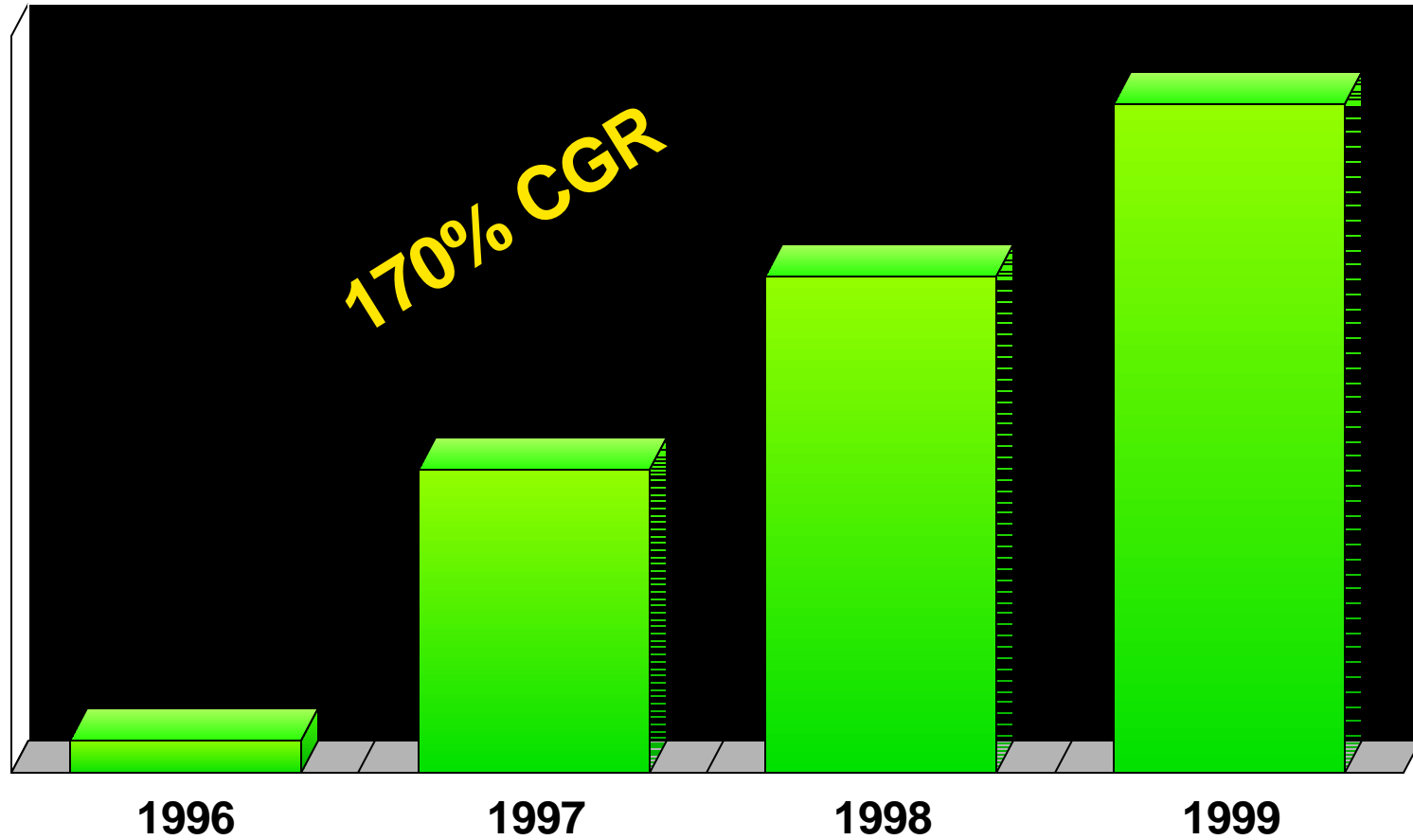
# Business partners

- **Increased Investment (1996 through 1H99)**
  - 200+ additional sales people
  - 140+ additional technical staff
  - 35x increase in programs
- **Resulted in increased:**

### Channel Revenue Contribution*

- 50%
- 41%
- 40%
- 30%
- 26%
- 20%
- 15%
- 10%
- 0%

1995 1996 1997 1998 1H99
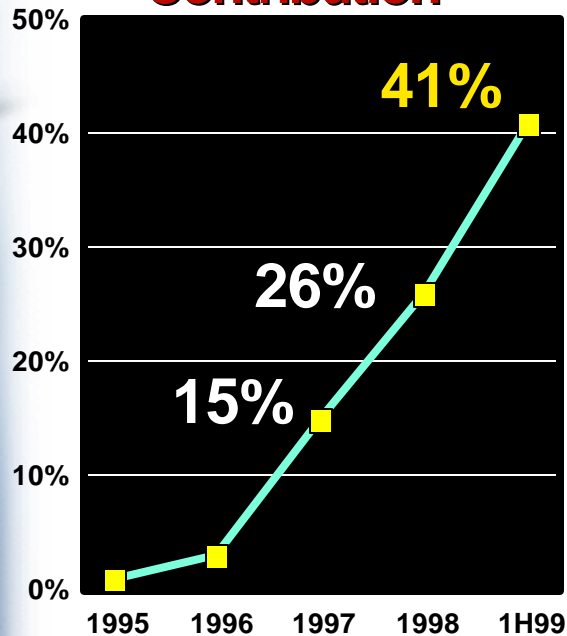
* DB2 for Distributed Platforms

### Partners

- 8,000
- 7,598
- 7,000
- 6,700
- 6,000
- 5,000
- 4,300
- 4,000
- 3,000
- 3,000
- 2,000
- 2,100
- 1,000
- 0

1994 1996 1998
1995 1997 1H99

### Applications

- 12,000
- 10,499
- 10,000
- 9,858
- 8,000
- 6,767
- 6,000
- 4,742
- 4,000
- 2,000
- 0

