Spirent **Velocity**

Model-driven Lab and Test as a Service Automation Platform

Use Cases

Reduce Testbed Setup Time and Effort

- Automate manual, error prone processes to save time and money
- Expand test coverage by enabling test execution on multiple testbeds
- Get to testing quickly by automating startups and tear-downs

Consolidate or Federate Enterprise Labs

- Enable 24/7 access to resources globally
- Optimize CapEx by eliminating resource redundancy
- Increase team efficiency by enabling knowledge sharing between teams and locations
- Enable new business models and add new revenue sources by providing Lab as a service

Maximize Resource Utilization

- Enable faster and better decision-making via accurate resource usage reporting
- Minimize equipment costs while ensuring test coverage
- 'Green' Power management optionally powers on/off devices before and after use
- Optimize resource utilization using 'micro-reservation', a unique just-in-time method of reserving and deferring resources until their time of use within a test campaign

Service Provider Net-DevOps

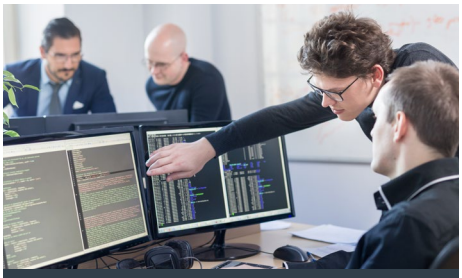
- A truly dynamic and adaptive environment that eliminates static practices and sub-optimal siloed resource allocation
- Improve time to market with fully integrated and automated lab and production infrastructure
- Expand your testing beyond your perimeter to the live network

Enterprise LaaS/TaaS Cloud Services

- Offer your labs and test infrastructure as an enterprise service
- Enable consistency with your offerings and your customer's offerings
- Build competency, trust and leadership

Who Needs Velocity?

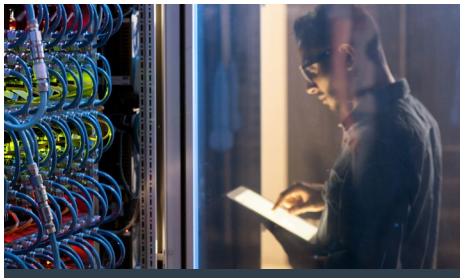
Development



Repeatability, Consistency

Share and reuse development sandboxes

Quality Assurance



Increased Test Coverage

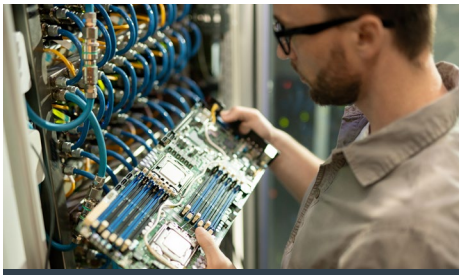
Setup and teardown thousands of testbeds per day

TAC / Support

Automated Pre-Provisioned Setups to Address Tac Cases

Quickly setup pre-provisioned testbeds to replicate customer issues and enable debugging

