

# MB Foster Associates

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## Data Marts for your HP e3000

HP World 2001

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# MB Foster

Provides data access and delivery tools for the HP e3000, HP 9000 and beyond

First to market with several data access tools including an ODBC driver and cross platform capabilities for the HP e3000.

Founded on the belief of integrating new technologies into existing environments



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“Our experience with both the product and with support has been overwhelmingly positive. MB Foster truly forges a strong partnership with its clients. Although we are a relatively small company, MB Foster has made us feel extremely important.”

*Mattie Tenzer, Director, Information Management  
Carilion Health Systems*



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# Where Are we going?

- Providing Data Access & Delivery
  - HPe3000, NT, HP9000
  - Cross Platform
  - Data Marts
- Providing Support
- Providing Technical Services
- Doing R&D for TNBT



# What is Data Access

- Open, secure access to corporate data
- Join together data from different sources
- Enhance your current software investments
- Take advantage of existing technologies



# Benefits of Data Access

- Opens legacy systems to new access methods (client server)
- Rapid development tools shorten system development and implementation cycle
- Reduces Risk of Failure



# Who Needs Data?

Supply-Chain, ERP, Manufacturing

Data Marts

E-Commerce

Web-Enabled Application Data

Customer Service

Decision Support, Business Intelligence

Low-Mid Volume Transactions



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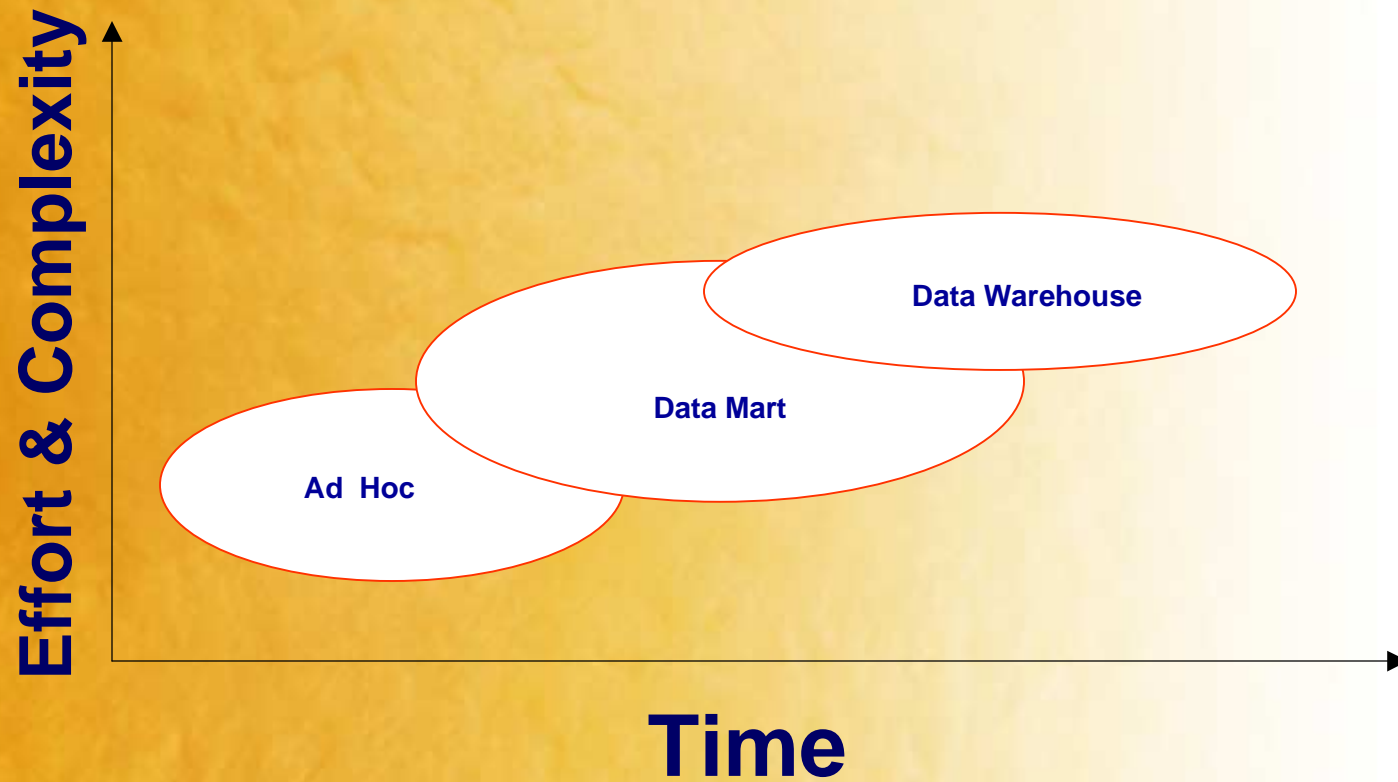
# Technology Trends

