

Michael Brutman

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Operating Systems: Linux, AIX, other Unix variants

Platforms: PowerPC variants, x86 and ARM

Languages & Technologies: C, C++, PowerPC Assembler, TCP/IP, Java, SQL

Skills: Scalability, reliability and performance analysis; Distributed systems management and debugging; Embedded firmware; Operating systems and middleware development; Network applications

Related Experience:

Google, September 2013 - present: Site Reliability Engineer and Tech Lead

I am part of a larger organization that keeps well-known customer facing Google services running well. Responsibilities include resource and capacity planning for large production services, first response for production problems, suggesting and implementing design changes to improve reliability and performance, and helping to keep my team healthy and running smoothly.

HGST (Western Digital), April 2011 – August 2013: Firmware engineer

I was part of a team developing advanced firmware for a future generation of enterprise class hard drives. Responsibilities included new feature design and development, debugging failures, performance analysis and mentoring newer members of the team. The team was distributed with primary sites in the US and Japan. Reliability and performance were paramount as this code base shipped in tens of millions of devices across several generations of products.

IBM, April 2010 – April 2011: Open Source Developer, Linux on PowerPC Compiler and Run-time Team

Was part of the team that developed and maintained the open source GCC compiler and GLIBC run-time libraries for IBM PowerPC family processors. Responsibilities included developing optimized library routines for new processors to improve performance, adding new function to support processor extensions, and the general debug and support of the compiler and run-time environment. The compiler and run-time environment support both server class and embedded processors and is critical to the success of IBM hardware offerings.

IBM, August 2006 – March 2010: Lab Services Linux and Cell Broadband Engine Team Lead

Led a team of twelve developers that worked on a variety of high performance computing projects using the Cell Broadband Engine CPU, an early multi-core processor. Improved skills on the team by providing education and mentoring, leading to enhanced customer satisfaction and revenue. Reduced risk and cost to IBM on external contracts by working with the contracts team to ensure appropriate terms and scope. Taught formal classes both inside and outside of IBM on the CPU architecture and worked with external

customers to adopt and exploit it fully. Defined the long term direction and goals of the team and worked with the team and management to realize those goals.

Some of my projects included developing a Fast Fourier Transform library for the IBM Cell BE software development kit, debugging and testing real-time Linux for use in a military application, designing and implementing a streaming data analysis solution for a large bank, improving the performance of scientific codes used in oil exploration and architecting a new risk management system for a large insurance company.

IBM, February 2003 – March 2006: Developer, BlueGene L Supercomputer

BlueGene L is a massively parallel supercomputer with 65536 compute nodes and 1024 input/output (I/O) nodes that held the title of the most powerful supercomputer in the world from November 2004 to June 2008. The machine is comprised of custom hardware running a Linux-like compute node operating system, Linux I/O nodes that provide I/O support to the compute nodes, and several conventional service machines.

Supported our customer (Lawrence Livermore National Laboratory) with a 128 node Linux cluster running a hardware simulator until BlueGene L hardware was available. Designed, implemented and delivered the debugger interface to the machine ahead of schedule while collaborating with an external ISV. Dramatically improved the performance and reliability of the end user job submission utility. Provided internal and external support for debugging problems and improving customer satisfaction.

IBM, December 2000 – February 2003: Performance Consultant

Worked directly with customers and business partners performing custom programming and performance analysis of AS/400 and iSeries midrange computer systems. Specialty areas included DB2 performance analysis, Java performance analysis and Linux performance analysis. Improved customer satisfaction and directly impacted IBM revenue by reacting quickly to solve a wide variety of performance problems in real world applications.

IBM, December 1999 – December 2000: Operating System Developer

Owned and maintained the task dispatcher component of the OS/400 operating system. The task dispatcher is a critical part of any operating system, especially for a midrange machine with up to 24 processors and tens of thousands of active jobs. Responsibilities included maintenance of existing code and adding new function for logical partitioning.

IBM, March 1998 – December 1999: Operating System Performance Analyst

Performed performance analysis and tuning for the AS/400 operating system. Responsibilities included working with operating system developers to improve the performance of targeted components, working with engineering to process and understand low-level hardware trace data, defining and driving requirements into future versions of the product, and setting and achieving benchmark targets on industry

recognized benchmarks. Helped set performance targets for the AS/400 24 processor system and helped set performance goals and instrumentation requirements for the Power4 architecture.

IBM, September 1992 to March 1998: Operating System Developer

Performed a variety of porting, design, implementation and debug tasks in the OS/400 operating system.

Education:

Bachelor of Arts Degree in Computer Science, State University of New York College at Oswego

Masters Degree in Computer Science, University of Minnesota Twin Cities Campus

Patents:

US 8516494 “Executing An Application On A Parallel Computer”, published August 20th, 2013

US 7805579 “Methods and Arrangements for Multi-buffering Data”, published February 5th, 2009

US 7363617 “Database breakpoint apparatus and method”, published April 22nd, 2008

US 7137120 “Dynamic Diagnostic Program For Determining Thread Wait Time”,
published November 14th, 2006

US 6757785 “Method and System For Improving Cache Performance In A Multiprocessor Computer”,
published June 29th, 2004

Professional Organizations:

Association of Computing Machinery

IEEE Computer Society