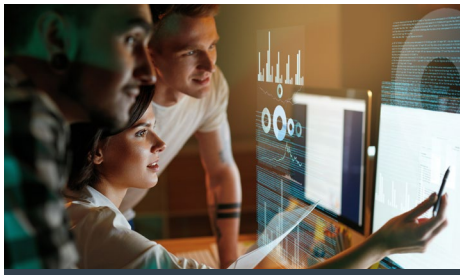
Service Delivery



Hardware and Vendor Agnostic Testing and Deployment

Automate physical and virtual network elements to achieve TTM

Sales and Marketing



Quick Product Demos and POCs

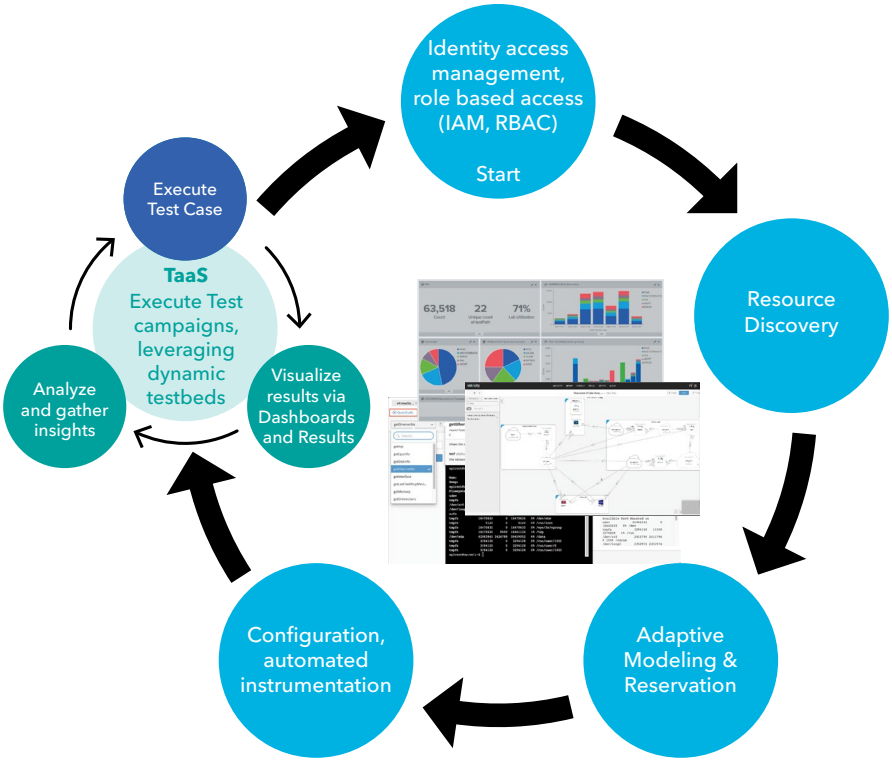
Quick setup of POC scenarios, 'Try and Buy' sandboxes for prospects

Certification

Predictability, Flexibility at Scale

Standardize test campaigns, verify and provide standards compliance as a service

Lab and Test as a Service: A Typical Workflow



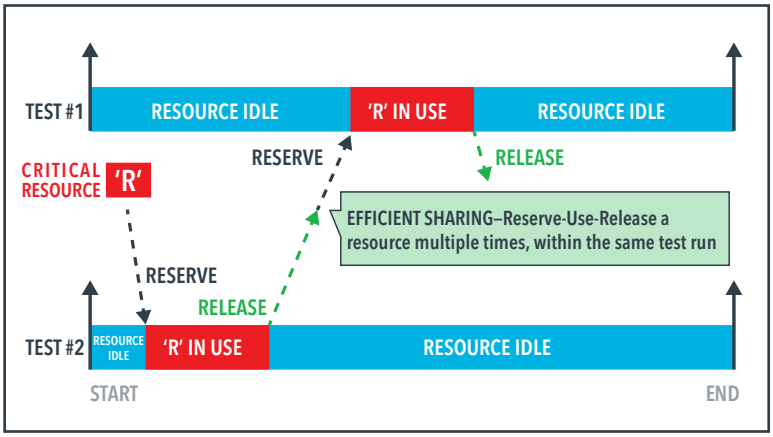
- **Identify Access management and RBAC:** Authenticate users identity and activate the right role-based policies across the entire infrastructure
- **Resource Discovery:** Dynamically discover resources (physical and virtual devices) and add to inventory
- **Adaptive Modeling and Reservation:** Model the topology to reflect the test/production infrastructure; reserve and allocate resources to testbeds, workflows and test cases
- **Configuration, automated instrumentation:** Connect and configure the resources automatically based on the test campaign (L1-L3 configurations on network devices, other configs and polices to other devices and instruments). Use Resource Queuing to reserve and defer resources until they are 'called' in a test script.
- **Execute TaaS:** Execute test cases in the test campaign, visualize results via dashboards and reports, analyze and gather insights

Delivering Lab as a Service

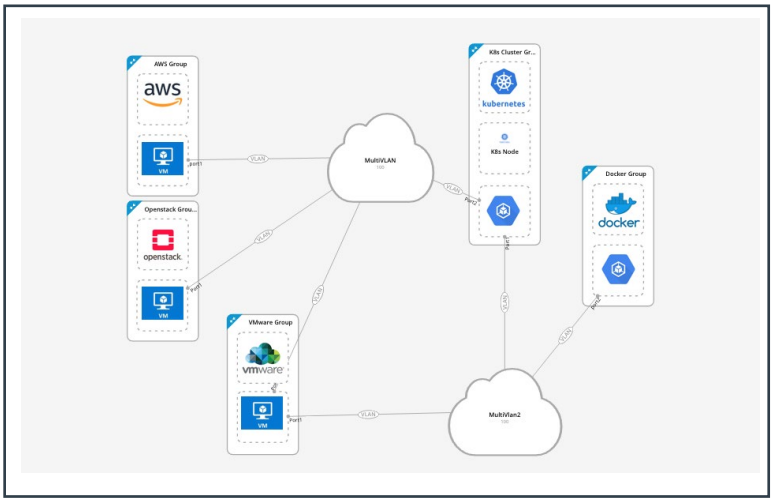
Saved 30% effort in testbed setup and teardown

