

James Robert Howard

Summary: An accomplished Software Engineer with over fifteen years experience working on complex systems where performance, scalability, and correctness are essential.

Interests: **Distributed & Concurrent Programming** **Operating Systems** **Security** **Troubleshooting**

Work Experience: **Senior Software Engineer: [Dell Compellent](#)**

January 2013 - Present

Responsibilities:

- ▶ Software design, development, and build process improvements related to Dell Storage Manager and Storage Center products
- ▶ Design and planning of a Dell Storage Manager HA (High Availability) configuration

Notable Achievements:

- ▶ *Dell Storage Manager (DSM) Evolution*
Updated DSM platform from {GlassFish -> JBoss -> Wildfly} and {Java6 -> Java7 > Java8} across DSM releases, without adversely impacting other developers or the schedule
- ▶ *Virtual Appliance*
Leveraged Jenkins CI, Gradle, and vSphere Web Services to produce automated virtual appliance builds of Dell Storage Manager and Storage Center
- ▶ *Developer Tools Automation*
Wrote an Eclipse plugin to automate the creation of a DSM development environment, reducing several hours of manual steps to a single automated step
- ▶ *Logger Refactoring*
Replaced DSM's legacy logging implementation with log4j, increasing logging performance 100x
- ▶ *PAM Library*
Designed a challenge/response authentication to control access into DSM virtual appliance

Work Experience: **Staff Software Engineer: [Siemens Energy](#)**

May 2000 - January 2013

Responsibilities:

- ▶ Design and implementation of EMS enhancements to Spectrum Power 3 (a highly-available, redundant, Energy Management System) to meet customer specifications
- ▶ Creation and maintenance of technical documentation (e.g. design specifications, installation & maintenance documents, performance tuning guides)
- ▶ Technical consulting for project managers and customers
- ▶ Troubleshooting software, operating system, network, and security problems
- ▶ Mentoring less experienced coworkers
- ▶ On-site installation and direct customer support of Spectrum Power 3
- ▶ UNIX installation and maintenance (AIX, Linux)
- ▶ Oracle (RAC, Data Guard) installation & maintenance
- ▶ Source code merges and builds

Notable Achievements:

- ▶ *Installation Automation*
In 2012, I modeled all information necessary for Spectrum installation into an XML file and wrote tools for semantic validation and data extraction. Once completed, the product's 100+ page install document can be replaced with a much smaller install guide (<5 pages). System installations can be automated and yield consistent results
- ▶ *Virtualization*
I designed the first Spectrum system to take advantage of virtualization technologies; reducing the cost of development systems by 60%
- ▶ *LAN Teaming*

I modernized Spectrum's network configuration to use a dual-segmented network for redundancy. The prior/legacy design required two independent networks and a software daemon used to reroute TCP/IP. As a result, fail-over time on Spectrum systems decreased from thirty seconds to under one second

► *Spectrum Split-room*

I designed an enhancement allowing one of our customers to geographically separate their EMS system (with ½ of their active hosts running at one site, and the other ½ running approximately 20 miles away). My role during implementation was to add a heartbeat monitor that would disable ½ of the system in the event of a total communication disruption between the two sites. This prevents a split-brain situation where both sites could potentially be scanning RTUs

► *System Monitor*

I wrote a multi-threaded program that monitors the performance of Spectrum hosts {CPU/memory usage, excessive paging, NIC errors or excessive network bandwidth consumption, application failures}. Various additional aspects of the system are also monitored {SQL database availability, network switch/router status, SAN status, print queues}. This application generates EMS alarms when problems are identified, and uses minimal system resources

► *Equipment Status Display*

I rewrote the communication equipment status display for one of our customers to meet their requirements. The updated display was written in Java, and can be invoked as a traditional application or via their intranet using Java Web Start

► *UI Prototype*

I designed a prototype for a replacement UI using Java/Swing, based on the NetBeans Platform. Although it was deemed "impressive", a decision was made by our architects to continue using technologies our division is already comfortable with (QT, ActiveX, HTML/JavaScript)

Technical Skills:	AIX	Bourne,Korn Shell	C,C++	Confluence
	C#	Dbx,Gdb,Jdb	DocBook	DTrace
	Eclipse	Erlang	FOP	FreeBSD
	Git	Gradle	IPsec	Jails
	Java	Jenkins	JIRA	Linux
	Nmon	SQL	Stash	Strace
	Sublime	Vi	VMware	XML
	ZFS			

Personal Projects:**Photo Kiosk:**

- ▶ I designed and coded the software component of a photo kiosk
- ▶ An SLR camera and dual printers are controlled by an OS X (Cocoa) application
- ▶ An interactive touchscreen (iOS) serves as the user interface
- ▶ Previous (non-touchscreen) user interfaces were implemented using Apple (infrared) & Wii (bluetooth) remote controls
- ▶ The software is extensible. Custom text & print layouts can be designed using Quartz Composer, eliminating the need to modify source code

SCADAbase:

- ▶ As part of my MSSE independent study, I designed and implemented a working prototype for SCADA middleware
- ▶ The software was written in Erlang
- ▶ A Java (NetBeans Platform) client acts as the UI, accessing a CORBA service
- ▶ Jenkins was used for Continuous Integration builds & execution of automated unit tests
- ▶ Node fail-over and hot-code update capabilities were demonstrated to my classmates

XML-based Resume:

- ▶ The tool uses Apache FOP to generate a print quality PDF from XML data

Education:**Master of Science: [University of Minnesota, Twin Cities](#) (2010 - 2012)****Major:** Software Engineering**GPA:** 3.89/4.0**Bachelor of Science: [University of Minnesota, Duluth](#) (1996 - 2000)****Major:** Computer Science**Minors:** Mathematics, Philosophy**Honors:** Dean's List

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