

Chapter 2

Macro Studies of FOSS Ecology

ABSTRACT

The ecology of Free and Open Source Software (FOSS) is dotted by projects of every kind ranging from small desktop applications to large mission critical systems. To enable maximum visibility among the developer community, these projects are often hosted in community project management portals. The current work studies one such portal, sourceforge.net by analyzing the data of 200,000 projects and 2 million developers for the period Feb 2005 to Aug 2009. The scope of the present study includes the analysis of developer contribution. The slow growth rate of developer community and high number of single developer projects are the major findings of the present work.

INTRODUCTION

Traditional software development has been characterized by the strict organization of developer teams. Almost all formal methodologies insist on layered structure of developers with responsibilities clearly delineated. The decision-making powers are vested with the few who control huge army of developers. There are established rules on when people can be added or dropped from a project. Informal observations like the one done by Fredrick Brooks “adding manpower to a late software project makes it late” (Brooks, 1995) have been accepted as law. In other words, the priestly order followed in software development makes the whole system impenetrable by outsiders.

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On the contrary, the FOSS development methods seldom follow a closed-door policy towards developers. The system here thrives on the contribution of volunteers. Unsolicited cooperation between developers scattered across the globe, communicating with each other using digital media is the characteristic feature of FOSS development.

There are questions on the extent to which people are using this opportunity to be a part of software development. Contributing to software development requires certain technical competence. To expect technically trained developers to contribute to projects which are not part of their work and which does not benefit them monetarily is difficult.

Recent research has shown that people do contribute to FOSS for a variety of reasons. But the exact number of people involved in the development of FOSS is not clear. The difficulty arises from the fact that though there are number of websites like sourceforge.net which hosts thousands of FOSS projects there are equal number of projects hosted in their own dedicated sites. To collect the data from all these diverse sources is extremely difficult. Therefore, the data only from Sourceforge.net is considered for present studies.

PROCEDURE

Sourceforge.net maintains the data in a relational database. To extract the developer count from this dataset the relation USER GROUP is selected. The structure of the relation is given in Table 1.

The attribute USER ID is used to count the number of developers for each month and GROUP ID is used for counting the projects. The process for counting developers and projects for all months is given below

$S \leftarrow \{S_1, S_2, \dots, S_{52}\}$ original datasets

$A_i \leftarrow \varphi(X), \forall X \in S$ select unique developers

$A \leftarrow \{A_1, A_2, \dots, A_{52}\}$

$B_i \leftarrow \psi(X), \forall X \in S$ select unique projects

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