

学术研究

## 网构软件中实体发现和排序的TEA方法

蔡树彬<sup>1,2</sup>, 明仲<sup>2+</sup>, 李师贤<sup>1</sup>

1. 中山大学 计算机科学系, 广州 510275

2. 深圳大学 信息工程学院, 广东 深圳 518060

收稿日期 修回日期 网络版发布日期 2008-8-1 接受日期

**摘要** 自治软件实体分布在开放、动态和多变的互联网中, 它们的协作构成网构软件的基础。动态连接模式是网构软件重要的协作方式。在该模式下, 如何选择具有所需质量的软件实体, 是一个非常困难的任務。介绍了运行时测试和自动化测试技术, 提出网构软件的自动化运行时测试方法。总结网构软件中用于软件实体的发现和排序的解决方法, 提出了测试和评估方法TEA。网构软件不知道候选软件实体的质量, 通过进行自动化的运行时测试, TEA可以选择具有更高质量的实体。如同网构软件一样, 自治软件实体也可以在运行时改变自身结构。通过使用确认断言来评估每次实体调用的结果, TEA可以尽早发现实体变化引起的质量问题。TEA中的软件实体注册机收集每个不同的网构软件反馈的测试和评估结果信息, 可以产生按估计质量排序的实体列表。在模拟实验中, TEA产生的有序列表获得最好的评估分数。

**关键词** [网构软件](#) [自动化测试](#) [运行时测试](#) [正确性](#) [可靠性](#)

分类号

## A Testing and Evaluation Approach for Discovering and Ordering of Software Entities for Internetware

CAI Shubin<sup>1,2</sup>, MING Zhong<sup>2+</sup>, LI Shixian<sup>1</sup>

1. Department of Computer Science, SUN Yat-Sen University, Guangzhou 510275, China

2. Faculty of Information Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China

### Abstract

Internetware is built upon the collaboration of autonomous software entities distributed in the open, dynamic and ever-changing internet. It is very difficult to find out software entities with needed quality in the dynamic connection pattern of internetware. Automated runtime testing is proposed after runtime testing and automated testing techniques are investigated. Several approaches to discover and order software entities for internetware are discussed before the Testing and Evaluation Approach (TEA) is proposed. Since qualities of candidate entities of internetware remain unknown, automated runtime testing is performed in TEA to select entity with higher quality. The autonomous composing entities may change their structure at runtime as well as internetware. Each invocation result is evaluated in TEA by validation assertions, to find out quality problems caused by entity changes as soon as possible. Software entity registry in TEA gathers feedback information of testing and evaluation results from each distinct internetware, and generates the ordered-list of entities by estimated quality. The ordered-list generated by TEA has the best scores in the simulation experiment.

**Key words** [internetware](#) [automated testing](#) [runtime testing](#) [correctness](#) [reliability](#)

DOI: 10.3778/j.issn.1673-9418.2008.04.008

通讯作者 明仲 [mingz@szu.edu.cn](mailto:mingz@szu.edu.cn)

### 扩展功能

#### 本文信息

▶ [Supporting info](#)

▶ [PDF\(673KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

#### 服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [浏览反馈信息](#)

#### 相关信息

▶ [本刊中 包含“网构软件”的相关文章](#)

▶ 本文作者相关文章

· [蔡树彬](#)

·

· [明仲](#)

· [李师贤](#)