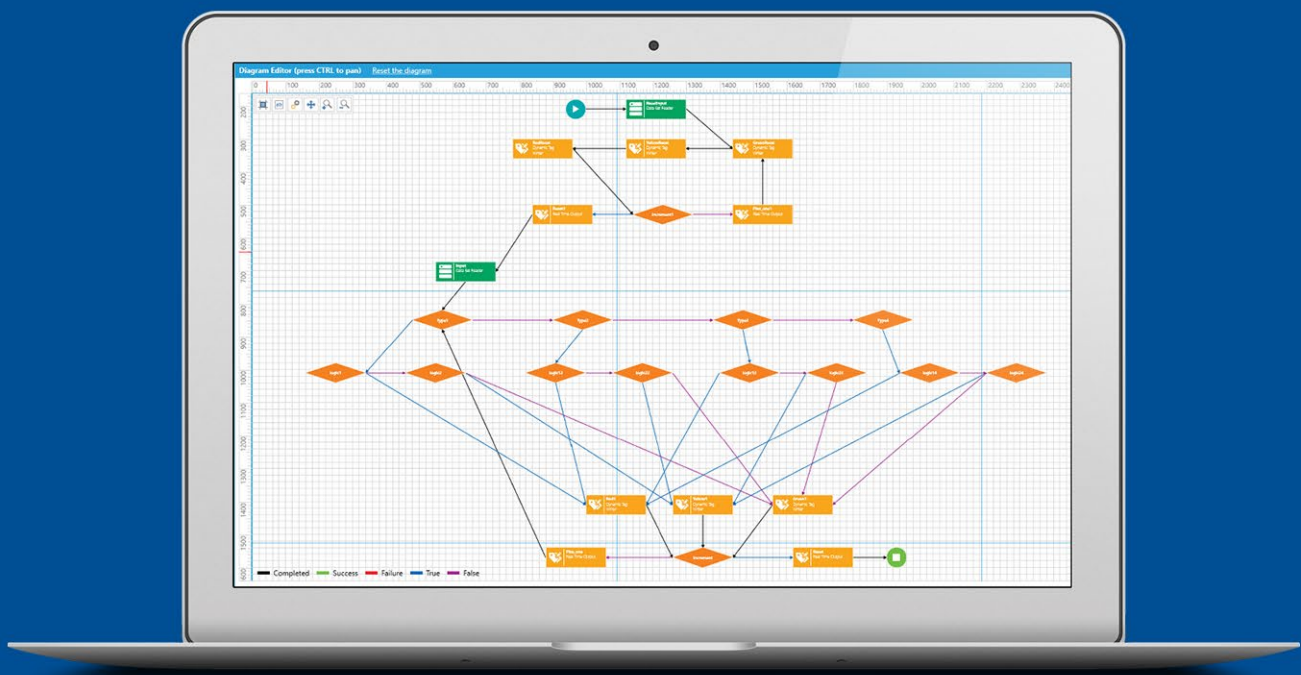# Orchestration View

Real-time Workflow for Data Bridging

Gain Efficiency by Orchestrating Data Exchange among different systems and Automating Workflows

OrchestrationView

A robust and powerful software solution for Data Integration and Interface Management among different equipment and systems, which Requires No Programming.

smar
Technology Company

Summary

SMAR´s OrchestrationView solution includes a service called BridgeWorX64, which provides the latest 64-bit data bridging technology.

Graphical data bridging enables users to rapidly implement data orchestration and integration tasks that adhere to business logic without requiring programming.

The solution allows users to create diagrams that processes data from a variety of sources and can be used for moving large amounts of data between different data types. These transactions can also be used on a per request basis (manually or using a trigger).

Use Case Examples

There are several use cases for the solution, including, for instance, sending **Diagnositc Alert form intelligent field devices to Maintenance Systems** for automatically triggering work orders; **Event or Time Triggered Recipe Tool** for downloading Set-Points from Databases to PLC/Controllers; **Connecting Systems** (Event Triggered Transfer Between Systems or Machines); **Quality Data** (Collecting Sets of Production Data for Quality Reports).

