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 7    P   CG CentSchl  Bold   Prop  20   SPECIAL    P   40  CNB28VUA.SFP
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Unit 8   High-End Information Management and Application Development

Purpose

This unit describes information management solutions for your Corporate Business System customer. It also describes the CASE tools your customer needs to develop and maintain applications. It lists basic CASE tool concepts, describes three types of CASE solutions, and lists CASE products supported by the HP Corporate Business System.

Objectives

At the end of this section, you will be able to

- Identify high-end Information Management tools

- Describe what users look for in a high-end database management system

- Describe the role of transaction processing monitors in high-end data management.

- Understand new product capabilities.

- Discuss how CASE tools fit in with HP's open system philosophy and can benefit potential high-end customers

- Know where to go for more information on CASE tools

Unit 8

Introduction

When your Corporate Business System customers look for information management tools, they want standards-based tools that will let them easily develop portable applications. They want the flexibility to select the information management tools which best suit their development needs, and a CASE tool that handles large and complex applications.

They need high-volume on-line transaction processing (a transaction processing monitor). They need a database that is robust (functional and reliable), that supports a large number of users (more than 500), and that can store hundreds of Gbytes of data. Users with existing legacy systems want an infrastructure for data interexchange, access to legacy applications and data, and access to data in mainframes.

This unit describes how databases, transaction processing monitors, and CASE tools can benefit the high-end customer.

What are Information Management Tools?

Information management tools are an integral part of any Corporate Business System solution. They enable quick and easy access to information by users and applications.

Information management tools include:

- Database Management Systems (DBMS)
- Transaction Processing Monitors (TPM)
- Languages
- Query and Reporting Tools

This section only discusses DBMS and TPM information management solutions.

For background information on information management tools, refer to the Information Management Solutions units of the SR188: HP 9000 Business Server Solutions *(p/n 5960-1621) and* SR189: HP 3000 Fundamentals *(p/n 5960-1623) workbooks.*

HP Database Solutions

Recognizing the importance of databases to successful Corporate Business System solutions, HP offers its own high-performance databases and has developed close ties with all the leading database vendors. The HP relational database, LBASE/SQL, has been expanded to provide support for large scale databases (greater than 100 Gbytes), fault resilience, and client-server transaction processing. This ensures that customers will have the best database solutions to meet their needs.
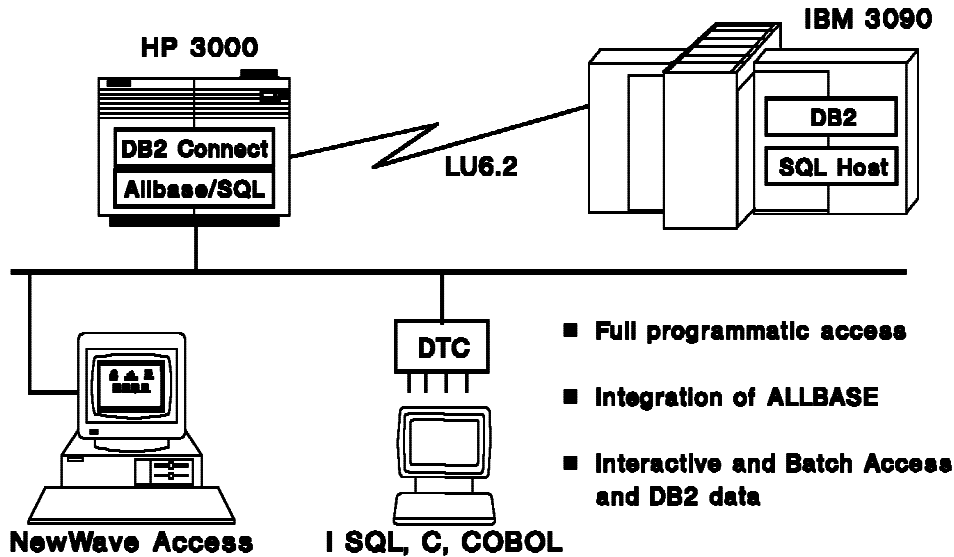
HP has preferred vendor status with all leading database and tools vendors, including: Informix, Oracle, ASK/INGRES, Sybase, IBI (Focus), and Software AG (ADABAS).

