Timothy Freund

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Create Code, Build Systems, Document and Teach

Tim is a software developer who enjoys the process of creating great code, especially when he gets to use great tools. Turning that great code into a great system that can be easily deployed, maintained, and monitored is a part of the process, and no system is complete without a little bit of documentation and training. All aspects of the software development life cycle, including system administration and training, appeal to Tim, but it is the code that he enjoys the most.

Technical Skills

- Languages: Java (8 years), Python (7 years), Ruby (2.5 years), PHP (2 years), C (2 years), CSS (5 years)
- Fundamentals: Application development(7 years), Database design (7 years), System administration (Linux, 5 years)
- Java Frameworks: Hibernate, Spring, Tapestry, Struts, Stripes, JMX
- Java Servers: Tomcat, Orion, OC4J, JBoss, WebLogic
- Other Frameworks and Tools: TurboGears, Ruby on Rails, Twisted, Zope, Selenium
- Database Systems: PostgreSQL, Oracle
- Work Niches: Web applications, Web Single Sign-On, Network management, Business applications, Payment processing

Work Experience

Software Developer
5/2007 - Present NIC Inc, Olathe, KS

Tim joined NIC after several conversations with a former Honeywell associate who had moved to NIC two years prior. He participates in software design, development, and support.

Payment Engine

Time: 05-2007 through Present
Role: Team member
Skills: Java, Shell scripting, Unix administration
Tools: Java, JDBC, Oracle Procedures, JMX, Ant, Bash, Solaris

Tim's primary reason for hiring on with NIC was to aid in the development, deployment, and support of NIC's Payment Engine. The first months were devoted to a maintenance release in the 1.x line of code, and subsequent time has been split between maintenance of the 1.x code and development of the new 2.0 code. Tim's experience with application deployment on the Solaris platform has greatly streamlined the deployment process for the product, and he continues to look for ways to ease maintenance and monitoring.

Senior Programmer Analyst
2/2000 - 5/2007 Honeywell FM&T, Kansas City, MO

Tim started as a summer intern in February of 2000, worked year round, and accepted a full time position in the Spring of 2002. Tim participated in the following activities and applications:

Penetration Testing Team

Time: 09-2004 through 05-2007
Role: Team member
Skills: Rapid prototyping, network and systems surveillance and administration
Tools: Python, Ruby, C, Java, Metasploit, Linux, OS X

Honeywell FM&T regards data security to be a absolute requirement, and a penetration testing team was formed to support this requirement. Tim was asked to join the team in 2004 and has since helped to perform penetration tests on-site and at other facilities. Tim has crafted several tools for the exclusive use of the team, and he has improved several existing tools to fit specific situations of individual assessments.

Product Test Data Daemon
Time: 12-2006 through 05-2007
Role: Developer (Solo Project)
Skills: Rapid development
Tools: Java, Spring, JDBC, Oracle Procedures and Functions, Maven

The manufacturing floor has strict requirements to test products and store the results of those tests. A daemon written in Pro C handled two line oriented protocols for accepting test data over the network from test systems ranging in age from newly deployed to over 20 years old. Tim was tasked with rewriting the daemon in Java and providing easy mechanisms for extending the current protocols and debugging transactions in real time. This project was left partially complete at the end of Tim's employment at FM&T.

Database Management Application
Time: 03-2007 through 04-2007
Role: Developer
Skills: Rapid development
Tools: Python, TurboGears, Oracle

An overabundance of development databases overloaded the development database cluster. With the help of a database administrator and systems administrator, a software system was created that allowed authenticated users to request startup and shutdown of development databases without manual administrator intervention. Tim wrote the web application that allows users to submit activation requests and view the status of databases. The web application was written in Python with the TurboGears framework, and it works in conjunction with two DBA supplied database triggers and one systems administrator supplied cron job. The development servers previously ran all 160+ development databases at all times, but now the servers run, on average, 50 databases at a given moment.

