
Introducing Whistler

The next version of Windows is almost upon us. So what's new in Whistler, and do you want it?

By Robert Schifreen

Microsoft wants your money again. Not quite yet, but sometime in the next few months. Just when you thought your upgrade to Windows 2000 would ensure that you'd be working with the latest OS technology for a couple of years, everything changes again with Whistler. Whistler is the code name for the product which Windows 2000 was supposed to have been - that is, the coming together of the 9x and NT platforms into a single product with a common kernel. That didn't happen when it was supposed to. This was partly because of the difficulty involved in getting NT to work with all those devices which NT has previously ignored but which are important to home and game PCs (Whistler can now burn CDs without the need for third-party software, for example). Also, Microsoft realised that the processing power required to run the NT platform, and specifically the amount of memory required, just wasn't available on enough home machines for it to be sensible to push such people onto such an OS.

But things have moved on, and Whistler is already in beta. The preview that you're reading now is based on beta 1, which we received in November. By the time you read this, beta 2 will have been released. We'll keep you informed of any differences through Support Alert, the free fortnightly email newsletter for IT support people from ITP. If you're not already on the subscription list, send a blank message to supportalert-pro-subscribe@itp-journals.com and you soon will be. At the time of writing, no one at Microsoft is saying what the final name of the product will be. It may be Windows 2002, or perhaps a variation on Windows 2000 such as 2000 Plus. Or it might be something completely different altogether.

You're probably wondering what Whistler will look like. And you're probably wondering why there aren't any pictures in this article that show the user interface. At the time of writing, the interface is undergoing regular revamps and so there's no point in showing what the product currently looks like. As soon as we know more about the interface, we'll let you know. But one thing is certain - the look and feel of Whistler will be substantially different to the way that Win9x and NT/2000 appear. Microsoft has been doing a lot of work on user interfaces



recently, and you'll start to see the results of this research in Whistler. In order to avoid confusion in environments where not all users are upgraded at the same time, and to prevent complaints from people who want Whistler to work just like their old Windows, there will be an installation option to choose either the classic or the new interface. At present, the consumer version of Whistler defaults to the new interface while the corporate editions default to the old one, although this may change before release. Either way, selecting an interface is a matter of clicking a button, and administrators can lock down this function to prevent users changing it back.

Versions

Whistler will be available in six flavours, which will replace 95, 98, Me and 2000. The precise names for the flavours are not yet fixed, but are currently Embedded, Personal, Professional, Server, Advanced Server and Datacenter Server. The Personal version equates to Windows 9x/Me, while Professional is the new version of NT/2000 Workstation. Although all versions of Whistler share a common kernel, there will be differences in the Personal and Professional versions in order to justify different pricing levels. Precise details of those differences are not yet clear, but one major factor is that Personal does not support joining a domain. This will almost certainly rule out using Personal in a corporate environment, which is just how Microsoft wants it to be.

The Embedded version deserves some explanation. Once upon a time, embedded operating systems had tiny footprints, went into ROM, and were used in tiny devices. The Embedded version of Whistler is not like that. It's designed for use in network appliances such as plug-and-play file servers, print servers, Web servers, Network Attached Storage (NAS) etc and is really just a standard copy of Whistler but with a few of the configuration facilities removed and less ability to add new drivers. It's certainly not small enough to be put into ROM.

One version of Windows that will not be subsumed into the Whistler programme is Windows CE. This will remain in its current form, at least until CE devices have enough RAM to allow them to run the Whistler kernel. No date for this has been announced, so you can assume that CE will continue to exist and be developed for the foreseeable future.

As with Windows 2000, Whistler will refuse to install on machines with less than the minimum specified RAM, hard disk space or CPU speed. The Personal edition, which supports just one CPU, requires a 233 MHz CPU (300 recommended), 64 MB of RAM (max 4 GB, 128 MB recommended), and needs a minimum of 2 GB hard disk space. The Professional edition supports up to two CPUs and also supports Itanium. Other figures are the same as for the Personal version. Advanced Server supports up to eight CPUs, has the same requirements

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Microsoft will make available a variety of information at www.microsoft.com/whistler.

for CPU speed and hard disk space, but can support up to 8 GB of RAM (128 MB minimum, 256 MB recommended). Incidentally, support for installation boot floppies is no longer included - you have to boot from CD.

