Where's ~~Waldo~~ Graphics Hardware

Marc Olano

UMBC

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- Normal Mapping
  - Blinn 1978; Krishnamurthy & Levoy 1996; Cohen, Olano & Manocha 1998

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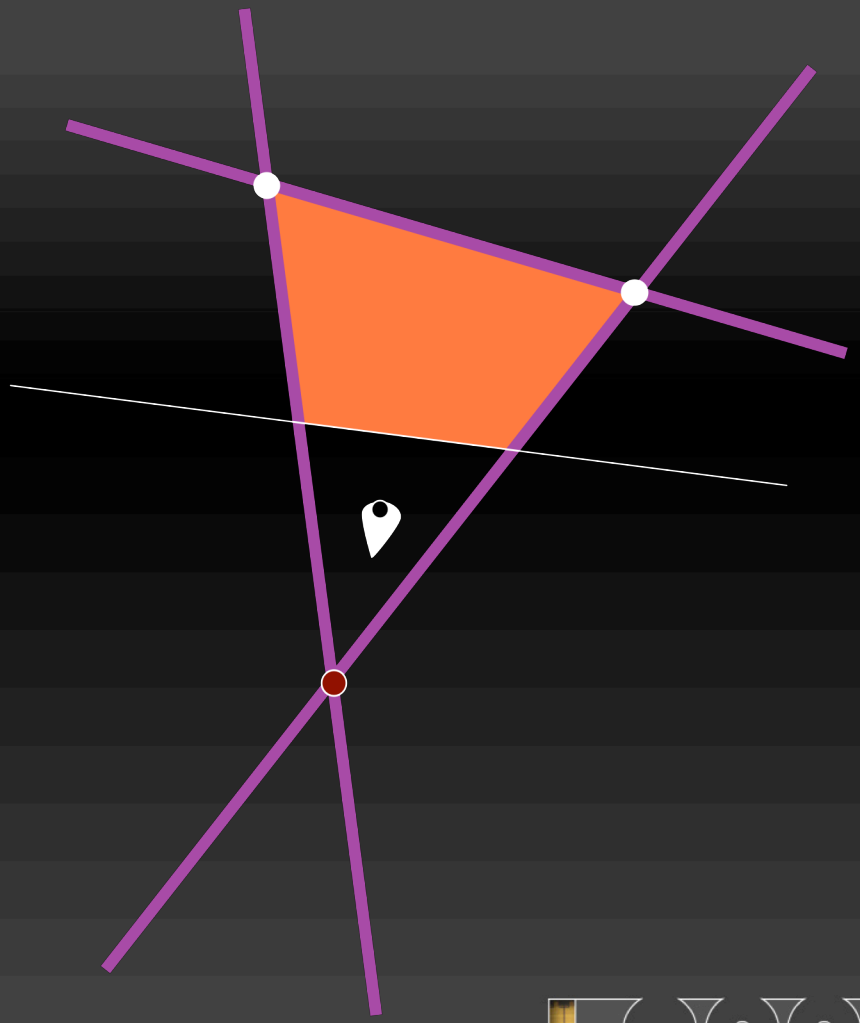

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- Normal Mapping
