# Matt Barron

✆ 832-498-1888 ✉ matt.barron@sent.com

## SUMMARY

Software engineer with a passion for technology and team-building. Strong leader and team player who excels at solving challenging problems by reducing complexity, automating processes, and mentoring and empowering talent.

## PROFESSIONAL EXPERIENCE

**Team Lead, Principal Software Engineer, Trafficware -> Cubic, Sugar Land TX** **2017 - Present**

- Created yocto-based system and toolchain/BSP/SDK for an embedded Linux traffic controller. Customized device drivers related to industry-specific timing requirements. Created package repository and infrastructure to allow easy field updates in response to security alerts. Created platform services layer to abstract operating system specifics away from applications running on the controller.
- Built an automated system to deploy update payloads to multiple traffic controllers, allowing them to be updated without disturbing operation of intersections in many cases.
- Designed and developed a web-based user interface for traffic controller. Developed code generator that produced back-end JSON API methods by parsing legacy C structures, saving 6 months of development effort.
- Used Docker and Jenkins to implement automated builds and continuous integration.
- Used JIRA, Confluence, and Bitbucket to refine Agile practices and formalize collaboration and change review.
- Enhanced and maintained cross-platform traffic signal controller software running on multiple operating systems (Linux, OS-9, Windows) and hardware platforms (Motorola 68x, PowerPC, Arm, Intel).
- Built out new software team (interviewing, hiring, mentoring).

**Product Line Manager and Principal Software Engineer, National Oilwell Varco, Houston TX** **2014 - 2017**

- Architected and led development of NOV's eVolve drilling optimization service from proof-of-concept to field trial within six months (Windows: C++; Linux: Debian; C++; gcc. Virtualization: VMware ESXi/vSphere, Docker). After successful 3-month pilot, eVolve was deployed commercially and provided baseline service customer savings of $14MM and first-year revenue of $12MM. See Other Links section for details, awards, and industry buzz.
- Drove development of additional drilling automation and optimization applications running on eVolve platform, resulting in $18MM additional revenue. (C/C++, Matlab).
- Leader of team responsible for architecuture and development of a new rig operating system, "NOVOS", which controls multiple machines coordinated in drilling a well while monitoring efficiency and safety. Wrote critical components of the system, including core interface libraries and classes, automated recursive makefile-based build system, and installers. (Linux: Debian; C++; gcc).

**Fellow, Augmentix Corporation -> Dell, Austin TX** **2003 - 2013**

- Technical leader for startup from inception to successful exit (acquisition by Dell).
- Created custom embedded Linux distribution and extensible web-based administration framework for a self-contained, independent system management card (HPI, SNMP, SNPP, TAP). Created failsafe fallback/commit scheme, enabling no-risk field and upgrade of all firmware and software. PPC/PowerQUICC, Linux 2.6 kernel, busybox, custom user space and init system.
- Implemented continuous build and integration, automated test system, and cross-compiler suite and development environment. (Linux: Jenkins, bash & python scripts, PHP, mysql, gcc, git).
- Created web-based manufacturing control software used to track lifecycle for every assembly under manufacture. The system automated validation of process controls and storage of detailed test results. It tracked manufacturing yields and step times and was used to increase manufacturing efficiency by 40%. Linux: Apache, MySQL, PHP.
- After acquisition by Dell, managed software stack on Augmentix/Dell rugged laptops - device drivers, hardware support, management software interfaces for integrators and customers. See Other Links section for product details and awards.

**Software Developer (contract), Hewlett Packard, Houston TX** **2003**

- Software developer for the HP Insight Diagnostics product on Linux and Windows platforms.
- Developed new low-level SCSI format functions. Performed initial port of storage components from Linux to Windows. (Linux: RedHat Linux 7.3, 8.0, 9.0, Advanced Server; Suse Linux 8.x; United Linux 1.0; C++; gcc. Windows: Windows 2000, Windows XP; MS Visual Studio .NET).

