

Technical Requirements

Software Development Club, IIT Delhi

January 27, 2019

1 Overview

DevClub is the software development club of IIT Delhi with an aim to foster software development culture in the institute. It provides a platform for students who are passionate about technology to explore the field. The club has two main objectives. The first goal is to form a body of passionate students, who would use their skills to develop solutions for real problems at IIT Delhi and beyond. The second goal is to spread the knowledge that they acquire to the uninitiated, so that more and more people take part in development.

2 Our Contribution

Our club has an enthusiastic team of 20 students at present from different entry years.

- **Team and Project Management:** An internal project and team management tool where members of the club can see progress of projects, track deadlines for tasks assigned to them, rate each other considering their performance over the last time period. It helps us manage our functioning in a streamlined manner.
- **File Send:** The aim of this project is to enable users to send large files seamlessly through in-browser p2p connection using WebRTC, without the hassle of uploading it on a cloud service provider like Google Drive first. It works on the browser and does not need any sharing of IPs or passwords to function.
- **Citadel:** Previously known as the Study Portal, Citadel was the first major project of DevClub. It is a crowd contributed platform to share study resources like lecture-notes, tutorial sheets, past question papers and other similar stuff. There is an approval process to monitor the content uploaded on the portal. It also has a fast search implemented, which enables users to search from about 3000 files.
- **Yearbook:** We made an online portal where the graduating students write comments about their batch mates, answer some questions about themselves and in the end they take away the Yearbook which is made from responses of all the people in their year. This acts as a memory which would always remind them about the good times they had in this institute. For example see: [EE Batch 2018 Yearbook](#)
- **Build Engine:** We have made our customized build engine that builds our projects into images and pushes them to dockerhub for general public use (which aligns with our open-source philosophy).
- **Slack Bot:** We have made our slack bot that manages our chat channels for different projects. It is integrated with our Team management, Build Engine and GitHub. This allows us to have a one click deploy pipeline for all our projects.
- **CampusBot:** CampusBot is a chatbot, which we have deployed on facebook messenger. People use it to get details about all sorts of things happening at IITD.

3 Network Requirement

3.1 Overview

For the sustenance of our club we need our VM (hosted on Baadal with IP 10.17.6.85) to be accessible through public internet, as well as a white-listed proxy that allows us to make connections to external web.

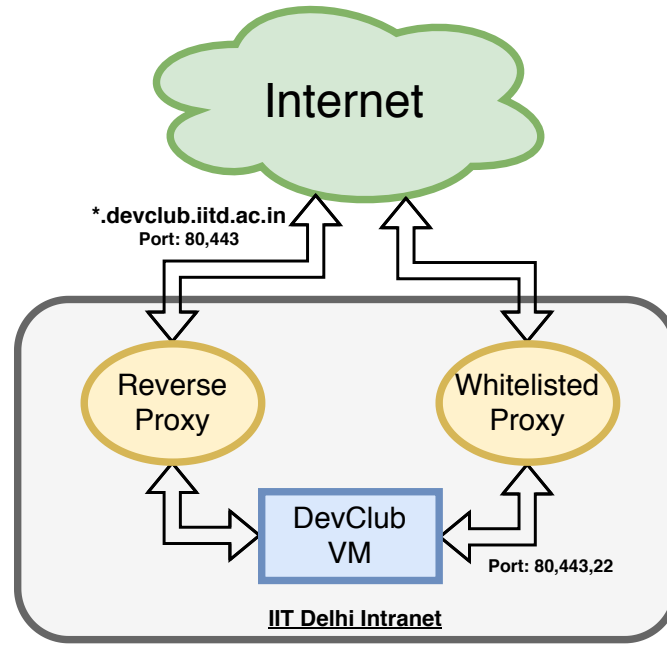


Figure 1: Network Architecture

3.2 Reverse Proxy

Reverse Proxy is essential since it allows users from public internet to access our services. Some of the use cases are:

- **Main Website:** Build a public outreach through our main website. It needs to be publicly accessible to popularize the club and its projects.
- **File Send:** Many times people want to share file while using public internet and thus this needs to be publicly accessible
- **Campus Bot:** This requires a webhook to be accessible from public internet in order to be able to reply to messages sent through facebook and telegram.
- **Year Book:** Many people use home internet for filling out their profile in yearbook and thus public access is a must.
- **Slack Bot:** This too requires a webhook to be accessible from public internet in order to communicate with slack servers.
- **Build Engine:** This requires a incoming webhook to trigger the build process.
- **Team Management Portal:** This portal needs to be publicly accessible as it is linked with our main website and shares database across projects.

3.3 White-listed Proxy

White-listed Proxy is essential for us to make connection to a variety of external services. Some of the use-cases are:

- **Build Engine:** This requires a connection to push the built images to the public image registry so that the whole community could use our pre-built images. Also, during the build process, it fetches various other images from registry as well as other miscellaneous requests needed to build the project.
- **Team Management Portal:** This requires net connection to send push notifications as well as for sending mails through Amazon Simple Email Service (SES).
- **Campus Bot & Slack Bot:** They require a net connection to send automated texts and notifications to various chat groups.