techUK

Musings on Server (and Beetle) Configurations

March 2019

A long running debate is raging about the appropriateness of ecodesign legislation for servers. The European Commission wants to improve server efficiency. So does industry. However, there is fundamental disagreement on how this might best be achieved. The Commission confirmed its approach in September 2018, which includes elements that many feel will be counterproductive. But the controversy does not end there: the issue of how regulators will test whether servers are compliant is also causing deep disquiet. Server manufacturers are very concerned because the specifications against which compliance will be judged are unsuitable: the variety of potential server configurations means that those that meet the legislative requirements may well be wrongly identified as non compliant, and subsequently removed from the EU market by an auditor or enforcement agency.

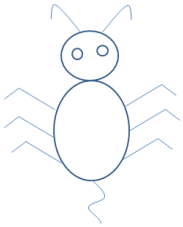
The world of computer servers is a monumentally complex one, and the dialogue has been relentlessly technical. This can render the discussion tortuous and often impenetrable, so we thought that an analogy from the more familiar world of beetles might help to explain why server manufacturers are so upset.

"An Inordinate Fondness for Beetles"

Charles Darwin was struck by the diversity of beetles and had a large collection, although he did not attempt much in the way of taxonomic analysis. It was that famous evolutionary biologist, JBS Haldane, who stated that God had an inordinate fondness for beetles, having created 370,000 species, compared to 5,000 species of mammals and 9,000 species of birds. It is true that there are more species of beetle than any other order, and that beetles represent a spectacular evolutionary explosion both in form and function. Although based on exactly the same template, (six jointed legs, a segmented body, wings adapted with protective coverings and a hard shell) beetles have adapted to life in an astonishing range of niches and as a result are exceptionally physically diverse.

Those of us lucky enough to work in IT may be familiar with the humble computer server. Rather like a beetle it is based on a standard template: processor, memory and storage functions, motherboard, power, fan, etc. Although not organisms, and far less interesting to look at than beetles, servers have undergone extremely rapid evolution and server models have diversified to meet every conceivable business need. The server cladogram (evolutionary tree) is looking pretty busy, with its own share of extinct series and highly specialised models that have co-evolved to be bespoke to a particular business or academic requirement. And within individual server families, especially populous ones like the family comprising basic one-to-four socket devices, there is an almost infinite degree of variation in terms of the different configurations possible - caused by the sheer number of variables available from that basic design.

If we had set out rules for the evolution of beetles that required them to be standardised to one or two model configurations, perhaps guided by Granny's Beetle Drive and a dead ladybird from the windowsill (head half the size of body, evenly sized legs for instance) then only a tiny fraction of the 370,000 beetle species that we know and love would ever have evolved. The diversity of the beetle family would have been catastrophically stunted, shorn of all those that diverge from this standardised form in characteristics like size, hairiness, diet, movement and behaviour. The varieties that would have been excluded are all valid members of the beetle family, meeting the biological criteria, perfectly adapted to do all kinds of bespoke, beetly things.



Limiting beetle diversity in this way clearly would have made no sense; beetles have adapted to fill multiple niches and interact with other organisms, leading to further specialisation and diversity. Adam Smith, the father of economics, would have welcomed beetle diversity as a force for good. Much the same could be said for computer servers, which similarly have been developed to meet a range of business needs. Multiple configurations work rather like evolution, where adaptation solves the problem – or meets the business need - in the most efficient way possible. Server diversity, like beetle diversity, is good: it means that we get things that are fit for purpose rather than generalised models.

There are clearly one or two ways in which a server is not like a beetle, but we should think twice before we start trying to judge or standardise servers on the basis of one of two configurations. Just like beetles, we need specialisation and diversity. Artificially restricting diversification limits technological development and opportunity. Do we really want one size fits all that doesn't really fit anything properly? The answer, surely, is no.

Contacts

Emma Fryer
Associate Director, techUK
Tel: 01609 772 137
Mob: 07595 410 653
emma.fryer@techuk.org

Lucas Banach
Programme Assistant
Tel: 020 7331 2006
Lucas.banach@techuk.org

techUK represents the companies and technologies that are defining today the world that we will live in tomorrow. The tech industry is creating jobs and growth across the UK. In 2015 the internet economy contributed 10% of the UK's GDP. 950 companies are members of techUK. Collectively they employ more than 700,000 people, about half of all tech sector jobs in the UK. These companies range from leading FTSE 100 companies to new innovative start-ups. The majority of our members are small and medium sized businesses. www.techuk.org

Emma Fryer, March 2019