Masashi Kobayashi

CONTACTS

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INTERESTS

Architectural design of large scale distributed systems and their API architecture

TECHNICAL SKILLS

- Language - Java, JavaScript, Objective-C, Bash
- Editor - Vim/IntelliJ/Xcode/VSCode
- Framework - Spring-Boot/Dropwizard for Java, Angular/React for JavaScript
- Testing - JUnit4, Mockito
- SCM - Git/GitHub/Bitbucket
- Build - maven/npm/make, Jenkins, Nexus, Docker, GitHub Actions, Azure DevOps(VSTS)
- AuthN&AuthZ - SAML2.0, OAuth 2.0, OIDC, PingFed, Okta
- OS - RHEL/CentOS, macOS, Windows 10
- Database - MySQL, Oracle
- Cloud - AWS/Azure/Cloud Foundry/OpenShift
- Architecture - REST, Microservices, Stateless, Reactive

PROFESSIONAL EXPERIENCES

TD Bank Group, Toronto, Ontario. Canada.
Full-time - Enterprise Architect   March 2017 – April 2021

- Introduction: TD Bank Group is one of major Canadian banking coroprations and my role belongs to its architecture division of technology department.

- Responsibility: Design policy definition of segment and solution architecture blueprints. My work focused on enterprise API architecture development for Open Banking (FAPI) initiative and governance for internal and external API consumers.

- Challenge and leadership:

  1. Hackathon - TD run three major hackathon events in 2018: one was for TD employees at corporate hackathon event, another one was for students at the Hack The North event in Waterloo, and the last one was for experienced professionals at the Elevate Hackathon. Our team developed an Open banking platform and its SDK for hackathon attendees, and my contribution was both for the platform development and troubleshooting of production issues after deployment. There was one major production issue at the Hack The North event, and my fix resolved the issue. The issue existed on the UI part of a front-end component, and my fix was tested on a staging to check, then deployed into production with my supervisor's double check and approval. In the Elevate Hackathon, there was an enterprise host struggling with their production issue, and my voluntary help fixed their issue.

  2. United Way Pay - TD annually hosts a corporate-wide United Way campaign, and my API Architecture team decided to develop a mobile wallet of a donation platform for the campaign as a proof of concept (PoC) project in 2017. The donation platform is named, the United Way Pay, a QR code based mobile wallet and a payment system built on distributed jvm and node.js components. My contribution was both microservice development of Java JWT verification of mobile clients and a custom development of iOS web security framework in Objective-C. At the end of integration testing phase, HTTPS requests from mobile clients did not get distributed to downstream components, and this is because operation timeout of a proxy component was set too short, and every request was recognized as failure. The

issue was analyzed, and the problem component was discovered by my investigation, and fix was implemented.

3. Enterprise API client onboarding - This is one of my job responsibility to review a proposed solution design and enforce OAuth2.0 implementation in the solution architecture. There were 30+ major API integration projects which credited my sign-off.

4. Air Canada program - TD Aeroplan VISA credit card renewal project - Air Canada program is a 100 million dollar project with multiple phases. The key critical architecture change was adding new high available and resilient components to existing credit card system without negative impact on the existing systems. My commitment was listing API architectural risks in the solution architecture and update the solution design.

5. Smart Form - This is a vendor hosting SaaS integration project. TD wanted to have a dynamic cloud hosted online form solution to save enterprise document storage space, and we choose a vendor solution for it. The SaaS solution required an access to TD enterprise API for obtaining customer's profile data to display their information when the customer logged in the online form through TD website. My review was critical to identify the way the vendor manage OAuth credentials for granting their API access, and we established an agreement with vendor's CEO for risk mitigation.

6. API Resilience - There was a request of PoC to embed resilient ability in enterprise APIs. The PoC plan was to implement a fail-fast pattern by a circuit breaker. The experiment environment of the resilient ability was set to 100 concurrent 10,000 requests per second. My demonstration was prepared with a simple Java microservice with Netflix Hystrix library. In the demonstration, a visualization tool for observation was utilized to watch the resilient functions.

7. DevOps PoC by OpenShift - A blue/green deployment PoC was implemented with help from RedHat technical consultant, and we did a demonstration at a corporate townhall with OpenShift. The deployment pipeline was designed by another senior architect, and three of us prepared virtual machines (VMs) to install the OpenShift and deployed a containerized web application. The resource allocation of the VMs was too small, and we often had to fix the crashed environment.

8. Mentorship - During my tenure, there were 4 co-op students and 2 junior associates. My commitment was hands-on help for their software development.

9. 7 filed for pending and 1 granted patent - The United Way Pay project team filed multiple patents and one of them was officially granted in Canada and USA. Outside of my duty, as a side project, my API solution for an automated home inspection was filed for patent.