1996 1997 1998 1H99
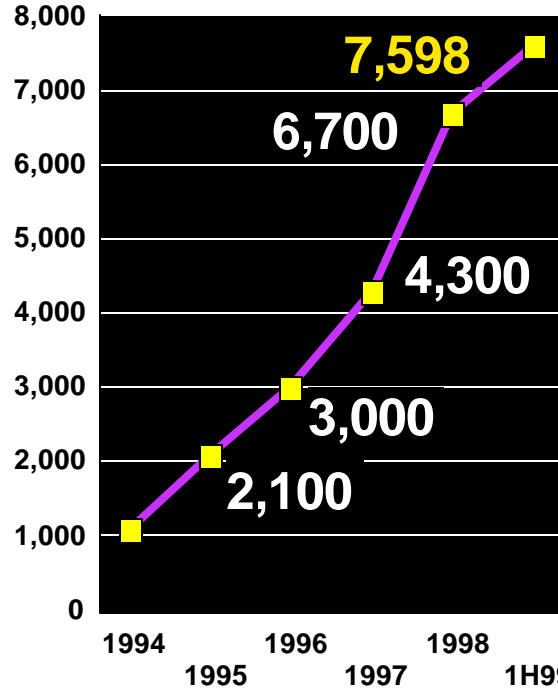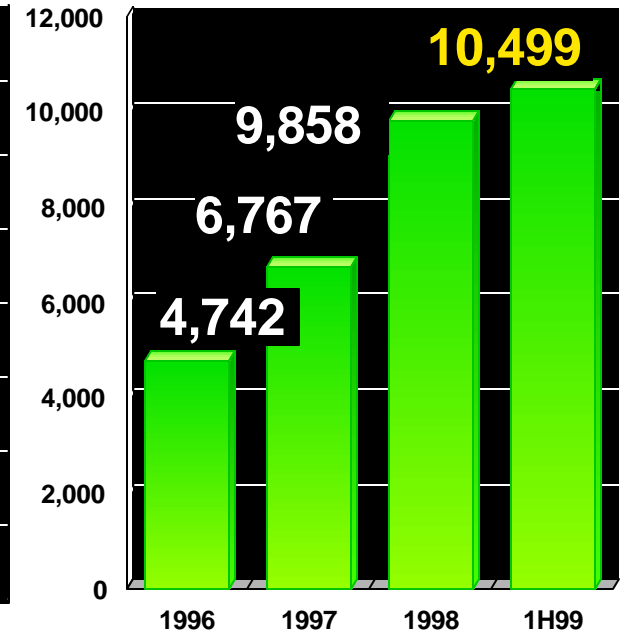
# DB2 Universal Database - over 1,800 NT applications

"...Microsoft reports that ISVs have developed more than 600 applications for SQL Server 7.0...Six hundred is an impressive figure until you compare it to Oracle's or IBM's numbers..."

*Support, Visualization, and Verticals*

By Hugh Willoughby-Davis

SQL Server Magazine

July 1999

# 1999 deliveries

- DB2 Universal Database for AS/400 V4.4
- DB2 Universal Database for S/390 V6
- DB2 Universal Database for NT, UNIX, LINUX, OS/2
- DB2 Everywhere
- DB2 KnowledgeX
- DB2 OLAP Server V1.1
- *Coming soon...*
  - *DB2 Satellite Edition*
  - *Business Intelligence*
    - *Intelligent Miner for Data*
    - *Intelligent Miner for Relationship Marketing*
  - *Data Integration*
    - *DataJoiner*
  - *IBM Content Manager*
  - *IBM Enterprise Information Portal*

# May DB2 UDB V6.1 recap

- Continuing to extend DB2 UDB to power the world's e-business solutions
  - ▶ Faster, easier application development and enhanced manageability
    - tools, tool integration
    - constraint relief
    - performance
  - ▶ Extending the reach of DB2 to pervasive devices
    - DB2 UDB Satellite Edition
    - DB2 Everywhere
  - ▶ Partnering for solutions
    - Siebel
    - SAP, PeopleSoft, Baan
  - ▶ New migration options
    - Tools and compatibility
  - ▶ New platforms
    - Linux
    - Sequent
  - ▶ New pricing for e-business
    - per processor
    - unlimited users

# Extending the reach of e-business

- **DB2 UDB Satellite Edition**
  - ► DB2 UDB engine
  - ► Small footprint (8MB RAM, 30MB Disk)
  - ► Transparent install for mass deployments
  - ► Centralized administration capabilities
  - ► Robust, proven and scalable replication
  - ► Available this month
- **DB2 Everywhere**
  - ► Small footprint (50K)
    - – subset of SQL
    - – relational indexing
  - ► IBM Mobile Connect for synchronization
    - – relational data, Notes, PIMs
  - ► Available Now

# DB2 Everywhere demo scenario...

Patient Care Applications

Synchronization:

