

20th Anniversary Survey Results

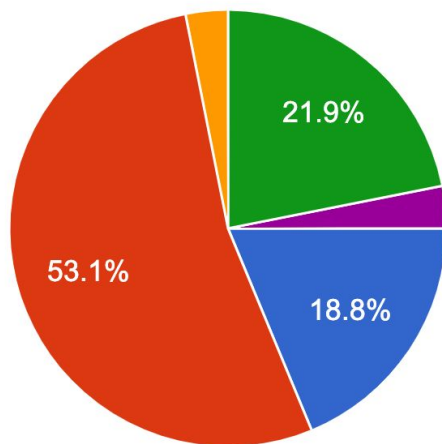
Program Co-Chairs

Dean Hildebrand, *Google*

Don Porter, *The University of North Carolina at Chapel Hill*

Are you a...

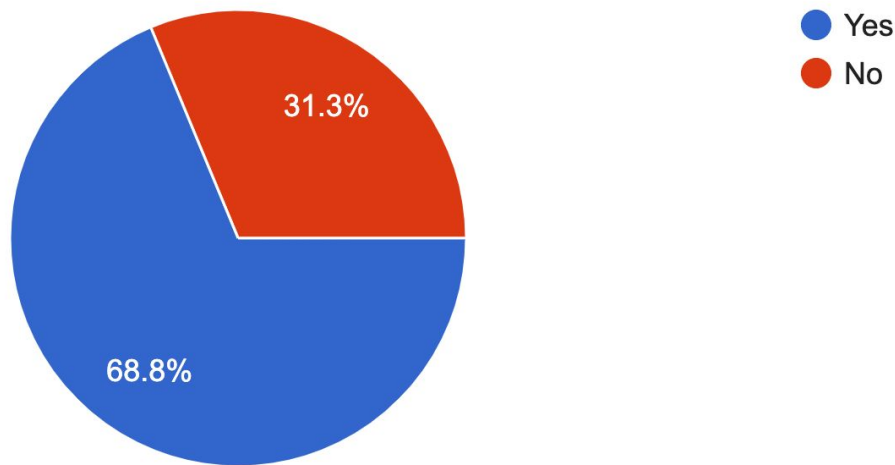
32 responses



- Student
- Industrial researcher/engineer
- Industrial manager
- Professor
- Academic researcher

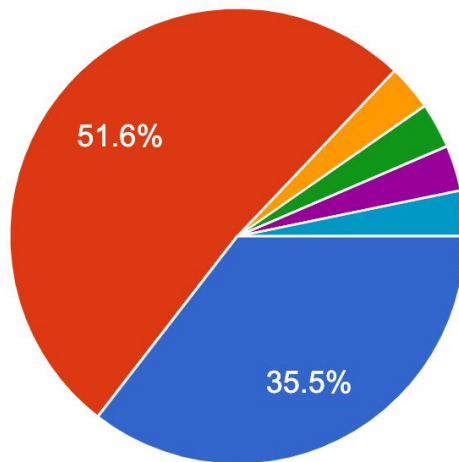
Will we still be using magnetic disks for any use case in 2042?

32 responses



Will we still be using magnetic tape in 2042?

