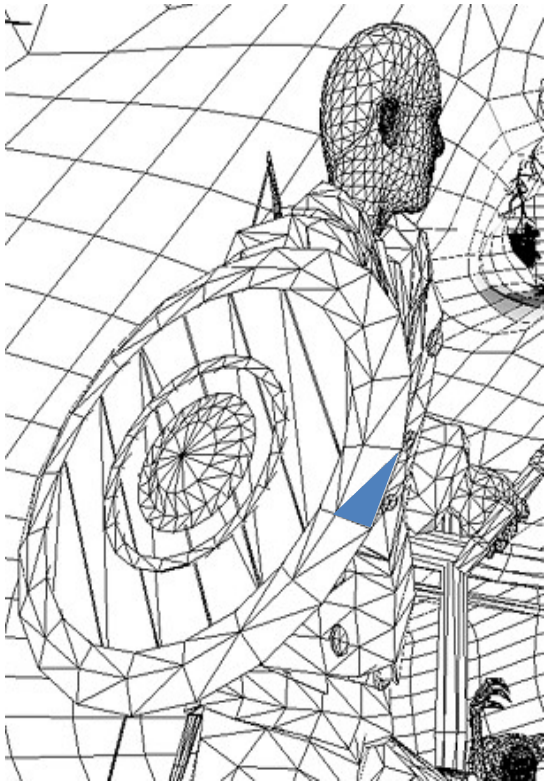
What is a Shader?

