



451 Research  
**FIRESTARTER**  
REPORT REPRINT

# 451 Research announces NGD Systems as a Q3 2019 Firestarter innovation award recipient

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The 451 Firestarter award recognizes organizations for exceptional innovation and disruption in their market. Based on their insights and expert opinion of long-term trends and the competitive landscape within the industry, the 451 Research analyst team, on a quarterly basis, nominates technology firms of any size and age.

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## REPORT REPRINT

### NGD Systems

*Nominated by Tim Stammers, Senior Analyst, Storage*

NGD has earned a Q3 2019 451 Firestarter award for pioneering the use of computational flash drives that process data within the devices themselves, in order to boost application performance by eliminating data movement between drives and server CPUs. Computational storage is drawing much interest, but currently there are very few such devices shipping.

#### **Our take**

Computational storage is an emerging architecture that is set to boost performance for data-intensive applications such as machine learning and analytics by reversing the conventional approach of moving data to server processors, and instead bringing the processing to the data. The approach is generating widespread and active interest from multiple tier-one vendors and startups. NGD is pioneering the use of computational flash drives that process data within the devices themselves. There are very few other such devices shipping at present, and the most distinctive qualities of the NGD drives are their flexibility and ease of deployment.

#### **More about NGD**

NGD was founded in 2013 by specialists in flash drive controller design. Uniquely for computational storage drives, NGD's devices host third-party code in a Linux instance on the drive. This allows the devices to handle a wide range of workloads, using unmodified code in areas such as content distribution, image searching or even Microsoft's entire Azure IoT Edge software stack.

In 2017 NGD shipped its first generation of devices, which featured FPGA controllers. This year the company began shipping second-generation devices whose controllers are based on an ASIC designed by NGD. These are the only computational storage drives on the market that are entirely ASIC-powered, and NGD's very few rivals in this sector remain committed to FPGA-based controllers that do not host third-party software. The switch to an ASIC has also increased the data capacity and throughput of the drives, while heavily reducing costs and power consumption compared with the previous FPGA-powered devices. Even when compared to conventional, non-computational drives, NGD claims market-leading qualities for its drives.

### **ABOUT 451 FIRESTARTERS**

The 451 Firestarter award recognizes organizations for exceptional innovation and disruption in their market. Firestarters are awarded quarterly to technology firms of any size and age. Awardees are nominated by the 451 Research analyst team based on their own insights and expert opinion of long-term trends and competitive landscape, and their in-depth conversations within the industry. Nominations are based on a combination of factors, including uniqueness, strategic and technology vision, and the disruptive potential of the organization's technology. Award recipients fall within the four key technology themes of 4SIGHT, the 451 Research framework for understanding the evolution of the digital transformation landscape: Contextual Experience, Invisible Infrastructure, Pervasive Intelligence and Universal Risk.

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