

# Blosc2

## Compress Better, Compute Bigger, Share Faster

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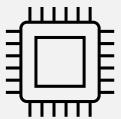


PyData Global  
December 10th 2025

# Agenda



Blosc2: Compressing Better



Blosc2: Computing Bigger



Caterva2: Sharing Faster

# Who is ironArray SLU?

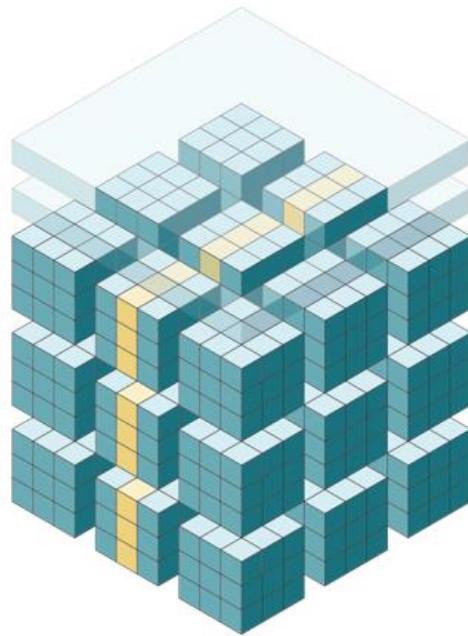


*Team of experts empowering you to harness the full potential of compression for computation and data sharing capabilities.*

**We are here to help!**



<https://ironarray.io>



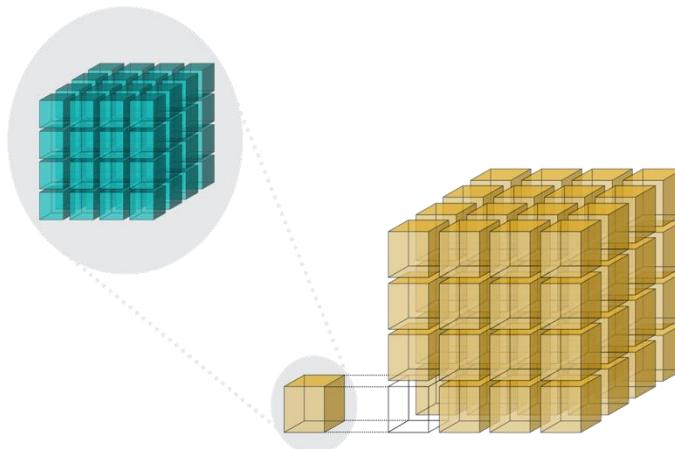
# Blosc2: Compressing Better

For multidimensional, binary data

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

# Blosc2 Architecture

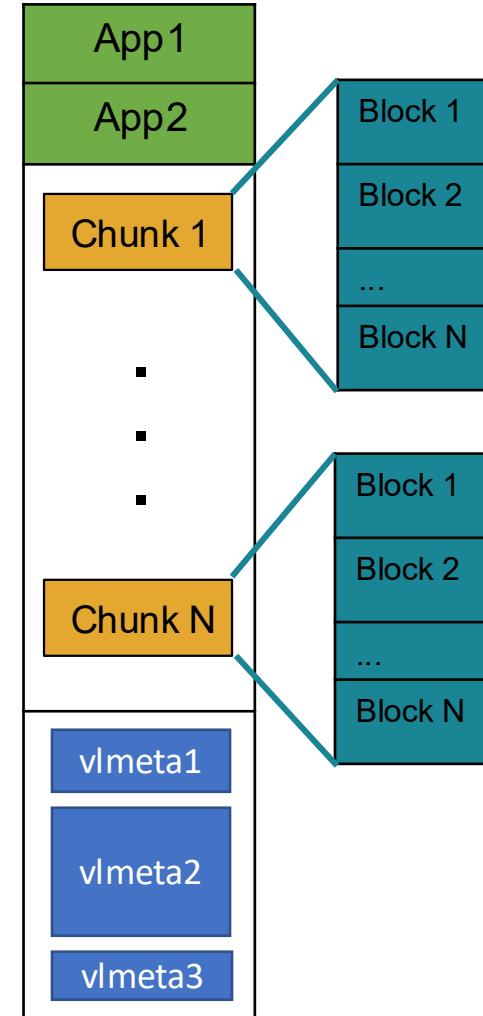
- ✓ 64-bit containers
- ✓ Metalayers for adding info for apps and users
- ✓ [Blosc2 NDim](#): Multi-dim blocks and chunks



