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The Real Times

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January 1998

Taming the WWW: From Web Measurements to Web Protocol Design

Azer Bestavros

Computer Science Department, Boston University

Thursday, January 15, 1998

Presentation starts at 7:00 PM.

Refreshments at 6:30 PM.

Meeting Overview

The increasing use of the World Wide Web as the infrastructure for large-scale distributed information systems dictate that we achieve a better understanding of its performance characteristics. This talk reports on a number of research projects undertaken by the Oceans Group at Boston University. These projects focus on using empirical performance measurements to design and tune new middleware services and scalable server architectures for the World Wide Web.

In the first part of this talk, the design and performance of various caching, dissemination and prefetching services that capitalize on the WWW temporal, spatial, and geographical locality of reference properties will be presented. In the second part of this talk, the findings of a study on WWW traffic characteristics will be presented. In particular, the evidence and possible causes of self-similarity in WWW traffic will be discussed

and the relationship between WWW traffic self-similarity and the heavy-tailed distributions of available, unique, and requested WWW files will be established.

Speaker Biography

Prof. Azer Bestavros obtained his S.M. and Ph.D. degrees from Harvard University in 1988 and 1992, respectively. Since 1992 he has been on the faculty of the Computer Science Department at Boston University. Prof. Bestavros' current research interests are mainly in real-time systems and in large-scale networked information systems. Prof. Bestavros has authored in excess of 70 refereed publications. He is currently the editor-in-chief of the Newsletter of the IEEE-CS TC on Real-Time Systems and the PC Chair of the IEEE Real-Time Technology and Application Symposium. He is a member of both the ACM and the IEEE Computer Society. His research is supported by NSF, DARPA, ARO, and GTE.

The meeting is free and open to the public. No reservations are required. meeting will start at 7:00 PM.

Directions to Bolt Beranek and Newman (BBN)/Recorded directions: (617) 873-4567

From Route 128, Lexington: Take Route 2 inbound. The four-lane highway narrows to two lanes near Route 16. At the traffic light bear right onto Alewife Brook Parkway. Proceed past shopping centers to the Fresh Pond Rotary. Take the first right onto Concord Avenue. Fawcett Street is one block down Concord Avenue, on the right.

From the Mass. Pike: Take the Pike inbound to the Cambridge/Allston exit. Exit onto the Cambridge off-ramp and take Cambridge Street. Turn left onto either Storrow or Memorial Drive. (Storrow Drive is on the Boston side of the Charles River and Memorial Drive.)

From Storrow and Memorial Drives: Take Storrow or Memorial Drive west: follow signs to Route 2,3,16. Remain on 2. The road will become narrow and winding. This is the Fresh Pond Parkway. Several car dealerships and Fresh Pond Seafood will be on the right. At the 1st rotary, take the third right onto Concord Ave. Continue straight at the second rotary. Fawcett is one block further on right. Once on Fawcett St. the Newman Auditorium is about 1/2 block, on the right. Park in the lot on the right side of the street; the lot is adjacent to the auditorium building.

Public Transportation: Take the T to Harvard Square. From Harvard Square take the Concord Ave./Belmont Center bus. Get off at Fawcett St.

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Timely notices of events, meetings, and other activities of interest to the Chapter's Membership should be submitted by the 10th of the month before the intended issue and sent, with attention to the Managing Editor to:

**GBC/ACM, P.O. Box 465, Lexington, MA 02173.
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The Chapter's mailing list is available to related professional organizations or for commercial use. Please contact the Membership Chair at the address above when requesting mailing lists.

Subscriptions:

Annual subscription cost is included in the Chapter Membership dues of \$10.00. See top line on mailing label for membership expiration date. Library subscriptions are free. Please send orders for copies to the Chapter mailing address above.

Postmaster:

Address changes should be sent to the mailing address above. Allow eight to ten weeks for changes to address or membership renewal to become effective. Send old label with address modifications.

February, 1998 Meeting

Responsive Object-Based Media

V. Michael Bove, Jr.
MIT Media Laboratory

Thursday, February 19, 1998 (Note: Postponed from January)

Presentation starts at 7:00 PM. Refreshments at 6:30 PM.

Meeting Overview

Object-Based Media refers to the representation of audiovisual information as a collection of objects -- the result of scene-analysis algorithms -- and a script describing how they are to be rendered for display. Such multimedia presentations can adapt to viewing circumstances (e.g. size and aspect ratio of display) as well as to viewer preferences and behavior, and can provide a richer link between content creator and consumer. With faster networks and processors, such ideas become applicable to live interpersonal communications as well, creating a more natural and productive alternative to traditional videoconferencing.

In my talk I will present some examples of object-based media applications developed by my group, and describe several analysis methods and our scripting language. I will also briefly examine research we are conducting into hardware and software designs that meet the high computational requirements of object-based and other advanced media representations.

