

Robert Carr, Agenda 6/9/89:

Lloyd Frink will attend all of the following meetings.

8:30 - 11 * Phil Barrett: Windows 3.0 (3/2155)

11 - 12 * Tony Williams: MS Object Directions (3/2155)

JE

12 - 1 * Jabe Blumenthal, Aaron Getz: Works on flat compus, lunch (5/2041)

1 - 3 * Greg Slyngstad, Jeff Raikes: Word and flat compus (5/2041)

3 - 3:30 * Wrap up with Jeff Raikes (5/2041)

Reke computer?



KAP0195


WORD - Greg Slingscott > gsp programs
Jeff Reikas

L all responsibility for WP prods design

3 topics:

- 1) MS Word Conversion Arch. Filter architecture
- 2) Unique ways to support bi-directional editing
- 3) Sister versions of Word on GO

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Mac Word }
PC Word } 3 diff WP binary file formats
Win Word }

hard to unify since file frmts are almost straight dumps of

RTF is superset of all 3
then produce imp/exp for RTF

Win Word will have ability to install filters dynamically
(Save As) command gives user choice of a variety of frmts - whatever code DLL's are in dir

RTF can be streamed; ← RTF got put into public domain
Next is using RTF

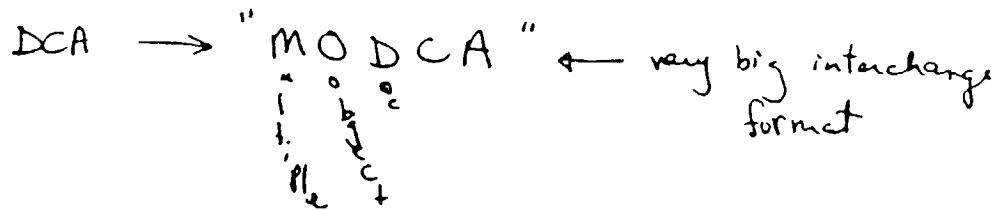
→ samples files could be available

Word → RTF

MS RTF is union of Word file frmts

Maybe we could license MS RTF filters

Filters - mem size vary greatly - MS are ~40k
 others they buy are 120k
 (cause RTF is an afterthought)



22-141 50 SHEETS
 22-142 100 SHEETS
 22-144 200 SHEETS

Graphics Filters

↳ MS cross licensing WP filters to Aldus for their graphics filter
 standard intermediary
 for Graphic filter is Windows Metafile
 (which is recorded series of GDI calls)

Greg Slingsby

- filter API
- DOS & Win dependencies

Preserving Semantics:

Windows Word - executable is 800k
 could eliminate ~300k
 (resources - prompts error msg's)
 TOC, Index generation
Macros?
 gets real hard to make Word smaller.

↳ Word keeps most data in file sy
 just loads current screen

Word Perfect - just a stream - easy for us to ~~translate~~ preserve format

WORD & Word Perfect } 90% of Word mkt

Another road for WORD formatting preservation
is to enhance Campbell:

- recompile it to 32 bits
- start adding data struct to preserve RTF

Can we

We may need to
repackage

(Stand alone .exe on PC could do Word → RTF
format conversion. (PC Word does this now)
They do have these working now (autoexec macro for
Windows word)
? Can we do remote execution on pc
of translators?)

Greg's thought remote invocation and then word
writing RTF stream out to Named Pipe
is best.

If GO wants to preserve GO's Info then doing
a PageMaker-like binary sharing is necessary
If not (namely RTF captures all of Campbell).

Conclusions:

- 1) GO needs to know ^{what} Campbell doesn't preserve of Word
- 2) GO needs to figure out what Word should preserve of GO's
- 3) remote .exe translator strat.

We need to study this →

Sister Versions

they need to know more on:

- What's unique about WP on NB
- What would it take to build WORD sister version on NB?
- What exactly does our WP compete do & not do

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Jeff seemed encouraged to ~~bring~~ pitch me on cooperation because I was open to Win 3 as solution. Lloyd didn't think I had more obj's than I mentioned this morn

Jeff R: "We have a Problem & Opportunity"

MS: "Big believers in NB computers & that this is next Mac"

Somehow get more in sync on strats.

e.g. Share vision of what NB should be

Write spec, goto Japanese (Model 100, Multimedia)

Strat. Partnership: define what NB is still allow some level of differentiation

DOS + Win = Mainstream
MS Want Avg'd Mkt fragmentation

They think but MS insist their solution while it might be as good will be the mainstream solution
They didn't think of GO licensing to other hw vendors, nor of GO as mech. other than a hw co.