HP ALLBASE/SQL   ALLBASE/SQL is HP's relational database solution for mainframe-level performance and large capacity databases with more than 500 users. It includes a database, languages, and connectivity products. It enables client-server application development with PCs, workstations, and terminals as clients.

ALLBASE/DB2 Connect

Transparent Distributed Processing

HP 3000

IBM 3090

DB2 Connect

Allbase/SQL

LU6.2

DB2

SQL Host

DTC

- Full programmatic access

- Integration of ALLBASE

- Interactive and Batch Access and DB2 data

NewWave Access

I SQL, C, COBOL

WBRN01

ALLBASE/SQL now provides full add-on products for high-end customers that support data interchange with IBM DB2 mainframe data, fault-resilient capability, and the ability to do database shadowing for high availability and faster data access on networks. Preprocessed ALLBASE applications (C, COBOL) can now access DB2 data.

ALLBASE/SQL provides access to TurboIMAGE databases, and is integrated with several multi-vendor application development, CASE, and database administration tools. It will support Transarc's Encina transaction processing monitor (X/OPEN XA interface) for high-volume client-server environments.

ALLBASE/SQL has achieved mainframe-class high levels of performance on HP 3000 and HP 9000 systems, with speeds measured in hundreds of transactions per second. It is the fastest relational database on HP platforms and now supports row-level locking for high concurrency of applications.

NEW

Integration with TurboSTORE-II and OMNIBACK (system backup products) allows customers to use optical disk libraries for unattended "operatorless" backup of ALLBASE/SQL databases, supporting 57 Gbytes and 94 Gbytes of unattended backup at a time.

NEW

ALLBASE/SQL provides fault-resilience and database shadowing capability by allowing multiple copies of the database to be maintained at multiple sites. This promotes fast access on the network, 24-hour availability on the primary system, instantaneous remote updates, and automatic recovery after failures.
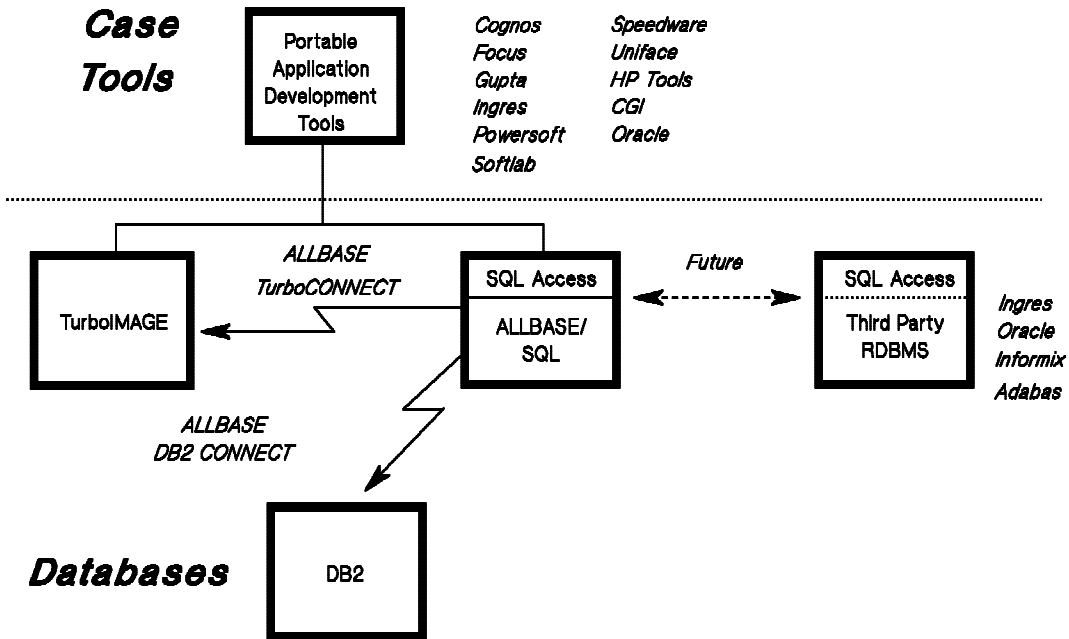
NEW

ALLBASE/SQL provides the ability to execute stored procedures, triggers, and business rules in the database engine. This provides a substantial performance increase for client-server applications using network traffic because it reduces the communication overhead. Customers also benefit by the reduction in application development time.

