Graduate Operating Systems

Fall 2018

Paper “SEDA”
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• “Slashdot Effect”
• “Well-conditioned service”
• Graceful degradation
• Thread-per-request model
• Bounded thread pools
• Structured event queues
• Backpressure, load shedding
• Asynchronous I/O

Summary & Discussion

• SEDA: Staged, Event-Driven Architecture
  — Applications consist of connected stages each serviced by one or more threads
  — Dynamic resource controllers examine and react to high load conditions and control thread usage

• Measurement and control vs. reservation
  — Mechanisms for detecting overload
  — Policies to deal with overload
• SEDA ease of programming
  — Reduced need for synchronization & race conditions
  — Less complex and “soft” than events
• Directions for OS design?
Paper “Monitors”

- Critical section

- Monitor

Paper “Monitors”

- Condition variables
- Bounded Buffer
- Scheduled Waits
- Readers and Writers