

# DARYL ROBBINS

Architecting the cloud

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## SUMMARY

Daryl Robbins is a proven Sr. Application/Infrastructure Architect and technical leader with over 17 years of industry experience, specializing in Cloud (particularly AWS), Security, Enterprise Architecture, Dev/Ops, Software Architecture and System Integration. He is experienced in all phases of software development and has managed manifold successful software development projects and production deployments – involving cross-functional teams of varying sizes. He is an AWS-certified Professional Solution Architect.

In his capacity as Architect, Daryl also has experience as Product/Project Manager for various large scale customer projects and product features. He has strong communication and inter-personal skills, which he leverages in collaborating with stakeholders (inside and outside the organization, at all levels) to achieve consensus on the optimal solution. He has extensive experience working with Customers and Suppliers at various levels.

Daryl is an adept problem solver, able to tackle problems of all kinds – be them technical or otherwise. He has extensive experience with Amazon Web Services (AWS), the Java platform, operations and integration middleware. He is also an expert at quickly ramping up on any new technology or paradigm. In his spare time, he enjoys researching new technologies and following up on the latest industry trends. He has always acted as a technical resource organization-wide, whatever the size, on questions ranging from high-level architecture to low-level implementation.

## SKILLS PROFILE

- **AWS:** Aurora, API Gateway, CloudFormation, CloudFront, CloudSearch, CodeCommit, CodeDeploy, CodePipeline, Data Pipeline, DynamoDB, EC2, Elastic Beanstalk, ElastiCache, EMR, Lambda, OpsWorks, RDS, Route53, S3, SES, SNS, SQS, SWF, VPC, etc..
- **Languages:** C/C++, Groovy, Java, JavaScript, Pascal, Python, Ruby, SQL, UML, XSLT, VB
- **Technologies:** AppDynamics, Ansible, Azure, Chef, DataDog, Docker, Hadoop, Java EE, Java Spring, NodeJS, OpenStack, RabbitMQ (AMQP), Rails, Salt, Splunk

- **General:** Business Analysis, Design Patterns, DevOps, Enterprise Architecture, OOA/D, Operations, Performance Testing, Product Management, Refactoring, Requirements Gathering, Security, Software Architecture, Software Engineering Process, Quality/Testing, Project Management

## EMPLOYMENT HISTORY

### **Sr. Cloud Architect, Entrust Datacard**

2015 – Present

*Kanata, ON*

- Introduced modern development, security and operational processes (including heavy automation and the usage of Public Cloud) into a traditional highly security-focused environment – emphasizing improved security, faster time to market, reduced cost, and improved quality/availability.
- Worked closely with the CIO and other executives on Enterprise Architecture.
- Architected the first Cloud-focused product developed by the company – leveraging the benefits of the cloud, while remaining as cloud agnostic as possible and optimizing for tenant isolation in a SaaS-based architecture.
  - o The application was built in Java using a micro service architecture, leveraging the Netflix Stack (Zuul, Hystrix, Ribbon, Feign) for application routing, service discovery and circuit breaking.
  - o The application was deployed as Docker containers that were managed by AWS EC2 Container Service (ECS).
  - o In terms of multi-tenancy, customer data was stored in a shared Amazon Aurora cluster with a separate logical schema and set of encryption keys per tenant.
  - o The application leveraged Splunk, AppDynamics, and DataDog to offer a comprehensive operational monitoring platform.
- Responsible for Cloud strategy across the organization.
  - o Collaborated/negotiated/mediated across Development, Operations, Information Security, and IT to develop an Enterprise-wide strategy.
  - o Defined policies and processes for managing AWS cloud resources at Enterprise scale across dozens of projects.
  - o Developed cost models for estimating costs of deploying various projects in a cloud-based model.
- Developed Cloud Security Strategy in close collaboration with Information Security that improved security posture over traditional on premise deployments.

