The Language Application Grid
A Framework for Rapid Adaptation and Reuse

Overview
The Language Application (LAPPS) Grid project is establishing a framework that enables language service discovery, composition and reuse and promotes sustainability, manageability and interoperability of natural language processing (NLP) components.

The LAPPS Grid is built upon the service-oriented architecture (SOA), a more recent web-oriented version of the pipeline architecture that has long been used in NLP for sequencing loosely-coupled linguistic analyses.

- Access to high-performance computing for research and education
- Substantially increased access to resources for NLP research in sociology, psychology, economics, education, humanities, digital media
- Means to address the current lack of interoperability among NLP components and data in registering, accessing formats and categories.
- Access to a state-of-the-art evaluation environment that facilitates assessment of component performance and iterative application development.
- Capabilities for rapid development of resources for less researched and endangered languages.
- Enhanced capability for "on the fly" interconversion of language by enabling NLP producers to interoperate with large, well-annotated linguistic resources.

Open Language Grid
The LAPPS Grid project has entered into a multi-way international collaboration with institutions in Asia and Europe and will soon be federated with Language Grid (Kyoto University, Japan), NECTEC (Thailand), grids operated by the University of Indonesia and Xinjiang University (China), and a proposed grid to be operated by the European Language Resources Association (ELRA).

Interoperability
Interoperability of web services is enabled by the LAPPS Interchange Format (LIF) and the Web Services Exchange Vocabulary (WS-EV). The first aims at syntactic interoperability and the latter at semantic interoperability.

LIF uses JSON-LD and LIF elements can be linked to definitions in the WS-EV, which specifies a terminology for a core of linguistic objects and features exchanged among NLP tools that consume and produce linguistically annotated data.

Evaluation
LAPPS has implemented services for state-of-the-art Open Advancement techniques that enable rapid identification of (1) frequent error categories within modules and documents and (2) which module(s) and error type(s) have the greatest impact on overall performance.