hTK-Legend Test Framework Result-Portal

Whitepaper

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Executive Summary

Increasing amount of mobile and network communication brings stability, reliability and efficiency of associated services on top of public and company interests. Events like New Year's Eve and voting on popular TV pop star singing contests cause steep traffic peaks and require powerful infrastructure and related systems.

Continuous innovation of technologies brings urgent need of introducing new functionalities faster and more reliable then ever before. These circumstances force service providers to optimize their network structure and resources, test and prepare systems for high load as well as for new features.

Both performance and functional tests produce results which need to be examined during the time. With several test systems the orientation and handling of results will increase to enourmous amount of time. Therefore results from all test systems shall be collected and transferred to one central location which processes them and stores them in logical structure. Such central location can then offer user-friendly results presentation with possibility of check even very old results as well as reporting functionality when new results are imported.

henkel-TK GmbH developed its result portal on top of well known software like Apache HTTP Server, PHP, JavaScript and MySQL/MariaDB, with ability to filter results according to various criteria, import and present results from different systems and components, change final result verdict of a test based on external information, report newly imported results via e-mail and automate some actions to further optimize the result handling.

Introduction

The hTK-Legend Result-Portal is a result presentation system with web interface, automated results processing, filtering based on many options used by subscriptions, user account management and reporting of newly imported results via e-mail. As being part of hTK-Legend Test Framework it supports both Load & Stress component and Functional component, but can in general process results from any platform and interact with the surrounding infrastructure via a defined interface.

Developed internaly by henkel-TK GmbH, Result-Portal uses well known software Apache HTTP Server, PHP, JavaScript and MySQL/MariaDB, while the surrounding software packages responsible for collecting, importing and processing results are written in C programming language.

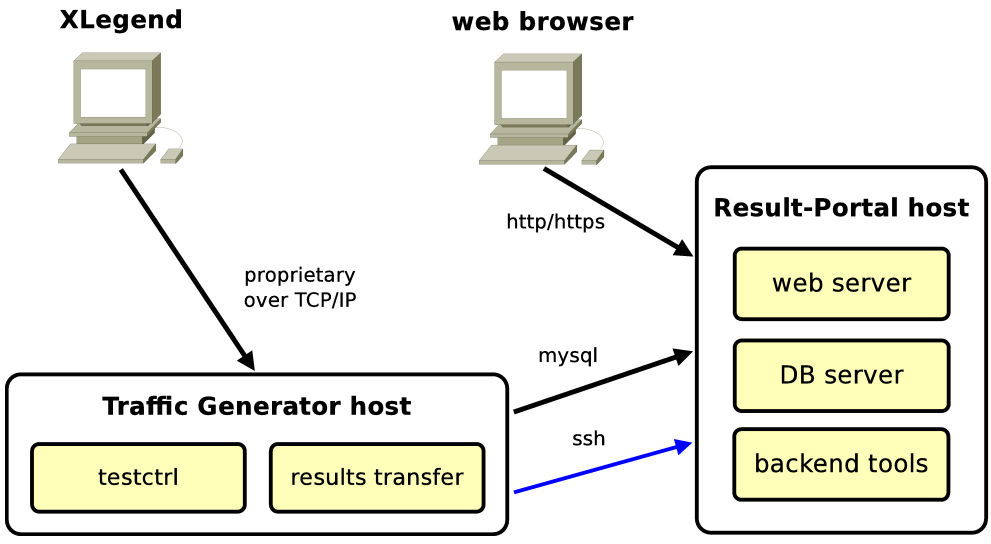
Key features of the Result-Portal:

- easy to use web interface with interactive callflow presentation
- user management with access rights and user groups
- detailed result filtering with possibility to permanently store and reuse defined filter
- subscriptions per user or per group based on existing filters
- e-mail reporting based on subscriptions with configurable check intervals
- incorporate information from external systems into the final result, for example CDR records

Connectivity

Figure 1, “hTK-Legend Result-Portal connection setup” presents connectivity between Result-Portal host, Traffic Generator host, XLegend all being part of the hTK-Legend Test Framework and a standard web browser.

