

OTIF: Open Tool Integration Framework

Tools for Building Open Tool Integration Solutions¹

Summary of Features



Development of large-scale engineering systems (including the software development for distributed, real-time embedded systems) often necessitates the integration of various engineering tools. OTIF provides a reusable software framework and integration technology for composing toolchains to form specific tool integration solutions.

OTIF provides a set of reusable components and libraries, as well as a process to construct integrated tool chains. OTIF is based on a backplane-based architecture where tools can interchange data with each other. During interchange, the OTIF backplane schedules and executes appropriate transformations on the data (using translator elements), in a manner that is compliant with a modeled workflow across the tools.

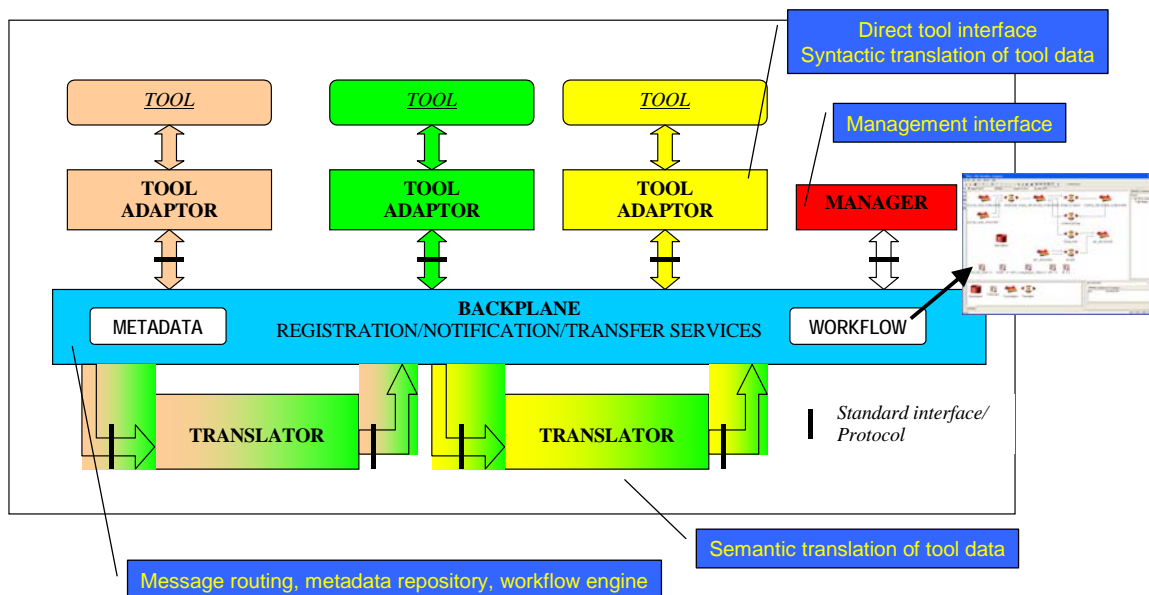
The generic elements of OTIF are:

- Backplane: a generic server component that includes the workflow engine, hosts tool metadata, and orchestrates the execution of the toolchain. The workflow engine enacts a workflow specified in visual model.
- Manager: a generic component for configuring the backplane.

The toolchain-specific elements of OTIF are:

- Tool adaptors: specific client components that reads and writes tool specific data, convert that data into/from a generic "OTIF" format (typically built from library components)
- Semantic translators: specific client components that perform semantic translation on the data received from the backplane and send the result back to the backplane.

Elements of the OTIF architecture for a simple, 3-tool integration solution are illustrated below.



OTIF has been used in building a number of toolchains, including:

- Tools for constructing mission computing (avionics) applications
- Tools for constructing and analyzing embedded controllers for automotive applications
- Tools for building bio-informatics analysis applications.

Contact point: Gabor Karsai, gabor.karsai@vanderbilt.edu, (615) 343-7472, ISIS, PO Box 1829B, Vanderbilt University, Nashville, TN 37235.

¹Original research and development was supported by DARPA/IXO MOBIES program through USAFRL.