

Name: DeSi

Presenter(s): Sam Malek and Chiyoung Seo

Objective: DeSi is a visual environment that supports specification, analysis, and manipulation of a distributed soft-ware system’s deployment architecture (i.e., allocation of the system’s software modules on its hardware hosts).

Rationale: For any large, distributed system, multiple deployment architectures will be typically possible. Some of those deployment architectures will be more effective than others in terms of the desired system characteristics such as scalability, evolvability, mobility, and dependability. However, finding the actual deployment architecture that maximizes a system’s quality of service is an exponentially complex problem that may take years to resolve for any but very small systems. Therefore, we have developed a set of algorithms and corresponding visualization capabilities that allow the system architect to explore and improve the underlying trade-offs that exist between various deployments of a system.

Target Users: This tool is designed for software architects and developers.

Scope: Software Architecture, Software Deployment

Project Type: Multi-year USC-CSE research project sponsored by various industrial partners, such as Bosch Research and Technology Center, JPL, and US Army.

Runs On:

- DeSi is an Eclipse Plug-in
- It can be ported to the platforms supported by Eclipse

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Technical Approach: For more technical details and to download DeSi refer to <http://sunset.usc.edu/~softarch/DeSi/>

Developers:

Principal Investigator: Prof. Nenad Medvidovic

Tool Development: Sam Malek, and Chiyoung Seo

Future Directions: We are currently in the process of applying and evaluating DeSi with our industrial partners. As a result, a number of future enhancements are in the works: multi-dimensional quality of service optimization and visualization, optimal replication and placement of software components for maximum fault tolerance, and so on.