- Took a pragmatic risk-driven approach to defining security controls and policies.
- Developed/Implemented federated authentication to the cloud that allowed employees to use their corporate credentials to access the various AWS accounts they required.
- Developed/implemented executable governance policy using AWS Config Rules across all cloud deployments to ensure compliance with Cloud security policy – through alerting and automated remediation.
- Developed a Cloud security auditing/logging process to feed critical security-relevant events into the SIEM to be reviewed/addressed by the SOC.
- Provided architectural guidance and reviewed architectures for various projects in all parts of the organization.
  - Developed and documented a reference architecture and standard architectural patterns.
- Responsible for purchasing decision on various key tools and acted as business owner for the ensuing negotiation of deals with the suppliers (representing several million in spend).
  - Responsible for the relationship with AWS, who has the potential to become a large supplier.
  - Lead tool selection and evaluation processes to gather input from various groups across the organization.
  - Worked with legal to negotiate agreements with various suppliers. Responsible for prioritizing legal risks that were identified and deciding on how to best address them.
  - Worked with supply chain to negotiate price and payments terms on purchases with suppliers.
- Evangelized the benefits of the cloud throughout the enterprise.
  - Provided training and instruction on various cloud technologies and architectural subjects.
- Evaluated and compared various Public Cloud providers including AWS, Azure, Google, RackSpace, and SoftLayer.
- Developed a reusable automation strategy that formed the basis for all of our cloud deployments.
  - Achieved new levels of automation where the setup of a new environment required the execution of only a single script.
  - By forcing all environment changes to be automated, we were able to minimize user error and perform peer security reviews on all scripts prior to execution against production.
- Continued to be involved in the implementation details on certain elements to maintain technical skills, while remaining focused on the big picture.

- Provided technical leadership and mentorship a high-performing team of DevOps professionals.

### **Sr. Software Architect, MyGroceryDeals**

2013 — 2015

*Ottawa, ON*

- Set the roadmap and lead the effort to re-architect our inherited legacy platform to use modern, robust, and scalable technology.
  - o The legacy platform consisted of custom and heavily customized COTS ColdFusion web applications, sharing a common SQL Server database, with an hourly XML data feed publishing the data to external systems via FTP.
  - o Prior to my starting, the majority of IT time was spent fighting fires and keeping the legacy platform running. The legacy architecture was inhibiting the company's ability to move forward with new functionality.
  - o My migration plan involved a gradual migration process whereby modules were extracted from the legacy platform one-by-one and rebuilt using the new technology stack. This required careful planning of the information flows between modules, to allow the legacy and new systems to co-exist during the transition phase.
  - o The new platform used Ruby/Rails for the frontend and Java for the backend. The database was switched to PostgreSQL. We also switched from Windows to Linux.
  - o The aforementioned data feed was re-architected to use RabbitMQ to provide reliable data transport.
  - o The only remaining legacy application is our backend administration application, which has been bumped from the priority list numerous times in favor of revenue-generating applications.
- Championed the use of automation, modern standards and tools in the development, testing, deployment, and operational processes.
  - o Introduced the use of version control, issue/change management, agile methodology, unit testing, coding standards, code reviews, continuous integration, continuous deployment and performance testing on the new platform; which were all previously unused or severely underutilized prior to my arrival.
  - o Introduced automated Chef scripts for provisioning and continuous application deployment on our co-located bare metal servers.
  - o Introduced New Relic as our APM solution and Splunk for operational monitoring and ad-hoc business reporting.
- Designed and developed a high-volume REST API for performing advanced searching, filtering, and sorting of our data.

- The API was developed in Java Spring and leveraged Elasticsearch, as its primary data store. There was also a batch process for loading in the regular data feed into Elasticsearch, which was built with Spring Batch.
- Load tested the API up to 10,000 requests/second with 5 ms mean response time, showing near-linear scalability, which had every indication of extending indefinitely from there.
- Proposed, architected, planned and lead the migration of our co-located bare metal servers to the AWS cloud – resulting in substantial cost savings (over 75%), productivity improvements, and improved scalability.
  - Developed the business case for migrating our infrastructure over to AWS and convinced management of the benefits of fully embracing AWS.
  - As part of the research phase, fully immersed myself in the workings of all key AWS services. My knowledge has only grown from there with my continued use of the platform.
  - My plan for the AWS migration focused on embracing the platform as opposed to merely migrating each bare metal server to a corresponding instance. We leveraged OpsWorks, Elastic Beanstalk, RDS, ElastiCache, and CloudFront. This allowed us to eliminate a large portion of our DevOps scripts in favour of fully managed AWS services, thus simplifying our operations significantly.
  - Given the size of the company, I personally completed much of the migration myself and thus am very well versed in the technical details in addition to the high level AWS architecture.
  - Following the migration, our operational costs for maintaining the newly migrated applications dropped to nearly zero with the infrastructure able to auto-scale and self-heal without manual intervention, as needed.
- Architected a high-volume, low-latency advertising platform for generating dynamic targeted ads based on our content.
  - The advertising engine was built using Java and deployed on ElasticBeanstalk.
  - DynamoDB was used for storing campaign configuration information.
  - ElastiCache was critical in allowing us to offer low latency response times.
  - Operational/performance testing guided the entire development process, resulting in 2 - 5 ms mean response times (dependent on the campaign) at ultra high loads.
  - Troubleshoot extremely complex and subtle performance issues, which only manifest themselves at high load, across multiple layers of our application and the AWS infrastructure, involving

