

HETEROGENEOUS SYSTEM COHERENCE

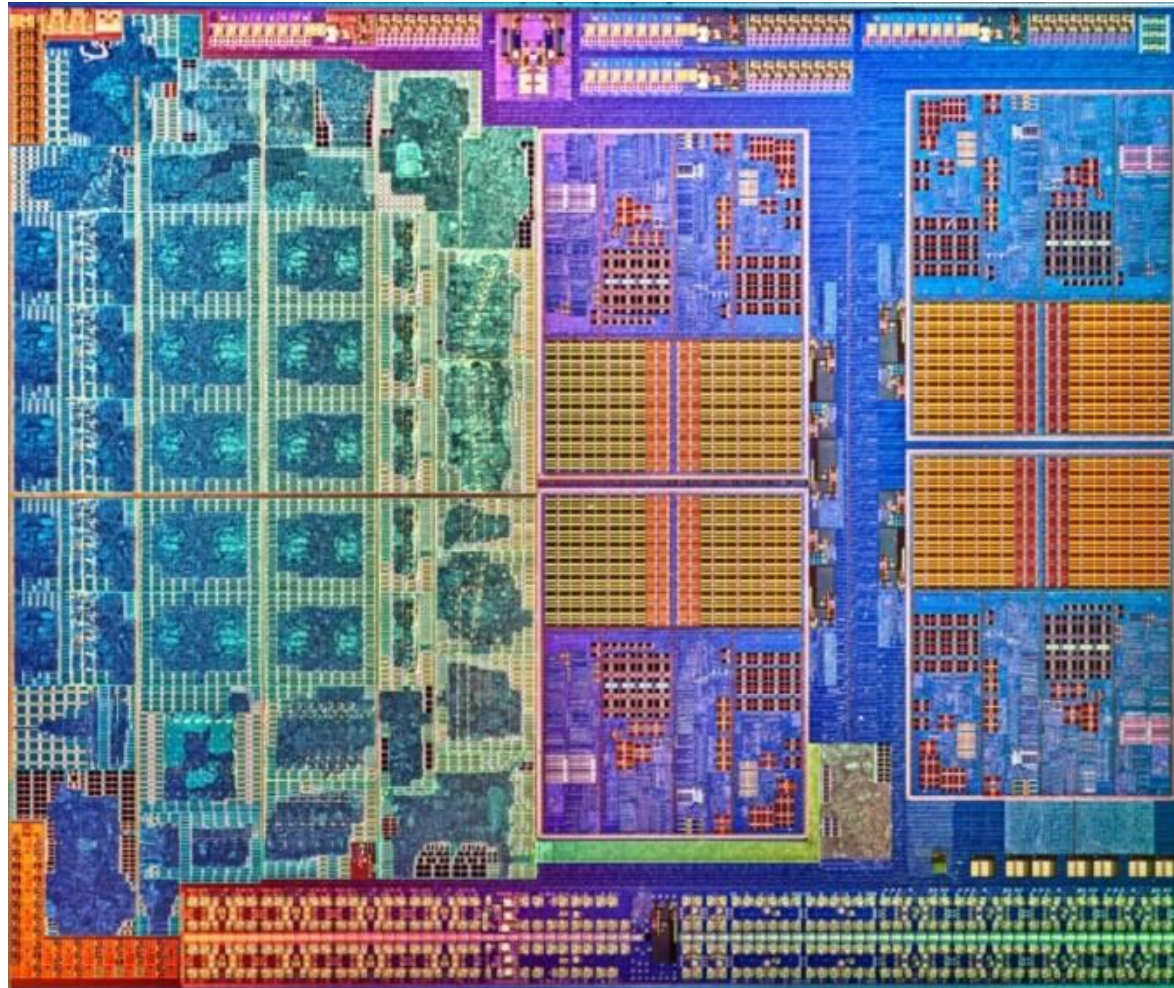
for Integrated CPU-GPU Systems



Jason Power*, Arkaprava Basu*, Junli Gu[†], Sooraj Puthoor[†],
Bradford M Beckmann[†], Mark D Hill^{*†}, Steven K Reinhardt[†], David A Wood^{*†}

*University of Wisconsin-Madison

[†]Advanced Micro Devices, Inc.



