IDC HPC User Forum, held in Europe

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Darel Landeg, computer director at AWE, gave a history of their computer facility from the first Cray 1, to the last upgrade in 2002 when they installed an IBM SP (Blue Oak) with 2.88Tflop/s peak performance. AWE is run by the MOD in the UK and has roughly the combined role of Los Alamos and Sandia Laboratories. Its mission is to underwrite the safety and performance of Trident and develop the capability to produce a successor system without recourse to underground nuclear warhead tests. They are relying on laboratory tests of simulated components and eventually they plan to migrate to a model based system, relying wholly on a virtual representation of a weapon system. They expect to take a decade to put the infrastructure in place including software tools. The HPC infrastructure provides the data backbone and simulation capability for this endeavour.

Darel went on to describe some hydrodynamic (CFD) codes used to simulate turbulent mixing using various techniques and 1 billion cells. He estimated that their work would require about 25Teraflop/s by year 2005 and hundreds of Teraflop/s by year 2010. More importantly one must adopt a balanced development for supporting computing infrastructure, compute power, network, storage and desktop visualization systems. AWE also adopted a dual data centre approach for resilience.