So when will Whistler ship? The current word from Redmond is that the client versions will ship within the next two or three months, with the server versions arriving three or four months after that. Potentially, this is a dangerous move. Shipping a client OS before the server is ready is, to say the least, unwise. The risk is that companies will evaluate it, be unable to test the whole suite in real-world situations, and decide to look elsewhere. IBM discovered this problem when it shipped OS/2 as a command-line OS because the GUI (Presentation Manager) wasn't ready. Whistler won't suffer as badly, but bear in mind that the first release of Whistler won't be sufficient to allow you to do a proper evaluation of the system on your network.

What's New?

Whistler is being billed as the best bits of Win9x and NT/2000 in a single product. Effectively it's really Windows 2000 (you still run winnt32 to install it), with all the bits of 9x and Me that were supposed to have made it into 2000 but didn't. Of course, Microsoft is doing its standard line about Whistler being the most dependable Windows ever, the most stable, the best experience for home users, the most supportable etc etc. And that's probably true. But there again, it would be a very strange company that would launch a product that was not as good as the one it replaced.

Third-Party Apps

Ensuring that third-party applications work on Whistler is a key goal for this release, according to Microsoft. Whistler will include code that will help ensure that applications that worked on Windows 95, 98, Me and 2000 will continue to work on Whistler. A piece of Whistler code called AppFixes will solve problems such as applications incorrectly detecting the OS version, and specific application problems such as referencing memory after it has been freed. The infrastructure support enables AppFixes on what would otherwise be incompatible applications and these do not require user intervention. A database of applications, problems and fixes drives which parts of AppFixes are enabled and this database is updated from the Web via Auto Update. In addition, the end-user can enable a compatibility mode for custom-built applications. Selecting the option in the property page of the application does this. With AppFixes, imagine the case where a user has an application that worked under Windows 95. From Whistler, the application reports that "This application requires Windows 95 or greater". The user can select "Run in Windows 95 compatibility mode" on the application property sheet, relaunch the application and start using it.

A major new feature in Whistler is support for Itanium, Intel's forthcoming 64-bit chip. This support will be present in all versions except the Personal edition. Also new is the first sighting of the new .NET technology, upon which all of Microsoft's development tools will soon be based. However, the company points out that Whistler is by no means the "big bang" of the .NET rollout, which won't be complete for several more Windows generations.

Domain Controllers

On the server side, the problems with deploying a new domain controller in a remote location have been addressed. With Windows 2000, synchronising the new DC with the existing one can take a long time if it's being done over a slow link - anything up to a week. With Whistler, you can dump an image of the existing DC to a CD or tape, then use that to kick-start the new controller. Only the information which has changed since the CD or tape was created needs to be synchronised, thus speeding up the commissioning process greatly. Also, replication between domain controllers in general has been improved.

In Windows 2000, when processing a logon for a user in a native mode domain, a Domain Controller had to contact a Global Catalog server in order to expand a user's Universal Group membership. This requirement compelled some organisations to deploy Global Catalog servers into remote offices in order to avoid logon failures if the network link that connected the remote site to the rest of the

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organisation was disconnected. In Whistler, Domain Controllers in a site that does not contain a Global Catalog server can be configured to cache Universal Group membership lookups when processing user logons. This allows a Domain Controller to process logons without contacting a Global Catalog, and thus enables logon when a Global Catalog server is unavailable. Group memberships for users that log on to the Domain Controller in the site will be cached. The cache will be refreshed on a periodic basis as determined by the replication schedule.

Security

On the security side, the handling of single sign-on has been simplified from the user's point of view. Login credentials are now cached on the workstation, so if a user is already signed onto a server he or she won't always have to sign on again. Whether this opens up new security risks remains to be seen. Also on the subject of security, support for smartcards - present in Windows 2000 - has been improved, specifically in the area of manageability. Microsoft itself is starting to roll out smartcard-based logons internally, so it is a fair bet that this feature will be developed further in the future.