Equifax, Toronto, Ontario. Canada.
Contract - DevOps Engineer   March 2016 – February 2017

- Introduction:
  Equifax is one of the glabal consumer credit reporting agencies and my role belongs to its enterprise customer division.

- Responsibility:
  Product release engineering and infrastructure support for software developers and quality assurance engineers. My work focused on build and configuration of Linux virtual machines to deploy web applications for development, testing, and production environment.
- Challenge and leadership:
  1. Design CI/CD pipeline for enterprise credit check web application - The build process of development, testing, and production servers was an hour-long manual hands-on command line task, and my development of a single bash script to autoate the manual task saved the hour and removed the repetitive error-prone process.

  2. Deployment automation of web testing tool - There was a Web API testing tool used in a QA team, and it had to be manually deployed into an application server every time

developer committed changes, and the developer also had to notify the QA team to update the testing tool. My bash script automated these processes by starting a regular check-up of the central source code repository at intervals and updated the tool if any change is fetched with notifying the QA team by hitting their chatbot webhook API. The regular check-up at intervals is achieved by a cron job and, it gets periodically invoked and does its job autonomously. The script saved several hours long work.

3. Release engineering for DEV/QA/UAT/PROD environment. - The product release was set at late midnight time slot to avoid the peak traffic during the day, and it was tiring and error-prone process since the release had to be coordinated with a remote team from a different time zone. There was a release of database schema update, but there was a mistake on the remote team, and a production service was interrupted. We eventually rolled back the database and bring the service back to the normal state before the peak traffic. My contribution was to stay awake during the release time slot to watch the entire process correctly executed and check if the production service is interrupted.

Sentaca, Toronto, Ontario. Canada.
Contract - full-time - Senior Software Engineer   September 2015 – February 2016

- Introduction:
  Sentaca is a consulting firm specialized in the telecommunications industry.

- Responsibility:
  Development of proof of concept projects from Sentaca's clients, primarily TELUS.

- Challenge and leadership:
    1. UI/UX design and front-end development
       - TELUS once abandoned a business partner developer portal, and Sentaca contracted to revive the portal. The user interface (UI) of the old developer portal was left broken with Java ServerFaces, and front-end functionality was not implemented. My work was design the UI as a Single-page-application with AngularJS and TELUS defined CSS templates. The demonstration of the first PoC was scoped for login and logout functionality of two test users for multitenancy, and my work of UI/UX redesign was beyond the expectations of TELUS executives and their technical architects.

Terapeak, Toronto, Ontario. Canada.
Permanent - full-time - Senior Full Stack Developer   April 2015 – August 2015

- Introduction:
  Terapeak is a Software as a Serivce (SaaS) developer for big data analytics online tools for Amazon and eBay marketplace.

- Responsibility:
  Front-end and REST API development for Terapeak's Big Data analytics platform.

- Challenge and leadership:
    1. Legacy code migration with REST API development - The original analytics product was written in PHP, but Java is chosen for better performance. The analytics product utilizes Elasticsearch, but the Elasticsearch did not have built-in RESTful APIs to manage and a client library had to be imported into the product. My commitment was development of various management REST APIs with JEST (Java REST HTTP Client for Elasticsearch).
    2. Alibaba Wholesale API integration and user search result update - Terapeak got a business partnership contract with Alibaba, and they want to integrate the Alibaba's wholesale API into the sales item search functionality. My work for this project was design front-end logic with data science team to update search results of correlated items between Amazon, eBay,

and Alibaba. There were difficult discussions with data science team about trade-offs on implementing data science algorithms in front-end since one of algorithms could load large volume of data into client browser. This can lead crash and bad user experience, and we resolved the problmes by implementing PoC for watching the balance.

ComQi, Burlington, Ontario. Canada.
Contract - full-time - Software Developer   October 2014 – March 2015

- Introduction:
  ComQi is a digital signage service developer.

- Responsibility:
  Public REST API development for ComQi's digital signage management engine, and being a reliable technical support for QA engineers and other software developers.

- Challenge and leadership:
    1. ComQi's digital signage management engine has been implemented in more than one million lines of Java code, and there is no system architecture diagram available for reference. It was necessary to establish a good relationship with the chief architect to understand the system domains of the specific business logic to abstract as API candidates.

BoldRadius (acquired by Lightbend), Ottawa, Ontario. Canada.
Full-time - Software Developer   April 2012 – April 2014

- Introduction:
  BoldRadius is a startup for custom software development and training service.

- Responsibility:
  Development and operation of a cancer care program management and scheduling software for Ontario's cancer survivor caregiving organization.

