

EDM: An Ultra-low Latency Ethernet Fabric for Memory Disaggregation

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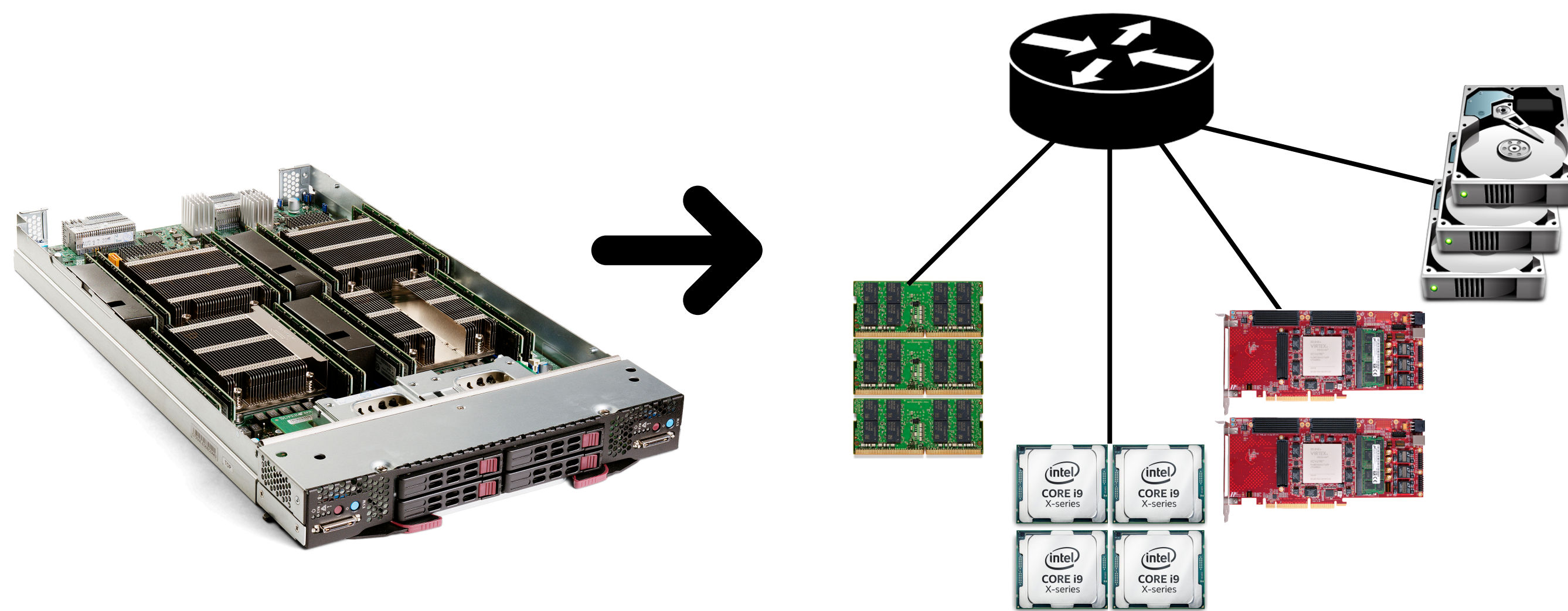


Why disaggregation?

