Lightweight or strong REST contracts? The both with NeoIDL and *Design-by-Contract*

Lucas F. Lima
Electrical Engineering Department
University of Brasilia - UnB
Brasilia, Brazil, Campus Darci Ribeiro
Email: unb.lucaslima@gmail.com

Rodrigo Bonifcio
Computer Science Department
University of Brasilia - UnB
Brasilia, Brazil, Campus Darci Ribeiro
Email: —

Edna Dias Canedo
Faculty of Gama
University of Brasilia - UnB
Campus of Gama
Email: —

***Abstract*—*Context*. The demand for integration of heterogeneus systems grows up the adoptions of solutions based on service oriented computing – SOC, in special using Web Services to implement the services, nowadays, with the increasing use of the REST architectural style. Nevertheless, REST don't has a standard notations for represent its contracts. Swagger, YAML and WADL only provide the language to describe services, but both has a relevant limitation: they are made for computers and they are hard for humans to write and read, what difficults the recommended SOC Contract-First approach. This limitation motivate the creation of NeoIDL language, done with the aim to be more expressive for humans, besides provides support to modularization and inheritance. *Problem* None of this programming languages, including NeoIDL, gives support to strong contracts how the presents in languages that supports Design-by-Contract, tipically found in the object oriented paradigm. *Objetives* The main objective of this work is to investigate the use of Design-by-Contract constructions in the SOC context, checking the viability and utility of its adoption at the REST contracts specification and service implementation. *Results and contributions* This master thesis contributes technically with the extention of NeoIDL to Design-by-Contract support, adding to it two types of pre and post-conditions. The basic type checks the values of incoming and outgoing atributes. The service based type makes a simple service composition by calling another service to check if the main service may be executed (or if it was correctly executed, in case of post-conditions). By the empirical validation perspective, this thesis contributes with two studies: the first, verifies the expressiveness and reusability requisites of NeoIDL, that was made at the domain of Command and Control in association with Brazilian Army. The second study focused on the analysis of utility and easy to use perspectives of the use of Design-by-Contract constructions proposed to NeoIDL. It gave us good answers in terms of acceptance and easy to use.**

I. Introduction

This demo file is intended to serve as a "starter file" for IEEE conference papers produced under LaTeX using IEEEtran.cls version 1.8b and later. I wish you the best of success.

mds

August 26, 2015

A. Subsection Heading Here

Subsection text here. [**?**]

1) Subsubsection Heading Here: Subsubsection text here.

II. Theorical Review

III. Conclusion

The conclusion goes here.

Acknowledgment

The authors would like to thank...

References