Macintosh: Cross-Platform Client/Server Solutions (1 of 2) 8/95

Article Created: 21 August 1995

TOPIC ---

This article contains the Apple World-Wide Market Development Position Paper titled "Cross-Platform Development Tools and Client/Server Solutions Update for Apple Computer's Macintosh." This is part 1 of 2, of version 2.51 of the document.

DISCUSSION ---

Purpose of this Position Paper

This is a working document and it is designed to:

- update Apple Computer's technical field and corporate personnel on the Market Development team's continuing efforts to evangelize important Macintosh-based development tools,

- provide summary information about some of the most frequently asked for tools and solutions, and

- wrap this information in an easily deliverable context; i.e., provide compelling marketing information that helps our customers understand the importance we place on application development technologies.

Because this document provides a summary and assumes a technical audience, no background information is included in each specific section. Rather, the goal of this paper is to update an individual's selected knowledge of a particular technology, tool, or solution. To that end, delivery dates, contact names, and pointers to additional information are provided.

Lastly, this paper does not describe Apple's development tools strategy; rather, its main purpose is to provide information about Apple's actions (successes and pursuits) with regard to development tools. AppleSoft's core tools group has completed the necessary business planning and discussion in crafting its "Tools Strategy". For more information on the overall tools strategy, contact AppleSoft Developer Tools Product Marketing.

For additional background and information about related client/server and application development tools and topics, consult the following documents:

"Guide to Macintosh Development Tools" Apple Computer, Inc. 1995

Available from:
Apple's World Wide Web Server at: http://www.info.apple.com/dev
AppleLink: Path -> Developer Support:Developer Services

"Strategy Mosaic: The Future of Development Tools Apple's New Strategy"
---
by Gregg Williams, Apple Directions Staff Apple Computer, Inc. Aug. 1994

Available from:
Apple Directions from APDA (Contact APDA at 1-800-282-2732)
AppleLink: Developer Support icon
Developer CD Series (September '94)

"The Macintosh Client/Server Database Development Summary" by Liam Breck
---

Available from:
World Wide Web at:
http://www.astro.nwu.edu/lentz/mac/software/csdb-summary.html
email request to: maccsdb@external.umass.edu

Acknowledgements
==========

Apple WW (World-Wide) Market Development gratefully acknowledges the input and information provided by many areas of Apple, including AppleSoft, Apple Business Systems, and Personal Interactive Electronics in the crafting of this document. Additionally, all of the software providers listed here have delivered product information and input to help position products correctly. Any comments or suggestions regarding this document should be sent to Brian Gentile (AppleLink = GENTILE).

Apple® is absolutely committed to both building its own cross-platform development tools as well as encouraging and supporting third-parties that endeavor to create (Macintosh-based) cross-platform tools. This commitment is supported by five major actions within Apple's product (AppleSoft & Apple Business Systems) and marketing divisions (Apple USA Market Development). These five actions are each discussed separately.

1) A commitment to industry standard APIs & technologies
==========

ODBC v2.1

Apple supports the ODBC client access API as part of its system software offering. Apple has built the Macintosh ODBC client component (driver-manager) in cooperation with Microsoft and Visigenic. The result of this arrangement is direct Macintosh application access of SQL-based data using the ODBC API. ODBC 2.0 was created for Apple Computer by Visigenic Software, Inc. and features full

ODBC 2.1 compatibility, native Power Macintosh performance, and other features such as a cursor library for easier application programming. Any application which utilizes ODBC access may include Apple's driver manager to enable a connectivity solution. The complete ODBC SDK is available via Apple's World Wide Web Server (at apple.com) and on Apple's Mac OS SDK. Re-distribution of the ODBC driver manager is royalty-free. Alternatively, Intersolv provides an ODBC solution for the Macintosh (as well as Windows, OS/2, Unix, and Win NT) that delivers a common cross-platform implementation of this data access API.

DAL

Apple's DAL technology has been licensed to Independence Technologies, Inc. ITI has capably updated, maintained, and improved both the DAL client software as well as many DAL servers. Further, ITI has moved this middleware API to the Windows world - with full support for a Windows client. With a large number of back-end host environments supported, DAL has the strength to serve enterprise customers. ITI is shipping ODBC support for the Mac / DAL client (with its DAL v1.5 product). For more information on DAL products, contact Marsha Doyen at 510-438-8701 (AppleLink: Doyen7).

