Igluware®

Beginning the Journey Toward
Intent Based Networking
Reduce Complexity, Reduce Cost, Increase Agility

Networks Need to Catch up to the Present

Today's Technology	Virtual Assistants, Self Driving Cars, Cloud Services, Virtual & Augmented Reality
Yesterday's News	• Network technologies evolving at a slower rate than others • Incremental improvements every 5-10 years
Emerging Trends	Most apparent with Cloud Computing, where simple management systems can now provide control over hundreds (or even thousands) of compute resources, enabling businesses to "spin-up" virtual machines and deploy applications in minutes
Dependencies	Deploying new, or changing existing network services takes days or weeks as change requests move through isolated silos of expertise for approval before configuring each network device manually. Ironically, cloud computing and related services are built on top of legacy networks themselves.
Bottom-Line Issues	Cloud Services offer cutting edge biz efficiency, but depend on the underlying network to utilize and assure their availability, yet networks have not evolved to become reliable/agile enough over 80% of network changes are done manually even today.

Initial paths to Modernization

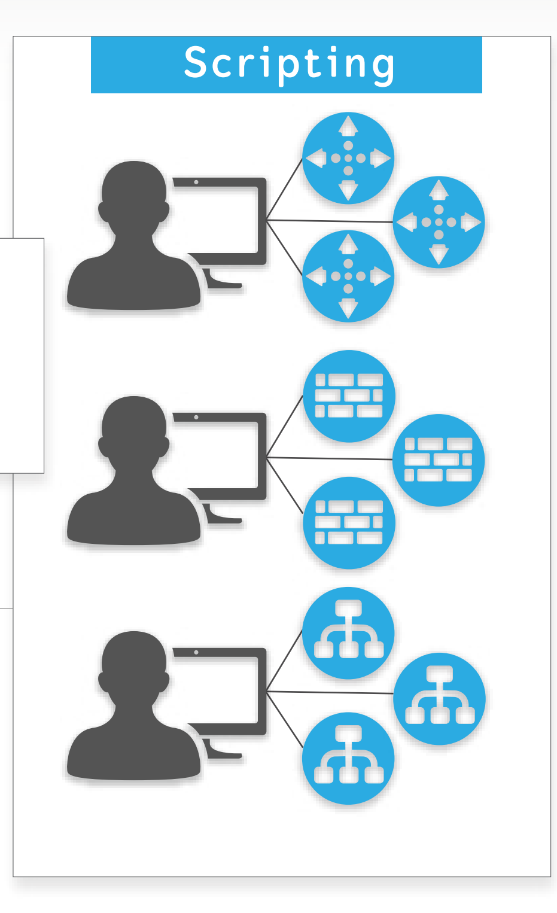
SDN and Automation were intended to help provide the reliability and agility needed to propel network technologies into the infrastructure that cloud services can really thrive on top of. SDN is either Controller based or SW only, and Automation is either Scripting or Vendor Mgmt tools.

SDN Controller Shortcomings

- Require additional HW
- Provide "lite" features – inflexible
- Often vendor or device type specific

Automation Scripting Shortcomings

- New skill set needed separate from networking
- Large efforts for small changes – per vendor/device
- Variables and unique settings needed, but difficult

