Memo to: Terry Rogers
From: Alex Morrow
Subject: Applications Integration for Rockport
Date: October 25, 1990

Summary

Windows 3 provides Dynamic Data Exchange (DDE) as a facility for application integration. Although DDE has some shortcomings, notably its lack of protocol specifications, Rockport must support DDE to be a full windows product.

Microsoft is positioning its Word/Excel/Powerpoint offerings as a DDE-integrated suite ideal for Windows 3. It is likely that Informix Wingz would attempt similar positioning through cooperative marketing. It is vital for Lotus to provide superior DDE-based application integration between Rockport and its other Windows 3 products, in particular Remington and Notes. Wordperfect looks like it will be late. Rockport marketing should act decisively to select partnership products for mutual integration testing and later joint promotion.

We have assembled a technical steering committee for application integration, which has met once on the topic of Rockport/Remington/Notes integration on Windows 3. We will have a marketing advisory group as well, with an initial meeting before Comdex.

Rockport currently has a very reasonable development plan for DDE support, but does not plan support of the Impress draw layer. With some additional resource Lotus can provide enough support for add-ins to permit draw layer support to be developed in parallel with Rockport, gaining a competitive advantage over Excel in graphics integration and Wingz in spreadsheet function.

We should also identify other opportunities for leadership, such as the use of WK3+ as a pragmatic standard for compound document exchange, and finding creative solutions for the current lack of DDE protocol specifications and test suites.

Remington will support Rockport links well through a proprietary protocol. It also provides good support for normal DDE hot links, but no DDE execute support.

The Notes Version 2 plan for DDE seems quite good. Notes will provide for the distribution of embedded documents through a proprietary convention that depends on server support for standard DDE hot links and four DDE execute commands.

Immediate plans are for Comdex visits with other Windows 3 DDE vendors to better understand the issues and look for partnership opportunities.

A detailed discussion of each of these topics follows.

Technical Steering Committee for Application Integration

It was very effective in its first meeting on 10/23 in agreeing on Rockport/Remington/Notes goals and gaining concensus on Microsoft's probably plans for next year. Its members are:

Marty Roth: Ariel, Dave Reiner, DataLens, Richard Wolf: GUI/Walden, Doug Knowles: Houdini, Pito Salas: Improv, Ray Ozzie: Notes, Dave Love and Ed McNiemey: Rockport, John Booth: Remington, David Reed and me.

Competition

There are two key Rockport competitors on Windows 3, who will have been out a year when Rockport ships: Microsoft Excel and Informix Wingz.

Microsoft

Microsoft has defined a new market with Windows 3.0

The success of Windows 3.0 has defined a new market, and has given Microsoft (MS) a new opportunity to sell its desktop applications -- MS Word, Excel, and Powerpoint -- against Lotus on the basis of their integration, rather than on their individual merits.

While the DDE integration of these products is currently far from perfect, MS has a year development lead on Lotus on native Windows products, and is in a position not only to fix the application products, but also to adjust Windows if need be.

One possible Microsoft action to achieve Windows market share with Excel by providing heavily discounted combination packs -- probably repackaged and enhanced with additional applications -- of Excel, PowerPoint and Word into appropriately selected submarkets, such as college students.

Now: Word and Excel for Windows support paste link

Microsoft Excel and Microsoft Word for Windows have had DDE links since Windows 3 shipped. These links permit Word to act as a desktop publishing front end to Excel. Curiously, Microsoft PowerPoint does not currently support DDE as either a client (a document in which another is embedded) or a server (an embeddee), but it does use it for internal connections between its charting and drawing sections.

The press finds the notion of a DDE-linked desktop suite attractive and superior to an integrated application. However, they also identify problems with the actual Microsoft suite, such as its lack of PowerPoint support, Word/Excel format conventions that round fractions incorrectly, long paste link times and the slowing of printing and response time when hot links are active.

We should look carefully at the actual products as soon as possible. All Lotus employees at Comdex should be encouraged to try the suite and report their impressions in their trip reports. There are clearly some things we could learn from Microsoft's initial attempts that would be valuable.

1Q91: Excel adds native data, launch; Draw layer probably later

We expect Excel to add support for native data -- between copies of Excel at least -- and to be able to launch linked in applications in early 1991. Excel is not expected to have draw layer support at this time, which probably means it will not be available until 1992.

2Q91: Word updated, probably will provide embedded document support

The summer release of Word for Windows is expected to be able to launch Excel or other attached programs, and save copies of the files representing embedded documents. This support will probably be the first implementation of the currently evolving Microsoft specification for embedded compound documents entitled Compound Document Protocol (CDE).