MAPI and Microsoft Information Exchange

Apple will support Microsoft's Messaging API through its PowerTalk client and PowerShare server software for Macintosh. Further, an agreement with Microsoft will provide Macintosh messaging and directory service support for Microsoft's Information Exchange. The resulting solution will provide PowerTalk (mail) access to Microsoft mail directories and clients as well as mail-enabled (MAPI) Macintosh applications. MAPI and MIE support for PowerTalk/ PowerShare will be available shortly after Microsoft releases its Information Exchange product.

OLE 2.0 & OpenDoc

Apple's support of the cross-platform component software model, called OpenDoc, enables complete interoperability with Microsoft's OLE 2.0. As part of its commitment to Component Integration Laboratories (the owners of OpenDoc), Apple will deliver OpenDoc functionality for the Macintosh, while WordPerfect will provide OpenDoc for Windows and IBM will deliver OpenDoc for OS/2 and A/IX. Also, major Unix vendors are interested in providing OpenDoc support for their respective environments. Such broad cross-platform support will provide an open standard while delivering a functional superset of OLE 2.0 on the Macintosh.

Further, OpenDoc will enable a new breed of cross-platform software, called components or parts. OpenDoc parts that are created on a Macintosh can be used on a Windows, OS/2 or Unix platform (and vice versa). Also, OpenDoc parts can be shared and mixed with OLE parts. This fundamental layer of cross-platform code is vital to Apple's on-going enterprise strategy.

   Status: Apple, WordPerfect, and IBM have each shipped several early
            SDKs (to developers) for their respective environments
            (Macintosh, Windows, and OS/2).

IBM's CICS

Apple's alliance with IBM has yielded many products during the last several years. IBM's Transaction Systems group is currently shipping Mac CICS - a client API set for Macintosh that enables Mac application support of host-based CICS applications. Using this API, CICS access will be delivered from within an application or solution. CICS is currently being "repositioned" by IBM as significant technology for developing and deploying truly distributed computing applications. The Mac version of CICS support will propel the Macintosh further into mission-critical client/server applications in the enterprise.

OSF's DCE (Distributed Computing Environment)

Apple is committed to ensuring availability of DCE functionality on the Macintosh platform. By adhering to this (emerging) industry standard API set, Apple expects increased consideration in many markets, especially those that emphasize open systems standards. Apple is currently establishing the necessary partnerships (with appropriate third-party developers) to provide a complete and native DCE Macintosh client offering. Through such relationships, the Macintosh can act as a robust platform for collaborative computing in needing enterprises.

Novell's Tuxedo

A prevalent transaction handler for Unix-based applications, Novells Tuxedo API is currently shipping for Macintosh. Application developers, then, may access this transaction processing facility from within a Macintosh-based application. For more information on Novell's Tuxedo, contact Novell at 1-800-277-2717.

2) Active Evangelism of Third-Party, Cross-Platform Tools Suppliers

Apple has been and continues to be very successful in its evangelism of industry-leading, cross-platform application development tools providers. Many strong tools are either shipping or about to ship in every major category. Many representative (i.e., most frequently asked for) tools are listed below, although this is not an exhaustive list in each category.

Legend:

Status Term	Meaning
In Development	The ISV has committed to Mac version; code is being actively ported and / or developed. Average development timeframe = 15 - 18 mos.
Negotiation	Both Apple and the ISV have agreed that a Macintosh version is of some priority; the two entities are currently discussing funding, resources, project timelines, market implications, and so on.
Investigation	Both Apple and the ISV have agreed to discuss the development of a Mac version; however, insufficient progress has been made to form a commitment to

development, timeline, and so on.

Note:
Any references to ship date are expressed in Apple fiscal quarters.

Overview

This section lists, by category, many cross-platform application development tools that are hosted on Apple Computer's Macintosh. All tools support at least the 32-bit Macintosh API and the Windows API (some only support Win16 today - but they are migrating to Win32). Many tools also provide support for OS/2 and some provide support for various Unix environments (such as Motif) and (where appropriate) mainstream character cell terminal sessions. In order to determine the details of which client platforms are supported by a specific tool, we recommend contacting the appropriate vendors directly.

