World-Record Distributed Chess Project

Carlos Justiniano
cjus@chessbrain.net, cjus34@yahoo.com

On January 30, 2004, one of the world's top chess players, International Grandmaster Peter Nielsen, faced a distributed computing cluster called ChessBrain in an unprecedented man-vs-machine event. ChessBrain fought back as it navigated well-placed traps in a game that resulted in a draw.

The ChessBrain Project plays live chess games in real time, using distributed computing techniques similar to SETI@home and distributed.net. A central Linux-based server called a SuperNode coordinates thousands of distributed machines called PeerNodes.

Interest in the event was significantly greater than anticipated. As a result, a large number of PeerNodes descended on the SuperNode in a situation that resembled a denial-of-service attack. To address this potentially fatal situation, ChessBrain member Gavin Roy tweaked /proc filesystem entries to modify the TCP/IP stack's behavior. We also stopped the SuperNode from Denmark and modified the SuperNode source code to instruct remote PeerNodes to change the frequency of their connection attempts. We were able to address the situation in real time without rebooting a single machine.

ChessBrain's official Guinness World Record attempt was hosted by the Danish UNIX Users Group (DKUUG) at the Symbion Science Park in Copenhagen, Denmark, and supported by the US-based Distributed Computing Foundation. With a new record involving 2,070 computers from 56 different countries, ChessBrain has become the first distributed network to play a game against a single human opponent. This gives new meaning to "Powered by Linux!"

Carlos Justiniano is the founder of ChessBrain.net. His article "ChessBrain: a Linux-Based Distributed Computing Experiment" appeared in the September 2003 issue of Linux Journal.

The ChessBrain team swaps notes with GM Peter Nielsen (right) after the game.