FROST & SULLIVAN

2015

Quali systems

2015 Global SDN/NFV Testing and DevOps Transformation Competitive Strategy Innovation and Leadership Award
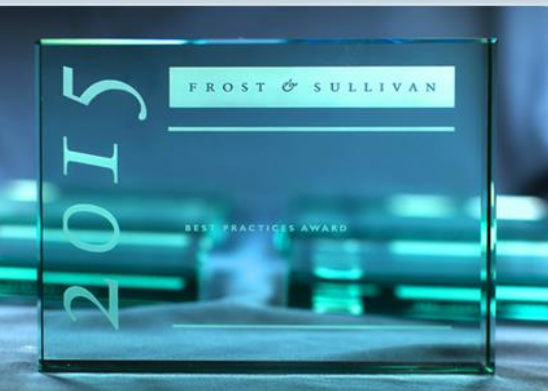
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Background and Company Performance

Industry Challenges

Software-defined networking (SDN) and network functions virtualization (NFV) are still young in their deployment cycles. The industry is still developing operational experience about the agility SDN and NFV can offer as an evolution of network architecture and how to develop and manage new network services based on SDN/NFV deployments. Adding confusion to the SDN/NFV arena are the extensive number of proposed solutions to the evolved network control plane, as evidenced by the plethora of controllers offered via the Open Network Foundation (ONF), Open Daylight project, the Open Network Operating System project, and many vendor-specific implementations. Against this backdrop of newness, Service providers have a strong need to develop sound testing methodologies that can cope with the increased complexity of networks that will increasingly be programmatically operated and that require greater levels of automation.

SDN/NFV describes a programmatic approach to network infrastructure, as a change from highly manual modes that have characterized network engineering and operations. While SDN and NFV are thought of as completely modernizing telecom network infrastructure, the reality for quite some time will be a hybrid combination of virtual and physical infrastructure, and leaving a significant part of the network working under a legacy approach. The evolution from purely physical network elements to virtual network functions and the change to programmatically available control plane of SDN is seen by telecom organizations as critical to accelerating innovation. In this context, a new vista of requirements and demands has arisen for testing organizations and process

The first and perhaps simpler challenge for SDN and NFV testing is to characterize and validate functionality and particularly performance in a changing network infrastructure environment. The bigger challenge is transforming development, testing and staging practices from long, slow, manual waterfall processes to faster automated, DevOps methods. These two challenges constitute more than a functional approach, but a strategic approach, because broad business process re-engineering is required to achieve the pace of innovation that is promised by SDN and NFV network architectures.

Strategy Innovation and Customer Impact

Competitive Differentiation

As telecoms realize the need for DevOps-style agility as a companion to their large investments in SDN and NFV network architectures and infrastructure, they are looking for key business partners to assist them in their business, technical and cultural transformation. Frost & Sullivan sees a combination of thought leadership, technology offering and industry partnerships as critical indicators of competitive differentiation to meet this need in the marketplace.

QualiSystems has made significant inroads in all three aspects. First off, QualiSystems has established itself as a thought leader around carrier and network DevOps in the last year in particular, evidenced by its contributed content, and speaking presence at many SDN and NFV conferences. QualiSystems recognized at an early stage the strategic importance of the DevOps transformation as a top-down requirement for success in SDN/NFV devtest processes.

From a technology offering point of view, QualiSystems entered the cloud-enabled devtest and lab automation market approximately 2-3 years ahead of other competitors and has established a high-percentage, majority market-share position, particularly in the networking, cloud and telecom eco-system, as evidenced by an extensive customer base (over 200 deployments as of end of 2014), and prominent public references such as Cisco DevNet, Okinawa Open Lab, HP SDN Lab, Hitachi Data Systems, World Wide Technology's SDN-enabled Advanced Technology Center.