ALLBASE/SQL supports ANSI standard referential and check constraints in the database engine, to ensure that database integrity is not violated by users and/or applications.

Consultants use the ALLBASE/SQL performance monitor as a command-driven performance tuning tool for tuning database applications for maximum performance.

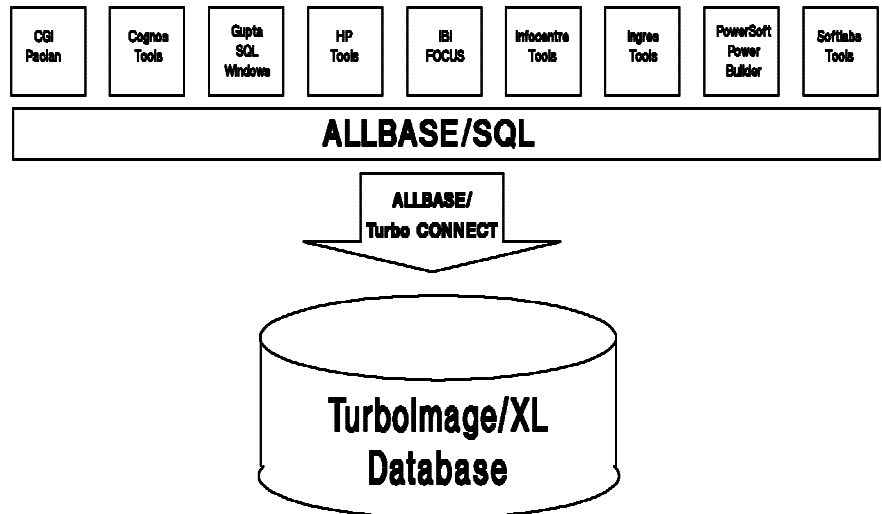# HP Databases: Optimized for HP Systems

Case Tools

Portable Application Development Tools

Cognos   Speedware
Focus   Uniface
Gupta   HP Tools
Ingres   CGI
Powersoft Oracle
Softlab

ALLBASE
TurboCONNECT

TurboIMAGE

SQL Access
ALLBASE/
SQL

Future

SQL Access
Third Party
RDBMS

Ingres
Oracle
Informix
Adabas

ALLBASE
DB2 CONNECT

Databases

DB2

HP TurboIMAGE

HP 3000 installed-base customers love the HP TurboIMAGE database. It is the most widely installed database, offering high volume on-line transaction processing and strong VAR support.

As more users consider relational databases for new applications, TurboIMAGE is viewed by new customers as a stable technology (as opposed to a leading edge technology). New client-server applications and tools will support ALLBASE/SQL and offer indirect access to TurboIMAGE through ALLBASE/Turbo Connect.

The following figure shows the relationship between HP TurboIMAGE and ALLBASE/SQL.

ALLBASE/Turbo CONNECT

CGI Paclan	Cognos Tools	Gupta SQL Windows	HP Tools	IBI FOCUS	Infocentre Tools	Ingres Tools	PowerSoft Power Builder	Softlabs Tools

ALLBASE/SQL

ALLBASE/ Turbo CONNECT

TurboImage/XL Database

■ **Ad hoc query of Turbol...**

Oracle

Oracle has identified HP as the leading candidate to offer an open-systems based alternative to the IBM mainframe. Oracle has a proven track record when it comes to large-scale systems for high-end users. HP has been Oracle's sales leader over the past five years. Partnering with an Oracle sales rep can be an effective way of identifying Corporate Business System opportunities.

NEW

Oracle's next version, Version 7, will be available for the HP 9000 in the third quarter, and for the HP 3000 in the fourth quarter of 1992. Version 7 will have several enhancements that will be especially useful at the high end. With the new multithreaded server, many hundreds of users can be supported with only a handful of shared server processes. The decrease in the number of required operating system processes will reduce the overhead and increase the total number of users that can be supported. Added security features will make security management easier for system administrators. Multiplexed log files will provide additional high availability by writing to log files on multiple disk devices in parallel. This will provide redundant log files that will protect against media failures.