The languages supported varies by category; therefore, we've taken the time to define and overview each category to provide a context and technical orientation for the reader. For example, most workgroup-level client/server tools are interpreted (or p-code-based) 4GLs; therefore, they do not support C or C++ natively. Rather, they may support 3GL extension mechanisms (such as dynamic libraries), but do not reduce to a compiled language (3GL) environment.

Also, the DBMS support (or RDBMS) varies by category and tool. Each tool supports at least one native RPC-based SQL access mechanism (Oracle's SQL*Net and Sybase OpenClient in particular) and ODBC. Many tools offer a fairly broad array of connection mechanisms - from standard SQL tools to transaction-based middleware (e.g., Novell's Tuxedo) and DCE-like RPCs. Because the primary focus of this tools listing is client/server data access, Oracle and Sybase DBMS (at least) and ODBC support is presumed.

Lastly, this is not an exhaustive list of available Mac-based tools; instead, it is representative of the types of industry-leading tools in each category. The goal of this document is to suggest that the Macintosh supports (essentially) all leading tools by leading tools vendors. In fact, the best of breed tools offer cross-platform Macintosh support (or they will in the very near future).

WorkGroup Client/Server

Definition: tools that are highly visually-oriented, 4GL-based, and most capable of creating application logic that resides on the client computer. Workgroup level tools are optimal for creating workgroup (or departmental) applications that access and utilize structured (relational) data using structured query language (SQL). Most commonly, workgroup tools are used in a two-tier design - although this is changing as these tools mature. Many of these tools, for instance Powersoft, Gupta, and Oracle have significant features that nearly place them in the "enterprise c/s" category (next). In the future, the tool leaders from this category will, ultimately, scale their tools up to this new level; consequently, some tools/products are transcending the two categories.

Company Name	Status	Contact / Phone #

Powersoft's PowerBuilder	Shipping Fall '95	508-287-1900
Blyth's Omnis 73	Shipping	Lisa Borreani / 415-286-3541
Uniface Five	Shipping	510-748-6145
Gupta SQL Windows for Mac	In Development	Berman.D / X4-2285
Oracle Forms & Report	Shipping (v 3.X)	800-ORACLE1
ACI 4D Passport *	Shipping	408-252-4444

* ACI will release a Windows version of Passport in mid '95

Enterprise Client/Server or Client/Server "OLTP"

Definition: these tools provide highly scalable, transaction-oriented application development. Further, enterprise-class tools support advanced software engineering concepts such as: object repositories, team building capabilities, version/change management, integrated transaction processing handlers (either built-in or via partnership with middleware providers), model-driven construction, and application (logic) partitioning. Such advanced features result in applications that are (potentially) highly scalable and a development environment that is commercial quality (professional). For constructing true, multi-tier, transaction-based applications, these environments are superior to other categories. Also, many of these tools compile into a standard 3GL (such as C or C++) for final execution, which provides additional refinement and control.

Company Name	Status	Contact / Phone #
Forté Development Environment	Shipping	ed@forte.com/ 510-869-3400
JYACC's JAM6 (68K & PPC)	Shipping	Berman.D/X4-2285
Dynasty *	Shipping	708-355-8300
Neuron Data Inc.'s C/S Elements*	Shipping	800-876-4900
Informix's NewEra	Investigation	800-331-1763
Open Environment Corp Entera	Shipping	800-826-1047
SAS Institute's SAS/AF	Shipping	919-677-8166
Uniface Six (Power Mac native)	Ship Q4 '95	510-748-6145
Oracle Developer/2000 (Forms v4.5)	Ship Q4 '95	Berman.D / X4-2285
Vision by Unify **	Shipping	800-248-6439

Notes:
*Dynasty includes Neuron's tools with its offering

** Unify's product is currently capable of generating Macintosh client

code, but the Power Mac-based development environment will ship during late Summer '95.

Visual Programming & Rapid Application Development*

Definition: these tools could easily be placed in the Workgroup client/server category - but we've separated them into this category because their distinguishing feature is the highly visual metaphor on which they are based. With these tools, the developer almost literally "paints" the application through a visual, forms-based metaphor. Such an elegant tool typically has some high level language at its core. For instance, Oracle Power Objects is based on the BASIC syntax and is (in many ways) compatible with Microsoft's Visual Basic. Each of these tools is likely to support the OpenDoc component software architecture standard by mid calendar 1996.