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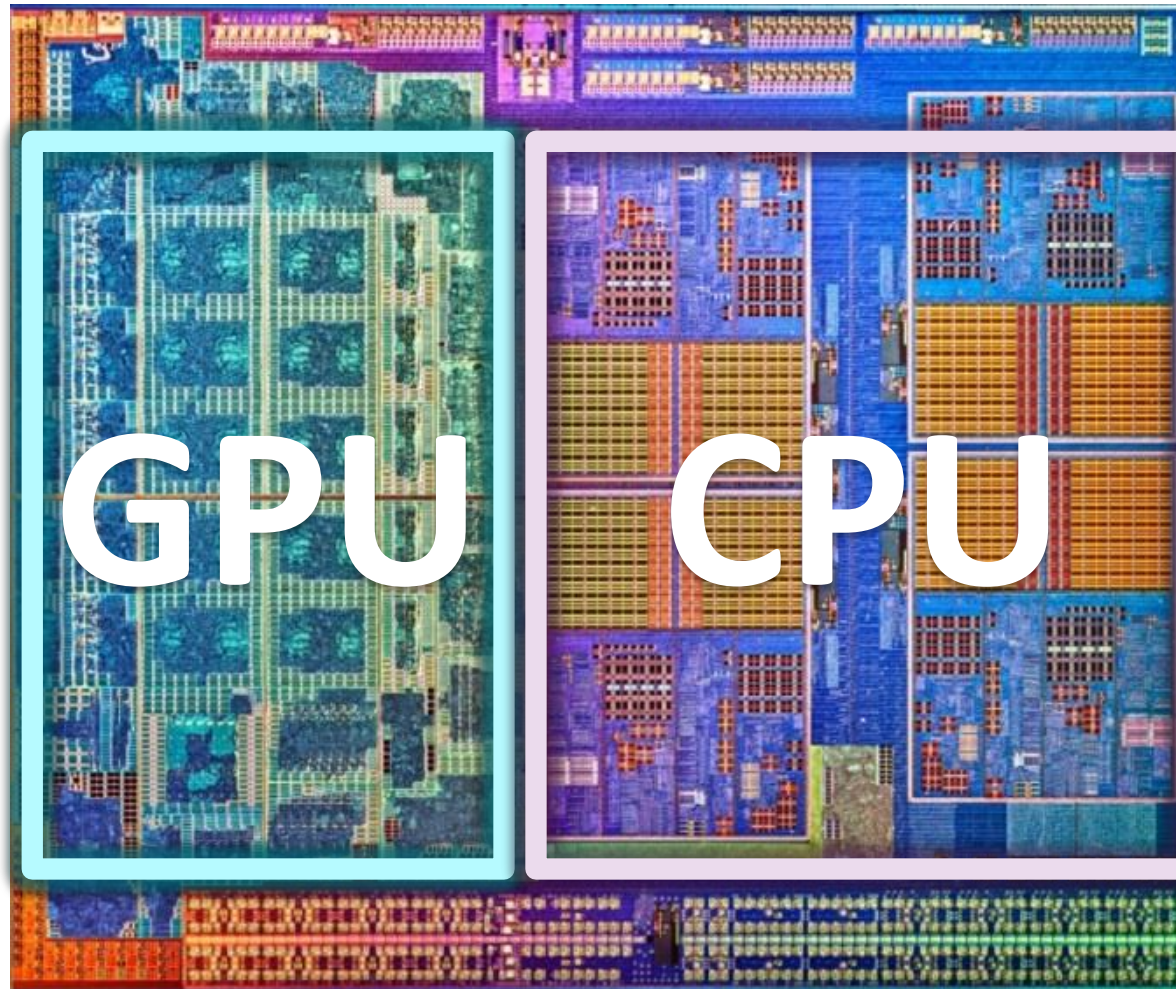
