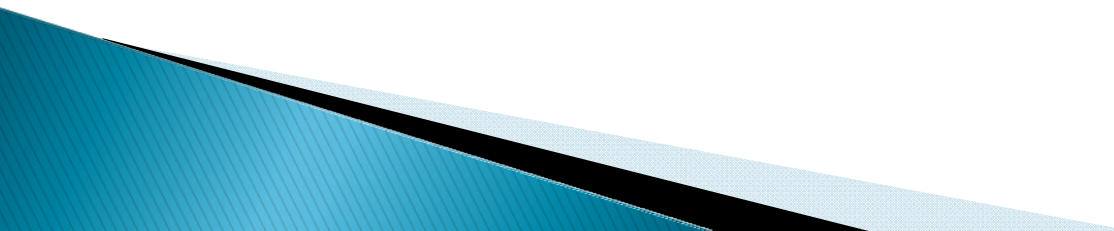


Frequency Domain Analysis and Visualization of Web Server Performance

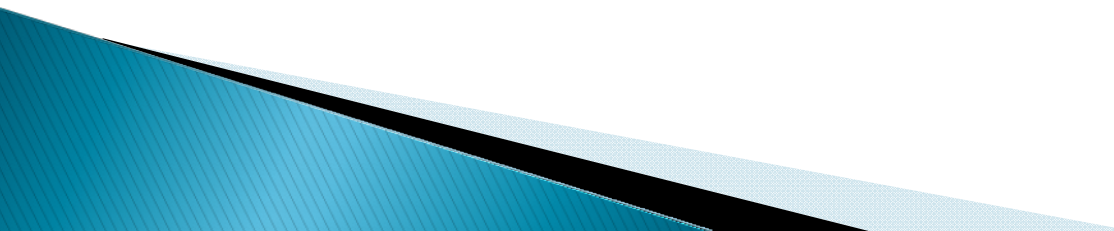
Marc Chiarini and Alva Couch



Quick Study

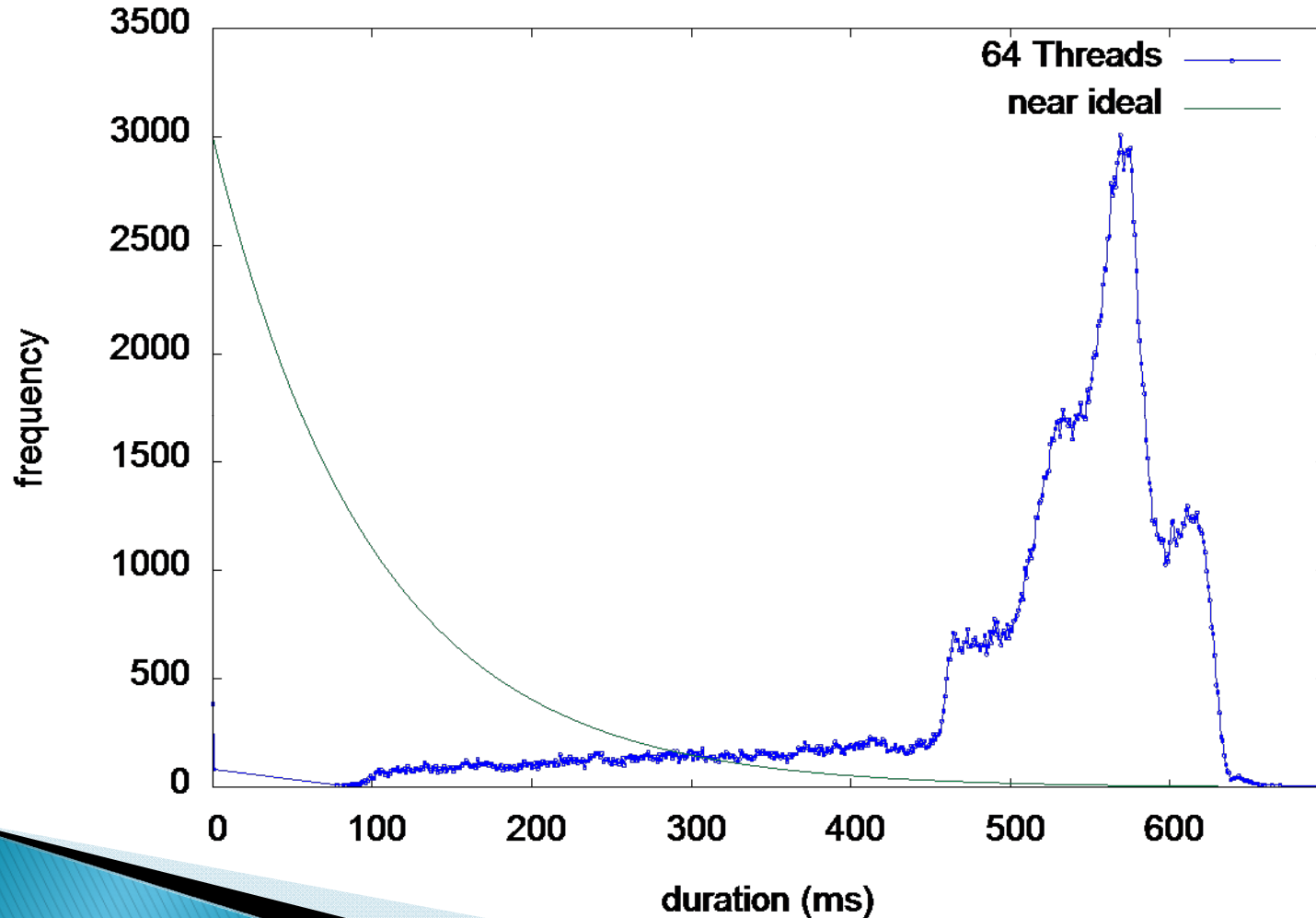
- ▶ Build an external model of behavior.
 - ▶ How do simple web servers respond to simple requests?
 - ▶ What measurements tell us the most about the server?
 - ▶ What is the effect of increasing load?
 - ▶ How can we detect “abnormal” behavior?
- 

Input Classes

- ▶ Types of requests that utilize server resources in different ways and/or different amounts.
 - ▶ Examples:
 - Requests for files of different sizes use cache differently.
 - Requests for dynamic pages utilize CPU and disk resources to varying degrees.
 - Requests involving databases are partly at the mercy of DB server performance.
- 