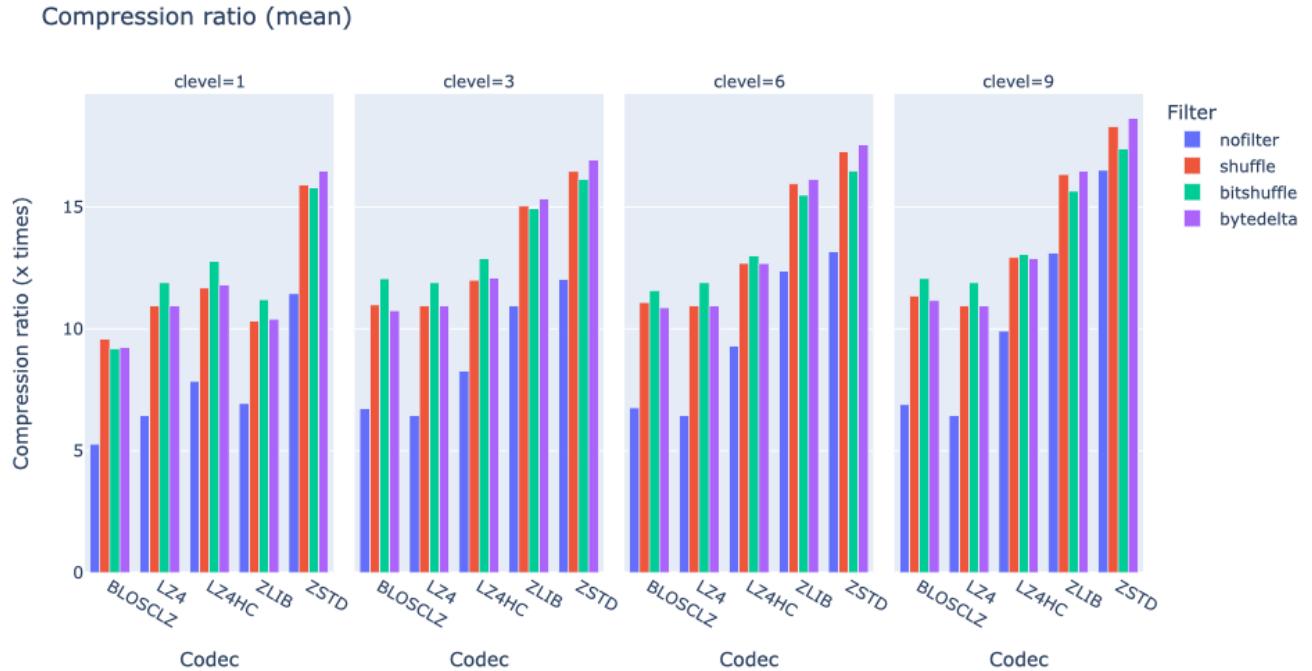
**Header:**  
Fixed Length  
Metalayers

**Data:**  
Super-Chunk

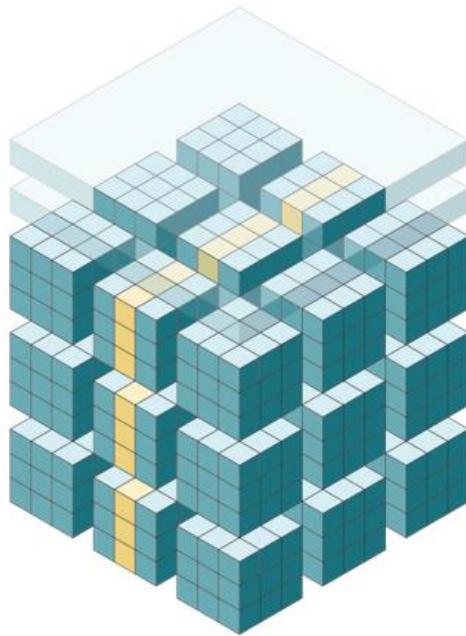
**Trailer:**  
Var Length  
Metalayers  
(up to 2 GB)