Saved over $2M in engineering costs annually

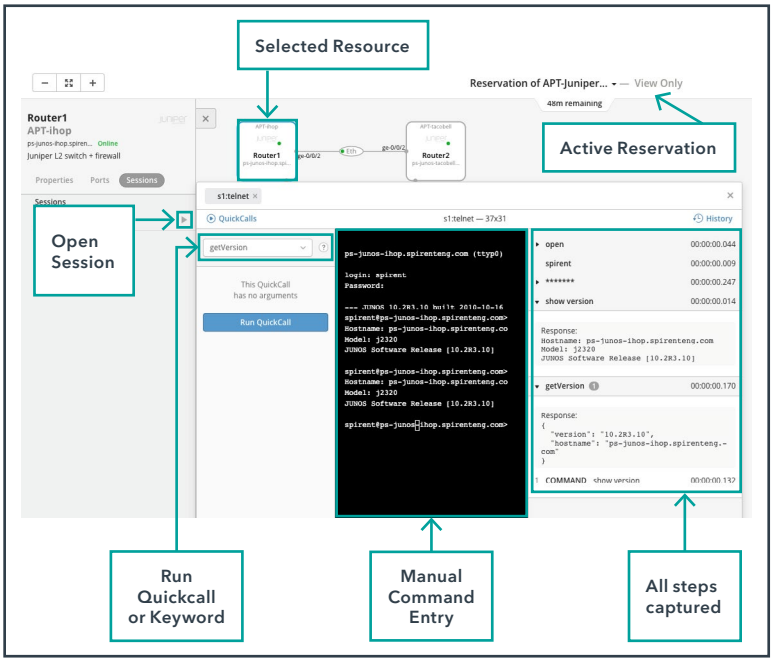
– *Network Security Leader*



Just-in-Time Resource Reservation: Reserve resources just at the time they are needed and release them when done, even when the test is still running.



Visual Topology Editor: Connect, configure, and orchestrate physical machines, virtual machines, and container deployments with a simple drag-and-drop user interface.



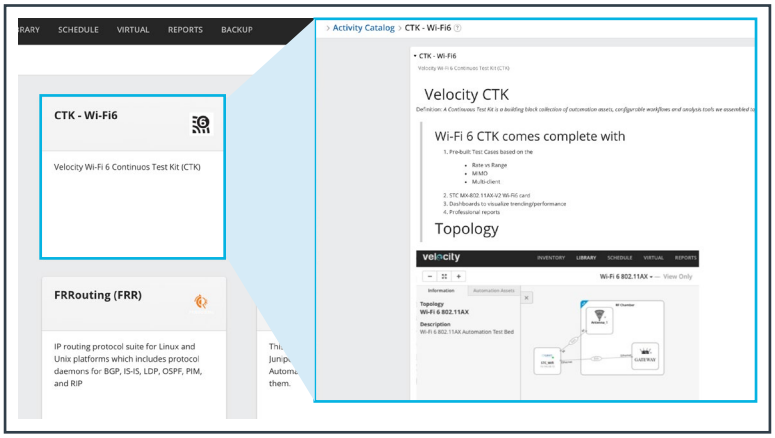
Interactive Workflow Automation: Create automation workflows.

Delivering Lab as a Service

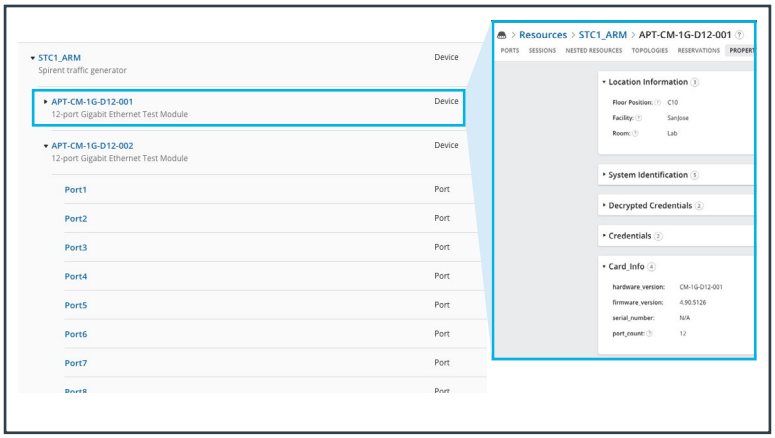
Cut testbed standup time from 1 week to 5 minutes

Increased efficiency by 90%!

–FiberHome



Activity Catalogue: Create commonly used activities with all relevant assets– code, documents, topologies etc.