- Challenge and leadership:
    1. The appointment scheduling application is a three-tier database web application built on JavaEE, Java Server Faces, GlassFish Application Server, and MySQL. BoldRadius was a startup with limited technical resources, and the entire application development and operation task was assigned to me with necessary system maintenance and production server monitoring. There were many overtime and heavy workloads, but task prioritization helped successful job execution.

Superna.Net, Ottawa, Ontario. Canada.
Full-time - Software Developer   August 2011 – March 2012

- Introduction:
  Superna is a software development service provider for the telecommunications industry.

- Responsibility:
  Troubleshooting of Superna's custom developed web and desktop applications.

- Challenge and leadership:
    1. Troubleshooting to fix issues of the network security web portal and the desktop J2SE client application for the Superna's fibre optic network element planning tool. It is a client-facing onsite service, and establishing a good connection with clients was very important.

GREE, Tokyo Japan.

- Introduction:
  GREE is a Japanese social networking and gaming service provider. They have total of 20 million active users on four major social game titles.

- Responsibility:
  Planning new social game titles, system design of the game events, and game development in PHP with evaluation and monitoring upon release.

- Challenge and leadership:

  1. Their social game platform is built on LAMP environment and deployed into 300 Debian Linux servers without any continuous integration and deployment pipeline, and there were frequent production incidents happened. This led us for having many troubleshootings and postmortem meetings with customer support team.

  2. Database volume was huge since they have two million active mobile users making access to it, and SQL query requests became expensive. This made me think very careful about timing and records to query from the production database, which occasionally required to perform some statistical data analysis.

  3. My leadership is to perform research on various medias which dicuss our social game events, and gather users expectations to plan next social game event.

Superna.Net, Ottawa, Ontario. Canada.
Co-op - Software Developer   May 2010 – August 2010

- Introduction:
  Superna is a software development service provider for the telecommunications industry.

- Responsibility:
  Troubleshooting of Superna's custom developed database web application.

- Challenge and leadership:

  1. The Superna's custom developed J2EE database web application was built on OSGi framework, and the OSGi framework was broken its packaing functionality because of the lack of testing on the production environment. There were many trials of my efforts to fix the issue but it would take too much time under the planned development work load. The decision was not to fix the deployment issue while keep the requested development work for revenue. The custom web database application can be launched from an IDE (Eclipse), and it was deployed on the production environment as it is.

BlackBerry , Waterloo, Ontario. Canada.
Internship - Test Automation Developer   May 2008 – April 2009

- Introduction:
  BlackBerry is the Canadian, the first smartphone inventor, developer, and maker in the world.

- Responsibility:
  Development of automation framework for software verification and validation of BlackBerry Enterprise Server (BES).

- Challenge and leadership:

  1. Development of SOAP API and test script for automation of BES black-box testing - BES provides synchronization services between three major mail and calendaring servers

and smartphones: Microsoft Exchange, IBM Domino, Novell GroupWise, and BlackBerry smartphones. My responsibility was automation of system verification and validation of synchronization functionality of BES for Novell GroupWise mail and calendaring services and BlackBerry smartphones. When any mail or calendar item is created on either smartphones or Novell GroupWise Server, BES takes care of the synchronization of the item in both platform so that BlackBerry users can browser their emails and calendar items from both platforms. BES for Novell GroupWise has some minor issues for the synchronization, and email messages or calendar bookings were often disappeared from either mail or calendaring server. My test automation script executed on the automation framework specifies where the synchronization issue happens and report back to BES developer to fix. Novell GroupWise Web API was only available in SOAP, and the automation framework was developed in C#, but the learning curve of C# was quite high and challenging because of my lack of C# development experience.

Shell, Calgary, Alberta. Canada.
Co-op - Programmer Analyst   Jan 2008 – April 2008

- Introduction:
  Shell is a global super major in the oil and gas industry.

- Responsibility:
  Documentation of testing strategy for the webMethods business logic and associated testing data types.

- Challenge and leadership:
  1. This work is my first co-op term, and there was difficulty in my communication skills with my supervisor since my English is a second language and my ability was limited, but another coworker who can speak my native language offered me his help, and the communication difficulty was eventually resolved and managed to successfully create one suite of automated test scripts with Solstice Integra. The test scripts were created by following the strategy document of how to query the retail gas stations sales data.

CERTIFICATES   Microsoft Certified: Azure Fundamentals:
                 https://www.youracclaim.com/badges/bbcd8fc4-85d8-4e99-a00f-3f09803b77bd

PATENTS   US10880288B2/US10834096B2 - Methods and systems for controlling access to a protected resource

EDUCATION   **Acadia University**, Wolfville, Nova Scotia. Canada   September 2005 – December 2010
                 Bachelor of Computer Science

LANGUAGES   Native in English and Japanese

PERSONAL   - Google Cloud Hackathon 2019 in Montreal - First place
ACTIVITIES   - Vim Toronto meetup in 2017 - Host