

Aziz Bodal

Senior Software Engineer - Team Lead

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- More than 11 years experience delivering highly scalable, performant, multi-tiered applications.
- Over 4 years production experience with AWS Cloud development and architecture.
- Experienced in effectively leading an Agile-Scrum team.
- Hands on experience in the application of information retrieval strategies.
- Strong leadership, analytical and problem solving skills. Worked with various internal and external multidisciplinary teams.

EXPERIENCE

Intelligent Medical Objects, Inc.

February 2014 - Present

Product Owner (Scrum) / Team Lead

- Responsible for leading an Agile Scrum team of engineers that builds and maintains IMO's external facing APIs. These include terminology search engines, logging and update service APIs.
- Interface with internal and external stakeholders to capture requirements.
- Lead design and architecture discussions with the team to refine stakeholder requirements to user stories.
- Ensure that the department standards for software quality and testing are met.
- Architected and developed cloud-hosted logging infrastructure that is now the standard for all IMO applications.
- Architected and developed a standard protocol for updating IMO applications.
- Migrated legacy multi-tiered search engine to the AWS cloud.

Intelligent Medical Objects, Inc.

January 2008 - January 2014

Senior Software Engineer

- Responsible for building and maintaining a number of highly scalable, 24X7 medical informatics search services.
- Provided technical leadership to the terminology and delivery teams.
- Designed and developed a search engine for the IMO terminology that serves over 120 million requests a month.
- Mentored junior engineers to adopt the IMO culture and standards for software development.

Intelligent Medical Objects, Inc.

August 2005 - December 2007

Software Engineer

- Responsible for delivering high quality software that adheres to the IMO standards.
- Developed software systems to parse, package and deliver IMO Vocabularies.
- Developed an HL7 EDI interface for the home-grown EMR.
- Interfaced with customers to prepare requirement and function specifications. Provided technical support to clients and internal teams.

Batuta Inc.

January 2004 - July 2005 (1 year 7 months)

Software Engineer/IT Coordinator

- Developed software for migrating databases from different medical software systems.
- Performed medical software configuration and EDI setups for customers.
- Setup the technical infrastructure of the medical billing department.
- Developed SOPs for various medical billing activities to streamline and standardize the activities.

EDUCATION

Illinois Institute of Technology

2006 - 2010

M.S., Computer Science

Illinois Institute of Technology

2001 - 2005

B.S., Computer Engineering

Illinois Institute of Technology

2001 - 2005

B.S., Electrical Engineering

CERTIFICATIONS

AWS Certified Solutions Architect - Associate

February 2017

Amazon Web Services

Scrum Master

August 2014

Scrum Alliance

SKILLS & EXPERTISE

Languages: Delphi/Pascal, C#, C++, ASP/ASP.NET (2.0, 3.0, 4.5), MVC4, Java, GWT, GXT, HTML, HTML5, PL/SQL, JavaScript, jQuery, KnockoutJS, BootStrap, AngularJS, HL7, CDA/CCD/HISTP32, FormRunner Script, RTF, XML, JSON, MSI

Operating Systems: Windows 7/Vista/XP/2000, DOS and LINUX, Android

Databases: Oracle (9i, 10g, 11g), Redshift, Aurora, DynamoDB, Microsoft SQL Server (2005, 2008), DB2, MS Access, Advantage, Pervasive

Applications and Environments: IIS, Amazon AWS (EC2, S3, Redshift, Kinesis, Lambda, EBS), ElasticSearch, Solr, Apache Tomcat, MS Visual Studio, Delphi RAD Studio, Eclipse, InstallShield, FlexNet Connect, Serena Mashups/TeamTrack, MediSoft, Adaptive Data Manager (ADM), WireShark, SmartFTP, MS Visio

PROJECTS

Migrating legacy multi-tiered applications to the AWS Cloud (AWS EC2, ELB, Lambda, CloudWatch, SNS, ASG)

August 2016

Led a team to refactor and migrate legacy multi-tier applications to dynamically scalable applications on the AWS Cloud. The applications were re-architected to be hosted on a fleet of EC2 instances behind an Elastic Load Balancer (ELB) across multiple AZs that scale with demand. CloudWatch custom metrics in conjunction with SNS were used to send out alerts of anomalies. The software was updated and maintained using Octopus Deploy.

IMO Logging Architecture (.NET, AWS - EC2, Redshift, S3, EBS, Lambda, Data Pipelines, Gateway API)

January 2015

Led a team to develop a common logging architecture for all IMO products and service. This logging architecture has been developed to be highly available and scalable using Amazon's AWS cloud services including EC2, Redshift, S3, EBS, Lambda functions, Gateway API and Data Pipelines. To ease the adoption of the new services, we developed various wrappers for Log4Net, NLog, and a configurable Windows Service that pushes the application logs to the centralized servers on a periodic basis. Logs for all IMO products are now centralized and available real-time.

