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Technologist ■ Architect ■ Project Lead ■ Researcher

Career Profile

- Experienced IT professional - over fifteen years of experience in the full life cycle management of solution oriented software development and deployment on numerous successful engagements for a variety of clients - multi-disciplinary and across industry.
- Researcher- focused on bringing the software engineering practices, mathematical rigor and leveraging the social web in solving problems in the health care domain.
- Technologist with a business perspective - maintains a firm grasp on basic principles as well as emerging technologies and standards and how they can solve a business problem. Has a passion for business driven solutions.
- Relationship focused - builds relationship with key stakeholder and earns the trust of management/executives by explaining complex technical solutions in simple terms and by showing value of the proposed solution to overall business. Promotes junior staff within project teams to become future leaders.

Skills and Focus Areas

- Business Process Management & Optimization
- Collaborative Portals
- Service Oriented Architecture and REST
- Application Architecture and Infrastructure Deployment
- Network & Topological Modeling
- Epidemiological Analysis
- Data Mining, Machine Learning
- Scalable computations of large data sets
- Web2.0 & Cloud Computing
- Formal Methodologies
- Complex Event Processing

Technology Summary

- Products (used in the recent years) -ILOG JRules, WebSphere Lombardi Edition, WebSphere Business Events, Cognos BI, WebSphere Message Broker, WebSphere Process Server, WebSphere Application and Portal Server, Lotus Domino , Rational Software Architect, Eclipse, WebSphere Business Modeler, Build Forge, BEA Aqualogic, Amberpoint, ITCAM-SOA, RequisitePro. Requirements Composer, WebSphere Integration Developer
- Products (used in the past) - Lotus Workplace & Workplace Client Technology, Lotus Domino and Extended Products (Sametime, QuickPlace, Domino.Doc), Novell Edirectory, Tivoli Access Manager, Rational Application Developer, Rational Software Architect, IIS, Active Directory, Novell DirXML, IBM Edge Server, Netegrity Siteminder, DB2, Dia, Jboss, Apache/Tomcat, Cocoon, CA ACF2, Eclipse
- Development Methodology - SOMA, GS Method, ITUP, RUP and Agile methods (XP variant)
- Operating Systems - Linux, AIX, Windows, OS/400, z/OS, Mac OS X
- Language Familiarity- Java, Python, Lotuscript, Visual Basic, Javascript, HTML, XML/XSL, C#, UML, PHP, SQL, C, LISP, Ruby,
- Standards & Technologies - HTTP, UML2, J2EE, .NET, LDAP, SMTP, Web Services, WS-Security, SAML, Liberty Alliance, Kerberos, SPNEGO, WSRP,

Employment Summary

1999 - Current: Enterprise Solution Architect, Software Group, IBM

1997 - 1999: Senior Consultant, CGI Systems

1995 - 1997: Engineer, KnowledgeFlow, Inc.

1994 - 1995: Engineer, University of Missouri, Columbia MO.

Work Project Summary (2005 - Current)

BPM Solution Development for a large global retailer

Lead the overall effort to deliver a dynamic process solution to automate purchase order and purchase agreement process between the buyer and suppliers across the globe for the retailer. This solution included rules driven processes and orchestrated existing services to accomplish the automation. The overall solution leveraged WebSphere Lombardi Edition, WebSphere ILOG Jrules, WebSphere Message Broker and a custom JEE application using JSF/Spring on WebSphere Application Server.

Project Lead and Lead Architect for a large global retailer

Lead the overall effort to deliver SOA capability by building a custom SOA Framework for a large global retailer. The framework included all the necessary pieces and parts to service-enable an enterprise - starting with a reference architecture, guidelines around addressing information and security aspects, technology architecture using operational models, governance and standards to propose a CoC model and related process, service development methodology using SOMA and the associated SOMA-ME tooling, and finally addressing all aspects of service management. The primary mechanism used to build this framework was to leverage IBM intellectual capital and tailor and customize it for this enterprise. The project team I lead involved 6 senior architects with 5 junior level architects/SMEs, along with technologists who were leveraged as needed. The entire project was delivered on time and under budget, which lead to follow-on engagement around enabling and enriching this SOA Framework across the enterprise.