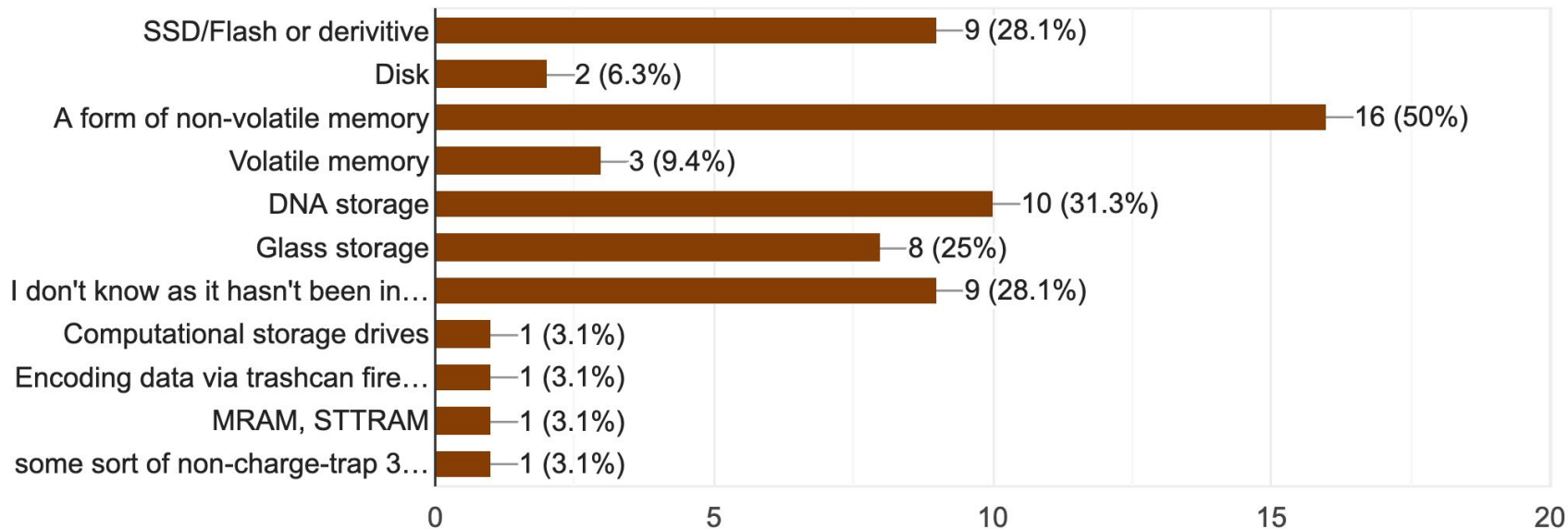
31 responses



- Yes
- No
- Maybe?
- It's 70 years old - what's another 20 years?
- Maybe
- As long as IRS still exists, I guess so

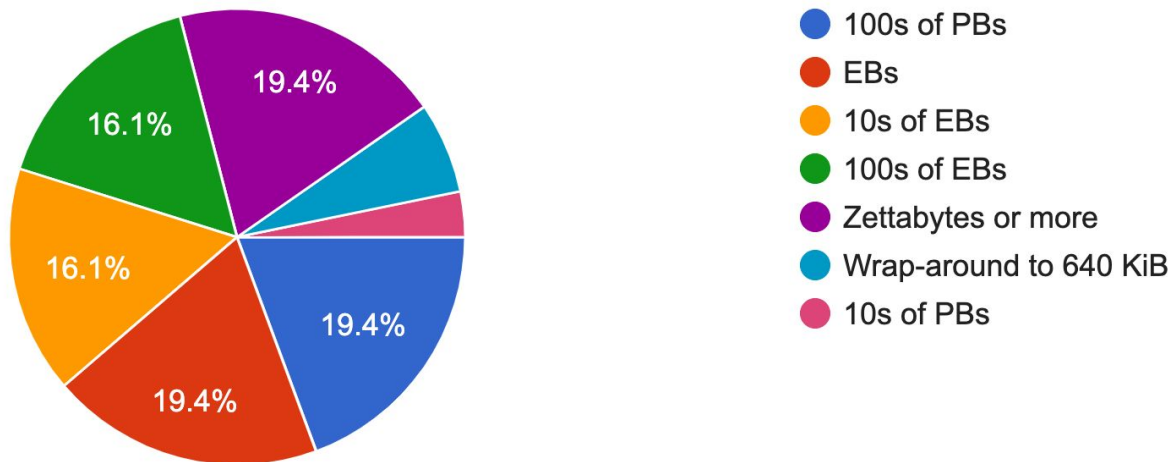
What storage technology will be all the rage in 2042?

32 responses



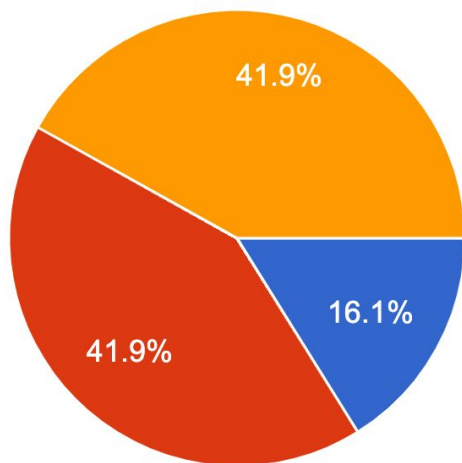
What will be the average capacity of enterprise storage system in 2042?

31 responses



Will persistent memory still be "under investigation"?