- Ad Hoc Reporting
- Client Server
- Web
- Cross Platform
- DataMarts
- MOM





# Implementation



# It is Not the Data

- Need for information to make better decisions
- How?
  - Get trending
  - Get exceptions
  - summarize data
  - Compare



# Agenda

- What is a DataMart?
- Why DataMarts?
- Who needs DataMarts?
- How do you DataMart?
- Implementation
- What's next?



# Definition of DataMarts

- A fishing pond for Data
- By LOB, Dept, Geographic, etc.
- Tight Focus
- Often summarized
- Pre-built for DSS
- Scope - number of years, users & pain
- Must understand rules behind data



# Data Marts

- Small Islands of information
- Require regular update strategy
- Requires design
- May be cross platform
  - Need common data definition
  - Need common synch point
- May need views



# What you might have...

## MANMAN Core Four

- MG - Manufacturing
- OM- OMAR
- AP - Accounts Payable
- GL - General Ledger



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# Manufacturing Management MRP II System

- MPS- Master Production Scheduling
- RRP-Resource Requirement Planning
- MRP-Material Requirement Planning
- CRP-Capacity Requirement Planning



# What you need

- Forecast Sales
- Customer Demographics
- Availability Vs Demand
- Lead time analysis
- Historical Inventory
- Manufacturing Usage





# Why DataMarts?

- Not all data is in right form for DSS
- Typical needs
  - summarized
  - exception reports
  - Specialized Views
- Large volumes require extract in batch



# Cross Platform

- It is a multi-platform world
- Joining between local DB and server
- Joining between DBs on 2 servers
- planning the extracts
  - Ad Hoc
  - Pre-extracted



# Technical Issues?

- Security
- Performance
- End-user navigation
- Data values/edit masks
- Not all data in RDB
- Client software varies
- Server/DB software varies



# Business Drivers

- KPI/CPI Measurement
- Need better decisions
- Special project - data analysis
- Supplemental Reports



# Business ROI

- How does this pay for itself?
- Often the return will not be scoped properly as end-user doesn't know enough about the data
- Risk management
- Understand TCO



# Who needs DataMarts

- Creators/Power Users/ Knowledge Workers
  - Detail
  - Aggregations
- End-Users/Casual Users/ Consumers
  - Summaries
  - Use info from knowledge worker



# DataMart Process

- Extract - must know what is needed
- Transform/Clean - put the data in the right order and make it user usable
- Load - set up a load into files for DSS use



# Step-by-step How to

- Analysis/Design
- Data Extraction
- Transformation
- Cleaning
- Load





# Analysis

- Who
- What
- When
- Where
- Why
- How?



# Analysis

- Spreadsheet for analysis
- Which users need which data
- What are common files - common extract
- Group by date range, geography
- Level of detail required
- OLAP
- Response time required



# Design

- Enterprise Data Mart Architecture
  - Enterprise Subject Areas
  - Common Dimensions
  - Common Metrics
  - Common Business Rules
  - Common Source
  - Common Semantics



# Data Extraction

- When does the extract run?
- What files to read?
- How selected, joined?
- Can one pass satisfy several requests?
- Summarization/aggregates needed?