Lead REST Architect for an e-Commerce Provider

Lead the effort of specifying RESTful common infrastructural services with emphasis on distributed architecture and stringent non-functional requirements of low latency and high throughput. The services specified were security, messaging, logging and auditing. This was specified to a private

cloud environment with a deployment model of service appliances on cloudlets within Datacenters.

This work led to a follow-on engagement of designing and building the services for IBM.

Lead Technical Architect for an Insurance Company

Lead the effort of defining a service-oriented architecture for a business unit within a large Insurance company. This effort included the creation of a reference architecture and a logical model that was platform independent. In addition, I led the identification and specification of business services from business processes and requirements to be realizable in the target architecture.

Service and Visualization Architect for an Insurance company

Lead the effort to create a services model using IBM Insurance Application Architecture (IAA) and create a cost model in evaluating the ROI for the services project around revamping the underwriting and agency focused processes for the insurance company. The services were driven from a list of business objectives that mapped to a vision, as established by the executives.

SOA Lead Architect for an Insurance and Finance company

Lead the effort to create a SOA Services standard and Deployment model for a large multi-national insurance company. The work was both strategic in developing an overall roadmap for service development and deployment as well as tactical in leveraging available technologies (Build Forge, ClearCase) to automate deployment of services across three separate environments. In addition, assisted in establishing a governance model around service specification, reuse, tooling and overall service development process as part of the SOA CoE.

SOA Lead Architect for a sporting goods company

Lead the effort to create a SOA Strategy and Roadmap for a sporting goods company, collaborating with local team and IBM Architects. Created an SOA Adoption Model tailored to their business and elaborated on a 1 year plan for SOA Adoption within the enterprise.

SOA Infrastructure Architect for a major Insurance company

Lead a team of IBM consultants and Subject Matter Experts to produce a

functional Operational Model for the proposed SOA environment for an Insurance company in the Northwest. The architecture addressed high availability, performance and security along with management of the services in their SOA environment. The architecture included WebSphere based middleware runtime, several Mainframe connectivity options along with an elaborate ESB design. The project also produced a reusable asset - SOA Operational Model Template.

SOA Integration Architect for a major Insurance company

Assisted with documenting Operations Guide for the process SOA environment at a major Insurance company based on the West coast. The guide included areas on performance, security, operational processes and technology recommendations for services that are planned to be deployed.

Worked closely with the extended IBM team and the client architecture team to define touch points between other workstreams - ESB, SOA Reference Model and third party products like Webify and Layer-7

Lead the SOA Lab to showcase IBM SOA-Integration Framework and codify the SOA processes and methodology established in the previous phases of the project.

J2EE Lead Architect for a major Credit Union

Architected and lead the WebSphere Portal deployment and in establishing a common J2EE application infrastructure for the Credit Union to develop business applications. This involved working with key stakeholders and with the key Executives. The Portal includes key applications that was architected and designed by me, as well as other standard portlets.

This project started as a 4 week prototype and I championed it into a multi-year contract. Currently leading the upgrade of the Portal infrastructure from version 5.0.2 to 5.1

Technical Adviser to VP, ISD for a major Credit Union

Acted as a trusted technical adviser for the VP of IS, by providing neutral technology evaluations, explain technical concepts and solutions as well leading workshops with his direct reports.

Lead Portal Architect for a Fortune 100 Chemical Company

Lead the architecture, design and implementation of a Collaborative B2B

Portal solution for a major Chemical company. The Portal served as the primary communication and feedback mechanism for this company's premium partners. The solution I designed involved – developing custom portlets interfacing Sametime and QuickPlace servers, SSO with their Aventail based Reverse Proxy and integration with their Corporate LDAP Directory.