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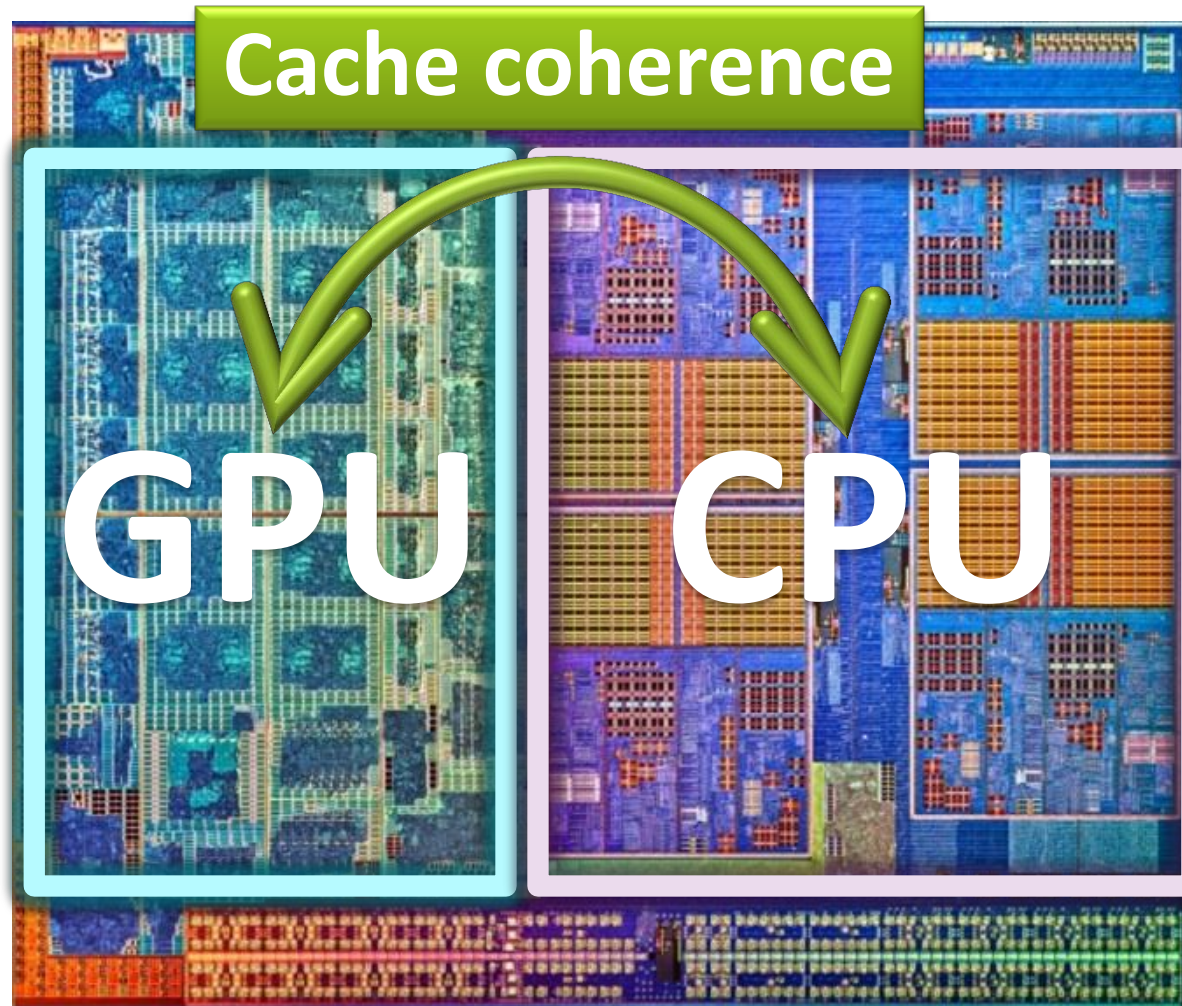
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