
Applications Strategy

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Plaintiff's Exhibit
8813
Comes V. Microsoft

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OLE Timeline

4Q91	1Q92	2Q92	3Q92	4Q92	1Q93	2Q93	3Q93	4Q93
Mac OLE 1.0	OLE 2.0 OLE 1.1 (Pen Win)	NT-OLE (NT PDK)	OLE 2.0	Mac OLE 2.0 OLE Servers			Mac OLE 3.0	OLE 3.0

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Applications Tools Project Timeline

4Q91	1Q92	2Q92	3Q92	4Q92	1Q93	2Q93	3Q93	4Q93
Babel 1.0 GUI Setup 1.0 CW 3.1 ALAR 1.0 SLM 1.63 AppSetup	GUI Setup 2.0 CW 2.51 & 3.0 Support Tuner 1.0 RAID 5.0 WinBBS 1.0 EMail Tools 1.0 Corp Install Icon 1.0		Babel 2.0 ALAR 2.0 CW 3.1 Support Tuner 2.0 WATT 2.0 Email Tools 2.0 BB Gate 1.0 Animator 1.0 Code Lib 1.0 IOIAT			Tuner 3.0	Win4 Setup	Animator 3.0 Tutor X

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Documentation Tools Timeline

4Q 91	1Q92	2Q92	3Q92	4Q92
WinHelp 3.1 MacHelp 3.1	MMViewer 2.0	MacHelp 3.2 NT(x86&MIPS) Tutor 1.5	MMViewer 3.0 Stage II Help Authoring	Bookman ODT Beta

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Applications Strategy 3 Year Plan

- ◆ Mission Statement
- ◆ Trends
- ◆ Plans for Application Architecture, AFX, Tools
User Interface
- ◆ Recommendations for MS Apps

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Mission Statement

- ◆ Help MS Apps gain leverage through shared architecture, code, tools, and UI design...

...Where "leverage" means developing quality apps more quickly, that are more usable, and that exploit Windows technology better than our competitors.

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Trends

◆ **Usability / Working Together growing in importance**

- UI consistency
- simpler setup
- document centricity

◆ **Object orientation / component software becoming a hot theme**

- Next, New Wave, Patriot, Pink, Borland...
- OLE will be everywhere with many servers
- commands and IDTs will be exposed by many applications

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Trends

◆ **More value will come from product content**

- Helps, CBTs, Wizards, templates
- use of hypermedia and multimedia

◆ **International markets continue to grow faster than domestic**

- importance of "no compile" localization
- cost of localizing content must also be lowered

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Application Strategy Plans

- ◆ APPA
- ◆ AFX
- ◆ Applications Tools
- ◆ User Interface

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Application Architecture Mission

- ◆ Develop Application Architectures that
 - enable powerful Office Information Systems
 - reflect user model paradigm shifts
 - information-centricity, browsing, in-place editing
 - provide development reuse and extensibility
 - provide incremental evolutionary end user and developer solutions
 - provide insights to requirements and designs via review and training
 - ensure that Microsoft can be low-cost producer of office software

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Component Software Approach

- ◆ **Consider a set of applications as a system**
 - e.g., Powerpoint, Notebook, Publisher, Works
- ◆ **Search for common functions**
 - page layout, display views and printing
 - layout elements - text, drawing, graphics, tables, OLE 1.0
- ◆ **Push towards abstractions and single implementations of function**
- ◆ **Benefits - extensibility, reuse, and consistency (UI and semantics)**

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Component Software

- ◆ **3 keys to architecture and design: interfaces, clients, and servers**
- ◆ **OLE is a starting point for a compound document architecture**
- ◆ **Want finer granularity reuse than OLE 1.0 servers**
- ◆ **Want components that many products can reuse**
- ◆ **Must have the richness of today's products**

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APPA Focus Areas

- ◆ OLE Design
- ◆ Component Software Prototyping
- ◆ Training
- ◆ Systems Review

