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Background and Company Performance

Industry Challenges

The transition to Voice over IP services combined with growth of mobile and data volume re-define expectations towards network performance monitoring solutions. Calls today may require dozens of hops passing stressed network elements, heavily impacting call and voice quality.

In consequence, the need for next-generation monitoring tools evolves, having voice quality as a key indicator for network performance management thus putting customer experience into the center of operations. In addition, such tools must enable a maximum of efficiency for network issue handling by the operations team.

As such, Frost & Sullivan believes that companies operating in the global voice quality monitoring market must come up with more innovative solutions featuring a broad range of dedicated KPIs to monitor media quality in addition to signaling quality. Such solutions would be able to report network issues in real time to network engineers and service level managers, which would allow them to proactively make decisions regarding network performance improvement. In addition, CSPs would not have to make repeated investments to resolve network performance issues on an issue-by-issue basis. Frost & Sullivan notes that this will bring down the operational costs considerably and enhance the value proposition for customers.

Customer Impact and Business Impact

Founded in Hamburg, Germany in 2007, Voipfuture GmbH (Voipfuture) is a recognized technology developer in the global voice quality monitoring industry. Capitalizing on its ability to monitor and analyze media quality over Internet protocol (IP) networks, the company evaluates the overall network performance as well as the quality of voice over IP (VoIP) services. At the same time, Frost & Sullivan appreciates how Voipfuture conducts media quality analysis on IP networks to identify network performance issues and address them holistically - compared to the traditional issue-by-issue, crisis-by-crisis approach.

In 2015, Voipfuture launched its Qrystal 5.0—a major monitoring product. The solution unfolds its value for customers by providing a full view on quality which is not only about MOS values and hang-up causes—but about how quality precisely develops during a call, what exactly is affecting user experience and who is affected by network issues.

The solution provides a full picture by unifying data from different layers—media plane/Real-time Transport Protocol (RTP) with control plane/Session Initiation Protocol (SIP)—into one combined monitoring platform.
Voipfuture’s Qrystal does not take the easy road of sampled views (which would make collecting data more comfortable) or simplified analysis (one quality value per call). Qrystal’s broad view on service quality (24x7, full traffic, all streams, and both directions) detects connections between all types of events on the control and media plane.

In real-time, all streams are correlated to their respective call and sliced into 5-second chunks. Each 5-second summary contains 200 quality metrics per slice, 400 covering 5-seconds in both directions and almost 10,000 for a 2-minute call.

This huge body of data is used by Qrystal on two levels. Upwards, the solution aggregates, groups and correlates data delivering a clear and highly accurate overview on KPI level and input for Service Level Agreements.

Downwards, Qrystal offers a highly structured richness of information down to the 5-second level. Within the waterfall of data from media and control plane it is possible to spot a single drop. That includes the possibility to check quality over time of one stream of one call or to relate impairment metrics or impairment patterns to i.e. destinations, routes, trunks or eNodeBs.

This helps Voipfuture’s customers receive information about the root causes that are bringing down their network performance. These metrics also single out the periods of poor quality in terms of connectivity problems at the beginning of the calls, call drops, voice breaks, and cross talk- amongst others.

Such detailing allows network engineers to properly trace the exact time and location of the issue, make prompt decisions to rectify the issues that are causing call impairments, and take necessary corrective actions to address those aspects – all in a single go. CSPs who opt for competing offerings in the market are left with no option but to address network issues separately once traced. As a result, the operational expenditures for these companies increase. Voipfuture’s customers, on the other hand, address all the issues in a single run, which translates into reduced operational expenditures and maximizes the customers’ overall return on investment (ROI).

For example, a tier I VoIP service provider in the European market was finding it quite difficult to properly manage and offer its subscribers high-quality VoIP services. This led to a poor subscriber experience, a net promoter score (NPS) of below 40, and almost 98% of subscribers reported issues such as call drops, delays in call set up, and issues with call audibility. After deploying Voipfuture’s voice quality monitoring solution, the customers’ subscriber experience score improved radically to 9 on a scale of 1 to 10. In addition, the company experienced a quick drop from the usual 15 days of network performance improvement time to only 5 days. End users in need of “enhanced care” also came down to zero, and the direct sales ratio reached its highest levels.
Customer Experience

As the voice quality monitoring pioneer, Voipfuture delivers a very different view on the Voice over IP traffic. The top-down approach, taking service experience as a key indicator for network performance, is at the heart of the solution and facilitates very efficient network management.

Voipfuture’s voice quality monitoring solution can be easily deployed in next-generation networks (NGNs), IP Multimedia Subsystems (IMS), and Long-Term Evolution (LTE) networks. Customers can opt for any standard, ready-to-use server hardware offered by leading vendors to integrate with Voipfuture’s solution. A very short deployment time is one of the most relevant experiences for new customers. In fact, Voipfuture boasts numerous examples of customers obtaining actionable results within a few days of the deployment.

Voipfuture’s customers receive highly experienced assistance from the company in terms of managing the issues with VoIP services. Lean structures, access to experts and high responsiveness to customer requests have led to long-term relationships and to innovation partnerships with key customers regarding technology and product development.