Company Name	Status	Contact / Phone #
Oracle Power Objects	Ship Q4 '95	Berman.D/X4-2285
Pictorious Peregrine **	Shipping (APDA)	902-455-4446/ 800-927-4847
Novell's AppWare v1.2	Shipping	800-277-2717

Notes:
* Each of thse tool sets provide SQL data access in addition to a robust, visual environment

** Formerly Prograph, Pictorious is targeting its Windows version for mid-1995

Object-Oriented Frameworks - C & C++

Definition: A framework is a set of closely related class libraries and predefined methods for working with the class libraries. These commercial quality C & C++ frameworks are commonly used for commercial application development. Because of their (relative) cross-platform maturity, some (XVT, for instance) have also found favor in the in-house developer and SI/VAR communities. More recently, these tool providers have improved the development environment (visually-oriented now) on top of these abstracted class libraries. Although different in their cross-platform approach, both XVT and Visix have strong followings and impressive capabilities.

Company Name	Status	Contact / Phone #
Visix Galaxy (68K Shipping)	PPC Ship Q4'95	703-758-2707
XVT	Shipping (APDA)	303-443-4223 / 800-678-7988
ICE, Inc. OM++	Shipping	415-931-9400

Object Oriented Frameworks - SmallTalk

Overview: A framework is a set of closely related class libraries and predefined methods for working with the class libraries. The dominant SmallTalk vendors, Digitalk and Parc Place, have recently begun merger (during Summer '95). The result is tremendous consolidation of the tightly controlled SmallTalk marketplace. The cross-platform nature of this dynamic language environment, though, is both proven and mature. Arguably, Parc Place has the most complete Macintosh implementation (of the two major vendors) with Power Mac-native support. However, Quasar Knowledge Systems (QKS) has a very strong framework environment, technically, with its SmallTalk Agents.

Company Name	Status	Contact / Phone #
Digitalk's SmallTalk	Shipping (APDA)	714-513-3000
ParcPlace's VisualWorks (68K & PPC)	Shipping	Curtis Muir / 415-691-6700
QKS - SmallTalk Agents	Shipping	301-530-4853

Integrated CASE tools

Overview: Integrated (sometimes called "Enterprise CASE") CASE tools offer at least some large percentage of the software design engineering life cycle: from business rule development and application modeling to coding and code generation, documentation, version control, and maintenance. These tools offer much of the capability of some earlier described tools (such as workgroup client/server), plus some percentage of the "enterprise CASE life cycle.

Company Name	Status	Contact / Phone #
Texas Instrument's Composer - IEF	Negotiation	Berman.D / X4-2285
Oracle Designer/2000*	In Development	Berman.D / X4-2285
Sybase (DEFT)	Shipping	800-8SYBASE
Computer Sys Advisers' Silverrun	Shipping	202-391-6500
Software AG's Natural Architect	Shipping	703-391-6576
Iconix PowerTools	Shipping	310-458-0092
Excel's MacAnalyst&MacDesigner	Shipping	515-752-5359

Notes:
* Oracle's CASE product will be capable of generating Macintosh client code (i.e., Oracle Forms v4.5 code), although the development environment is not hosted on Macintosh.

CASE "Bridge" Tools

(for TI IEF repository access from other development tools)

Overview: For developers who are interested in Texas Instruments IEF (for Composer) support, Apple recommends these two "bridge" tools. These "bridge" products provide IEF object (code) repository access from within a native Macintosh C/S tool (Powersoft PowerBuilder support from MidCore and Uniface support from Office Information Systems). Obviously, MidCore's tool will be most useful once Powersoft ships PowerBuilder for Macintosh (see the category description of Workgroup level tools for more info on Powersoft and Uniface). The goal of these bridge tools is to make productive use of the objects and class code (generated by the TI's CASE facility) in a Macintosh-based development environment.

Company Name	Status	Contact / Phone #
MidCore Software - PowerBuilder	Ship Q4 '95	Joe Vernale / 203-759-0906
Office Information Systems -Uniface	Shipping	TI @ 800-336-5236

Decision Support Systems/Business Intelligence Tools

Overview: These are commonly referred to as tools for Business Intelligence, Executive Information Systems, On-Line Analytical Processing (OLAP), and so on. These techniques, essentially, describe a "hypercube" process where production data is moved into a data warehouse that is flexible and multi-dimensional (thus the term "hypercube"). The various tools, then, are used to construct managerial decision support applications that view, model, report, and pivot the data in new and interesting ways.