**IBM Mobile Connect**

DB2 Everywhere

DB2 Universal Database
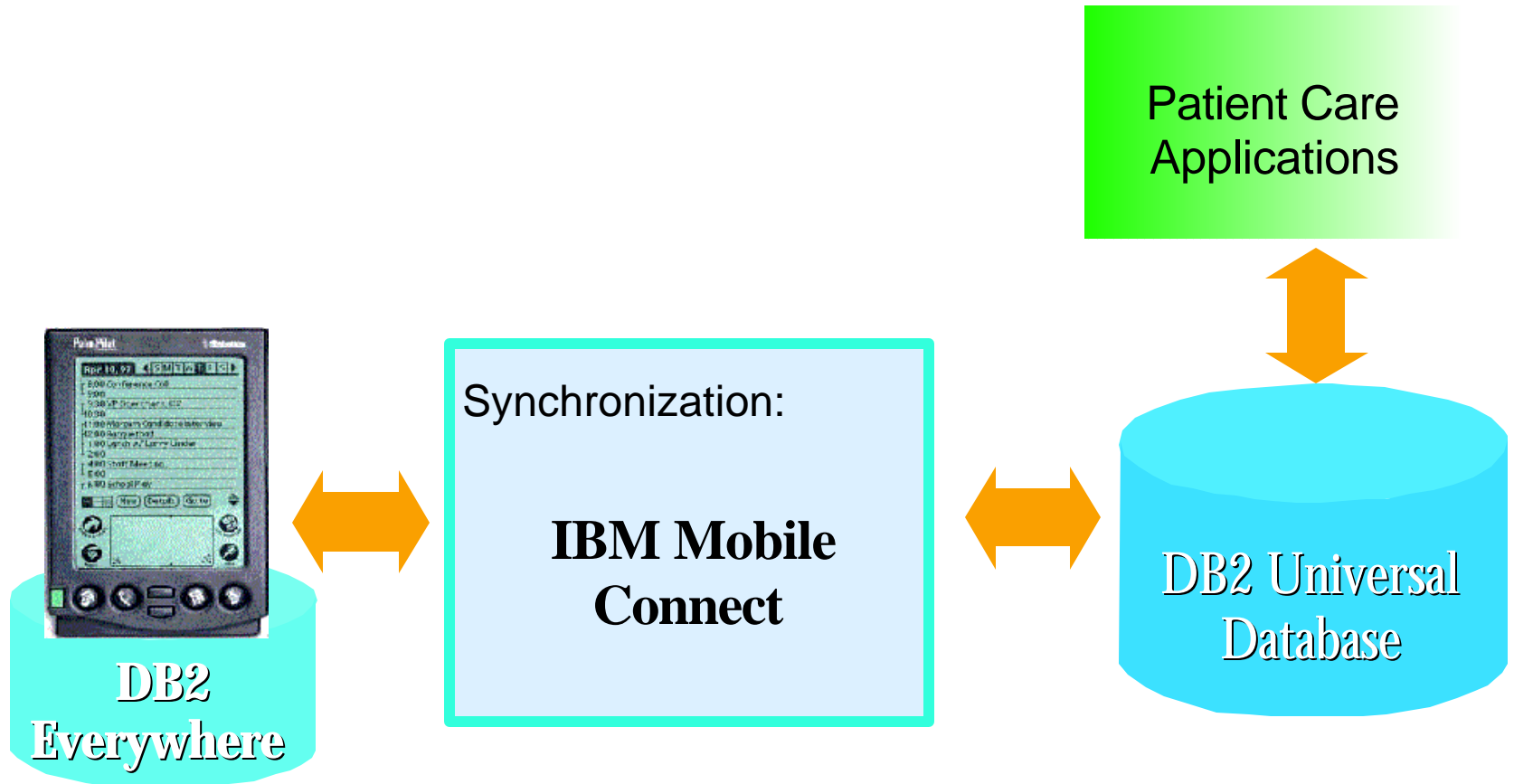
- **Nurse visit information**
  - **Daily schedule**
  - **Patient records**
    - **Contact Information**
    - **History**
    - **...**

- **Patient records**
  - **Contact Information**
  - **Visit scheduling**
  - **History**
  - **...**

Demo

# DB2 Everywhere

Software available as a free download from the web

Visit the DB2 Everywhere Web site at

http://www.software.ibm.com/data/db2/everywhere/ for your free download, including product code, sample programs, demos and more!

# September BI software announce recap

- ► Corporate campaign
- ► New tools for e-business analysis and insights
  - DB2 Intelligent Miner for Data Version 6.1
    - DB2 Intelligent Miner for Relationship Marketing Version 6.1
  - DB2 OLAP Server Version 1.1
- ► Enhanced data integration
  - DataJoiner access to NCR/Teradata
- ► Solutions to speed implementation and ROI
  - IBM Fast Start Program for bi
- ► Standards leadership
  - Metadata management
  - Mining
- ► Business Intelligence partnership initiative growth
  - Largest initiative in the industry

