



Exclusive Interview With Faye Pairman, President and CEO, Panasas
"We are on path to disaggregating hardware from software"

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She is:

- President and CEO at [Panasas Inc.](#)

She was:

- SVP and GM at **Applied Micro Circuits Corp.**
(acquired in 2017 by Macom Technology Solutions)
- President and CEO of **3Ware Inc.**
(acquired in 2004 by Applied Micro Circuits Corp.)
- Corporate VP and GM at **Adaptec Inc.**
(acquired in 2010 by PMC-Sierra itself acquired in 2016 by Microsemi)

**StorageNewsletter: Could you refresh us and summarize the genesis of the company?
And when did you arrive as CEO? In what context?**

Panasas was founded in 1999 by storage visionary Garth Gibson, co-author of the seminal Berkeley RAID Papers. His goal was to deliver high-performance scale-out storage solutions to support unstructured data in order to facilitate, accelerate and improve accuracy for research and product design.

Linear scalability, unmatched reliability and ease of use remain inviolable design principles since the company's inception. This is what distinguishes Panasas from open source and proprietary competitors alike. We were early to market with a parallel file system, which meant our solution originally sold primarily to government labs, and research organizations; the early adopters in need of exceptional storage performance.

I joined Panasas in 2010 with the goal of broadening the business and to support technical workloads for commercial customers in addition to growing our existing base of customers. The timing was right to expand, given the explosion of unstructured data and video content in every market segment.

What is your financial situation? So far you have raised \$170 million, do you need to raise more, are you far to be break even?

We are more mature than a start-up and therefore, must run the business in a financially prudent manner. We are in a strong financial position and would only engage in a significant raise if we were to change our business model. That said, we always remain open to inorganic opportunities for improved customer reach and growth.

You were identified as the pioneer of scalable high-performance file storage for the HPC market outside the open source, tell us the journey towards the commercial HPC, the new direction of the company.

Scalable performance is important to all HPC customers, but commercial customer priorities are distinct in that product reliability, ease of use and excellent company support are paramount. We have invested millions of dollars in delivering quality in everything we do including design, development, manufacturing and customer support. This means we are now uniquely positioned to take advantage of the exciting growth in commercial HPC for existing and emerging applications and workloads.

You took several years to redesign and re-architect the product, what is really new and what works much better than in the past?

When we set out to redesign the ActiveStor product, our first goal was to make our file system more flexible, so that we could more easily offer a broader range of platforms to our customers. The second key area for us has been to make parallel performance accessible to the workflows and applications we are seeing in commercial HPC.

The result is our new ActiveStor solution, a configurable plug-and-play storage device that offer users the flexibility to design storage systems that meet their exact specifications and workflow requirements, now and in the future.

Product quality and ease of use continue to be a key differentiator for us, translating into significant OPEX savings for our customers. Multi-petabyte deployments are up and running in hours and are managed by small IT teams. I know of a customer's site where a deployment of 20PB is managed by one part-time systems administrator.

R&D never stands still. We are on the path to disaggregating our hardware from our software which will allow us to take advantage of hardware advances to further improve price performance, extend our product line, and offer customers more choice.

Does this strategy payoff? Could you illustrate with customer names and how they use Panasas?

We have a highly diverse customer base whose work and products touch every aspect of daily life. Whether it's manufacturing, media and entertainment, life science, or academic research, some of the industry's leading names are working with Panasas storage.

For example, Boeing who relied on Panasas to support the extreme workloads involved in designing the Dreamliner for safety and fuel efficiency.

In broadcasting we are supporting Turner, who uses us for post-production editing and active archive. They installed Panasas at five different properties after we beat competing enterprise players in a blind proof-of-concept test.

The Garvan Institute of Medical Research in Australia increased its genomic sequencing capacity to 50 genomes per day on average - a fifty-fold improvement, after using Panasas in combination with Illumina sequencers.

The biggest realm of Panasas storage is deployed at the JASMIN super-data-cluster facility at Rutherford Appleton Laboratory in the UK, where they process between 1PB and 3PB a day. Thousands of users worldwide find, manipulate and analyze data held on JASMIN to drive pioneering research in environmental science. They work on climate data analysis and support efforts like the Global Surface Displacement Monitoring program, which collects data from space on a global scale to monitor and model earthquakes, volcanoes, tectonics and the retreat of ice.

Why did Gartner remove Panasas from its *Magic Quadrant for Distributed File Systems and Object Storage*, saying that you have only one use case? It's a bit ridiculous.

We actually asked to be excluded from this report. Our decision was based on a conversation we had with Gartner about the 2016 Magic Quadrant, which featured Panasas as a niche player. 2016 was the first year Gartner decided to combine file and object storage solutions into a single Magic Quadrant based on their notion that all scale out solutions are competitive.

We expressed our concern that the structure of the 2016 report may be confusing to the market because it did not highlight any company's unique advantages and specifically compared Panasas to companies whose offerings were not remotely similar. Companies who delivered both objects and files as part of a portfolio of products were given the highest positions along with object storage companies delivering minimal file support. Companies delivering unique capabilities or targeting specific market segments and workloads (object or file) were considered niche players with no clear distinction.

I believe in the importance and relevance of object storage solutions. My difference of opinion with Gartner lies in the idea that these solutions co-exist but do not compete for the same workloads and therefore a head-to-head comparison is not useful and at worst misleading.

You recently announced several new development iterations related to PanFS, DirectFlow, OS, Directors..., could you summarize those?