No Custom Programming Required

The solution requires no coding for data extraction from source to optional data manipulation before writing to the target system. This way, it eliminates the need for deep knowledge of the participating source and destination systems.

Fast and Intuitive Graphical Workflow Designer
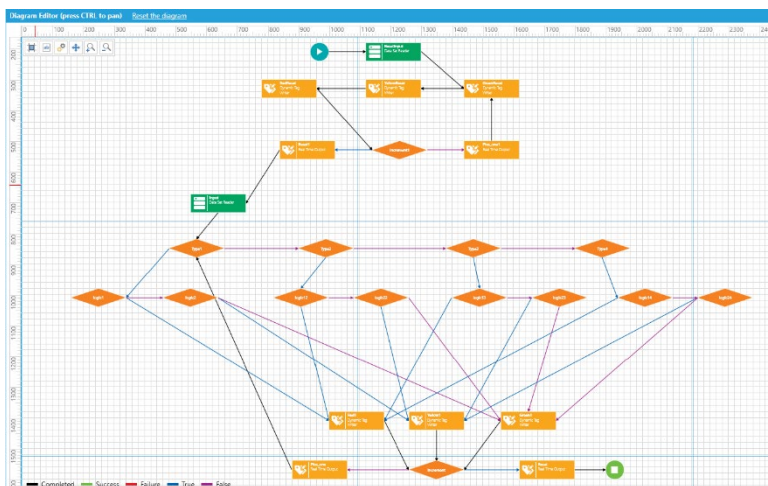
A **Transaction** workflow is a set of data transfer tasks, defined by the user to be executed in a user configured order.

And the transactions are created in a graphical tool which enables users to rapidly implement data orchestration and integration tasks. Some of its benefits include:

- **Intuitive Graphical Workflow Designer** - Simple drag and drop configuration saves significant time on implementation, deployment and maintenance costs.

- **Powerful Data Movement Blocks** - Use the function block graphical designer to connect multiple data sources, define, calculate and implement business rules
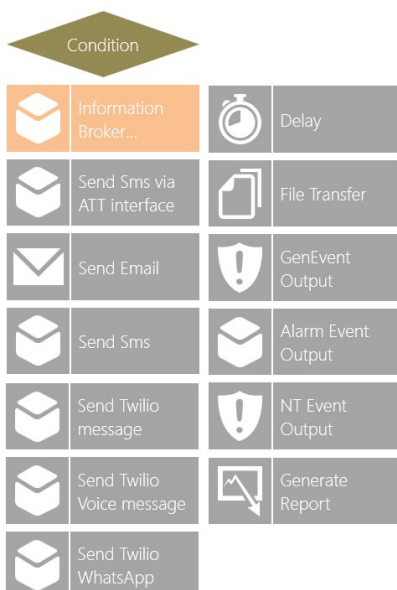 - Database, Web Services, OPC...
  - File Parser (CSV, XML)
  - Historical Data Taskes
  - Conditional Branching
  - .NET Custom Tasks

CSV File Reader	Bulk Data Manipulator	
Bulk Real Time Input	CSV File Output	
Real Time Input	Bulk Real Time Output	
Data Set Reader	Data Manipulator	
Historical Alarms Input	Generic JSON Writer	
Historical Input	Real Time Output	
JSON Content Reader	Web Service Manipulator	
XML File Reader	XML File Output	
	Data Set Transformer	
	Dynamic Tag Writer	

- **Powerful Transaction Schedules for Fully Automated Operation** – Executes on Demand: Transactions operate automatically according to your business rules, eliminating the need for manual operator intervention.

- **Connect to Any Real-time or Historical Data Source** - Correlate time-based information with batch-based information and seamlessly merge disparate data.

- **Access Detailed Tracing Information via Thin-Client Web Interface** - Discover the root cause of issues faster by knowing exactly what went wrong and when it went wrong.

Condition	
Information Broker...	Delay
Send Sms via ATT interface	File Transfer
Send Email	GenEvent Output
Send Sms	Alarm Event Output
Send Twilio message	NT Event Output
Send Twilio Voice message	Generate Report
Send Twilio WhatsApp	

- **Extensible .NET Custom Task Framework for Advanced Integration** - Leverage the power of .NET for advanced integrations of third-party data within the graphical workflow of a transaction.