# Transformation

- What is the target data format
  - Look-up tables
  - Numeric values (whole #'s?, digits)
  - Sub field required (Div-Dept-Expense)
- Any mapping required?
- What kinds of string or math functions?



# Cleaning

- Values that mean the same
- Values that need substitution
- Values of test data
- What are active records Vs dormant?
- Filter for security?



# Load

- What file needs to be output?
- Where will the load be done?
- Could be DataView
- Could be keyed file
- Could be XML file
- Could be using DTS/SQL7



# XML

- HTML -- XML -- SGML
- XML = eXtensible Markup Language
- W3C.ORG
- CSS = Cascading Style Sheet
- XSL = eXtensible Style Language





# XML - continued

- DTDs
  - Well formed
  - Validating
- Schemas
- YASDF



# XML - continued

- XML is version 1.0
- ebXML.org
  - OASIS.org
  - UN/CEFACT
- XML101.com
- Too early, too many standards
- Tag set standards



# BI Tools

- Many will have XML interface
  - Cognos BI Tools
- Used to look for patterns
- OLAP/MOLAP
- Data Cubes



# Implementation

- DX for ETL
- DX/CS for ODBC Access
- Training
  - IT personnel
  - End Users
  - Power Users



# Success Factors

- Define business requirement
- Who is involved?
  - Key End-users
  - Business Analysts
  - Data Modeler
- Define right data for right audiences



# Success Factors

- Explore First
- Project Scope
- Project Plan
- Requirements Gathering
- Building the Internal Skill Set



# 4 Easy steps

- Know the info needed
- Look at common requirements
- Plan extracts
  - pass minimum number of times
- Develop files for reports
  - SD
  - Summarized
  - Keyed



# Complete HPe3000 Solution

- Apache
- Scripting language
- XML
- DataExpress
  - extract
  - summarize





# Building the files

- Self Describing
  - DX
  - Powerhouse Subfiles
  - KSAM -SD
- XML



# Cross Platform

- To get to all the data
- To put data
  - SQL7 and DTS
  - Centralized Consolidation



# Every Company is different

- What are your business drivers?
- What are your KPIs
- How do you measure to manage?
- What are your trends?



# Every Department is Different

- What data for decisions
- What data for planning
- What data for measurement
- What summarization?
- What timeframes?



# Skill Sets required

- Business Analyst
- Data Modeler
- Application Specialist



# Tools Required

- Meta Data
- Data Extraction
- Data Cleansing
- Data Summarization
- Data Builder
- Data Analyzer



# External Access

- Security: What is authentication?
- What data? Query or fixed?
- What format?
- What delivery - web?
  - FTP
  - Browser
  - SD File



# Amisys Example

- HP e3000 Job
  - DataExpress Procedures
  - Extract
  - Clean
  - Transform
- SQL Server Job
  - DTS Packages
  - Load
  - Reset





# Amisys Example

```
!job MEMSPJOB,MBFOSTER.AMISYS,MBFOSTER;outclass=,1
!PURGE MEMSPANA
!DXC PROC=MEMSPANA
N
S
MEMSPANA
MBFOSTER
N
N
!PURGE MEMSPAN
!DXC PROC=MEMSPANB
N
S
MEMSPAN
MBFOSTER
N
N
!PURGE MEMSPANA
!eoj
```