Microsoft will surely make a major announcement of this in early 1991 as the new standard for application integration.

2H91: Powerpoint client

We expect Powerpoint to be upgraded with external DDE support in the second half of 1991, initially as a DDE client rather than server. The fact that Powerpoint will be late is expected to give us at least a reasonable chance of having a Remington/Rockport DDE link superior to that available from Microsoft, if we plan for it now.

Informix Wingz

Wingz differs from Excel in that it has a draw layer. Wingz 1.0 permitted any graphic passed through the clipboard to be pasted on top of the sheet. With Wingz 1.1, this same facility is made available via DDE. This means that Wings can be both a DDE client and a server to most applications. The draw layer and Informix' strong charting and HyperScript support demo very well, and will look even better as part of an integrated application package.

If Informix is smart, they will attempt to arrange for DDE-based marketing packages between Wingz and leadership DDE graphics and desktop publishing packages, such as Micrografx Charisma and Samna Ami Pro and go head-to-head with Microsoft on DDE application integration.

We should work on our partnership selections aggressively.

Rockport Plans

On the basis of several discussions with Ed McNierney, we have agreed on the following action plan for Rockport DDE.

Wordperfect paste link support

Rockport will continue the DDE support negotiated with Wordperfect for 1-2-3/G. It is felt, however, that Wordperfect will not be shipping its Windows version any time soon.

Remington client

Rockport provides good server support to Remington. The interface is such that Remington has both access to the graph settings in Rockport and control over the final rendering of the graph. The Remington plan is summarized below.

With some additional resource, Rockport can also be a Remington server.

Proprietary Notes embedded document mechanism

Ed McNierney has agreed with Ray Ozzie to provide all necessary services for the proprietary Notes embedded document mechanism, and to update the win.ini file with necessary strings during Rockport install. The primary issue that remains is saving FM3 format files within WK3+ files so that Notes can have a single file to embed. See File Formats.

Cross-testing with Excel, Word

Ed plans to test against the current versions of these products and any early copies he can get of the forthcoming versions. This will provide some measure of assurance that Rockport will work with other products that use Excel and Word as test cases for the correct implementation of DDE.

Marketing making testing arrangements with other vendors

Rockport marketing (Scott xxx) is making plans to contact other Windows DDE vendors to work out mutually acceptable interoperability testing plans.

File Formats

Pat Stimpson is working on an extension to WK3+ to permit FM3 records, and in general any add-in's auxiliary files, to be maintained within WK3+ "dirtbag" records. This will permit Rockport to provide Notes embedded document support for itself and for other add-ins. Pat is concerned about the size of the WK3+ and with the potential for going off track in getting to "clean" WK3+ file formats, but sees no technical obstacles.

Interchange Formats

Rockport will use a subset of WK3+ as its compound document interchange format. With the extensions proposed, it could easily become a defacto standard for compound document exchange and storage. It would probably be a good idea to encourage this quietly, before the Excel BIF file supplants WK1 as the spreadsheet interchange format on Windows.

General Interprocess Communication and DDE

DDE is not the most robust means of doing interprocess communication. What Ed is planning is to provide add-ins with the ability to use other mechanisms to do application integration.

User Interface

Rockport is planning to provide users with access to all combinations of paste link through an extended options menu in the edit pulldown. Roger Wolf is working with Notes and others to ensure that Lotus has a standard mechanism for setting up hot links and embedding.

Command language

Users will be able to use the Rockport keyboard equivalent command language to cause links to be set up. There are currently no plans to provide direct control of DDE facilities, such as Execute, from the macro language.

Impress draw layer support through Add-ins

Rockport is taking great pains to ensure that add-ins will be able to participate in DDE exchanges in which a region of the sheet is designated as the source or target area. Add-ins will be given access to any unrecognized DDE format types through event calls. They will be able to use the standard LPI interfaces to interact with the sheet. They will also be able to interact with the Impress quasi-draw layer, all through events. They will be provided with a means of saving state information within the "dirtbag" records of WK3+, probably through a virtual file interface. They will be handed a Windows display context when actual screen rendering is required.

By providing these services, we can start an immediate parallel activity to add draw layer support to Rockport. Ed estimates this would be 8 to 10 people. This would give us superior support to Excel in graphics and far superior support to Wingz on spreadsheet basics.

1991 Lotus Windows 3 product plans

Only Notes, Rockport, and Remington are planning to supporting Windows 3 in 1991.

Notes

Will support DDE embedded documents through standard MS formats and private embedding protocol. These documents can be sent over the Notes network and, where appropriate, will use a Notes private DDE protocol to launch applications for attached documents.

Remington Plans

Remington will support:

Paste link from Rockport or other DDE server, using Windows metafile (WMF) format.