# The e-business cycle

**Leverage**
knowledge and
information

**Transform**
core business
processes



**Run**
a scalable,
available, safe
environment

**Build**
new
applications

# DB2 and the application framework
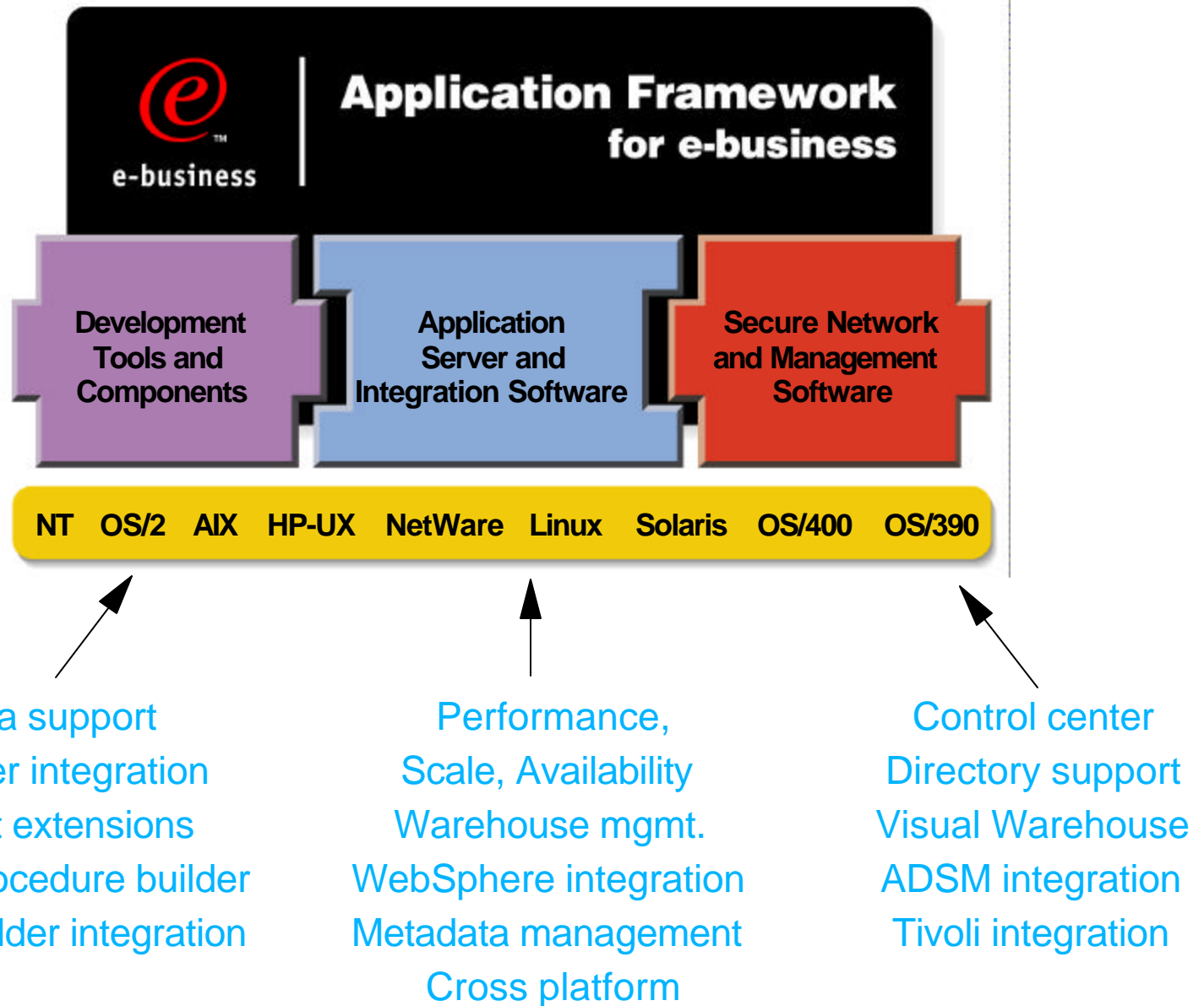


**Application Framework for e-business**

| Development Tools and Components | Application Server and Integration Software | Secure Network and Management Software |

NT   OS/2   AIX   HP-UX   NetWare   Linux   Solaris   OS/400   OS/390

Java support
Browser integration
Object extensions
Stored procedure builder
Visual builder integration

Performance,
Scale, Availability
Warehouse mgmt.
WebSphere integration
Metadata management
Cross platform

Control center
Directory support
Visual Warehouse
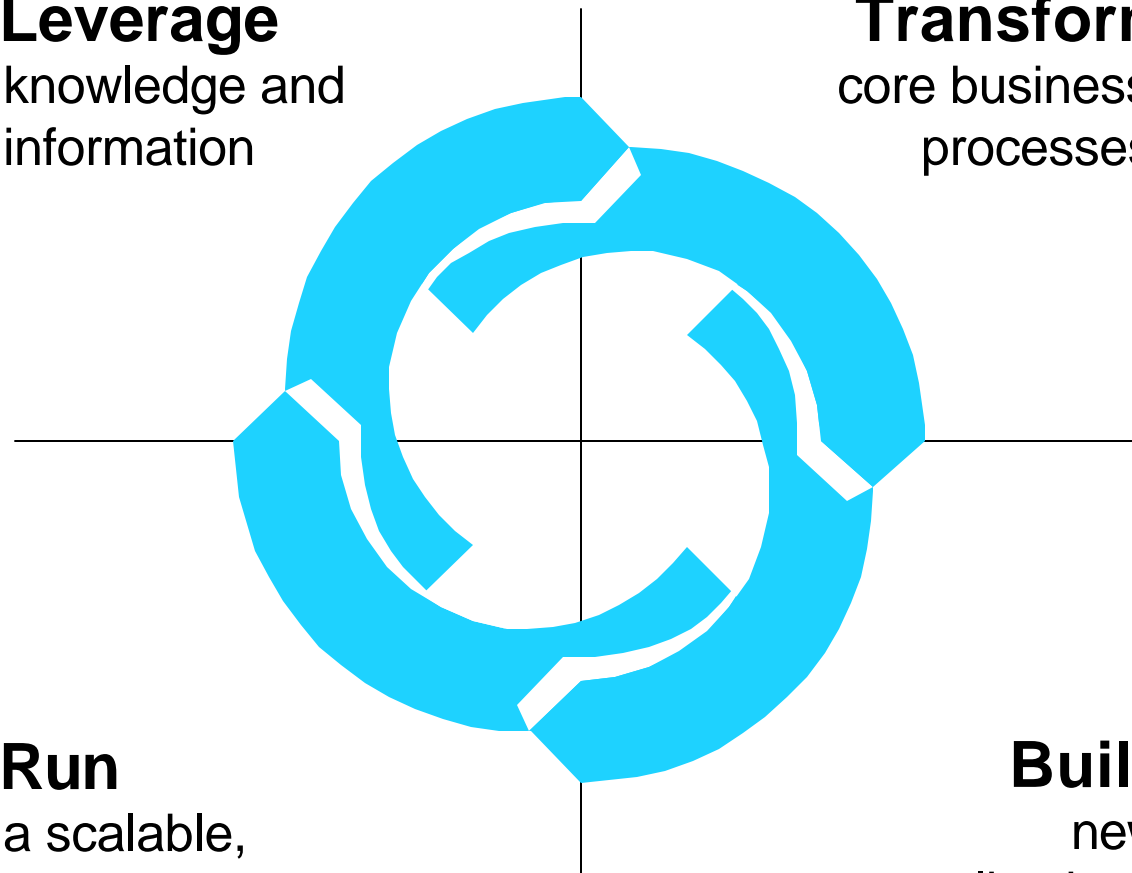ADSM integration
Tivoli integration