Whistler provides Internet security in the form of a firewall. Designed for use in the home and small business, Personal Firewall provides protection on computers directly connected to the Internet or behind an Internet Connection Sharing (ICS) host computer that is running the Personal Firewall feature. This feature is available for LAN or dial-up connections. It also prevents scanning of ports and resources (file and printer shares) from external sources.

Having talked about what's new, a few words about what's been removed are also in order. DLC and NetBEUI are no longer supported. Also, the 64-bit version no longer supports IPX/SPX, OSPF or IrDA.

Anti-Virus

The technology behind the major security update to Outlook, which was released a few months ago, has now been added into the operating system. This is a major departure for Microsoft, and will have severe implications. It will affect how well you are able to protect your machines from infection by viruses.

All executable files are divided into around 40 different types, such as EXE files, DLLs, VB scripts, Java applets, ActiveX controls etc. For each type of executable, Whistler can be configured to run the executable in one of three ways: it can run it as normal; it can ask the user whether to run it; or it can automatically run it but only if the executable has been digitally signed by a trusted party. The current default setting (though this may change before release) is to ask before running executables. This applies not just to code downloaded from the Internet, or running as a macro inside a document or spreadsheet, but also on locally-installed code such as Microsoft Office. So, in the default setting mode, users will have to confirm their intentions each time they run an Office app. You can get round this by configuring Whistler to run trusted code automatically, as the Office apps are all digitally signed by Microsoft. There will be the facility for companies to sign their own code, to enable software developed in-house to be trusted by users.

It is interesting to note that the default setting on various security options is being changed to a more cautious stance. Maybe Microsoft has finally listened to its critics, who keep pointing out that Windows has a lot of excellent security features but that most of them are turned off by default in order to provide the greatest functionality.

System Restore Capability

Of particular interest to support people will be a new system restore capability that enhances the ability in NT and 2000 to restore to the last-known-good configuration. You can now save configurations, and restore to any one of them. So if you're experimenting with a new driver, for example, or a new application messes up a working system after installation, you can roll back the machine to the state prior to the installation of the driver or application. All files which were overwritten will be replaced, drivers which were replaced will be restored, and the registry will be restored too. Unfortunately there's no reporting facility - so although you can roll back to a known configuration, you can't get a list of what changed. This is an oversight, and one that Microsoft should consider fixing.

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Whistler's developers have, says Microsoft, given careful consideration to the need to back up machines which are required to perform 24 x 7. There's a new API, developed by Microsoft, which will allow the backup program to inform database programs that a backup is being taken and for all writes to be held for a short while. The API will be published, and made available to vendors of databases and those who market backup tools. SQL Server will be one of the first to use it.

Automatic Updates

Much work has been done on Windows Update, the facility in Windows 9x and Me to automatically connect to a Web site and for the user to receive news of important patches which are available. Whistler will now be able to update itself automatically, without the user having to decide whether to install the recommended updates or not. Alternatively, workstations can be configured so that no updates take place, but reports of required fixes are sent to administrators.

A new Automatic Updates feature will enable multiple users in separate sessions to automatically install Windows downloads on the same computer. Previously, only one user per computer could take advantage of automatic updates. This feature is used for the delivery of critical operating system updates, such as security fixes, patches, and so on. Updates are downloaded to the computers in the background, although the user is notified prior to install and given the opportunity to postpone it, as the install might require them to restart the computer. AU uses bandwidth-throttling technology for downloads. Bandwidth throttling uses only idle bandwidth so that downloads will not interfere with or slow down other network activity, such as Internet browsing. AU's service checks user security privileges on each method call. It will only process calls coming from administrator user sessions.

Support for what Microsoft calls "headless servers" has been improved. These are machines with no attached keyboard or monitor, which ideally sit in a locked room and never get touched. The trouble with such machines is that they require physical access in order to reboot or maintain them, which limits the places that you can put them. With Whistler, you'll be able to administer and reboot these machines over a network.