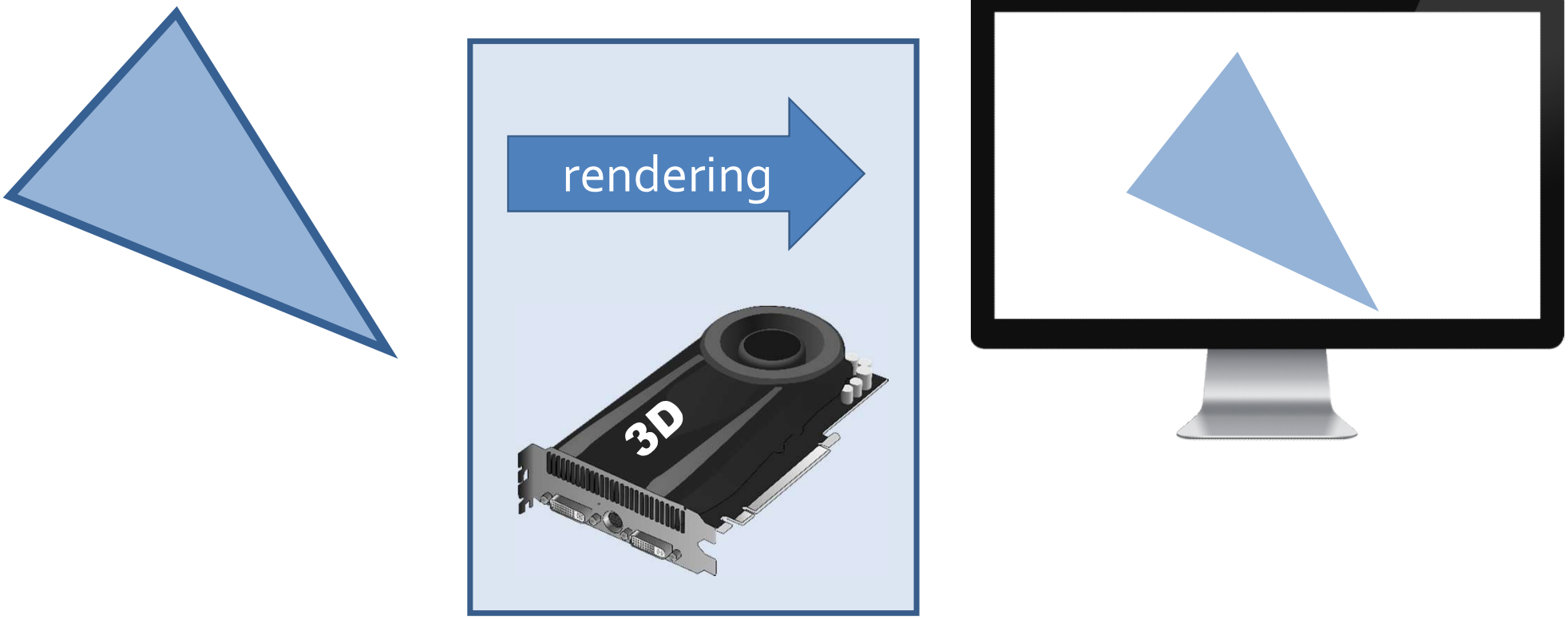

Every scene is constructed out of primitives

Rendering = Turn Primitives into Image



rendering