A brief customer example highlights another aspect: In 2013, Voipfuture deployed a solution for an Irish tier 1 operator. In late 2015 and beginning of 2016, the deployment was extended by monitoring capabilities for Voice over WiFi and VoLTE. The extension was integrated into the original solution, ensuring product continuity and using the same platform for all VoIP monitoring business cases. These multiple use-cases for the same core product also allowed the operator to leverage on the existing internal expertise and processes learnt since the initial deployment. As a result, the customer was able to evolve the system whilst protecting the original investment.

In order to guarantee customers a best-in-class service experience in the pre and post-sales phase, Voipfuture has built a globally extensive service chain through its partners around the globe. Voipfuture customers can benefit from local system integrator capabilities together with direct access to the Voipfuture experts. In addition, Voipfuture extends its product sales reach to be able to offer a full probing solution, for instance, in 2016, the company entered into a partnership with Gigamon to ensure a top-class one-stop-shop solution. In large networks, the combination of a good quality TAP architecture and Voipfuture’s monitoring technology allows for efficient use of hardware and enables simple scaling up as the network traffic grows. Voipfuture has several reference cases where it has acted as the single point of contact for such a combined solution.

Customer Acquisition Strategy

Voipfuture incorporates impressive features into its solution, including real-time visibility of network performance, metrics-based call quality reporting and error isolation
capabilities. The company recognized that existing voice quality monitoring solutions in the market lacked the ability to provide such detailing. By incorporating these attributes into its solution, Voipfuture attracts solution integrators and VoIP service providers globally.

**Human Capital**

Frost & Sullivan appreciates how Voipfuture clearly understands the industry’s strong inclination towards VoIP services, which is evident from the replacement of legacy networks with VoIP. At the same time, the company understands the challenges and opportunities to equip customers with the ability to offer high-quality voice calls. Therefore, while hiring human resources, Voipfuture ensures that its employees are not just technically proficient, but that they also have a customer-centric approach. This approach enables customers to enjoy a competitive edge over their other peers in their domains of operation. To stay ahead of its competition, Voipfuture is building a team of experts with the ability to incorporate innovative ideas into its solutions.

**Conclusion**

Frost & Sullivan feels that Voipfuture’s proprietary voice quality monitoring solution stands out in the market by virtue of its innovative attributes and functional capabilities. First, Qrystal 5.0 is the industry’s first platform that combines the capabilities of both RTP and SIP platforms. Hence, customers now have a unified platform that can be used for call quality monitoring and for performance evaluation and control purposes. Secondly, Qrystal 5.0’s pioneering, core technology - the RTP stream slicing technology - enables customers to monitor call quality and project MOS value based on “5 second slices.” The MOS value is then matched against more than 400 metrics, which comprise dedicated KPIs for monitoring VoIP quality. The results allow customers to instantly view the quality and exact location of an issue. System administrators and network engineers can take immediate actions to address these problems by optimizing network performance before customers report the problem. Such initiatives not only reduce customers’ overall operational expenditures, but also inspire end users to remain loyal to the service provider.

With its strong overall performance, Voipfuture has earned the 2016 Frost & Sullivan Global Customer Value Leadership Award.
Significance of Customer Value Leadership

Ultimately, growth in any organization depends upon customers purchasing from a company, and then making the decision to return time and again. Delighting customers is therefore the cornerstone of any successful growth strategy. To achieve these dual goals (growth and customer delight), an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.

Understanding Customer Value Leadership

Customer Value Leadership is defined and measured by two macro-level categories: customer impact and business impact. These two sides work together to make customers feel both valued and confident in their products’ quality and long shelf life. This dual satisfaction translates into repeat purchases and a high lifetime customer value.
Key Benchmarking Criteria
For the Global Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Customer Impact and Business Impact—according to the criteria identified below.

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

Business Impact
  Criterion 1: Financial Performance
  Criterion 2: Customer Acquisition
  Criterion 3: Operational Efficiency
  Criterion 4: Growth Potential
  Criterion 5: Human Capital

Best Practice Award Analysis for Voipfuture
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

The Decision Support Scorecard is organized by Customer Impact and Business Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion 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 2 and Competitor 3.

<table>
<thead>
<tr>
<th>Measurement of 1–10 (1 = poor; 10 = excellent)</th>
<th>Customer Impact</th>
<th>Business Impact</th>
<th>Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Value Leadership</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voipfuture</td>
<td>9.9</td>
<td>9.7</td>
<td>9.8</td>
</tr>
<tr>
<td>Competitor 2</td>
<td>8.1</td>
<td>8.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Competitor 3</td>
<td>7.0</td>
<td>7.1</td>
<td>7.1</td>
</tr>
</tbody>
</table>

**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

**Business Impact**

**Criterion 1: Financial Performance**
Requirement: Strong overall financial performance in terms of revenues, revenue growth, operating margin and other key financial metrics

**Criterion 2: Customer Acquisition**
Requirement: Customer facing processes support the efficient and consistent acquisition of new customers, even as it enhances retention of current customers

**Criterion 3: Operational Efficiency**
Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard
**Criterion 4: Growth Potential**
Requirements: Customer focus strengthens brand, reinforces customer loyalty and enhances growth potential

**Criterion 5: Human Capital**
Requirement: Company culture is characterized by a strong commitment to quality and customers, which in turn enhances employee morale and retention

**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 CUSTOMER VALUE LEADERSHIP AWARD**

```
High          | High
--------------|---------
Customer Impact:  |
Low           | Low
```

- **Voipfuture**
- **Competitor 2**
- **Competitor 3**
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.
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.

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