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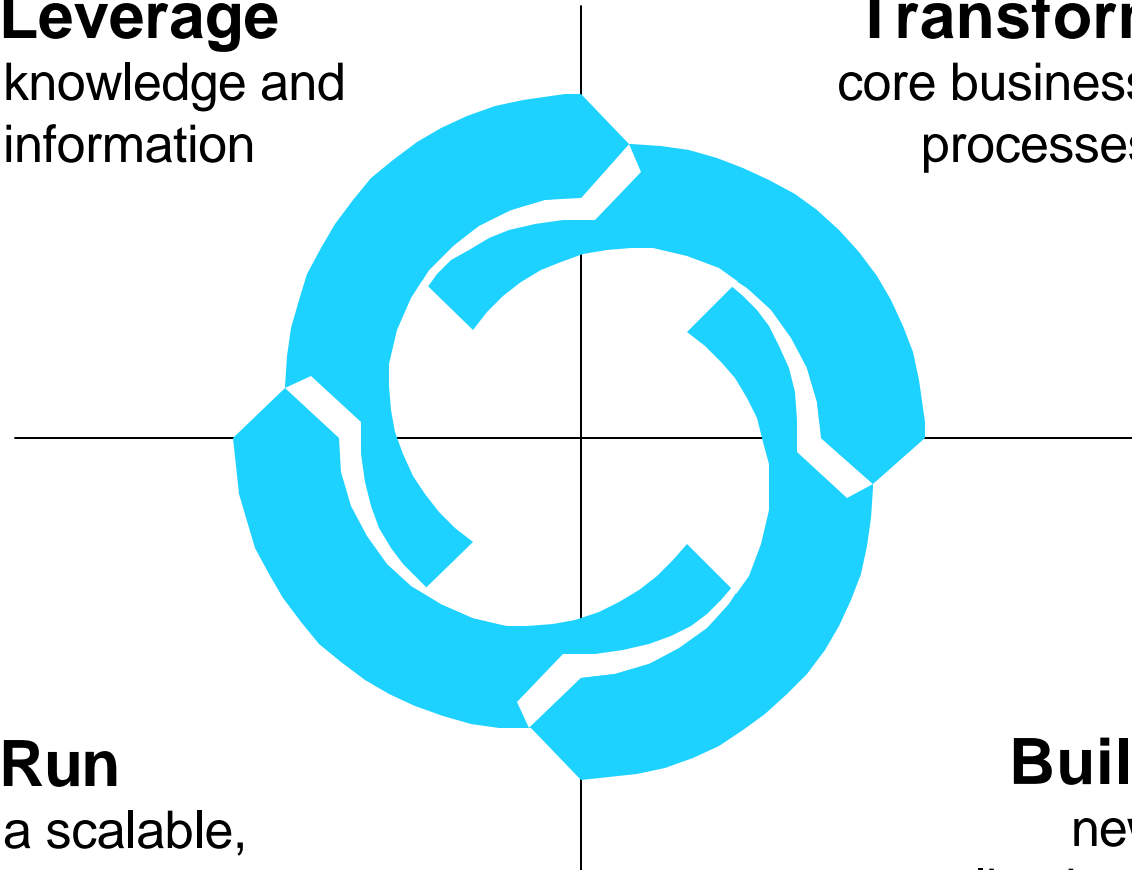
**Build**
new
applications

