Volumes

beautiful but slow.
Not always.....

Impacts of Inefficient Volumes

- Slower simulation time
- Disk storage
- Render times
- Server IO
- Slow to iterate
- Screwing yourself and your fellow Artist's out of the resource of TIME

How to reduce Volumetric Data

- Voxel resolution - how much do you need for the given Camera/render res
- Bit depth - 32 Vs 16 - when does it matter? Can you use 8 ?
- Culling fields - remove data in fields that aren't needed
- Resampling - reducing voxel res per field - it doesn't all need to be the same
- Frustum based rasterization - a camera based alternative to Cartesian grids

Frustum Volumes

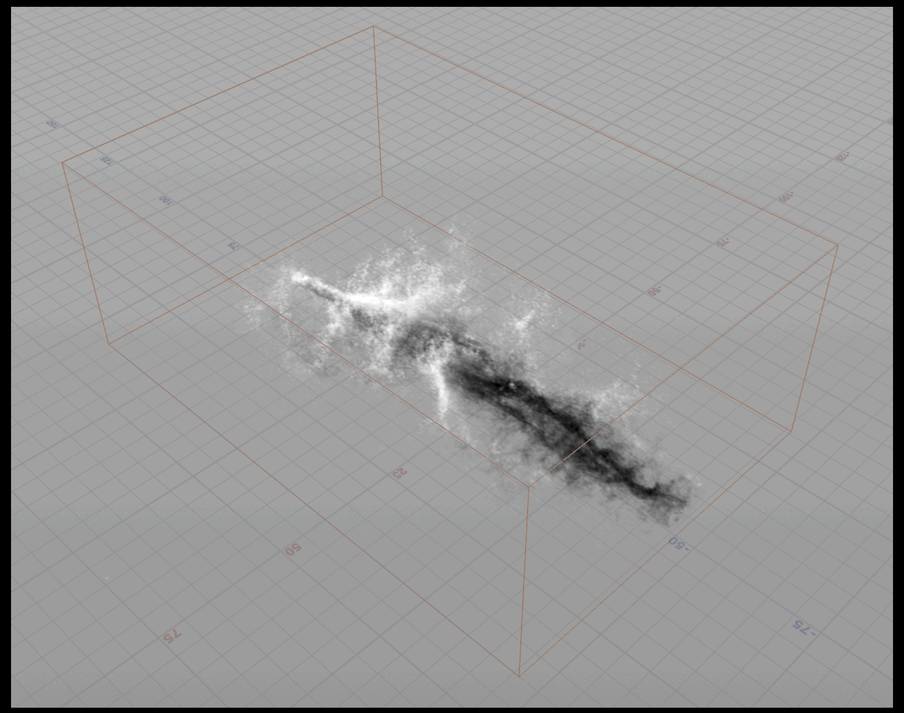
frustum based rasterization instead of Cartesian