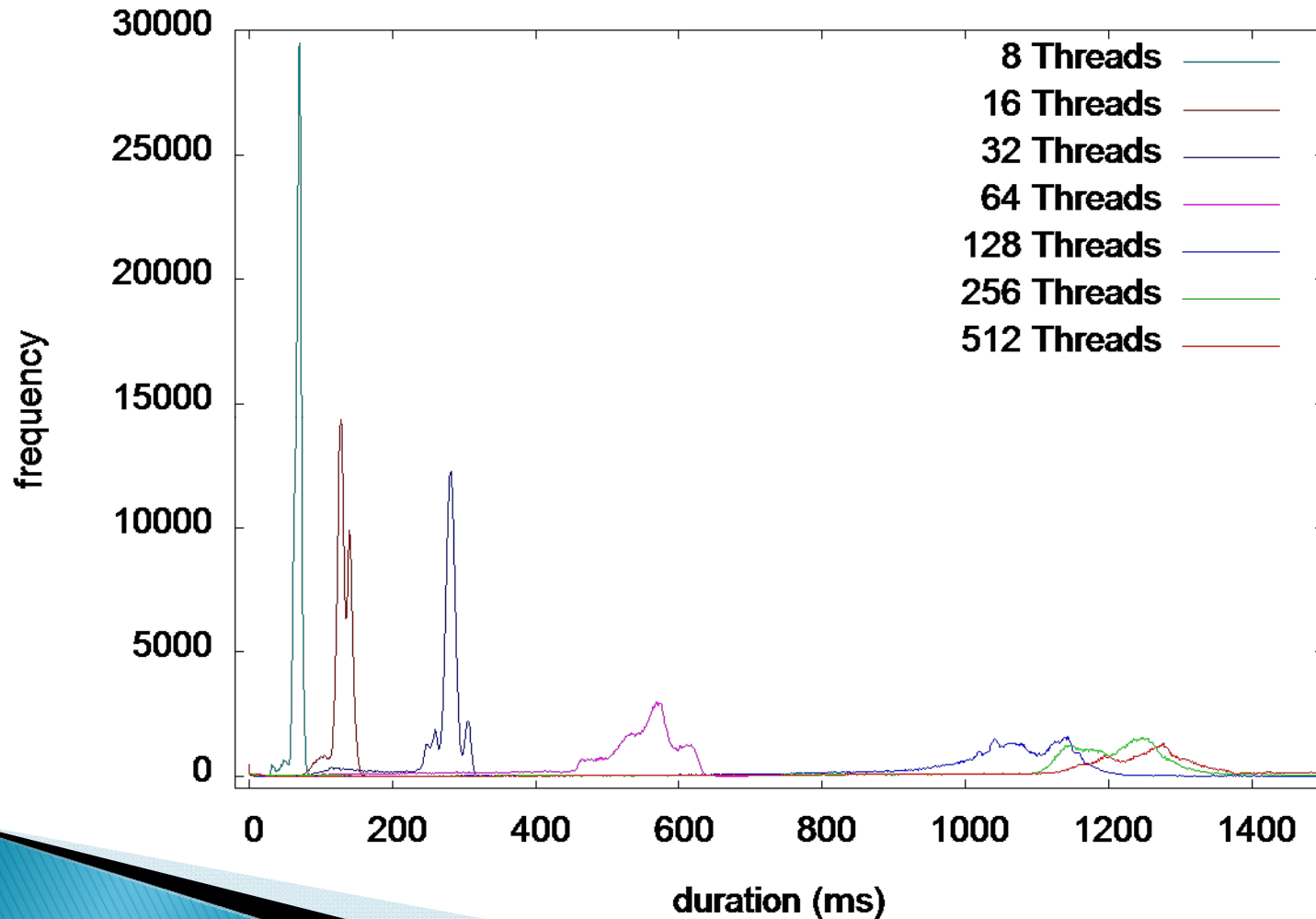
A Picture of Health?

Socket Histogram (single-class, 60 mins)