IMO Terminology Portal (Delphi, ASP.NET)

August 2008

Lead engineer for the IMO Terminology Portal, a scalable TCP/IP based service developed to allow IMO vocabularies to be optimally searched with sub-second response time and servers over 3 million requests a day (live traffic). It has become the primary mechanisms for delivering IMO vocabularies to 1000+ clients including EPIC, Meditech, NextGen, Cerner and Allscripts. Some of the features implemented include:

- DYM - Enhanced the portal search engine to incorporate a 'did you mean' feature that provides suggestions for mistyped queries. Researched and implemented an n-gram based algorithm in conjunction with the cosine similarity measures to optimize the relevance and performance.
- Speed optimization – Optimized the performance of queries by applying algorithms, increasing the speed by a factor of 10.
- Query parser – Built a query parser to allow the portal to process boolean queries. The query language supported various data types and function calls like nvl, toString, toDate.
- Authentication - A robust multi-tier authentication was developed that allowed authentication at IP, organization and user level.
- Data compression – Implemented compression algorithms, reducing the data footprint by 50% to 80%.
- Paging – Paging support was developed to allow users to request for a particular page in the complete search payload.
- DAL - Created an ASP.NET data access layer (DAL) to allow for the easy consumption of the Portal XML payload.

IMO Terminology Appliance (Delphi, MSI, InstallShield, FlexNet Connect)

January 2013

Architected and developed a self-updating IMO Terminology Appliance that utilizes the IMO Terminology Portal technology to host various data streams. This was a means to streamline our terminology release and delivery process to our clients so as to simplify the maintenance, and update of software and data. FlexNet Connect was used to publish updates to each client.

IMO MatchMaker Service (Delphi, Oracle)

August 2010

Architected and developed a data normalization service that is used by terminology workers in mapping data imports to the various IMO vocabularies. The service leverages IR strategies, word-groupings and stopwords to optimize the precision and recall of candidate matches. The MatchMaker was implemented as a multi-threaded Windows service to maximize resource utilization, speed and concurrency. This application has enabled the terminology team to provide clients with a scalable and predictable mechanism for normalization. It has also produced more accurate mappings and reduced costs.

IMO Software Update Architecture (.NET, MVC4, JQuery, KnockoutJS, BootStrap, FlexNET Connect, MSI)

January 2013

Led a team to develop an architecture to manage and update IMO software on customer servers. The architecture supported the ability to publish updates of IMO software, which was then automatically or manually applied to customer servers. The client UI was designed using ASP.NET MVC 4 while the Update Service was a WCF end-point running as a Windows Service. The client UI supported real-time feedback of the update progress and status.

IMO Research and Development Center at UIUC

April 2012

Managed the launch of the IMO Research and Development Center at University of Illinois at Urbana-Champaign. Worked closely in various capacities including the recruiting efforts, project management, planning and training of interns on IMO technology.

Cellular Network Administration Tool (Java, GXT, GWT, DB2, Google Maps API)

January 2012

Developed a web application that enables the administration, management and deployment of cellsites in cellular network. The tool allows engineers to review the current cellular infrastructure on a Google Map and accordingly plan, deploy and migrate cellsites. The tool was developed in Java using the Google Web Toolkit framework using the MVC design pattern

GPS Survey Tool (Java, Android)

August 2010

Developed an Android-based phone application that can be used to capture and annotate survey information. This application was developed for a pipeline inspection company to enable it's surveyors to capture GPS location, orientation information, images and take notes on their phones while in the field.

IMO Code Scout (ASP.NET, jQuery, Oracle)

March 2011

Developed a subscription-based web application to make IMO vocabularies accessible on a per-user basis. The site was implemented using ASP.NET master pages to give it a consistent look and feel. It allows users to securely authenticate and perform in-site credit card transactions that are validated against an SSL-secured merchant gateway.

IMO Term Request web portal development (Serena TeamTrack, IIS)

January 2007

To enhance the company's efficiency in managing client vocabulary term submissions, a web based customer portal was developed. The portal was built using Serena TeamTrack (third party tool), hosted on a Windows web server (IIS 6.0) and an Oracle (10gR2) back-end. The customer portal supports submission tracking, email notifications and user role assignments.

iEMR Labcorp HL7 EDI interface (Oracle PLSQL, Delphi, HL7, XML)

August 2005

Implemented an EDI inbound and outbound interface between iEMR and Labcorp. An HL7 rule engine was developed to interface between the two systems using third party HL7 tools (NeoTools) and Windows Message Queuing Service (MSMQ). Improved the management and handling of errors by creating a set of standardized error codes and having the service send email notification.

iEMR CDA/CCD/HITSP32 Generator (ASP.NET)

September 2010

Prototyped a web service used to generate CCD documents from iEMR, allowing for patient charts to be ported to other PHRs including Microsoft HealthVault and PassportMD. The CCD was implemented using the HITSP32 standard.

PATENTS AND PUBLICATIONS

System and method for implementing a 64 bit data searching and delivery portal

August 2015

9135318

Method for generating and using a portable patient file

March 2015

8984017

Method and System for Concept-Based Terminology Management

January 2015

20150154362

Longitudinal electronic record system and method with problem determination and plan ordering

December 2013

8612448

Longitudinal Electronic Record System and Method

November 2013

8589400

Method for Implementing a Controlled Medical Vocabulary

March 2013

20130080191

Longitudinal Electronic Record System and Method With Task-Based Workflow

February 2012

20120150878

System and Process for Concept Tagging and Content Retrieval

January 2011

9418150