Change Management Application
Time: 02-2006 through 01-2007
Role: Developer (Solo project)
Skills: Application design, application development
Tools: Java, Spring Framework, Hibernate, Tapestry, Servlets, PostgreSQL, Maven

A change management application was written to transition the facility from a Word document based change management system to a database backed, workflow enabled change management system. The application resembles in many ways the Information Technology Infrastructure Library (ITIL) Change Management process. Action notifications are delivered via RSS feeds and instant messaging software. A standalone instant messaging library was spun off from this project. The library allows for two way communication between an application and users via one of several instant messaging networks, and it is available for download under an MIT style license.

Firewall Access Request Application
Time: 05-2006
Role: Developer (Solo project)
Skills: Application design, rapid application development
Tools: Java, Spring Framework, Hibernate, Tapestry, Servlets, PostgreSQL, Maven

The Firewall Access Request application allows users outside of the perimeter firewall to request access to certain internal systems. All unauthorized access to the perimeter firewall is redirected to the FAR application, and the application provides a historical record of access requests and approvals for use by the internal security team. The application was developed and deployed in three days to support the deployment of a new externally facing application.

Weblogic Authentication Provider
Time: 03-2006
Role: Developer (Solo Project)
Skills: COTS integration
Tools: Java, WebLogic, Single Sign On, Maven

An application was purchased to support physical maintenance and inventory activities within the facility. The application is deployed on the WebLogic application server, and integration with the existing enterprise authentication system was required. The application supports authentication via WebLogic security providers, so a provider was written to directly interface with the enterprise authentication system.

Secure Transportation Application
Time: 11-2005 through 04-2006
Role: Developer
Skills: Web application upgrades, Data migration
Tools: Java, Spring, Hibernate, Tapestry, Python, Maven

An organization in Albuquerque, NM manages applications to support secure transportation of goods and materials. Tim worked remotely with developers in the New Mexico office to upgrade and improve an existing web application to support the secure transportation mission. Database schema changes were required, and Tim wrote a python script
to manage the upgrade process.

Software Portfolio
Time: 09-2005 through 10-2005
Role: Developer (Solo project)
Skills: Application development
Tools: Ruby on Rails, PostgreSQL

The Software Portfolio application was a CRUD application designed to track what software existed within the facility, including information regarding customers and support procedures. The was migrated from an Oracle Forms and Reports application into a PostgreSQL database, and the application was written entirely with the Ruby on Rails web framework.

Next Generation Network Management
Time: 08-2004 through 11-2005
Role: Developer, Technical Lead
Skills: Application design, Application development, Development coordination
Tools: Java, Spring, Hibernate, AJAX, Axis, Cruise Control, Ruby on Rails, Python, Maven

The project attempted to unify the operation, management, and inventory aspects of maintaining multiple networks across all of the Honeywell FM&T facilities. Tim lead a team of up to 5 programmers in implementing the requirements gathered by the project leader and key customers. The collection of systems was not successful due to tremendous scope creep and restricted implementation time, and this has served as one of Tim's most eye opening projects.

Oracle Portal Provisioning
Time: 11-2003 through 02-2004
Role: Developer
Skills: COTS integration, Application design, application development
Tools: Java, JSP, AndroMDA, Struts, Hibernate, JDBC, Oracle

An application was required to enable easy provisioning of remote users to groups within an Oracle Portal installation. Tim produced a web application to accept requests from new users and approvals from administrators. The application was designed and developed using a "model driven" approach. Much of the application code was generated directly from a UML diagram of the project. Integration with the Oracle Portal installation was achieved through the use of a DBA supplied Oracle database function.

Enhanced Security Model
Time: 07-2003 through 07-2004
Role: Developer
Skills: Analysis, Development
Tools: Java, JSP, LDAP, JNDI, Struts, COTS integration

The Enhanced Security Model (ESM) project was started to allow streamlined access to all plant computer resources from employees within the facility and associates who belonged to other trusted organizations, such as the national laboratories. Systems for managing PKI infrastructure, application provisioning, and workflow design were needed. Tim was on the team that evaluated the application during an RFP process, and later he helped to implement the applications that were selected.