Company Name	Status	Contact / Phone #
Planning Sciences, Inc.'s Gentium	Shipping	415-788-7651
Holistic Systems, Inc.'s Holos	Near shipping	303-790-7939
Andyne's Pablo	Shipping	613-548-4355
SAS Institute's JMP	Shipping	919-677-8166
SAS Institute's "SAS System v6.10"	Shipping	919-677-8166
Cognos PowerPlay	Shipping	613-738-1338

Host Program "Front-Ending" (with client/server capability)

Overview: This category, commonly called "screen scraping", represents tools that fall into the 1st generation client/server category - and has been a natural addition to traditional character-based terminal emulation. The tools listed here have matured significantly during the last several years. Now,

several of these tools can generate sufficient client application logic to effectively improve a legacy application's user-oriented behavior. Further, in situations where one of these tools is appropriate (mature, stable, and unchanging host application construction), certain amounts of mainframe MIPS can be saved by providing some local processing capability (instead of shipping everything back to the mainframe - for instance - mainframe application control characters can often be acted upon locally, without host intervention). Further, many of these tools (BlackSmith, Mozart, 5PM Pro, and Vicom) are native for Power Macintosh.

Company Name	Status	Contact / Phone #
Client Soft's ClientBuilder (formerly Both)	Shipping	914-631-5365
Mitem's MitemView	Shipping	415-323-6164
CEL Software's BlackSmith	Shipping (APDA)	403-463-9090
Mozart Systems	Shipping	415-340-1588
About Software 5 PM Pro	Shipping (APDA)	408-864-0694
Vicom Pro	Shipping	800-818-4266

Ad Hoc Query & Browse Tools

Definition/Overview: These tools are inherently end-user oriented, but may require some "set-up" by an MIS-type staff person. Such tools provide graphical representation of relational database tables for more simple query generation. Once done, the end user has (typically) data warehouse access, through a simple point-and-click interface, to vital corporate data (structured, relational). Various access techniues include views (on-screen), reports, and "canned" queries. Many of these tools are very mature and quite capable.

Company Name	Status	Contact / Phone #
Andyne's GQL	Shipping	613-548-4355
Business Objects	Shipping	408-973-9300
Brossco System's Voyant	Shipping	Dirk Gilson / 408-461-1416
Brio's Data Pivot / Prism	Shipping (APDA)	415-961-4110
Software AG's Esperant	Ship early 96	Joe Gentry / 703-391-8311
Blyth's TrueAccess	Shipping	Michael Williams / 415-286-7183
Cognos Impromptu	In Development	613-738-1338

Other Programming Tools

Company Name	Status	Contact / Phone #
Micro Focus COBOL	Shipping	D. Berman/X4-2285
Taligent CommonPoint Mac O/S (Copland) Version	CY '96	

Object-Oriented Database Environments

Company Name	Status	Contact / Phone #
Versant (both C++ & SmallTalk)	Shipping	D. Berman/X4-2285

Client/Server "Solutions" / Applications & Groupware (Lotus Notes)

Overview: Additionally, Apple WorldWide Marketing's evangelism efforts include the growing number of client/server packaged solution providers. Such companies specialize in "horizontal" client/server markets, such as Human Resources / Financials / Manufacturing. Examples of shipping (or near shipping) solutions in these areas include:

Company Name	Status	Contact / Phone #
SAP (America, Inc.) (68K & PPC)	Shipping	Dickens2 / X4-5510 800-USA-1SAP Ext.100
Cyborg Systems (HRMS)	Shipping	312-454-1865
Walker Interactive (Financials)	Near Shipping	415-495-8811
Ross Systems (HR/Payroll)	In Development	404-851-1872
Dun & Bradstreet	In Development	Dickens2 / X4-5510
Oracle	In Development	Dickens2 / X4-5510
PeopleSoft (H/R,Fin.)	In Development	Dickens2 / X4-551
Lotus Notes v3.2 (client)	Shipping	800-346-1305
Lotus Notes v4.0 (client)	Ship Q4 '95	Dickens2/X4-5510

Support Information Services

Keywords: <None>

==========

This information is from the Apple Technical Information Library.

19960215 11:05:19.00

Tech Info Library Article Number: 18441