# How much information is there?

**300 Exabytes**

Analog data

Paper
Film
Videotape

**20 Exabytes**

Off Line

CDs
Digital cameras
Tape

**1000 Petabytes**

On Line

Disk drives
File systems

**100 Terabytes**

Internet

**10**

HTML
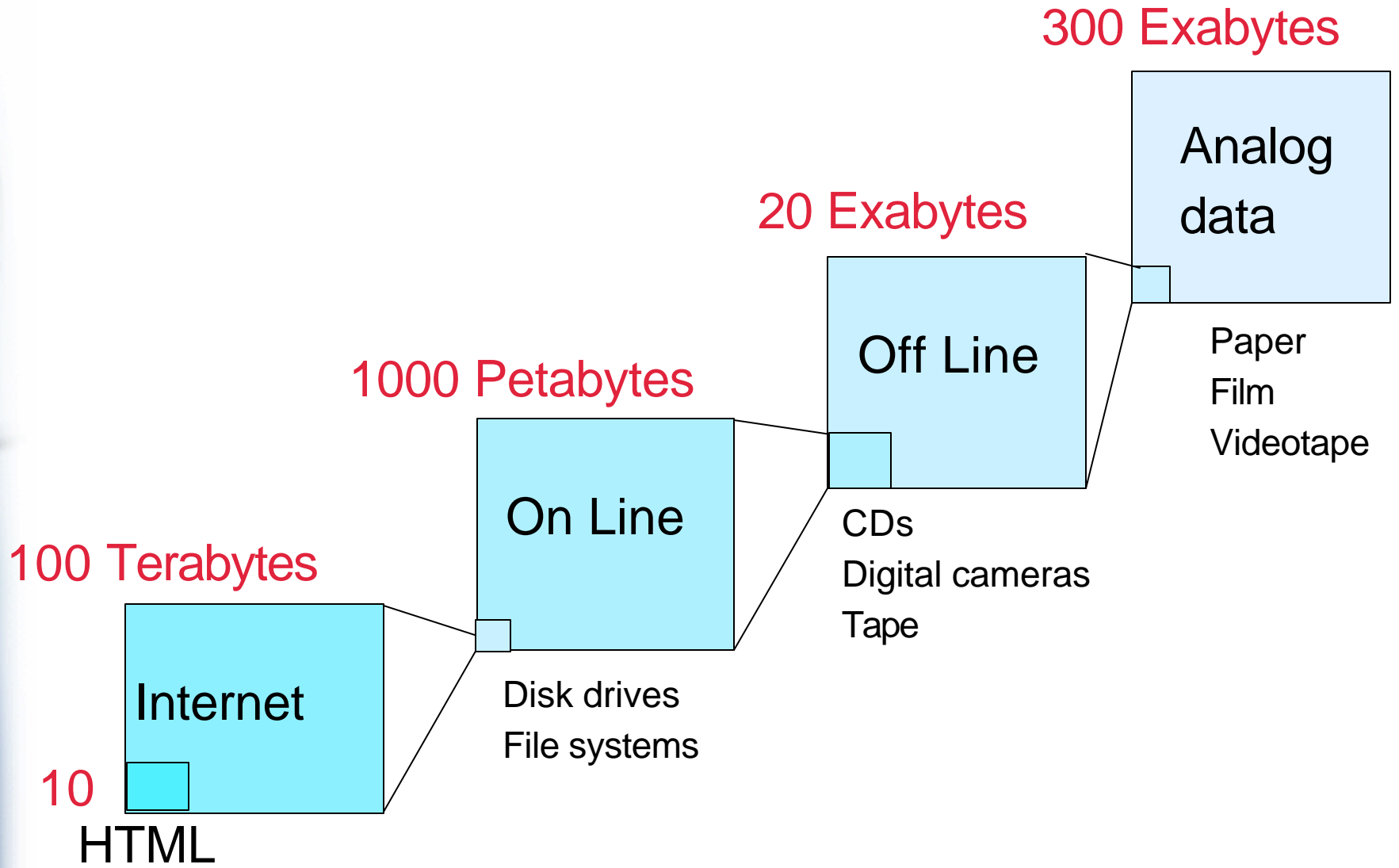
# Business intelligence with DB2

*any data...*

**Production Data** **Production Data** **Purchased Data**

report analyze

**Visual Warehouse**

**Partner Tools**

**DB2 OLAP Server**

**Intelligent Miner** mine

ods warehouses and marts
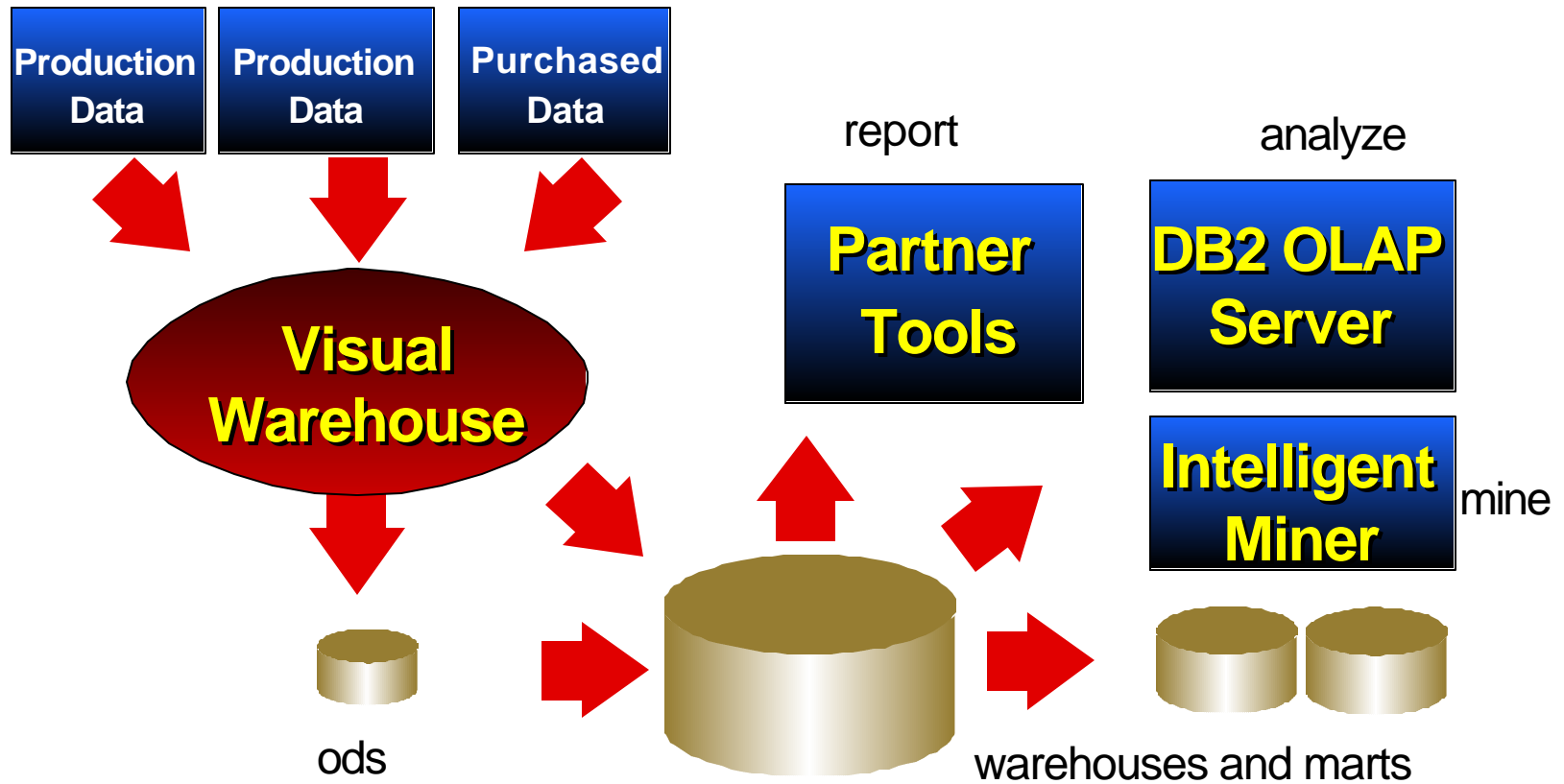
*DB2 Universal Database*

*any user...*

# Benchmarks

- ## TPC-D Benchmark Dominance
  - ► 30GB, 100GB, 300GB, 1TB
  - ► Compaq, Netfinity, RS/6000, Sun
  - ► Concurrent users and mixed workloads

**Summary of Results 2/15/98 - 2/15/99**

| TPC-D Leadership @ 100GB (SMPs), 300GB, and 1TB | DB2 | NCR | Oracle | Informix |
|---|---|---|---|---|
| Power leadership in months | 15 | 12 | 6 | 3 |
| Throughput leadership in months | 23 | 6 | 4 | 3 |
| Price/Performance leadership in months | 26 | 2 | 2 | 6 |
| **Total # of months at the top** | **64** | **20** | **12** | **12** |