Speaker Biography

V. Michael Bove, Jr. holds an S.B.E.E., an S.M. in Visual Studies, and a Ph.D. in Media Technology, all from the Massachusetts Institute of Technology, where he is currently head of the Object-Based Media Group at the Media Laboratory. He is the author or co-author of over 40 journal or conference papers on digital television systems, video processing hardware/software design, multimedia, scene modeling, and optics. He holds patents on inventions relating to video recording and hardcopy, and has been a member of several professional and government committees. In December 1995, Boston Magazine named him one of the "People Shaping Boston's High-Tech Future." He is on the Board of Editors of the Journal of the Society of Motion Picture and Television Engineers, and served as general chair of the 1996 ACM multimedia conference.

More detail on his research, and downloadable documents, can be found at
<http://vmb.www.media.mit.edu/people/vmb/>

Seminar & Book Titles	Advance Registration	Walk-in	Enter Amount
Concurrent Programming in Java	\$75	\$85	
<i>Concurrent Programming in Java</i>	\$30	\$30	
Transaction Processing Overview	\$75	\$85	
<i>Principles of Transaction Processing</i>	\$30	\$30	
The C++ Standard Library	\$75	\$85	
<i>The C++ Programmingz Language 3rd edition</i>	\$30	\$30	
International ACM# _____		Subtotal	
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Professional Development Seminars - 1998 Spring Series

Concurrent Programming in Java

With Doug Lea, State University of New York at Oswego
March 14, 1998
Northeastern University (tentative)

OVERVIEW

The concurrency features of Java introduce opportunities for greater parallelism and problems of thread interaction not found in sequential OO programming. Concurrent OO design patterns provide ways to exploit this parallelism and solve problems caused by thread interdependencies. Doug Lea will present techniques for effective concurrent programming in Java.

WHO SHOULD ATTEND:

Java programmers and others involved with building multi-threaded systems and applications.

SEMINAR TOPICS:

- Concurrency features in Java threads, locks, and monitors
- Predefined libraries
- Concurrency control in Applets and the Abstract Windowing Toolkit
- OO Design Patterns:
- Encapsulating representations
- Running asynchronous commands
- Controlling state dependent actions
- Layering concurrency control
- Creating special locking constructs

LECTURER:

Doug Lea is a professor of Computer Science at the State University of New York at Oswego and the author of Concurrent Programming in Java, Object-Oriented System Development, and many articles and reports. He has written a number of widely used software packages including several library routines (including gnu malloc) distributed by the Free Software Foundation.

SESSION CHAIR:

Peter Mager, psm@tiac.net

Transaction Processing Overview

With Phil Bernstein, Microsoft Corporation
and Eric Newcomer, Digital Equipment Corporation
March 21, 1998
Northeastern University (tentative)

OVERVIEW:

This seminar describes mechanisms and products that address the stringent requirements of commercial transaction processing systems, including high reliability, predictability, availability and access from the Web.

WHO SHOULD ATTEND:

Product developers in TP and related areas, such as operating systems and communications. Designers and developers of TP applications will also benefit.

SEMINAR TOPICS:

- ACID Properties of a transaction
- Two vs. three tier approach
- TP systems performance and the TPC C benchmark
- Servers: Presentation, Transaction, Database & TP Monitors
- Workflow controllers
- Queued transaction processing
- Products: CICS, IMS, MS Transaction Server, Tuxedo, Encina,
- ACMS, Pathway/TS, TOP END
- Standards
- Commoditization of servers
- Merging of TP and OO technology
- Web based transactions

LECTURERS:

Phil Bernstein, Repository Architect at Microsoft Corporation, has more than 20 years experience in transaction processing. Eric Newcomer is a TP consultant and program manager at Digital Equipment Corporation.

SESSION CHAIR:

Jay Conne, conne@acm.org

Seminar Book Offer

Concurrent Programming in Java
by Doug Lea
List: \$39.76 PDS Price: \$30.00

Seminar Book Offer

Principles of Transaction Processing
by Phil Bernstein & Eric Newcomer
List: \$39.95 PDS Price: \$30.00

Professional Development Seminars - 1998 Spring Series

The C++ Standard Library

With Bjarne Stroustrup, AT&T Labs
April 4, 1998
Northeastern University (tentative)

OVERVIEW:

The structure, principles, and fundamental uses of the C++ Standard Library will be introduced by the author of the C++ language. Also, newer C++ features will be introduced in the context of library usage.

WHO SHOULD ATTEND:

C++ programmers who want to learn about the newly ratified C++ Standard Library. A working knowledge of C++ is assumed.