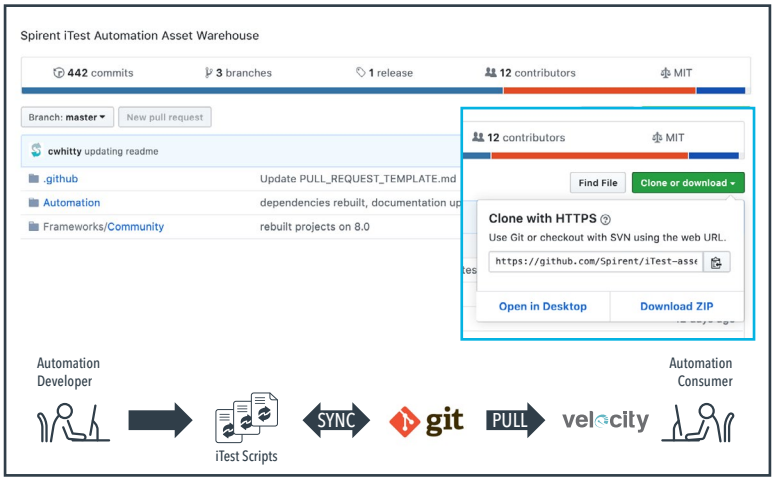


Adaptive Resource Modeling: Build nested templates that accurately reflect the actual test environment.

Lab test setup that used to take 50 hours.

Now takes 10 minutes–a 300x speed-up!

–Calix

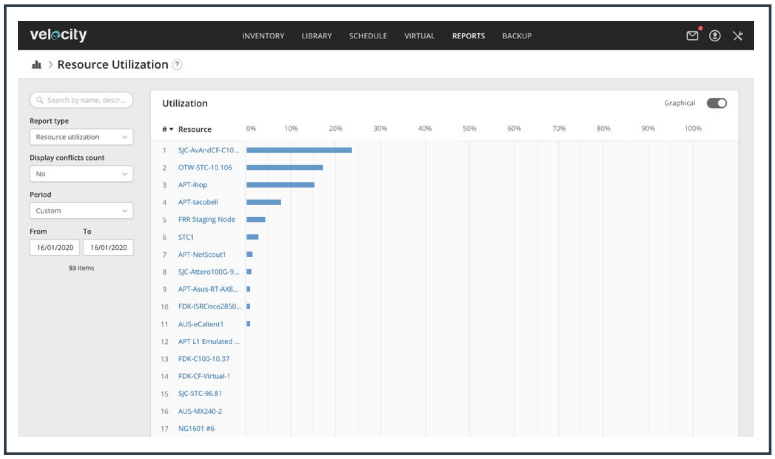


Automation Developer: Create automation scripts, test them, sync, publish and share with other teams via popular tools such as Git.

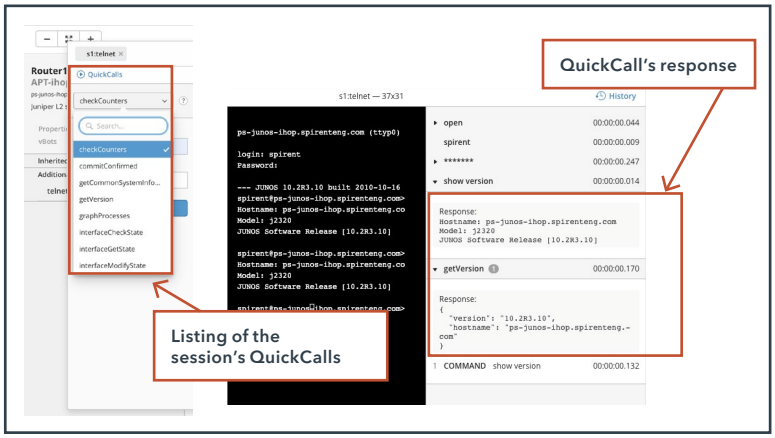
Delivering Test as a Service

30% engineering **time savings** managing resources

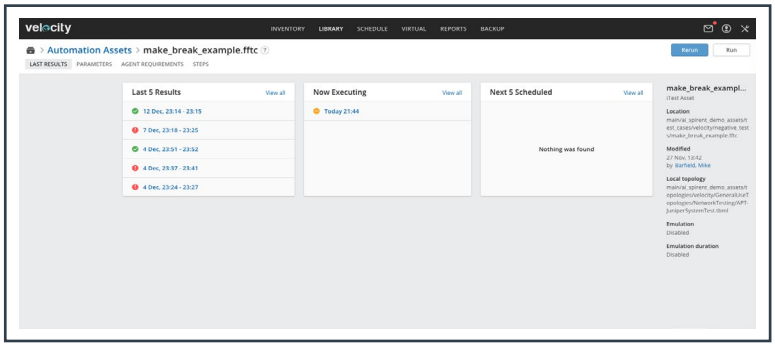
– Major Service Provider



Resource Utilization: Get an accurate understanding of resource utilization to make business decisions.