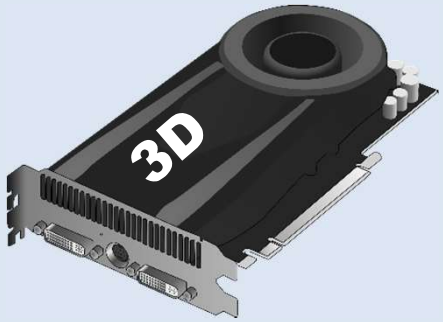
Rendering = Geometry into Image



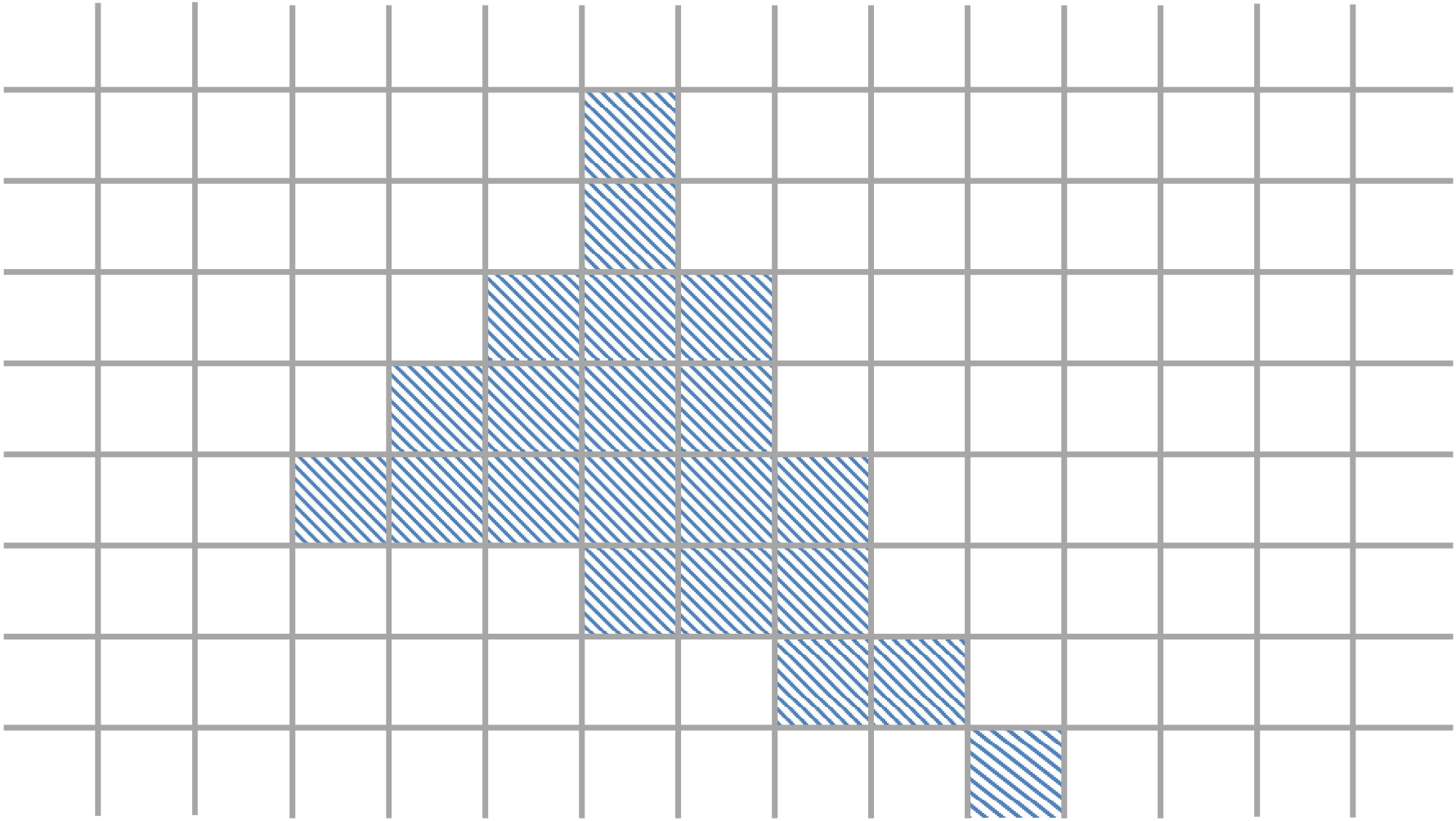
Rasterisation

~2 mio. pixel