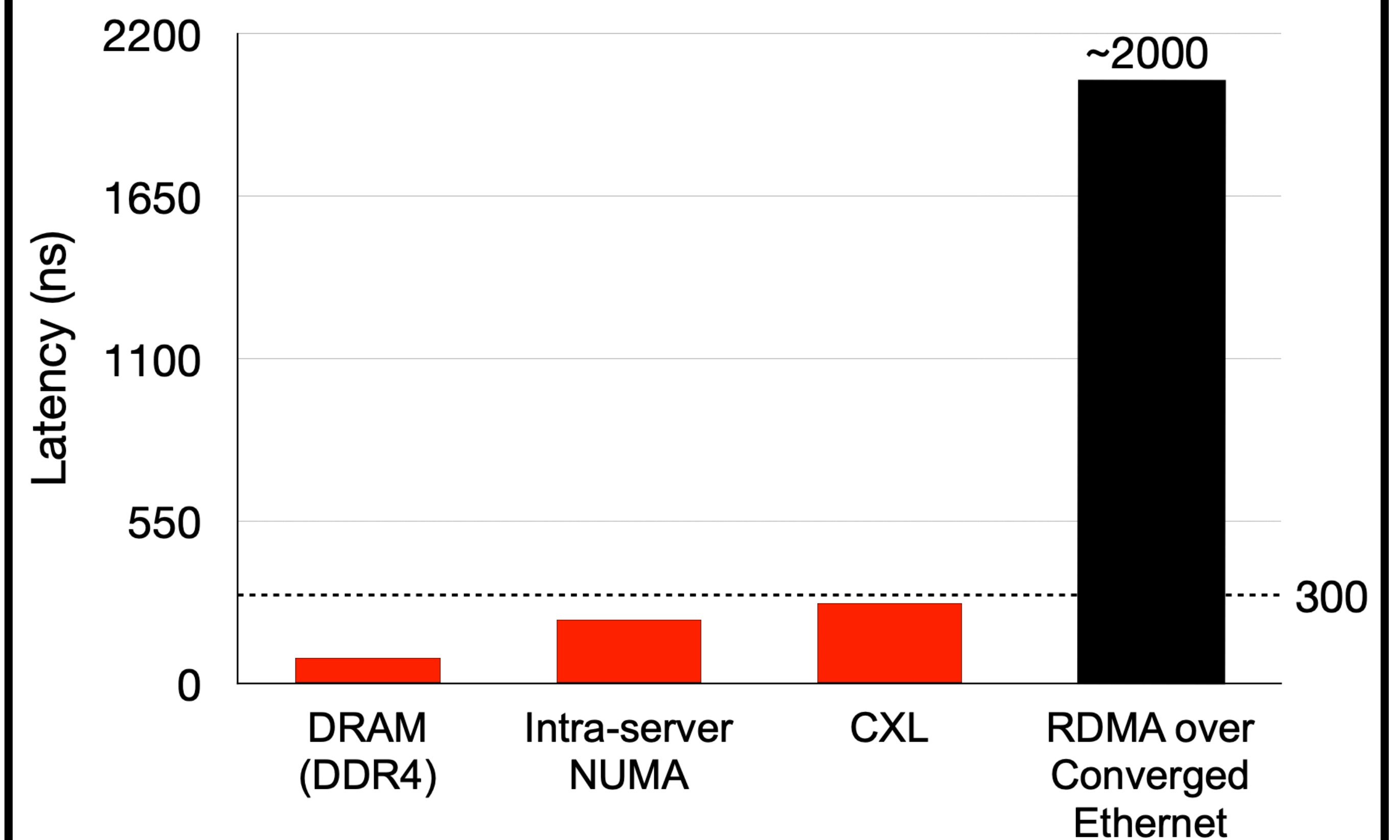
- Surging need for memory
- Constrained monolithic blade

Why Ethernet?

- High bandwidth (Tbps);
- Easy management, etc...