Capture and Replay Automation: Capture output on one device; automate by replaying it on other devices.



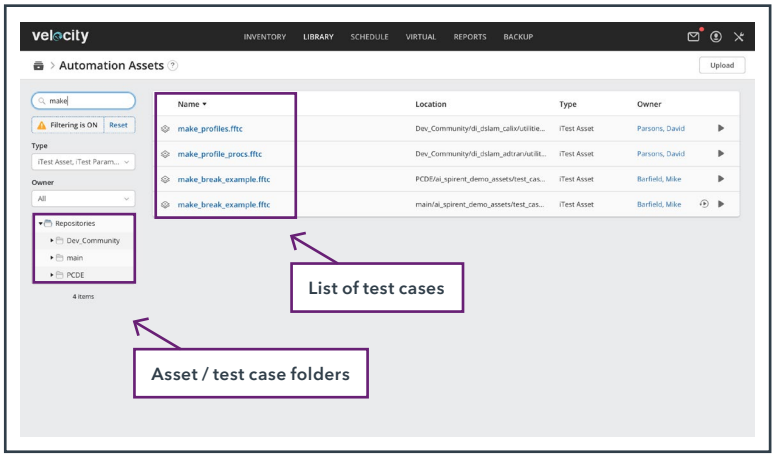
Test Execution Pane: An easy window into the past, current and future scheduled events/ testcases.

Delivering Test as a Service

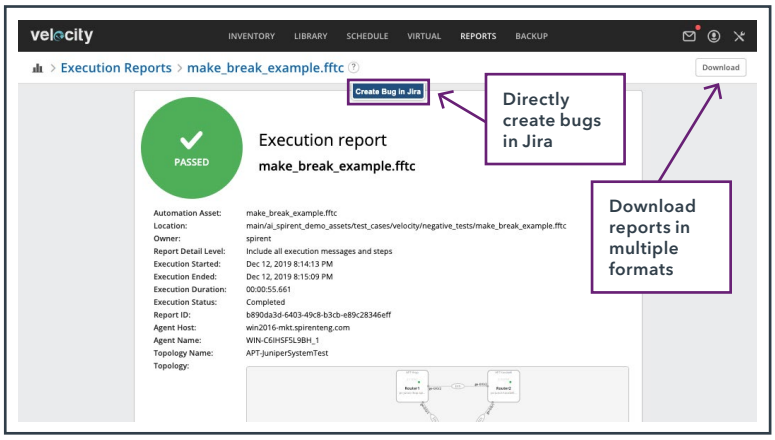
Expanded test time from 8x5 to 24x7.

Over **300% increase** in testing capacity.

