

MS-DOS 7 Product Plan Strawman

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The purpose of this document is to initiate the discussion on future MS-DOS product plans. The opinions and suggestions expressed within are mine, and the data collected so far is admittedly sparse. This document is intended as a first step in the product planning process.

Why MS-DOS 7 at all?

Regardless of OEM penetration of Windows, there is still substantial demand for MS-DOS only on new PCs, and for that reason no one can guarantee that Chicago will penetrate 100% of new PCs. An MS-DOS product strategy that presumes any loss of OEM business - even 1% - will not be acceptable, and without an MS-DOS beyond 6 we cannot guarantee zero loss of OEM business.

But if Chicago will be a "better DOS than DOS," why develop an MS-DOS 7 at all? Why not simply license Chicago as MS-DOS? A good question with a simple answer: Regardless of how compelling the MS-DOS support is in Chicago, the main objection MS-DOS users will have is that it will still be called "Windows." People purchase MS-DOS by default because they don't like Windows.

Why people don't use Windows: What we shouldn't do in MS-DOS 7

Some recent research shows why people don't use Windows. The responses are not from random users, but rather from people with sufficient power (at least a 386SX w/4mb) who tried and rejected Windows:

Question: What problems did you have with Windows?

Response	Percentage	MS-DOS advantage over Windows
Means too slow	33%	Familiarity of command-line interface and DOS applications interface
Took too much RAM	24%	Speed on a low-end machine? Conventional footprint in DOS box?
Slow to boot up	22%	Start-up speed
Not any easier	19%	Familiarity
Too much disk space	9%	Smaller on-disk footprint
Crashing problems	7%	Real-mode compatibility

Note that certain apps, primarily games and comm programs, run best in real mode.

Question: Why haven't you adopted Windows yet?

Response	Percentage	MS-DOS advantage over Windows
Used DOS so long no need to switch	33%	Familiarity
Windows apps offer no advantages	39%	Not related to OS
Would cost a lot to upgrade apps	35%	Not related to OS
No Windows version of apps used	29%	Not related to OS

Question: Which one or two are the most important factors in your choice not to use Windows?

Response	Percentage	MS-DOS advantage over Windows
Used DOS so long no need to switch	47%	Familiarity
Windows apps offer no advantages	17%	Not related to OS

Source: PC World Subscriber Tracking, 2/93. N=75.

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Based on this information, we can outline what we shouldn't do in MS-DOS 7:

- Change the interface: No plans to do this anyway
- Increase the on-disk footprint: Since the Windows tools are going away, the footprint should shrink
- Lessen compatibility: Multitasking could be a monkey-wrench
- Penalize performance: Multitasking could be a performance hit as well, although perhaps a containable one and no worse than DoubleSpace. Also, MS-DOS will still boot at the same speed (i.e. fast), and that will greatly lessen any perceptions of slowness.

MS-DOS 7 Vision and Overview

First, several assumptions:

- Chicago will be an excellent environment in which to run DOS apps, and there is little substantive functionality we can add in MS-DOS 7 above and beyond what's in Chicago
- Users will choose MS-DOS 7 over Chicago for what it *lacks* - no GUI, less overhead - and not for what it *adds*
- Investments in MS-DOS are not leveraged since MS-DOS 7 could be the end of the line

Given these assumptions, here is a strawman vision:

MS-DOS 7 should be just good enough to justify the 7 with customers and the press, and be just good enough to fend off Novell and IBM

In other words, we should dedicate as few resources as possible to MS-DOS 7.

Justifying the 7

We have learned several lessons from MS-DOS 5 and 6:

- To justify a major new release you need one major OS-only feature
- People will buy an upgrade for that one feature
- To satisfy customers that you have listened to them, and to get good reviews, you still need additional features. They include more ambitious "fix what's broken" features like edit, the improved shell, and backup, as well as minor fit-and-finish like DIR /S and choice

In both MS-DOS 5 and 6 we erred on the high side by throwing in everything we could get our hands on. We probably could have sold as many Upgrades and gotten as good reviews if we had, for example, not had the task swapper or anti-virus, and we might have known they were superfluous had we done more thorough research.

Predicted Competition

The major features of DR DOS 7 were pre-announced to be multitasking, protect mode drivers, and a built-in Netware client, including peer networking. Given our experience putting proprietary networking into both WinW and the MS-DOS 6 beta, it's safe to say that a proprietary peer server in MS-DOS 7 would be more of a liability than an asset.

Without having the MS-DOS source as a running start, it's unclear what IBM PSP will be able to deliver. From looking at the PC-DOS 6 feature list it appears that PSP's PC-DOS group has very limited resources. Compression (Stac), backup (CPS), anti-virus (existing IBM in-house), PCMCIA support (Phoenix), and networking (MS7) were all designed and developed outside. There appear to be no important features like DoubleSpace or MemMaker that were envisioned, designed and developed by PSP. In PC-DOS 7 some form of multitasking taken from OS/2 seems a certainty, but it's unclear if they will be able to tackle the huge task of securing a VxD server and rewriting key drivers as VxDs.