Finally, QualiSystems has established key industry partnerships around SDN/NFV testing and DevOps. Notably, many of its public references are also partnership showcases of how to achieve automated, cloud-enabled DevOps type practices in SDN and NFV testing. For example, Cisco DevNet is a public cloud based on QualiSystems CloudShell platform that offers ISV's access to complex network topologies of Cisco hardware and software products for the purposes of API development and certification testing. Another example is Okinawa Open Lab, which was established by global SDN/NFV leaders NTT Communications and NEC and boasts membership consisting of a who's who of the networking and telecom industry, particularly in Asia. The Okinawa Open Lab offers a cloud-based DevOps sandbox based on QualiSystems CloudShell, that offers telecom and network engineers the ability to build SDN-conencted NFV service chains utilizing open standards such as OpenStack, Juju, and OpenFlow. From a vendor partnership perspective, QualiSystems has established the most extensive partnerships in the market, including a strategic partnership with IXIA for lab orchestration and automation. In February of 2015, QualiSystems announced a new partnership with QualiTest (the 2nd largest pure software testing services company in the world) for SDN/NFV orchestration and infrastructure testing. QualiSystems offers its automation technology and while QualiTest's SDN/NFV testing services help network operators with the architecture, design and even execution of SDN and NFV testing processes. Both companies have many years of experience in their respective domains and significant presence in the telecom service provider community, so the partnership should bring tangible value to the market. QualiSystems also established a major go to market partnership with World Wide Technologies (WWT), a $7B systems integrator with a major presence in the North American telecom market. WWT automated its Advanced Technology Center (ATC) based on QualiSystems technology and is offering in conjunction a Lab as a Service offering to network operators, leveraging QualiSystems CloudShell platform. Further industry partnerships are anticipated with major OSS/BSS, services and even telecom service provider partners.

Strategy Execution

QualiSystems' continued engagement with many service providers that are seeking to build new and automated devtest processes based on DevOps concepts affirms that it has been able to turn its thought leadership, strategy and industry partnerships into market execution. The breadth of partnerships such as with QualiTest, QualiSystems has put itself in a much stronger position to expand its leading position in cloud-enabled SDN and NFV DevOps automation technology and its exposure to the top of the value chain in SDN/NFV engineering organizations. QualiSystems and QualiTest forecast that deployments through their partnership should achieve and execute up to 80% automation in critical testing domains, accelerating time to market for service providers. The partnership also represents the complementary nature and vendor-neutral nature of QualiSystems' automation platform, which is key to helping service providers avoid deep vendor lock in.

Strategy Effectiveness

QualiSystems' approach to SDN/NFV devtest automation and transformation as part of an evolution towards DevOps fits well with the top-down strategic requirement of many telecom providers. QualiSystems' cloud/lab infrastructure and test automation platforms (CloudShell and TestShell respectively) are well suited to the technical needs of telecom customers, since both platforms have proven track records in delivering on automation goals within hybrid infrastructure environments that are a mix of legacy, physical, virtual and even public cloud resources.

Customer Purchase Experience

Network organizations are in the midst of a multi-year transition in skills and practices, which makes it important to have vendors and platforms that can assist this transformation. QualiSystems' emphasis on user-friendly, visual forms of automation fit well with customer needs. Along with expert services provided directly or in conjunction with its strong industry partnerships, QualiSystems' CloudShell offers an achievable and sustainable approach to automation that works for the hybrid organization of programmers and non-programmers, resulting in a best-in-class end-user purchase experience.

Brand Equity

Frost & Sullivan benchmarking analysis finds QualiSystems has been successful in automation for SDN and NFV, because of the execution of its lab infrastructure cloud and test automation approach that supports agile deployment, hybrid infrastructures and hybrid organizations. QualiSystems' close collaboration with industry partners helps it provide a combined set of infrastructure cloud and test automation platforms to support unmet needs of the market. The company has a strong base of expertise and is focused on understanding evolving networking infrastructures, the transition from legacy to SDN/NFV networks, and the evolution of telecoms towards DevOps models.

Conclusion

QualiSystems has made significant inroads in the SDN/NFV market as an IT automation software providers by bringing new thought leadership insights into how automation and DevOps are the necessary companion to SDN and NFV network transformation, through the most extensive partnerships in the market with companies such as IXIA, Cisco, OOL, WWT and QualiTest. With these partnerships, QualiSystems has put itself in a much stronger position to bring its automation technology and provide a valuable testing and DevOps automation solution portfolio that builds agile business practices to support the growth of SDN/NFV services. QualiSystems has delivered a best-in-class purchase experience to end users, systematizing knowledge for hybrid programmer/non-programmer network teams and executing sustainable automation practices.

With its strong overall performance, QualiSystems has earned Frost & Sullivan's 2015 Global Competitive Strategy Innovation and Leadership Award for SDN/NFV testing and DevOps transformation.

Significance of Competitive Strategy Innovation and Leadership

Any successful approach to achieving top-line growth must (1) take into account what competitors are, and are not, doing; (2) meet customer demand with a comprehensive, value-driven product or service portfolio; and (3) establish a brand that resonates deeply with customers and stands apart from other providers. Companies must succeed at these three things—brand, demand, and positioning—to achieve best-practice levels in competitive strategy.