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# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 1 of 10
MENSPAN(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
OUTPUT FILE FORMAT: DataExpress subfile
OUTPUT FILE LAYOUT:
MEMBER# X(12)
ALT-KEY X(12)
FIRSTNAME X(14)
LASTNAME X(14)
SEX X(2)
GROUP# X(6)
PCPFirstName X(14)
PCPLastName X(14)
PCPOfficeName X(24)
CLASS X(2)
GROUP-CAT X(2)
HCFA# X(12)
-----
Member Span - Part A
PAGE-FORWARD/EXIT (F/e)? [ _ ]
```

FORWARD		NUMBER				PRINT	EXIT
A PAGE		OF PAGE					



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
D [Icons] PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 3 of 10
MEMSPANNA(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
SpanStatus X(2)
SELECTED BY:
VOID X(2) : NE 'V'
and MEMBER# X(12) : MEMBER#
and VOID X(2) : NE 'V'
and YHDEFF X(8) : LE YHDEFF
and YHDEND X(8) : GE YHDEFF
COMPUTED FIELDS:
PCP-KEY X(12) = AFF#[1:12]
PCPFirstName X(14) = FIRSTNAME
PCPLastName X(14) = LASTNAME
PCPOfficeName X(24) = NAME
-----
Member Span - Part A
PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ _ ]
FORWARD BACK NUMBER PRINT EXIT
A PAGE A PAGE OF PAGE
```



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
D [Icons] PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 4 of 10
MEMSPANA(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
SpanStatus X(2) = STATUS
FILE ACCESS PATH:
MEMBER-SPAN(Image set of HEALTH.DATA)
MEMBER# X(12) MEMBER#
AFF# X(16) AFF#
BENEFIT-PKG X(2) BENEFIT-PKG
BUSINESS-UNIT X(2) BUSINESS-UNIT
CARRIER X(2) CARRIER
CLASS X(2) CLASS
CONTRACTYPE X(2) CONTRACTYPE
DIVISION# X(10) DIVISION#
GROUP# X(6) GROUP#
-----
Member Span - Part A
PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ ]
FORWARD BACK NUMBER OF PAGE PRINT EXIT
A PAGE A PAGE
```



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 5 of 10
MEMSPAN(A(RAYMOND.PSCTMBF)) created by RAYMOND on 14-JUL-2000
-----
GROUP-CAT X(2) GROUP-CAT
PROG# X(2) PROG#
REASON X(4) REASON
REGION X(2) REGION
VOID X(2) VOID
YMDEFF X(8) YMDEFF
YMDEND X(8) YMDEND
STATUS X(2) STATUS

MEMBER(Image set of HEALTH.DATA), keyed by MEMBER#
ALT-KEY X(12) ALT-KEY
FIRSTNAME X(14) FIRSTNAME
LASTNAME X(14) LASTNAME
SEX X(2) SEX
HCFA# X(12) HCFA#
-----
Member Span - Part A

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ _ ]

FORWARD BACK NUMBER PRINT EXIT
A PAGE A PAGE OF PAGE
```



# Amisys Example

04-JUN-2001 Procedure Review Report page 6 of 10

MEMSPAN(A(RAYMOND.PSCTMBF)) created by RAYMOND on 14-JUL-2000

---

SSN	X(10)	SSN
CONTRACT#	X(10)	CONTRACT#
YMDBIRTH	X(8)	YMDBIRTH
MEMBER#	X(12)	MEMBER#

PROVIDER(Image set of HEALTH.DATA), keyed by PROV#, linked by PCP-KEY

FIRSTNAME	X(14)	FIRSTNAME
LASTNAME	X(14)	LASTNAME
PROV#	X(12)	PROV#

AFFILIATION(Image set of HEALTH.DATA), keyed by AFF#, FORCE select if MISSING

VOID	X(2)	VOID
YMDEFF	X(8)	YMDEFF
YMDEND	X(8)	YMDEND
OFFICE#	X(4)	OFFICE#

---

Member Span - Part A

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ ]

