

**Gluware Lab is a software IDE (Integrated Development Environment)** for those users that need to go beyond Gluware's built-in solution packages. With Gluware Lab, network engineers can modify existing or create new models without deep development experience. These models can then be published for use in Gluware Control for deployment in product networks.

With built-in packages for multiple solutions supporting multi-vendor device types users are quick to get started. Users typically progress from simple changes for customization, to more complex modeling, and finally creation of new models.

Building new models with Lab is surprisingly simple. Lab provides integrated runtime user-interface generation to test form-fill for capturing user configuration input. Once user input is captured for a feature (or set of features) Lab allows users to validate the models through the same intelligent orchestration engine Gluware Control is using, before actually publishing these model for deployment through Gluware Control.



## Gluware Lab Highlights

- Ready-made network models and pre-integrated solution packages
- Multi-vendor Dynamic Network Development Kit (D-NDK)
- Flexible Language Object Workstream (FLOW) integrates with orchestration engine
- Integrated Intelligent Orchestration Engine allows users to validate new models in the Lab
- Intuitive user interface for multi-vendor network modeling, and creating/modifying models
- Enterprise ready for orchestrating and automating LAN, WAN and Data Center networks
- 3D (Design, Define and Deploy) orchestrated network features
- Open standards based (JSON) data-modeling, and simplified JavaScript with FLOW extensions for development
- Runtime UI generated from data model for form-fill to develop and test design of user input

## Software Delivery

- Java based thick client installation
- Operating systems supported include Windows, MAC and Linux

## Gluware Lab Features

- Built on the well-known Eclipse modeling framework
- Runtime UI generation for user defined data models
- Ability to capture user data and store for end-to-end validation
- Integrated data-base for the storage of network data-models and configuration data
- Integration with online distribution center for exporting packages for usage in production with Gluware Control

## Solution Packages

- A10 (load balancer)
- Cisco IWAN + (routing, Hybrid WAN, SD-WAN)
- Cisco Switching (L2 switching)
- Fortinet (firewall, load balancer)
- Palo Alto (IPSEC)
- Riverbed (WAN optimizer)

## Device Connectivity Options

- SSH
- IPSEC
- RESTful API

## Modeling Component Types

- JTYPE – Annotated JSON for data validation and intuitive creation of user-interface forms and node definition
- JSON – Once user-data is captured in a data-model it is stored as JSON
- JNIB – Java script formatted constructs used to teach the orchestration engine about the network feature
- D-NDK classes – These pre-built network features are defined as JNIBs and are fully extensible

## Model-Driven Controls

- Domain (multiple nodes)
- Feature (single node)
- Global (entire network)
- Nodes (device types)
- Customs/Scripts
- Ability to group controls for a node using assemblies

## Provisioning features

- Preview Modes:
  - o Connected (device connection, logs and delta CLI generated)
  - o Initial (no connection, model checked, logs and CLI generated)
  - o Model Validation (no connection, model checked and logs generated)
- Validate feature data models including user data
- Discovers configured state and applies compare engine to published model
- Analysis engine validates assembled features
- Feature Runtime Engine executes in required order with known dependencies
- Semantic Runtime Engine provides required structure for CLI or REST API
- Proxy support for connectivity to private networks
- Tracking of provisioned state by feature (published or provisioned)

## Orchestration Engine Features

- Dynamic NDK (pre-built, extensible classes)
- Discovery
- Analysis
- Validation
- Renderer (CLI or REST)
- Feature Runtime Engine (FRE)
- Semantic and Rendering Engine (SRE)
- Dependency validation

## Certified Vendors

- A10 Networks load balancers (ACOS)
- Cisco routers (IOS, IOS-XE)
- Cisco switches (IOS, IOS-XE)
- Fortinet firewalls (FortiOS)
- Palo Alto firewalls (PANOS)
- Riverbed WAN accelerators (RiOS)

## Glueware EA Vendors

- Arista switches (EOS)
- Cisco (NXOS, ACI)
- F5 load balancers (TMOS)
- Juniper routers (JunOS)

## Provisioning Logs

- Real-time logging
- Logging levels
  - Response
  - Debug
  - Info
  - Warning
  - Checkpoint
  - Task
  - Error
- Available for Preview Mode and live provisioning

# Multi-Vendor, Model-Driven Software Defined Network Orchestration Platform

Glueware – A single platform built around DevOps principles of designing, validating, deploying and managing networks leveraging a proven intelligent orchestration engine.

- Network-aware orchestration engine “understands” the interdependencies between network features, policies and overall architecture
- Network-aware extends transparently to customized features developed with Lab using the multi-vendor Dynamic NDK
- In production Glueware Control provides cloud-based or on premise multi-tenant and massively scalable orchestration
- Provisioning and lifecycle management of advanced networking solutions for the LAN, WAN and Data Center leveraging zero-touch or migrating brownfield deployments