Also new is Remote Installation Services (RIS), which makes it easier to put a standard configuration setup on a CD or tape and then roll this out to multiple servers. If you're a user of remote control software such as Laplink, and use it to take over the screen and keyboard of a user on the network (or via the Internet) in order to guide them through a problem, then you'll be pleased to note that Whistler now has this functionality built in.

One item of Windows 2000 server admin about which Microsoft has received many complaints is that some of the functions can only be done via a GUI and not from a command line. This makes it difficult to automate things with scripts, batch files etc. We are promised that 100% of admin functionality in Whistler can be achieved via command lines, although of course the GUI front-ends will also remain.

Speed And Scalability

Although it's impossible to do speed tests yet, because the beta still contains lots of debug code, Microsoft has stated some of its goals for speed improvements. Boot time, it says, will hopefully be between 15 and 20 seconds, after the BIOS has done its POST and before any programs in the startup group get loaded. Unfortunately, Microsoft is not clarifying the type of hardware on which they expect to achieve this result. Also improved is scalability. There will be support for more processors, and the number of terminal server sessions supported will increase "from hundreds to thousands". IPv6 will be supported for the first time.

Laptop users gain some new functionality, especially in the area of power management. Machines can now be configured to run at full speed when running on mains power, but to run at reduced speed when operating on batteries. This should preserve battery life. There are also facilities for turning off the display when the machine's lid is closed, and dimming the display when running on battery power.

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In a further effort to reduce the problems caused by DLLs (which Microsoft swore it would fix in Windows 95, but never did), there will be the ability for different programs to install and use different versions of the same DLL, rather than having one program stop others from working by replacing a DLL with an incompatible version. SQL Server already does this if you have the 97 and 2000 versions installed on the same machine, but now it will be managed by the operating system. It remains to be seen whether this eases the "DLL hell" problem or makes it much, much worse.

If you're collecting data on why machines crash, you'll like the new reboot reason collector. Whistler machines can be configured so that, if the user reboots the PC, he is asked to type in a reason for the reboot. Additionally, all blue-screen crashes are captured. All of this data is sent to the administrator. Blue screens can also be transmitted to an online service which will analyse the data and try to help you understand what caused the crash.

To assist in improving the help feature in Whistler, there's a new online feedback submission service. This feature will enable users to send feedback to Microsoft relating to the help and support features in Whistler. When a user sends a comment, the feature will also send a session trace along with it that can help Microsoft staff understand the user's session prior to feedback submission. This can include previous topics visited and search keywords used.

Decisions

This brief preview has only scratched the surface of what's new in Whistler. The documentation which accompanies the beta release runs to hundreds of pages of new features in all aspects of the system. Some are major, while some are relatively minor (such as the ability to record and process event log files larger than 1 GB). We will be publishing additional articles once the product is nearer release. Meanwhile, keep an eye on the Microsoft Web site for announcements and white papers.

So what should be your policy on Whistler? Clearly, upgrading to Whistler from NT or 2000 will be nowhere near as big a step as the upgrade from 9x or Me. Whistler is very close to NT and 2000 in terms of functionality. However, NT, 2000 and Whistler are all very different animals from the 9x versions of Windows, and both users and support staff will take a fair amount of time to get used to such a change. Microsoft is at great pains to point out that Windows 2000 has been a great success, and it uses companies such as Dell, IBM, Compaq, Wells Fargo and Microsoft itself as examples of organisations that have rolled out tens of thousands of 2000 upgrades to replace 9x, NT and NetWare (there are some carefully-vetted surveys at www.microsoft.com/windows2000 which claim to show just how quick a payback period the upgrade can provide).

However, it's generally accepted that take-up of Windows 2000 hasn't been as fast as Microsoft would like. Those who have already rolled it out will be sticking with it for some time to come, so the main market for upgrades to Whistler are users of 9x and NT. Should such users upgrade? Only you can decide, once you've had a chance to evaluate Whistler for yourself. But one thing is certain - if you are thinking about moving to Windows 2000 but haven't yet done so, you should now be thinking Whistler rather than 2000.

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