A world without Cobol?

By Stuart McGill, chief technology officer at Micro Focus
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Despite the advent of new technologies, computing languages and platforms, the majority of the world's systems - from the mainframes of global enterprises to the traffic lights at the end of your street - still run on Cobol, a widely adopted computer language developed in 1959.

These systems are tried and tested and continue to underpin the modern world. In a single year, for example, such applications are involved in transporting up to 72,000 shipping containers, caring for 60m patients, processing 80 per cent of point-of-sales transactions and connecting 500m mobile phone users. Cobol manages our train timetables, air traffic control systems, holiday bookings, supermarket stock controls and more - there are a mind boggling 250bn lines of Cobol code in the world today and every day there are 200 times more Cobol transactions than Google searches.

If you tried to live for an entire week without ever interacting with it, you couldn't travel, make phone calls or purchase food in a supermarket. You would demand your salary in cash as bank payments wouldn't work, but more likely than not, you wouldn't be paid at all, since your employer is paid electronically by all its customers too. Even the credit crunch would become a credit freeze, since interbank payments, at whatever rate the market dictates right now, would not be possible. Put simply, Cobol is everywhere, and life would change very quickly if it failed.

However, with a well documented global IT skills crisis in which Cobol takes centre stage, this backbone of the modern world is in jeopardy. What would a world look like if these essential Cobol systems failed, and what are organisations doing to avoid this ticking time bomb?

In times of economic turbulence, organisations are not looking to rip and replace their existing IT systems, but rather glean value, make savings and mitigate risk by modernising them. Recent research highlighted that the majority of CFOs and CIOs believe the skills to modernise existing systems are most important in times of recession. But while organisations continue to invest in Cobol, educational establishments are not. Cobol is rarely found on computing or IT curriculums, and as skilled Cobol engineers retire, we are reaching a critical point where the systems that manage our world could have no one to manage them.

The Cobol skills crisis is regularly highlighted by high profile breakdowns. One recent story from the US reported that wage cuts demanded by California's Governor Arnold Schwarzenegger could not be implemented because of a lack of Cobol programmers capable of amending the state's payroll system, despite California being the software capital of the world. While those who missed out on pay cuts were clearly pleased, the state's treasurers, with a budget deficit of more than $1.5bn to contend with, were not. The Terminator's battle with the machine is not an isolated incident either. In October 2008 the British Computer Society warned that a shortage of IT graduates is starting to affect the delivery of our public services. Worryingly, half as many students took IT related degrees in the UK in 2008 than in 2003.

So what is being done?

Organisations are working to fix the skills crisis in a number of ways. Some are simply choosing to replace Cobol with more modern technologies in expensive and risky migrations. Sainsbury's disastrous implementation of a new distribution system in 2004 in which its store shelves ran bare is one such example of the risks involved.

Others however, in recognising the longevity of the language and the risks involved in rip-and-replace or rewrite approaches, are taking a different strategy, modernising the valuable information and applications that reside within their existing core IT systems. Modernisation is encouraging some businesses to work directly with educational establishments to return Cobol to the syllabus. One initiative, for example, has seen 75 universities around the world provided with free access to the latest technology and teaching tools. The programme is estimated to contribute to 5,000 new Cobol-literate graduates each year.

Modernisation offers a range of approaches. Some organisations are working to bring a "new" Cobol to existing developers in a way they already understand, without the need for huge amounts of re-training. Updates range from new graphical user interfaces for developers to replace the outdated command-line interface, to initiatives to bring Cobol into the "cloud", the IT industry's most disruptive technology for years where applications are hosted online as opposed to being installed in a desktop PR or mainframe. Such developments show that Cobol is still more than relevant today and holding its own despite the decades of technologies that have threatened, and largely failed, to replace it.

A world without Cobol would be a very different place indeed. While the IT skills crisis will unlikely cause every Cobol system to break down at once, the slow loss of knowledge of something that underpins the modern world should be a serious cause for concern. In most instances it is cheaper and considerably safer to identify where value lies in your existing systems, and to exploit it accordingly.

Cobol has been the world's most robust and widely used language for almost 50 years, and this does not look set to change. If the world is to maintain these essential assets for the long term, it needs to solve the IT skills crisis soon.