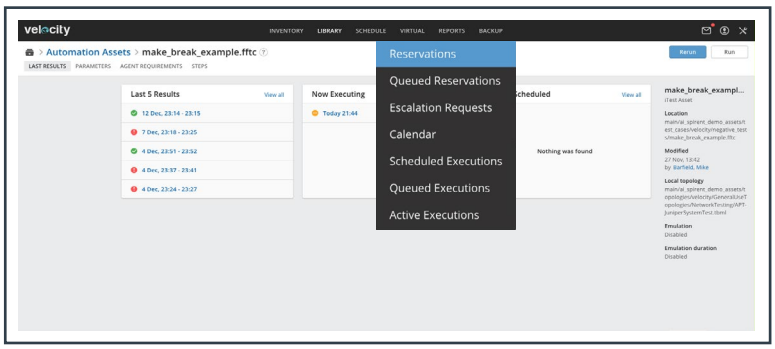
– Major Wireless Service Provider



Automation Assets: Easy access to testcases and repositories

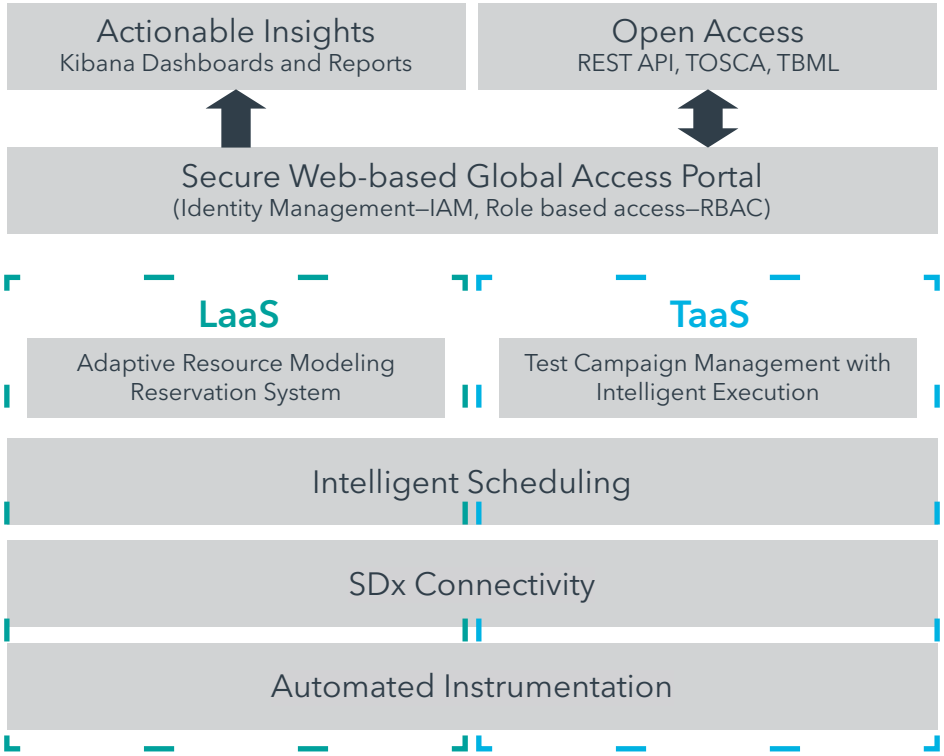


Execution Reports: Access and download test results in multiple formats; directly create bugs in Jira and automatically attach all relevant testing data



Schedule test assets: Leverage the many options to schedule testcases, check status and automatically create work orders

Lab and Test as a Service Framework



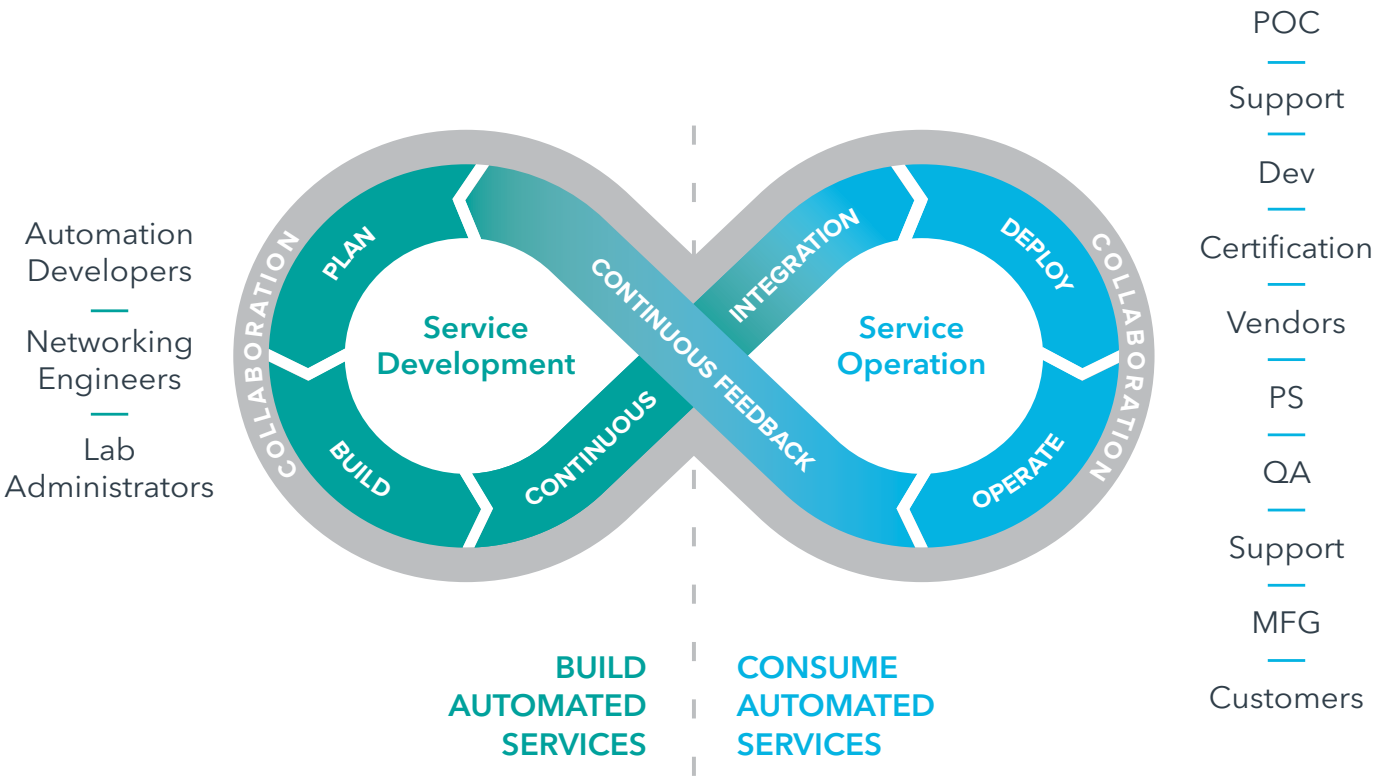
- **Actionable Insights:** Highly configurable WYSIWYG editor to create customized, exportable dashboards, reports and KPI widgets with real-time triggers and event notifications.
- **Open Access and Control:** Complete documented RESTful API for access and control of system resources with supported data interchange using TOSCA and TBML.
- **Secure Global Access and Management:** Configurable Integrated Identity Access Management(IAM) and Role-based Access (RBAC) provides integrated business and system policies using LDAP, Active Directory and Single Sign-on.
- **Adaptive Resource Modeling:** High granularity of resource inventory enables greater flexibility to model the natural hierarchy of environment attributes, from lab geographies, to rack details, to device components, to application capabilities. This enables users to adapt and reserve their models based on their unique workflow needs.
- **Test Campaign Management with Intelligent Execution:** Map any type of automated script from SCM systems (Git, SVN) to create, schedule and execute environment-aware test campaigns. Test campaigns can be configured to inherit changing environment attributes.
- **Intelligent Scheduling:** Calendar-less scheduling queue enables reservation of any system resource, based on configurable real-time availability attributes. Intelligent scheduling uses Resource Queuing, a unique just-in-time 'micro-reservation' method of reserving and deferring resources until they are 'called' in a test script.
- **SDx Connectivity (Software Defined connectivity):** Automate any-to-any interface connections (L1- L7) based on environment workflow or testcase specifications
- **Automated Instrumentation:** Dynamically discover, orchestrate and provision physical, virtual and hybrid environments