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OLE Timeline

4Q91	1Q92	2Q92	3Q92	4Q92	1Q93	2Q93	3Q93	4Q93
Max OLE 1.0	OLE 1.0 OLE 1.1 (Pre-RTM)	NT-OLE (NT PDR)	OLE 2.0	Max OLE 2.1 OLE Server			Max OLE 3.0	OLE 3.0

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Object Linking and Embedding 2.0

◆ Product Dates

- Spec 4Q91
- SDK 1Q92
- Ship 3Q92

◆ Theme: Seamlessness, better fit and finish

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Object Linking and Embedding 2.0

◆ Features

- in-place editing
- layout negotiation
- generalized property and style model
- search
- containment and enumeration support
- MacroMan command support
- drag-drop support
- pop-up menus
- updated style guide reflecting new UI changes

◆ Issues

- closing the spec and project plan
- increased system testing required

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Object Linking and Embedding 3.0

- ◆ **Product Dates**
 - SDK 1/93
 - ship 3Q CY93 (Windows 4.0 Release)
- ◆ **Theme: Win4 exploitation**
- ◆ **Features**
 - Integration with Windows 4.0 object model and system services
 - user model evolution
 - distribution
 - naming, querying, and referencing unification
 - link tracking
 - content filtering and indexing
 - hypermedia management
 - improved information transfer and conversion model
 - Object BASIC

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Component Software Prototyping

- ◆ **FY92**
- ◆ **Theme: Re-engineering for reuse**
- ◆ **Features**
 - components for page oriented compound document applications
 - Publisher, Powerpoint, and Notebook
 - Windows Publisher code base
 - rearchitecting for OLE and AFX libraries
 - model for IDT's
 - redesign to enable programmability

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Component Software Prototyping

- ◆ FY93
- ◆ Theme: Exploit Win4
- ◆ Features
 - Windows 4.0 version
 - more developed IDT's
 - concurrency model
 - distributed components

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Application Prototyping

- ◆ FY94
- ◆ Office Information Systems
 - groupware models
 - programmability and composition of components

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ign Methodology (external)
d Document Model (lecture)
1.0 and 2.0 Applications (APPA and ATC)

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PA)

ATC)

Developer Training

the company wide center for advanced
ng
ment and Offerings
Design including
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urrent Programming (university)
atures (lecture)
ed and Concurrent Process Models (course)
odel (lecture)

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or advanced

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AFX Mission

- ◆ Be a supplier of Microsoft Object Oriented Solutions
- ◆ Make Windows the best solution
- ◆ Reduce the cost of development
- ◆ Support the new technology
- ◆ Get to market within a year

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AFX Timeline

4Q91	1Q92	2Q92	3Q92	4Q92	1Q93	2Q93	3Q93	4Q93
Production Classes			App Framework Class 1.0 Compiler 1.0 WLM				App Framework Class 2.0 Compiler 2.0	

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Microsoft Foundation Classes

- ◆ November, 1991
- ◆ Theme: Support OO Windows development
 - literal windows wrapper
 - Win 16/32 support
 - message to function mapping
 - basic Win app class
- ◆ Issues & Dependencies:
 - C7 and development tools functionality and delivery

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Microsoft App Framework Classes 1.0

- ◆ Q3, 1992
- ◆ Theme: Provide a UISG app framework that is synergistic with Composer
 - UISG compliant canned functionality
 - data driven dialog handling
 - view / document architecture
 - VB control wrapper
 - OLE / Macroman
- ◆ Issues & Dependencies:
 - Sequoia delivery

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Microsoft Composer V 1.0

◆ Q3, 1992

◆ Theme: Provide the best integrated Windows resource editor and support the app framework

- extensible resource editor architecture
- program interface manager
- integration shell (localization support)
- test mode for prototyping

◆ Issues & Dependencies:

- Sequoia delivery
- extensibility architecture standard
- Win 32 support

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WLM - Windows Layer on the Mac

