

Project Background

Qualcomm is the connected processor company for the intelligent edge with leadership in wireless connectivity, RF front-end, high-performance, low-power computing, multimedia, and on-device intelligence. Within the Test Base Station Project we design internal custom, integrated cellular call flow test boxes that rival or exceed capabilities of external third party solutions. The project has over 200 Engineers world wide and has deployed over \$200 million of equipment for 5G wireless verification. The team supports a product portfolio that includes 3G, 4G, 5G, and V2X products. Customer support is provided to this product portfolio of over 2000 systems leveraged on a daily basis throughout the global company.

Project Description

Customer Support issues are tracked using multiple JIRA projects. The Atlassian JIRA front end can be cumbersome, slow, and difficult to customize to our unique workflow practices. The JiraPilot project aims to create a new front-end interface tailored to our workflows to visualize, modify, and organize customer support issues across the Customer Engineering and Development teams. Backend augmentation will be required to define and automate workflow policies and procedures.

This semester's project builds on the work from students from the previous School of Mines sessions. The team would assess current practices, goals, and enhance the design to optimize and streamline prioritized operations. Then team would then drive requirements for backend augmentation.

The JiraPilot backend will need to interface with JIRA through a RESTful API to read and modify existing tickets. The backend is a Python FastAPI project that will manage and automated our unique workflows, merge data, and sync data across different platforms.

There is additional opportunity to synchronize tickets across JIRA and Service Now to improve quality of service across additional organizations.

Desired Skill Set

- Web Interface design experience or interest
- React & TypeScript development experience or desire to learn
- Python3 programming experience
- Git source control experience
- Linux command line experience or desire to learn
- Experience with JIRA and/or a modern bug tracking system.

High Level Goals / Priorities

- Support one-click escalation from Tier2 to Tier3 support tickets with proper user inputs
- Support authentication of users
- Support RTF formatted input from users to be captured in JIRA
- Support Long Term Support release management and approvals
- Highlight special designated JIRA labels (roadmap features, blocking issues, stability issues) with custom icons

- Support preset Filters for common queries (e.g. active releases) that evolve over time
- Support Tier3 to Tier3 ticket handover
- Batch modification of JIRAs for selected actions (e.g. escalation)
- Highlight inconsistent state of JIRAs with warning icons
- Support intelligent linking of issues and dependency diagram visualization

Preferred Team Size

A two to three person team would be adequate. Three would likely be ideal though with the right division of responsibilities four students could be envisioned.

Location

The Qualcomm TBS project will provide support mostly locally from the Qualcomm Boulder office. Remote work is the expectation with possibilities of on-site for key needs or discussions.

Resources

Qualcomm intends to open a remote development environment with sufficient compute and virtual desktop portables for all required development.

Development Environment

1. Windows VM for general
2. Linux based Virtual Machines for development
3. Qualcomm Internal enterprise GitHub repository for source control and Continuous Integration workflow
4. Python3 for backend development and unit testing
5. React Web framework for front-end development
6. Dockerized build environment
7. Deployment in Kubernetes cluster for service

Contact

Email Kevin Wolver at kwolver@qti.qualcomm.com for high level project questions. If selected, other engineers will be made available for guidance, leadership, and mentoring.

Background

TBS = Test Base Station