Chris Walton

Summary

Versatile, experienced software developer and tester with deep expertise in all aspects of computer performance. Able to add value in many ways including development, quality assurance, software tools, performance measurement and improvement, and capacity planning.

Substantial programming experience with C#, VB.NET, C, Perl, TCL and Expect, Mathematica and FORTRAN.

Experience with operating systems, network devices, network software and network security

Successful in a variety of settings from small start-ups to Fortune 500 companies.

Specialties

- C#.NET development as part of an Agile team
- Quality Assurance for software and network devices
- Tools for data collection and analysis
- Capacity Planning software
- Benchmarking, profiling, and performance improvement
- Predictive performance analysis for innovative, strategic new products; I work closely with development teams to set performance goals and ensure they are met.

Experience

Senior Software Developer at **Hyperformix** in Austin, TX, a leading provider of enterprise capacity planning software. 2005 to 2010

Primary developer for the analytic modeling engine in Capacity Manager, a world-class Enterprise Capacity Planning product. In addition I was a subject matter expert on modeling algorithms. Converted to Agile development process in last 18 months.

Refactored modeling code twice, and ported from VB.NET to C#.NET. The second refactoring used the Ninject dependency injection framework.

Extended standard Queuing Network Model techniques to support server consolidation and virtualization, then implemented new techniques in Capacity Manager product. Co-author of patent application for this work.

Created an independent implementation of core model in Mathematica, then automated comparison between results of both implementations. Analysis of differences revealed a number of errors in the Capacity Manager product.

Company-wide resource for understanding Capacity Managers modeling capabilities, and for resolving customer problems.

Senior Quality Assurance Engineer at **TippingPoint Technologies** in Austin, TX, a manufacturer of network security devices. 2003 to 2005

Tested intrusion prevention systems, security management systems, and attack filter sets for performance, functionality, accuracy and robustness. Developed accuracy and stress tests for traffic shaping capabilities.

Wrote scripts for software installation, test automation, and data reduction.

Planned, budgeted, and implemented new QA lab, including hardware installation, designing the lab network, OS installation and setting up DNS, NFS, and Samba servers.

Founder at **Frontrunner Computer Performance Consulting** in Austin, TX**.** 2002 to 2003
Simulation modeling of HyperTransport protocol.

Benchmarked Java-based XML parsers. Used design of experiments and analysis of variance to isolate the effects of platform, workload and application implementation on performance.

Principal Performance Scientist at **Sariga Networks**, in Austin, TX. March to December 2001

Member of a early stage start up developing innovative technology for packet voice systems and chips

Helped develop a new real-time scheduling algorithm with arbitrary constraints on scheduling delay, then proved mathematically that a new scheduling algorithm provided optimal jitter reduction within delay constraints.

Wrote and validated detailed simulation of scheduling algorithm and complete scheduling architecture.

Member of Technical Staff, at **Agere Systems, then Lucent Microelectronics** in Austin, TX, 2000 to 2001

Guided the design of a 10Gbit/sec network processor chipset (packet classifier and traffic manager) on a daily basis.

Developed a detailed Queuing Network Model (QNM) of 10G classifier, written in Mathematica. This was the only way the team could evaluate performance until a simulation came on line late in the development cycle. Analytic throughput predictions were within 10% of detailed simulation result. This early evaluation kept multiple bottlenecks out of the design.

Characterized network workloads for use as input to both analytic and simulation model.

Generated test programs and test data sets for simulation validation

Systems and Software Engineer at **Compaq Computers in** Austin TX, 1994 to 1999.

I used my skills in modeling, benchmarking, and analysis to improve the performance of hardware, system software and middleware for fault tolerant UNIX platforms.

Analytically modeled a large customer cellular telephony application, revealing that initial design would not meet its performance requirements. Wrote simulation model of the same project to provide detailed information about performance characteristics months before measurements were available. Actual measured performance was within 2 percent of model predictions. The project meet its requirements and was a success both technically and commercially.

Sized many large, complex customer applications, often working directly with customer's technical staff.

Debugged and enhanced an advanced Markov chain availability model for clustered UNIX systems, then recommended changes to improve availability.

Benchmarked and analyzed performance of TCP/IP (over Ethernet and ATM) and SS7 performance.

Wrote a C program on UNIX to measure TCP/IP performance at the socket level The tool automatically scaled workloads to collect statistically valid latency, thruput and CPU utilization data. It had its own command language, implemented in Flex and Bison.

Advisory Programmer at **IBM LAN Systems** in Austin, TX, 1992 to 1994.

Identified, quantified, and advocated performance improvements in Multi-Protocol Transport Services for OS/2 (MPTS). Provided daily guidance and training to second analyst assigned to MPTS, and acted as consultant to others working on OS/2 transport performance.

Education

Ph.D. (Computer Sciences), University of Texas at Austin, 1992
Dissertation: *Skew and Scalability of Parallel Joins on Multicomputers*

M.S. (Computer Science), Worcester Polytechnic Institute, 1986
Thesis: *Implementation of IEEE Standard 802.2 on an Ethernet Local Network*

B.S. (Physics), *magna cum laude*, Bates College, Lewiston, ME, 1981
Thesis: *A Carbon Dioxide Laser: Construction and Basic Theory*

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