Working w/ MSFT to define NB rather than GO working on own

GO could be leader in NB

Then MSFT & GO could together evangelize

They view as NB system manufacturer

Pen - laptops are getting very small
size won't be our advantage

Canots

~~Pass~~ — for some get apps support
leverage MSFT as sys shw
(DOS-Win is std operating env)
resource → efficiency

Stick — isn't easy for GO to estblsh new platform

Wants: open mindedness

doublets they'd turn windows over to us to license
↳ would look at cross-licensing of technology

↳ Design-partnership is the key they want

HWX licensing from GO for DOS/Win from MS

Pen got button?

Resolution for pen
plugable approach for HWX

What areas do we
study on?

need diff HWX for engines
for diff customers (eg. Japanese)

I said our ~~next~~ meeting in middle

GH: Convergence strat.?

Make sure Win H & GOOSE don't do
anything stupid that ~~seriously~~ hurts
their chances of converging down the road

→ next steps: will next week
get back to Jeff R
on when he can get a proposal of
a strat. relationship
(w/in 30 days?)

Jeff's gotta go to Bill & argue some specific kinds areas
that MS gets into

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

I said it was unilliberal
wouldn't expect it with
was a only moderately
modified Win

Jeff said he would like
to see out quickly with post 6/90
I said we couldn't be
up out quickly being addressed.

Jeff stressed MS's availability
to endorse a standard
& credibility

Tony Williams - Obj Directions

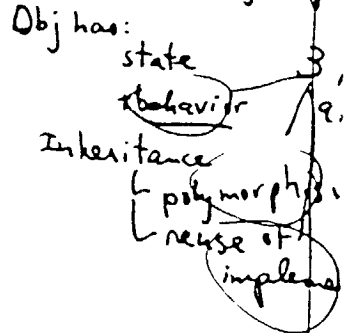
officially App Arch. Grp

sys facilities for obj stuff ← Tony's new head up

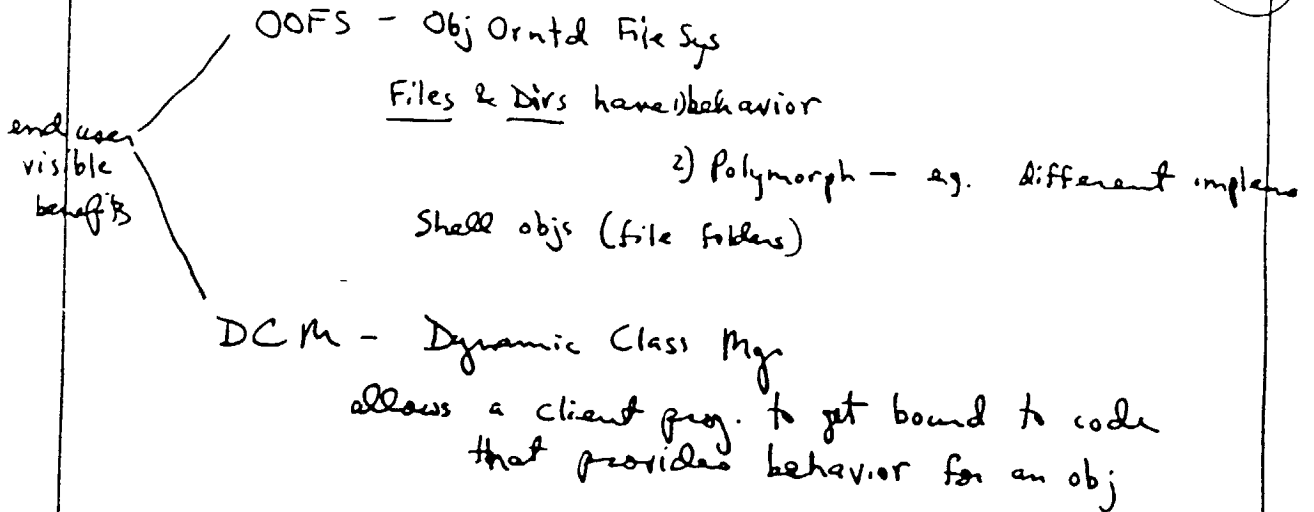
Objectives:

- consistency in GUI
- productivity in building apps
- interoperability - live-data sharing
- extensibility of sys by app vendors
[macs lang.