Enterprise-Grade Agile Platform

Enable Continuous Testing, from Development to Operation from Lab to Live!

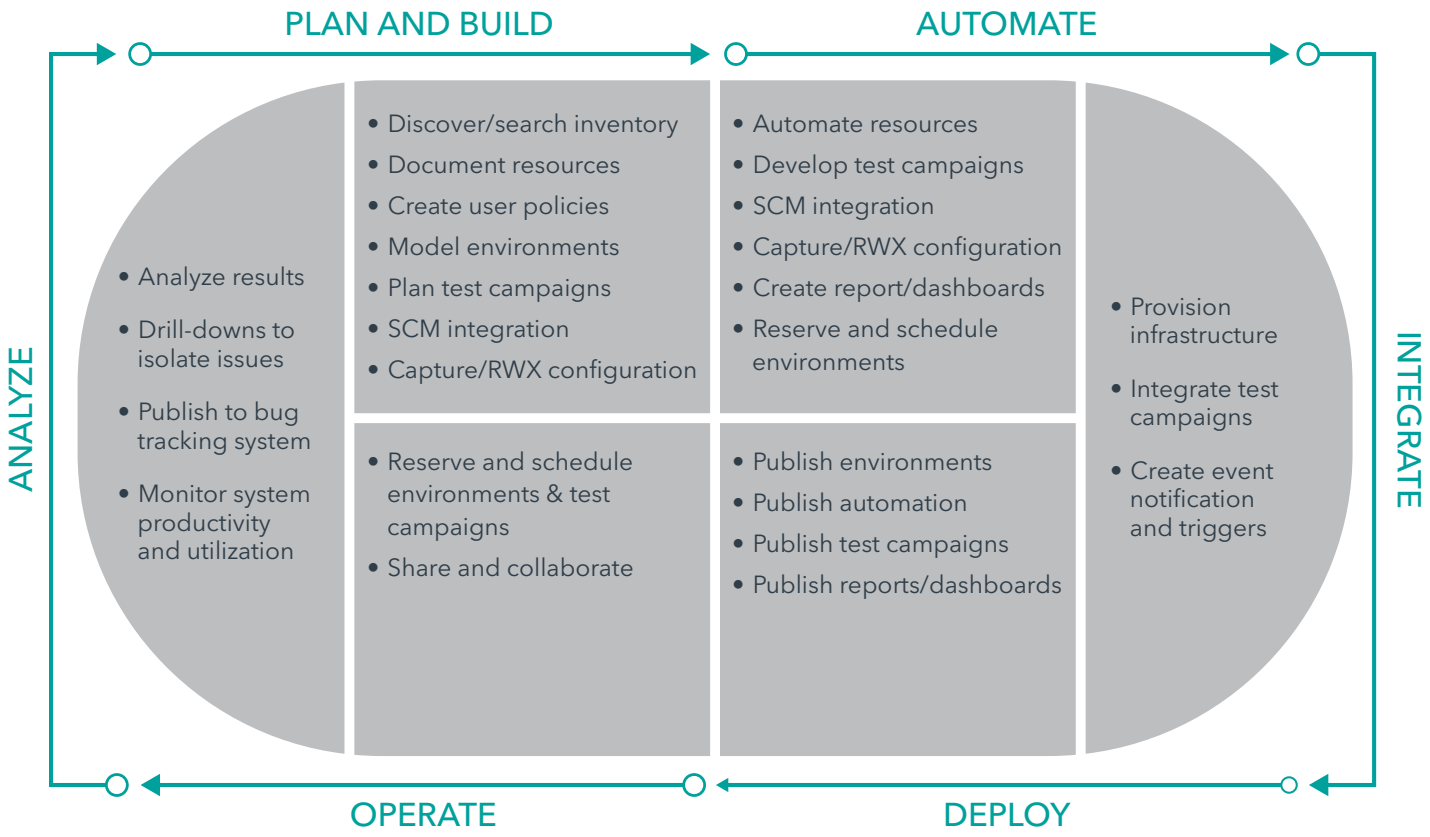
Why Continuous Testing?