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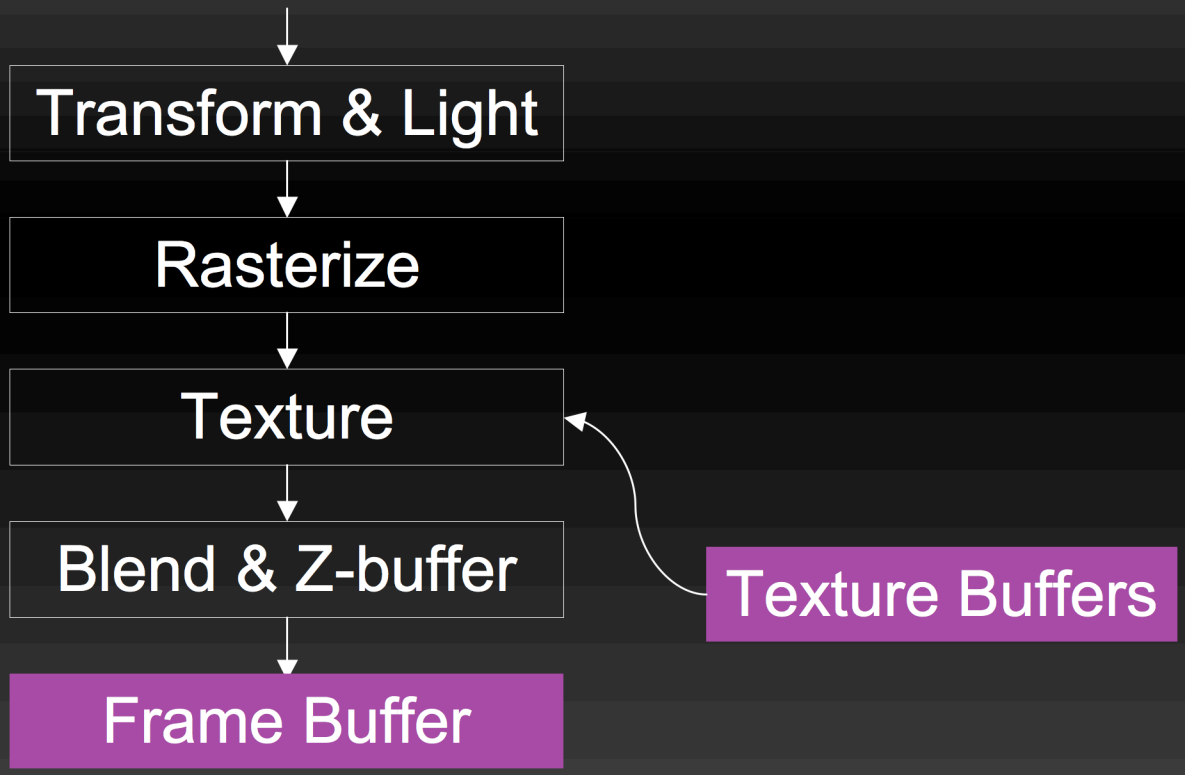
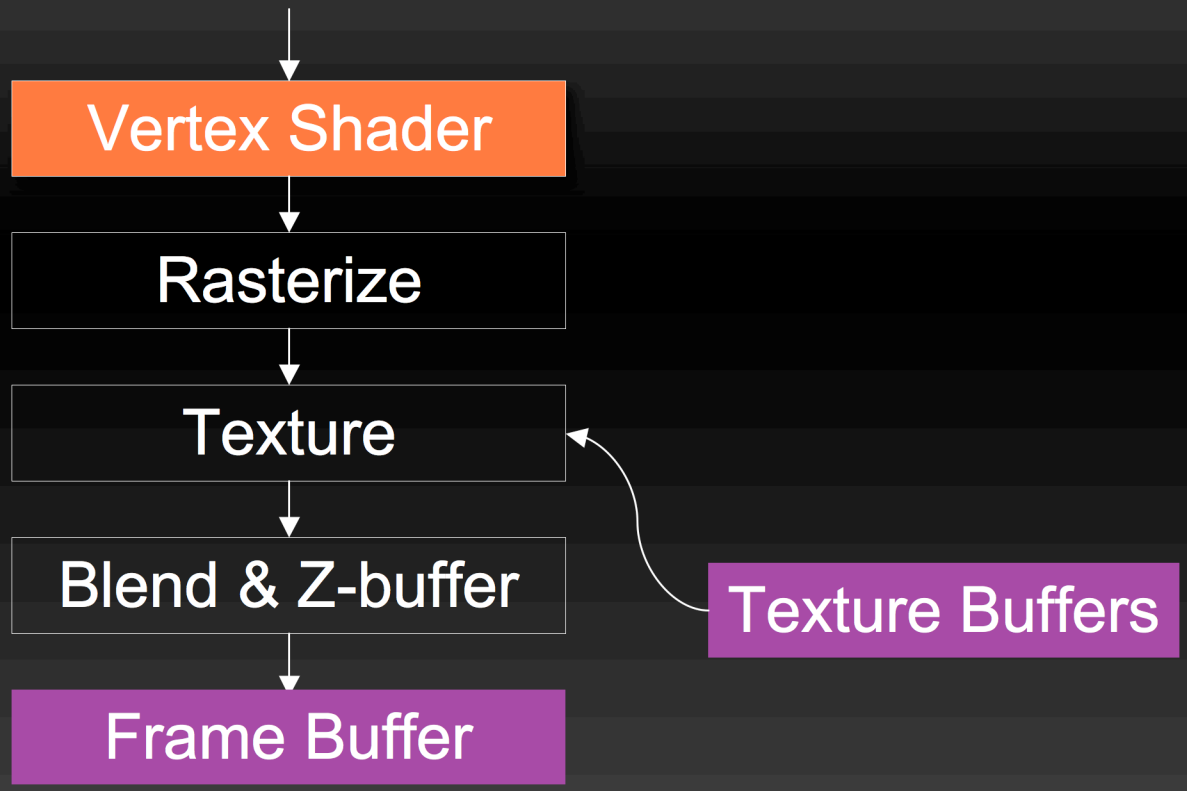