What does MS mean by Obj's



What MS is doing:



Program Basics:

Dev Tools driven off type database

Application FW - big class lib

App FW has implementations of app protocols

Application protocols - set of defs for live embedder or links



App protocols [not under way yet
Data access, printing.

Dormant Compound Docs

[file as obj is diff from app consisting of objs
App FW addresses serializing app objs out
into a file

They want evolutionary introduction
hybrid env. of obj-o apps & non obj-o apps
→ e.g. encapsulate existing apps w/ file objs
or wrapper obj for 123 ss where wrapper
obj speak app specifics internally

DCMgc

bind a client to class that's provided externally
Load & link via DLL off avail file sys
they are addressing protection (addr spaces)
↳ also can talk 'cross networks

obj model is very C++ (indirect func call)

2 notions of type: [class of obj itself
class the client expects
↳ this is protocol; binding satisfies

embedding



say C++ style works for them on efficiency with flexibility

To get flexibility of late binding you can choose to query them late

Can support multiple serialization protocols of compound docs

Link management protocols can be extended

UID's — not necessary for C++ static binding
String form of class id's is only necessary for very dyn binding cases

ISO std: ODA
Object Doc Arch.

~~Port to ab~~

How much of this comes back to Win?

Q of when, not whether?

Q of which EPC mechanisms for Win to use?

Dev tools

Boxed items
on the ones
they're along
on

Shell
objs

Type DB

App Protocols

File classes

OOFS

DCA

App
FW

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



MS

6/9/89

Works

Jabe Blumenthal

L Aaron Getz

Works 1.05

360k code main — SS, WP, DB, TComm

30k code } help
150k data }

180k ~~code~~ dict — spell check

runs in 384k
SS

Works 2

450k code main

How separable is code

SS & DB very,

WP is fairly separable

CW — char orntd windows — 50-70k code

somewhat separable,

not that easy

doing it now for Win Works

L emulating CW from

Win (w/out removing
CW)

I suggested stripping their WP out
& putting ours in.

discussion of whether to split it into 4 modules

- Maybe a port based on recalc engine
is fastest route (as opposed to

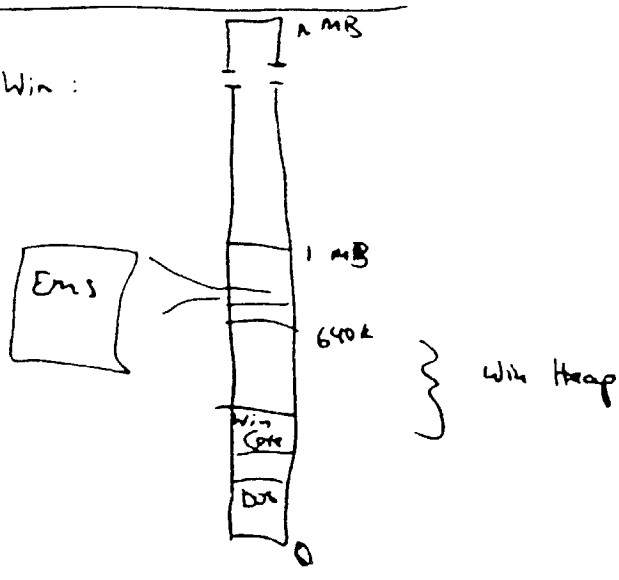
→ they want anything to stimulate their thinking
on SS/DB

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Phil Banet - Windows

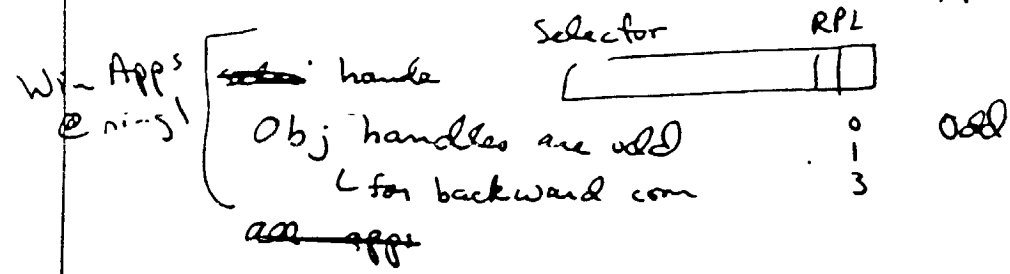
286 Win:



Win Heap is from LDT - just 1 in whole sys (limit 8k)

Local allocs are still handles, not selectors

Win 3 comes in 386 pm } multiple apps
 286 pm }
 real mode (1 app)



Win core is @ ring 0

Apps can poke other App's segment since they all share 1 LDT

All segments lengths are FFFF for compatibility - since many win apps are sloppy. But they could poke somebody else's data!

