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TGK1

Bug eyed?

Many, if not all of you, will have heard about or read articles on the Millennium Bug, Year 2000 (Y2k) problem or the Millennium Time Bomb. Opinions vary about what its effect will be from nothing at all to the most cataclysmic event since the advent of automation.

What is the Millennium Bug?

The problem is very simple but what gives it a world wide impact is that almost all organisations and individuals use or are dependent on micro processors (chips). If all chips had been manufactured to today's standards there would, probably, be no problems. Unfortunately, there are many electronically controlled devices containing older chips that could cause problems.

The problem concerns the way that chips store dates. The normal date has three elements ie day, month and year. Most chips, in the past, stored only the third and fourth digits of the year eg. 99 instead of 1999. This was for two reasons. First it saved computer storage space and second, manufacturers did not think ahead and foresee the problems that the year 2000 might bring ie. if the computer adds 1 to 99 the year changes to 00, but is it 1900 or 2000 or even 3000.

Many people feel that the Y2k

Ken Richardson gives some valuable advice aimed at lessening the risks of the dreaded Millennium Bug



problem has been exaggerated by the media, by consultants and by the manufacturers of computers and other systems. There is an element of truth in this, but until you assess the impact that the Y2k bug will have on you there is no way of knowing.

Will I be affected by the Y2k bug?

The answer to the above question is maybe. If you do not use a computer at home or at work, do not have an automated irrigation system, do not use a microwave oven, drive a car, fly off on holiday, use a cash point, rely on traffic lights, use the telephone nor use anything that contains an embedded chip or chips then the answer is no. If however, you use or operate any device that contains a chip or chips the answer, again, is maybe.

How do I find out?

In theory, the answer is simple. Identify all the systems, devices and programs which have date calculations and advance the date and see what happens. This sounds easy but when you start to assess how many chips are used in the home and at work, the problem becomes massive. Some estimates show that between 30 and 40 billion chips have been sold during the last few years with 7 billion chips sold in 1998.

Action 2000 has been set up, by the Government, to help all businesses in the United Kingdom, to deal with the Y2k problem. The Action 2000 seven step plan was designed to help you to apply project management methods to assess if you have problems and how to fix them.

The seven steps are:

1. Understand
2. Prioritise
3. Assess
4. Plan
5. Implement
6. Test
7. Install

Step 1: Understand

If you are reading this article then you have started the process of understanding. Further information can be obtained from Action 2000, PO Box 1999, Stratford on Avon, CV37 9GS, telephone 0845 6012000.

Step 2: Prioritise

Create an inventory of all computer hardware, software and embedded chips in your organisation, which might be affected. This could contain:

A list of software, both applications and operating systems.

A list of computer hardware

A list of devices containing embedded chips eg machinery, irrigation systems, telephones, fire and intruder alarms etc.

A list of all suppliers, sub contractors or agencies whose failure, due to the Y2k problem, could adversely affect your business.

If you are in any doubt whether a device may be affected then add it to your list.

Step 3: Assess

Once you have completed your inventory then you need to assess if the system will have Y2k problems and what impact any failures may have.

Assessing operating systems and general software packages usually means contacting the provider. Information on software packages can be found on the Internet eg Microsoft have a site at www.microsoft.com/year2000.

Assessing computer hardware can be a simple process and more details will be given later.

Assessing embedded systems can be a problem but the manufacturer/dealer who supplied the system should be able to give you the answers. Alternatively, use the Internet eg

www.mitre.org/research/cots is an A-Z list of companies and product information.

Step 4: Plan

By this point, you will have decided what equipment and which systems need fixing their priority and the cost implications. However, you may have decided that your systems are compliant and that you do not need to progress any further.

If you do need to take action then you can apply the 5R strategy to the problem. The 5 Rs are:

- Repair it
- Retire it
- Redeploy it
- Renew it
- Risk it

Some people say that there is a sixth R which is Run Away!

Once you have made the decisions on the way ahead, you need to formulate a plan of action. Remember that 1 January 2000 is just over 200 days away, which does not leave you much time. You may also want to look at contingency plans to be used as a safety back-up in the event of an unforeseen system failure.

Step 5: Implement

If you do have to buy new hardware



Y2K SPECIAL

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or software then you should insist on a written guarantee of compliance with each purchase and ensure that the guarantee answers your organisations requirements for compliance.

Step 6: Test

You need to produce a test plan which not only details when testing will take place but what you are testing for and what test data will be used. For embedded chips, the first and easiest test for any piece of equipment is to contact the supplier or person who maintains the equipment and ask them if the equipment is Y2k compliant.

Computer Hardware Problems

First the good news. Macintosh computers are not affected by the millennium bug as their years are held as four digit numbers. The bad news, however, is that most PC type computers could be affected.