Telephone Inventory
Time: 07-2003 through 11-2003
Role: Developer (Solo project)
Skills: COTS integration, Application design, application development
Tools: Python, Zope, Palm Pilot, C

A complete inventory of telephone equipment was required in 2003 to support the replacement of the on-site telephone switch. Two software products were produced by Tim to support this effort. The first product, written in Python and using Zope, was an inventory and management web application. It was built to store telephone inventory data and service request history. The second product, a C application deployed to barcode reader equipped Palm Pilots, was a wizard driven application to facilitate rapid collection of telephone inventory information. Data collected on the Palm Pilots was uploaded to the Zope application with the help of a small Python script.

ELMS Utilities
Time: 05-2003 through 07-2003
Role: Developer
Skills: Utility development, Application integration
Tools: Java, JNDI, EJB, JDBC, Servlet Filters, Ant

A new electronic learning management system (ELMS) was purchased to handle training and certification for employees. The application was integrated with the enterprise single sign on system by extending vendor supplied classes and providing a custom servlet filter. A suite of utilities was written to sync the ELMS database with available enterprise systems. The utilities gathered information from an LDAP directory using the Java JNDI system and synchronized that information with the ELMS system by using provided enterprise Java beans (EJBs).

Network Management Software
Time: 05-2002 through 05-2003
Role: Developer (Solo Project)
Skills: COTS integration, Application design, application development, scripting
Tools: Java, JSP, Servlets, JavaScript, JDBC, Python, CGI, Oracle

Network security requirements at the facility precluded the deployment of a comprehensive COTS package for network management. Tim wrote an administrative front end web application for an existing in house database that contained network configuration and inventory information. Tim additionally wrote two scripts to generate secure switch configurations that support MAC based port locking. DNS and DHCP management is handled by the Lucent VitalQIP product. The network management application integrates with VitalQIP through a combination of direct JDBC access for reads and CLI commands invoked through a Python CGI script for writes.

Information Service
Time: 05-2002
Role: Developer (Solo Project)
Skills: Web Service Development
Tools: Java, Apache Axis, Servlets, JNDI

A web service was requested to make employee information widely available to any application. The web service is implemented using Apache Axis, and the employee information is gathered from the internal LDAP directory via JNDI.

Specialized Steel Management
Time: 02-2002 through 05-2002
Role: Developer (Solo Project)
Skills: Web Service Development, Application integration
Tools: Java, JSP, Apache Axis, Servlets, JNDI, PHP, Python, Ruby, ASP, Weblogic

An existing application was unable to pass quality assurance testing because it could not survive a load test. Tim was asked to analyze the problem or problems and fix them appropriately. The application was poorly organized, and error handling code was improperly implemented and duplicated. After refactoring common elements into an application library and fixing the remaining errors in the library, the application was able to withstand heavy load testing.

Web Single Sign On
Time: 09-2001 through 03-2002
Role: Developer (Solo Project)
Skills: Web Service Development, Application integration
Tools: Java, JSP, Apache Axis, Servlets, JNDI, PHP, Python, Ruby, ASP, Weblogic

Web single sign on was requested for internal applications, including in-house and COTS systems. A single sign on library, KCPSSO, was developed to support this goal. The system uses a cookie for domain level authentication. Provisions were built to support cross domain authentication to support SSO with partner sites. Authentication providers include Oracle Portal, LDAP/JNDI, and HP SelectAccess. Communication between a protected application and the central authentication server is conducted via SOAP messages. SSO clients are supported in the following languages: Java, PHP, Python, Ruby and ASP. COTS applications can be integrated with the SSO system through a Java Servlet filter or a custom Weblogic authentication provider.