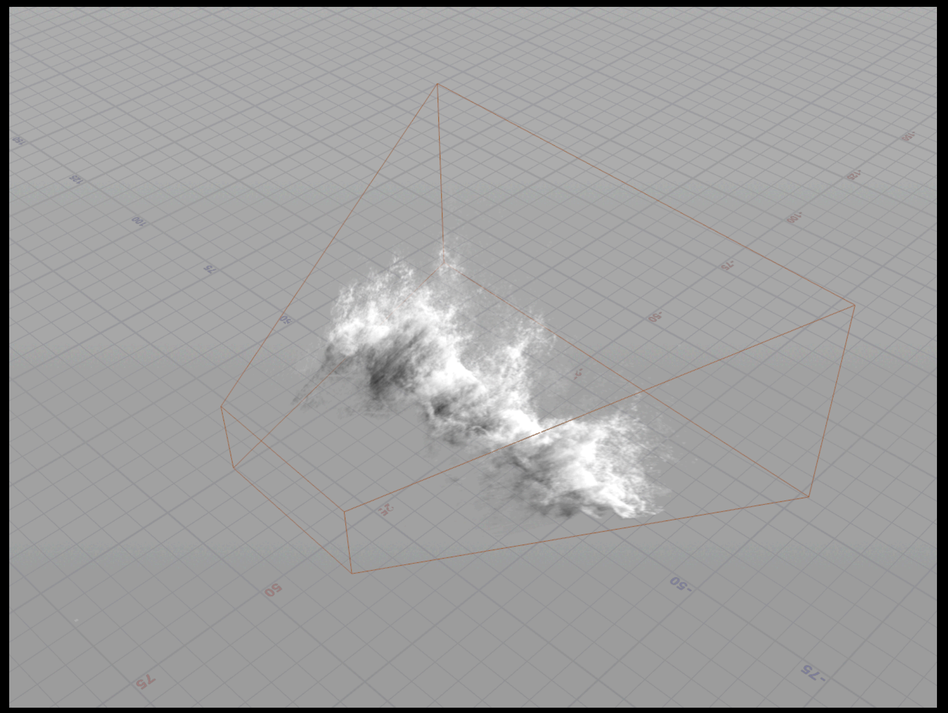
VDB 313mb

VDB 36mb

Volumes in Space

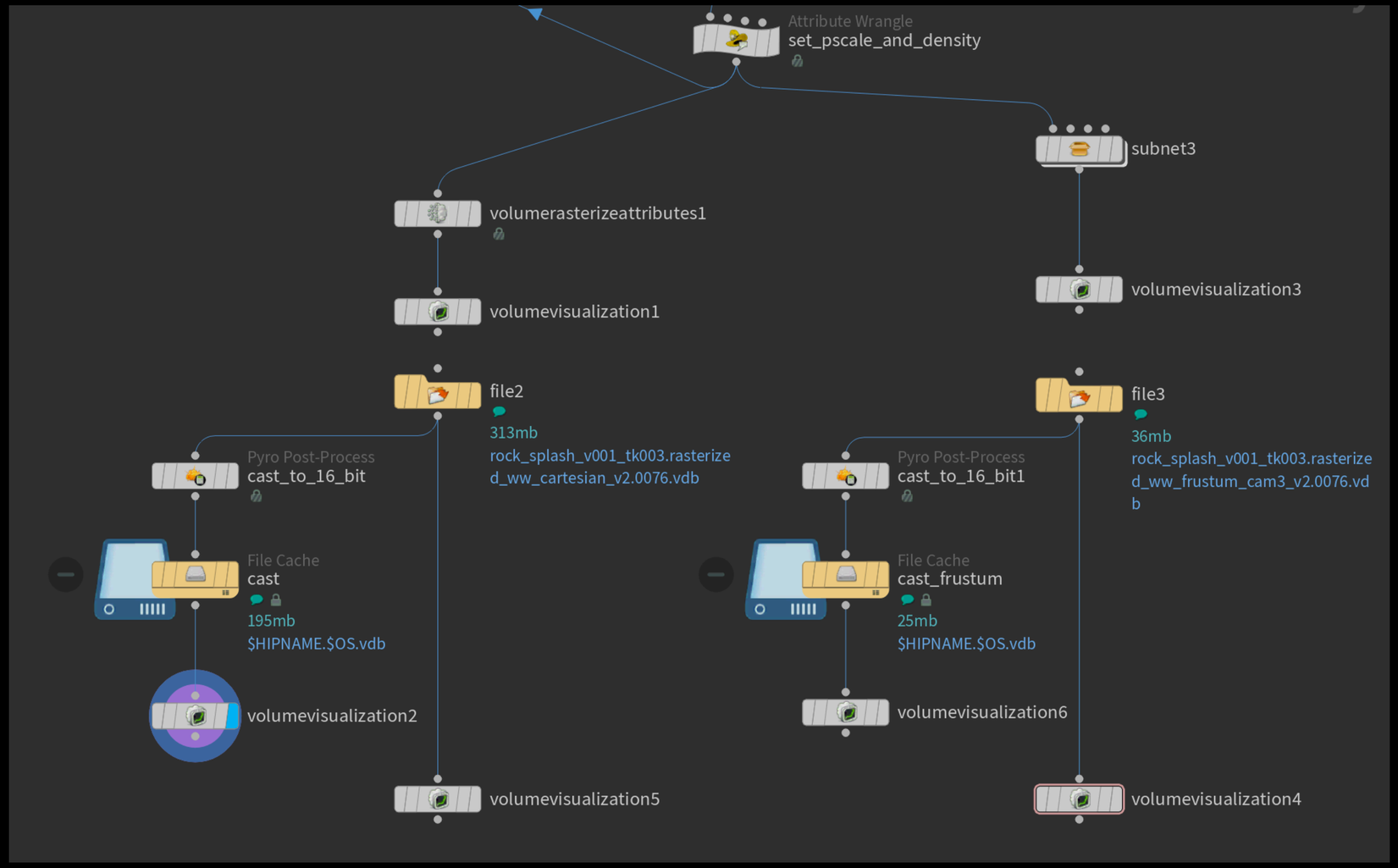
Cartesian and Frustum





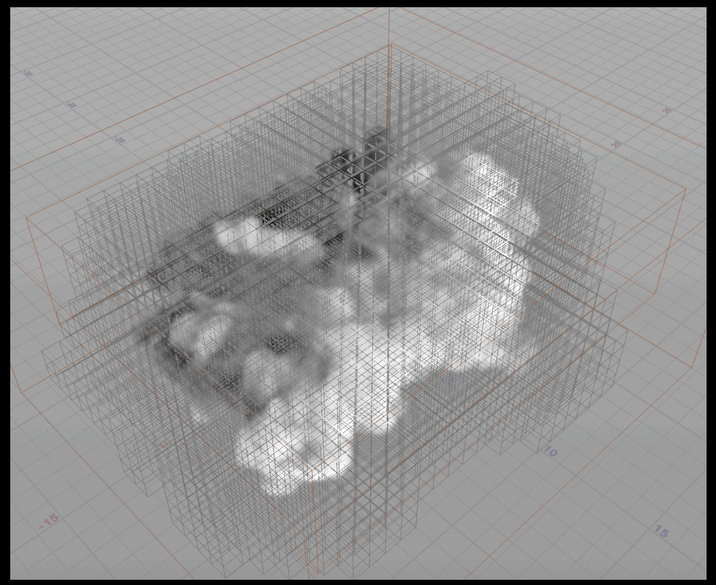
Frustum Vs Cartesian

and 32bit Vs 16bit - who wins? We do!

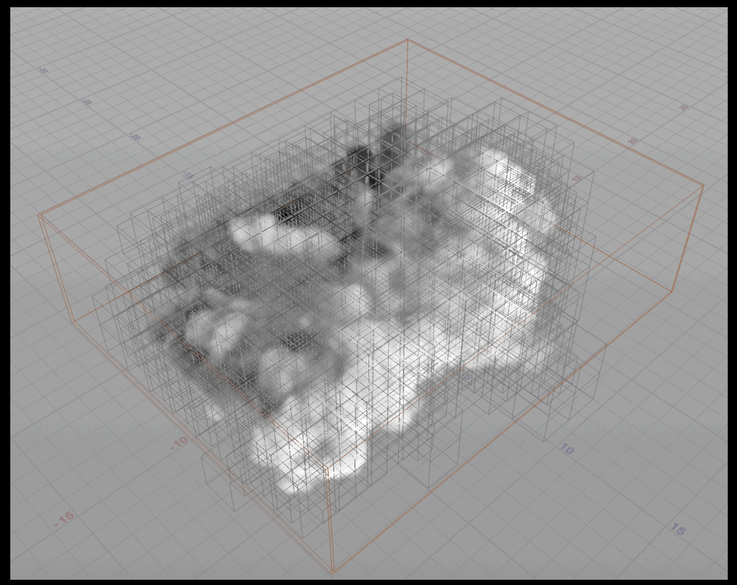