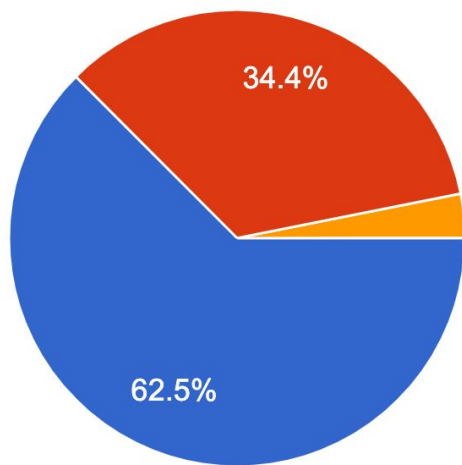
31 responses



- Yes
- No, it will be widespread
- No, the industry will have moved on to something else...

Will file/block/object/key-value continue to be the dominant storage types and APIs?

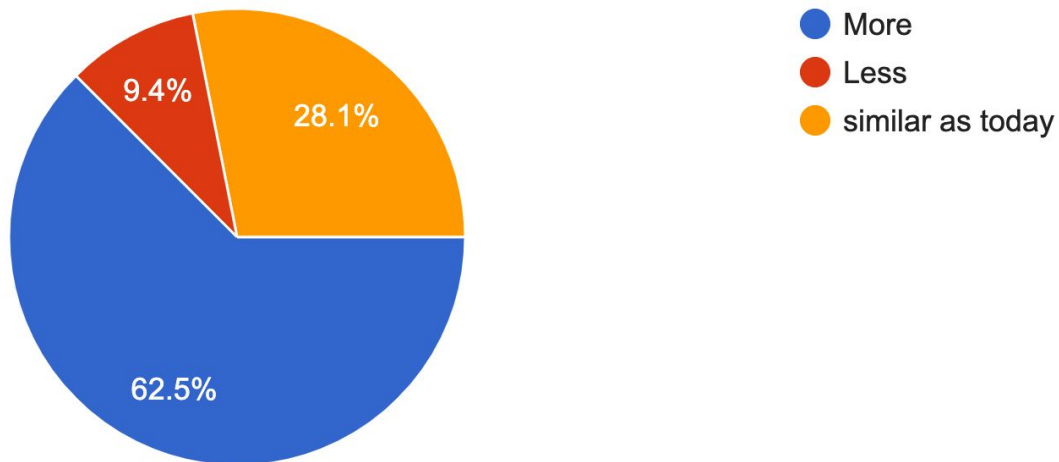
32 responses



- Yes
- No, there will be something much cooler...
- Computational Storage will have taken over!

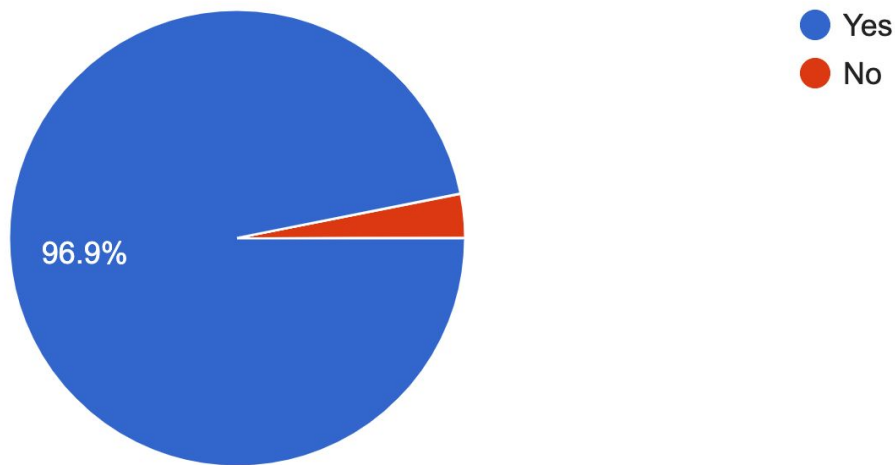
Will there be more or less open-source storage systems in the industry in 2042?

32 responses



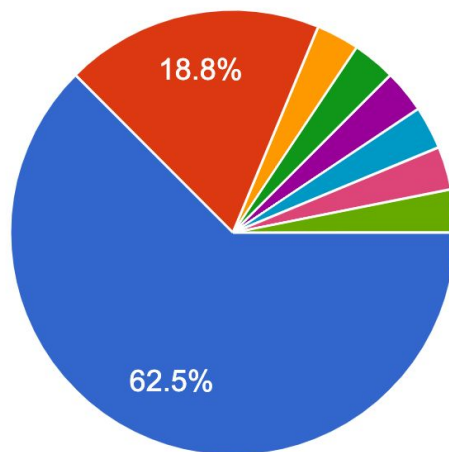
Will there be a 40th FAST?