Delug version does limit seg lengths

22-141 50 SHEETS
 22-142 100 SHEETS
 22-144 200 SHEETS



Why crash app on selectors made out of seg ends

can apps poke sys' stack - ~~not~~ not trivially since app is in DS

app stacks are fixed in size

L each app can use ~~the~~ stack grow & shrink

* 5k stack size is typical

286^{Win} kernel code is - same regarding timeslice

↑ 40k

L 4-5 files that were changed
man mgr

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
ANRAD

How big is Win 3 - 286?

170k is * for fixed resources

250k - 300k total for Win + DS (e.g. on 1 MB sys you get ~ 700k free)

L disk space reqs are ~ 1 MB

how disk dependent is it?

It's a demand segmentation sys

L if you never demand something it needn't be have backing sto

L needs backing store for Win. Ini



Min RAM for Apps

executable size to working set

3 or 4 to 1

6-700k 240k for Excel

Outline Fonts - not in Win 3

↳ they're looking at a font engine

space for min studied set of fonts

up to 18 or 20 - Times Roman

Helv.

Courier

Sys Font

Script

Sketch
of
font
set

then there's printer fonts

HPGL -
Postscript

} these drivers are so large
since they support
~100 somewhat complex
printers that emulate
these styles

To print w/ close to WYSIWYG you

need ~~close~~ corresponding screen

& printer fonts (tend to be larger
↑ than screen for
down loadable

Config - in W3 is much softer
 system.ini ← points to all drivers
 can be changed during session
 also font setup & install is much easier
 drivers have built in soft fonts

Mem sharing - do this via passing handles via DDE

Lock / unlock ← ^{yes,} get called very frequently
 many apps do localize these

Locking in 286 isn't doing too much
 386 - locks pages down
 real mode ← vital

But handles allow them to compact LDTs in future to the
 They need to be careful to preserve sparse 64k IO

Limits:

- GDI" data seg is 64k
- ↳ limit on how many GDI obj.
- ↳ some apps create long lived GDI obj.

DOS - is in real mode
 any app calling DOS gets it into DOS

- Mode switch time (pm to real)
- ↳ only an issue in few areas (not kb + mouse)
- ↳ but comm driver is dual mode
- ↳ for serial & printer



Background Processing

use interrupt drivers
there is a yield call

Resources ^{instances} are shared across multiple app instances

Preferred alternative to multiple app instances
is MDI

↳ just 1 Excel instance
(just 1 DS, SS)

'cause it makes sharing of data much
easier - e.g. hot links -


E.g. supports inter-app direct manip. dialog
for inter MDI instance

Phil: What is right metaphor for per?
Phil said

When app crashes in Win 286, does Win crash?

it can: by - poking sys data
or by app going into ∞ loop
but they believe most crashes generate
a GPFault

↳ then Win winds down apps
& continues to run
Some resources aren't recovered
such as apps DS

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS


For code sharing - they see people use DLL
(eg they've added compression support DLL's)

Is there support for ~~etc.~~ imp devices?

↳ model is that only Mouse is imp dev
you've got

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



FlashEPro

↳ special file sys driver for Flash EEPROM
that takes advantage of unique requirements

↳ it's not block devices

- linked list
structure
- no fragmentation
overhead

↳ they do variable block size

↳ they allow partial rewrites
↳ via patching

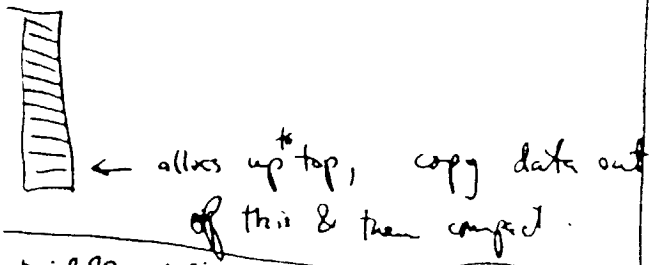
Transparent to DOS 21H Ints

↳ but Norton will be

Driver doesn't do erasure (formatting)