# Different Codecs and Filters



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

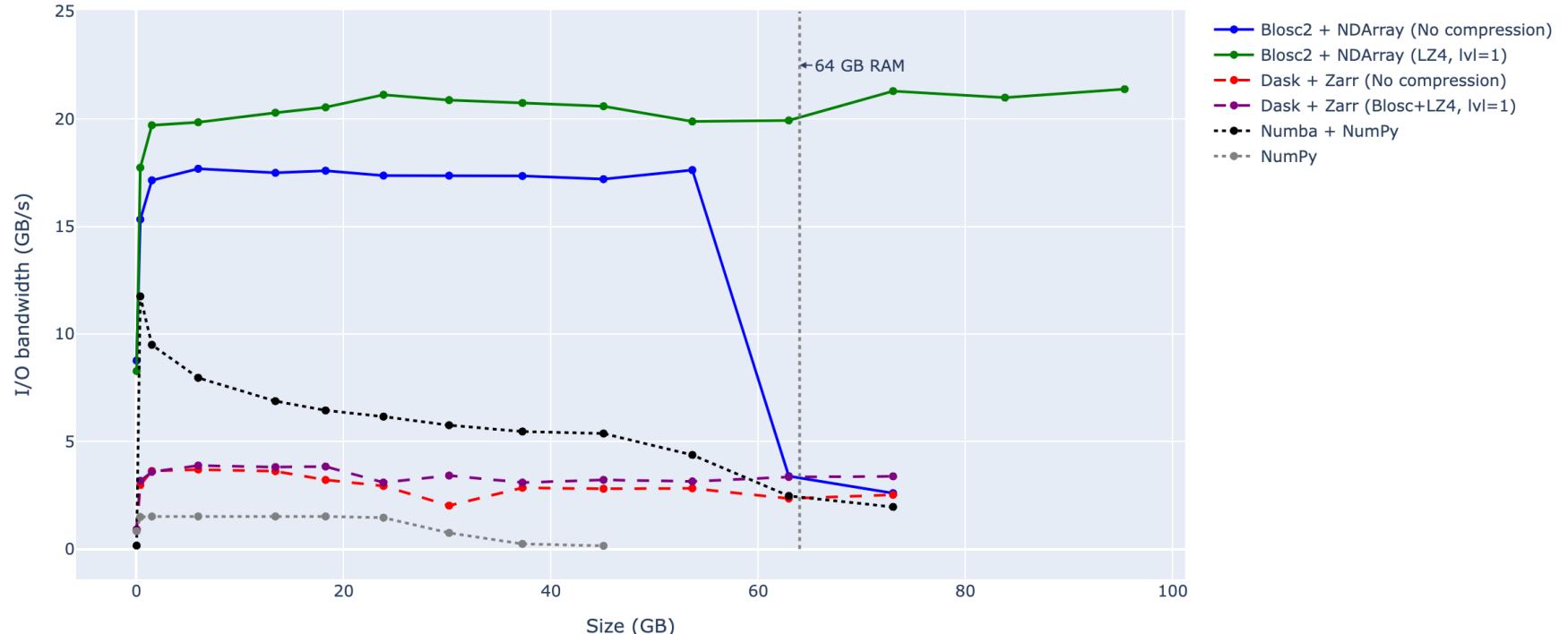


# Blosc2: Computing Bigger

Compute with your big compressed arrays, fast!