Figure 1. hTK-Legend Result-Portal connection setup

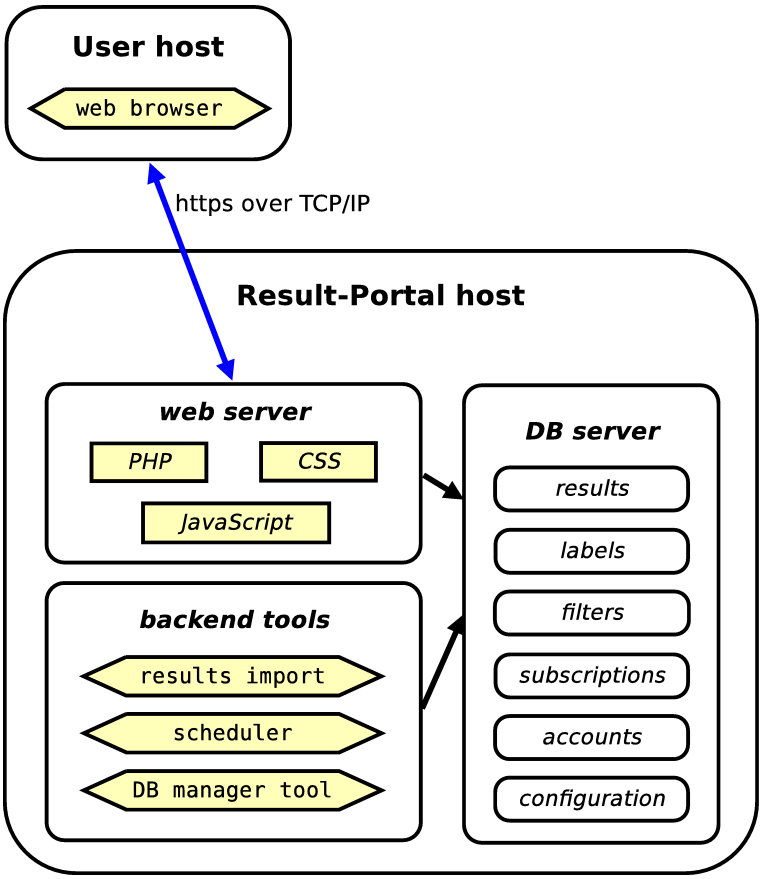


The XLegend is connected to the Traffic Generator and connectivity to Result-Portal is handled via Traffic generator connection. XLegend uses this connection to read and create labels as tags for tests execution and can trigger result transfer, too. The Traffic Generator is connected to Result-Portal via mysql protocol to access labels and via ssh to transfer results and trigger their import to the database. The user's web browser is connected to the Portal-Result using either http or https protocol.

Architecture

An overview of the hTK-Legend Result-Portal architecture is displayed below

Figure 2. hTK-Legend Result-Portal architecture



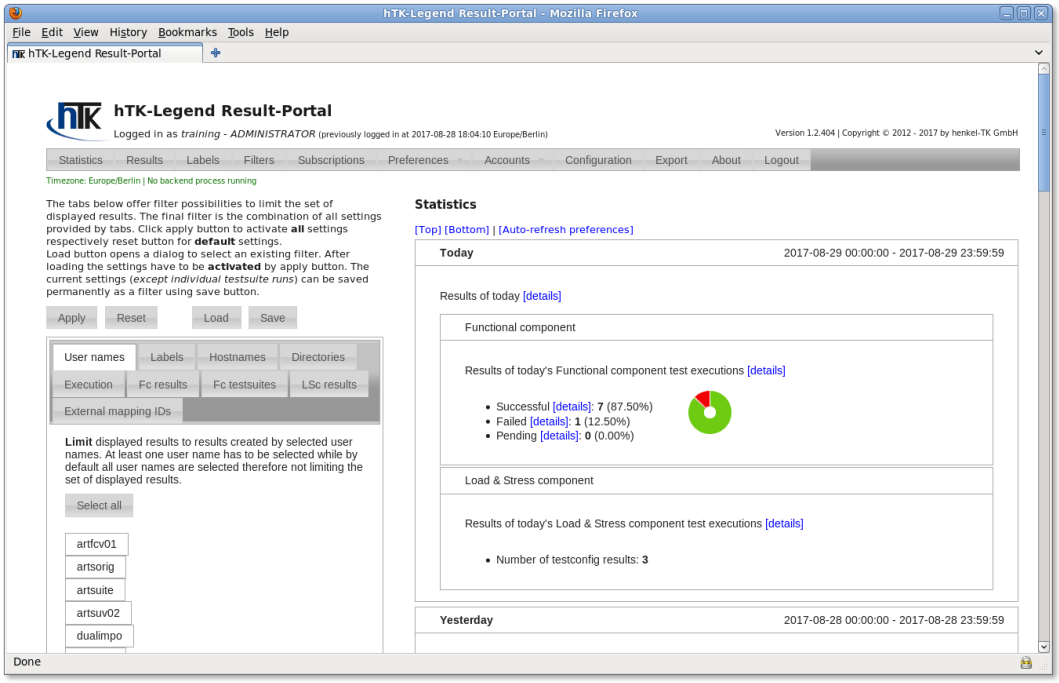
The hTK-Legend Result-Portal architecture consist of three basic elements: a database plus file system directory providing all data, a web server offering users convenient data access in easily readable format and backend tools managing results import, execution of regular scheduled activities and providing different database management functions.