# IBM business intelligence partnership initiative



400
300
200
100
0

over 580 applicaitons

February '98    YE '98    September '99

# Leveraging information

## Structured data

**Online transaction systems**

| ERP Data | B2C, B2B Data | Purchased Data |

**Warehouse Manager**

**Extract, Clean, Transform, Load**

**Interactive Queries Reporting**

**Multi-Dimensional Analysis**

**Data Mining**

DB2
**Operational Data Store**

**DB2**
**Enterprise Data Warehouse**

DB2 DB2
**Line of Business Data Marts**

**Enterprise Information Portal**

*Enterprise Information*

## Unstructured data

Web pages   e-mails   COLD   Manuals

News feeds   Documents

Purchased data   Marketing information   Contracts   Multi-media files

Commercial search engines   Product information   Marketing brochures

**Content Management Repository**

**DB2**
**Database**

**Content Management Application**

**Content Manager**

# Leveraging information

## Structured data

Online transaction systems

**ERP Data** | **B2C, B2B Data** | **Purchased Data**

**Warehouse Manager**

**Extract, Clean, Transform, Load**

**Interactive Queries Reporting**

**Multi-Dimensional Analysis**

**Data Mining**

**DB2** — Operational Data Store

**DB2** — Enterprise Data Warehouse

**DB2** **DB2** — Line of Business Data Marts

## Unstructured data

Web pages

e-mails

COLD

News feeds

Documents

Manuals

Purchased data

Marketing information

Multi-media files

Commercial search engines

Product information

Contracts

Marketing brochures

Content Management Repository

**Content Management Application**

**DB2** — Database

**Content Manager**

**Enterprise Information Portal**

*Enterprise Information*

*Pervasive clients*
- ✓ *portal*
- ✓ *notes*
- ✓ *browsers*
- ✓ *pdas*
- ✓ *ISV integrated*
- ✓ *...*

e-business

IBM

# Next steps in e-business...

Operations

Analysis

Feedback
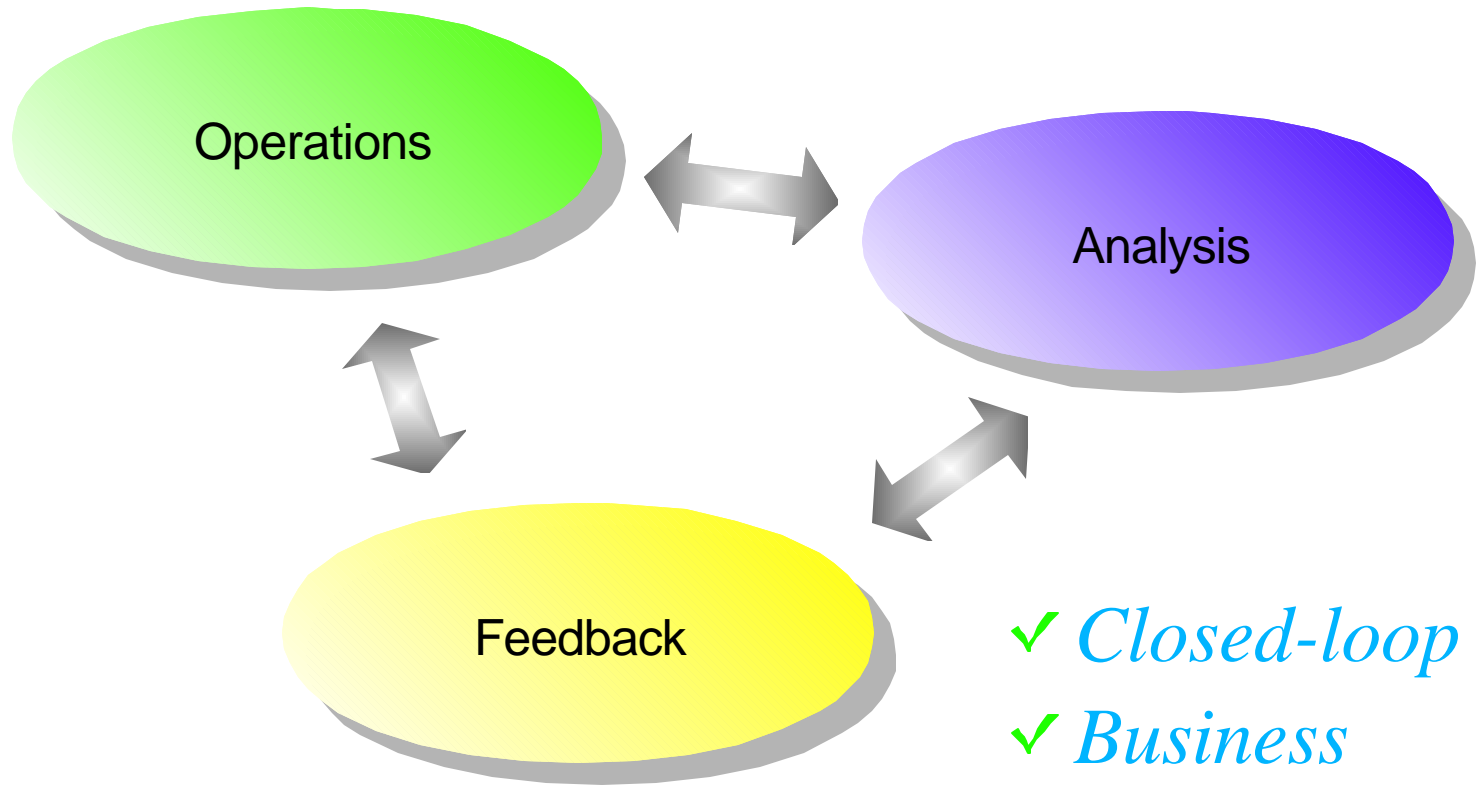
✔ *Closed-loop*
✔ *Business optimization*
✔ *Market agility*