FORWARD	BACK	NUMBER			PRINT	EXIT
A PAGE	A PAGE	OF PAGE				



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 3 of 12
MEMSPANB(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
YMDEND X(8)
DIVISION# X(10)
AFF# X(16)
OFFICE# X(4)
STATUS X(2)
CONTRACTYPE X(2)
REASON X(4)
Rate# X(60)
SpanStatus X(2)
SELECTED BY:
VOID X(2) : NE 'V'
and YMDEFF X(8) : LE YMDEFF
and YMDEND X(8) : GE YMDEFF
-----
Member Span Extract - Part b
PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ _ ]
FORWARD BACK NUMBER PRINT EXIT
A PAGE A PAGE OF PAGE
```



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
PSCTMBF MANSYS MBFIS

04-JUN-2001 Procedure Review Report page 4 of 12
MEMSPANB(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
.....
COMPUTED FIELDS:
  GroupName      X(24) = NAME
  DivisionName   X(24) = NAME
  Rate#          X(60) = PREMKEY + BENEFIT-PKG + ' ' +
                  + GROUP# + ' ' +
                  CONTRACTYPE +
                  ' ' +
                  00000000 +
                  ' '
                  if PREMKEY : '01'
                  else = PREMKEY + BENEFIT-PKG + ' ' +
                          + DIVISION# + ' ' +
                          CONTRACTYPE +
                          ' ' +
                          00000000 +
                          ' '
                  if PREMKEY : '02'
                  else = ' '
.....
Member Span Extract - Part b

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [  ]

FORWARD BACK NUMBER OF PAGE PRINT EXIT
A PAGE A PAGE OF PAGE
```





# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
D [Icons] PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 5 of 12
MEMSPANB(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
CODE-M-KEY X(6) = 'CN' + COUNTY
CountyName X(30) = DESCRIPTION

FILE ACCESS PATH:

MEMSPANB(MPE file)
 1 MEMBER# X(12) MEMBER#
13 ALT-KEY X(12) ALT-KEY
25 FIRSTNAME X(14) FIRSTNAME
39 LASTNAME X(14) LASTNAME
53 SEX X(2) SEX
55 GROUP# X(6) GROUP#
61 PCPFirstName X(14) PCPFirstName
75 PCPLastName X(14) PCPLastName
-----
Member Span Extract - Part b

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ ]

FORWARD BACK NUMBER OF PAGE PRINT EXIT
A PAGE A PAGE
```



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
D [Icons] PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 7 of 12
MEMSPANB(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
209 CONTRACTYPE          X(2)   CONTRACTYPE
211 REASON                X(4)   REASON
215 BENEFIT-PKG          X(2)   BENEFIT-PKG
217 STATUS                X(2)   STATUS
219 SpanStatus           X(2)   SpanStatus

GROUP-M(Image set of HEALTH.DATA), keyed by GROUP#
  NAME                    X(24)  NAME

DIVISION(Image set of HEALTH.DATA), keyed by DIVISION#
  NAME                    X(24)  NAME
  MKTREP                  X(24)  MKTREP
  CONTACT                  X(24)  CONTACT
  DIV-CAT                  X(2)   DIV-CAT

-----
Member Span Extract - Part b

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ _ ]

FORWARD  BACK  NUMBER  [ ]  [ ]  [ ]  PRINT  EXIT
A PAGE  A PAGE  OF PAGE

23.41 | HP70082 - 182.9.3.9 via VT-MGR | Num Caps
```



# Amisys Example

```
arthur.r1w - Reflection for HP
File Edit Connection Setup Macro Window Help
PSCTMBF MANSYS MBFIS
04-JUN-2001 Procedure Review Report page 8 of 12
MEMSPANB(RAYMOND.PSCTMBF) created by RAYMOND on 14-JUL-2000
-----
DIVISION-SPAN(Image set of HEALTH.DATA), keyed by DIVISION#,
FORCE select if MISSING
VOID X(2) VOID
YMDEFF X(8) YMDEFF
YMDEND X(8) YMDEND
TIER X(2) TIER
PREMKEY X(2) PREMKEY

CONTRACT(Image set of HEALTH.DATA), keyed by CONTRACT#
COUNTY X(2) COUNTY

CODE-M(Image set of HEALTH.DATA), keyed by CODE#, linked by CODE-M-KEY
DESCRIPTION X(72) DESCRIPTION
CODE# X(6) CODE#
-----
Member Span Extract - Part b

PAGE-FORWARD/EXIT/PAGE-BACK (F/e/b)? [ _ ]

FORWARD BACK NUMBER PRINT EXIT
A PAGE A PAGE OF PAGE

23.41 HP70082 - 192.9.3.9 via VT-MGR Num Caps
```



# Amisys Example

SQL Server 7 Data Base DSDB Tables

MEMBER\_SPAN

MEMBER\_SPANtrs



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# Amisys Example

**Execute SQL Properties**

General

You can run SQL code on the selected connection. You must select a connection and then provide the SQL code to execute using it.

