

Blosc2

Compress Better, Compute Bigger, Share Faster

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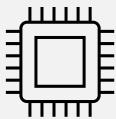


PyData Global
December 10th 2025

Agenda



Blosc2: Compressing Better



Blosc2: Computing Bigger



Caterva2: Sharing Faster

Who is ironArray SLU?

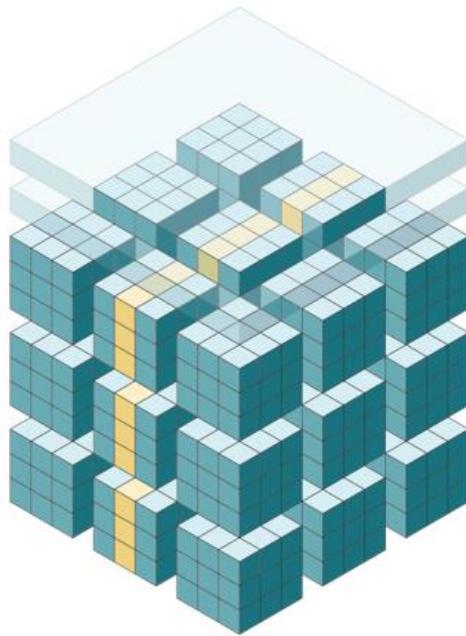


Team of experts empowering you to harness the full potential of compression for computation and data sharing capabilities.

We are here to help!



<https://ironarray.io>



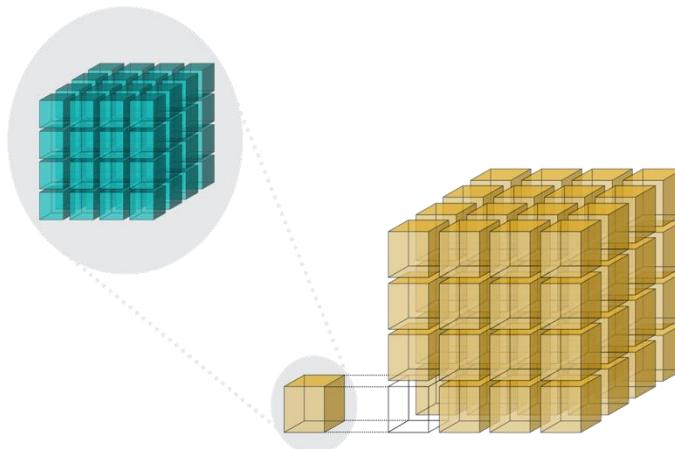
Blosc2: Compressing Better

For multidimensional, binary data

<https://www.blosc.org/>

Blosc2 Architecture

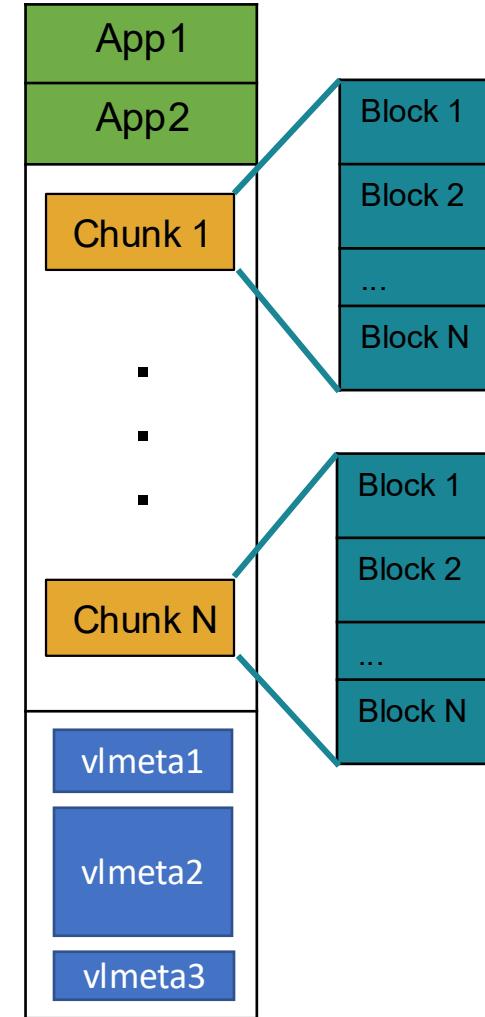
- ✓ 64-bit containers
- ✓ Metalayers for adding info for apps and users
- ✓ [Blosc2 NDim](#): Multi-dim blocks and chunks