The database server stores imported results, labels attached to test executions, filters and subscriptions, user accounts information and different Result-Portal configuration data. The web server with localhost connection to the database is hosting a web application built on top of PHP, CSS and JavaScript to present organized results to the user, provide management interface for labels, filters, subscriptions, user accounts and various configurations. Supported communication protocols between the user's web browser and Result-Portal are http and https. The backend tools are used to import results pushed from Traffic Generators, scheduler tool triggers sending of regular reports based on saved filters.

Web-based user interface

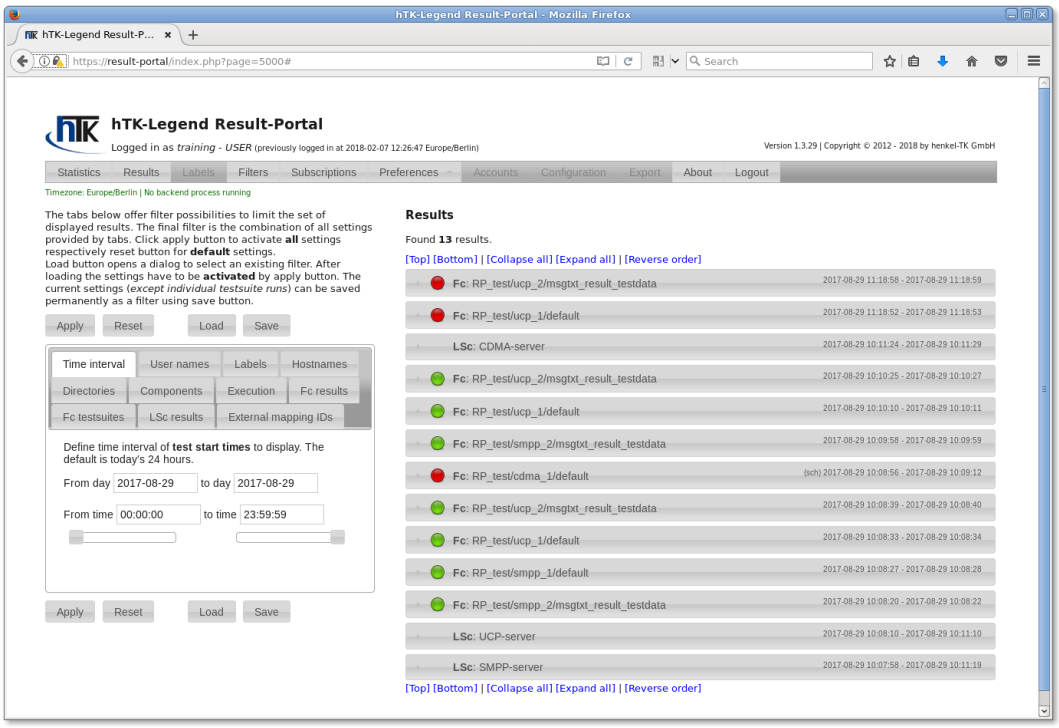
The main page below provides access to all features via top menu, results filtering on the left and statistics info on the right side.