Description: Delete TRANSACTIONS file

Existing connection: HP3000

Command time out: 0

SQL statement:

```
CALL COMMAND('PURGE MEMSPAN.MBFOSTER(13',  
SHORT CIERR, SHORT CPARM)
```

Parse Query Build Query... Browse...


OK Cancel Help



# Amisys Example

AMISYSDW\_Member-Span Properties - IGLOO

General | Steps | Schedules | Notifications

 Name: AMISYSDW\_Member-Span Source: (local)

Created: 04-Jun-01 12:13:01 PM  Enabled  Target local server

Category: REPL-Snapshot ...  Target multiple servers:

Owner: sa

Description: This job replaces the member span information.

(Local)

Last modified: 04-Jun-01 12:13:01 PM



# Amisys Example

AMISYSDW\_Member-Span Properties - IGLOO

General Steps Schedules Notifications

ID	Step Name	Type	On success	On failure
1	Test for file	Operating Syst...	Goto next step	Quit with failure
2	Copy MEMBER-SPAN	Operating Syst...	Goto next step	Quit with failure
3	Delete file	Operating Syst...	Quit with success	Quit with failure

Move step:   Start step: (1) Test for file



# Amisys Example

AMISYSDW\_Member-Span Properties - IGLOO

General | Steps | Schedules | Notifications

NOTE: The current date/time on target server (Local) is 04-Jun-01 12:15:41 PM

ID	Name	Enabled	Description
5	Weekly Update	Yes	Occurs every 1 week(s) on Sunday, at 2:00:00 AM.