Understanding Competitive Strategy Innovation and Leadership

As discussed above, driving demand, brand strength, and competitive differentiation all play a critical role in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on strategy innovation and customer impact.

Key Benchmarking Criteria

For the Competitive Strategy Innovation and Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Strategy Innovation and Customer Impact—according to the criteria identified below.

Strategy Innovation

> Criterion 1: Strategy Effectiveness
> Criterion 2: Strategy Execution
> Criterion 3: Competitive Differentiation
> Criterion 4: Executive Team Alignment
> Criterion 5: Stakeholder Integration

Customer Impact

> Criterion 1: Price/Performance Value
> Criterion 2: Customer Purchase Experience
> Criterion 3: Customer Ownership Experience
> Criterion 4: Customer Service Experience
> Criterion 5: Brand Equity

Best Practice Award Analysis for QualiSystems
Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyze performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are illustrated below.

RATINGS GUIDELINES

9–10 Excellent
7–8 Good
4–6 Fair
1–3 Poor
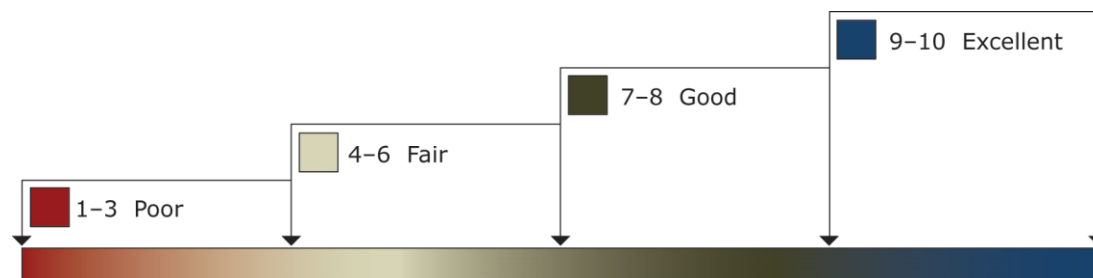
The Decision Support Scorecard is organized by Strategy Innovation and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players as Competitor 1 and Competitor 2.

DECISION SUPPORT SCORECARD FOR COMPETITIVE STRATEGY INNOVATION AND LEADERSHIP AWARD

Measurement of 1–10 (1 = poor; 10 = excellent)			
Competitive Strategy Innovation and Leadership	Strategy Innovation	Customer Impact	**Average Rating**
QualiSystems	**9.2**	**9.0**	**9.1**
Competitor 2	8.5	8.1	8.3
Competitor 3	7.4	7.3	7.4

Strategy Innovation

Criterion 1: Strategy Effectiveness
Requirement: Strategy effectively balances short term performance needs with long-term aspirations and vision for the company

Criterion 2: Strategy Execution
Requirement: Adoption of best-in-class processes to support the efficient and consistent implementation of business strategy

Criterion 3: Competitive Differentiation
Requirement: Unique competitive advantages with regard to solution or product are clearly articulated and well accepted within the industry

Criterion 4: Executive Team Alignment
Requirement: The executive team is aligned on the organization's mission, vision, strategy and execution

Criterion 5: Stakeholder Integration
Requirement: Strategy reflects the needs or circumstances of all industry stakeholders, including competitors, customers, investors, and employees

Customer Impact

Criterion 1: Price/Performance Value
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market

Criterion 2: Customer Purchase Experience
Requirement: Customers feel like they are buying the most optimal solution that addresses both their unique needs and their unique constraints

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service, and have a positive experience throughout the life of the product or service

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.