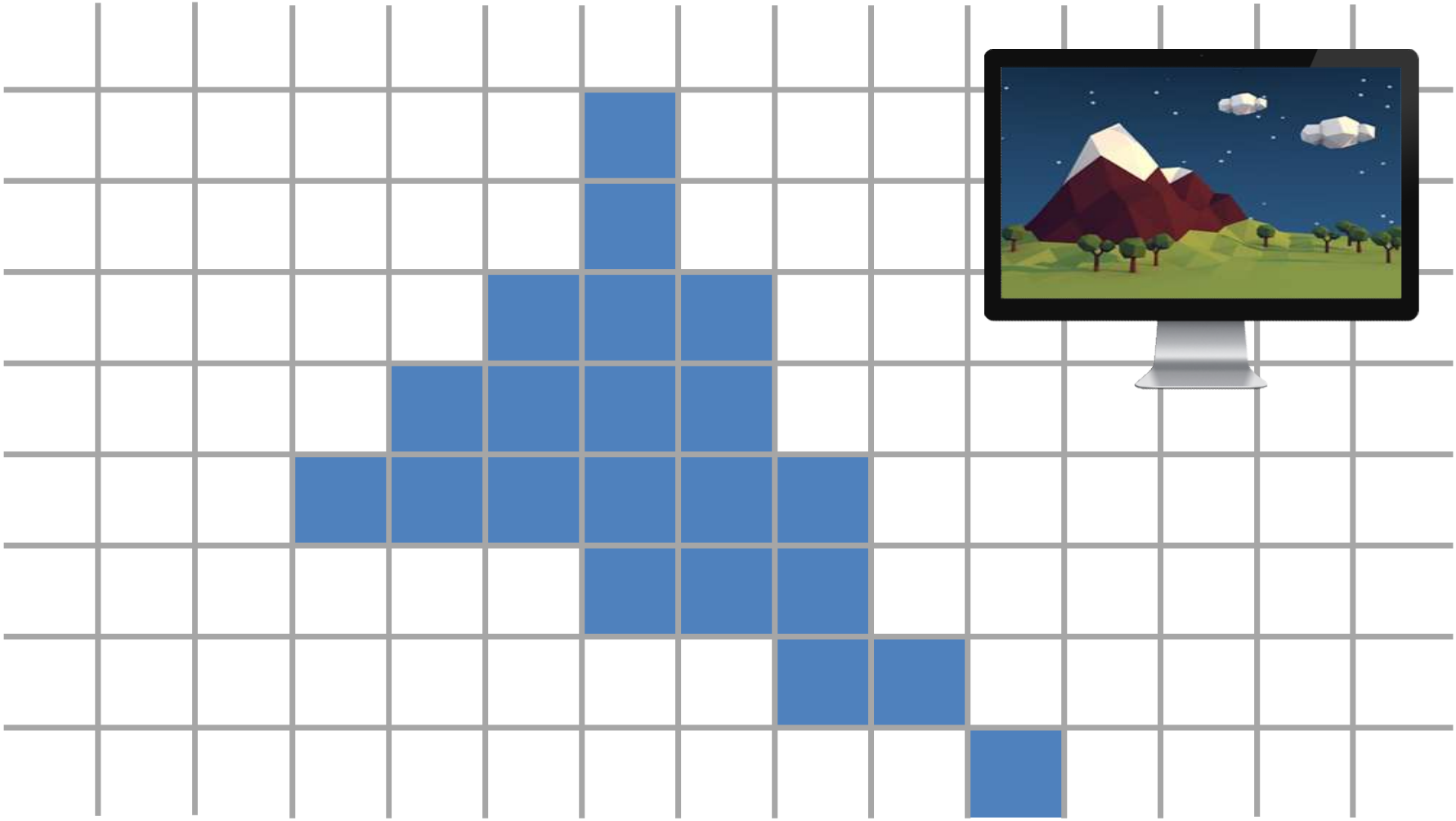
~80 mrd. pixel/second



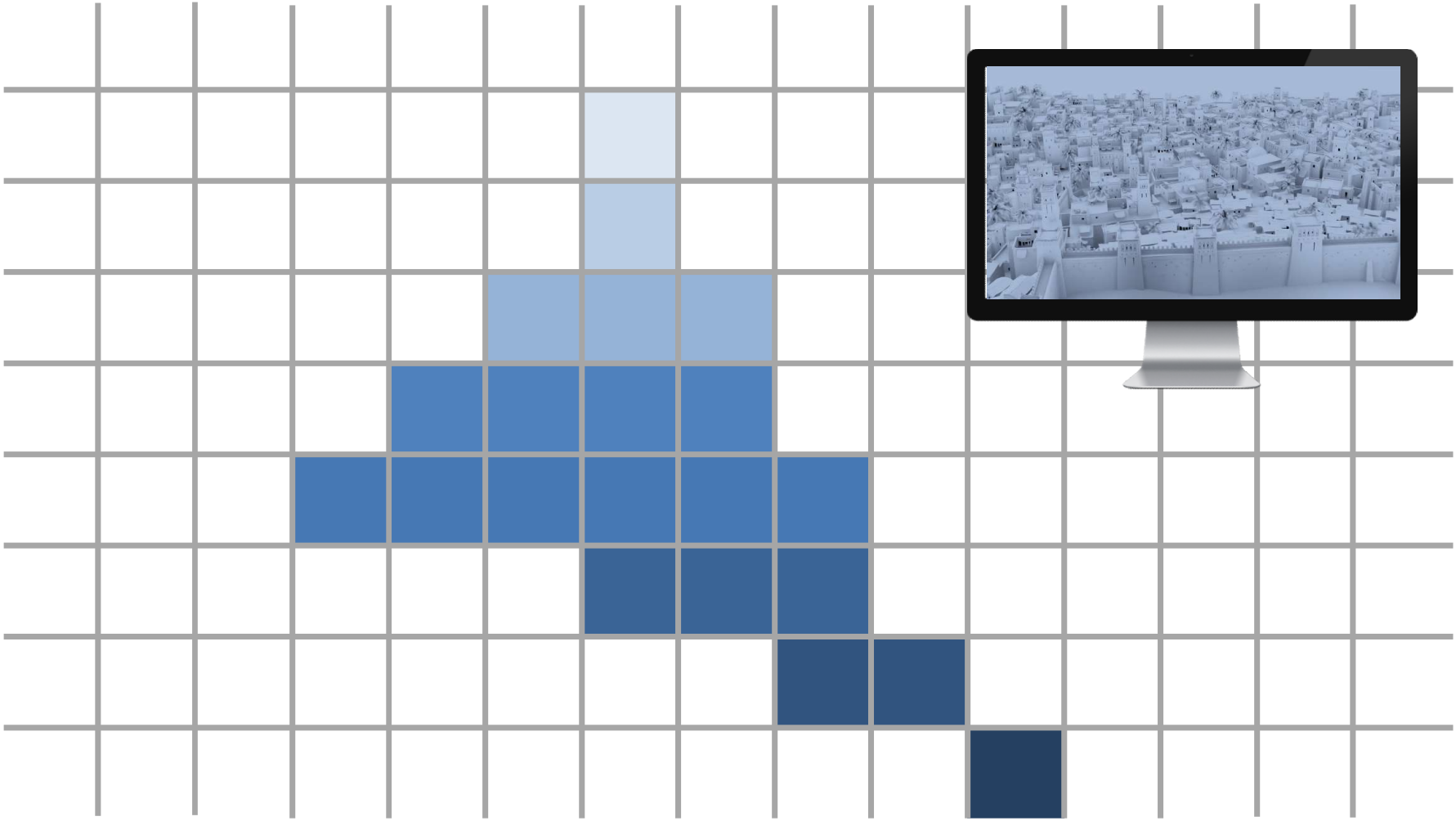
Color of a Pixel?



Color of a Pixel?



Color of a Pixel?