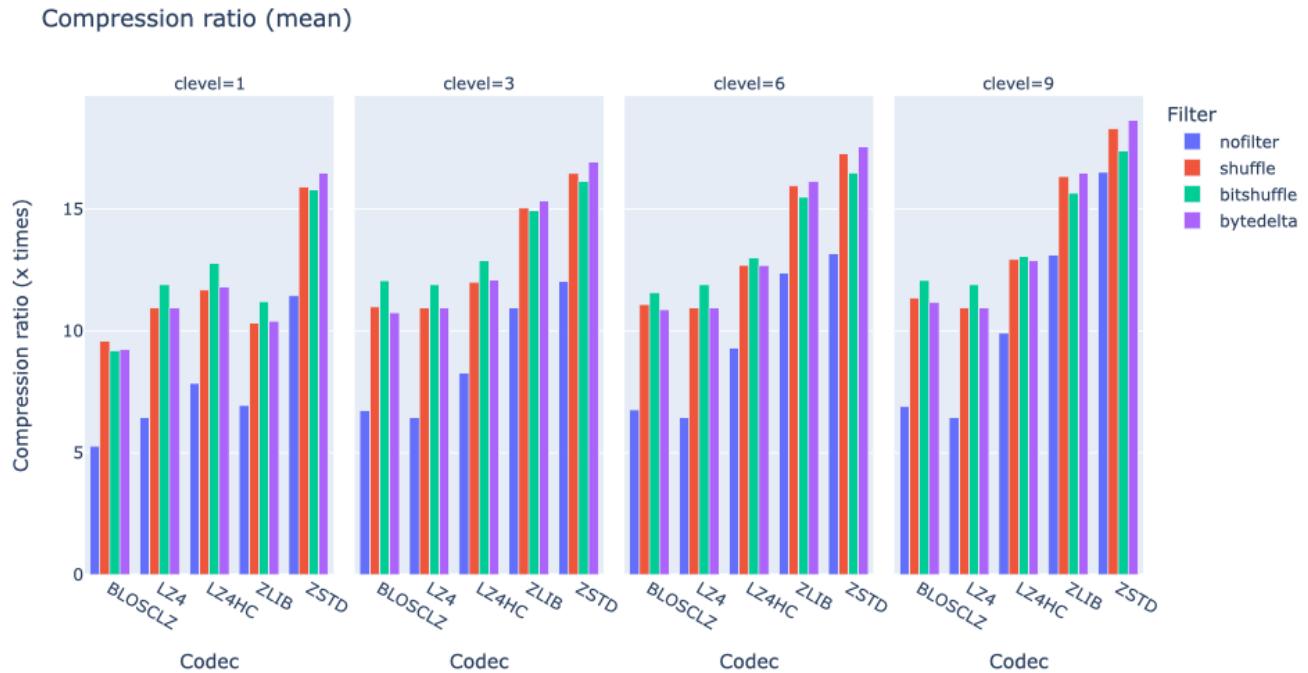
Header:
Fixed Length
Metalayers

Data:
Super-Chunk

Trailer:
Var Length
Metalayers
(up to 2 GB)

