Chapter XI

Assessing the Health of an Open Source Ecosystem

Donald Wynn, Jr., University of Georgia, USA

Abstract

This study examines the concept of an ecosystem as originated in the field of ecology and applied to open source software projects. Additionally, a framework for assessing the three dimensions of ecosystem health is defined and explained using examples from a specific open source ecosystem. The conceptual framework is explained in the context of a case study for a sponsored open source ecosystem. The framework and case study highlight a number of characteristics and aspects of these ecosystems which can be evaluated by existing and potential members to gauge the health and sustainability of open source projects and the products and services they produce.
Introduction

Open source software (OSS) products are an increasingly significant part of the IT infrastructure for many enterprise customers. The combination of lower licensing fees and increased technological flexibility is a seductive lure for corporate administrators looking for effective solutions for their operations. However, enterprise customers are often not willing to entrust their mission-critical applications to software and systems that are unproven and unsupported. These customers typically require high levels of customer assurance and on-demand support in order to guarantee the continuous, perpetual operation of their firm’s information technology architectures. The value of information technology investments is sustainable to the extent that the vendor can continue to attract and support a network of skilled professionals and organizations that are motivated to provide the necessary functions including product development, distribution, service provisioning, and marketing. Customers who deploy technology products and/or platforms that fail to attract a thriving ecosystem or whose ecosystem deteriorates (e.g., IBM’s mainframe customers) are increasingly faced with declining availability of skills, increasing operating costs, and/or lower levels of innovation (Vecchio, 2004).

The prototypical OSS product is described as one in which the developers are primarily volunteers. The software emerges from a loosely coordinated, unsupervised community of developers and other contributors who band together for reasons including self-interest, profit motives, and protest against large closed-source software providers (Hars & Ou, 2002; Hertel, Niedner, & Herrmann, 2003). These communities typically have little or no formal organization or corporate structure. This makes it difficult for most enterprise software customers to deploy open source solutions, since there is little or no means of ensuring the resources that are necessary for long-term support and maintenance.

As a result, the structures and relationships surrounding many open source software projects have evolved in order to address these needs. “Professional Open Source” companies such as JBoss (Watson, Wynn, & Boudreau, 2005) and MySQL offer a wide range of support options, including 24x7 phone support, while continuing to distribute their products under an open source license that typically allows customers to use the software without the upfront licensing costs. In return, these firms are able to ensure higher levels of dedicated support and development by hiring their developers and support staff and by contracting services with third parties. Alternatively, sponsoring organizations are able to dedicate specific resources (including employees and financial assets) to the project to more tightly control the development and support of software products. In both cases, the open source license both supports and encourages participation by other individuals and organizations in the innovation and support functions. It is from the participation of this complex web of partners, distributors, consultants, and other third-party entities, as well as...
Analyzing the Competitive Dynamics in Open-Source Publishing Using Game Theory
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