A Dashboard for System Trustworthiness: usability evaluation and improvements

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Motivation

- **Dashboard** is a tool used for information management and business intelligence. Data dashboards organize, store, and display important information from multiple data sources into one easy-to-access place.
Importance of Dashboards

• Large volumes of information are generated by several devices connected to the internet.

• Companies and even governmental organizations are interested in holding these data.

• Data mining has received a lot of attention.

• As the dashboard is a data visualization tool, it must provide easy use and understanding of information semantics.
This dashboard was developed to show information provided by a specific solution. The dashboard is based on Quality models.

Data privacy is one of the properties used in this work to make up a trustworthiness system.
We developed a dashboard to present the scores of trustworthiness properties for applications deployed in a cloud environment.

TDMS is a component of the ATMOSPHERE project similar to a database service in cloud systems. It deals with mechanisms for data storage.
• In order to evaluate and improve the trustworthiness dashboard, we performed two sprints of evaluation.

• In the first sprint, a preliminary (pilot) test was performed with 3 specialists on system security and data privacy.

• In the second sprint, 22 IT specialists, including professionals involved in the ATMOSPHERE project, evaluated the dashboard interface.
Discussions and Improvements

Table I - Shows the questionnaire statements with a rating on a four-point scale.

Table II - Shows the statements with a rating on a five-point scale, also from the questionnaire.

Table III - Presents the results from the two-point scale.

Table IV - Summarizes the problems and suggestions pointed by the evaluators through essay questions.
Usability Improvements for the Dashboard

• We provided the dashboard improvements

Fig. 4. Improved dashboard based on the usability evaluation
We also optimized some queries to better group information.
The use of the dashboard with adequate usability.

Previously, the validation was performed by scripts and analysis of log files.

Accelerating the validation and integration of components.
This work presented a usability evaluation of a dashboard by applying:

• Questionnaires

• Usability tests
• As future work we intend to identify and apply different usability evaluation techniques together with usability testing to identify specific usability issues and room for improvement.
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Thank you!  Questions?

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