Paste link of charting data from Rockport or other DDE server, using TEXT format.

Copy and paste of graph from Rockport, creating a Remington chart object with all data links to Rockport sheet established. (This is done using WK3 clipboard format.)

Copy and paste of Remington graphics into Rockport using CGM format. Pasting into Rockport will be done either by (1) creating a CGM file and passing the filename to Rockport on the clipboard, or (2) putting CGM data directly on the clipboard. The Rockport team has said they will try to add support for at least the first of these, but they have not firmly committed to it.

Remington can act as DDE server using Windows metafile (WMF) format. Notes or other applications can do Paste link of Remington graphics (one slide).

Some things that are not in the schedule:

Remington does NOT have plans currently to support DDE_EXECUTE, which means that the embedding system that Notes uses will not work. This support could presumably be added, but it is not in the schedule.

Remington does NOT currently plan to support double-click on a linked object to bring up that object in the server. They are investigating the possibility, however.

Other Lotus Application Integration Plans

Ariel

Ariel currently has no firm plans about DDE support, but will be making plans to support it as their product plan firms up.

Walden

Windjammer is currently not planning to support DDE. We will revisit this as we continue this work.

Unix does not yet provide Cornerstone with an applications integration model. The X Consortium is taking up preliminaries of this battle, but most of the players I contacted feel that this work will be driven from one or another of the other standards organizations, since the X

interclient communication protocol (ICCCM) is inappropriate for exchanging large amounts of data. Clearly, Unix has no lack of interprocess communication schemes, and has native support for multitasking. This is an area Lotus could provide leadership in.

Houdini

Houdini has no plans for application integration, since the required support is not available until System 7, which is not anticipated until 1991. They feel that while Microsoft may provide early System 7 support, it is more important for Houdini to be a strong, timely Lotus product than to support features of an operating system that prudent Macintosh buyers will take some time to adopt.

Improv

Improv is still in post-partum mode to some extent, and has not yet decided to move to Windows. They have some limited support in Mach for interclient communication.

Wordperfect

Wordperfect plans to support the Lotus/Wordperfect paste link convention, although there is some uncertainty about the User Interface that Richard Wolf is investigating. Unfortunately, as mentioned above, they appear to be far from a leadership Windows product. They are reported to be producing a videotape for Comdex, rather than a live demonstration of working code. Also, it is reported that consultants who had previews of their current development prototype were not impressed with their progress. We expect to clear this up at Comdex.

WPMA

It is clear from our participation in the Windows Presentation Manager Association (WPMA), a group that has been focussing on standardizing some aspects of DDE, that most desktop publishing companies are taking DDE and application integration very seriously.

We must work with these vendors to ensure that our products meet their needs and are integral to their testing plans. Windows products like Aldus PageMaker with "open" application integration interfaces based on DDE will probably replace the current monolithic publishing packages, such as Interleaf because of their greater choice and flexibility.

Partnerships

One of the most important things we can do with DDE immediately is to identify the companies we want to have testing and promotion partnerships with, and enter into these before our competitors do. Potential partners are listed below. This will be a topic of the marketing meeting next week.

Aldus. PageMaker. (Publishing Package)
Access Softek. Dragnet 2.1 (Utility program); Prompt 2.0 (Utility program)
Asymetrix Corp. ToolBook (Program development software)
Corel. DRAW!.
Digital Communications Associates Inc. Crosstalk Communications Div. Crosstalk for Windows 1.1 (Communications software).
Finalsoft Corp. Synchrony (Communications software) .
Future Soft Engineering Inc. Dynacomm 3.0 (Communications software).
IBM Desktop Software. Current 1.1 (Personal information management system).
Knowledge Garden Inc. KnowledgePro (Program development software)
Matesys Corp. Object Script (Program development software)
Micrografx Inc. Designer, Charisma (Computer graphics software).
Microsoft Corp. Microsoft Word for Windows (Word processing software).
NBI Inc. Legend 2.01 (Word processing software).
Owl International Inc. Guide 3.0 (Program development software)
Pioneer. Q&E. (Database access software)
Precision Software Inc. Superbase 2 1.2 (Data base management system)
Prisma Software Corp. YourWay (Personal information management system)
Publishing Technologies. BatchWorks
Samna Corp. Ami Professional 1.1B (Word processing software).
Softbridge Microsystems Corp. Bridge 2.0 (Program development software).
Viewpoint Systems Inc. I/F Builder 2.1

Next Actions

Get approval for additional Rockport resources for draw-layer add-in.

Kickoff marketing advisory board with Comdex Application Integration activies.

Produce plan prior to Comdex for Application Integration strategy development.