Inter-enterprise, inter-application

# Next steps in e-business...and database

- **Operational integration**
  - ►XML
- **Advanced analysis**
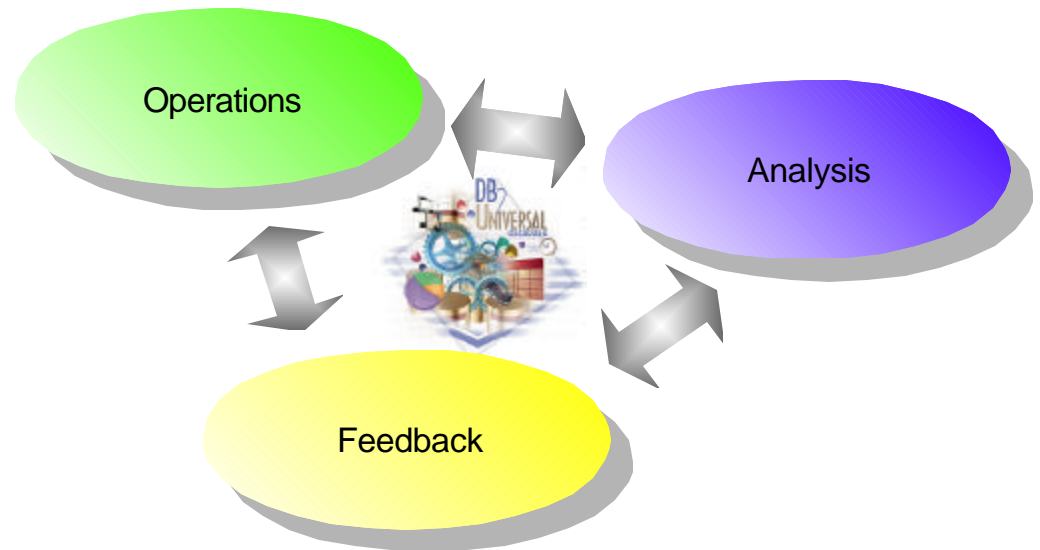  - ►integrated primitives
    - – performance
    - – integrity
    - – manageability
- **Feedback**
  - ►Operational execution
  - ►Active reporting
    - – Pub/sub
- **Database**
  - ►Aggregation management
  - ►Content management
  - ►Knowledge navigation

Inter-enterprise, inter-application

Operations

Analysis

Feedback

# IBM data management solution elements
## *...Leveraging Information*

**Core Applications**
*ISV Partnerships, Webshpere*

**Enterprise Information Integration**
*IBM Enterprise Information Portal*

**Content Management**
*EDMSuite Digital Library*

**Warehouse Management**
*Visual Warehouse*

**Analysis**
*DB2 OLAP Intelligent Miner*

**Database Manager**
*DB2 Universal Database IMS*

**Enterprise management**
*DB2 UDB Control Center, Tivoli*

# DB2 Universal Database

*Powering the world's e-business solutions*



Data

CRM

Rich Content

SCM

DB2 Universal Database

Meta Data

ERP

Knowledge Navigation

Electronic commerce
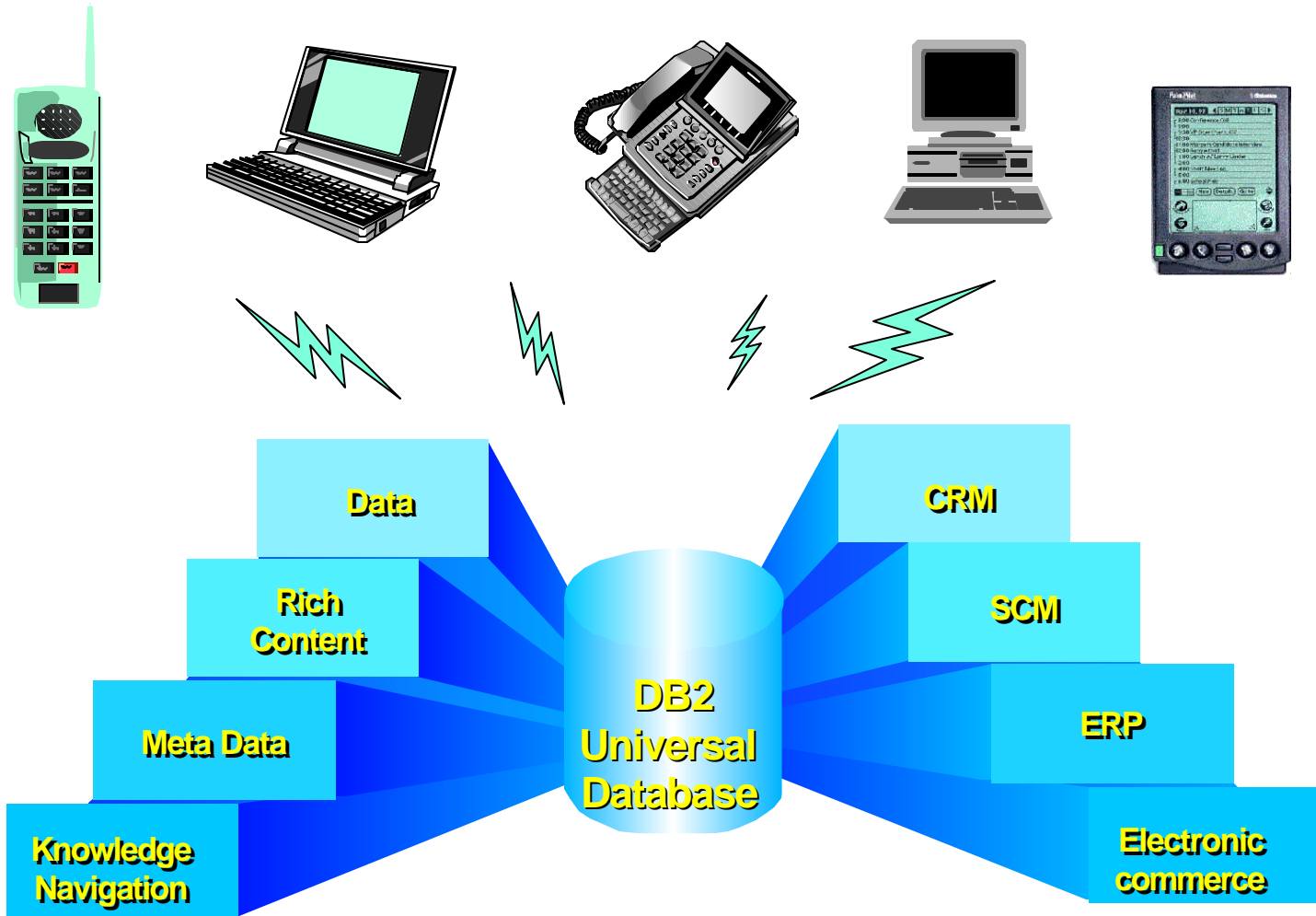
*managing e-business content to leverage information*