- Homogeneous (clipless) rasterization
  - Olano & Greer 1997
- Graphics Hardware Procedural Shading
  - Olano & Lastra 1998

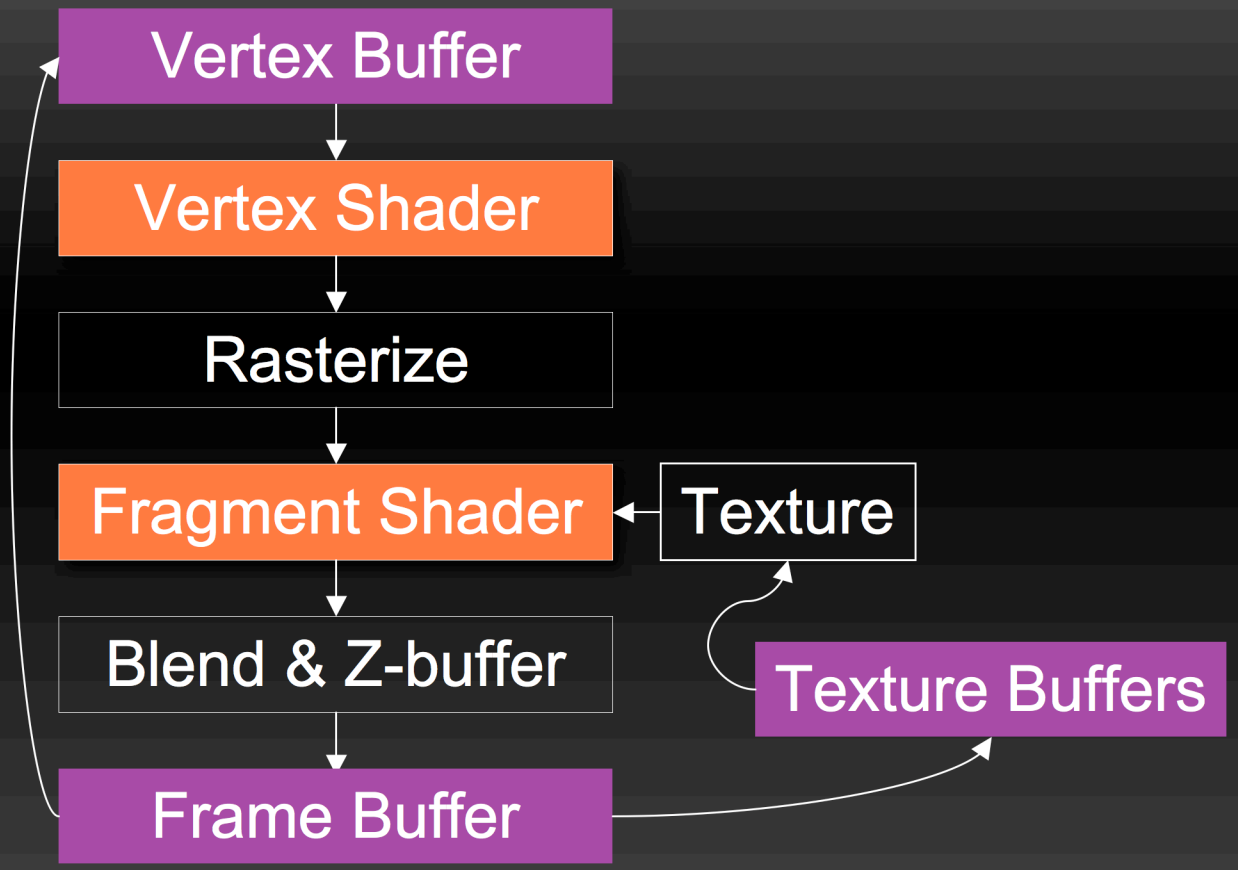