Transaction Workflow Execution

- Diagram Designer - providing custom control flow logic
- Drag & Drop configuration of Transaction Diagram Activities
- Connectivity to heterogenous data sources
- On Complete, On Success, On Fail, On True, On False control flow branching
- Ability to execute custom .NET code in a Transaction
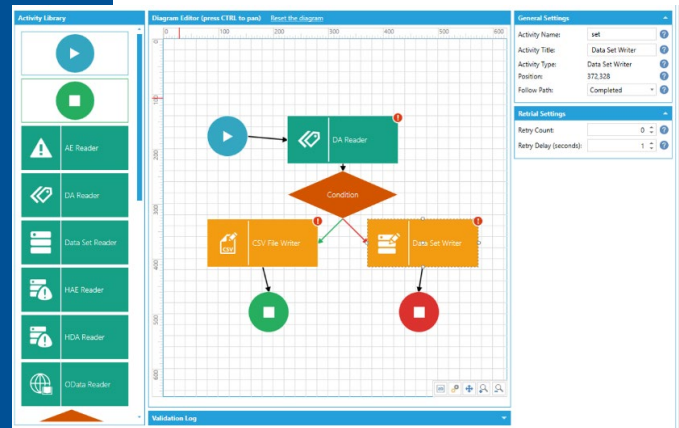
Transaction Triggering

Transaction triggering can be defined to occur Manually, Periodically, On OPC Data Value Change, On Alarm, On Database Value Change, On File/Directory Change, On NT Event posted.

Transaction Data Sources

A DataFlow engine handles different types of data from a variety of sources so that they can be used together according the needs.

Real 'live' data sources (i.e., those driven by subscription-based callbacks) are converted into datasets at the moment of consumption.

Single values (e.g., OPC DA, BACnet, SNMP, etc.) are represented as a simple data set containing at least a value, quality and timestamp.

However, they may include any additional properties requested by the user (e.g., engineering units, high/low range, etc.).
Current alarms (e.g. OPC A&E, BACnet, custom point managers, etc.) are transformed into a dataset (table) when activity executes (like a snapshot of a "current" active alarms pattern).

Data sources that are not subscription-based, but require polling, will make use of reader blocks to control exactly when the Read is executed, including:

- Datasets (e.g., Web Services, Database Queries, custom point managers)
- Historical Data (e.g., OPC HDA, BACnet, custom point managers, etc.) are transformed into a dataset (table)

- CSV files
- XML files
- JSON files

Load Balancing and Redundancy

Multiple servers can work together to execute transactions, sharing the load and providing a measure of redundancy if a server goes offline.

For redundancy purposes, multiple schedulers can be configured, though only one scheduler will be active at a time. The standby schedulers are prepared to become active if the active scheduler goes offline.