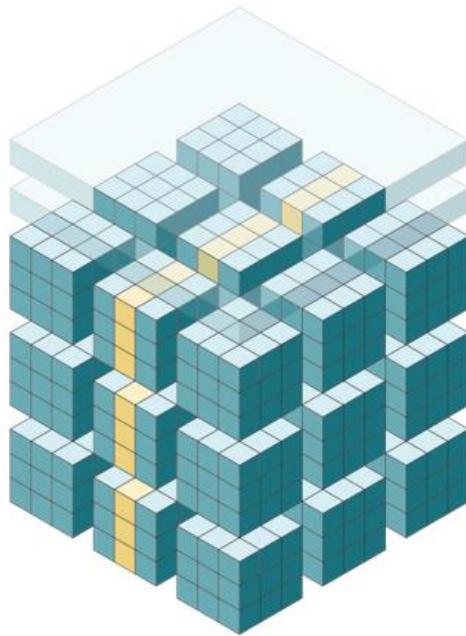


Different Codecs and Filters



How to predict the best combination?
<https://ironarray.io/btune>



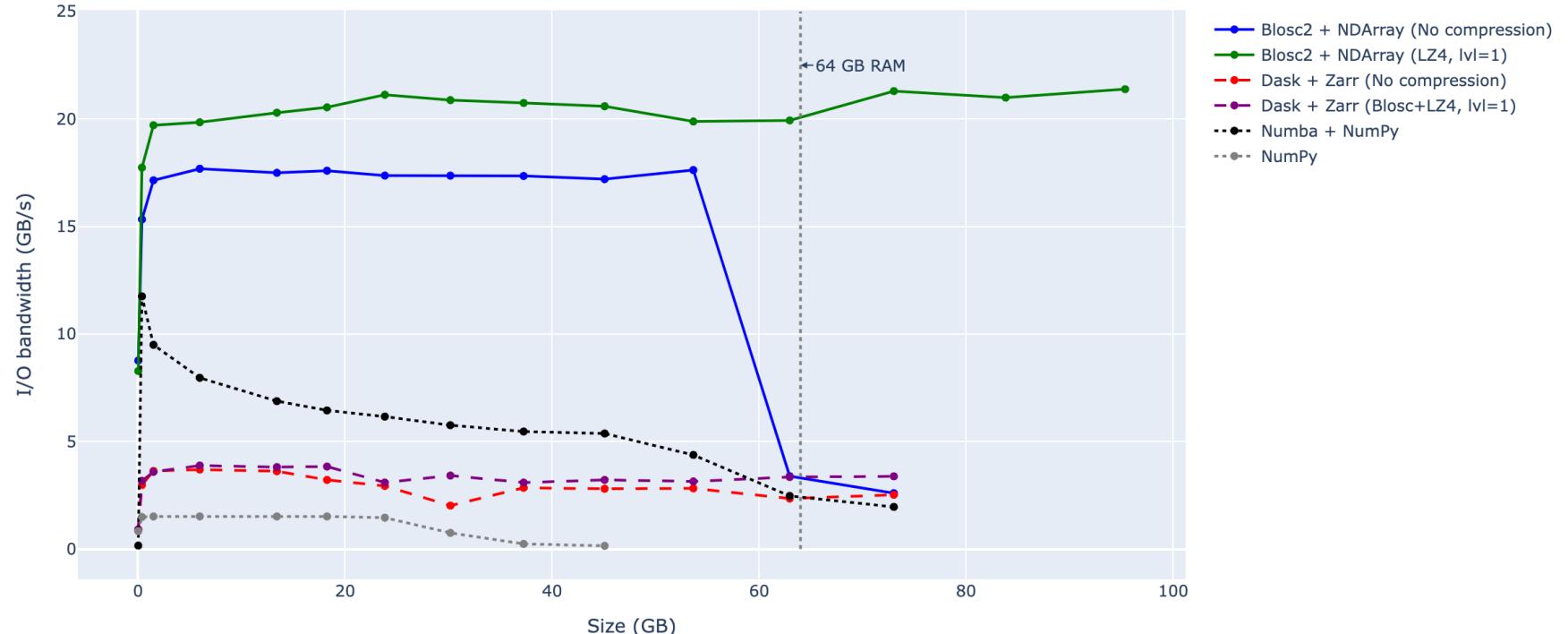


Blosc2: Computing Bigger

Compute with your big compressed arrays, fast!