Figure 3. Main page



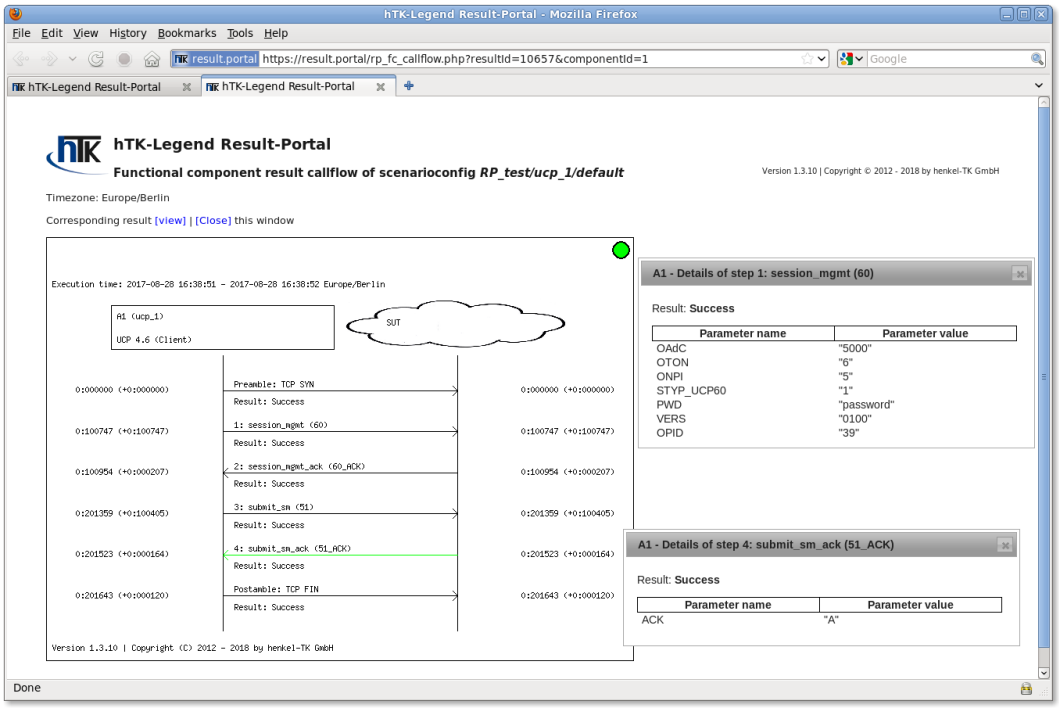
The Results sub-page allows to filter already displayed results on the left side and displays list of selected results on the right side.

Figure 4. Results sub-page



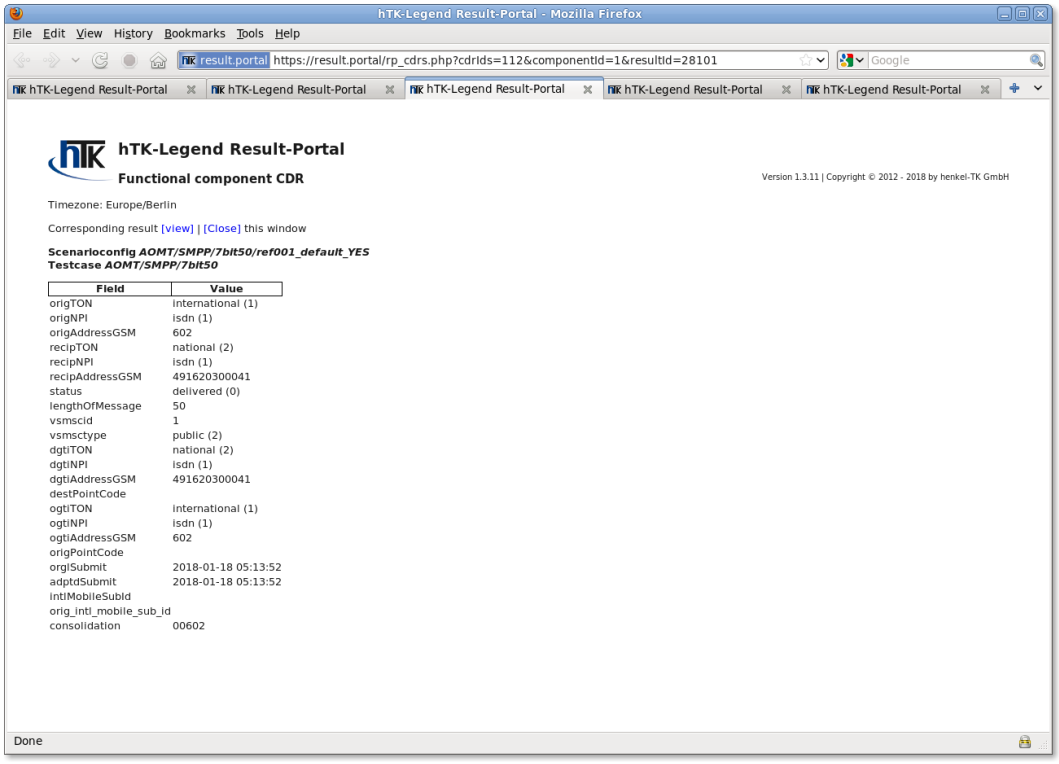
Viewer page with test callflow presentations is interactive and can show details of every message in the callflow.