Fixed Function



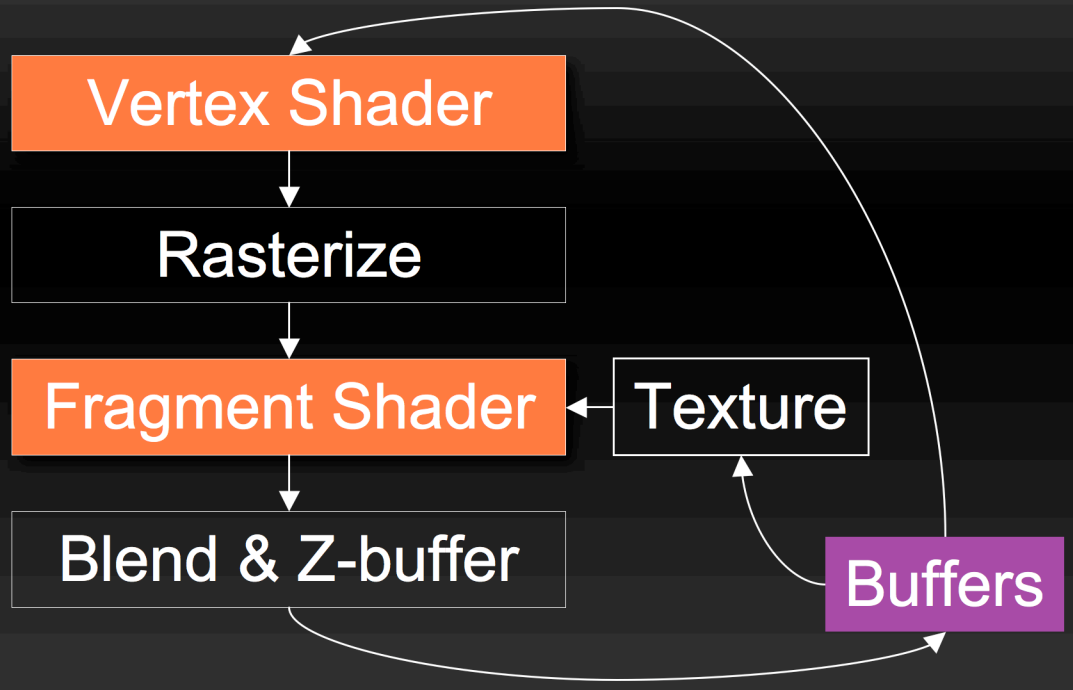
Vertex Shading



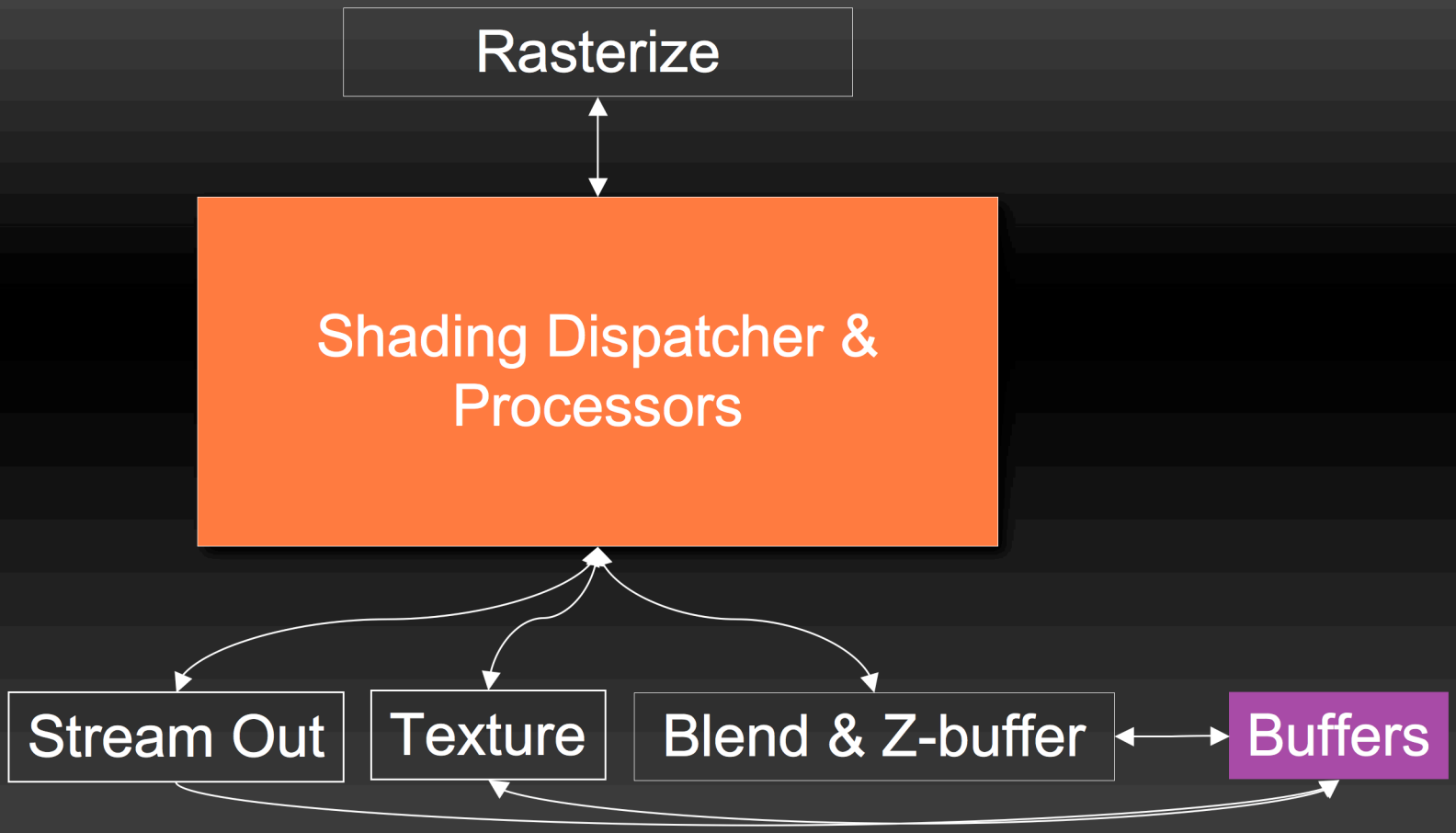