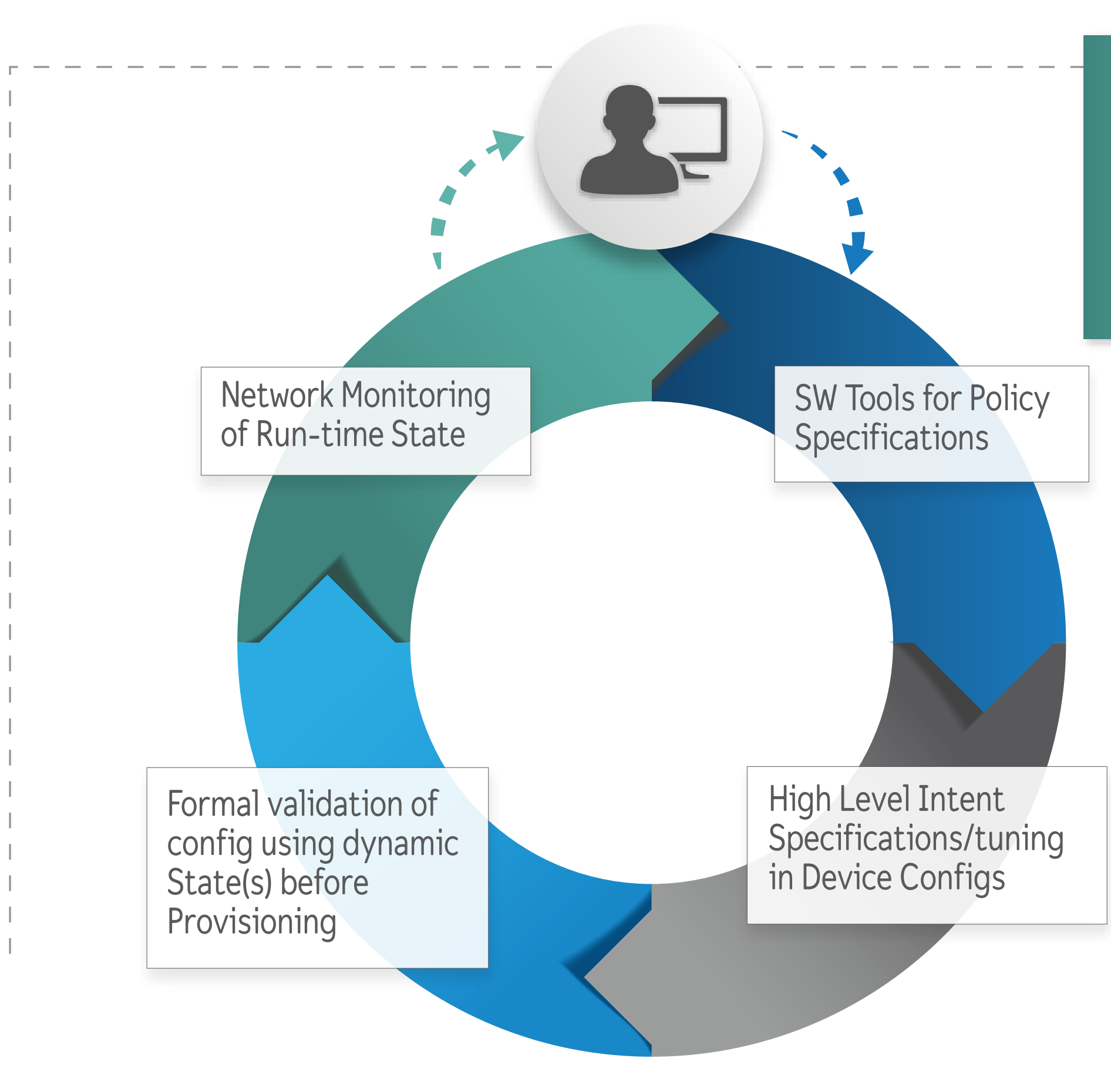


A More Intentional Approach

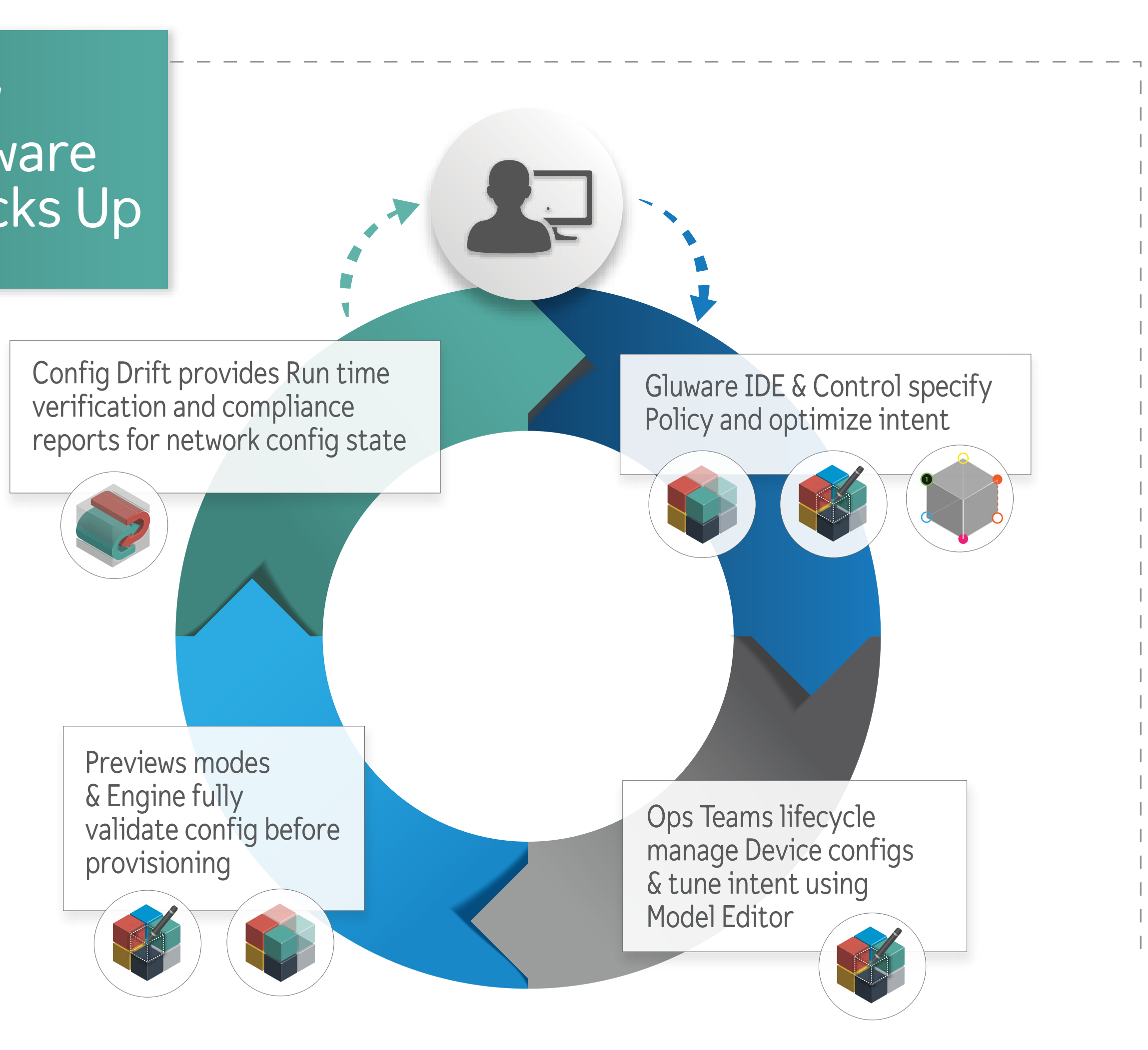
According to MIT and VMware, Intent Based Networking is:

1. SW that creates Policy Specifications and Device Configurations that reflect High level Policy Intent,
2. Then performs formal validation of Intent by modeling/previewing Dynamic States before Provisioning,
3. Then monitors the network/configuration state during runtime, and revisits policy intention as necessary.