Compressed Computing (In-Memory)

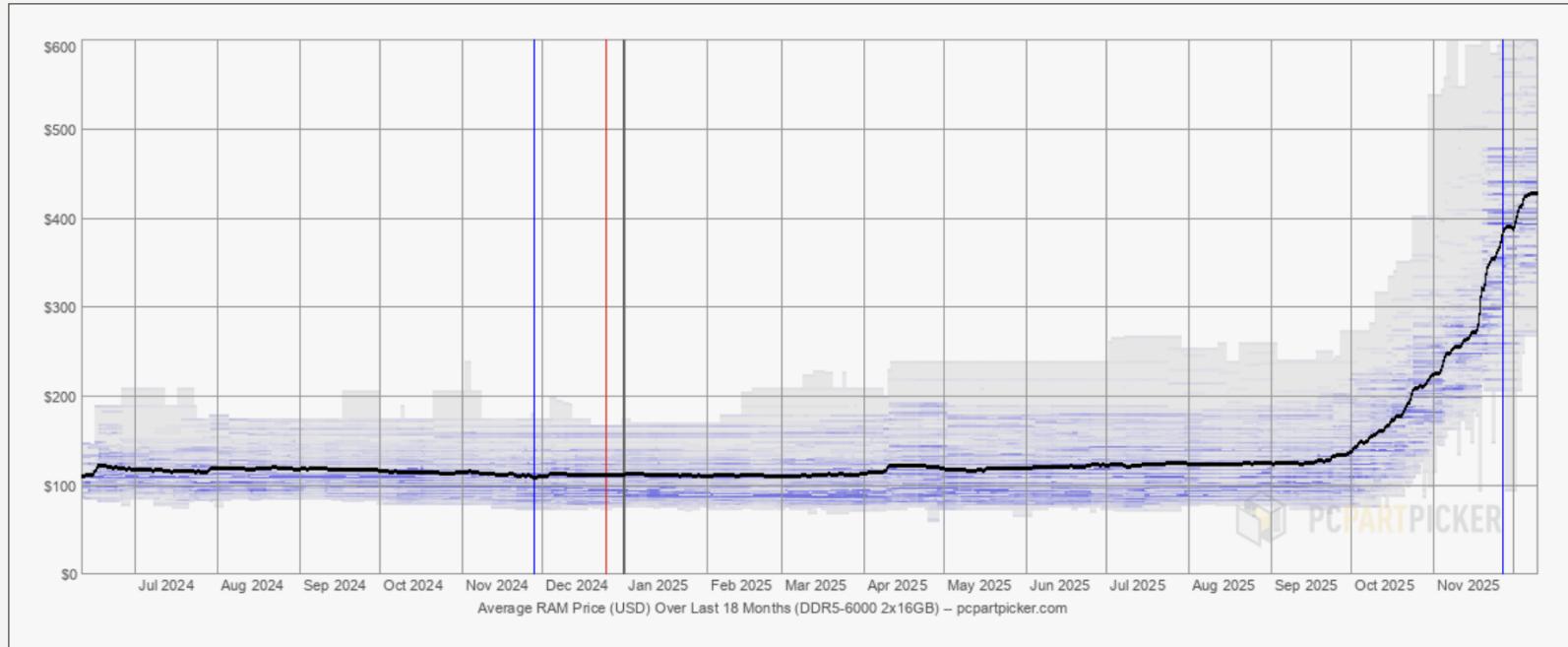
Blosc2 vs others; compute: `np.sum(((a ** 3 + np.sin(a * 2)) < c) & (b > 0), axis=1)`



<https://ironarray.io/blog/compute-bigger>

RAM Matters (But Is Becoming Scarce)