For more information on Oracle, contact Bill Pate, (415) 882-6896.

ADABAS
(Software AG)

ADABAS was originally developed for mainframes, and thus has true mainframe capacity. In addition, because ADABAS runs on several platforms, it provides direct data exchange capabilities between HP and other systems. It has demonstrated support for thousands of users and has a large installed base. It offers a good mainframe downsizing opportunity. The HP 9000/S800 is the base port for ADABAS. Many VAX 9000s run ADABAS. This is a good offloading opportunity.

For more information on ADABAS, contact Bob Lyle, (703) 204-2475.

Information Access in the Data Center

Solution	Runs on Mainframes (MVS)	Gateway to
ALLBASE/SQL	No	DB2
Ask/INGRES	No	DB2, Rdb
Cognos	No	DB2
IBI	Yes	DB2, IMS
Informix	No	DB2*
Oracle	Yes	DB2
Software AG	Yes	DB2
Sybase	No	DB2*
TurboIMAGE	No	DB2

* Not available for HP systems

Query and Reporting Tools

Many 4GLs include query and reporting tools for ad hoc access to a database.

NewWave Access by HP

NewWave Access software integrates PC, minicomputer or mainframe data into desktop applications. Integrated with the NewWave Environment, it provides access to various databases, such as ALLBASE/SQL, TurboIMAGE, Oracle, DB2, dBASE and R:Base. This tool is primarily for decision-support environments in which users require rapid access to database information.

ALLBASE/ Business Report Writer

ALLBASE/BRW is HP's high-performance report writing system for information management professionals. ALLBASE/BRW's ease of use significantly reduces the time required for report development and lets users tune their report specifications for optimum performance.

The Competition for HP Database Solutions

IBM

For the high-end market, customers tend to favor the security and robustness of a database that comes from the same vendor as the hardware. IBM sells DB2 at the high-end and HP sells ALLBASE/SQL.

The HP ALLBASE/SQL runs across HP 3000 and HP 9000. ALLBASE/SQL requires much less database administration resources and tools than IBM's DB2, but has comparable performance and a lower cost of ownership.

NEW

Many popular DB2 applications are now ported to the HP platform on various databases thus satisfying the need for a specific application. An example is PeopleSoft, a human resources client-server application that now runs ALLBASE/SQL and HP 3000. PeopleSoft has recently outperformed DB2 on IBM in benchmark tests (see Unit 3).

DEC

DEC sells its own relational database as well as third-party databases.

ALLBASE/SQL has a competitive edge in PC client-server development since it supports leading edge PC client-server tools, like Powersoft PowerBuilder and Gupta SQL Windows, which DEC's Rdb does not.

HP Transaction Processing Monitor Solutions

Transaction processing monitors (TPM) are a technology that provides increased data integrity within a distributed environment.

A TPM handles many of the same tasks that an operating system does, such as scheduling resources and managing user requests. In networked environments, the TPM can also direct database transaction requests to an idle processor, thus enhancing the capacity of an application.

Transaction Logs & 2-Phase Commit

A TPM has the ability to coordinate transactions in a distributed computing environment. There are two ways of coordinating transactions: transaction logging and a protocol called two-phase commit.

Transaction Logging

A transaction log stores the status of a transaction's progress and the state of the systems involved. The purpose of the log is to help enable recovery after system failures.

Most TPMs include a log that stores the history of a system's operation. This log can be used to reconstruct a system after a failure. When a transaction fails, the TPM can detect the system failures and notify the application of its origin. Then the application can either abort or retry the transaction. A TPM usually includes software development tools to help develop these applications, as well as an administrative support environment to help users install, configure, monitor, and manage these systems.

Two-Phase Commit Protocol

The two-phase commit protocol allows a TPM to tell all involved systems to prepare to commit their transaction parts. When a failure occurs, the TPM will send a global commit instruction only after: 1) telling all the systems to prepare to commit their transaction parts, and 2) receiving an affirmative response from all of the systems to this request. If the TPM does not receive an affirmative response, it will send an abort message to all participating sites, thereby insuring data integrity in a distributed manner.

TPM Solutions

HP's transaction processing monitor strategy is to support Transarc's Encina, which will be available on HP's Corporate Business Systems in 1993.