General View



How Gluware Stacks Up



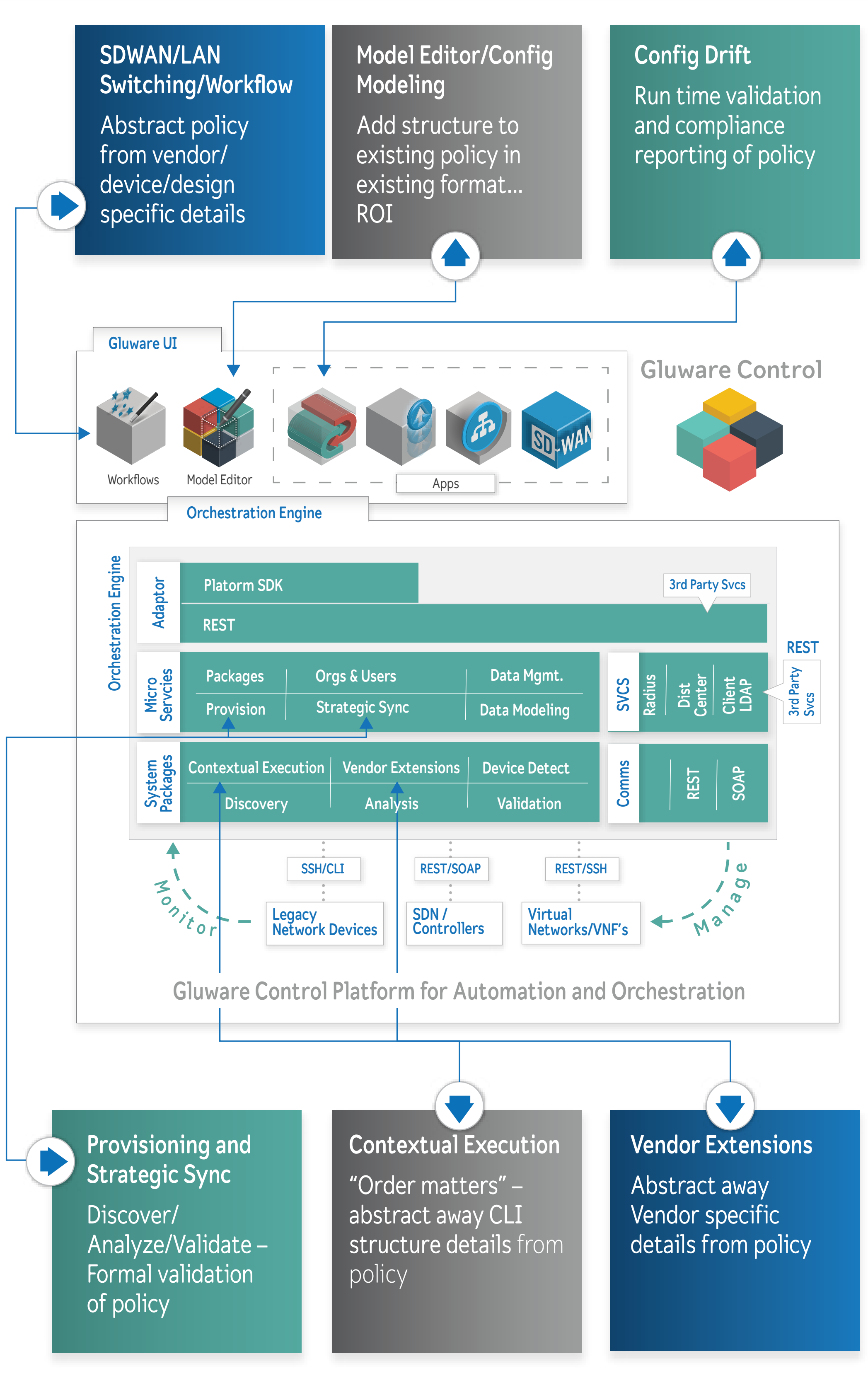
Gluware IDE is used to develop Expert Features and Guided Workflows that integrate and simplify the mapping of network configs to business intentions, and Gluware Control further tunes those intentions.

The Model Editor and intermittent Strategic Syncs on Devices provide fine tuning for the mapping of network configs to business intentions throughout the lifecycle of networks and devices.

Config Drift provides a Runtime Verification mechanism for network config monitoring, and an integrated compliance report generation utility.