Volume Compression

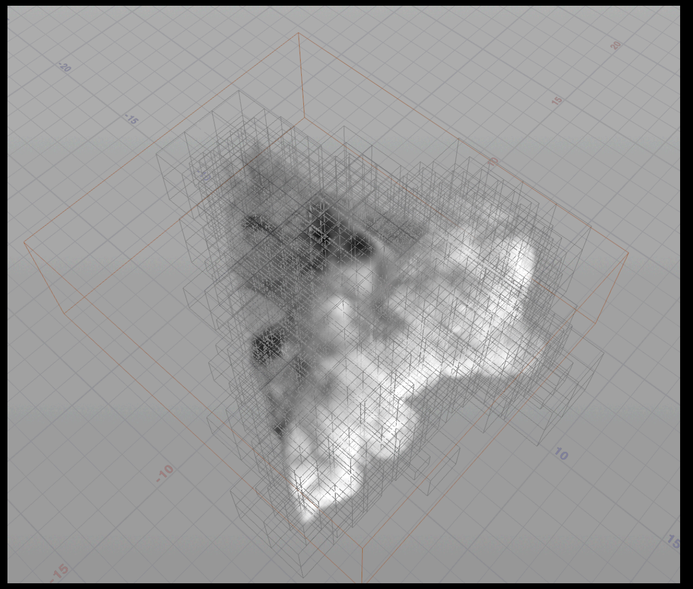
it really really adds up



32 bit
no field culling
no field resample
34mb



16 bit
field culling - vel
field resample - 2x vel
3.2mb



16 bit
field culling - vel
frustum cull in sim
field resample - 2x vel
1.8mb