Previous Projects (1995 - 2005)

- Architected an end to end SSO solution for one of the large Credit Union's B2E portal. This provided a desktop-based integrated login to access all key resources the employee needed.
- Lead a B2B solution in creating and architecting a secure extranet and providing a secure collaborative portal experience for business users using an elaborate X.509 infrastructure.
- Supported the creation of a support and enablement documentation for a software toolkit that was to be shipped with a new client based offering from Lotus/IBM.
- Architected the SSO solution for a large telecommunication company for their B2E collaborative portal using Siteminder and Lotus technologies.
- Lead the architecture of Lotus Sametime deployment for a major pharmaceutical company that spanned across the globe and was secured using their corporate directory and security infrastructure.
- Lead a document and content management solution using Domino.Doc to create a custom web interface for managing and collaborating on HR documents
- Evaluated system scalability for ES7000 Unisys system running Domino 5 on Windows 2000 DCE
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- Developed a proof of concept portal application using QuickPlace and Domino.Doc for a major advertising company
- Prototyped a B2C site in ASP and IIS technologies to demonstrate online social collaboration
- Designed and implemented a large mail topology for a major packaging manufacturer

- Built and managed an internal infrastructure for a startup, hosting NT 4 Domain and workstations, Netscape News and Mail server, Vpage servers and network infrastructure.

Research Project Summary (2008 - current)

Hospital Discharges

Analysis of the hospital discharge data from over 8500 Texas hospitals/health care providers to characterize patient mobility patterns and infer key trends in health care specifically around Influenza-like Illnesses (ILI) and other communicable diseases. In addition to looking at historical aggregate data, I will be looking at real-time discharges and its effect on the models from key hospital chains in major cities from Texas.

Models for Cholera

Evaluation of traditional SIR models as well as network models to better model the disease and its application to specific sites as diverse as Bangladesh, Haiti, Iraq/Afganistan and Zimbabwe.

Scaling data analysis

Leveraging open source software (specifically the Hadoop family of projects) to mine and analyse large datasets available in public. This work will take into account both the statistical analysis of the data as well as rendering of the large datasets for scientists to use. The majority of the data sets will be mined from the various social websites as well as those data sets from government organizations released to the public.

Formal methods in Epidemiological Modeling

Exploring the use of formal techniques and tools from Software Engineering, such as Petri-nets, State machines, Alloy and SPIN to augment current practices in modeling diseases.

Education & Affiliations

University of Texas at Austin

- PhD candidate – Software Engineering (expected graduation Fall 2012). Co-supervised by Dr. Lauren Meyers (Integrative Biology) and Dr. Joydeep Ghosh (Electrical & Computer Engineering)
- Master of Science in Engineering - Software Engineering, 2008 (GPA: 4.0)

Indian Institute of Technology, Madras, India

- Bachelor of Technology, 1994

IEEE and ACM

- Member since 2002
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IBM Software Architecture Board

- Member of the Security work group

SOA Education Committee

- IBM Representation on the SOA Education Committee
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Publications

- *Currently working on two books with Prentice Hall as part of the Thomas Erl Series to be out Q1 2011.*

- **SOA with Java** (<http://www.soabooks.com/java/>)
- **SOA with REST** (<http://www.soabooks.com/rest/>)

- Domino based REST Services

<http://www.ibm.com/developerworks/lotus/library/domino-rest/>

- DXL Framework Part3 - <http://www-128.ibm.com/developerworks/lotus/library/web20-client/>

- DXL Framework Part2 - <http://www-128.ibm.com/developerworks/lotus/library/jrs168-application/index.html>

- DXL Framework Part1 - <http://www-128.ibm.com/developerworks/lotus/library/app-dxl/>

- CPS - <http://www-106.ibm.com/developerworks/lotus/library/article/domino-cps/>