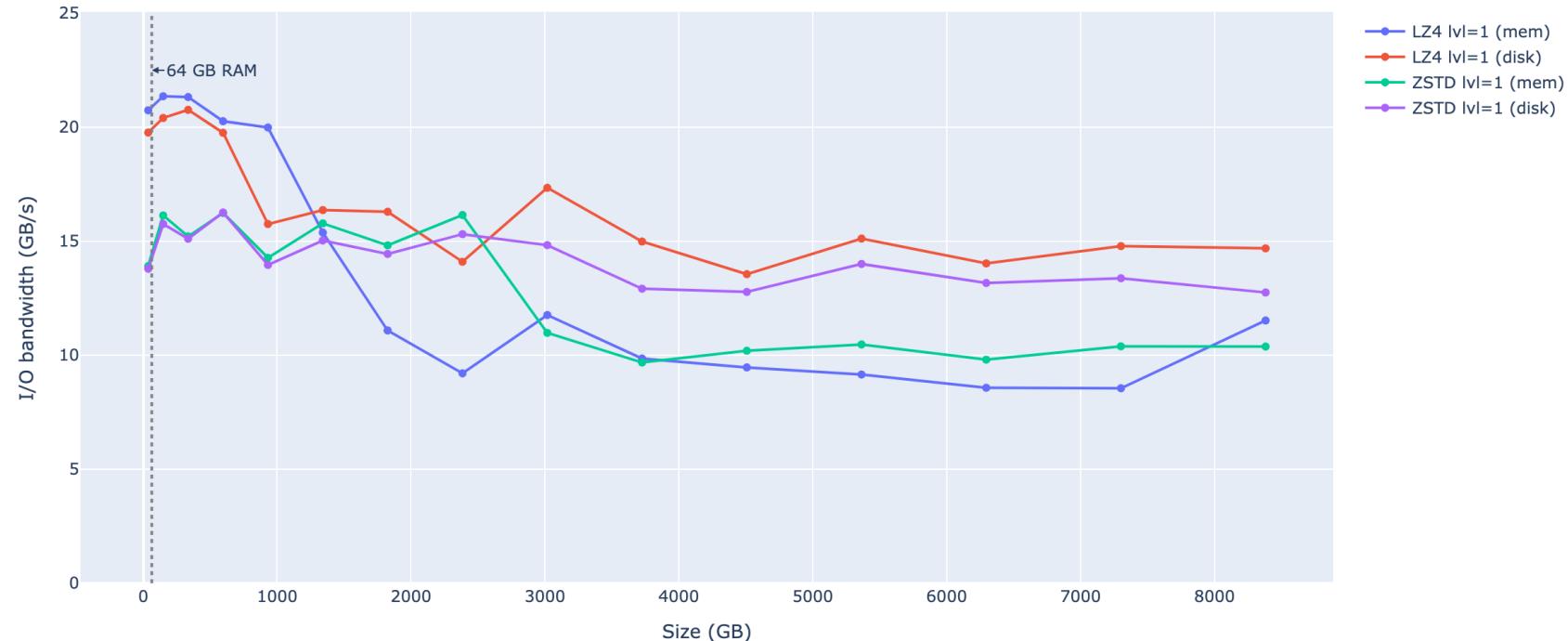
DDR5-6000 2x16GB (Average price in USD over last 18 months)