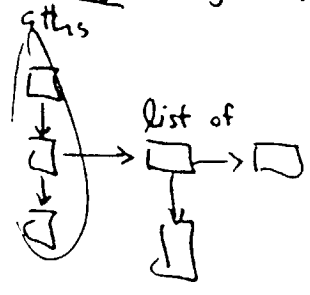
↳ just let folks rewrite every day

They're doing this w/ an OEM
 Doesn't L who's not listening to MS advia
 alloc like a stack out of Flash



If you change data in middle of file they only need to add changed block ~~links~~

dir is a linked list:
 patch ..



User does a Reformat (or out of mem)
 (compact your file sys)

Other nice thing is this scheme distributes bit writes across whole device.

22-141 50 SHEETS
 22-142 100 SHEETS
 22-144 200 SHEETS
 AMRAD

Win H

Rom support - what does this mean? ~~Not to~~

- Not poss. for real mode,

But yes for Win 3 ~~86~~ - you'd burn in loaded image of Win code.

Change loader way that it finds resources

→ near instant on for Win

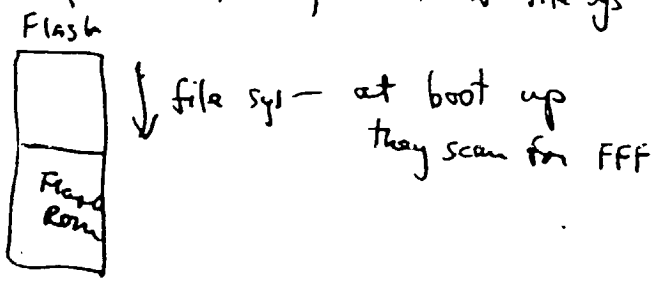
Pre-load apps, drivers, resources.

How comfortable are they putting Win into ROM? ^{has not to}

How many upgrades to Win over years? "Too many"

Put 1 copy Win code into Flash?

↳ yes, treat ^{some of Flash} as ROM, rest as file sys



OEM Implementation they have uses a serial I/F to get to Flash - - Why - OEM specific

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS





Win supports ≤ 3 buttons, but Win only uses 1 button.

(PM supports ≤ 2 buttons (left & rt.))

Not many apps req > 1 button.

When & How could a Win H come out?

I asked 2 half '90 1st half '91

he said roughly when they want

~~Alt~~

Phil - said he hadn't ^{thought} talked about a Win H under pressure of Win 3

Lloyd: Win H needs HWX ~~not~~ added

Phil - don't need HWX added - but rather just write new kb to pens drivers

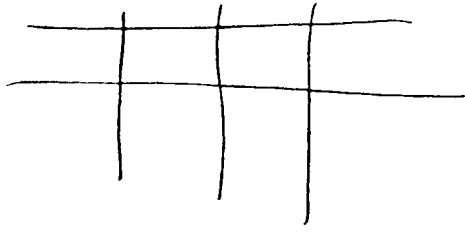
Lloyd - apps absolutely apps want to control what kind of translation goes on.

3 Mouse Events to Synthesize:

Positioning cursor - vital for cursor shapes
help text msgs when drag
cursor position feedback

Clicking (

Double Clicking (Immediate Action)



One solution to dragging cursor
is for it to track on pen proximity
& pen touches = click

Phil's mapping:

<u>Mouse</u>	<u>Pen</u>
move	pick up
B down	Touch, leave still, T.H.
Drag	Move, down
move B down	Pick up.

Greg: b click = random pen touch
while moving cursor pick up & put down

Windows Power Down:

~~control~~
"idle loop" now consists of all apps
getting chance to spin their gethug
loops (dance around)

Phil - thinks Win kernel could detect idle
case by examining sys event queue
(which is never empty!)

They agreed that current Win arch. wouldn't support
calendar-like alarms

Next steps on Win:

MSFT propose set of changes for Win H.

Win 4 will prob. get some GUI like functions
but ~~not~~ GUI (MS: ^{Phil: B:} GUI: "we won't abandon
our loyal ISV's")

Phil: absolutely committed to pen / NB computers
pouring key resources into it (e.g. Phil B)
3 hrs.

What about Bill's promise of Win H?

→ confusion...

looking to acquire/dev HWX tech.

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

