

# Matthew Brown

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*Solutions developer senior analyst pursuing remote administration, support and development opportunities for clinical and/or mission critical technology solutions.*

## Qualifications

- 10 year background working in clinical laboratory operations.
- 5+ year background working in information systems.
- Passionate about achieving a challenging position that allows meaningful contributions to a healthcare operation's success.
- Enthusiastic and efficient when learning new technologies.
- Adept at anything technical in nature, as demonstrated by various pieces of software I have written, currently being used in clinical production environments.
- Cognizant and mindful of product lifecycle and support constraints when evaluating or implementing projects, solutions and work-arounds.
- Resourceful and creative when solving difficult technical problems.
- At ease working in projects combining on and off-site resources, ensuring project timelines are met and effectively communicating goals and needs to appropriate participants.
- Confident responding to complex incidents in a timely manner when placed in an on-call rotation.
- Comfortable telecommuting, currently spending 3-5 days/week operating from my home office.

## Professional Experience

- 5 years managing various clinical application servers running AIX, HP-UX, Linux, Windows Server 2003/2008/2012. Experience installing, configuring and supporting Citrix applications.
- Project lead for my team on several complex projects involving clinical application upgrades/installs from McKesson, Sunquest, Mediware, Data innovations, Nuance, Allscripts, etc.
- Coded custom solutions for unique problems, including creating multi-user, database driven applications.
- Performed advanced troubleshooting/analysis/manipulations on production clinical RDBMS (Oracle/MSSQL Server)
- Skilled at evaluating & automating IT processes using appropriate technology
- Instituted custom network issue work-arounds as required for the unique and changing requirements presented by a clinical application environment.
- Regularly interfaced with vendors, network engineers, system engineers, application analysts, operations management and end-users to facilitate timely resolutions to issues/project work.
- Facilitated friendly interchanges between (at-times) hostile resources to expedite project/incident related work.
- Worked off-hours/on-demand as required to maintain clinical application integrity.
- Successfully integrated on a technical team providing 24/7, 3<sup>rd</sup> tier information systems support.

## Employment History

### **Ascension Technologies** (previously known as Wheaton Franciscan Healthcare) – Glendale WI

*Solutions Development Senior Analyst*

(Tech-Apps Lab Team)  
(Business Operations Enterprise Products Team)  
(Clinical Administration Enterprise Products Team)

- 12/17/2016 to Present

*Senior Technical Application Analyst*

(Tech-Apps Lab Team)

- 10/1/2016 to 12/17/2016

- Maintained all responsibilities from Wheaton Franciscan Healthcare legacy structure while adapting to the Ascension Healthcare reorganization effort.
- Currently working with on an entirely virtual team, supporting numerous healthcare locations across the United States.
- Jumped into new technical opportunities from the WFHC/Ascension merger, including some IBM Mainframe work \w SAS/JCL, Agile / Jira training opportunities.
- Continued supporting a variety of legacy clinical systems including: McKesson (Allscripts) Lab, Horizon PHS, Horizon HSM, Allscripts Sunrise, 3M CRS, Sunquest Lab / Antrim / CoPath / PowerPath, Nuance Clintegrity, Medware HCLL, UL Systoc, Abbott Precision Web, McKesson Practice Plus, etc. Clinical application hosted on a mix of Unix(AIX, HP-UX, RedHat Linux, etc)/Windows Server hosts.
- Helped sunset several legacy applications (Sunquest Lab, Sunquest CoPath, Nuance Clintegrity, Horizon PHS, Horizon MSM, McKesson PPM).
- Team lead McKesson Lab v16 upgrade project 2017.
  - Created a variety of scripts/programs to support the new environment that included features such as automated MLab node management via web interface, automatic tblrepl flips on-login, with an Oracle back-end schema to keep track of nodes and user logs. (Using Powershell, Python and HTML/Javascript)
  - Created interface error capture system – interface errors are piped to a sqlite database and accessed by a (searchable) web front-end. Printing subsystem allows errors to be printed or not-printed per SQL'esque parameters. (Using Python, HTML/Javascript, ASP)
  - Performed all Citrix client installs + configuration
  - Maintained several custom scripts on the Linux application servers (Shell scripting, Perl, Python)
  - Worked with Ascension system engineers + McKesson implementation engineers to design / test / go-live a fully HA-DR compliant McKesson Lab implementation, including a mostly virtual environment (VMWare) with the ability to VMotion live VM's between primary datacenters, plus a VPLEX implementation that has eliminated SAN-related downtimes post go-live thus far.