<https://pcpartpicker.com/trends/price/memory/>

Going Bigger: Computing Beyond RAM

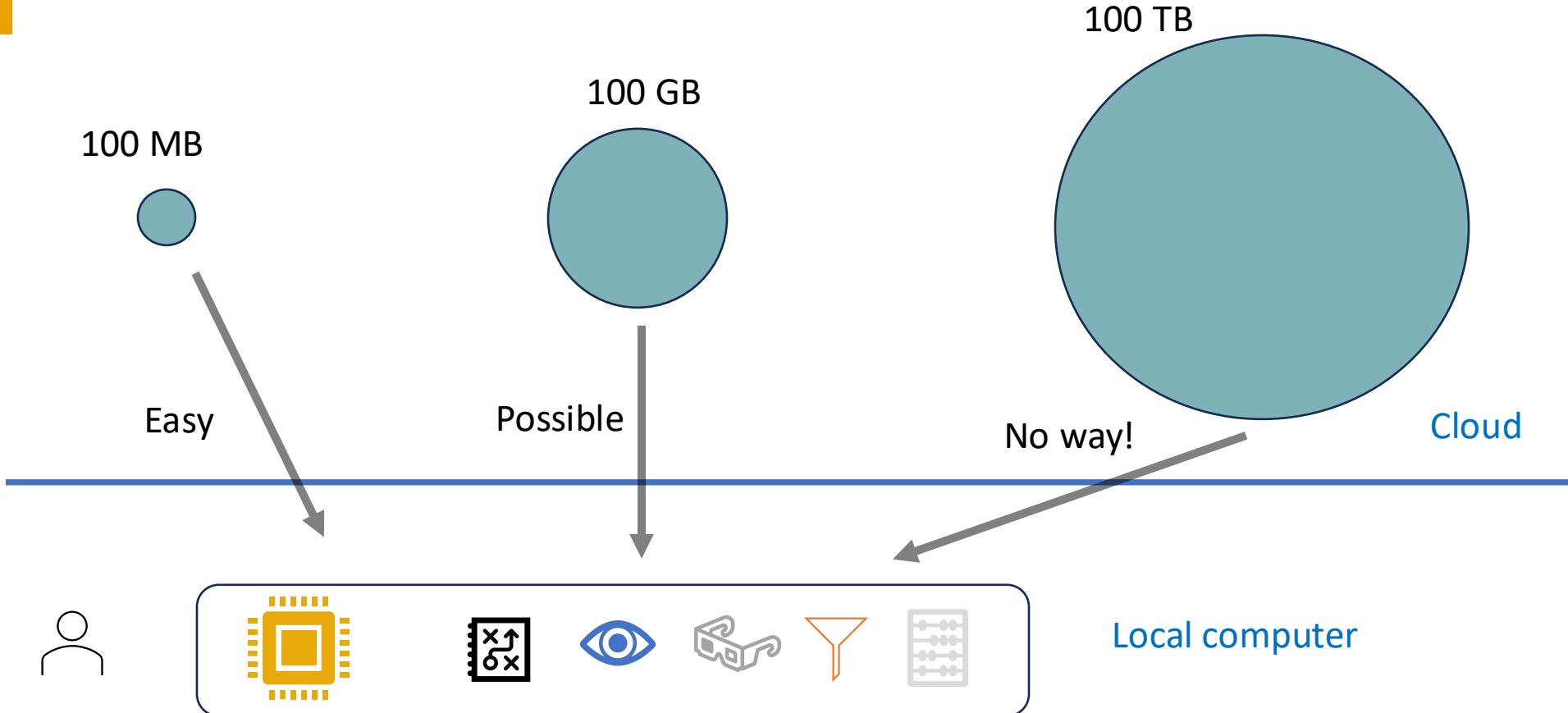
Blosc2 compute (**beyond RAM**): `np.sum(((a ** 3 + np.sin(a * 2)) < c) & (b > 0), axis=1)`