- innovative techniques of fault isolation and a deep understandings of the inner workings of AWS ELB and VPC Networking.
- Responsible for IT tool selection, negotiation and managing supplier relationships.
  - The largest of these relationships included AWS, New Relic, and Splunk.
  - While participating in a variety of AWS closed betas, worked closely with AWS Product Management, providing input on functionality and pricing models for these forthcoming services.
- Participated in the SRED tax credit application process.

### **Software Architect, Mxi Technologies**

2010 — 2013

*Ottawa, ON*

- Acted as an architecture thought leader for the Maintenix product, providing guidance and mentorship to more junior architects and team members.
  - Worked closely with the architecture team to facilitate productive architectural discussions.
  - Presented architectural proposals to senior management, explaining the implications and justifying the need for investment, in business terms.
- Provided the vision and lead the implementation of a new System Integration Architecture for the Maintenix product, based on MuleSoft ESB.
  - The intent of the project was to replace a legacy custom-built framework with a specialized COTS solution in order to offer improved integration options and to leverage third-party support of the offering. Phase 1 was focused around a compatibility layer for exposing existing legacy integrations through the new architecture without requiring any changes to these integrations, while minimizing any impact the interface contract.
  - In collaboration with senior management from across the organization, set the vision for the Integration Architecture and lead a team encompassing architects, developers, and testers.
  - Quickly developed an understanding of the Mulesoft solution and acted as the expert on the technology throughout the project, answering questions ranging from high-level architectural to low-level technical implementation details.
  - Lead more junior architects and developers to design and implement phase 1 of the new integration architecture.

- Set the vision for phase 2 of the new Integration Architecture and provided leadership/guidance to more junior architects who were implementing this vision on Mule ESB.
  - o Phase 2 focused around the approach to be taken for future integrations, based on industry best practices and our previous experience with integrations in the aviation domain. This involved close interaction with many experts and careful balancing of tradeoffs.
  - o The Phase 2 architecture encompassed a core set of integration standards, along with a set of optional additional integration features (i.e. enhanced security, advanced orchestration, sequential processing).
- Accountable for product management and implementation of a new application-wide Search strategy based on Apache SOLR from conception till delivery.
  - o Conducted a usability audit of the product, which involved shadowing dozens of end-users on site performing their daily work. Based on the audit, he identified a gap in efficiently accessing information in the product and conceived of a strategy for filling the gap with a COTS solution.
  - o Initially developed a working prototype as part of a 24-hour hackathon to demonstrate the proposal to senior management.
  - o Collaborated with various groups across the organization to gather non-functional and functional requirements and to generate buy-in for the new search functionality.
  - o Work closely with Sales and Marketing from the beginning of the project to develop a strategy to market the new feature, which involved getting a demo in their hands as early as possible.
  - o Lead a team of roughly 6 (including developers, testers, and business analysts) to design and develop the feature using an Agile approach. The implementation was completed in 6 weeks.
  - o Quickly developed an expertise in Apache SOLR, which is a relatively complex technology. This understanding was critical in leading the design of the feature and providing technical guidance/support to the team.

**Software Architect, Mxi Technologies**

2008 — 2010

*Ottawa, ON*

- Accountable for delivery on a key account that involved the construction of 12 custom-built integrations; this included responsibility over product management, software development, quality, process, and certain aspects of project management.