◆ Q3, 1992

◆ Theme: Windows centric portability layer that meets most of your needs

- 90% API coverage
- 200K target size
- not AFX specific

◆ Issues & Dependencies:

- Excel Query Tool requirements
- ALAR (C Mac compiler w/ pcode)
- DLL support

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Microsoft App Framework Classes 2.0

- ◆ Q3, 1993 (Win 4 shipment)
- ◆ Theme: The complete application framework for Win 4 application development
 - component architecture
 - Win 4 support
 - customer requests from V 1.0
 - Object BASIC support
- ◆ Issues & Dependencies:
 - Win 4 design
 - APPA component design

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Microsoft Composer V 2.0

- ◆ Q3, 1993 (Win 4 shipment)
- ◆ Theme: Visual programming and end user customization
 - automatic layout of visual elements
 - adapters and connectors for visual programming
 - integrated with Object BASIC
- ◆ Issues & Dependencies:
 - Object BASIC design

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AFX Plan vs. Last Year

	<u>Last Year</u>	<u>This Year</u>
Foundation Class Library	Q2 '91	Nov 91
Shell Development CL	Q1 '91	Terminated
Silver Development CL	Q2 '91	On Hold
Fulcrum 1.0	Q2 '92	Q3 '92
Application Framework and Composer		
WLM	N/A	Q2 '92
Fulcrum 2.0	Q1 '93	Q3 '93

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Applications Tools Mission

- ◆ Provide tools which make the development of MS Applications more effective
- ◆ Enhance the value of MS apps by providing highly leveraged shared architectural components
- ◆ Facilitate transition to strategic new technologies

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Applications Tools Projects Timeline

4Q91	1Q92	2Q92	3Q92	4Q92	1Q93	2Q93	3Q93	4Q93
Babel 1.0 CUI Setup 1.0 CW 1.1 ALAR 1.0 RM 1.0 AppSetup	CUI Setup 2.0 CW 1.51 & 2.0 Support Tuner 1.0 RAID 1.0 Wishes 1.0 EMail Tools 1.0 Copy Install Issue 1.0		Babel 1.0 ALAR 1.0 CW 1.0 Support Tuner 1.0 WATT 1.0 Email Tools 2.0 IS Case 1.0 Admstr 1.0 Code Lib 1.0 SOLAT					
				Code Lib 2.0	Admstr 2.0 Code Lib 2.0	Tuner 2.0		
							Watt Setup	WATT 1.0 Admstr 2.0 Tuner 2

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Babel 1.0

- ◆ 4Q91
- ◆ Theme: Simplify localization of SDM applications
 - localization DE for SDM
 - localization string editor tracks/merges changes
 - extensible for alternative string resource formats
 - batch tools to merge translated and new resources
- ◆ Issues & Dependencies:
 - joint project with IPG

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Babel 2.0

- ◆ 3Q92
- ◆ Theme: Simplify localization of Win resources and strings
 - localization extensions for Win to AFX Composer for Win resources
 - automatic word and phrase translation (Lingua database)
- ◆ Issues & Dependencies:
 - joint project with IPG
 - AFX Composer

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Common OLE Servers

- ◆ 92
- ◆ Theme: Provide servers that add value to OLE clients
 - text annotation
 - sound
 - draw overlay
 - others TBD
- ◆ Issues & Dependencies:
 - use existing servers if possible

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GUI Setup 1.0

- ◆ 4Q91 for Win3.1 SDK
- ◆ Theme: Toolkit to build consistent setup for Win apps
 - simple setup defined by scripts
 - data compression lib
 - hardware detect lib
 - standard ui and sample setup
 - fully documented
- ◆ Issues & Dependencies:
 - include in Win3.1 SDK
 - use in MS apps

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GUI Setup 2.0

- ◆ Win3.1 ship (1Q92)
- ◆ Theme: Simplify GUI setup with BASIC scripting
 - create app setup with BASIC scripts
 - improved performance
 - libs extendable via DLL's
 - simplified localization of setup dialogs
 - uses WATTDVR BASIC
- ◆ Issues & Dependencies:
 - Delivery mechanism for ISVs TBD
 - MS apps
 - Win3.1