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Strawman Feature Set

Customers and the press both want and are expecting architectural changes in MS-DOS 7, and we have to make a minimally acceptable effort to satisfy them. Beyond those changes, however, the list of mandates is short. Given all the utilities we included in MS-DOS 6, nothing obvious is still missing. To limit the scope of MS-DOS 7 all we should do beyond the major features is DoubleSpace safety work and enough fit-and-finish to make people happy.

Here then is a strawman feature set:

- **VxD support:** The major feature
- **Multitasking:** Secondary but important feature, and a competitive mandatory
- **DoubleSpace bullet-proofing:** Obviously high priority
- **Other fit-and-finish:** Respond to enough customer requests like XMS diskcopy, a longer path, and copy overwrite-protection to make people happy

Evanston

The product described above would be the traditional standalone MS-DOS and MS-DOS Upgrade. Since the latter won't interest Chicago purchasers, the MS-DOS Upgrade business will implode. 82% of MS-DOS 6 Upgraders use Windows, and if one conservatively assumes that 85% of all users will upgrade to Chicago and not MS-DOS 7, then the MS-DOS Upgrade business will go from being \$600 million to \$90 million over the product lifecycle.

Furthermore, since MS-DOS 7 could be the end, \$90 million could eventually become \$0. Therefore, it seems imperative that we reverse the traditional paradigm and reinvent MS-DOS to become a Windows-based product. Should we not, we would lose the first and possibly last chance to revitalize the hugely valuable MS-DOS brand name. I would argue that we actually need three products:

- **MS-DOS 7:** Traditional OEM product to hold the fort
- **MS-DOS 7 Upgrade:** Traditional Upgrade product for the few remaining MS-DOS users
- **Evanston:** MS-DOS layer that sits on top of Chicago. Hence the codename "Evanston" (it also sits on top of Chicago)

Here are some strawman visions for Evanston:

Everything you love about MS-DOS plus everything you love about Windows

If Chicago is a "better MS-DOS than MS-DOS" then Chicago plus Evanston is the "ultimate MS-DOS"

The comfort of MS-DOS. The power of Windows.

Since Evanston would be the product of the future, I would argue that it should be the product that has our best talent and thought focused on overwhelming the customer. MS-DOS 7 should be the product where our conscious aim is to be "just good enough."

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Is there a need for Evanston?

There are several statistics of note that would seem to make Evanston plausible:

Question: How often do you use the command line or "c" prompt to type in DOS commands such as "dir" or "copy"?

Windows 3.0 users	62%
MS-DOS 5 Upgraders	75%
MS-DOS 5 OEM users	63%
MS-DOS not 3 users	62%

Source: MS-DOS / Windows satisfaction study, 4/93

At least 100 million people worldwide know how the command-line, and regardless of how much they like it, using the command-line is a skill that isn't being unlearned even by Windows users.

Question: Do you use the DOS or Windows version of the software you use most often for work? (only Windows users were in the study)

DOS apps only	31%
DOS & Win apps	45%
Win apps only	23%

Product imperatives and outstanding issues:

First, here are some suggested product imperatives for Evanston:

- It should require Chicago
- It should have features not in MS-DOS 7 and act as a carrot to entice MS-DOS-only users to Chicago
- The MS-DOS name will help Evanston rise above the Windows utilities fray, but to be clearly above the fray it must have some OS-only features
- Windows is a much better development platform than MS-DOS, and Evanston should leverage this fact

Second, there are a number of outstanding issues:

- The positioning of MS-DOS as both a standalone product and as a Windows layer could be confusing
- The continued linkage of MS-DOS to Windows could create the perception that Chicago is still based on outdated MS-DOS technology
- Customers could accuse us of gouging if they think we were arbitrary in choosing what features we put in Chicago and what others we put in Evanston
- Customers could accuse us of coercion by forcing them to buy Windows in order to get the best MS-DOS

Target customer

Evanston should be designed and targeted differently than the MS-DOS 5 and 6 Upgrades because it cannot be a "No PC should be without it" product. Since it would be an add-on and not the base OS, we should focus on the more advanced Windows user who still uses MS-DOS and/or MS-DOS apps to get work done. This focus is different than the classic MS-DOS or Windows Upgrade, which are targeted at everyone.

Although we could put some very compelling features in Evanston - and therefore target a wider audience - I fear that if we are too aggressive in bulking up Evanston at the expense of Chicago that we could both hurt Chicago and anger our customers.

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Business Case

Quick numbers suggest that Evanston could be at minimum a \$90 million business:

- Based on MS-DOS 6 Upgrade sales, Chicago should sell at least 10 million upgrades
- The Font Pak model (sharp focus on selling one cheap, related add-on) seems to work much better than the Upgrade Your World model (a broad push to sell many unrelated products)
- The Font Pak attach rate was 50% on direct sales; assume a focused add-on campaign in the channel could achieve 10% attachment
- Assume that if Evanston attaches to enough Chicago Upgrades at launch, it will gain its own momentum and sustain ongoing sales equivalent to another 10% of Chicago Upgrade volume

$$10,000,000 * (10% + 10%) * \$45 = \$90,000,000$$

I have not estimated Evanston purchases on OEM Chicago systems or possible Evanston OEM revenues.