# Compressed Computing (In-Memory)

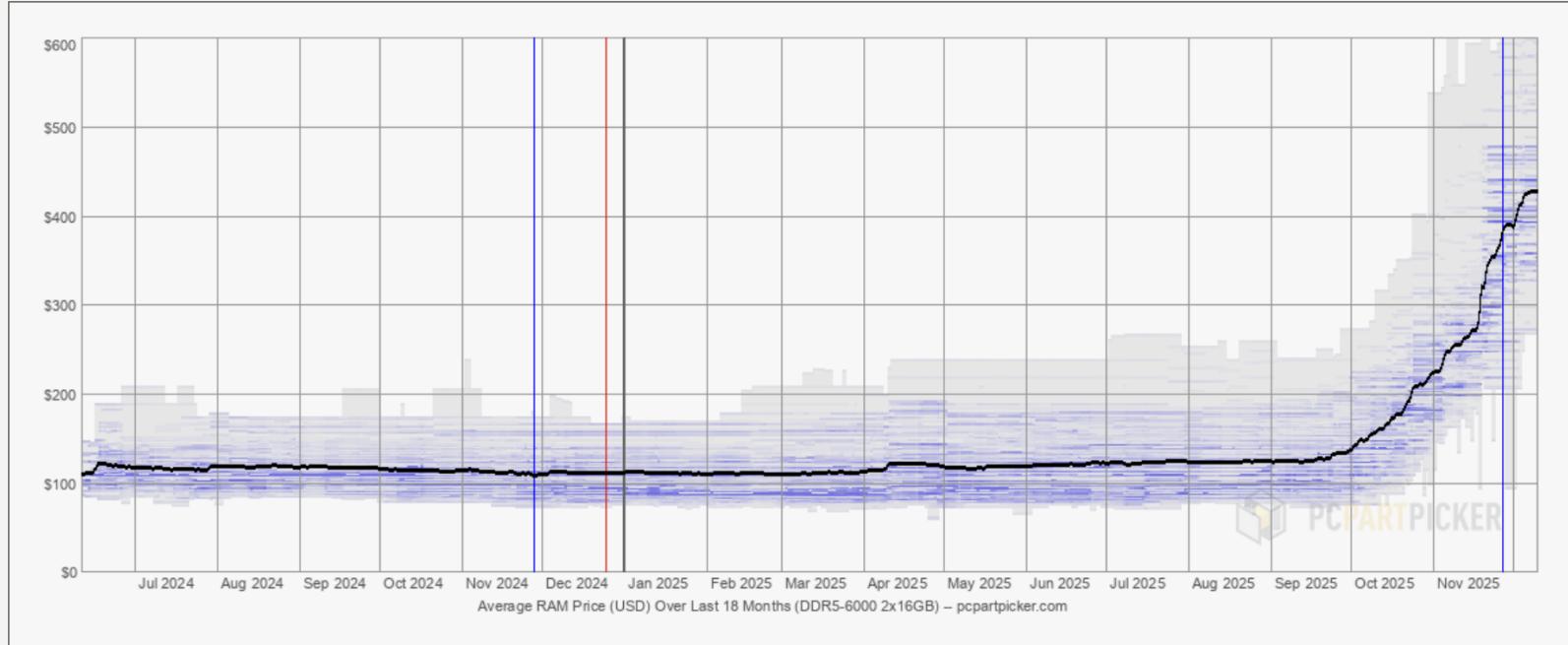
Blosc2 vs others; compute: `np.sum(((a ** 3 + np.sin(a * 2)) < c) & (b > 0), axis=1)`