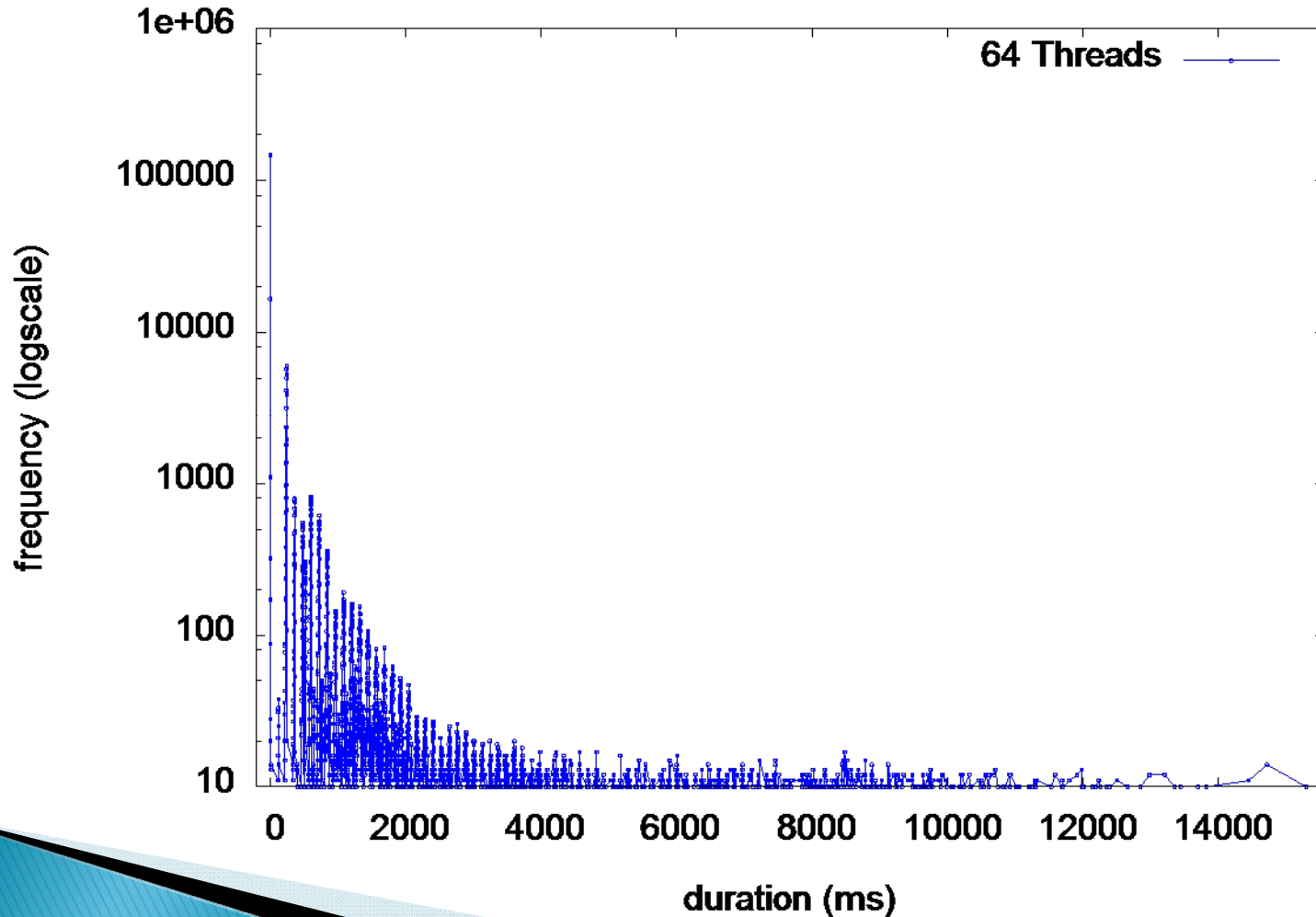
Effects of Load

Socket Histogram Comparison (single-class, 60 mins)

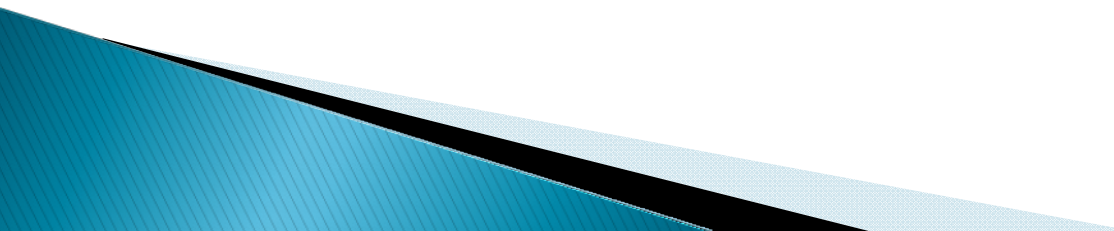


Approaching Ideals

Socket Histogram (multi-class, 360 mins, gaussian delay)



Summary

- ▶ We *can* begin to get a picture of “expected” behavior.
 - ▶ How can these or other statistics help the sysadmin improve performance or troubleshoot problems?
 - ▶ Need to discover how these curves change under different conditions.
 - ▶ Ideally, want to know if these curves are *time invariant*...can we fingerprint the server?
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Contact

- ▶ Email

- marc.chiarini@tufts.edu

- ▶ Web

- <http://www.cs.tufts.edu/~mchiar01>