New Schedule... New Alert... Edit... Delete

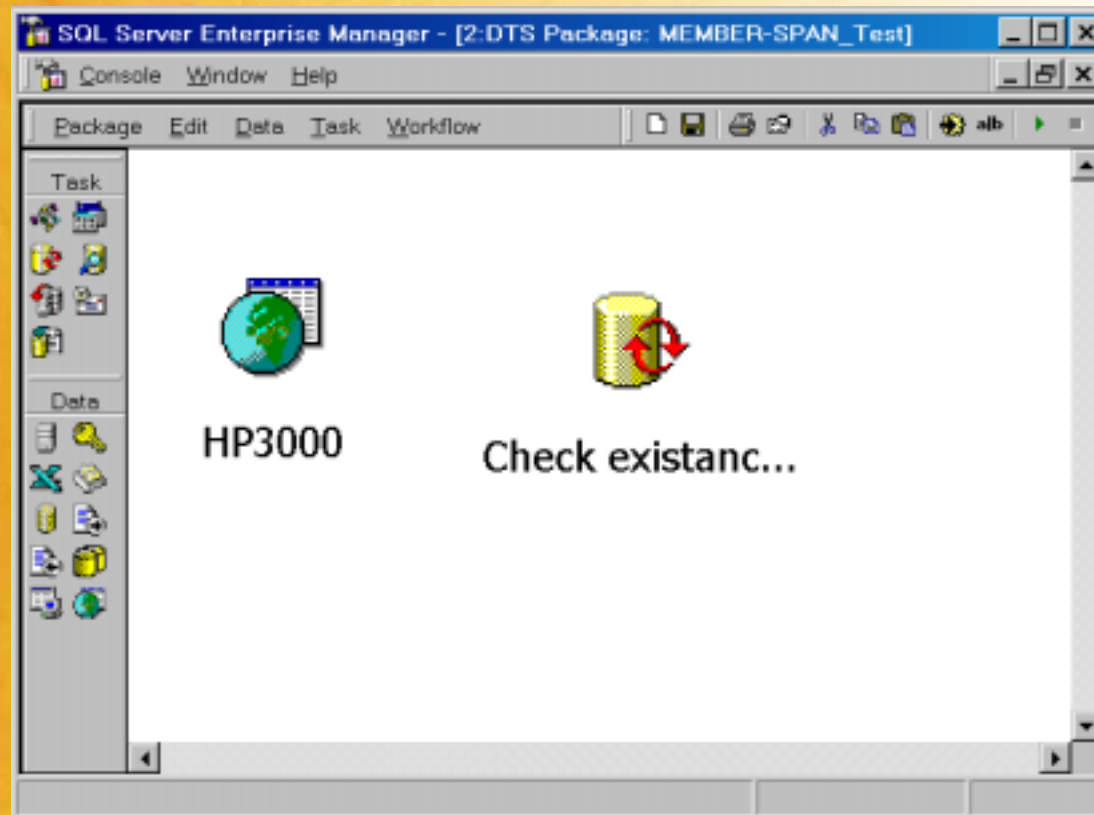
OK Cancel Apply Help



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# Amisys Example



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# Amisys Example

**Execute SQL Properties**

General

You can run SQL code on the selected connection. You must select a connection and then provide the SQL code to execute using it.

Description: Check For File

Existing connection: HP3000

Command time out: 0

SQL statement:

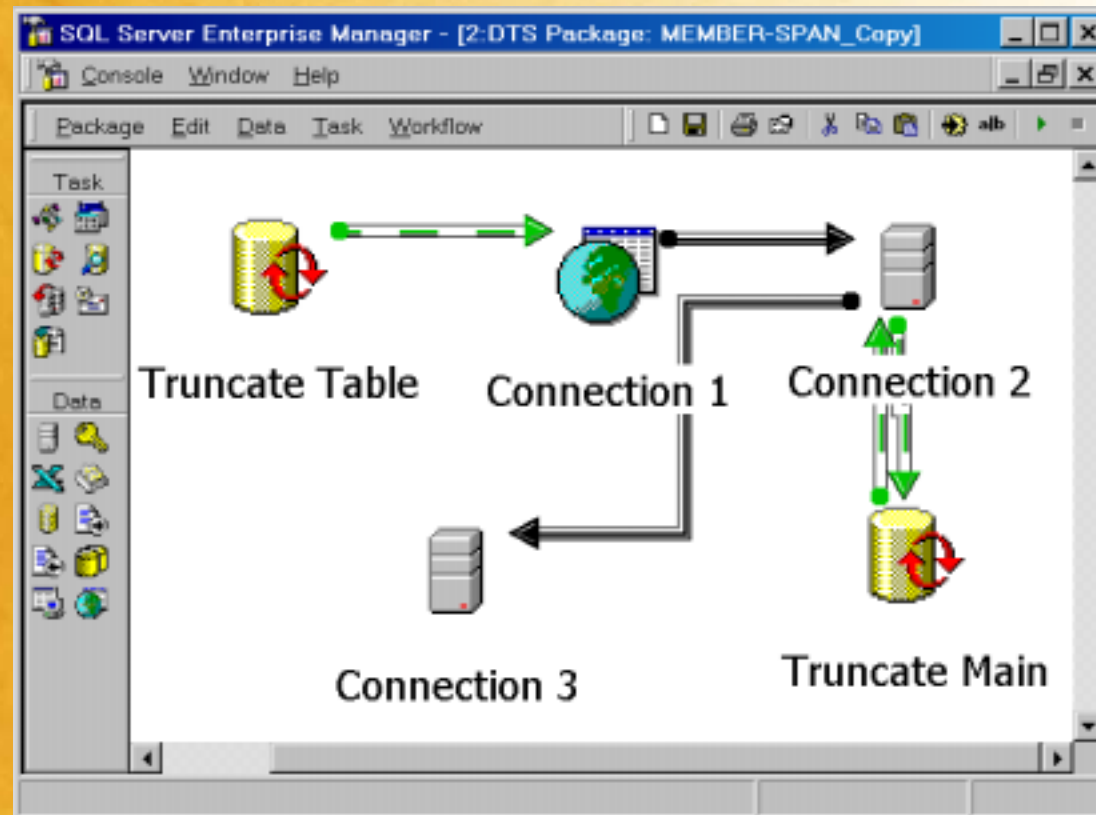
```
SELECT * FROM MEMSPAN
```

Parse Query Build Query... Browse...

