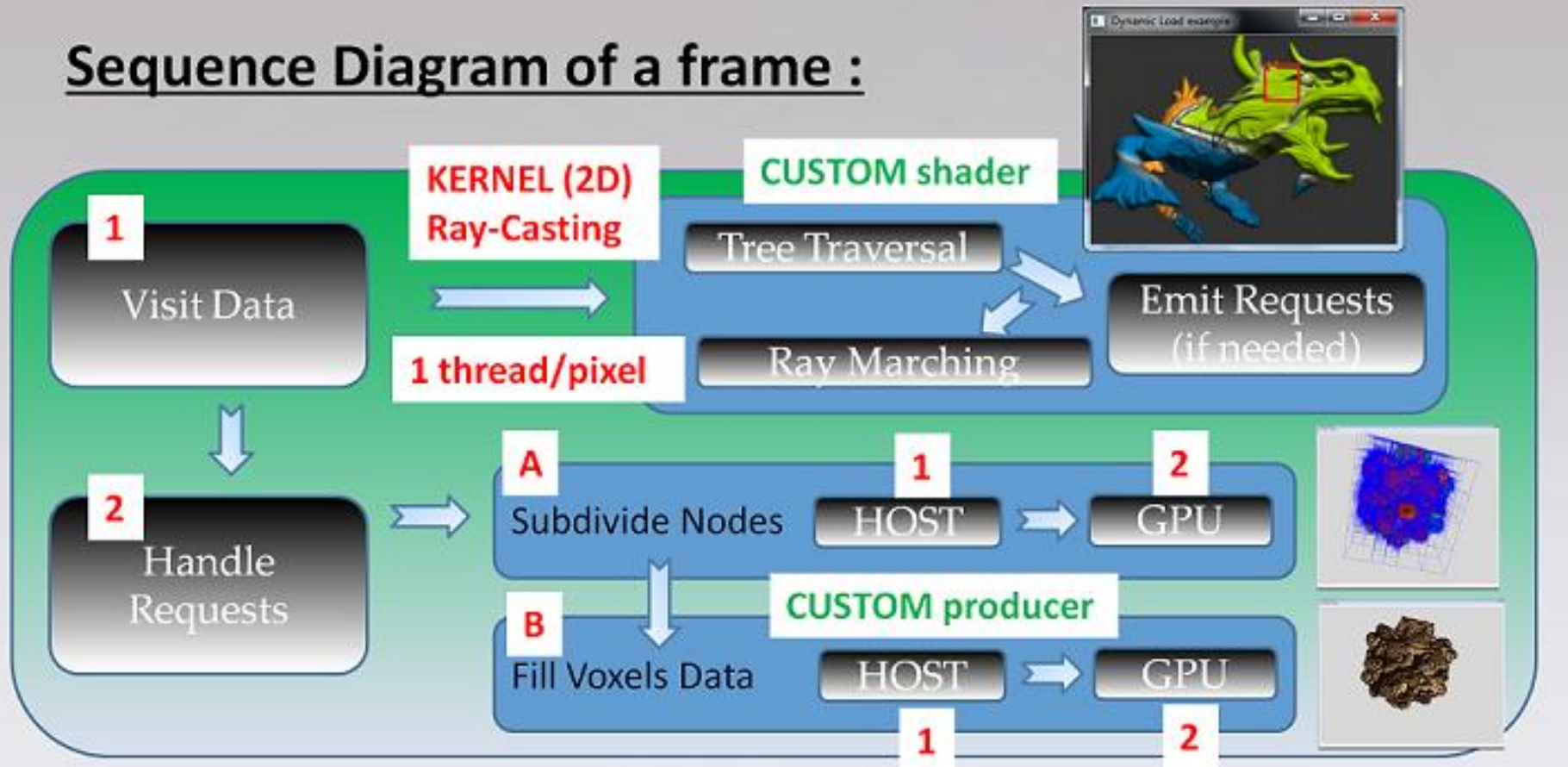


Procedural generation on device

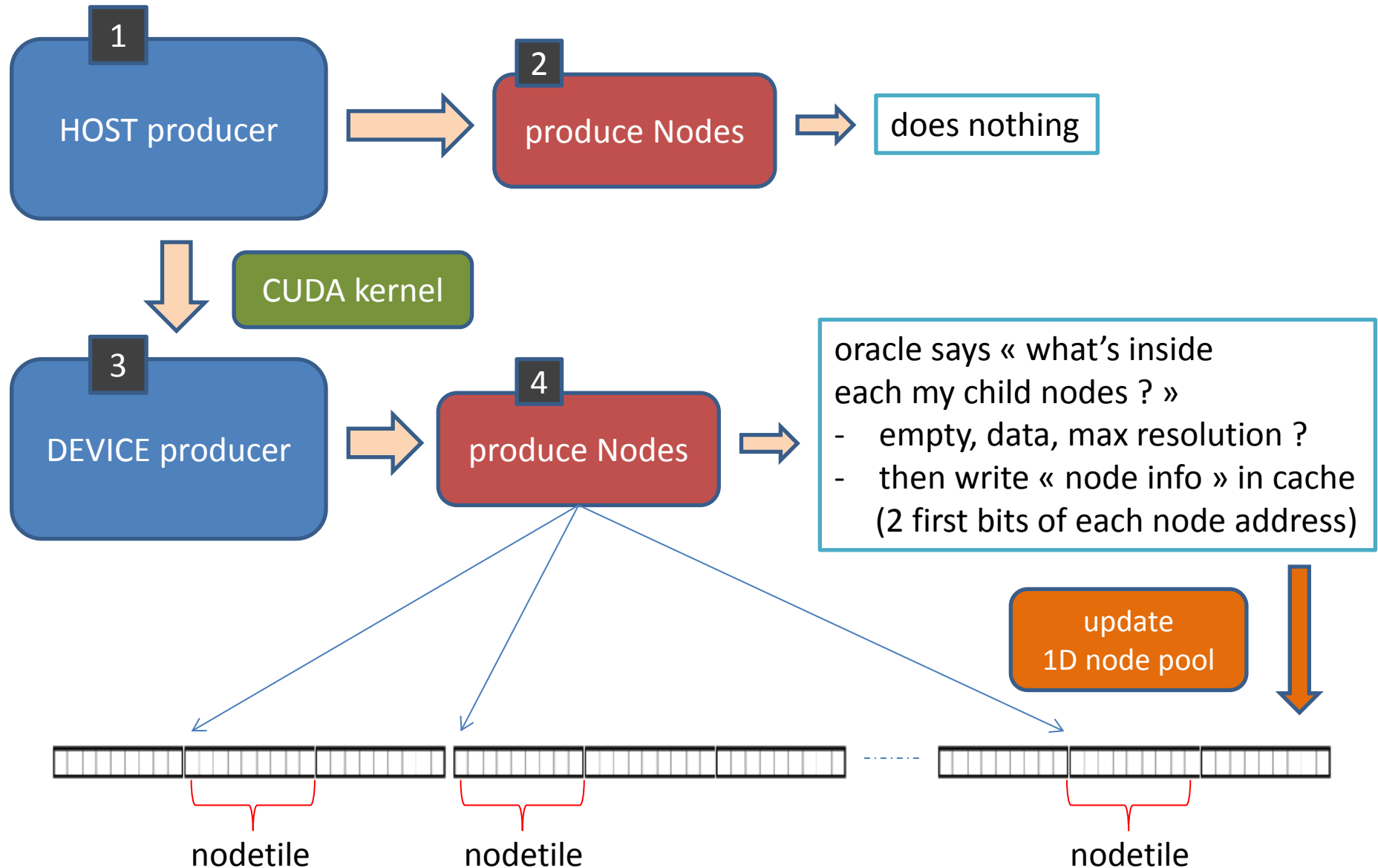
Data Production Management

Sequence Diagram of a frame :



Procedural generation on device

[1] - Nodes production (node refinement)



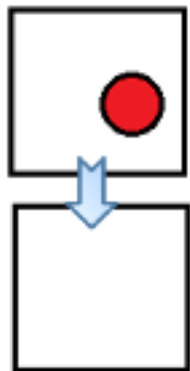
Procedural generation on device

[1] - Nodes production (node refinement)

Ex : sphere on GPU

Nodes subdivision :

WORLD : sphere

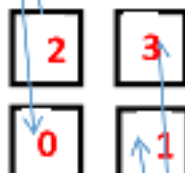


Parent



Children
- what's inside ?

empty



data

1st step

FLAG Children

- EMPTY
- DATA inside
- MAX RESOLUTION reached

Retrieve 3D world position with help of INPUT localization info (depth, index position)



