

# NEC

## 2014 Global Unified Communications Infrastructure Technology Innovation Leadership Award



F R O S T & S U L L I V A N



50 Years of Growth, Innovation & Leadership

## **Technology Innovation Leadership Award Unified Communications Infrastructure Global, 2014**

### **Frost & Sullivan's Global Research Platform**

Frost & Sullivan is in its 50th year in business with a global research organization of 1,800 analysts and consultants who monitor more than 300 industries and 250,000 companies. The company's research philosophy originates with the CEO's 360-Degree Perspective™, which serves as the foundation of its TEAM Research™ methodology. This unique approach enables us to determine how best-in-class companies worldwide manage growth, innovation and leadership. Based on the findings of this Best Practices research, Frost & Sullivan is proud to present the 2014 Global Technology Innovation Leadership Award in Unified Communications Infrastructure to NEC.

### **Significance of the Technology Innovation Leadership Award**

#### **Key Industry Challenges Addressed by Technology Innovation Leadership**

With the transition to modern Internet Protocol (IP) based unified communications (UC) platforms, enterprise communications has become steadily more reliant on underlying infrastructure components such as application and media servers, data center and campus IP networks, wide area networks, media gateways and session border controllers. In converged voice, video and data environments, bandwidth-sensitive IP telephony solutions are now sharing network resources with other enterprise applications, with real time applications media traffic granted quality of service (QoS) and priority access through configurations that are typically arbitrary and manually entered by network administrators. Similarly, while server and desktop virtualization has allowed UC solutions to become increasingly dynamic in terms of on-demand capacity, the underlying infrastructure that carries this voice and video traffic has remained largely static and unable to adapt itself to spikes in utilization. Finally, deployment and delivery methods of the UC services stack have evolved. Once exclusively deployed as hardware-based appliances on-premises, today's UC applications can now be deployed on-premises, in the cloud, or any hybrid mix of the two.

Market participants focused on technology innovation are well equipped to address the challenges of modern UC infrastructure—they leverage new technologies to enhance the quality of enterprise communications and optimize network traffic as demand warrants. First and foremost, innovation-driven leaders take a holistic view of UC infrastructure, rather than treating the UC platform, data centers, and enterprise data networks as discrete components. Technology innovation leaders apply emerging standards within their own solutions to deliver intelligence or self-awareness to UC infrastructure. This holistic approach can not only identify potential sources of trouble, but also automatically command the UC

infrastructure to adjust itself in order to accommodate spikes in traffic or demand. Similarly, building intelligence and a feedback loop between UC platforms and the enterprise network empowers the UC solution to preemptively prepare the infrastructure for planned events that will raise audio and video traffic on the infrastructure. Finally, technology innovators in UC infrastructure automate many of the existing manual configuration processes, enabling the enterprise infrastructure to be as dynamic as the solutions it is serving. Ultimately, innovative leaders who make UC and enterprise infrastructure solutions thrive together, rather than just coexist, are well positioned for future success.

### **Key Benchmarking Criteria for Technology Innovation Leadership Award**

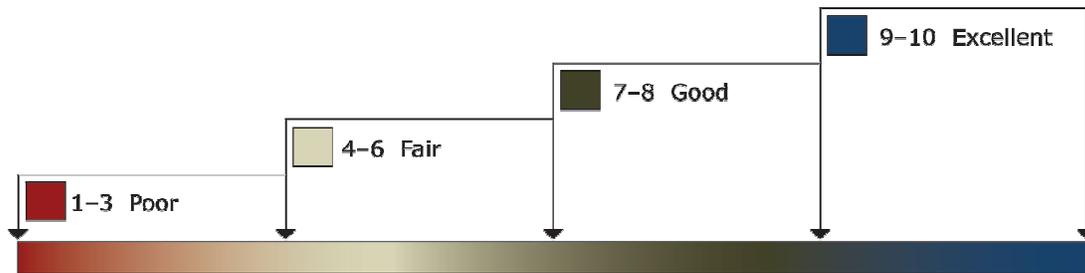
For the Technology Innovation Award, the following criteria were used to benchmark NEC's performance against key competitors:

- Uniqueness of Technology
- Impact on New Products/Applications
- Impact on Functionality
- Impact on Customer Value
- Relevance of Innovation to Industry

### **Decision Support Matrix and Measurement Criteria**

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Matrix (DSM). The DSM is an analytical tool that compares companies' performance relative to each other with an integration of quantitative and qualitative metrics. The DSM features criteria unique to each Award category and ranks importance by assigning weights to each criterion. The relative weighting reflects current market conditions and illustrates the associated importance of each criterion according to Frost & Sullivan. Fundamentally, each DSM is distinct for each market and Award category. The DSM allows our research and consulting teams to objectively analyze each company's performance on each criterion relative to its top competitors and assign performance ratings on that basis. The DSM follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are shown in Chart 1.