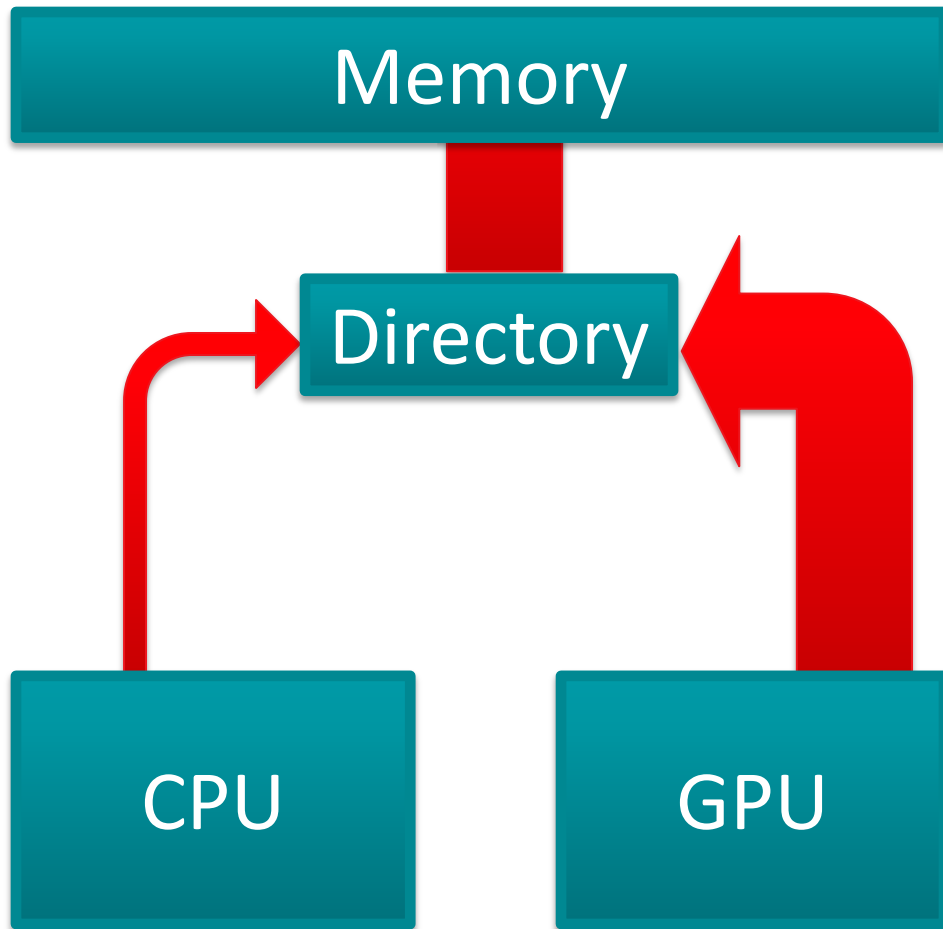
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