RapidIO top of rack switch advances data analytics at CERN

(https://prodrive-
technologies.com/)

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Son, June 25th, 2016 – A world first was announced this week at CERN, the European Organization for Nuclear Research (https://home.cern/). In an effort to streamline the flow of data coming out of the Large Hadrdon Collider (LHC) in Switzerland, engineers constructed a computer cluster using RapidIO as the interconnect backbone. Standard x86 servers were equipped with RapidIO NIC cards and connected to Prodrive's ultra low latency RapidIO top of rack switch (https://prodrive-technologies.com/products/rapidio-gen2-38-ports-top-rack-switch-box/). At 20 Gbps per link, CERN engineers were able to achieve full hardware line rates. High link utilization was achieved by RapidIO's protocol termination in hardware, bypassing the CPU and therefore saving precious processor cycles.

The LHC, being the largest of its kind in the world, generates about one petabyte (10^{15} bytes, or 10^6 gigabytes) of data each second. The challenge lies therefore in real-time analysis of this data, filtering out events of interest and storing these for scientific analysis later on.

More information is found in CERN's openlab presentation (http://indico.cern.ch/event/524996/contributions/2192135/) and on this website (http://www.prnewswire.com/news-releases/idt-and-cern-openlab-mark-milestone-for-data-acquisition-and-data-center-analytics-applications-used-for-large-hadron-collider-300288949.html).

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