Figure 5. Test callflow presentation



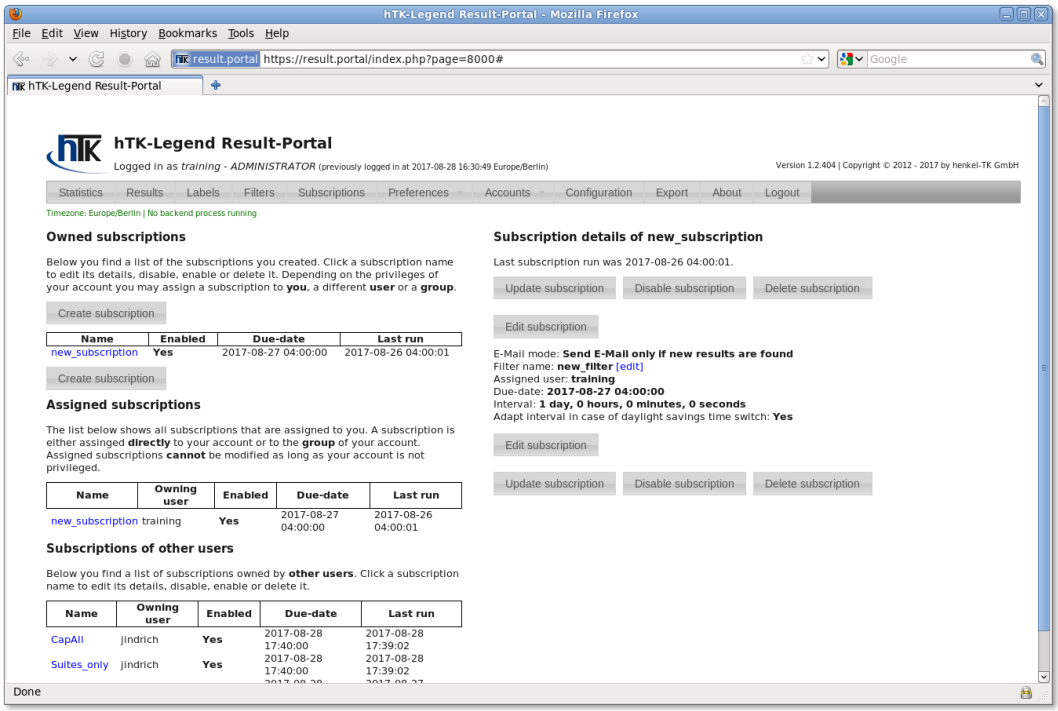
The special viewer to display content of CDR imported from external system.

Figure 6. CDR viewer



Subscriptions can be executed in periodic intervals, adapt to daylight saving changes and sent reports only considering newly imported results.

Figure 7. Example of subscription management



E-mail report with test results, the failed results are always on top.

Figure 8. Example of e-mail report with test results