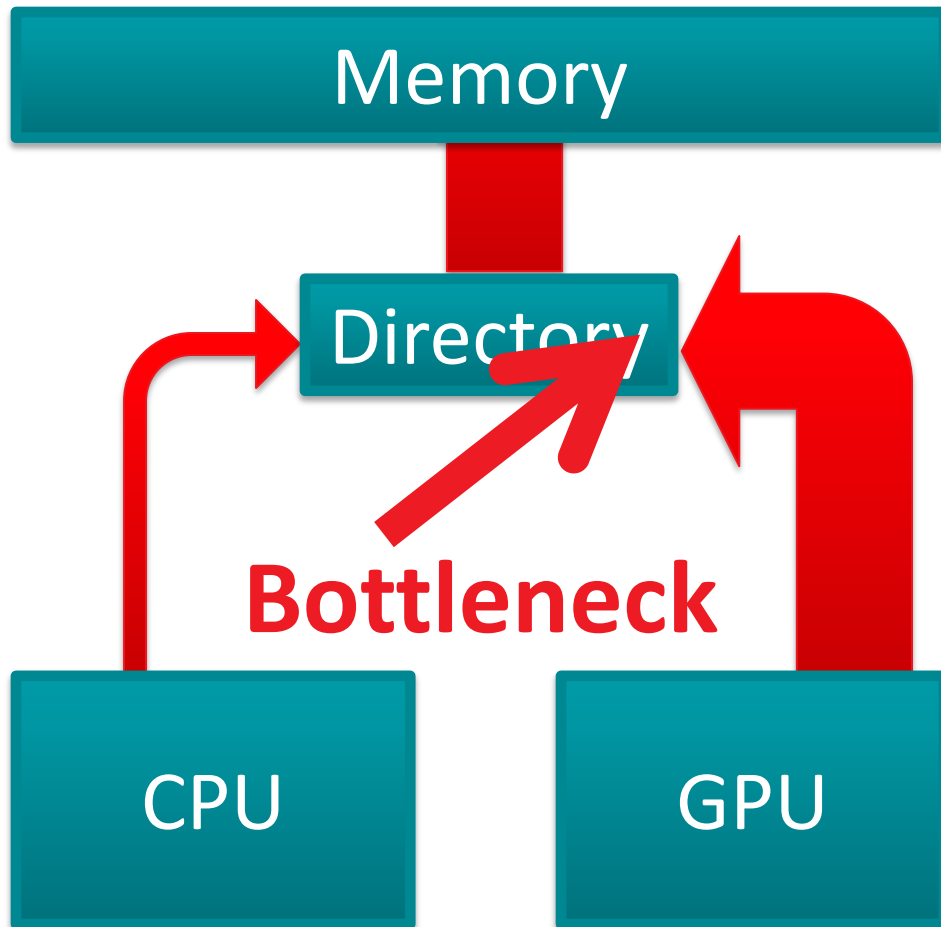
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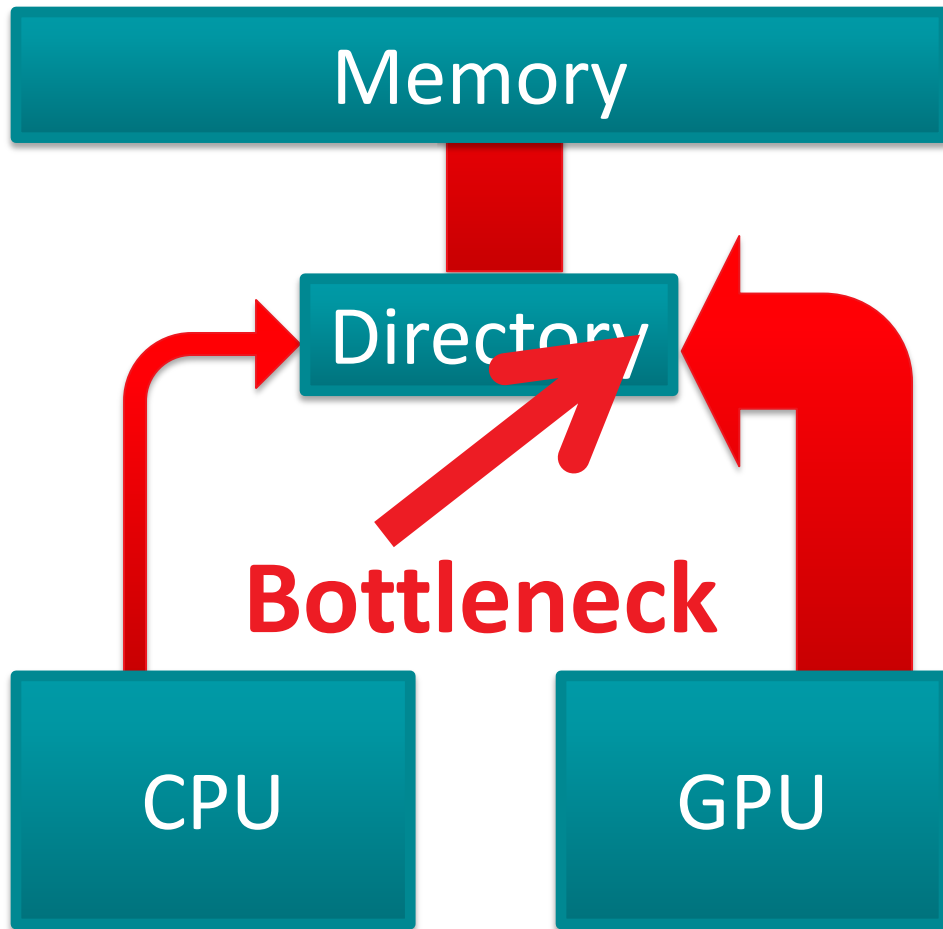