32 responses



Will we still walk around with physical storage in our pocket or in our home or will it all be in the cloud (of some form)?

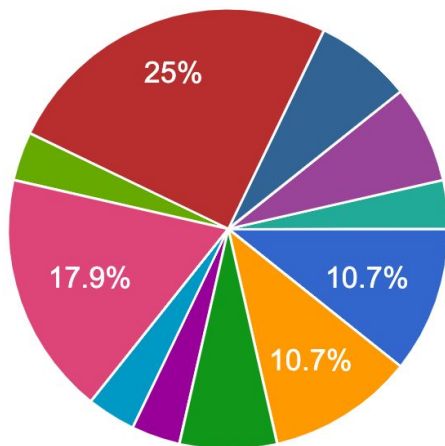
32 responses



- Yes
- No
- Cloud
- in the cloud
- Will be at the Edge DCs!
- Both
- We will have extensions to our biological memory (think USB slot into brain, or SD card under skin)
- Offline access with online cloud storage

What paper do you believe had the biggest impact on the storage industry or research? Choose from one of the Test of Time winners or add another paper!

28 responses

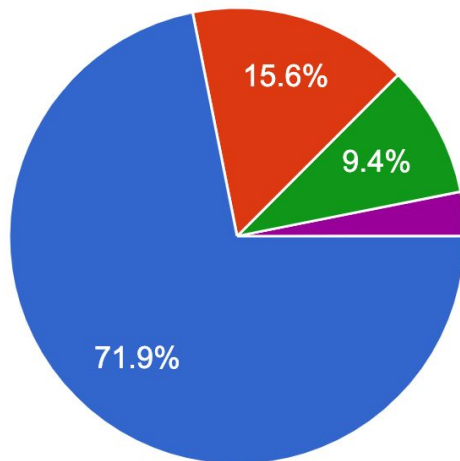


- A Five-Year Study of File-System Met...
- Avoiding the Disk Bottleneck in the Da...
- Failure Trends in a Large Disk Drive P...
- Disk Failures in the Real World: What...
- SnapMirror: File-System-Based Async...
- Designing for Disasters, FAST04
- Row-Diagonal Parity for Double Disk...
- Hippodrome: Running Circles Around...

▲ 1/2 ▼

What is your favorite part of attending FAST?

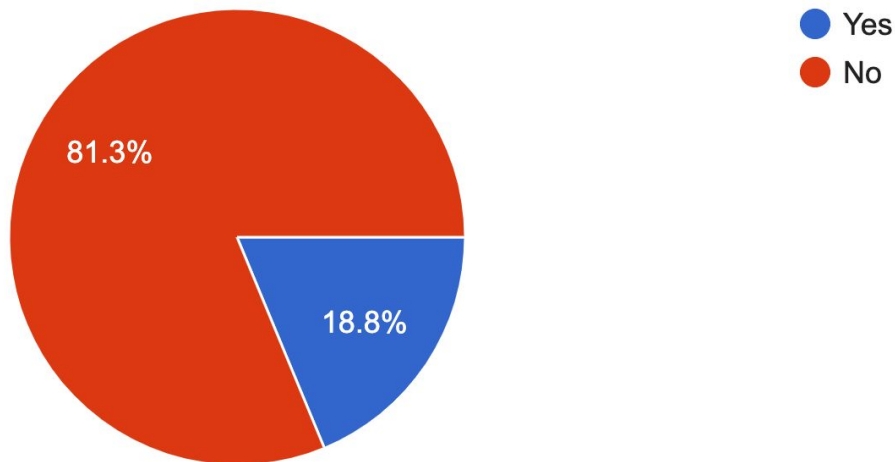
32 responses



- Mixing with the community (hallway track)
- Learning about the future directions of the storage industry
- Keynotes
- Post-talk fun (BOFs, dinner and drinks, poster session)
- Talks

Will the machines have taken over in 2042?

32 responses



What will be the biggest change in the storage industry or how we store data in 2032?