- Agility is the key to success for every business, and IT systems that support need to be equally agile. DevOps is a widely accepted efficient approach to address the ever-changing complex business scenarios. Continuous Integration (CI) and Continuous Delivery (CD) are the two key components of this DevOps paradigm
- CI/CD can only be achieved through Continuous Testing (CT). CT identifies defects early in the product development cycle, when they are generally less complex and easy to resolve
- DevOps and CI/CD/CT help accelerate the time-to-market of products/services and quickly iterate on enhancements based on customer feedback
- And, automation is the only way to achieve Continuous Testing at scale



Leverage Continuous Testing in a DevOps Paradigm

- Schedule and execute tests predictably and continuously to maximize coverage
- Deliver live reports, customized for each audience
- Benefit from the seamless integration with SCM tools, such as Git
- Re-use existing scripts written in Python, BASH, etc.
- Integrate with other ecosystem tools using REST API



Benefits

Lab as a Service (LaaS)

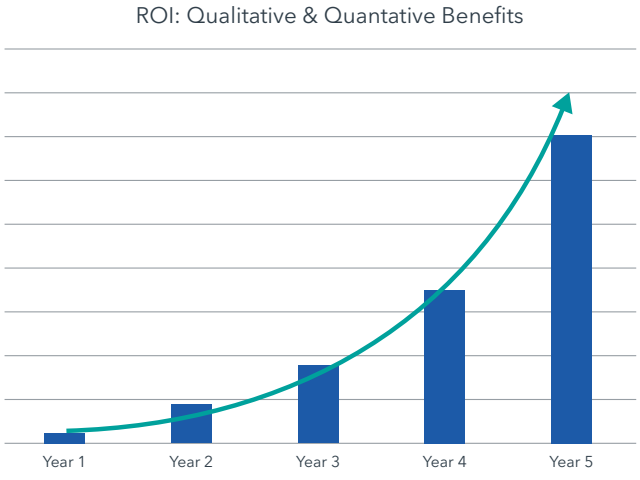
- Initiate large scale labs and test environments in minutes
- Automate the mundane and do exciting work
- Model complex infrastructures using hierarchical topologies; automate and share with anyone, anywhere
- Dynamically scale with your environment and enable fast adoption and ROI
- Empower DevOps workflows spanning multiple testbeds across multiple geographies

Test as a Service (TaaS)

- Leverage the intelligent, environment-aware test case management, execution and analysis
- Publish, schedule and share test cases with anyone, anywhere
- Intelligently deploy test campaigns that minimizes test times and optimizes resource usage
- Expand your test coverage from the lab to production environments safely and deterministically

ROI: All Things Considered

- See exponential returns over a 3-5 year period
- Increased utilization & test coverage → Improves product quality → reduces customer found defects (CFDs) → lowers support costs → improves business, lowers churn, enhances customer retention → grows revenue, boost brand value, increases enterprise valuation & stock price
- Increases parallelism in test execution; improved reusability increases test coverage
- Institutionalizes knowledge; improves new hire training
- More test become automatable over time; tools improve and testing know-how gets enriched



For more information on Spirent's Lab as a Service platform, please visit www.spirent.com/solutions/lab-as-a-service.

Note: Ask us about the Velocity/iTest solution in order to build drivers faster, integrate tests, and build your own TaaS.

Contact Us

For more information, call your Spirent sales representative or visit us on the web at www.spirent.com/ContactSpirent.

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