PCs hold the date in three distinct places ie. the Real Time Clock, the BIOS Clock and the Operating System Clock and a problem with any or all clocks could cause a problem. Another date problem could be caused by the fact that the year 2000 is a leap year. A leap year is any year that is divisible by four and not by 100 or is also divisible by 400 where

the last two digits are zeros eg. $1996/4 = 499$ but $1996/100 = 19.96$ therefore it was a leap year but $1900/4 = 475$ but $1900/100 = 19$ and $1900/400 = 4.75$ therefore it was not a leap year. However, $2000/4 = 500$ and $2000/100 = 20$ and $2000/400 = 5$ therefore 2000 is a leap year. This could be a problem if you have a system that needs to calculate days in a year eg. if your computer does not recognise that 2000 is a leap year the number of days in 2000 will be calculated as 365 instead of 366.

Additionally, all dates after 28 February 2000 will be wrong but they can be reset.

If you do not use the date function on your computer you may think that you are safe. However, some software uses the date function to check that your licence or password is still valid if the software sees the wrong date then it may not allow you access. If you use a networked system you have even greater problems as a date problem on one machine can transfer the problem to other machines on the network. If you have software that is licensed to a future date you should not advance your computer held date beyond the licence expiry date as you could be locked out permanently.

Testing BIOS

It is estimated that 50% of all PCs

sold in the past four years have a non compliant BIOS. Tracing the BIOS used in a PC is not easy as two 'identical' machines bought on the same day could have different BIOS. There are two ways to test your PC ie. Manual and Software.

Manual Test

The Real Time Clock can be checked by setting the system time and date, through DOS or Windows, to 23 58 on 31 December 1999. After leaving the computer for a few minutes, the date should read 1 January 2000. However, you should also check what happens if you set the date and time as above ie to 23 58 on 31 December 1999 and then turn off the computer, leave for three minutes and turn it on again. If the date is shown as 1 January 2000 then you are one of the lucky few. Remember to check that the time reads 00 01 as some computers roll over to 20 00. Unless your BIOS chip is year 2000 compliant then you may find that the date now reads 1 January 1980 or some other date. As I said above, if you do not need to use the date function within your applications then there may not be a problem. However, if you do use the date some programmes will obtain it from the BIOS clock which will probably return 1 January 1900 and others will obtain it from the Real

Time Clock which will return 1 January 1980 ie the date when all computers were 'born'. Check that BIOS recognises that 2000 is a leap year by changing the date and time to 23 58 on 28 February 2000. Shut down your computer, wait for a few minutes and then switch on. The computer should show the date as 29 February 2000.

Software Test

A variety of programmes are available that will test your computer automatically. However, some test packages are of dubious quality. Free downloads are available on the Internet and several sites review test and fix packages, eg. www.solace.co.uk reviews fix software packages, www.span2000.com is a PC fix software site, www.gmt-2000.com contains Check 2000 software plus a host of other information.

Computer Software Problems

Information on Computer Software compliance can be obtained from the manufacture/supplier. Microsoft has massive site on the Internet at www.microsoft.com/year2000. All TRIMS for Windows and TRIMS for DOS Systems (including Tree Inventory) which are at Version level 3.1W or 3.3 are compliant. All TRIMS 97 Systems are compliant as

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is their new product TRIMS 2000 (available for release June 15, 1999). More information on TRIMS compatibility can be found on the Internet at www.trims.com

Step 7: Install

This can be the installation of new systems or the installation of fix programmes and/or new chips.

Fixing BIOS

There are several ways to fix the problem caused by BIOS. These are:

- Enter the date manually the first time that the computer is switched on in 2000
- Update your BIOS
- Install a software fix
- Install a new BIOS chip
- Install a new Real Time Clock chip
- Update your operating system
- Buy a new computer

None of the above are guaranteed to fix the problem and detailed knowledge of computer hardware may be needed to remove/insert new chips. Microsoft recommend manually resetting the BIOS the first time that the computer is used in the year 2000 and later versions of Windows NT include an automatic fix. Future 32 bit versions of Windows will also include an automatic fix.

Unfortunately, some computers with non compliant BIOS will need to be reset each time the computer is switched on.

What do I do next?

If you have not considered how the Y2k problem may affect your business then you should take immediate action to Assess all of your electronic equipment to see if the Y2k problem will affect you. If you are certain that none of your electronic systems are date reliant then you need not worry about the Millennium Bug. If, however, you find that you may have a problem then you will need to find out what can be done. Most Training and Enterprise Councils have been running Test and Fix and Assess and Manage Courses for some time so check with your local TEC/LEC.

Search the Internet, it contains a vast amount of information. Talk to others in the same situation. Finally, where necessary, employ a consultant.

Do not panic, as I said above, the Y2k problem may have no effect on your business or home life. However, if you do nothing now, you may have severe problems at the start of and during the Year 2000.