SEMINAR TOPICS:

- Significance of the standard library
- Simple examples
- Design of the standard library
- Library overview
- Container design
- Iterators, based containers, STL
- Exception safety
- Allocators
- Algorithms and function objects
- Strings and I/O streams

LECTURER:

Bjarne Stroustrup is the designer and original implementor of C++ and the author of *The C++ Programming Language* (first edition 1985, second edition 1991), *The Annotated C++ Reference Manual*, and *The Design and Evolution of C++*. A graduate of the University of Aarhus, Denmark, and Cambridge University, England, Dr. Stroustrup is currently the head of AT&T's Large-scale Programming Research Department and an AT&T Bell Laboratories Fellow.

SESSION CHAIR:

Jay Conne, conne@acm.org

GENERAL INFORMATION

NORTHEASTERN LOCATION

Northeastern University, Boston, is within walking distance of the MBTA Green Line (Arborway/E Train) Northeastern station and the Orange Line Ruggles station. Free parking is also available.

SCHEDULE

8:30am - 9:00am	Registration (continental breakfast)
9:00am - 12:15pm	Morning session (break at 10:30am)
12:15pm - 1:30pm	Lunch(provided on-site)
1:30pm - 4:30pm	Afternoon session (break at 2:30pm)

REGISTRATION FEES

Included in the \$75 fee are seminar materials, lunch, and refreshments. Registrants not current members of the GBC/ACM are charged an additional \$10, and become members of the chapter for a year. This is distinct from ACM membership. Surcharge for on-site registration is \$10. Purchase orders, credit cards, faxes and e-mail cannot be accepted. **Enrollment is limited and on a first come, first served basis.** Early registration must be made by a check or money order at least three weeks in advance of the seminar to receive confirmation from GBC/ACM.

CANCELLATION & REFUND POLICY

Cancellations must be received in writing. The full fee will be refunded if the PDS Registrar receives written notification on or before the day of the seminar, addressed to GBC/ACM, PO Box 465, Lexington MA 02173. Refund requests received after the seminar date will be subject to a \$15 administrative fee. The \$10 membership fee will not be refunded.

ANY QUESTIONS?

See: <http://www.acm.org/chapters/gbc> or Call (617)862-1181

Seminar Book Offer

The C++ Programming Language, third edition
(about a 75% rewrite of the second edition)
by Bjarne Stroustrup
List: \$42.99 PDS Price: \$30.00

**Boston area Software Process Improvement Network (SPIN)
January Meeting Announcement**

**“Deep Dark Secrets from the
Software Process Improvement World”**

**Audience Participation
Facilitated by Donna Johnson, President of LOGOS International, Inc.**

**Tuesday, January 20, 1998
at 6:30pm (networking & refreshments),**

**7:00-8:30pm (meeting)
(Admission Free)**

**GTE, Building #5, 77 A Street, Needham, MA
(Wheelchair accessible)**

**Maureen Harris (617) 455-3393, maureen.harris@GSC.GTE.com;
Ken Oasis (617) 563-4197, ken.oasis@fmr.com; or
www.cs.uml.edu/Boston-SPIN/**

OVERVIEW

This meeting is an opportunity for you, the SPIN membership, to exchange ideas and seek information from other members about the problems and solutions you have encountered in your efforts to improve your software development environments. This is an interactive, networking meeting, where members will be selected to give up to a 5-minute slide presentation on either of the following: * a problem that you have encountered in your organization while trying to improve your process and for which you are seeking a solution (solutions will be solicited from the audience), or * implementations or improvements that you would like to share with others because they have worked successfully in your organization and because they typically are difficult hurdles for an organization trying to improve to overcome. Typical areas where innovative solutions would be welcome include peer reviews on small projects, defining or collecting metrics, configuration control or project management tools, and estimating techniques for project planning. After each presentation, there will be a period of discussion on the presentation, looking for ideas from the audience for solutions to problems or alternative experiences to ones that have been presented. The presenters will be pre-selected. If you would like to participate as a presenter, please contact Donna Johnson at johnsond@tiac.net or 781-259-8266 no later than January 15, 1998. You will need to have a topic and short description for inclusion in the program.

DIRECTIONS

To get to GTE, Building #5: From Route 128 in Needham, take exit 19A onto Highland Avenue East. At first traffic light turn RIGHT onto Second Street. Go 1/4 mile (passing hillside Sheraton entrance on right) and turn RIGHT onto A Street. Go 1/5 mile and before GTE HQ building on left (multi-story glass facade), turn LEFT into Parking lot. Please enter at the cafeteria.

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In Cooperation with the Greater Boston Chapter of the Association for Computing Machinery

For the latest updates about this event check it out at:
<http://www.siggraph.org/chapters/boston/jobfair>

Free Admission

Wednesday, January 7, 1998, 6:30 P.M. @ The Boston Museum of Science