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Win4 Setup

- ◆ 93 for Win4
- ◆ Theme: Simple standard setup without dialogs for Win4 apps
 - Win4 setup engine
 - no dialogs (for most users)
 - use Win4 scripting language (Object BASIC)
 - box files
 - network installation
- ◆ Issues & Dependencies:
 - Win4

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Tuner 1.0

- ◆ 1Q92
- ◆ Theme: Automated swap tuning and pcode versus native decision
 - based on C7, profiler output
 - command line interface
- ◆ Issues & Dependencies:
 - OS2 based
 - C7 pcode
 - C7 CV format
 - C7 .hsc format
 - profiler

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Tuner 2.0

- ◆ 3Q92
- ◆ Theme: Additional compilation decisions, Sequoia UI
 - NT based
 - optimization flags
 - remove Win prolog code from non-export functions (e.g. /Gw vs /GW in C7)
 - InLine
 - NT page tuning
 - Sequoia add on
- ◆ Issues & Dependencies:
 - C7
 - Sequoia
 - NT debug kernel

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Animator 1.0

- ◆ 3Q92
- ◆ Theme: Resource usage monitor
 - Win16 and Win32
 - profiling
 - code coverage
 - swapping
 - Sequoia add-on
- ◆ Issues & Dependencies:
 - ToolHelp.dll for NT
 - Sequoia

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Animator 2.0

- ◆ **1Q93**
- ◆ **Theme: Application specific resource monitoring**
 - Win32
 - extensible
 - data space
 - disk access profiling
 - Sequoia add-on
- ◆ **Issues & Dependencies:**
 - Sequoia

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Code Librarian 1.0

- ◆ **1Q93**
- ◆ **Theme: Promote sharing of generalized code between Apps projects**
 - NT based
 - common code store
 - tracking divergent lines of development
 - Help file index to find needed functions
- ◆ **Issues & Dependencies:**
 - SCM

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ALAR 1.0

- ◆ 4Q91
- ◆ Theme: Uniform C development environment for all target platforms
 - OS2 based
 - CV debugging
 - C7 source language (not C++)
 - resource compiler
 - Improved speed and size of code over MPW, Zortech
 - ASM68
- ◆ Issues & Dependencies:
 - CV stability

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ALAR 2.0

- ◆ 3Q92
- ◆ Theme: C7 feature parity for Mac versions
 - NT based
 - Sequoia integration
 - Pcode and C++
 - improved code quality
- ◆ Issues & Dependencies:
 - Sequoia
 - C7 pcode
 - Languages product in '93
 - NT, AppleTalk Protocol under Lanman/NT

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WATT 2.0

- ◆ 3Q92 for Win3.x, NT and Mac
- ◆ Theme: Tools environment for automating the testing of GUI applications and api's
 - Resource Failure Simulation (except Mac)
 - record/playback
 - dynamic access and manipulation of ui objects by "name"
 - retail product (Languages)
- ◆ Issues & Dependencies:
 - Pyramid group developing Mac utilities
 - Languages performing UI work (for retail)

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WATT 3.0

- ◆ 4Q93 for Win3.x, NT and Mac
- ◆ Theme: More tools for automating the testing of GUI apps and api's
 - OLE client/server testing
 - Mac Resource Failure Simulation
 - Mac GP fault trapping (? if it can be done)
 - Pen simulation for Pen Windows apps
 - synchronization of independent processes for NT
- ◆ Issues & Dependencies:
 - none

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Raid 5.0

- ◆ 1Q92 for Win3.x and PM, 2Q92 for NT
- ◆ Theme: Provide PSS connection to bug databases
 - automatic notification of bugs from field (SR's)
 - linking SR's to bug reports
 - automatic notification of bug fix to linked SR's
 - provides marketplace data to product groups
- ◆ Issues & Dependencies:
 - MIS / PRISM