- Provided technical leadership and direction to a cross-functional and geographically dispersed team of up to 12 members, including outsourced resources.
- Engaged closely with the client to develop their initial requirements and to manage change throughout the lifecycle.
- Facilitated requirement elicitation workshops with end-users and other client representatives.
- Successfully managed the transition from an outsourced development team to an in-house team midway through the project without impacting the delivery schedule; this change was driven by a shift in corporate priorities.
- Championed the application of various innovative practices, which resulted in improvements in quality and adaptability – including the adoption of a standard project-wide architecture and configuration-driven design.
- Designed, implemented, and refined various processes to fill project gaps where suitable organization processes did not exist – including the definition of a change control process purpose-built for the needs of the project.
- Developed a model and custom tool for automated testing, resulting in significant cost and time savings.
- Designed, implemented, and tested various software modules, as required to ensure delivery deadlines were met.
- Mentored team members and colleagues on various technical, process, and functional subjects.
- Guided teams through and participated in all phases of the software development lifecycle, applying processes of varying degrees of formality, dependent on the needs of the client.
- Developed and justified estimates for major functional areas (in the order of person years) driving fixed-price quotes.
- Collaborated with management and the client to prepare a project plan for a multi-year project.
- Collaborated with the executive team to develop a consistent high-level message to be communicated to the client.
- Acted as the primary resource person for industry best practices and for questions of a technical nature.
- Drove various common initiatives that were applied across project boundaries within the division.
- Interviewed candidates for openings on the team.

**Software Architect, Mxi Technologies**

2007 — 2008

*Ottawa, ON*

- Designed and implemented an architectural prototype of a vertical application slice as a proposal for the product's new architectural direction based on my earlier architectural analysis.
- Provided architectural guidance to the product team in dealing with many complex design issues.
- Represented the Product team in discussions with customers and potential customers about software architecture and system integration.

### **Sr. Software Developer, Mxi Technologies**

2004 — 2007

*Ottawa, ON*

- Acted as lead designer and developer on the first phase of a system integration project, solidifying a firm foundation for future releases.
- Pioneered the use of executable decision tables for representing complex conditional logic in custom integrations; applying this approach to a custom integration project resulted in a high-quality deliverable that required no code-changes for resolving the few defects found after deployment.
- Defined, designed, and implemented a framework and a series of related best practices for providing commonality between custom integration projects, thus reducing their development costs.
- Analyzed a medium-sized codebase (~600 kloc) for architectural issues and presented a list of recommendations for addressing those issues.
- Analyzed a critical go-live issue after-hours on an unfamiliar system and provided a patch within hours, thus ensuring that a major customer milestone was met.
- Prepared and delivered a one-day business development presentation to a technical audience representing a customer on the subject of Integration Technologies to the participants' satisfaction.
- Migrated a medium-sized Java EE application from WebLogic to JBoss.

### **Software Developer, Mxi Technologies**

2001 — 2004

*Ottawa, ON*

- Investigated various new technologies including development tools, and architectural frameworks.
- Designed and implemented various modules in the product's presentation, business logic, and technical services layers.

### **Student QA Specialist, Alcatel**

2001 — 2001

*Ottawa, ON*

- Designed and implemented a tool for gathering and reporting on test script development metrics; the manager was impressed with how well thought out and how thoroughly documented the design was.
- Maintained and executed automated test scripts written in TCL for testing ATM switching hardware.

**Student QA Specialist, Nortel Networks**

2000 — 2001

*Ottawa, ON*

- Proposed and developed a tool in Visual Basic for automating test environment setup, which eliminated this time consuming process from every test suite execution.
- Represented QA in code reviews of development patches in order to ensure compliance with change control policies.
- Performed manual test execution on a widely-deployed client-server application.

**Student Software Developer, Stentor (Bell)**

1998 — 1999

*Ottawa, ON*

- Developed several Visual Basic applications with Microsoft Access, SQL, and Microsoft Excel, which were successfully used in competitive analysis, priority setting, and modeling of regulatory decisions.

**CERTIFICATIONS**

- AWS Certified Solutions Architect – Professional
- AWS Certified Developer - Associate
- AWS Certified SysOps Administrator - Associate

**REFERENCES**

Available upon request.