

Dr. Gareth S. Bestor

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Profile

Senior Software Engineer for IBM with over 13 years industry experience in enterprise application development for systems management and cloud computing; a recognised IT expert in standards-based systems management and virtualisation; founder of and developer on multiple open-source software projects; collaborated with universities, US Government research labs, and leading computer companies on IT research and development; systems architect and project lead in IBM product development; software test and level 3 support.

I am the core developer/contributor to several packages shipping in the Linux operating system, including SBLIM and sfcv - the CIM management server in Red Hat Enterprise Linux, SUSE Linux Enterprise Server, Ubuntu Server and CentOS, and the CIM agent in VMware vCenter Server.

I am co-author of the international IT standard *ISO/IEC 19099:2014 Virtualization Management Specification* for managing cloud infrastructure.

In 2017 I joined Master Business Systems as Senior Software Architect for mobile application development. I especially enjoy working on full-stack applications, from the UI through backend database design, and mastering all the protocols in-between.

I am a US citizen by birth, and a naturalised New Zealand citizen, permitting unencumbered travel in Australasia (New Zealand & Australia) and North America (USA & Canada).

Professional Resume

Senior Software Architect, 2017+, Master Business Systems, New Zealand

I am the Senior Software Architect responsible for design and development of Master Business Systems' (MBS) GoMobile inspection product for conducting mobile, offline-capable, form-based data capture, based on industry-standard XForms technology. Initially designed for local government, GoMobile is now being targeted as a general purpose, mobile inspection solution for iOS, Android and Windows devices across a broad spectrum of vertical markets.

Mobile Developer, 2013-2016, Xiphware, New Zealand

After a short sabbatical and returning to New Zealand, I resumed my passion for writing code, now focussed on mobile and web-related technologies. My consulting business - Xiphware - developed a mobile-focused, online service for classifieds and business advertising, consisting of a load-balanced, scalable backend running in Amazon's AWS, using an SQL database with PHP-driven web services, providing content to a custom-written iOS mobile app. I also designed and wrote a sports statistics mobile app *GoRugby by GoGet* for MBS.

Senior Software Engineer, 1999-2012, IBM, USA

IBM Linux Technology Center - Virtualisation and Cloud Computing, 2005-2007/2010-2012

The Linux Technology Center (LTC) is a research and development organisation created by IBM to work alongside other companies and communities to make Linux commercially viable for enterprise IT. As a Senior Software Engineer my focus was making Linux a preferred virtualisation platform for hosting other operating systems in cloud computing environments, initially using the Xen hypervisor and later KVM (KVM, together VMware, is the core virtualisation technology beneath IBM's SmartCloud). In 2006 I founded and was the lead developer for the open-source

Xen-CIM project, a collaboration between IBM, Novell, Citrix, RedHat and Unisys to implement standards-based virtualisation management for Xen. In 2010 I rejoined the LTC and became a contributor to the libvirt-cim project, which provides the standards-based management API for KVM. The majority of the open-source code I've written for Linux continues to ship in RedHat/SUSE/Ubuntu enterprise Linux distributions.

I joined the LTC as a developer in, and was later team lead of, the SBLIM (Standards-Based Linux Instrumentation for Manageability) and OpenPegasus projects. I was responsible for maintaining the core CIM management stack used across several IBM product lines (e.g. IBM Systems Director, retail systems, storage), as well as working with industry partners like HP and VMware on adding advanced management functions to this infrastructure.

Throughout my LTC tenure I was an active member of the Distributed Management Task Force (DMTF) - an industry standards organisation for publishing data models and APIs for managing heterogeneous IT environments. I am a co-author/contributor to the majority of the DMTF standards on virtualisation management.

IBM Systems Director, 2007-2009

As a project lead I was responsible for the development and end-to-end integration of Xen virtualisation management function in the IBM Systems Director product. This involved establishing and leading a team of junior and senior IBM developers, and interfacing with other IBM component owners to ensure on-time delivery and quality control of new cloud management features for Xen in Director.

I subsequently became the overall Standards Architect for IBM Systems Director, responsible for setting IBM strategy and investment in standards-based management interfaces, and working with IBM's business partners - Microsoft, Intel, HP, EMC - on developing and publishing new DMTF CIM management profiles. CIM remains the primary management API in Director for Unix-based hardware. As a Senior Architect I also mentored several individuals through their professional IBM career development.

IBM Grid Computing, 2003-2004

I was the lead developer for the IBM Grid Toolbox - IBM's productisation of the open-source Globus toolkit, used for building computational grids to securely share and access computing and storage resources across corporate and institutional boundaries. My team was responsible for porting Globus to AIX and commercialising it as a new IBM product. This involved extensive collaboration with the core Globus Alliance R&D team at the US Argonne National Laboratory and the Centre for High-Performance Computing and Communication at the University of Southern California.

IBM High Performance Computing, 1999-2002

After completing my Ph.D., I joined the High Performance Computing (HPC) Division of IBM, working on LoadLeveler - IBM's distributed workload-balancing product, used by US Government research labs for running nuclear test simulations on IBM supercomputers (these supercomputers were ranked #1 and #2 in the world at the time). I was responsible for the test-and-verification of LoadLeveler product releases, and implementing custom features to optimise the deployment and monitoring of parallel computing jobs across HPC clusters.

Bioinformatics, 1996-1997, University of Wisconsin-Madison, USA

While conducting my Ph.D. research, I worked in the Lloyd M. Smith Research Group developing software for automated DNA sequencing.

Industry Publications and Conference Proceedings

ISO/IEC 19099:2014 Information technology – Virtualization Management Specification, 2014
System Virtualization Profile, 2010, Distributed Management Task Force (DMTF)
Virtual System Profile, 2010, DMTF
Virtual System Migration Profile, 2010, DMTF
Storage Resource Virtualization Profile, 2010, DMTF
Virtual Ethernet Switch Profile, 2010, DMTF
Processor Resource Virtualization Profile, 2010, DMTF
Memory Resource Virtualization Profile, 2009, DMTF
Ethernet Port Resource Virtualization Profile, 2010, DMTF
Resource Allocation Profile, 2009, DMTF
Allocation Capabilities Profile, 2009, DMTF
Generic Device Resource Virtualization Profile, 2009, DMTF
Xen Management API, 2008, XenSource (Citrix)
Open Standard CIM Management for Xen, 2006, Xen Summit Conference, San Jose, USA

Academic Degrees

Ph.D., Computer Science, University of Wisconsin-Madison, USA

Ph.D. dissertation (Artificial Intelligence/Computer Vision): *Recovering Feature and Observer Position By Projected Error Refinement*

Ph.D. minors: Database Systems, Computer Architecture

M.S., Computer Science, University of Wisconsin-Madison, USA

B.Sc. with First Class Honours, Computer Science, Massey University, New Zealand

Honours thesis (Artificial Intelligence): *Inference Mechanisms for Reasoning with Uncertainty*

Academic Resume

Adjunct Assistant Professor, 2000-2001, Vassar College, USA

While at IBM I was also a lecturer for the Computer Science Department, where I taught functional programming (Scheme), and developed a new 4th-year course in robotics.

Research Assistant, 1998, Computer Vision Group, University of Wisconsin-Madison, USA

My Ph.D. research was funded by the US Defense Advanced Research Projects Agency (DARPA) and US National Science Foundation (NSF).

Extracurricular Interests

Astronomy, astrophotography
Robotics, micro-controllers and electronics
Tramping, mountain biking