CPU-GPU COHERENCE



4x slowdown

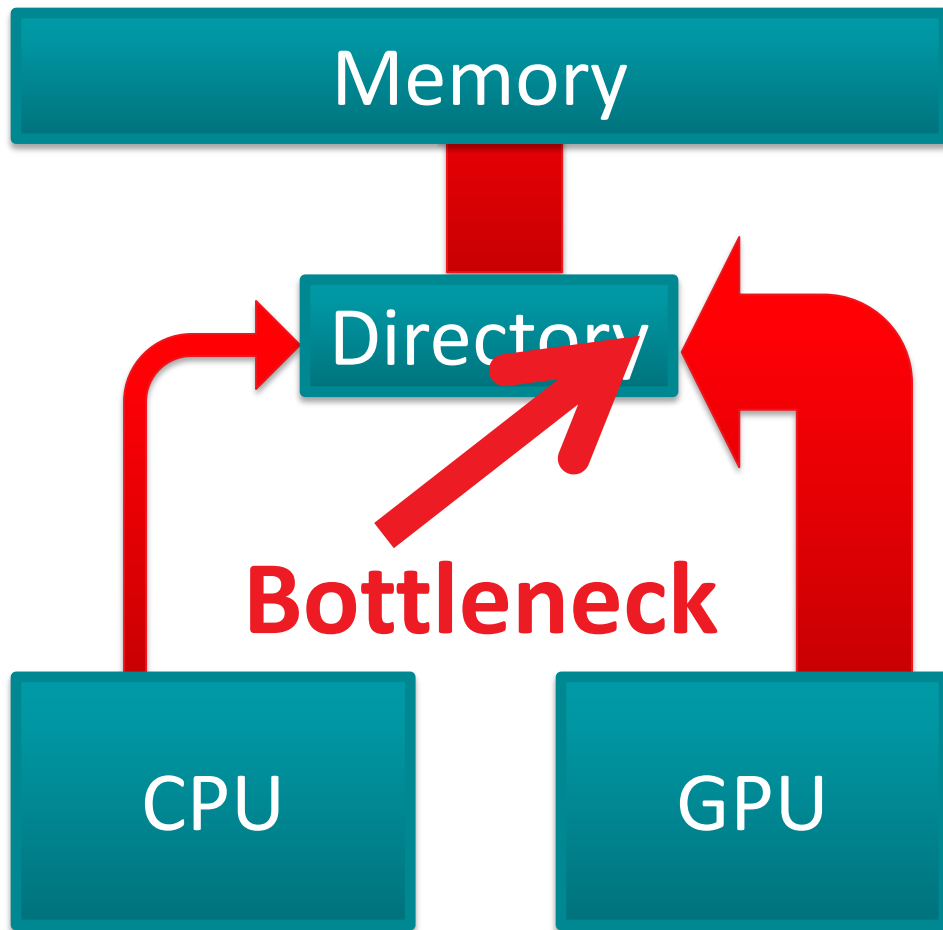
CPU-GPU COHERENCE



4x slowdown

~~1. More than 2 requests per cycle~~

CPU-GPU COHERENCE

