



AimValley is a world class engineering and innovation center that designs and builds networking solutions. We are based in Hilversum, with a strong presence in the USA and India. We started in 2003 as a spin-off from Lucent Technologies (a successor from the American company AT&T), that is why we have a strong background in telecommunication solutions and have build-up vast expertise in real-time processor techniques. Most of our design & development is done in-house.

Product development entails preparation of requirement documents, specification of system architecture, electronic development (block diagrams, board design, system certification, mechanical design), FPGA/ASIC development, software development, system verification and product/factory introduction. AimValley makes use of FPGAs to process high speed transmission functions. Real-time requirements are also key in our software development.

Our business is about people and our teams are dynamic, skilled and passionate about technique. Recruiting and training the right talent is an essential part of the AimValley DNA. We have over 80 employees of which 75% works as design expert in the R&D organization. All R&D employees have a college or university level education.



Project Introduction - Configuration Validation

Many applications that AimValley builds contain a configuration management component. This allows management agents, such as a CLI, WebUI or REST-API to configure and manage the embedded application. The component performs syntax checks and static attribute checks and dynamic cross checks between dependent attributes. For instance the system will not allow putting a port into maintenance mode whilst the port is carrying customer traffic. Which would clearly impact the customer appreciation of the service provided by the ISP. These checks are currently hand coded in C/C++ and tested/verified.

The attributes of the system are defined in a model, that is used to generate the database definition and APIs to manipulate these attributes by the configuration management and other components. The configuration component is written in C/C++ and manually maintained. It is a fairly complex piece of code that needs to be designed anew every time a new system is build. It relies mainly on experience, patterns and reused assets from previous projects. It is hard to comprehend because the rules are hard-coded in the component's modules. There is no easy overview of the set of rules that is applied, which makes maintenance a time consuming effort.

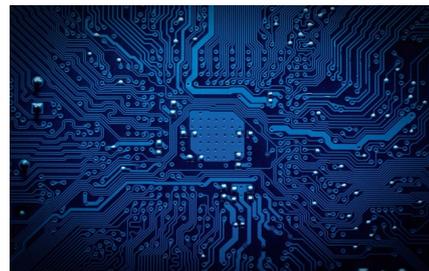
This assignment is to capture the rules and dependencies in some form of specification file (YAML, XML, or other) and generate the syntax, static and dynamic cross checks. The goal is to create an easily maintainable validation of the configuration requests.

Project Description

Analyze the current validation and devise a way to generate the validation code from a meta-file. Clear separation between syntax, static and dynamic validation. It needs to be possible to relocate the validation to different parts of the system or even outside the system. The meta-file needs to be human readable, maintainable and present a clear overview that makes it easy to understand the required validations.

Complexity

- > Analyze and capture the current validation in a meta-file.
- > Choose a format for the meta-file.
- > Code generation
- > Provide a proof of concept



Keywords for this project

- > Investigate,
- > Meta-file
- > Code generation

Affinity

- > C/C++, Python, XML/YAML
- > Scripting, Dockers
- > Linux, Makepp

Skills

- > Analytic Investigation
- > Independent & Communicative
- > Competent in English

Are you a student with a can-do attitude and a passion for technology?
AimValley is your company!

Why not join us today: working@aimvalley.com