

## **A Proposal to launch a Support Centre for ‘Remote’ Evaluation and Development of Language Technologies**

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Due to the rapid increasing capabilities of the worldwide web the potential of using this web for development and evaluation of speech processing systems has to be investigated. Currently to build large speech processing systems all needed software is developed and collected locally by an institution. Further, evaluation is done by loading down from the web test data provided by an evaluation center, which is processed locally leading to result data, which are sent back to the evaluation center.

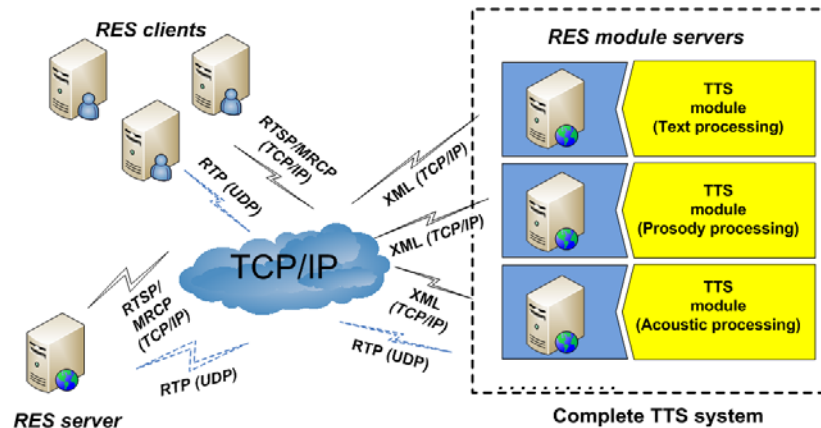
These procedures can be made much more efficient using the web. I propose that researchers and developers are supported by a web based framework which allows using and evaluating speech processing modules and systems remotely. For setting up such a framework I propose to launch a Support Centre for remote development and evaluation of Language Technologies.

A first step in this direction has been done by the ECESS<sup>1</sup> consortium (European Center of Excellence in Speech Synthesis). ECESS aims to speed up progress in speech synthesis technology by providing an appropriate evaluation and development framework. The key element of this framework is based on the partition of text-to-speech synthesis system into modules, the ECESS TTS modules accessible via the web. Currently a text processing, prosody generation, and an acoustic synthesis module have been specified. Such a split into modules has the advantage that the developers of an institution active in ECESS can concentrate its efforts on a single module and test its performance in a complete system using the missing modules from developers of other institutions. In this way, high performance systems can be built using high performance modules from different institutions. An evaluation methodology has been developed to assess the performances of the modules. This methodology is based on the common use of module specific evaluation criteria and module specific language resources needed for training and testing the modules. In order to evaluate the modules and to connect modules efficiently, a remote evaluation platform – the Remote Evaluation System Architecture (RESA) based on the public available software to use the web – has been developed within ECESS<sup>2</sup>. The RESA is based on client-server architecture as shown below.

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<sup>1</sup> <http://www.ecess.eu>.

<sup>2</sup> The RES system has been developed by Matej Roc from University of Maribor, Slovenia.



Basic elements of the RESA

It consists of RES module servers, which encapsulate the modules of the researchers, a RES client, which sends data to and receives data from the RES module servers, and a RES server, which connects the RES module servers and organizes the flow of information. RESA can be used by developers to select a RES module from the web, which contains a missing ECESS TTS module needed to test and improve the performances of their own modules. Finally the RESA allows for the evaluation of ECESS TTS modules running at different institutions worldwide. When using the RES client, the institution performing evaluation is able to set-up and performs various evaluation tasks by sending test data via the RES client and receiving results from the RES module servers. Currently ELDA is responsible for setting-up evaluation using the RES client.

Specific attendance has been given to the design of RESA to integrate easily the speech processing modules of the researchers into the RES module server shell and to use easily the RES client for evaluation and testing. Currently several ECESS partners are testing the RES and ELDA is in the process to evaluate the text processing modules and acoustic synthesis modules.

Due to the design of RESA its use is not restricted to speech synthesis modules. RESA can be extended easily to other speech processing modules.

**In the context of a ‘multilingual digital Europe’ I propose to create a “Centre for Remote Evaluation and Development of Language Technologies” which configures and maintains the RESA to the need of the community for evaluation and development.**