Multicore Processor & Switch Survey 2018

EXECUTIVE SUMMARY

Integrated multicore processors and switch chips are at the center of networking systems and general-purpose processors, designed for servers, are also widely used for packet processing. Virtual network functions (VNFs) running on server processors are replacing physical systems at both the core and edge of the network. Integrated multicore processors, with standard processor cores and hardware accelerators developed from network processors, provide cost and power efficient solutions for packet processing in virtualized networks. The use of these multicore processors is continually developing with market-place consolidation and many new processor architectures becoming available.

Two key themes coming through in the survey are increasing performance and enhanced programmability. Packet processing at 10 Gbit/s and 100 Gbit/s will be the mainstream with growing demand for 400 Gbit/s. Network processors were developed to bring programmability to the data plane. Integrated multicore processors and general-purpose multicore processors have taken on much of this packet processing and enabled the development of a virtualized network using SDN and NFV.

Until recently, most switch chips implemented a fixed set of switch functions. Programmability was the clear winning feature for switches in the survey. A clear differentiator for several new entrants to the switch chip market has been programmability, and we are now seeing all vendors implement this in their switch chips. The development of high-level languages, such as P4, for packet processing is expected to have a significant impact as the market moves to deliver on the programmable data plane, enabling carriers to define in software the full functionality of the network from controller down to the packet forwarding.

Multicore Processor & Switch Survey 2018 analyzes the current and projected use of multicore processors and switch chips by telecom and networking equipment manufacturers, based on the results of an exclusive worldwide survey of engineers, designers, product managers and sales/marketing personnel that work for telecom and networking system equipment manufacturers and suppliers. The responses to our survey make it clear that these devices are critical components in most types of networking equipment, from the access edge to the core of the network.

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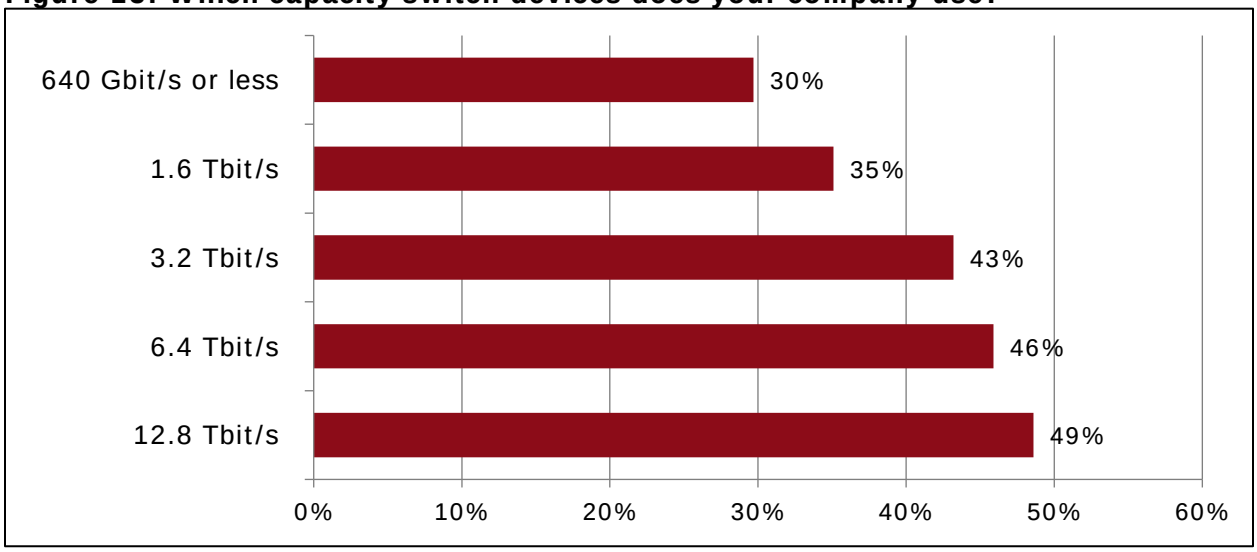
The capacity of switch chips has dramatically increased over the last few years. The first 3.2 Tbit/s switch chips were introduced by Broadcom in 2014, the first 6.4 Tbit/s switch chips were introduced in 2016 and Broadcom announced the Tomahawk 3 12.8 Tbit/s switch chips in December 2017. Innovium introduced a 12.8 Tbit/s switch chip in March 2018 and several other vendors are developing 12.8 Tbit/s devices.

Figure 13: Which capacity switch devices does your company use?



Source: Heavy Reading

Multicore Processor & Switch Survey 2018 is published in PDF format.