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Employing Multicast in a Web-based Classroom Environment

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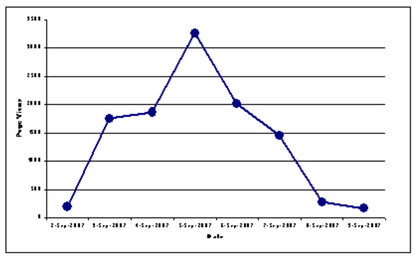
Calit2

Motivation

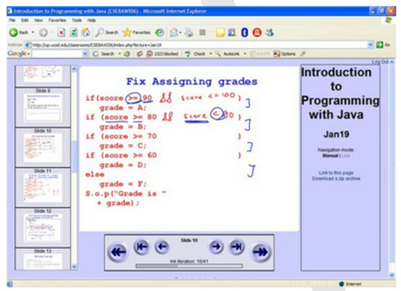
Performance is essential of dynamic internet applications, especially in live environments such as the classroom

Massive increase in users and page views of Ubiquitous Presenter has resulted in drop in performance



Last Days Before Final	
Date	Slide Views
March 17, 2007	14935
March 18, 2007	19293
March 19, 2007	18206

Ubiquitous Presenter



Ubiquitous Presenter allows professors to use a Tablet PC to annotate pre-prepared slides. Students may create submissions for in-class activities and follow the lecture "live" on their own laptops during class.

Future

Further testing with larger dataset

Implement Squid Cache "master" and "slaves" as downloadable applications

Need backup plan in case "master" machine dies

Proposal: Multicast

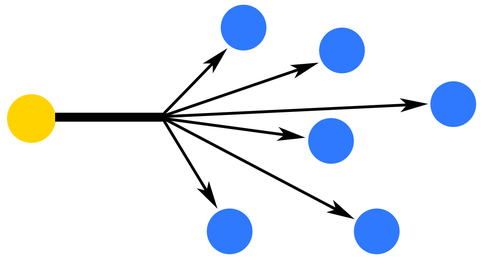
Use Squid Cache to implement Multicast

Send out a packet of information to all clients at once

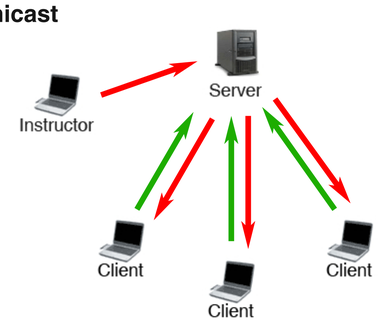
One machine must act as "master" to all other "slaves"

Need to prevent slippery slope condition

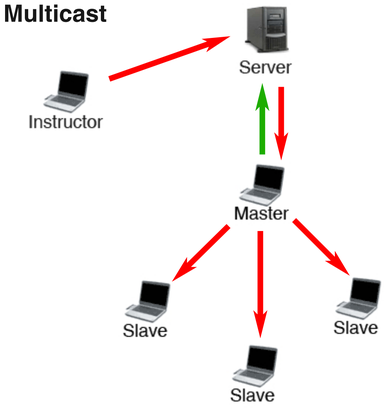
Hypothesis: Throughput demands will be reduced from linear to constant



Unicast



Multicast



Results & Analysis

Initial tests show approximately 30% decrease in throughput

If "master" machine dies, all other machines are also disconnected

Improvment in quality of service (slide refresh rate) does not decrease performance