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Documentation Tools Timeline

4Q 91	1Q92	2Q92	3Q92	4Q92
WinHelp 3.1 MacHelp 3.2		MacHelp 3.2	WinHelp 3.2	
	MMViewer 2.0	NT(SAMMP)	MMViewer 2.0	Database
Stage 1 Help Authoring Tutor 1.1	ODT Spec	Tutor 1.1	Stage 2 Help Authoring	ODT Spec

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WinHelp 3.1

- ◆ 4Q91 for WinHelp 3.1, 2Q92 for NTHelp 3.1 x86 and 2Q92 for NTHelp 3.1 MIPS
- ◆ Theme: GUI help across important platforms/extensibility
 - authorable UI (author defined buttons, menus, non-scrolling regions)
 - extensible
 - core technology for MMViewer
 - 100x improvement in compiler capacity
- ◆ Issues & Dependencies:
 - Windows 3.1 ship
 - NTx86 ship
 - NT MIPS ship

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MacHelp 3.1

- ◆ 4Q91
- ◆ Theme: Subset of WinHelp 3.1 on the Mac
 - Binary compatible with WinHelp help files
- ◆ Issues & Dependencies:
 - no extensibility or authorability pieces
 - no new versions planned
 - runtime port only (content authored on the PC)

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Stage I Help Authoring

- ◆ 4Q91
- ◆ Theme: Quick solution for existing authoring processes
 - Win edit and compile (vs from DOS)
 - template for WinWord macros
 - support current authoring format
 - VB application
- ◆ Issues & Dependencies:
 - Microsoft Developer Program for distribution

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Stage II Help Authoring

- ◆ 3Q92
- ◆ Theme: Minimize the production and localization costs of internal authoring Help
 - separation of attributes from text
 - incremental compile by topics
 - localization merge tools
 - allow authors to add their own tools
 - support multi-users
- ◆ Issues & Dependencies:
 - WinWord 2.0

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Tutor 1.1

- ◆ 4Q91
- ◆ Theme: Extensibility and new tools for Windows based CBTs
 - DLL support
 - movie support
 - localization tools
- ◆ Issues & Dependencies:
 - none

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Tutor 1.5

- ◆ 2Q92
- ◆ Theme: Minimize the production and localization costs of authoring WinCBTs
 - event/response list search and categorization
 - CBT file limit increased from 12K to 30K
 - multiple CBT (CBTs on OLE objects)
 - streamline localization
- ◆ Issues & Dependencies:
 - no NT support planned

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Tutor X

- ◆ 93
- ◆ Theme: Satisfy Win CBT requirements
 - features TBD
- ◆ Issues & Dependencies:
 - ODT

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ODT

- ◆ 2Q94 for Win4.0
- ◆ Theme: Core technology for presentation and user assistance
 - online information browser
 - provides Help and Tutor replacement
 - display and printer independent viewfile format
- ◆ Issues & Dependencies:
 - Win4.0

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Bookman

- ◆ 4Q92
- ◆ Theme: Microsoft's first entry into the palmtop market
 - subset of WinHelp running on Sony Bookman
 - port of CW to the Sony Bookman
 - character based port of MMViewer technology
 - upwards compatible with MMViewer
- ◆ Issues & Dependencies:
 - Joint MM/AT project
 - Sony hardware availability
 - debugging environment

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WinBBS 1.0

- ◆ 1Q92
- ◆ Theme: Make the MS BBS an effective communication tool
 - private newsgroups for communication within product teams
 - filtering and querying
 - text search (like GREP)
- ◆ Issues & Dependencies:
 - will be launchable from bullet via menu

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Email Tools 1.0

- ◆ IQ92
- ◆ Theme: Tools to manage high quantity of email
 - automate prioritization of email
 - supports common MS email clients
 - Win front end for editing prioritization rules
- ◆ Issues & Dependencies:
 - Bullet
 - WZMail
 - WinMail