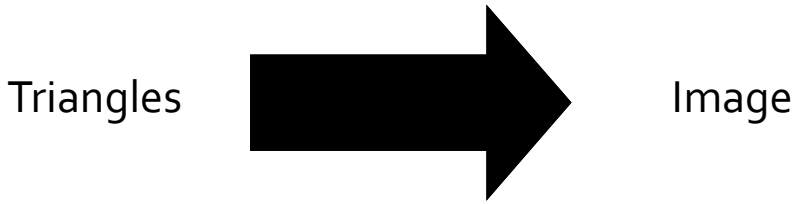
Color of a Pixel

- Great freedom required
  - Programmable
  - Fragment/Pixel shader

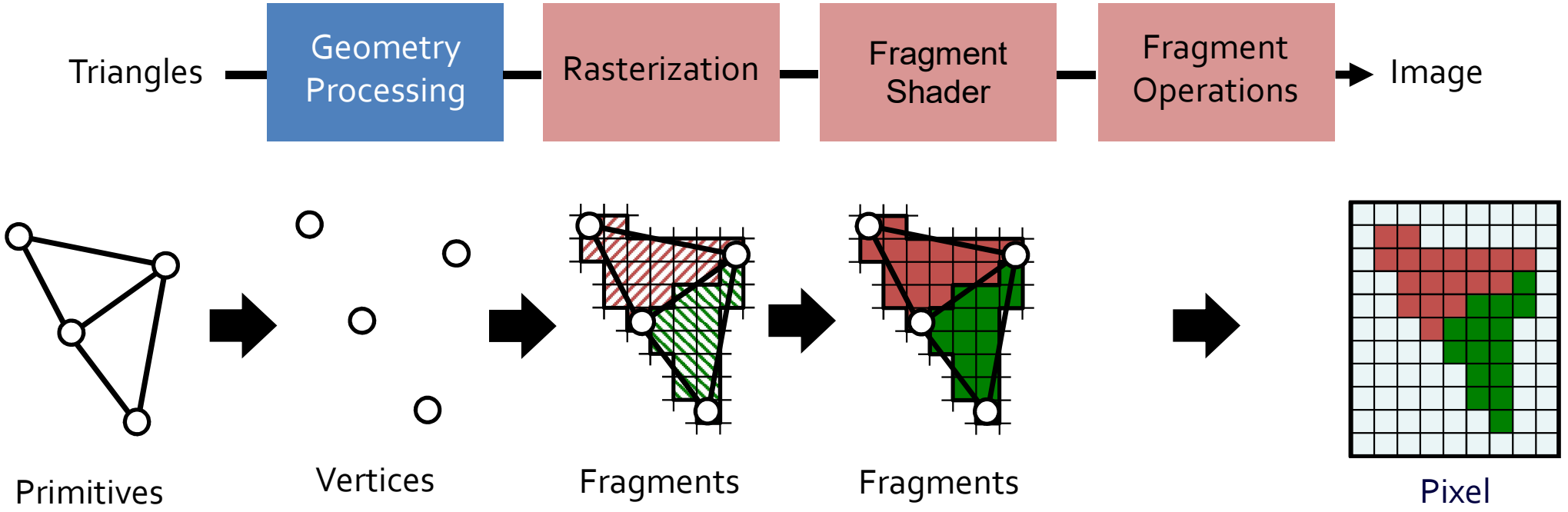
Shader decides the Color of a Pixel

- Program on graphics hardware

Rendering by Graphics Hardware