Previewing and Provisioning activities leverage the Gluware Orchestration Engine which integrates the Discover/Analyze/Validation process, Contextual Execution, and Strategic Syncs – all of which help validate and abstract device and device type technical execution from business intentions.

How it all Works



SDWAN/LAN Switching/Workflow
Abstract policy from vendor/ device/design specific details

Model Editor/Config Modeling
Add structure to existing policy in existing format... ROI

Config Drift
Run time validation and compliance reporting of policy

Gluware Control Platform for Automation and Orchestration

Provisioning and Strategic Sync
Discover/ Analyze/Validate – Formal validation of policy

Contextual Execution
"Order matters" – abstract away CLI structure details from policy

Vendor Extensions
Abstract away Vendor specific details from policy

Current IBN PROS & CONS for MOST IBNs But not Gluware

PROS Intent Based Networking Solution Benefits

- Expand network scale and complexity to keep pace with business growth
- Increase network agility to keep up with emerging business unit demands
- Reduce manual (device-by-device) configuration changes on devices that account for 80+% of outages currently
- Shrink time and resources needed to configure and troubleshoot the network, freeing engineering time for more strategic activities

Current Intent Based Network Solution Issues CONS

- Lack of standardization means there is likely to be fragmented and vendor specific solutions
- Igl Gluware covers the whole network, and most device vendors and device types at a CLI level
- Low ROI from open-source efforts that show progress, but nontrivial resources and assembly are required to implement and maintain them
- Igl Config Modeling lets IT immediately automate current features, and Config Drift provides a turnkey approach to config compliance – no coding required
- Significant investments by most IT orgs in existing network equipment and setup make "rip and replace" approaches of many IBN solutions difficult - whether HW or SW based
- Igl Gluware automates new and existing networks and devices – all HW types supported
- Significant dependencies on "best of breed" mixes of multi-vendor, multi-platform (switch, router, FW, etc), multi-domain (LAN, WAN, Datacenter), and multi-modal (physical and virtual) devices by current IT shops mean large coverage gaps for most IBN solutions
- Igl Gluware automates from the CLI interface up, meeting the IT "best of breed" challenge
- High saturation in IT orgs of single vendor/single platform network mgmt. tools mean an additional tool for IBN formal validation is often a non-starter
- Igl Gluware provides integrated feature by feature validation in every Preview and Provisioning cycle from the Orchestration Engine

