PROCESS AUTOMATION - TIEFLOW

WHAT IS IT?

TieFlow is a production workflow engine that automates predefined and prioritized business processes. The TieFlow engine enables the automation of virtually any defined business process and the associated data. It supports complex processes, multi-level sub-processes, special actions and events, complicated data structures, and advanced role assignments.

TieFlow uses the Java 2 Enterprise Edition (J2EE) architecture with a relational database. This architecture ensures system portability across server platforms and scalability to high volume use. The system can be web-based with support for web services connectivity.

TieFlow was developed under a National Aeronautics and Space Administration (NASA) Small Business Innovative Research (SBIR) grant at Johnson Space Center (JSC) from 2002 to 2004. It is currently in use by Tietronix, the Space Life Sciences Directorate at JSC, and a commercial customer.

WHY IS IT INNOVATIVE OR SIGNIFICANT?

The TieFlow system is designed to maximize the envelope of supported process complexity while minimizing the complexity involved in the design and implementation of process automation. Thus, complex processes are implemented in less time and with less code, which results in reduced maintenance costs.

TieFlow can be deployed in various operational configurations. It may be used as a stand-alone system with access through standard web browsers or web services. Alternatively, it can be tightly integrated with another application that makes direct calls to the TieFlow API.

TieFlow was designed to use the eXtensible Markup Language (XML) as its data exchange mechanism. As a result, process definition and web-service commands are specified in a standard format that is easily translated to other formats and specifications.

Finally, TieFlow uses Java and the J2EE architecture, providing portability across multiple platforms and web-enabled to connect employees in distributed organizations. Clients are standard web browsers with no additional software required.

- **Portable, scalable architecture**
- **Flexible process execution**
- **Full-featured flow automation**
- **Detailed role assignments**
- **Dynamic, conditional routing**
- **Timers and deadlines**
- **Notifications**
- **Input verification / validation**
- **Process tailoring**
- **Real-time status and metrics**
- **Free for government use**

- **Integration of a distributed work force**

  Web-based application allows users from any location to work as if they were local.

- **Improved work quality**

  Implementation of an automated process ensures that work is performed and reviewed in the proper sequence by the appropriate people. Automatic error checking on the forms ensures a minimum level of quality before the work can advance in the process.

- **Increased efficiency**

  Work is instantly and automatically routed to the next assignee(s) who receives an email notification of the new work. Additionally, reminders and timeouts help maintain predefined timelines.

- **Higher productivity**

  Users complete their step in the process and are assured that the work will flow to the next increment or individual. It is not necessary for one individual to understand the entire workflow for a complex, distributed process.

- **Elimination of single-point failures**

  The process itself is fully documented and automated, so process knowledge does not leave the organization. At runtime, work can be instantly reassigned from one user to another.

- **Better work tracking**

  Users can determine the real-time status of any and all work in the system at any time.

- **Automatic audit trail**

  The assigned date and time, the assignee(s) of the work, and the completed date and time of each activity is automatically tracked and available.

- **Continuous process improvement**

  Process metrics allow the identification of bottlenecks and areas for process improvement.