*Technical Application Analyst*

(Tech-Apps Lab Team)

- 7/5/2014 to 10/1/2016

- Worked with vendors, system engineers, network engineers, application analysts and users to setup and maintain clinical software environments.
- Created custom scripting/programs to facilitate solving the unique needs and problems presented by an information systems environment filled with disparate clinical applications that must interact effectively.
- Supported a variety of clinical systems including: McKesson Lab, Horizon PHS, Allscripts Sunrise, 3M CRS, Sunquest Lab / Antrim / CoPath / PowerPath, Nuance Clintegrity, Medware HCLL, UL Systoc, Abbott Precision Web, McKesson Plus, etc.
- Team lead implementing 3M CRS to replace Nuance Clintegrity
- Regularly performed off-hours maintenance rotations & on-call schedules
- Utilized available documentation and resources to create creative solutions to technical problems.

*Application Analyst*

(Lab Application Team)

- 5/5/2013 to 7/5/2014

- Supported McKesson Lab (aka Horizon Lab aka Allscripts Lab), Sunquest PowerPath(Tamtron), Medware HCLL, Abbott Precision Web, Data Innovation Instrument Manager, Sunquest Antrim, etc.
- Participated in regular build cycle (new tests, test changes, method changes, etc)
- Participated in several concurrent projects, worked with operational and IS staff to complete objectives within established timelines.
- Integrated in 24/7 on-call schedule within 4 months of hire.
- Utilized available documentation and resources to establish creative solutions to technical problems.

### **Specialty Screening LLC**

*Lab supervisor*

- 10/2016 to 8/2018

*Clinical Lab Scientist*

- 2/2016 to 10/2016

- Provided all aspects of on-site laboratory bench work, IT support and CLIA compliance.

- Supervised last CLIA on-site review (0 deficiencies cited).
- Wrote custom software to facilitate patient result management and reporting.
- Ensured all technical aspects of the business were maintained using a minimum of budgetary resources.

### **Aurora Health Care**

*Medical Technologist*

(West Allis Mem. Hosp.)  
(Sinai Med Center)

- 5/29/2007 to 5/3/2015

- 7/13/2012 to 5/3/2015

- Performed clinical lab testing in accordance with established procedure, regularly rotating through several laboratory departments including:
  - Hematology (automated, differentials, special, etc)
  - Coagulation
  - Chemistry (special, immune, automated, etc)
  - Bone marrow (spec processing, staining, 500 cell differentials, etc)
  - Blood bank
  - Batch Elisa Assay
- Trained 8 different staff members on various benches, both on 2<sup>nd</sup> shift ACL West Allis, 1<sup>st</sup> shift ACL West Allis, and 1<sup>st</sup> shift ACL Sinai.
- Participated in off-the-bench initiatives including biannual LIS calculation validations.
- Volunteered to fill in at Aurora Sinai hospital lab during critical staffing shortage (from June 2012 to May 2015).
- Participated in Sunquest Lab technical training team. Wrote a user training guide for use with new employees and as a reference for current employees for the Sunquest Lab LIS. Utilized at several Aurora Sites.
- Coded a solution to transfer Quantiferon results via USB flash drive from the DSX analyzer to Commercial Lab LIS system. Validated system, nurtured process through test code build changes, created training materials, updated as necessary.

### **Wheaton Franciscan Healthcare**

*Clinical Laboratory Scientist*

(St. Francis Hospital)

- 3/8/2004 to 5/5/2013

- Full time 2<sup>nd</sup> shift 3/8/2004 to 5/28/2007, 3<sup>rd</sup> shift Pool to 5/5/2013
- Performed clinical lab testing in accordance with established procedure, regularly rotating through several laboratory departments including:
  - Hematology (automated, differentials, special, etc)
  - Coagulation
  - Chemistry (special, immune, automated, etc)
  - Blood bank
  - Microbiology set-ups
- Key operator Beckman-Coulter hematology analyzers

## **Education**

**Northern Michigan University**

(Marquette, MI – 12/2003)

Associate degree (*Clinical Lab Tech.*)

**Michigan State University**

(East Lansing, MI 5/2001)

Bachelors of Science (*Human Biology*)

ASCP certified as a **Clinical Laboratory Scientist** (August 2006) (\w CM exp: 8/2021)

## **Technology experience**

While working in any new environment involves a learning curve, familiarity with certain technologies (and their analogs) expedites that process significantly. To help prospective employers better understand my expertise I've included a list of the various technologies I have direct experience with (below).

**Operating Systems** (installation/configuration/administrative duties/troubleshooting/etc):

- Windows (95/98/XP/7/8/10)
- Windows Server (2000, 2003, 2008, 2008R2, 2012)
- Linux (Redhat, Slackware, Ubuntu)
- FreeBSD (with ZFS experience – my name is in the kernel source as a minor contributor!), OpenBSD, NetBSD
- HP-UX, AIX, Solaris, Irix, NeXTSTEP
- Some limited exposure to IBM z/OS / MVS / MUSIC/SP, VMS, OpenVMS, Minix.

