LATR: Lazy Translation Coherence
Lightning Talk

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TLBs and TLB shootdowns

- TLB: Translation Lookaside Buffer
- TLB Shootdown: Process of removing TLB mappings
- Problem: TLB shootdown can bottleneck applications, example Apache:

![Graph showing Apache Performance and TLB Shootdowns vs Cores](chart.png)
TLBs and TLB shootdowns

- TLB: Translation Lookaside Buffer
- TLB Shootdown: Process of removing TLB mappings
- Problem: TLB shootdown can bottleneck applications, example Apache:

Our insight: *Synchronous* TLB shootdown is expensive:
⇒ Up to 130 $\mu$s on 120 cores
Latr: Asynchronous TLB shootdowns

- **Latr**: Lazy Translation Coherence
- Key insight: **Latr** enables *asynchronous* shootdowns
- Up to 70% reduction for `munmap()`, 60% higher throughput for Apache
- **Latr** scales to a 120 core system
Latr: Asynchronous TLB shootdowns

Key insight: Latr enables asynchronous shootdowns. Up to 70% reduction for munmap(), 60% higher throughput for Apache.

Latr: Lazy Translation Coherence

Learn more in our talk:
Memory 2 (Session 2) @ 9:20am

Latr scales to a 128-core system.