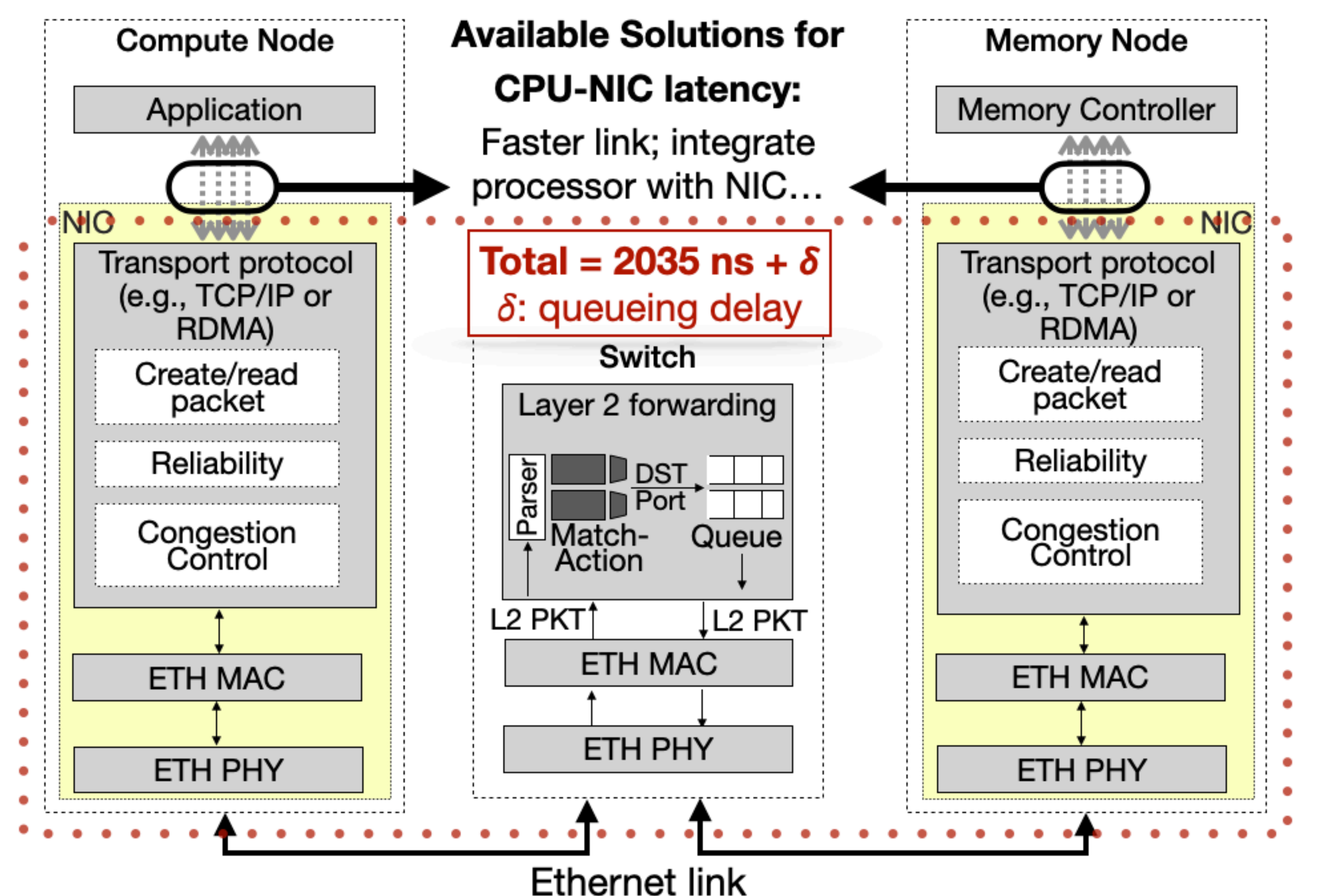


Prohibitive Ethernet Latency

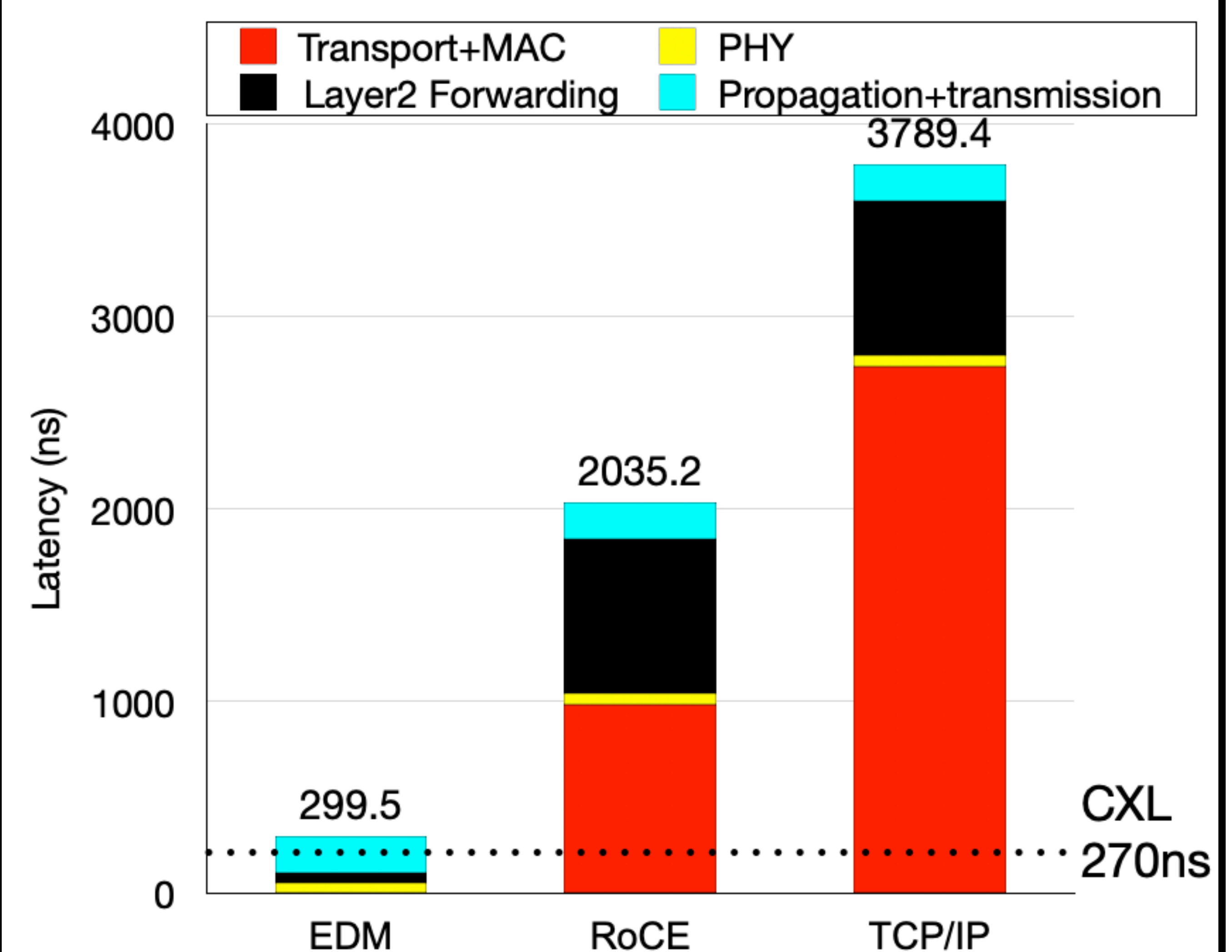


Ideal state: an *unified* fabric with *low latency* and *high bandwidth*.

Existing Memory Disaggregation over Ethernet



Evaluation: End-to-end Latency



Research Goal: Achieve near *intra-server memory latency* over rack-scale **Ethernet** (while maintaining high bandwidth utilization)

EDM (Ethernet Disaggregated Memory)

- Implement *protocol for remote memory access* within Ethernet **PHY**
- Implement a *centralized memory traffic scheduler* in the **PHY** of the switch

Implementation