Programmer and Administrator
9/2003 - Present Digital Achievement Incorporated, Olathe, KS

Digital Achievement Incorporated is a company that was started in 2003. Tim started the company and runs it with one other programmer/partner. The company works nights and weekends writing software using TurboGears and Ruby on Rails to target small problems and niche markets. End dates are not listed for projects if they are being maintained. Tim's duties include:

- Run the business side of the business: accounting, sales, marketing
- Run the servers and manage hosting agreements
- Handle most client communication
- HTML, CSS, and graphic design
- Code, code, code

FPyS
Role: Developer
Skills: Library design and test driven development
Tools: Python, Amazon Flexible Payment Service

FPyS was started in 11/2007 as a library to provide access to the Amazon Flexible Payment Service for Python programmers. It is released under the MIT license, and a 1.0 release is tentatively scheduled for early May. Project details are located at http://fpys.achievewith.us.

WeekDUE
Role: Developer
Skills: Application design, application development, unit testing
Tools: Python, TurboGears, AJAX with jQuery, PostgreSQL

WeekDUE.com is a task management application that is still in the early stages of development. It is true, anyone can write a TODO list application, so why one more? This application provided a testing ground to explore some of the new tools that are bundled with the latest version of TurboGears, while at the same time provided a way to organize tasks one week at a time. Planning out a week and setting a percent complete goal with a penalty imposed for failure was suggested in a sales and marketing podcast, and the idea seemed attractive enough to implement in code.

GOODCalc
Role: Developer
Skills: Application design, application development
Tools: Python, TurboGears, AJAX, PostgreSQL

GOODCalc.com is a free service that was written as an experiment with the TurboGears Python framework for web development. The application allows users to enter in basic financial information about their debts and produce amortization charts. The intent is to help people visualize how they can pay off their debts with their existing budget as quickly as possible. Future plans for the site include additional financial calculators, automatic payment reminders, and educational articles.

Jython Buildbot (Currently Off Line)
Role: Administrator
Skills: Test automation
Tools: Python, Java, Buildbot

Jython is an implementation of the Python language that runs on the Java virtual machine. Buildbot allows test suites to run automatically across multiple platforms on a regular basis. Tim set up and administered a Buildbot installation for the Jython project for some time. The instance is currently offline awaiting configuration on new server hardware.

Pocoo Buildbot (Currently Off Line)
Role: Administrator, Developer
Skills: Test automation, development
Tools: Python, Buildbot, Selenium

The open source Pocoo forum software written in Python showed great promise as a clean and extensible forum package, but installation was rough when Tim found the project due to a lack of integration tests for the supported databases. Tim created a test harness to build instances of the software against three major databases each night and run a suite of web based unit tests created with Selenium. The Buildbot is currently offline awaiting configuration on new server hardware.

Proofread Typo Theme Catalog
Role: Developer
Skills: Application design, application development, automated testing
Tools: Ruby, Ruby on Rails, Python, Twill

Proofread (http://proofread.digital-achievement.com) is a catalog of themes for Typo, a blog package written for Ruby on Rails. Proofread was created because a large number of themes created for a theme contest were going stale or becoming unavailable as Typo matured. Proofread stores all of the themes, and it keeps a copy of each theme specific to each released version of Typo. All themes and revisions are tested on a nightly basis using the Twill testing tool.

Professional Activities

Toastmasters International

3/2006 - 05/2007 MarathonMasters, Kansas City, MO

Tim sought membership in a local Toastmasters organization in early 2006 to improve his verbal and written communication skills. The practice afforded by the organization has improved Tim's ability to communicate effectively in a variety of situations. Tim received the Competent Communicator award in March of 2007, and he served as his club's Vice President Public Relations. Once he finds a new club with a more agreeable schedule and location, he will continue working through the technical presentation and public relations manuals.

Education

Computer Science and Mathematics Studies

8/1998 - 12/2003 Rockhurst University, Kansas City, MO

- Some College Coursework Completed
- Excelled in Computer Science and Mathematics
- Became fascinated with Sociology
- Taught a Systems Administration class for the School of Professional Studies