Encina by Transarc

Encina's transaction processing strategy is to provide a set of standards-based distributed services for simplifying the construction of reliable, distributed systems and to provide the integrity guarantees required for mission-critical enterprise computing. Encina's strategy expands on the DCE framework to include services that support distributed transaction processing with full data integrity, security, and recoverability.

Tuxedo/T by ITI

Currently, Tuxedo/T transaction processing monitor is available through ITI for the HP 9000 Corporate Business Server.

Transaction Manager MPE/iX

The transaction manager transparently guarantees data integrity in a single system environment (an environment that is not distributed).

CASE Tools for the Data Center

CASE tools (Computer-Aided Software Engineering tools) can be used to introduce HP systems into the data center for offloading applications development, re-engineering applications for the client-server, and developing new client-server applications.

HP's Commitment to Open Systems

Many CASE tools on the HP systems support standards (such as graphical user interfaces (GUIs), databases, and networking) and the development of portable code. Also, various CASE tools support application development for heterogeneous environments. Customers that have invested large amounts of money and time in an older system will appreciate familiar tools that will let them exchange data between HP, DEC, IBM, and other systems, with tools such as IBI Focus, Gupta SQL Windows, Texas Instruments's IEF, Softlab Maestro, and CGI's PacLan. Customers can use tools to offload applications and data from a legacy mainframe to a state-of-the art, more portable system.

For background information on CASE management tools, refer to the CASE units of the SR188: HP 9000 Business Server Solutions *(p/n 5960-1621) and* SR189: HP 3000 Fundamentals *(p/n 5960-1623) workbooks, or request CASEWP from the GSY Hotline.*

HP CASE Tool Solutions

HP systems provide a strong platform for open client-server computing by offering industry-leading client-server and CASE tools that allow customers to build high-performance portable applications.

The HP Corporate Business System is well positioned to help customers move their legacy applications and data from mainframe systems to HP systems, by providing enabling technologies and tools for migration.

Open Client-Server CASE Tools

This section lists the 4GL open client-server CASE tools that are currently available for the Corporate Business System. All of the tools listed in this table support ALLBASE/SQL user interfaces and networks. TurboIMAGE support is available on all these tools, either directly or through ALLBASE TurboCONNECT. KSAM support is available only for Cognos PowerHouse.

Full GUI Client-Server Development Tools

These tools are intended for new client-server applications where there is no need to support ASCII terminals. Gupta SQL Windows, PowerBuilder, and Uniface are recommended for high-performance, on-line transaction (OLTP) environments.

SQL Windows by Gupta Technologies

SQL Windows is suitable for state-of-the-art GUI-based, client-server application development. It is very popular in the IBM world and has strong market visibility and has strong market visibility and international distribution. It integrates with the following database servers: ALLBASE/SQL, TurboIMAGE, DB2, SQL/400, Oracle, OS/2 EE DM, SQLBase Informix, and SQL Server. SQL Windows supports DOS and OS/2 clients.

PowerBuilder by Powersoft Corporation

PowerBuilder is suitable for rapid prototyping, state-of-the-art GUI and client-server application development. It can graphically generate SQL statements. PowerBuilder includes a code debugger. It integrates data in ALLBASE/SQL, TurboIMAGE, IMS, Sybase, Oracle, SQL Server, and SQLBase. It also supports DOS clients.

Uniface Toolset by Uniface

Uniface accesses more than 20 different databases and supports terminals, PCs, and workstations as clients. It is ideal for 4GL client-server developers working in heterogeneous databases and operating system environments. Uniface uniquely qualifies as an open systems application development environment by allowing developers to build applications that are both hardware and database-independent.

Uniface has more market visibility in Europe than United States.

Full GUI Tools

Tool	User Interfaces	Networks	DBMS Access
Gupta SQL Windows	MS Windows 3.0, Presentation Manager	NetWare, TCP/IP	ALLBASE/SQL, TurboIMAGE, DB2, Oracle, SQL/400,etc.
Powersoft PowerBuilder	MS Windows 3.0	NetWare, TCP/IP	ALLBASE/SQL, TurboIMAGE, DB2, Oracle, etc.
INGRES Windows 4GL	Motif	TCP/IP	ALLBASE/SQL, TurboIMAGE, DB2, Rdb
Uniface	MS Windows 3.0 Terminals	TCP/IP LAN Mgr.	ALLBASE/SQL, TurboIMAGE, plus > 20 others

Partial GUI Tools

Tool	User Interfaces	Networks	DBMS Access
Cognos	MS Windows 3.0	Serial,	ALLBASE/SQL
Powerhouse	Terminal	TCP/IP	TurboIMAGE, Rdb, SQL/400

Tools without GUI Support

Some 4GLs and screen painters do not support GUIs. These tools are used for terminal-style user interfaces.