**Software Developer (contract), Texas Micro -> RadiSys, Houston TX** **1999 - 2003**

- Developed Windows and Linux device drivers and user-mode software for a proprietary, hardware-based high-availability system. The system replicated all RAM content in real time between an active and hot standby server, triggering a failover when the primary system lost heartbeat. (Intel x86 hardware architecture; PCI architecture; Windows NT kernel / device drivers; Windows NT DDK; C/C++; x86 assember; Windows API; MS Visual Studio; RedHat Linux 6.2; Linux kernel / device drivers).
- Developed a single-floppy Linux system with embedded hardware diagnostics to aid engineers in development of hardware components. (Linux kernel / device drivers; C; gcc; creation of custom Linux core distribution based on "Pocket Linux" and BlackBox).
- Developed low-overhead, high-performance logging device drivers to allow Windows device drivers and Linux kernel modules to report debugging information while minimizing the effect of logging overhead. (Windows NT kernel / device drivers; Windows NT DDK; C/C++; x86 assember; MS Visual Studio).

**Software Developer (contract), Dell, Austin TX** **2000 – 2001**

- Software developer and systems integrator in support of Dell's manufacturing operations worldwide.
- Responsible for architecting Linux HA clustering and integration of homogenous systems into a single integrated point of service (RedHat Linux 6.2; Piranha; Apache 1.3.x; J2EE/TomCat; NFS; Linux / Windows and Linux / Netware integration).
- Developed Linux kernel modules to monitor health of auto-mounted SMB and NFS remote filesystems (Linux kernel / device drivers; C; x86 assembler; gcc).
- Developed Linux kernel modules to periodically rearp for active network interfaces from the active node in a multi-node cluster (Linux kernel / device drivers; C; x86 assembler; gcc).

**Retained Consultant, RPA Wireless, Jersey City NJ** **1996 – 2003**

- Software architect and developer for a web application framework subsequently used to create and rapidly deploy 50+ large, robust web-based b2b applications used by leading companies including IBM, Agilent, Dictaphone, General Electric, Verizon, Olympus, Siemens Medical, Sprint, and Xerox (Apache; PHP; MySQL; HTML/CGI; CSS; JavaScript; XML).
- Lead software architect and developer for an internet-to-wireless gateway product and service used by CompuServe, Northrop Grumman, and others (Apache; PHP; MySQL; HTML/CGI; CSS; JavaScript; XML; C/C++; gcc).
- Led projects to deploy high-availability Linux servers on a large scale in support of RPA's wireless gateway products (RedHat 6.2, 7.3; RSF-1; RedHat High Availability Server; Apache 1.3.x; MySQL; qmail).
- Led projects to deploy OpenBSD and FreeBSD routers, firewalls, and stand-alone web servers (OpenBSD 2.x/3.x, ipf, pf; FreeBSD 4.x, pf; Apache 1.3.x).
- Developed software to monitor the health of Linux and FreeBSD servers and report status information back to a central control panel application (C; gcc; Berkeley sockets; POSIX).

**Software Developer (contract), Standard Networks, Madison WI** **1996 - 1997**

- Developed target-mode SCSI device drivers for Symbios 8xx host adapters. The device drivers made the system appear as a tape drive to SCSI hosts on the same bus; the SCSI hosts could then communicate with the system by reading and writing tape devices at very high speed (Windows NT kernel / device drivers; Windows NT DDK; C; Symbios SCSI scripting language; x86 assembler; MS Visual Studio).
- Developed lowest level IPX, Netbios, and HLCN protocol stacks for a black-box networking product (DOS; C; x86 assembler; Watcom C++; DOS4G extender; ODI Ethernet hardware interface; direct Ethernet hardware interface).
- Developed HLCN / Netbios / IPX protocol sniffer / analyzer (DOS; C; x86 assembler; Watcom C++; DOS4G extender; direct Ethernet hardware interface).

**Founder and CTO, Airmail Communications, San Antonio TX** **1993 - 1996**

- Founded a company to provide email to pager gateway services over the internet within a SaS business model.
- Built up a business of 30+ sustaining corporate customers across the United States.
- Built the entire software stack, from website presence to a branded customer system management portal to the back-end services involved in bridging email and pager communications. (FreeBSD; C; early/primitive HTML/CGI web development).