Fragment Shading



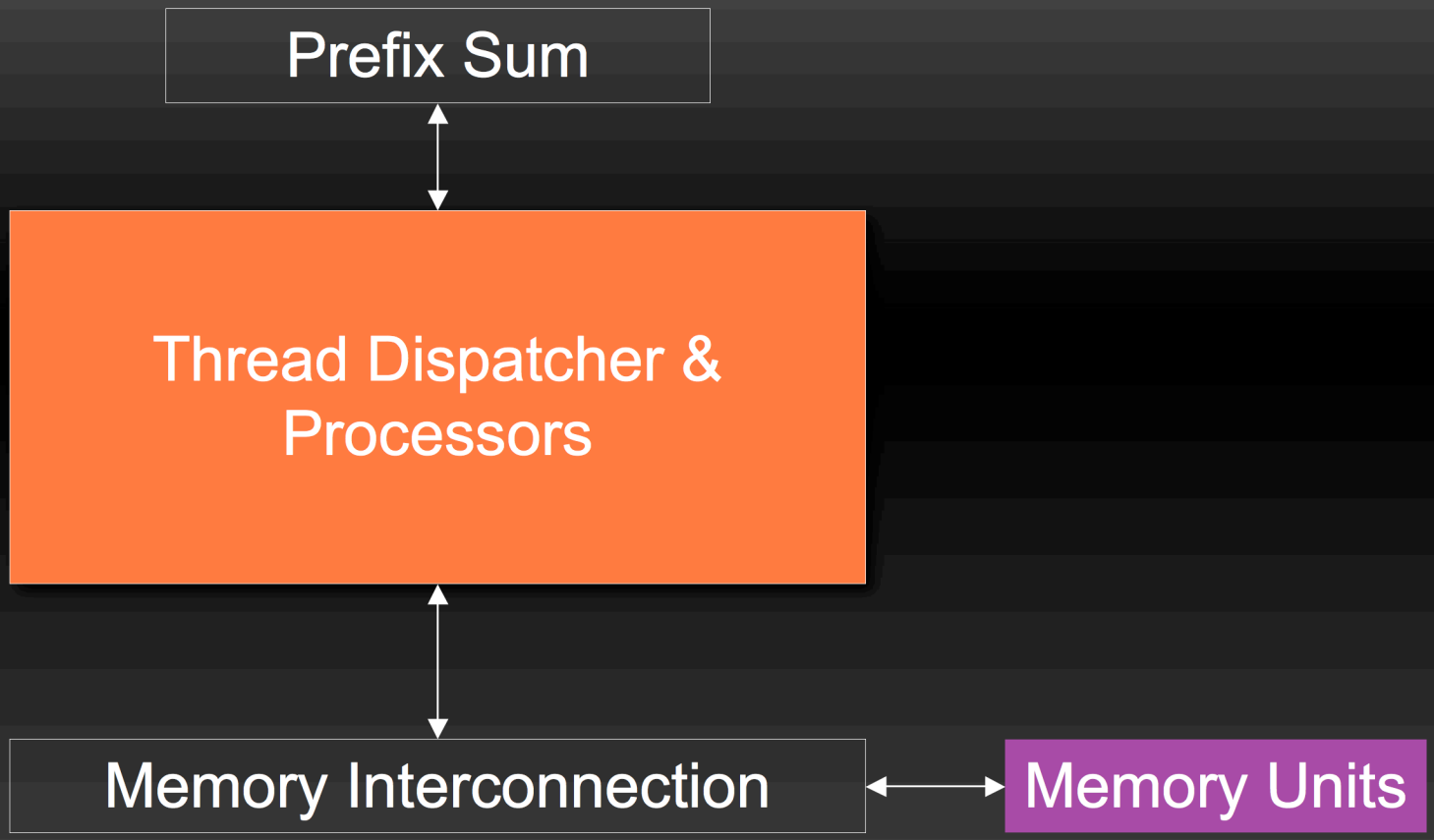
Unified Memory



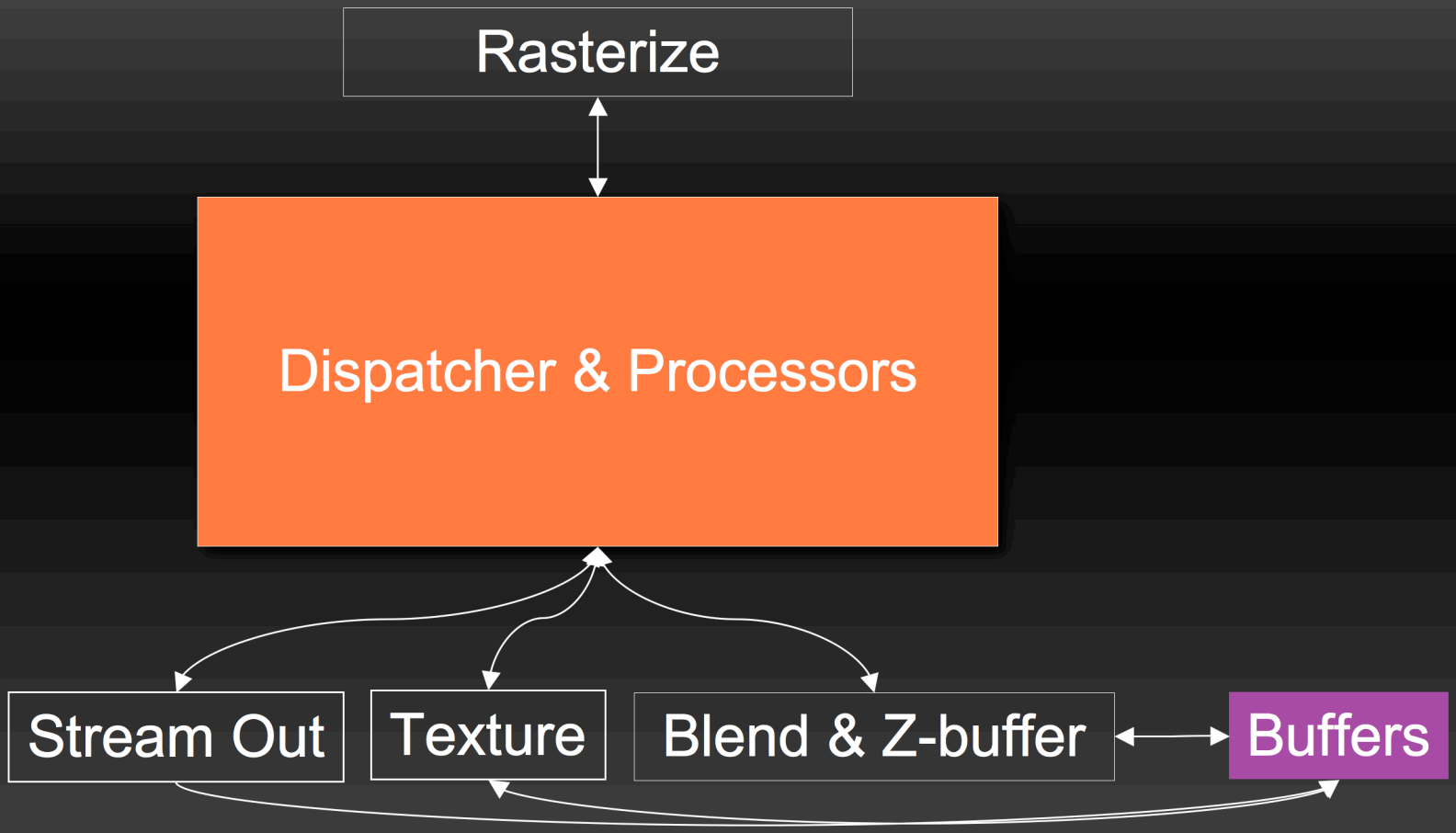