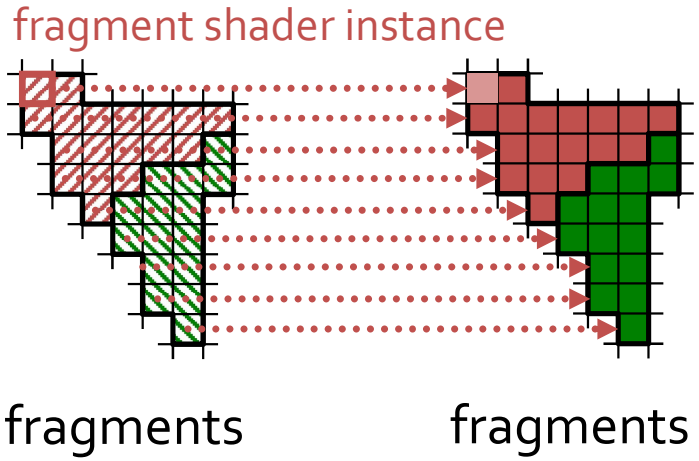


Rendering by Graphics Hardware

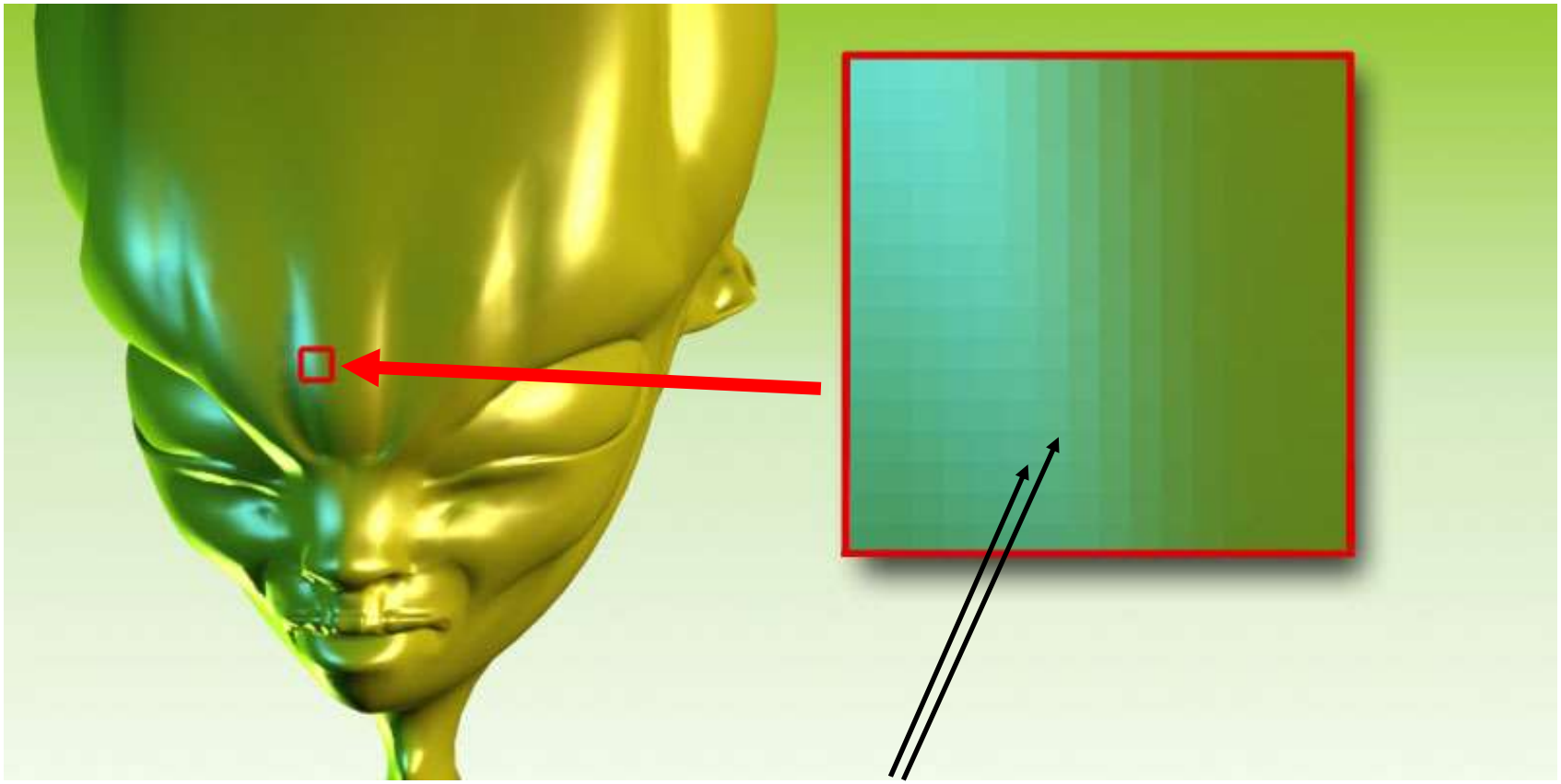


Fragment shader

- One instance processes one fragment
- No knowledge of neighbouring fragments



Fragment shader



Each fragment is calculated individually