



Year 2,000

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world's" Gregorian Calendar! Others are based on clocks which count the number of seconds past some arbitrary initial time. It's the ones with the Gregorian Calendar we have to worry about. Depending on the value of the latest time check it makes, the embedded chip may instruct the device in which it is embedded to perform certain mechanical actions (or not, as the case may be). The problem is that these actions may get somewhat confused by the year 2000 date change.

Lets take an example to simplify this a bit:

An elevator (or lift) requires an enforced service every 90 days. Failure to perform maintenance within that period will result in an automated routine being activated that takes the elevator to the ground floor and shuts the elevator down until it is serviced.

Why does the Year 2000 date change cause problems in this instance? Well, within the elevator's hardware there will be an internal clock in an embedded chip which monitors the date including the year. Each time the elevator is serviced, a date is calculated 90 days into the future. On a daily basis, so long as the value of the current date is smaller than the calculated future date, the elevator continues to function. Unfortunately, once the future calculated date falls within the Year 2000, 1 January 2000 is seen by most systems as 1 January 00 (i.e. 1 January 1900!!), which is in turn seen by the elevator's system as being older than the current date of say, 24 December 99.

Thus the lift will head to the ground floor and shut down.

In the case of some elevators this is less of a problem, as when the current date falls past the Year 2000, the calculation will once again become correct. The problem is which elevators will work and which won't. The bad news is that such chips are found in: elevators, security systems, cars, planes, credit card systems, safes, flight simulators, bar code reading systems, traffic lights, burglar alarms, fuel systems, and many more. Each such chip could make use of a date calculation that falls foul of the millennium date change, leading the device using the chip to behave in an unpredictable manner. For example, burglar alarms may go off / not work at all, elevators may incorrectly assume they are in need of a check and head towards the basement (as in the example), many systems in the food industry could decide that goods labelled with 'sell-by' dates around the millennium are out of date and should be scrapped.

How many 'problem child' embedded chips could there be? Well the good news is that industry estimates claim that only 30-50% of embedded chips could be at fault. The bad news is that its almost impossible to detect which is which! This means that the main option is one of replacement unless you can figure out who the supplier is (not easy as documentation is usually lacking, or maybe lining someone's cupboard!), and the supplier can vouch for the embedded chips' correct functioning over the Year 2000.

Now just think of the number of embedded chips you can find around your organisation, which if malfunctioning due to the Year 2000 problem, could have a serious impact on the

operation of your business. Rough guides to where such chips could reside are: pretty much anything with a plug on it, DC/AC powered devices, as well as the above examples stated. For instance, think about an airport: landing lights, fuel systems to aircraft, aircraft, vehicles, lighting systems,etc, etc.

You may also want to take a closer look at devices around your home. You will be stunned at the number of these containing an embedded chip which in turn relies on checking dates.

What action can I take right now?

DO NOT IGNORE IT. If you ignore the Year 2000 problem you could be putting your entire business at risk. You must ensure that you and your staff are aware of the Year 2000 problem and the implications it could have on your business. The single biggest problem in most companies is **AWARENESS**. I hope this article has gone some way to highlighting the potential dangers of the Year 2000 problem. It is now up to you to evaluate the **BUSINESS** risk that your company faces.

Colin Roy is BA's Manager, Central Province

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