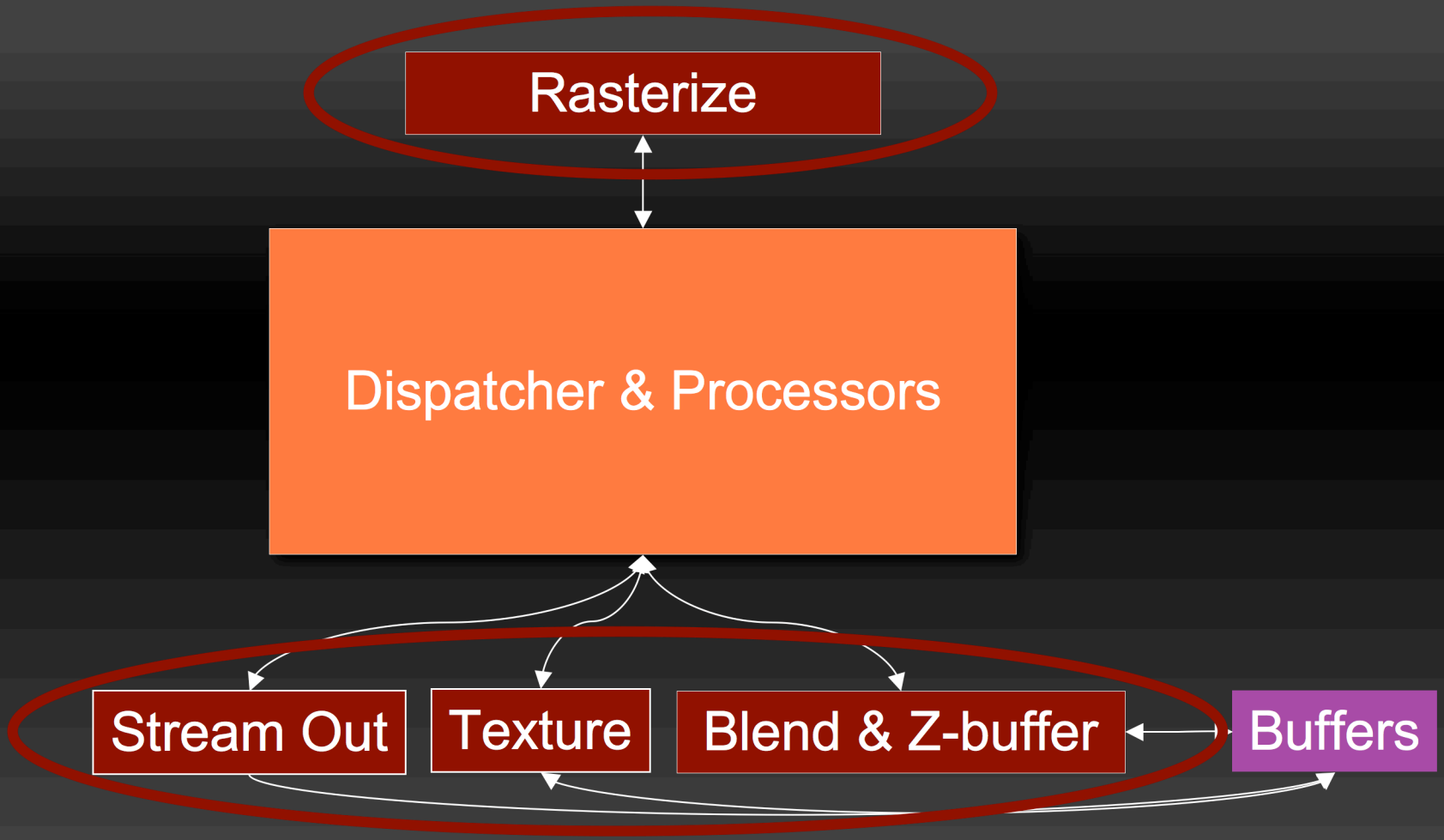
Unified Shading



XMT (PRAM on a chip)



Where's the Graphics?



Where's the Graphics?