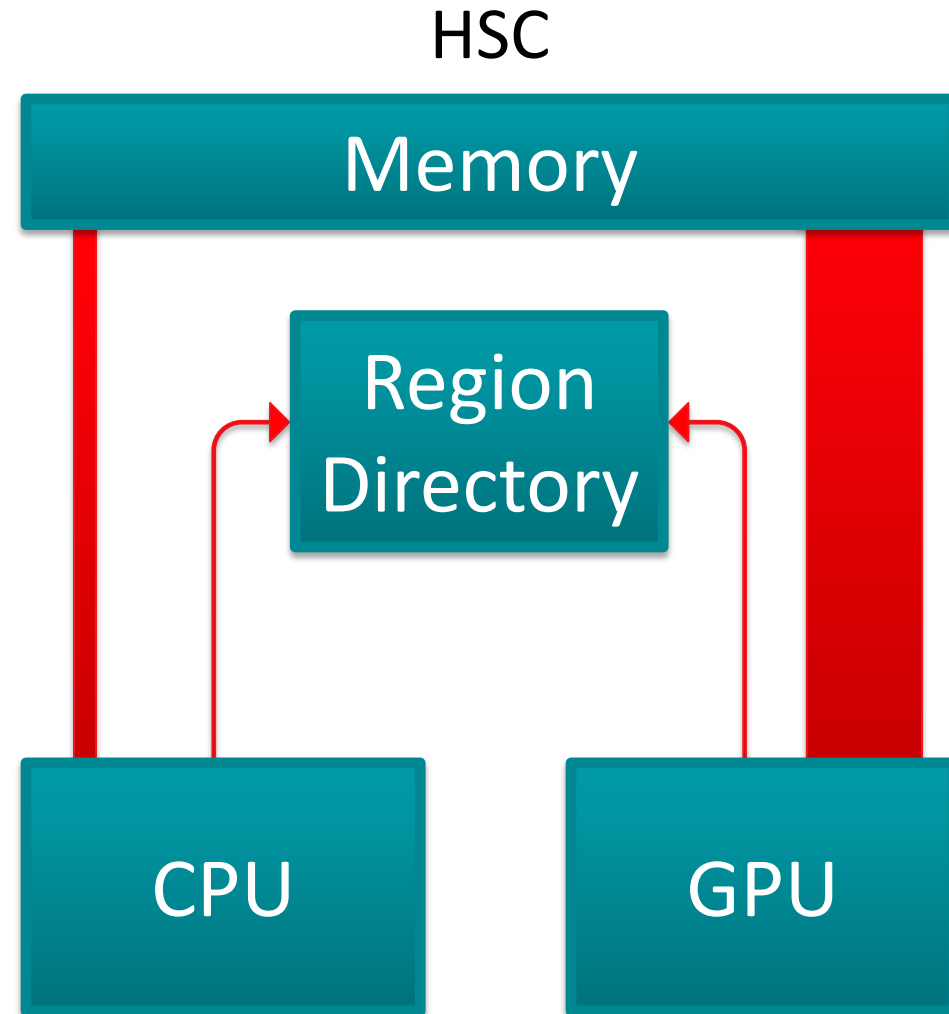


4x slowdown

~~1. More than 2 requests per cycle~~

~~2. Needs more than 10,000 MSHRs~~