**Chart 1: Performance-Based Ratings for Decision Support Matrix**



This exercise encompasses all criteria, leading to a weighted average ranking of each company. Researchers can then easily identify the company with the highest ranking. As a final step, the research team confirms the veracity of the model by ensuring 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.

**Chart 2: Frost & Sullivan’s 10-Step Process for Identifying Award Recipients**



**Best Practice Award Analysis for NEC**

The Decision Support Matrix, shown in Chart 3, illustrates the relative importance of each criterion for the Technology Innovation Award and the ratings for each company under evaluation. To remain unbiased while also protecting the interests of the other organizations reviewed, we have chosen to refer to the other key players as Competitor 1 and Competitor 2.

**Chart 3: Decision Support Matrix for Technology Innovation Leadership Award**

<i>Measurement of 1-10 (1 = lowest; 10 = highest)</i>	<b>Award Criteria</b>					
	Uniqueness of Technology	Impact on New Products/Applications	Impact on Functionality	Impact on Customer Value	Relevance of Innovation to Industry	<b>Weighted Rating</b>
<b>Relative Weight (%)</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>100%</b>
NEC	9.5	9.5	10	9	8.5	9.3
Competitor 1	9	8.5	9.5	8	7.5	8.5
Competitor 2	9.5	9	8	7	7	8.1

### **Criterion 1: Uniqueness of Technology**

NEC has been an early proponent, adopter and provider of OpenFlow open source software defined networking (SDN) technology. Branded as “ProgrammableFlow” by NEC, SDN enables dynamic reconfiguration of the company’s physical networking hardware and virtual software switches. SDN is a fundamental rethinking of the control and data aspects of networking. By migrating and centralizing control functions to a separate server, rather than onboard the hardware switch itself, ProgrammableFlow allows NEC customers to configure and manage their network resources in any way they choose, regardless of physical location. The ProgrammableFlow controller can direct individual network ports, no matter where on the enterprise network they exist, to join together as a logical switch that presents itself as a local switch to the servers and devices.

In contrast, key competitors were less aggressive about adopting SDN technologies. This allowed NEC the time and opportunity to mature its ProgrammableFlow SDN products as well as integrate SDN technologies across its unified communications and collaboration portfolio. The company now holds a healthy lead over a number of alternative providers in this important new area of the broader UC industry.

### **Criterion 2: Impact on New Products/Applications**

UNIVERGE 3C, NEC’s UCaaS cloud solution (built on 3C), and ProgrammableFlow technologies are key pillars of NEC’s IT Empowered Framework and Smart Enterprise programs. In and of its self, ProgrammableFlow is a powerful tool for network administrators to dynamically configure their enterprise networks. However, NEC is taking

the next step to a self-aware unified communications infrastructure by making its own UC platforms ProgrammableFlow-aware and interoperable.

ProgrammableFlow provides NEC's UNIVERGE portfolio of enterprise voice, video and data communications solutions an optimized and, more importantly, adaptable network infrastructure in which to operate. Thus empowered, UNIVERGE 3C is a fully distributed, data center ready, virtualized UC solution platform and fits well into the architecture of the OpenFlow-based ProgrammableFlow SDN solution. Based on customer needs ProgrammableFlow offers virtual networks which make physically or geographic disparate network ports transparently appear to be part of the same physical network, enabling customers to easily build high availability and fault tolerance into their network architecture, with a minimum amount of hardware. In contrast, traditional network architectures require a near duplication of hardware and costs to achieve similar levels of availability and failover capabilities.

### **Criterion 3: Impact on Functionality**

NEC is leveraging all of the individual components of its enterprise portfolio to create its converged Smart Enterprise infrastructure. At its core, Smart Enterprise is NEC's entire enterprise infrastructure stack, including its UC and collaboration platforms, servers, software defined networking gear, network storage, and virtual desktop solutions, leveraged as a complete business application solution. Smart Enterprise takes advantage of the strengths of each respective component technology, including UNIVERGE 3C, ProgrammableFlow and ExpressCluster X software to enable highly available server clusters and deliver a tighter woven network, unified communications, and application platform that is greater than the sum of its parts.

Most of NEC's competitors have similar technologies within their myriad of networking, UC, storage and server solutions, but usually deliver these as independent point product solutions. NEC's Smart Enterprise, on the other hand, drives the value of leveraging all of these disparate technologies and products from a single vendor to deliver a compelling foundation to deliver unified communications solutions and business applications.

### **Criterion 4: Impact on Customer Value**

NEC's innovation in delivering a high level of integration between enterprise communication applications and the underlying infrastructure ultimately drives customer value through automation and optimizations. Integration with the software defined network enables real-time communications between the UC platform and the network. In the event of increased demand or trouble events, NEC's UNIVERGE 3C platform programmatically adjusts the infrastructure to work around trouble or allocate additional network resources to cope with spikes in demand without administrator interaction.