- OSOSD6-1 <http://www-106.ibm.com/developerworks/lotus/library/article/opstdomino-pt1/>

- OSOSD6-2 <http://www-106.ibm.com/developerworks/lotus/library/article/opstdomino-pt2/>

- OSOS-D6-3 <http://www-106.ibm.com/developerworks/lotus/library/article/opstdomino-pt3/>

- Secure Mail <http://www-106.ibm.com/developerworks/lotus/library/article/securemessaging>

- Domino-Siteminder Roadmap http://www-106.ibm.com/developerworks/lotus/library/article/Siteminder_roadmap/

- ST-LDAP <http://www-106.ibm.com/developerworks/lotus/library/article/st-LDAP/>

- QP-WS <http://www-10.lotus.com/ldd/today.nsf/lookup/WebServicesQP>

- ST_Siteminder http://www-10.lotus.com/ldd/today.nsf/Lookup/SSO_siteminder

Personal

- Blog Gurukulam - <http://balasubramanians.com/blog>
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Conferences

- *IBM Academy of Technology Solution Design Tooling & Best Practices Conference, Hawthorne, NY (October 2010) – Models as Formalization of*

Software Requirements

- *The Open Group Symposium. Chicago, IL (May 2008)* - Semantics and Web Services
- *SOA Symposium, Amsterdam (Oct 2008)* – REST-inspired SOA Patterns
- *IBM Academy of Technology SOA Deployment Conference, Hawthorne, NY (March 2008)* - SOA deployment case study
- *WebSphere Portal Technical Conference, Orlando (October 2007)* - SOA Basics for a Portal Developer
- *WebSphere Portal Technical Conference, Baltimore (October 2006)* - Developing applications for SOA deployments
- *Collaboration Best Practices Conference in Hawthorne, NY (April 2006)* – Collaboration Topics in a SOA
- *Lotusphere in Orlando (January 2006)* – Integrating IBM Lotus Domino Applications with IBM WebSphere Portal: Options, Customizations, Customer Examples and Best Practices
- *WebSphere Portal Technical Conference, Las Vegas (October 2006)* – Portletizing Domino Application – The DXL Way!
- *WebSphere Portal Technical Conference Europe, Cannes France (May 2005)* - Patterns in implementing Collaborative Portals ; SSO Across Collaborative Portals
- *Lotusphere in Orlando (January 2005)* – Security-Rich Internet Mail with Notes and Domino 7 via S/MIME ; How To Achieve Security Enhancements with IBM Lotus Domino Web Access
- *IBM Software University in Las Vegas (January 2005)* – Patterns in implementing Collaborative Portals ; SSO Across Collaborative Portals
- *WPS Technical Symposium in Atlanta (November 2004)* – Patterns in implementing Collaborative Portals ; SSO Across Collaborative Portals
- *CM Technical Conference in Chicago (May 2004)* – Lessons learned in implementing SSO across Collaborative Portals
- *Lotusphere in Orlando (January 2004)* - Topics in SSO; World of Collaborative

Portals Powered by WebSphere Portal: NFCU

- *ISSL Technical Exchange in NY and Canada (Octob 2003)* - Lessons learned in SSO Across Collaborative Portals
- *WPS Technical Symposium in Boston(September 2003)* - Lessons learned in building a B2B Collaborative Portals; SSO Across Collaborative Portals
- *Lotusphere in Orlando (January 2003)* – Building B2B Collaborative Portals- The DuPont Story
- *WPS Technical Symposium in Raleigh (September 2002)* - Lessons learned in building a B2B Collaborative Portals
- *devLive Works in San Francisco (May 2002)* - Domino and Websphere synergy for an eBusiness Site

Accomplishments

- IBM Certified and TOGAF Certified IT Architect
- IBM Certified SOA Solutions Designer
- PCLP for Lotus Domino v5 and 6
- Technologist of the Year 2005 and 2004 for ISSL, Americas

Last Updated: January 2011