3 Themes of Gluware Intent

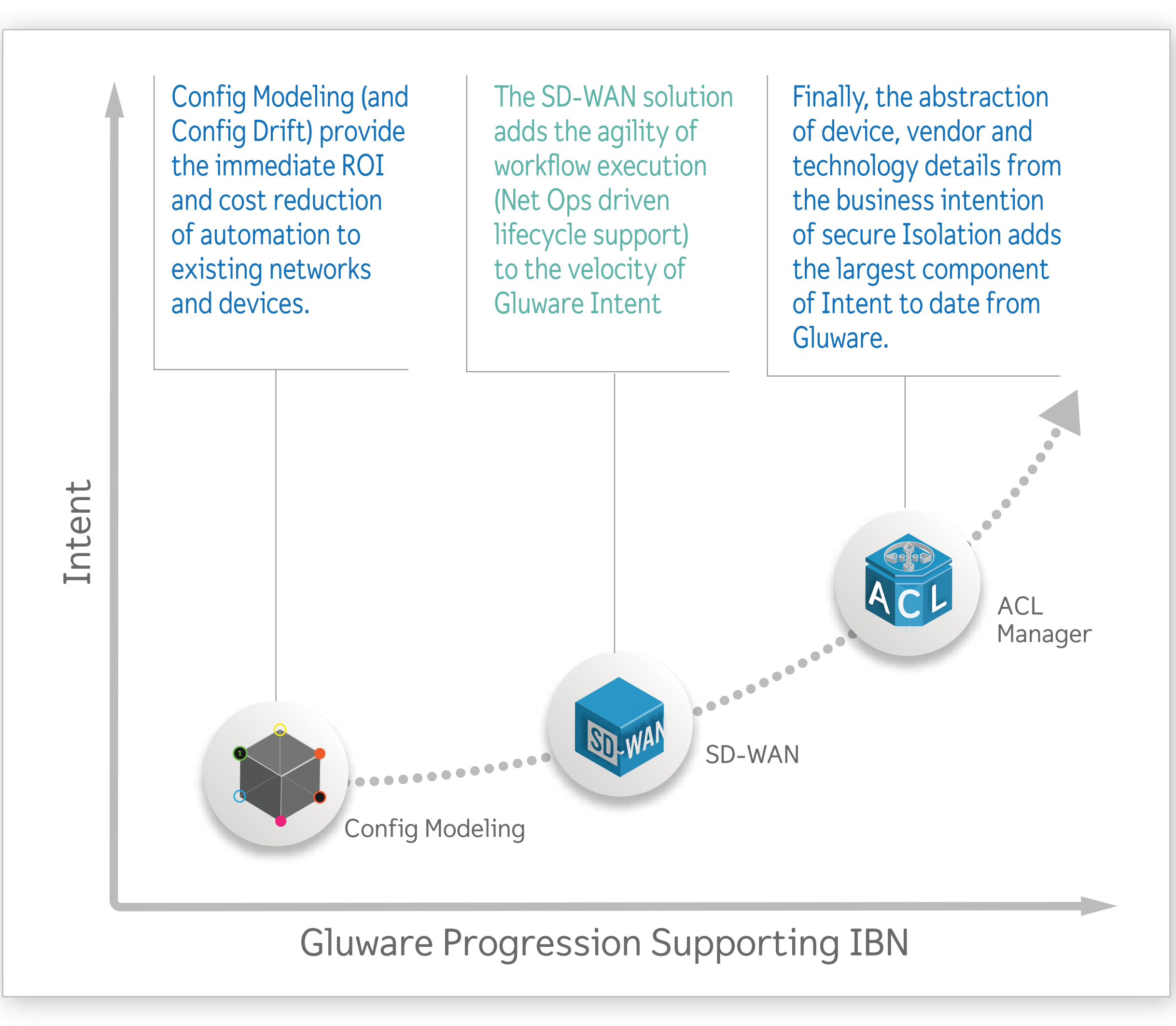
1. **Simplify Network Configurations**
   Validation of Policy: Discover/Analyze/ Validate each feature; Ordered execution of CLI – improves success % thru validation
2. **Reduce Cost**
   Config Modeling: immediate ROI with existing features and devices – bottom line biz impact
   Config Drift: immediate verification of intent – bottom line Biz impact
3. **Enable Agility**
   Vendor extensions: increase # of impacted targets for policy
   Workflow details: reduces level of experience needed to influence & implement policy

Proof Points Gluware Intent Proof Points

- Multivendor Whitelist ACLs allow simple execution for new Business apps
- Multi-vendor = Enabling Agility via Vendor Extensions
- Business App support = direct impact on business need
- Executed using Orch Engine = assured validation while executing
- Network Isolation using multiple mechanisms on multiple device types and vendors
- Isolation = abstraction of business intent to ACL, Ports, Interfaces, Firewalls
- Multi-vendor/device = broader impact and agility

Intent Velocity

Goals of Simplifying Configs, Reducing Cost, and Enabling Agility combined with the Continuous Intent Cycle described by MIT/VMWare delivers on the slope illustrated in the diagram below.



Config Modeling (and Config Drift) provide the immediate ROI and cost reduction of automation to existing networks and devices.

The SD-WAN solution adds the agility of workflow execution (Net Ops driven lifecycle support) to the velocity of Gluware Intent

Finally, the abstraction of device, vendor and technology details from the business intention of secure Isolation adds the largest component of Intent to date from Gluware.

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For more info visit www.gluware.com