- Multithread/multicor design with Parallel Task Library
- Concurrent Transaction execution on a Thread Pool
- Workflow Priorities: Normal, Below Normal, Above Normal
- If the Workflow Engine is already running at maximum capacity, then other submitted workflows are enqueued in the Priority Queue.
- Powerful transaction options for enqueuing transactions:
    - Queue and Execute immediately
    - Queue and Execute if no other similar transaction is running
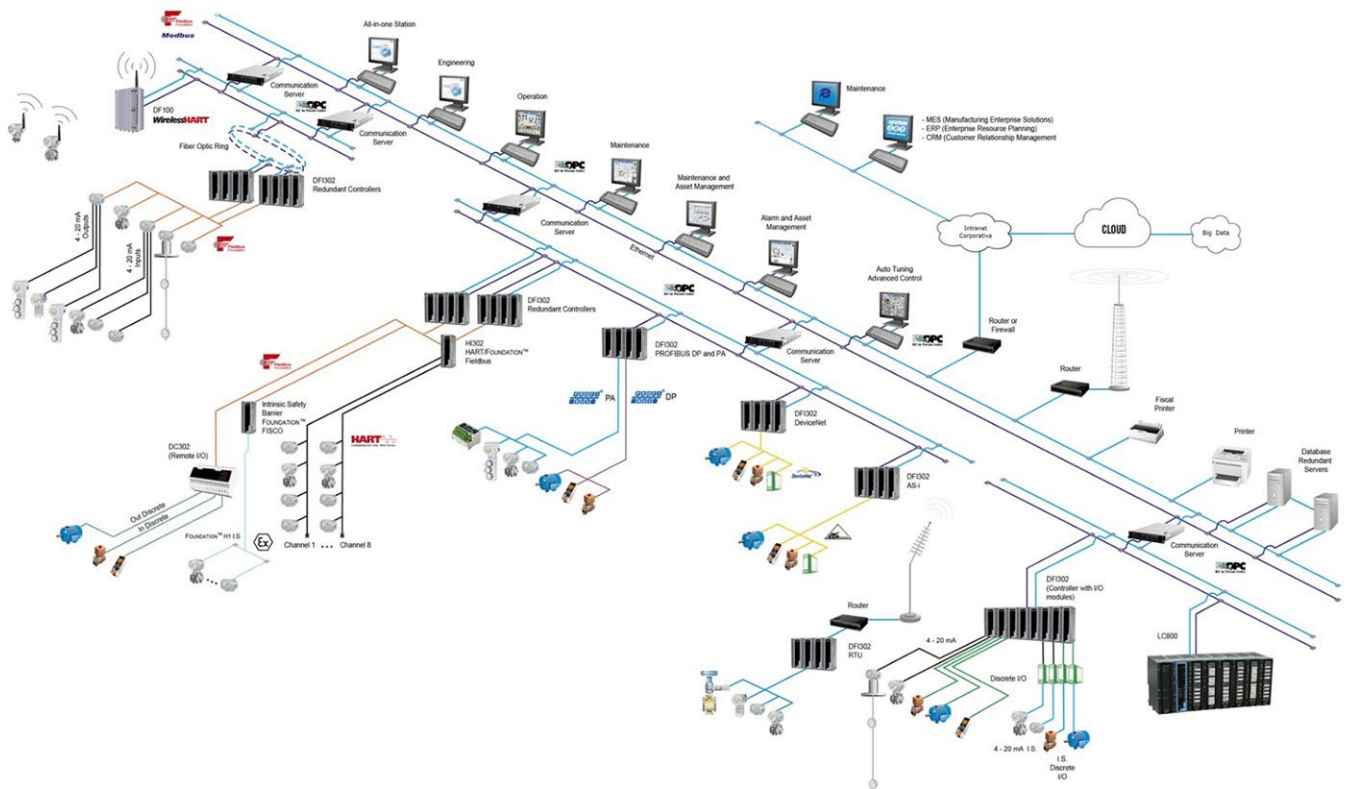   - Queue and Execute if no other similar transaction is running or enqueued

Enterprise Service Design
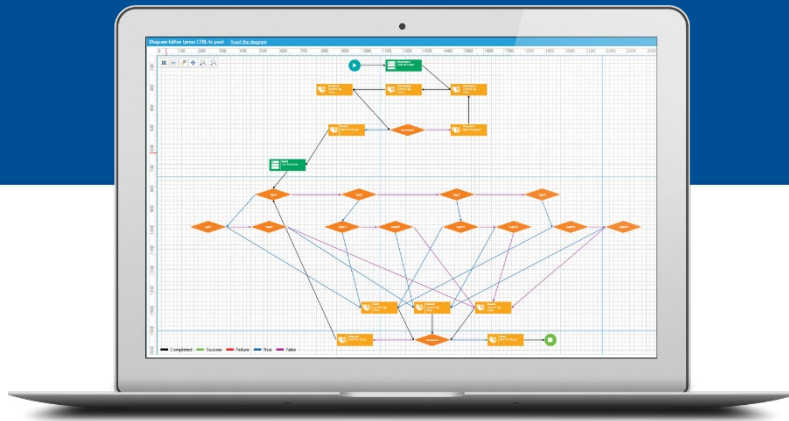
Orchestration View

Real-time Workflow for Data Bridging

system 302

Open Digital Ecosystem