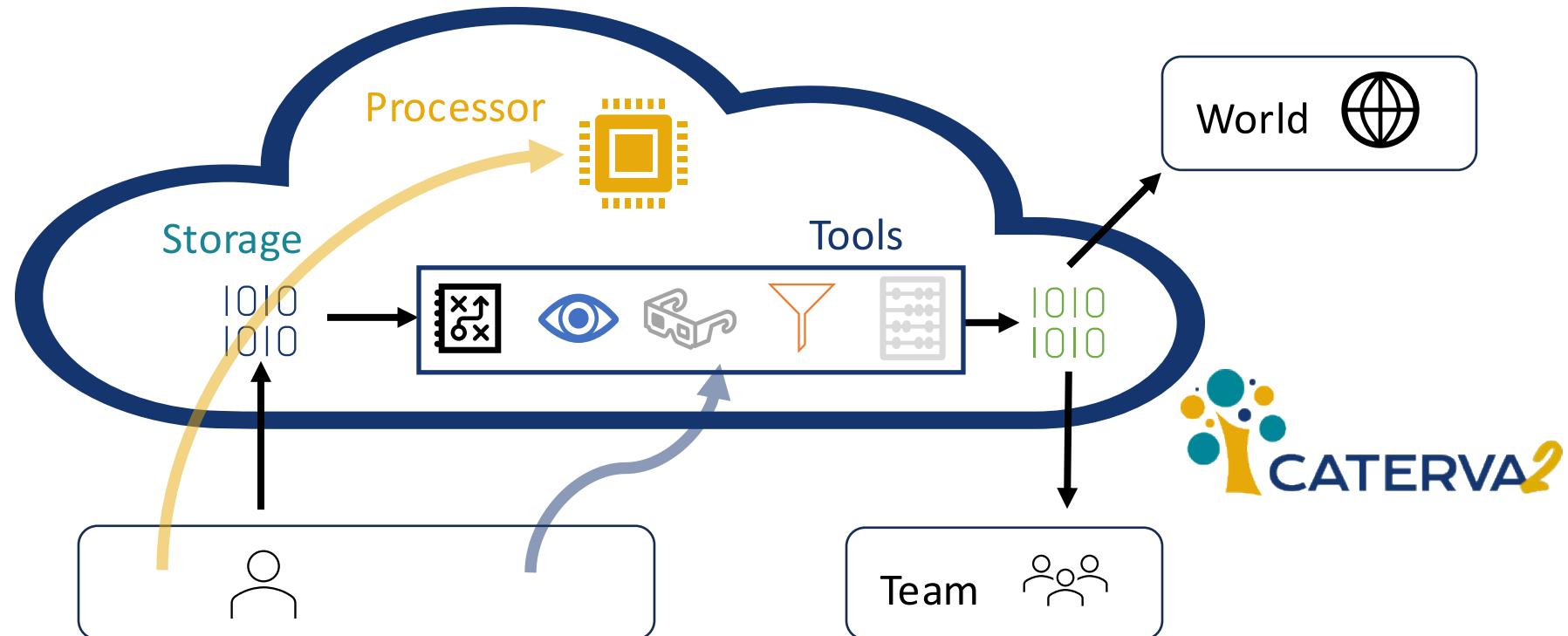


Bring Computation Closer To Where Data Is Stored

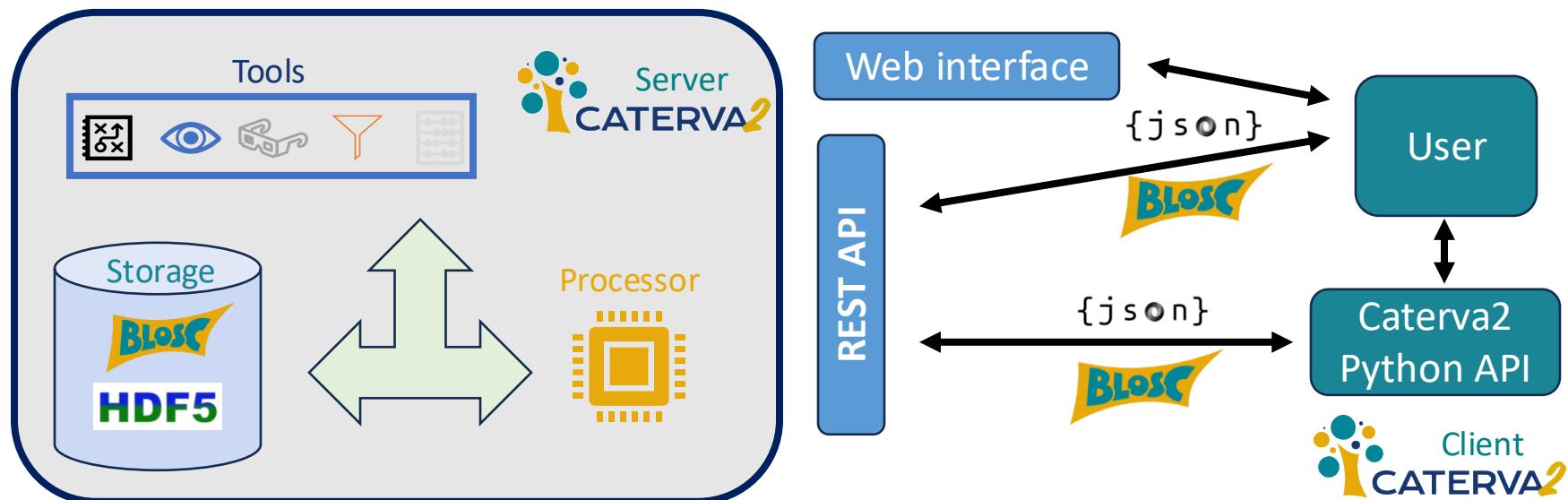
Data Is Affected By Physical Laws!



Computation Needs To Be Closer To Where Data Is Stored



Caterva2: Computing, Compressing And Serving Data



Your Remote Data Workflows - Optimised

Rapid Compute, Efficient Storage, Fast Sharing



<https://ironarray.io/caterva2>

- Open Source



<https://ironarray.io/cat2cloud>

- Caterva2 in the cloud
- Operated by ironArray

Choose what you prefer – we help you with setup

Hands-on Time