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

# RAM Matters (But Is Becoming Scarce)

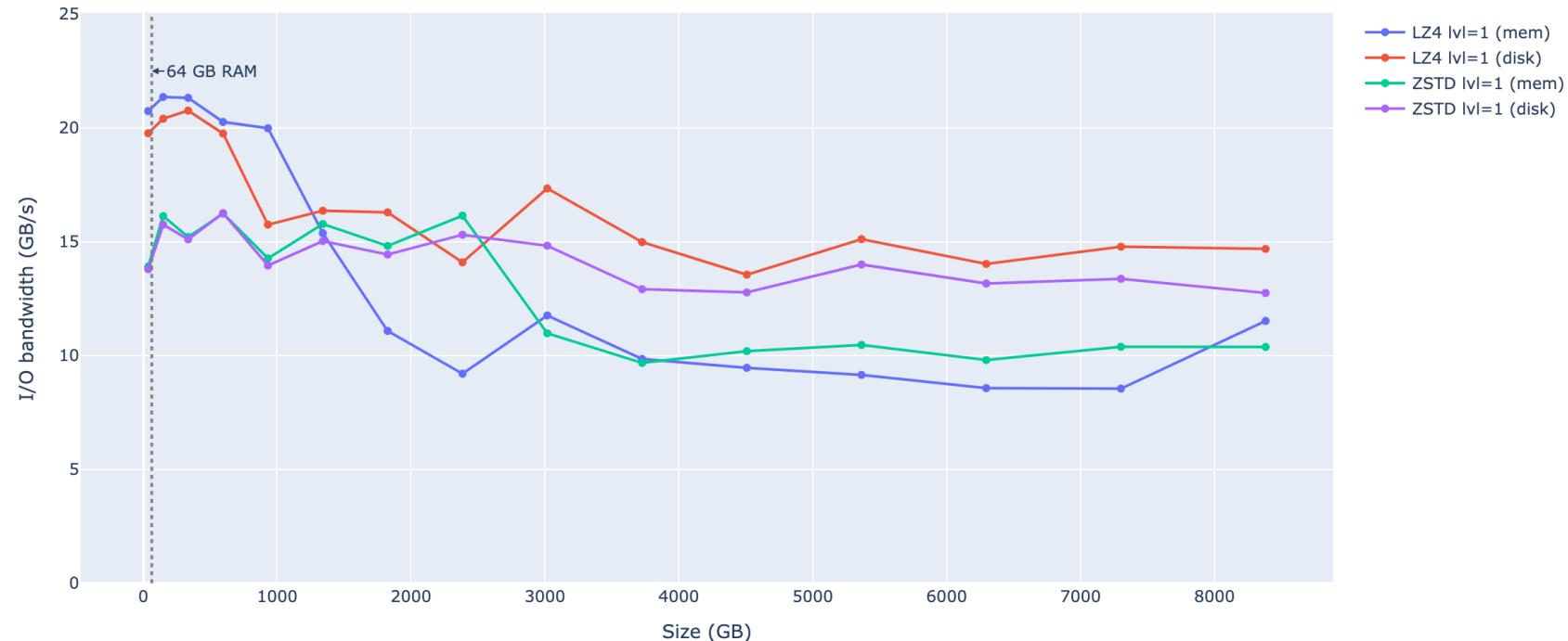
DDR5-6000 2x16GB (Average price in USD over last 18 months)



