**Executive Summary**

Collaboration is a requirement in most fields in the current world. Collaboration in terms of science could mean communication with others in the same field, sharing knowledge or sharing the research to help fellow scientists or  academicians performing similar research.

NASA currently provides a platform called NEX for Earth Science scientists to collaborate, share knowledge and share research. This platform is not only intended to be a social network and project management tool, but also a tool where scientists can set up workflows and upload and share services. It is essential that all these components are cohesive. Currently, there are many security measures one needs to get through before making use of many of the features of NEX. To prevent this from being a hindrance to the scientists, NASA has another project called Open NEX which has a subset of the data from NEX, is hosted on Amazon Web Services and provides a subset of the services without this security barrier.

Open NEX will need to have data sent to it periodically if there are updates to the data that it contains. It will also need to serve as a social networking platform, a project management tool and a tool which incorporates other features like access control and workflow management and sharing of services.

Using Service Oriented Architecture (SOA), we were able to architect and implement two major components, the Social Network and Project Management., The Social Networking component provides the user with a network to connect with other users, demonstrate their work and conduct sessions within groups of users on various important topics. The Project Management component provides administrators and users the ability to create new projects, and assign tasks to other users and provides the ability to track projects through the lifecycle.