Strawman Feature Set

As a baseline, the new MS-DOS features in Chicago will be (according to jeffpar and russ aron):

- Zero footprint: DoubleSpace VxD, Mouse VxD, VFAT and zero footprint Smartdrv, MSCDEX VxD
- Long file names (won't pass through to DOS apps unless they are updated)
- Toolbar for windowed DOS apps
- TrueType support in windowed DOS boxes
- Files high, Lastdrive high
- Launch Win apps from the command-line
- 1024 cylinder support
- Last access date
- Better support for graphics mode DOS apps in windowed DOS boxes

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MS-DOS features that are definitely not in Chicago, or are under debate:

- Jobque's command-line find engine
- Ability to load device drivers from the command-line
- 255 char path - undecided
- 736K DOS boxes
- Flexboot multiple OSES - undecided
- A DOS PIF setting that allows a batch file to execute before an app (local configuration)

Here are some possible feature areas for Evanston to help make the ideas more concrete:

Super command-line - "The best of GUI and GUP"

We know that Windows users use the command-line, and we know from CompuServe data that advanced users are passionate about it. The command-line could stand a lot of improvement, and in Windows it's not easily accessible. We could also add many features in a Windows command-line, like color, that would be hard to add in MS-DOS. Here are some ideas:

- Unlimited scroll-back
- Split-screen support
- Font and color control, including color control for different file attributes
- Right-mouse click brings up last X commands and common commands menu (dir, copy, etc.)
- Ability to run Win apps from the command line (already in Chicago)
- Ability to can Progman/Fileman/Explorer and use the command prompt as the Windows shell
- Optional button bar for common commands
- Complete cut-and-paste support
- Choice between TTY error messages and alert box error messages
- Customizable C: prompt and C: prompt editor
- Forgiving parser for non-destructive commands - "dir *.txt" would execute as "dir *.bat"
- Improved error messages and error recovery (Paul Somerson's Wizard concept)
- Dir files, then highlighting them with mouse and pressing DEL deletes them
- Built in DOSKEY

Command-line command enhancements

- Command w/o args brings up command dialog box (copy, xcopy, format, etc.)
- "The Copy Monster" - XCOPY and DISKCOPY in one. XMS support, prompt for new disk when full, file spanning, dialog boxes with help if no args

Improved memory management

- 736K DOS boxes for text mode apps
- Additional VxDs not in Chicago: UNDELETE, RAMDRIVE, etc.
- Load device drivers from the command-line plus a DOS PIF setting that allows a batch file to execute before an app equals local configuration control by app

Other random ideas

- Windows disk tools - diskfix, background defrag, Aaron's magic tool
- Flexboot if Chicago doesn't do it
- Long path if Chicago doesn't do it
- "Install as MS-DOS-only" - would delete all the Windows-specific files (applets, wallpaper, etc.)
- Take Windows AV and Backup from Chicago. Apparently Chicago uses backup to make floppy sets from pre-installed systems, and so this maybe impossible
- Improved batch language

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Appendix A - CompuServe Beta Forum Research

Andy Thomas has tabulated all of the responses to our posting asking for MS-DOS 7 suggestions on our beta forum. There is obviously a huge power-user bias in the sample. The top individual requests were:

Longer filenames	32
New file system	24
Get rid of 640k barrier	24
32-bit	22
Tape backup support	18
One-pass diskcopy	15
peer-to-peer networking	10
Pre-emptive multitasking	9
Enhanced batch language	9
Dialog box-style utilities	8
Longer path	7
Break 1024 cylinder barrier	7

I also read all the threads individually to get a qualitative feel, and not surprisingly the overwhelming request is for a "modern OS," i.e. a 32-bit, protect-mode OS. People aren't clear about exactly what they want when they say "32-bit protect mode," but I think most would be happy with just long file names and the end of conventional memory management.

But beyond specific feature requests, I wanted a sense of people's general areas of interest. Towards this end, I grouped all the requests into 7 categories. Note that people are extremely interested in an improved command-line and command set.

Category	#	Description	Examples
Architectural enhancements	11	Any suggestions to the effect of "I want a new OS"	Long file names, New file system, 32-bitness, multitasking, 1024 cylinders
	2		
Command environment	75	Suggestions related to activities performed from the C>, including command-line utilities	One-pass diskcopy, dialog box-style utilities, longer path, colors without ANSI.SYS, "use 4DOS"
Utilities	69	Suggested enhancements to existing utilities or new non-command-line utilities	Tape backup, improve the shell
Memory management	46	Suggestions specifically related to memory management	Break to 640K barrier, DPMI support
Other	18	Assorted random stuff	Security features
Networking	16	Self explanatory	Peer networking
DoubleSpace	16	Self explanatory	Better interoperability with Windows
Batch language	14	Self explanatory	"Improve it," return more errorlevels

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