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

# Going Bigger: Computing Beyond RAM

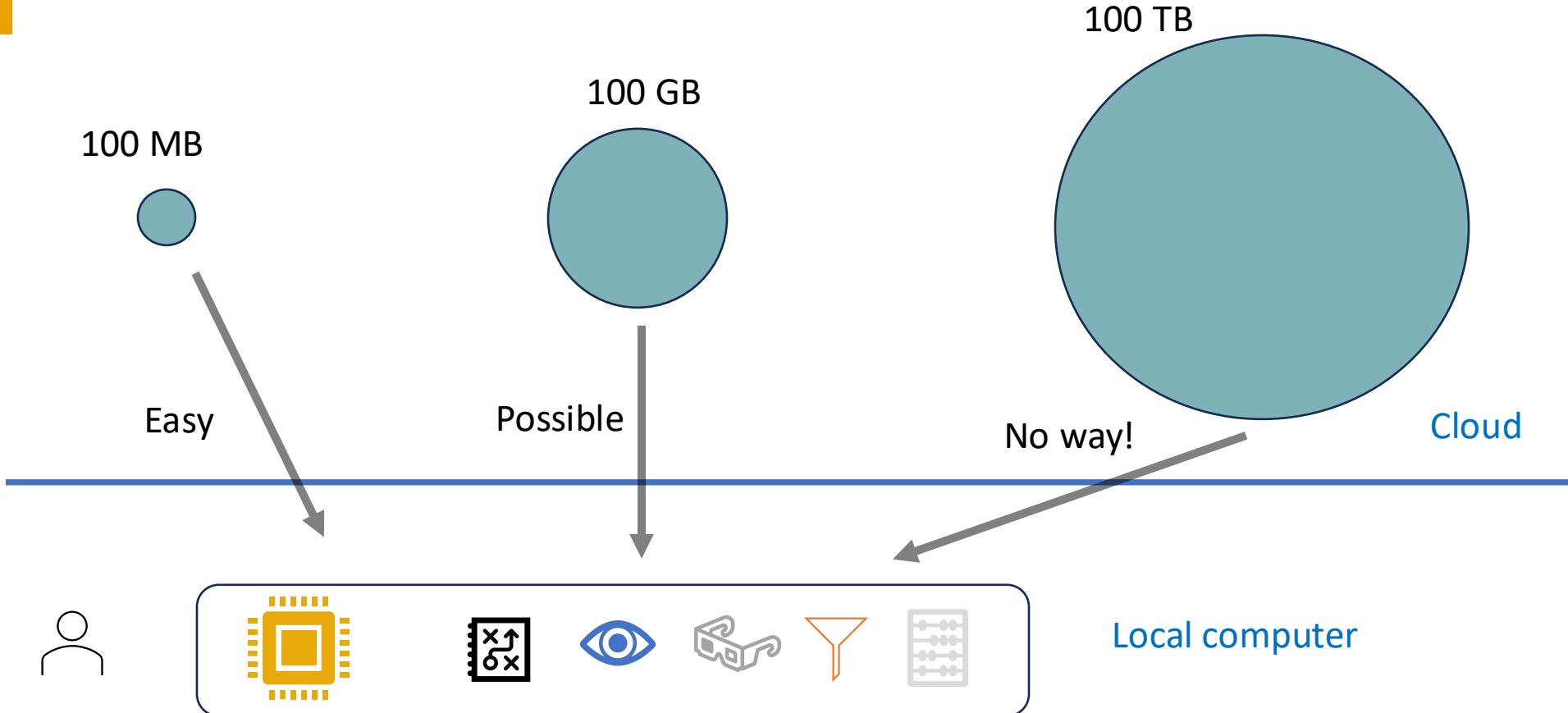
Blosc2 compute (\*\*beyond RAM\*\*): `np.sum(((a ** 3 + np.sin(a * 2)) < c) & (b > 0), axis=1)`