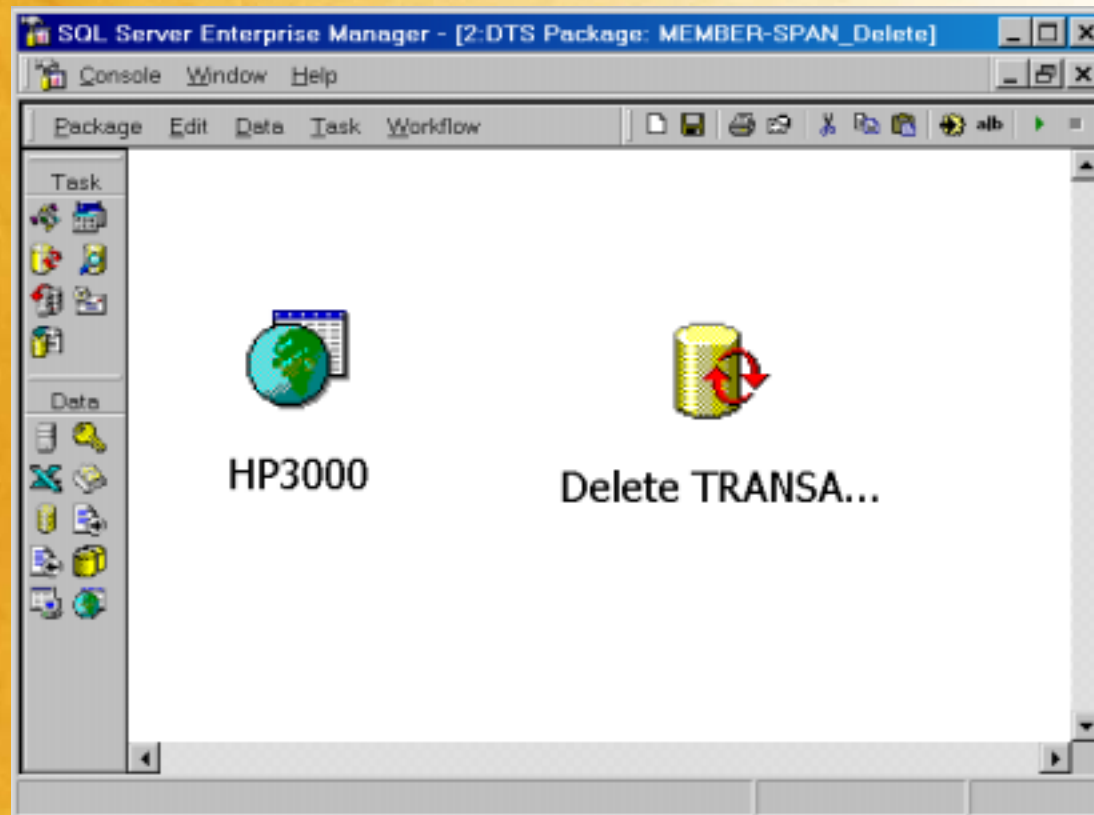
OK Cancel Help



# Amisys Example



# Amisys Example



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# Conclusion

- Data Marts make up for the ease of use for operational data by users
- Some Assembly Required
- It is a team effort
- Must have documented architecture/plan



# Questions

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**On the Web:** *www.mbfoster.com*



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# Bibliography

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- The Corporate Information Factory, W.H. Bill Inmon, Claudia Imhoff, Ryan Sousa
- The Enterprise Data Warehouse Eric Sperley
- Building the Operational Data Store W.H. Bill Inmon



# Bibliography

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- 90 days to the Data Mart, Alan R. Simon





# Bibliography

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