Focus by IBI

Focus is widely installed and well-known in the IBM market. It is used to allow migration from mainframe applications to HP systems. It offers strong reporting capabilities and direct access to all third-party relational databases, as well as to ALLBASE/SQL and TurboIMAGE databases.

Speedware

Speedware tools are primarily for host-terminal 4GL application developers. Speedware is a strong partner with HP and is widely installed on HP 3000. It offers direct access to ALLBASE/SQL and TurboIMAGE databases. The tool set includes 4GL and CASE for application development, and ad hoc query and reporting tools. It is a very high-performing, terminal style 4GL tool.

ALLBASE/4GL

ALLBASE/4GL is specifically tuned for peak performance with ALLBASE/SQL and the HP 3000. It offers all the benefits of a single-vendor solution.

Screen Painters

Tool	User Interfaces	Networks	DBMS Access
IBI Focus	Terminal	Non-LAN Host Connect	DB2, ALLBASE, TurboIMAGE, Sybase, etc.
Speedware	Terminal	Non-LAN Host Connect TCP/IP	ALLBASE, TurboIMAGE
ALLBASE/ 4GL	Terminal	Non-LAN Host Connect TCP/IP	ALLBASE, TurboIMAGE

Frontware Tools

This type of tool is used to add a GUI to an existing application.

VPLUS Windows by HP

For HP 3000

This product is primarily for developers working with existing VPLUS applications. (VPLUS is an interactive management system used to process forms and to edit data entry screens.) VPLUS Windows is PC-based and uses the Microsoft Windows user interface.

Terminal users continue to see the current VPLUS forms interface, but PC users will have an MS Windows user interface for the same application.

Frontware

Tool	User Interfaces	Networks	DBMS Access
VPLUS Windows	MS Windows 3.0, Terminal	LAN Mgr. Serial	ALLBASE/SQL, TurboIMAGE

User-Interface Management System Tools

These tools are used for database independent GUI development.

Interface Architect For HP 9000
by HP

The Interface Architect tool creates and texts
MOTIF/X-Window user interfaces for applications.

User Interface Management Tools

Tool	User Interfaces	Network	DBMS Access
HP Interface Architect	MS Windows 3.0, Motif	LAN	ALLBASE/SQL, Can hook into any database or file system via 3GL

Integrated Case Tools

Integrated CASE (I-CASE) tools automate the entire
lifecycle of software development. Whereas client-
server tools address application construction, I-CASE
tools are used for analysis, design, testing, re-
engineering, as well as construction. I-CASE tools are
the tools of choice of application developers working on
large, complex projects.

I-CASE has its heritage in the mainframe data center
environment. Most of the tools listed in this section are
mainframe tools that have been updated to work with
HP's systems. They provide an excellent way to
introduce HP systems into the data center.

The Corporate Business System supports a variety of I-
CASE solutions.

* FOUNDATION for Cooperative Processing
* Maestro II
* IEF
* Paclan/X
* PowerCASE

FOUNDATION for Cooperative Processing by Andersen Consulting

Andersen Consulting has announced that the HP 9000 will be one of the two main platforms for its next generation FOUNDATION product. The FOUNDATION for Cooperative Processing will be able to develop and generate complete client-server applications. Andersen is the first major CASE vendor to introduce a full lifecycle product that is client-server oriented.

For more information on the FOUNDATION for Cooperative Processing, watch *Computer News*.

Maestro II by Softlab

This integrated CASE tool from Germany operates in a client-server environment of PCs and workstations on a LAN connected to an HP 3000 or HP 9000. It is ideal for very large projects with large programming staffs working in COBOL. It is customizable and can support any standard or custom development methodologies, including SSADM, MERISE, SETEC, and LSDM.