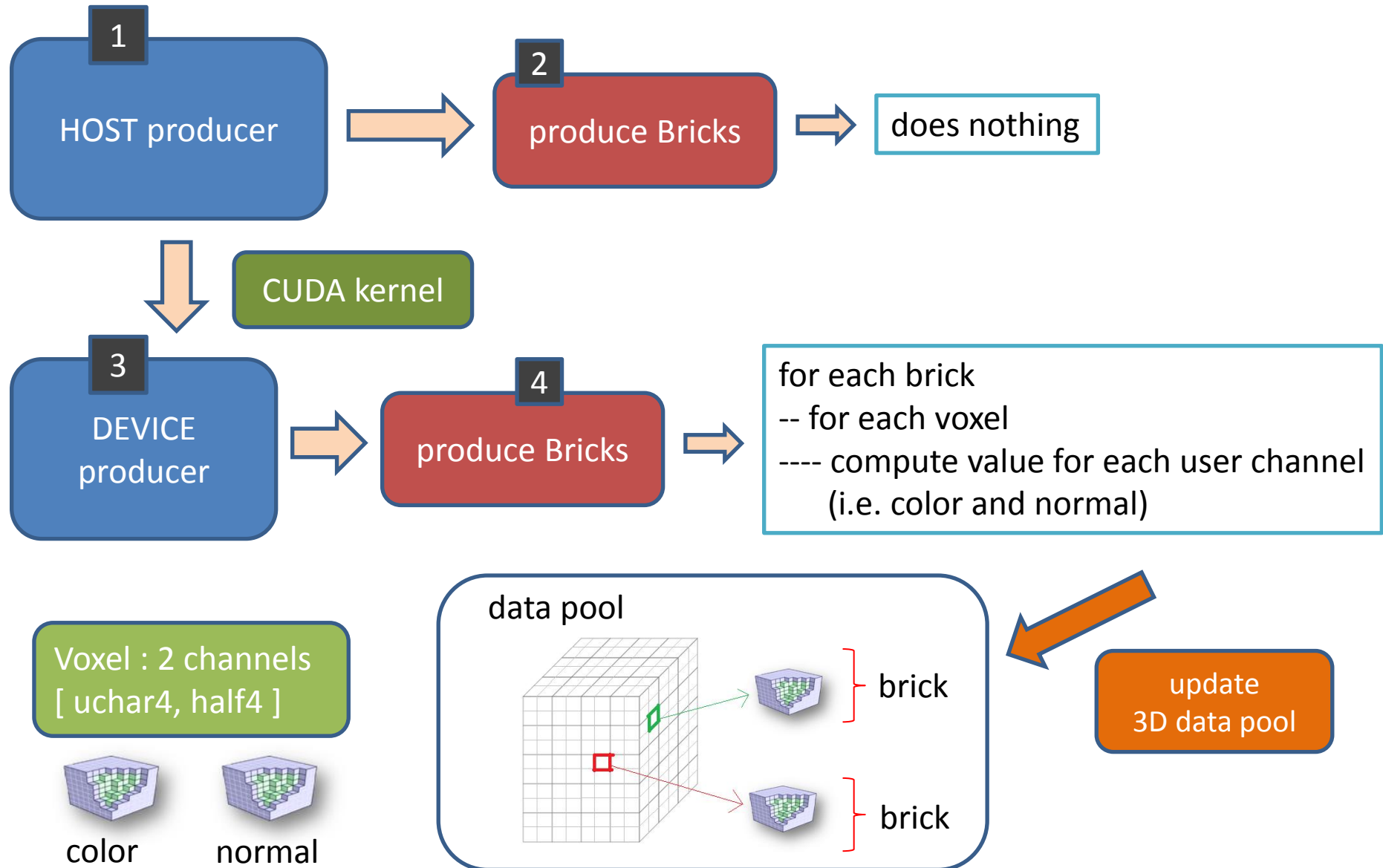
2nd step

Write result in cache

- Next frame, renderer will ask for the node data production (brick of voxels)

Procedural generation on device

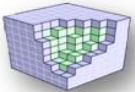
[2] - Bricks production (voxel data)



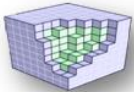
Procedural generation on device

[2] - Bricks production (voxel data)

Voxel : 2 channels
[uchar4, half4]

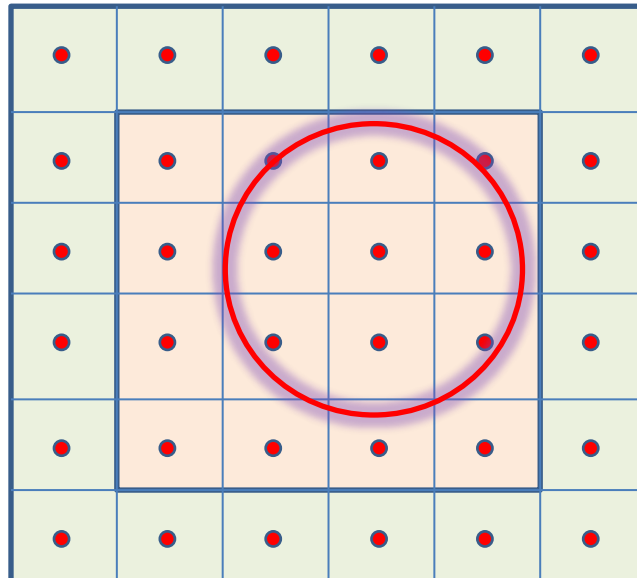


color



normal

Example : 1 brick
- 4x4 voxels
- 1 border



voxel data is stored
at voxel center

density is modeled
with alpha component
of color channel

- alpha = 0 outside
- alpha = 1 inside