Ultimately, customers are rewarded for investing in NEC infrastructure products by gaining use of solutions that are not simply compatible and interoperable, but are uniquely designed to be integrated. The UNIVERGE 3C unified communications platform works with, not just on top of, the ProgrammableFlow software defined network to remove the pain points of VoIP, and both UNIVERGE 3C and ProgrammableFlow adapt based on real-time requirements and demand.

### **Criterion 5: Relevance of Innovation to Industry**

The level of integration NEC enables throughout its network, server, storage and enterprise communications product lines highlights the power of the technologies at play, including ProgrammableFlow software defined networking, as well as the application of those technologies to ultimately benefit customers. While alternative providers have deployed technology to support specific siloes of an enterprise infrastructure, the NEC IT Empowered Framework leverages the entire breadth of solutions working in concert. Together, the framework delivers a self-aware infrastructure built to support enterprise applications in general, and specifically bandwidth-intensive unified communications and collaboration tools.

By breaking down the silos within its own product lines, NEC benefiting its customers today, as well as extolling a vision of what the relationship between unified communications and its underlying infrastructure should be like: an automated, highly dynamic interaction between mission critical communication applications and a network infrastructure that can adapt based on real-time demand.

NEC is delivering on the promise of voice, video and data convergence as a core element of enterprise infrastructure. The level of automation and dynamic flexibility inherent in this type of infrastructure should not only appeal to customers, but also serve as a wakeup call to competitors who aspire for a similar level of convergence.

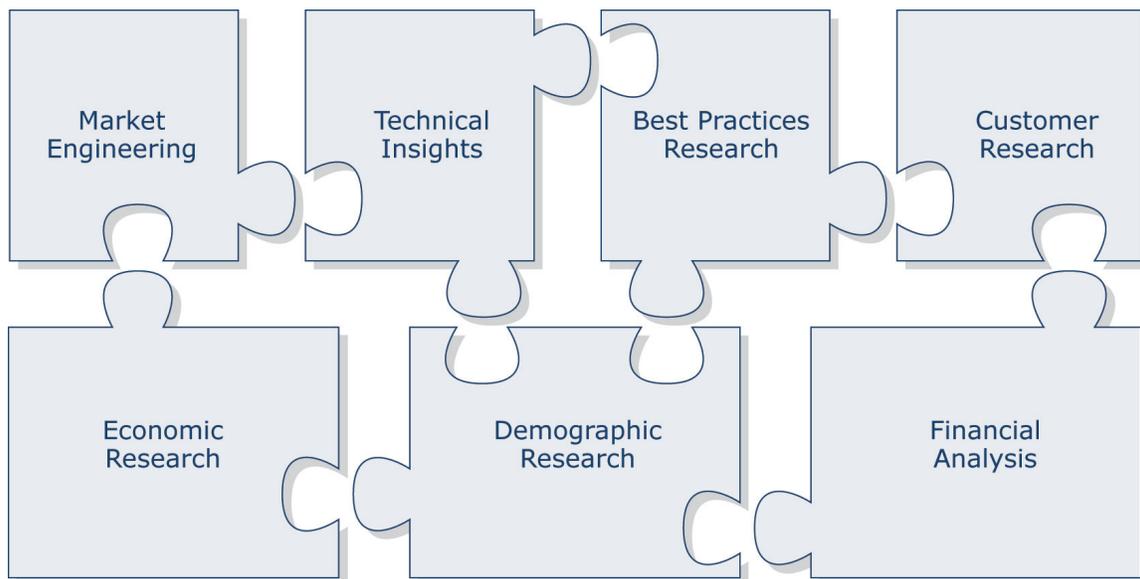
## **Conclusion**

NEC has earned a technology innovation leadership position in the unified communication infrastructure market because of its holistic approach to deploying enterprise communications solutions. NEC has taken leading-edge software defined networking technology and is integrating it across its unified communications and infrastructure product lines to deliver an optimized experience for customers. Frost & Sullivan is proud to present NEC with its 2014 Technology Innovation Leadership Award in the Unified Communications Infrastructure Market.

## Critical Importance of TEAM Research

Frost & Sullivan's TEAM 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 seven of Frost & Sullivan's research methodologies. Our experience has shown over the years that companies too often make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Frost & Sullivan contends that successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. In that vein, the letters T, E, A and M reflect our core technical, economic, applied (financial and best practices) and market analyses. The integration of these research disciplines into the TEAM Research methodology provides an evaluation platform for benchmarking industry players and for creating high-potential growth strategies for our clients.

**Chart 4: Benchmarking Performance with TEAM Research**



## 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 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from more than 40 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.