### Programming / Scripting languages (for most of these I have instances of code running in production clinical environments):

- Python (v2.x & v3.x)
  - (designing/implementing production tcp servers, JSON/RESTful interfaces between clinical systems, text parsing, etc)
- Javascript (\w HTML, CSS, Bootstrap, JQuery)
- Shell scripting (Bash, Ksh, etc)
- AutoIT
- Powershell
- WinBatch
- Perl
- Visual Basic
- Classic ASP
- C / C++
- Pascal
- ASM (Z80)
- SAS/JCL

### Databases

- Oracle (10g/11G)
- Microsoft SQL Server (2000, 2008, 2014)
- MySQL
- SQLite
- Intersystems Cache
- Connecting to these databases via ODBC \w Crystal Reports & various programming language APIs
- Using Python/AutoIT/Powershell/etc to transfer/manipulate data between different databases/database types
- Creating Web->Database bridges via IIS/ASP/ODBC that utilize JSON over HTTP connections to facilitate database interaction via custom websites.

### Network technologies

- TCP/IP networks – including writing TCP servers/clients for various clinical applications
  - Including various common services: DNS, telnet, ssh, smtp, ftp, tftp, snmp, dhcp, http, rdp, etc
  - Installation/Configuration/Troubleshooting/etc for all listed common services
- Desktop PC physical hardware (10/100/1000baseT, BNC/AUI based network adapters, wireless network technologies etc)
- Firewalls (IPFilter, IPF) – rules, filters, redirects, routing, NAT, using multiple NICs, etc.
- Encrypted tunnels (SSH), creating port/service redirects over tunnels, troubleshooting HL7 interfaces over VPNs \w vendor/local network resources until interfaces are working correctly.
- Serial interfaces (pinouts/wiring/soldering, configuration, interfacing POC equipment, terminals, boot via serial console, installing/configuring Lantronix \w modem pool for network -> fax bridge, etc)

### Clinical Applications

- Allscripts Lab (aka McKesson Lab aka Horizon Lab) (v8 -> v16.03)
- 3M CRS
- CBord
- CNexT
- Allscripts Sunrise (v5.7) (Intersystems Cache based db/app)
- Pathlore
- ECS
- Medware HCLL + APBC
- Lawson (LSF + TM)
- McKesson Practice Plus (aka PPM)
- Nuance Clintegrity 360 (aka Quantim)
- UL Systoc
- Sunquest PowerPath (aka Tamtron)
- Sunquest Antrim (Intersystems Cache based db/app)
- Sunquest Lab (Intersystems Cache based db/app)
- Abbott PrecisionWeb
- Powerscribe 360

- Dictaphone
- Formfast
- ANSOS (Cloud version)

#### Enterprise/Misc applications

- ServiceNow (including data extraction via RESTful python scripts)
- Microsoft Office (Word, Excel, Outlook, PowerPoint, Access, Visio) (2000, 2003, 2010, 365)
- Cygwin
- Citrix XenApp (as an admin) (v5.0, v6.5)
- AQT
- Sharepoint
- Cisco Anyconnect VPN client
- Various remote support tools (Bomgar, Landesk, RDP, Putty/SSH, Teamviewer, WebEx, DameWare, X3270, etc)
- Microsoft Remote desktop connection manager / mRemoteNG RDP/SSH/Telnet connection manager
- VMware web console
- ZFS RAID implementations on FreeBSD
- VirtualBox