No more hard drives! All solid state for primary storage, personal, and in the cloud.	Computational Storage becomes widespread!
As we store more and more data, it will be increasingly difficult to identify the relevant data for solving problems and to protect the data from being accessed by inappropriate users. We will see new technologies (including machine learning and new forms of provenance and access control) to address these management challenges.	If I were good at these predictions I would be making my money in the stock market rather than as a research & developer
No more tape	Persistent Memory everywhere
All storage will be in the form of kittens. But they will be far cuter than the kittens of today, and so they will have taken over not only YouTube, but also CNN, Fox, and MSNBC.	Line between DRAM and SSD storage will be further blurred.
More in our pocket and retrieving is important	PMEM
Streaming from lots of devices you have for you	Finding a way to use non-volatile memory properly
Having usable storage systems that resort to glass or DNA.	Security will be part of the system not a bolt on
Finding a working IOMega Zip drive.	DRAM prices started going down again in 2028
Data centers will not have HDDs.	The ownership and control of one's data will be more prominent.
Cloud	Wide spread of SmartSSD devices and other types of DPUs
DNA and other technologies will be more pervasive.	Maybe people have found new technology which can store data with higher density and faster speed with cheaper cost

What will be the biggest change in the storage industry or how we store data in 2042?

TB-size persistent CPU caches?... :)

we'll all have an exabyte or more...

Sadly, the kittens will have been replaced by lizards. There will still be kittens but they will have issued an IPO and retired to the Colorado mountains, where they can be sure they won't get their feet wet. Fortunately, the lizards will have become much cuter and will be starting to dominate YouTube. (And in answer to the following question, no, the machines won't have taken over because the kittens will.)

It will be stored in really distributed ways across data centers, homes, etc

Data centers will not have SSDs.

Probably having a usable storage system for quantum computing that provides I/O bandwidth (in the order of 10s to 100s of TBs).

Similar to 2032, but there is a even higher chance of that

Bio?

re-consolidation after the antitrust breakup of Amazon and Google in 2036

DNA storage

Maybe new storage technology

Digital curation and preservation will be socially more important. Everyone will use it, not just museums.

Computational Storage becomes even more widespread.

Organic and adaptable storage to applications

Learned indexes (actually, learned everything...)

Getting rid of data we no longer need and/or identifying cost-effective storage technologies for long-term archival storage.

No one will know how data gets stored (device, location, etc.) except the cloud vendors who will only publish SLAs for universal data access, anywhere, any time.

DNA storage as cold storage

Finding the data from 2032

Old interfaces/APIs will begin to be deprecated

Capacities will be high enough that they'll become somewhat meaningless per-device, and applications won't be concerned about capacity.

What is your favorite or most memorable personal moment

presenting my first FAST paper

Learning about the utility of Miss Ratio Curves and reuse distance for cache tuning

Met the person who ended up helping me write my successful CAREER proposal

The most memorable personal moment for me will probably remain the time I gave my first talk at FAST. It was thrilling.

I'll always remember FAST 2020 as the last "normal" activity in my pre-pandemic life. The Dreamworks keynote that year was pretty cool, too.

Lots of great friends and colleagues that I've gotten to know over the years.

poster session conversations

Do they serve milk? Anyway, being asked to co-chair is certainly the most memorable for me personally. Although it was a disastrous mistake on Usenix's part...

Being asked to co-chair!

I would say all of these are memorable, as this is my first in-person conference ever. I like the keynotes and the chance to chat/discuss with presenters on their papers; I like the food; and I especially like the chance to chat with famous guys in the field (E.g. Professor Remzi and Theodore Ts'o - those people who are behind the scene of everything we are currently using and/or affected me moving into this field). I would say this is very magical, and also like a dream comes true.

Attendance is a honor for me

I talked with someone from industries about the trends

First FAST at Monterey. As a young grad student, I was in awe of the attendees and the collegiality of the community.

This is my first FAST. I'm a CIDR kind of researcher.

Gaining clarity on storage trends

As a student, talking in person with the people who's papers I cited.

presented a paper at FAST and received many positive feedback afterwards, which changed my research direction

Having the community honor our work in automating storage management with test of time awards

My fondest FAST memories are from meeting people whose work I used to admire from afar (as a student and starting faculty) for the very first time – those who come to mind immediately are Margo, Remzi, Greg, and Garth!

Terrence Kelly's WIP talk on using HTM for PM recovery - excellent and insightful. Came full circle to now fill this out while watching a full FAST paper on this topic from other authors.