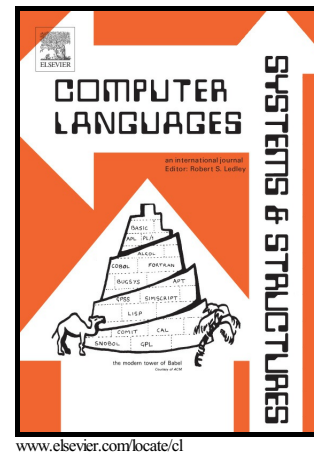


Author's Accepted Manuscript

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Sanchit Chadha, Antuan Byalik, Eli Tilevich, Alla Rozovskaya



PII: S1477-8424(15)30063-4
DOI: <http://dx.doi.org/10.1016/j.cl.2016.08.005>
Reference: COMLAN232

To appear in: *Computer Language*

Received date: 31 December 2015
Revised date: 4 June 2016
Accepted date: 17 August 2016

Cite this article as: Sanchit Chadha, Antuan Byalik, Eli Tilevich and Alla Rozovskaya, Facilitating the development of cross-platform software via automated code synthesis from web-based programming resources, *Computer Language*, <http://dx.doi.org/10.1016/j.cl.2016.08.005>

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Facilitating the Development of Cross-Platform Software via Automated Code Synthesis from Web-Based Programming Resources[☆]

Sanchit Chadha^{a,*}, Antuan Byalik^a, Eli Tilevich^a, Alla Rozovskaya^b

^a*Software Innovations Lab
Virginia Tech, Blacksburg, VA 24061, USA*
^b*Department of Computer Science
Virginia Tech, Blacksburg, VA 24061, USA*

Abstract

When a mobile application is supported on multiple major platforms, its market penetration is maximized. Such cross-platform native applications essentially deliver the same core functionality, albeit within the conventions of each supported platform. Maintaining and evolving a cross-platform native application is tedious and error-prone, as each modification requires replicating the changes for each of the application's platform-specific variants. Syntax-directed source-to-source translation proves inadequate to alleviate the problem, as native API access is always domain-specific.

In this article, we present a novel approach—*Native-2-Native*—that uses program transformations performed on one platform to automatically synthesize equivalent code blocks to be used on another platform. When a programmer modifies the source version of an application, the changes are captured. Based on the changes, *Native-2-Native* identifies the semantic content of the source code block and formulates an appropriate query to search for the equivalent target code block using popular web-based programming resources. The discov-

[☆]This article is an extended and revised version of a previous paper—“Native-2-Native: automated cross-platform code synthesis from web-based programming resources,” published in Proceedings of the 14th ACM SIGPLAN International Conference on Generative Programming: Concepts and Experiences (GPCE 2015), <http://dx.doi.org/10.1145/2814204.2814210>.

*Corresponding authors.

Email addresses: schadha@cs.vt.edu (Sanchit Chadha), antuanb@cs.vt.edu (Antuan Byalik), tilevich@cs.vt.edu (Eli Tilevich), alla@vt.edu (Alla Rozovskaya)

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