### Technical problem solving examples

- An Epic upgrade created an interface issue where some types of new order transactions would be rejected by MLab lablink interface engine.
  - My solution to this problem required technical root cause analysis, understanding data flow between clinical production systems, HL7 standards, text parsing and TCP server routines (in Python), and application specific requirements for any implemented solution.
  - I created a script (in Python, on a RedHat Linux app server) that:
    - Captured specific interface errors on the MLab Linux application server, as they were created
    - Located the original incoming transaction that generated the error
    - Edited the transaction such that the interface issue was resolved
    - Resent the edited HL7 transaction through lablink interface engine— all fast enough such that MLab's container logic would group new orders + edited/resent orders together.
    - This script was used in a production environment for ~3 years before being deprecated by various Epic-side changes.
- A health ministry-wide initiative to change all ip addresses (new network schema required by WFHC merger with Ascension Healthcare) impacted hundreds of point-of-care devices with hard-coded self ip/server ip values. The POC vendor suggested an extended downtime (days) plus large \$\$ contract to fly personnel on-site for changes.
  - My solution required a good understanding of TCP/IP networking, enterprise environment demands associated with production clinical systems, and time/budget constraints.
  - Implemented solution (per my recommendations):
    - I worked with one of our network engineers to use virtual IP's + in-house personnel to make all configuration changes over a 4 week time period with downtime limited only to each individual POC device as it was adjusted.
    - I also came up with a way to remotely adjust ~50% of the POC base stations (those that supported remote adjustment) saving quite a bit of time and mileage.
    - This effort made a huge impact on patient care, as well as the financial liability of the IP remuneration project.
- Troubleshooting print queue issues in a clinical environment with multiple disparate systems sharing physical printers often resulted in a chaotic enterprise process. To help alleviate some of the difficulty, I wrote a custom database driven (SQL Server) multi-user application that keeps track of printer definitions / changes throughout the WFHC enterprise environment, including Windows Server print queues, MLab queues, Sunquest lab queues, Allscripts Sunrise, McKesson Plus, Unix.
  - This project required locating and aggregating data from multiple disparate sources, understanding data similarities and differences, creating a database schema sufficient to capture, store and remove data efficiently, write an application for end-users that interacted with the database, and write an application that periodically scanned/aggregated for changes in the enterprise environment, updating the database as necessary.

- Queue / ip / DNS / etc changes are tracked and available for a quick search via a Windows client written in AutoIT that interacts directly with the SQL Server back-end (which I define and update automatically via a server-side scanning/parsing/update routine).
  - This tool is currently being used by multiple teams, and helps alleviate some contention when making changes on end-point hardware that may support multiple systems.
  - The AutoIT client program also allows for Excel exports of data that can be used in other automated processes / inventory efforts / statistics / etc.
- Built/maintain a FreeBSD server \w ZFS implementation (15 discs to SAS HBA). Server hosts a mix of FreeBSD / Windows virtual hosts, as well as a MySQL instance, iSCSI targets to ZFS, PF firewall, Samba server, etc. Uptime near 2 years.
- While acting as team lead during a McKesson Lab upgrade project, I worked with the vendor, system engineers, application analysts and application owners to develop a cost-effective high availability / disaster recovery compliant system (new server back-ends for entire app). The structure / testing was outside the scope of what the vendor could offer regarding HA/DR solutions. Features included a mostly virtual server architecture, VMware (VMotion + VPLEX) technology to move running servers (Windows Server & Linux Redhat) transparently between data centers, Triple redundant database server architecture, all thoroughly tested and documented such that the business can attain our goal of 99.9% uptime for the McKesson Lab application.
- While acting as team lead during a McKesson Lab upgrade project, I wrote a number of scripts/programs that automated the Citrix login process.
  - I utilized company-acceptable development tools/languages, and removed a SQL Server instance that had been used to perform this task previously (saving a fair amount of license \$\$, migrating functions to the existing Oracle servers).
  - I added a number of enhancements such that logging and administration of user sessions was much easier, including adding a user-friendly web interface (HTML/CSS/Javascript/Classic ASP/Bootstrap/JQuery) such that administrators could perform labor intensive tasks across all environments simultaneously with a few clicks.
  - This new login process included writing a TCP server in Python that runs on a Linux application server, which facilitates 'renewing stale nodes', a task that previously was performed manually, requiring incidents and a help desk call. The new process has prevented hundreds of tickets (as documented in the database) in its first 12 months of production use.
  - I resolved a post-implementation issue by reverse engineering TCP communication between application components, writing a windows service (Python), and created a Powershell script, that acted in-concert to prevent the issue (application user credential swapping mid-session! – The vendor could not resolve).
- I've been tasked by my director to help other teams solve technical issues. When Wheaton Franciscan Healthcare separated from its Iowa component, many integrated software systems needed to be split and/or migrated to new systems. To facilitate some of the one-time functions required (where the vendors would not or could not help):
  - I coded an AutoIT script that re-sent several thousand patient records out of the WFHC Dictaphone system out to the new system.
  - I also wrote a javascript routine that was successfully injected/run against the WFHC PowerScribe 360 environment, allowing me to send thousands of patient records across an outgoing interface automatically (to the new EMR).
- While working @ Specialty Screening LLC, I reverse engineered a database schema in-use with a laboratory instrument (Thermo Scientific MGC240), and modified the schema such that it would support an AutoIT GUI that I wrote in order to facilitate administration of patient results between instrument runs and final reporting. In addition, I wrote Crystal report templates that were used with all out-going patient reports, as well as statistical monitoring of various clinical lab parameters (QC trend + standard deviation graphs/reports, proficiency testing reports, calibrator reports, etc).

## References

**References:** Kristin Barber MT(ASCP)  
Senior Application Product Analyst, Lab Analytics Team  
Aurora Health Care - ACL central lab, West Allis Medical Center  
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