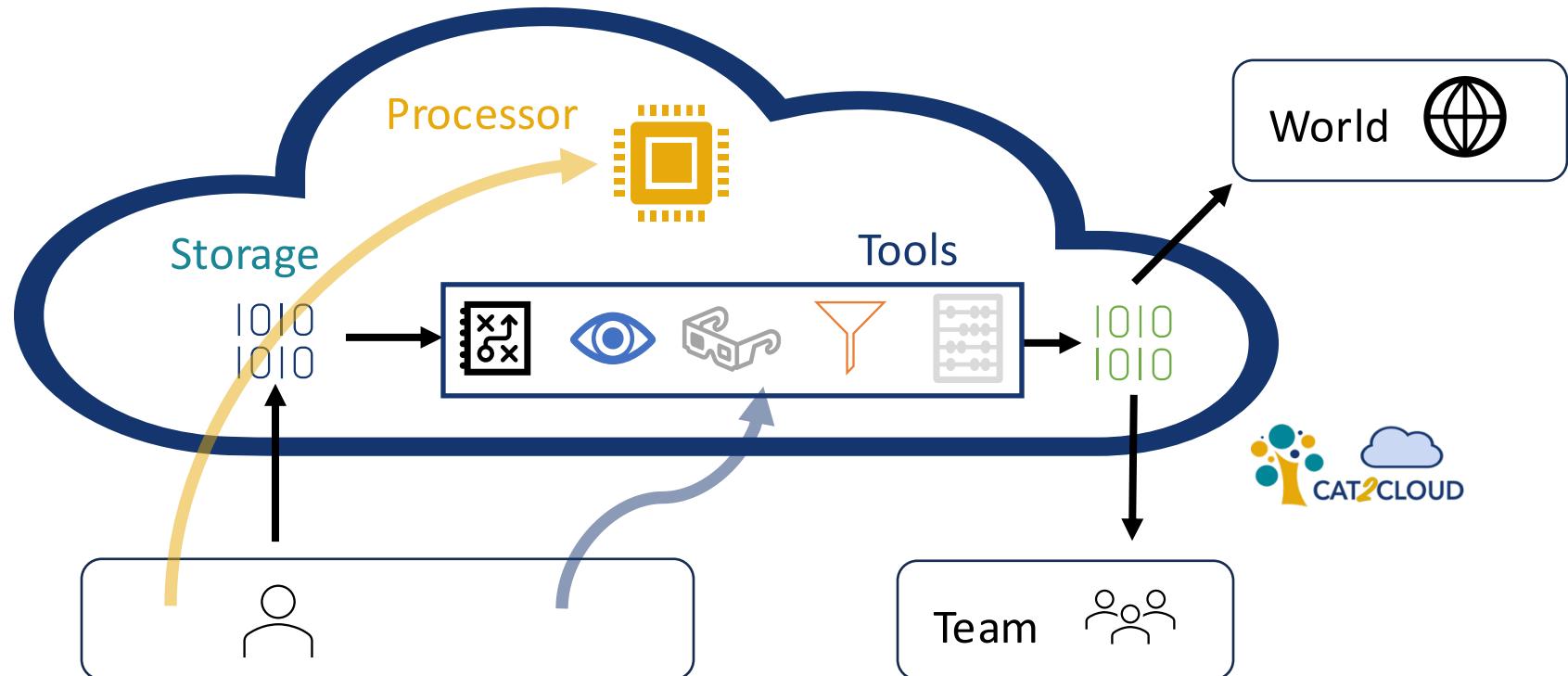


Bring Computation Closer To Where Data Is Stored

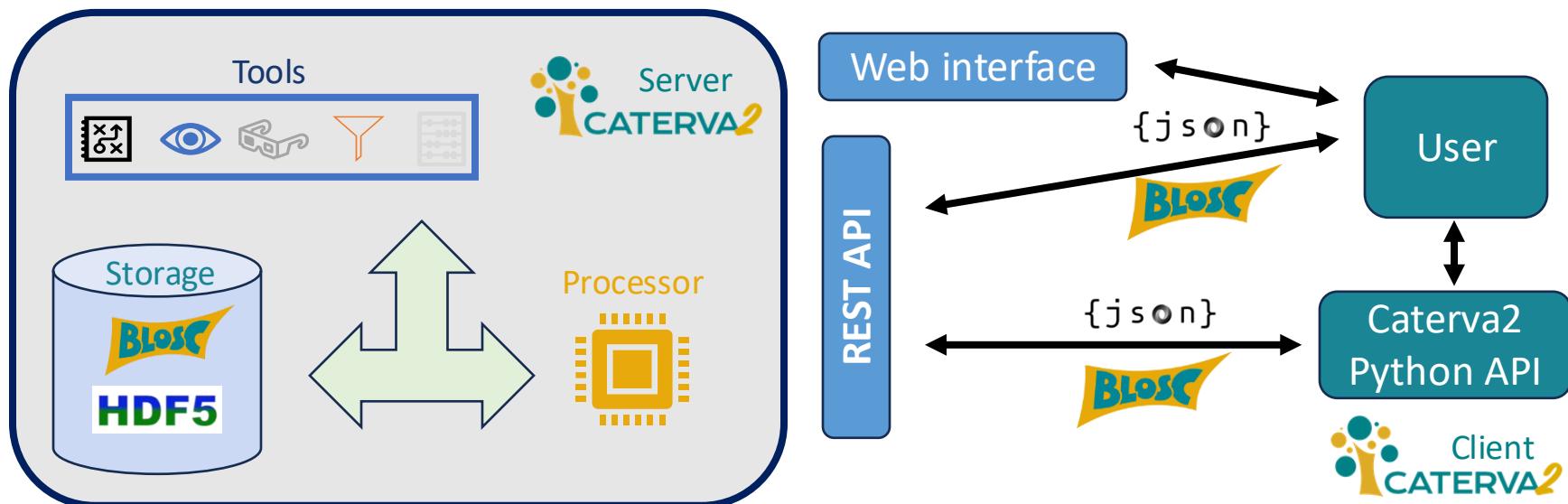
# Data Is Affected By Physical Laws!



# 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