**Systems Officer, Fiserv, San Antonio TX & Milwaukee WI** **1982 - 1993**

- Developed, maintained, and enhanced a Demand Deposit accounting system and an ATM transaction processing system. Architected and implemented numerous changes to both as the regulatory and competitive landscape changed in the financial industry.
- Architected and developed a system to manage automated file transfers between computers on a large (3000+ node) heterogeneous network.

- Architected and developed version control system within an existing mainframe text editor (Unisys V Series, COBOL, Unisys V-Series assembler) used by over 200 programmers in the organization.

**Programmer, Lubbock National Bank, Lubbock TX** **1980 - 1982**

- Developed, maintained, and enhanced a Demand Deposit accounting system.
- Started as a entry-level computer operator, promoted to programmer within 6 months.
- IBM 4300 Series (System/370), CICS

## US PATENTS

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|---|---|
| http://bit.ly/2Y035CW | Embedded Device for Implementing a Boot Process on a Host.<br>Dell Products, LP, assignee.<br>Patent 8407458. 3/26/2013. |
| http://bit.ly/2XXed3t | System for providing a communication interface.<br>Augmentix Corporation, assignee.<br>Patent 8407458. 10/27/2009. |

## AWARDS AND INDUSTRY BUZZ

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|---|---|
| http://bit.ly/2ZBHKjU | NOV's eVolve service |
| http://bit.ly/2KZuLnW | 2016 World Oil Awards, recognizing NOV's tools and software with the award for "Best Data Management & Application Solution" |
| http://bit.ly/2WQb4Bh | Forbes Magazine, "The Robot Roughnecks: Out of The Oil Bust Comes a Golden Age of Drilling Technology", which covers products we developed |
| http://bit.ly/2x9EHmt | Augmentix / Dell rugged laptop wins PC Magazine Editor's Choice award |

## TECHNICAL SKILLSET

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| *Business Areas* | Traffic signal engineering, drilling automation and optimization, device drivers, embedded Linux, security, hardware development support, system management software, web development, diagnostics software, networking, financial applications, DevOps / DevSecOps, system administration, systems integration, data conversion, control systems |
| *Programming Languages* | C/C++, sh, awk, sed, PHP, Python, Ruby, HTML/CGI, JavaScript, Java, Visual Basic, Pascal, Go, Perl, x86 assembler, SQL, COBOL |
| *APIs & Environments* | Linux kernel / device driver APIs, BSD kernel, Windows DDK, Posix, standard C and C++ libraries, STL, Boost, OpenSSL/SSLeay, Win32, Windows Sockets, MFC, Berkeley Sockets, JQuery, Django, Rails, MySQL, J2EE, JSP, Swing |
| *OS & Cloud Computing* | Linux, FreeBSD, OpenBSD, Solaris, SCO Unix, Mac OS X, AWS, Xen, Linode, Google Cloud, Puppet, Ansible, Docker, Kubernetes, Windows, MS-DOS, FreeDOS, NetWare, OS/2, Unisys A/V Series MCP |
| *Networking Environments* | TCP/IP & Internet subprotocols (FTP, HTTP, SSL, IMAP, POP, SMTP, SSH 1.x, SSH 2.x, DNS, DHCP, etc.), IPSEC, Windows/Samba, Netware, IPX, Netbios, HLCN, Poll/Select |
| *Development Tools & Databases* | GNU C/C++, gdb, ddd, as, MS Visual Studio, MS Visual C++, Cygwin, DJGPP, Visual SourceSafe, Git, Subversion, CVS, MS SQL Server, MongoDB, Oracle, MySQL, Neo4J, Influx, DMSII, JIRA, Confluence, Bitbucket, Jenkins, Docker, Kubernetes |
| *Software Engineering* | Agile, continuous integration, DevOps/DevSecOps practices, application security, microservices, source control, project management, system architecture, open source, reusable components |