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IOIAT

- ◆ 3Q92
- ◆ Theme: Centralize where a developer must look for information
 - Win front end to integrate information access tools
 - query across multiple information sources
 - establish links between information sources (PSS, RAID, SLM, Mail, BBS)
- ◆ Issues & Dependencies:
 - none

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Applications Tools Plan vs. Last Year

◆ **Completed:**
OLE 1.0, SQL RAID 3.0, Tutor 1.0 (CBT), WinBBS 0.3,
GUI Setup 1.0, WinHelp 3.07, WATT 1.0

◆ **Dropped:**
LIBrowse, STABLECK, Hypercode, UDE, VCR &
VCRLIB

◆ Added:	First Release:
- Win Test Automation (WATT)	91
- Sabel	4Q91
- Bookman	2Q92
- OLE Servers & Win Controls	3Q92
- Code Librarian	3Q92
- Email Tools	3Q92
- Animator	3Q92
- ODT (On Line Documentation Tools)	93

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User Interface Architecture Mission

◆ **Continuing emphasis on standards, cross product
UI consistency, and usability testing**

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UI Standards

◆ Organization/process improvements (in cooperation with program management) (cont)

- long term agenda of issues list
- more inclusion of group program managers
- product specs to include notation on differences

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UI Standards

◆ Definition of transitional interface

- pop-up menus
- transfer interfaces (i.e. drag/drop)
- property sheets
- tool/button bar/palette interfaces
- drawing interfaces
- navigational tabs
- annotations

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UI Standards

◆ UI Style Guide

- available as external document
- available via MS Press separately from WIN 3.1 SDK
- also Windows availability of Visual Style Guide

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UI Usability Testing

◆ New lab in 1Q92 (Building 17)

- 5 lab stations
- 1 conference room with one-way mirror and camera connections for large group testing
- marketing/PR participation
- expansion to support Multimedia division (funded by MM)

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Advanced UI Design

◆ IAYF prototype ('91-'92)

- basic "shell" elements/environments (workplace, folders, queries)
- integration with new technologies (Win 3.1, Jet ISAM)
- mail components
- workspaces (aka rooms, desktops)
- document model (aka what apps becomes)
- user programming models (agents)
- help views

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Advanced UI Design

◆ Next projects ('93-'94)

- 3D UI model
- other forms of information navigation/access

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Recommendations for MS Apps

Timeline for Tools, Platforms, Technologies Pre-Win 4 World

1991 4Q	1992 1Q	2Q	3Q	4Q
Win32 readiness via Win3.1 APIs Babel 1.0 OS apps try C7 beta	GUI Setup 2.0 Convert to C7 Use NTWin for development Use C++ for some new code Move from MPW to Altr Pen support Efax Think about multimedia	Net DDE / Win 3.1 peer	Babel 2.0 Use Sequoia OLE 2 / Macroman Convert to Composer 1.0 for Win resources App Framework 1.0 for new apps WLM	

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Recommendations for MS Apps

Timeline for Tools, Platforms, Technologies Post Win 4 World

1993 1Q	2Q	3Q	4Q	1994 1Q
		32-bit only world OLE 3 Object BASIC/DTA App framework 2.0 Win4 Setup Unicode ODT Multimedia		3D graphics Voice NLJ

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Recommendations for MS Apps

- ◆ Easing Win3.1 to Win32 migration
- ◆ Many things supported as is:
 - DDE, OLE, MDI, clipboard, metafiles, DIBs, dialog boxes, custom control classes, resource files, icons/cursors, TrueType, shared memory, Dos 5 api

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Recommendations for MS Apps

- ◆ Easing Win3.1 to Win32 migration
 - use Win32 api's added to Win3.1
 - don't modify Win.ini, use profile string API
 - don't do instance init from running instance (not same address space)
 - getFocus can return null due to Async input
 - global alloc doesn't return 64K aligned blocks

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