DECISION SUPPORT MATRIX FOR COMPETITIVE STRATEGY INNOVATION AND LEADERSHIP AWARD
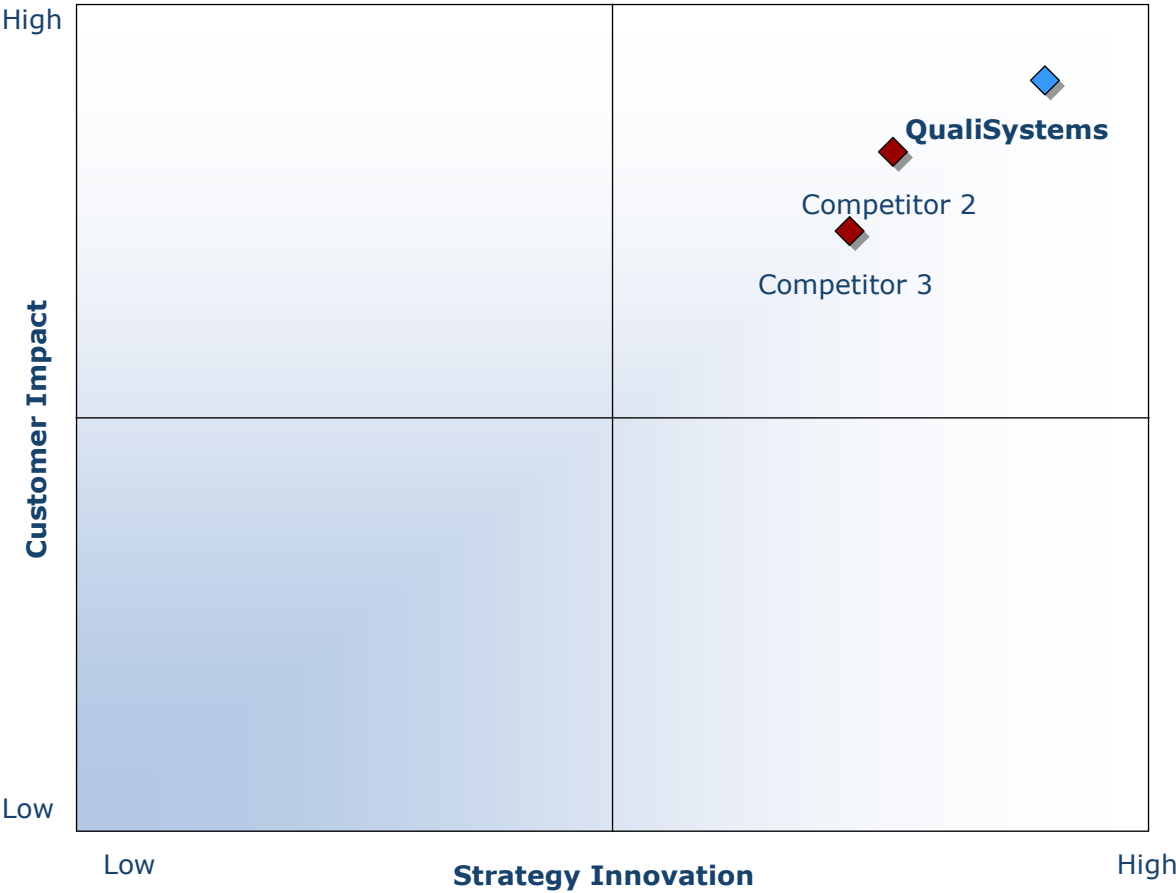
The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP		OBJECTIVE	KEY ACTIVITIES	OUTPUT
1	**Monitor, target, and screen**	Identify award recipient candidates from around the globe	• Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies	Pipeline of candidates who potentially meet all best-practice criteria
2	**Perform 360-degree research**	Perform comprehensive, 360-degree research on all candidates in the pipeline	• Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates	Matrix positioning all candidates' performance relative to one another
3	**Invite thought leadership in best practices**	Perform in-depth examination of all candidates	• Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps	Detailed profiles of all ranked candidates
4	**Initiate research director review**	Conduct an unbiased evaluation of all candidate profiles	• Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles	Final prioritization of all eligible candidates and companion best-practice positioning paper
5	**Assemble panel of industry experts**	Present findings to an expert panel of industry thought leaders	• Share findings • Strengthen cases for candidate eligibility • Prioritize candidates	Refined list of prioritized award candidates
6	**Conduct global industry review**	Build consensus on award candidates' eligibility	• Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates	Final list of eligible award candidates, representing success stories worldwide
7	**Perform quality check**	Develop official award consideration materials	• Perform final performance benchmarking activities • Write nominations • Perform quality review	High-quality, accurate, and creative presentation of nominees' successes
8	**Reconnect with panel of industry experts**	Finalize the selection of the best-practice award recipient	• Review analysis with panel • Build consensus • Select winner	Decision on which company performs best against all best-practice criteria
9	**Communicate recognition**	Inform award recipient of award recognition	• Present award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance	Announcement of award and plan for how recipient can use the award to enhance the brand
10	**Take strategic action**	Upon licensing, company may share award news with stakeholders and customers	• Coordinate media outreach • Design a marketing plan • Assess award's role in future strategic planning	Widespread awareness of recipient's award status among investors, media personnel, and employees

About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.