Maestro II is rich in project management and configuration management functionality and supports application development for many target platforms, including HP 3000, HP 9000 and MVS. It can do cross development (HP-UX to MVS, VMS, etc.), and supports reverse engineering.

For more information on Maestro II, contact Diane Delsignore at (415) 460-1612.

IEF by Texas Instruments

For HP 9000

IEF is the most popular I-CASE tool in the United States. IEF was rated number one by *Computer World* for its integration, product features, and benefits delivery. IEF has a large installed base running exclusively on IBM mainframes. As with other I-CASE products, IEF offers an excellent downsizing opportunity. IEF can target the HP 9000, and IEF front-end tools can run on HP 9000 workstations. IEF supports the Information Engineering methodology.

For more information on IEF, contact Donna Crowell at (214) 830-8725.

Paclan/X by CGI
Informatique

Paclan/X is made by CGI Informatique, the largest I-CASE vendor. Paclan/X operates in a client-server environment of PCs and workstations on a LAN. It is primarily for medium to large 3GL developers working in COBOL. It also hooks into IEW/Knowledgeware. It can be used to target over 30 platforms, including HP-UX (Series 800), MPE-XL, and MVS. It supports a variety of development methodologies, including SSADM and MERISE.

For more information on Paclan/X, contact Ted Luchsinger.

PowerCASE by
Cognos

This toolset operates in a host-terminal environment. PowerCase is an I-CASE toolset from Cognos Corporation for small to medium PowerHouse 4GL developers. It offers direct access to HP databases and files, and is compatible with DEC and IBM systems.

PowerCASE is the most widely used database development product for applications to be used in ALLBASE/SQL and TurboIMAGE databases.

For more information on PowerCASE, contact the appropriate sales and marketing center.

Integrated CASE Tools

Tool	Devel. Platform	Target Platform	Supported Technologies
Andersen Foundation for Cooperative Processing	HP 9000	HP 9000	In development
CGI Paclan/X	HP 9000	HP 9000, HP 3000, MF, etc.	COBOL, ALLBASE/SQL, TurboIMAGE, Oracle, VPlus, DB2
Softlab Maestro II	HP 9000	HP 9000 HP 3000, MF, etc.	COBOL, ALLBASE, Oracle, DB2, VPLUS
TI IEF	HP 9000	HP 9000 HP 3000 Mainframe	Oracle, C DB2, COBOL, Rdb, DBM
Cognos PowerCase	HP 9000 HP 3000	HP 9000 HP 3000	Powerhouse 4GL, ALLBASE, TurboIMAGE

HP's Vision for the Future

HP is committed to offering customers open systems that will grow as customer needs grow. HP will continue to offer both industry-leaders and state-of-the-art tools to our customers. The integration and robustness of tools with HP databases will increase.

We will work with vendors to include more tools that support the client-server environment, as well as provide coexistence for HP and mainframe systems.

The coexistence of ALLBASE/SQL and existing data in TurboIMAGE will be enhanced by providing full (read/write) access to TurboIMAGE.

HP will provide connectivity of ALLBASE/SQL with heterogeneous databases running on different vendors' hardware and provide integration with Macintosh tools and applications. This connectivity will be based on the SQL Access standard.

HP will provide advanced levels of distributed transaction management through the ALLBASE/STAR distributed product. These include two-phase commits to preserve data integrity during distributed updates.

HP will continue to develop closer relationships with leading database vendors, as well as offer premiere performance suitable for mainframe environments.

Summary

HP's information management strategy for the Corporate Business System is to offer customers solutions for developing portable applications and flexibility in selecting a database product.

HP has preferred vendor status with all leading database vendors: Informix, Oracle, ASK/Ingres, and Sybase. HP also offers its own ALLBASE/SQL product for high performance applications.

When discussing database management solutions with a customer, you should be able to describe the differences between hierarchical, network, relational, and object-oriented databases. When discussing

transaction processing monitors, you should be able to discuss how they can enable recovery after system failures. You should also be familiar with what you have today to address this issue.

CASE tools make it easier and faster to get applications up and running. They also greatly reduce the cost of maintaining an application.

Integrated CASE tools offer value to data center customers and opportunities for HP sales representatives.

Unit 8 - High-End Information Management and Application Development