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.

Delivering Solutions for a Connected World

Project Introduction - Redis for AimOS

AimValley has developed in-house an Ethernet stack called AimOS (AimValley Operations System) to manage/configure their Ethernet switching solutions. The AimOS Ethernet is primary a configuration management solution for embedded systems with support for Ethernet L2/L3 switching. This system utilizes SQLite as a database to store configuration information. Additionally, we would like to see a port of the system to use a Redis database in order to compare performance and stability.
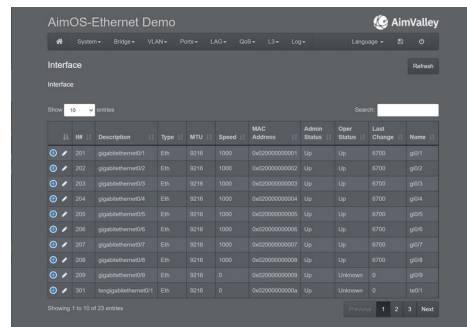
Project Description

The assignment requires an investigation of the current AimOS management framework and a port of AimOS to use a Redis database.

> A report that compares the performance of both SQL and No-SQL systems in all relevant scenarios

> A detailed investigation of the stability of the database overtime, during upgrade, downgrade, reboots etc. Requested is an architecture/design and prototype of the Redis based management agent.

Complexity

The current management framework allows for concurrent access of the system by any of the supported management agents. And the database stores not only configuration data but also various history and event data that is being written at regular intervals.

In addition the current SQLite database is generated from an XML model that is also used to generates APIs to access the database and to generate the webUI and REST APIs. This mechanism needs to be preserved as we do not want to hand code these APIs a new or maintain them manually in the future.

Keywords for this project
> Embedded Linux,
> Jenkins, Redis Dockers,
> Git, Gerrit

Affinity
> Embedded Software
> Python, C/C++
> Test Automation

Skills
> Communicative
> Independent
> Competent in English

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