Barath Kumar

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- Full stack development • Application/solution architecture • High performance application development • Devops • Node JS • Python • Java • Kotlin • Scala • Cutting edge front end development • Systems integration • RESTful development • Infrastructure design • Business intelligence • Custom reporting • Big data infrastructure

PROFESSIONAL PROFILE

TechnipFMC / FMC Technologies *(FTI - NYSE)*   📅 *Feb 2005 - Present*

◉ Systems Engineer, Engineering Infrastructure *(Current position)*	📍 Houston TX	📅 *Mar 2016 - Present*
◉ Systems Engineer, Engineering Infrastructure	📍 Edmonton, AB Canada	📅 *Nov 2013 - Mar 2016*
◉ Systems Engineer, Engineering Infrastructure	📍 Houston TX	📅 *Jul 2008 - Nov 2013*
◉ Design Engineer	📍 Dunfermline, Scotland	📅 *Feb 2007 - Jul 2008*
◉ Graduate Engineer	📍 Dunfermline, Scotland	📅 *Feb 2005 - Feb 2007*

🚀 Select Projects

⚡ *Requirements Management Reporting and Analytics System*   📅 *May 2015 - Present*

Developed a **self serve reporting and analytics system** for **Requirements Management**. The project includes deep integrations with **Teamcenter** and **Oracle Primavera P6** to produce complex ad hoc reports and analytics for a base of **12000 users** (soon to be 34000 users)

♀ Highlights

- Developed a reporting system as no suitable alternative exists
- Reduced reporting time from **40 minutes** at Proof of Concept to under **3 seconds** at production deployment
- **Greenfield development** from scratch
- Gathered requirements from a global team of users
- Obtained consensus on design decisions from key stakeholders on technical and process design
- Developed all specifications for the project
- Designed and implemented all stages of the SDLC
- Performed a study on development tools for future developments and provisioned all self hosted infrastructure using this project as a pilot for all future development by the Engineering Infrastructure team
- Demonstrated the development pipeline to the rest of the team and provided training on current best practices for software development
- The full team is moving towards the usage of an identical pipeline for all future development

- Learnt to develop in **3 programming languages** during the course of the project
- **Sole developer and architect for the project**

⚗ Technology Stack

Back End

- RESTful services with **Kotlin** integrating with **Teamcenter** and **Oracle Primavera P6**
- **Node.js** RESTful services and real time sockets for indexing to **Elasticsearch** and a **graph database**
- **Elasticsearch** for search
- **Graph database** for relationships
- **NoSQL database** for other application data
- **GraphQL** for data retrieval from Elasticsearch and the graph database

Front End

- **React** based **single page web application** (SPA)
- ES6 syntax
- **Babel** and **Webpack** for transpiling to ES5
- **MobX** for state management
- **Sass** for global styles

DevOps

- **Git** for source control
- **Gitlab** for git web ui, issue management, documentation, and project management
- **Jenkins** for continuous integration
- **Docker** for deployment
- **Rancher** for service discovery and orchestration

⚡ Teamcenter Self Serve Analytics System   📅 Mar 2008 - Jun 2009

Developed a **self serve analytics system** for Teamcenter. The project involved **extraction, transformation and load** of heavy engineering data from **7 federated instances of Teamcenter** into an **SQL server**, processing through SSIS into an SSAS server to provide key metrics for engineering management throughout the company. The system is still in use and is considered a **core application** for the company.

💡 Highlights

- Aggregates data from **7 Teamcenter instances**
- Makes heavy use of the **Teamcenter SOA REST services**
- Serves **14000 users**
- Allows for **ad hoc analytics** to answer users' questions rather than provide post mortem metrics
- Provides a familiar front end for users via **Microsoft Excel** with live data
- Repository to hold management metrics for retrieval
- **Considered a core application for the company**
- Has been deployed in production for **over 6 years** with minimal maintenance and intervention
- **Sole developer and architect for the project**

⚗ Technology Stack

Back End

- Connects to **Teamcenter SOA services** via Java
- **Node.js** based ETL pipeline to an **MSSQL server**
- **SSIS** for manipulation of extracted data
- **SSAS** for aggregation of SSIS data

Front End

- **Microsoft Excel** with live connection to SSAS

DevOps

- **Git** for source control
- **Gitlab** for git web ui, issue management, documentation, and project management
- **Jenkins** for performing a nightly extraction job

⚡ Teamcenter Unified Architecture Customizations and Upgrade   📅 Mar 2007 - Mar 2008

Developed **Teamcenter Rich Application Client** customizations based on **Eclipse Rich Client Platform** for use by **4000 engineers** globally

💡 Highlights

- Learnt Java for the project
- All customizations are still in use with minimal maintenace and intervention
- Utilized many features of the Eclipse Rich Client Platform
- Learnt the Teamcenter data model and architecture for the project
- Designed and built the first CI/CD pipeline for the company
- Modernized the SDLC by implementing distributed version control with Mercurial

⚗ Technology Stack

Back End

- Teamcenter v8.3 (Unified Architecture)

Front End

- Eclipse Rich Client Platform (RCP)

DevOps

- **Mercurial** for source control
- **Jenkins** for **Maven** builds via **Tycho**

🚀 Other Projects

- **Global Planning System:** Part of the core team to design and implement a global planning system for FMC Technologies based on Oracle Primavera P6
- **Knowledge Management:** Part of the core team to design and implement a knowledge management platform based on Sharepoint for FMC Technologies
- **Change Management System:** Designed and implemented an engineering change management system for FMC Technologies, UK
- **Subsea Equipment Design:** Designed subsea equipment including Tubing Hangers, Christmas Trees and Wellhead equipment for the Statoil Tyrihans, BP Block 18, and various other large subsea equipment projects
- **Graduate Training Program:** Recruited through the FMC Technologies graduate training program. Moved through various functions within the company to understand the business, including drafting with Unigraphics (NX), finite element analysis with Ansys, project management on the Statoil Tyrihans project, manufacturing and assembly, quality assurance and engineering design

- **American Petroleum Institute (API) training:** Attended a training course and received certification in the use of API 17D
- **Offshore Safety Course:** Attended and received certification in the Offshore Safety Course in Aberdeen, UK

EDUCATION

🎓 *Master of Science, Computer Aided Design* 📍 University of Strathclyde, Glasgow 📅 *2002-2003*

- **Key Courses:** Product Design, Design Optimization, Design Management, Product Visualization, Systems Integration
- **Thesis:** Design of a Non-Interfering Haptic Device for Teleoperation
- **Group Project:** Drag Reduction of the BAE Bulldog Aircraft

🎓 *Bachelor of Engineering, Mechanical Engineering* 📍 University of Mysore, India 📅 *1997 - 2001*

- **Key Courses:** Engineering Graphics, Engineering Physics, Engineering Chemistry, Engineering Mathematics, Machine Design, Material Science, Thermodynamics
- **Project:** Design of a Pick and Sort Mechanism for the Fanuc Robot LRMate 100i

OTHER INTERESTS

- **Quizzing:** Participated, won, and conducted several quizzes with unique themes. Part of the varsity quiz team representing the university and state in various literary events
- **Trekking:** Participated 3 times in the National Himalayan Trekking Expedition by the Youth Hostels Association of India
- **Scouting:** Awarded the President Scout award by the President of India
- **Table Tennis:** Represented the University of Mysore at various state level tournaments in Table Tennis