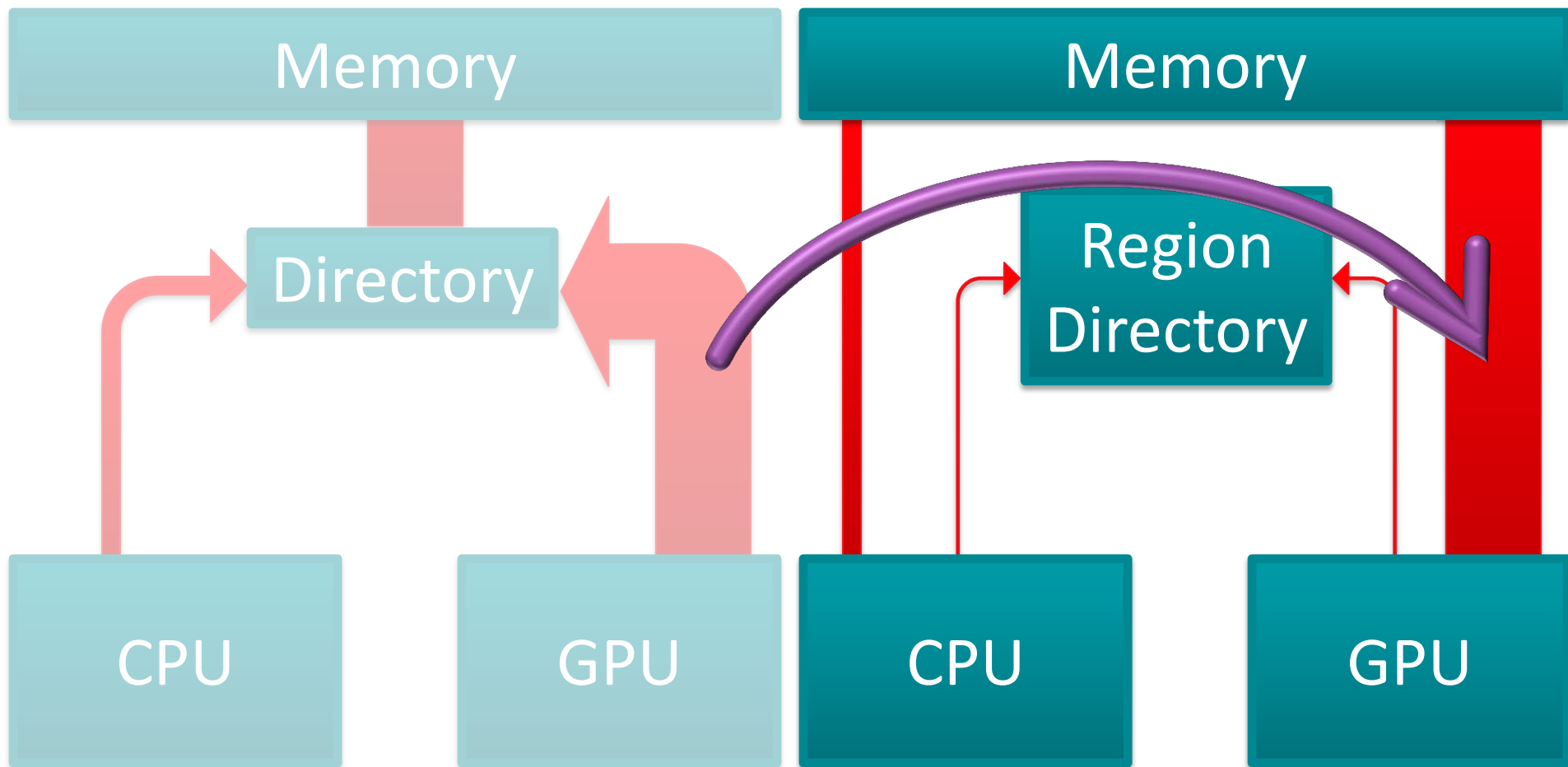
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Baseline Directory

HSC



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