With the introduction of the latest generation of our ActiveStor scale-out NAS solution, our goal was to deliver a new level of flexibility that lets our customers design a system that meets their individual specifications and workflow requirements. The biggest difference to previous generations is that we re-engineered the Director function, which is the control-plane engine or better yet, the brain of the Panasas storage system.

The new ActiveStor Director, or ASD-100, has been super-charged by adding more compute power and memory. We disaggregated the Director from the storage layer, so customers can now add any number of ASD-100s to drive exactly the level of metadata performance they need. The ASD-100 is based on industry-standard hardware and manages metadata and the global namespace. At the storage layer, our new ActiveStor Hybrid platforms offer a broad range of HDD and SSD capacities that can be paired as needed to meet specific workflow requirements.

As part of the new product roll-out we also included updates to our PanFS file system and to the DirectFlow client protocol.

In essence, this modern ActiveStor solution delivers a flexible, plug-and-play storage system ready to take on the complexities of the constantly evolving high-performance workloads, while maintaining the reliability and manageability that our customers have come to depend on.

How do you consider cloud and potential cloud tier working with AWS, Google Cloud Platform or Azure?

We support our customers' need to more easily tier colder data to object storage solutions, either in the cloud or on premises. We think the best way to address this opportunity is to support APIs or interfaces to our file system that seamlessly integrate with leading data management solutions. In many cases, these products already work with Panasas today.

How do you see the parallel file storage category? Lustre and Spectrum Scale continue to dominate in the classic HPC, what about other segments?

The parallel file storage category has bifurcated into open source and proprietary products. Lustre remains the predominant choice for large-scale performance-intensive deployments where low cost is paramount, and where customers have the capabilities to support this complex file system. Despite many attempts by the Lustre community to broaden its appeal, Lustre has not been able to gain traction in commercial markets due to the reliability and manageability challenges they have never mastered.

Panasas PanFS and IBM's Spectrum Scale are the only parallel file systems in the world capable of supporting high-performance technical workloads with commercial requirements. They each deliver a proprietary file system, an integrated appliance, and 24/7 customer support. Our customers choose Panasas for our unique performance profile and the fact that our system is up and running within one day. As one of our customers put it: you just set it and forget it.

In terms of deployment, I understand that the majority is related to DirectFlow. What is the percentage split of deployments between classic NAS and parallel approach based on DirectFlow?

The vast majority of our customers select Panasas and deploy the DirectFlow parallel data access client protocol for scalable high performance. We also support industry standard protocols which are only deployed for workloads where highest performance is not essential.

How do you price your product? By capacity based also on the storage flavor you implement, HDD or SSD for instance, or others? Any reference architecture with a \$/PB in mind?

We price our ActiveStor solution to have the lowest total cost of acquisition and operation than any of our competitors. Using a \$/PB pricing comparison doesn't address the multiple aspects to be considered when deciding on the right storage infrastructure. It's key to identify what works best for any given user environment, with the goal to maximize agility, efficiency and scale.

Our customers can configure their system to the specifications of their current workload, add capacity without interruption, and do so with a system that is priced to meet their exact price/performance requirements. We offer a pay-as-you-grow solution that avoids forklift upgrades and optimizes opportunity costs and ROI.

You have more than 500 customers in 18 years of business so basic math gives me a sustainable 2+ per months during 216 months. Did you see a recent acceleration as you were more visible on the market with your recent new positioning?

Consistent with our strategy, we have broadened our reach into commercial HPC and are now supporting a wide array of use cases. We are experiencing strong growth in the manufacturing and media and entertainment segments in particular. We're seeing our technology being applied to use cases that range from the most complex aerospace product design, to optimizing the absorption of diapers, to rendering mind-blowing visual effects.

We see that you have an agreement with HPE but HPE signs partnerships with tons of people as the storage directions are a bit fuzzy. One of your competitors, DDN Storage, is one of these partners. How do you work with HPE?

Our relationship with HPE is simple, we fill a gap in their product portfolio. They resell Panasas ActiveStor to customers who demand a high performance parallel storage appliance that meets commercial reliability and manageability requirements.

Does it mean that you wish to extend this kind of partnership, any other or new OEMs in the pipe?

While I cannot comment on partnerships in the works, I can say that we are actively pursuing key strategic partnerships that expand our product capabilities and bring us broader market reach.

How did you finish 2017?

We ended the year strong and beat our objectives. We delivered our new family of products on schedule, repeat purchases were at an all-time high, and we attracted a number of important new customers in our target markets.

How do you see 2018? For HPC, for commercial HPC and for Panasas?

Fast access to new data types, simplified storage management, and the ability to modify the storage infrastructure to meet changing workflow requirements will be key drivers for the storage industry in 2018.

Market research shows that HPC and commercial HPC storage will continue to co-exist, but the majority of growth over the next few years will be in the commercial segment. According to Addison Snell with industry analyst firm Intersect360 Research, HPC storage in 2018 is estimated to generate roughly \$6.5 billion in total revenue, over half of which is expected to come from commercial HPC markets. Almost 90% of the growth in HPC, from now to the end of the decade, is coming from commercial markets, and Addison projects the expansion of commercial HPC to continue as more companies derive R&D leadership from computing.

We know we participate in a market where growth is strong, margins are healthy, and our differentiation sets us apart. We continue to win high quality deployments with marquee customers with our highly efficient team and against competitors who are many times our size, which is a testament to the quality of our operation. Given the state of the market and the exciting new products we've announced as well as those on the horizon, 2018 promises to be a great year for Panasas.

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