FROST & SULLIVAN

WIREPAS
Things connected – Naturally

2017 European Internet of Things Product Leadership Award

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Background and Company Performance

Industry Challenges

The Internet of Things (IoT) is a network of interconnected objects that are based on standard communication protocols, enabling the virtualization of everyday objects and the setup of smart networks composed of devices communicating with one another. However, connecting these innumerable devices creates a significant challenge. It is often stated that a typical monolithic connectivity solution will form the basis for a "massive IoT."[1]

Today, there are a number of different competing connectivity technologies in the market, with new ones about to enter shortly. However, currently, there is not one protocol that is the standard for IoT networks. Frost & Sullivan estimates that by 2023 over 45 billion devices will be connected.[2] Fewer than five percent of these devices will have cellular connectivity.[3]

The IoT applications diversity and their requirements introduce a paradigm shift for connectivity solutions. The flexibility to customize the connectivity solution according to the needs of the customer's business case and application is essential to developing and growing the IoT-based business.

The connectivity requirements vary significantly between different IoT applications, such as smart metering, sensors, logistics, and lighting; due to use case variability, one connectivity solution does not fit all. Furthermore, the requirements evolve per application; thus, a de-centralized and autonomous device network should provide unique benefits in comparison to a monolithic wide area solution. Perhaps the most important parameter to consider when choosing a given connectivity technology is the need for scalability. If scalability is critical to the success of the business, then a de-centralized autonomous device network should become the automatic choice as it provides remarkable advantages over a wide area solution.

Frost & Sullivan states that a decentralized network topology is ideally suited for smart cities, logistics, retail, smart metering, and some specific use cases of the Industrial Internet of Things. In this regard, the crucial need for a connectivity solution is to add value to the customer and provide agile and adaptive solutions that enable efficiency.

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[1] *The Rise of Autonomous Device Networks*, (Frost & Sullivan, May 2016)
[2] *Global Internet of Things (IoT) Devices Market, Forecast to 2023 (Frost & Sullivan, June 2017)*
[3] *Market is Fragmented and Growing Fast, (Wirepas)*

Wirepas' Product Family Attributes and Business Impact

Leading the Way for Device Communication

Headquartered in Tampere, Finland, Wirepas is a leading European provider of solutions for massive IoT applications, which started its operation in 2010 as a spin-off of Tampere University of Technology. The company focuses on providing optimized, reliable, scalable, and easy to use device connectivity for its customers. Therefore, it offers its flagship product–Wirepas Connectivity—a de-centralized radio communications protocol utilized in any device, with any radio chip, or on any radio band. Wirepas Connectivity ensures flexibility with radio-planning, as there is no need for traditional repeaters because each wireless device is a smart router of the network—contributing to increased savings and customer ease.

Wirepas Connectivity ensures de-centralized network management: devices decide the best actions by themselves locally. The local decision-making ensures the devices always operate the similar way, independent of the network size or the devices' locations within the network.

"When a decision is taken locally, its quality is a way beyond if it is centralized."

-Teppo Hemiä, Chief Executive Officer, Wirepas

Wirepas Connectivity synchronizes time and frequency division multiple access; thus, removing all unnecessary overhead, e.g., overhearing, idle listening, and intra-network collisions. The devices communicate data over multiple hops and choose their role according to the situation, i.e., every device is a possible routing point for forwarding data. The user does not need to state the devices' role, as it is done automatically depending on the optimal topology in a given time.

Since Wirepas is a software-based company, it gives the customers a full flexibility to choose different physical layer freely according to the requirements. This flexible hardware-independent architecture differentiates Wirepas from its competitors.

Today, scalability, reliability, and security are a key for trust in IoT. Thus, with Wirepas Connectivity there is no single point of failure because all the devices are homogenous and can forward data autonomously. Furthermore, Wirepas Connectivity ensures high-end link security by securing message integrity, authenticity, and confidentiality.

High Quality for Different Applications

Unlike the competitors, Wirepas can optimize its solution for a range of applications. The company optimizes the protocol according to the application's needs to achieve the optimized solution. Particularly, the configurations of Wirepas Connectivity fit the needs of electricity meters, sensors, lighting infrastructure, and beacons.

Particularly, with Wirepas Connectivity the electricity and water meters themselves, and nothing else, are the communications infrastructure; thus, there is no need no extra communication devices. Wirepas Connectivity for electricity and water meters provides wireless multi-hop mesh connectivity while fully automatic operation provides easy installation and does not require maintenance for the network. Furthermore, Sub-GHz physical layer support provides long device-to-device ranges and enables sparse deployments.

As the sensors are often battery-operated, which makes energy efficiency a key requirement, Wirepas Connectivity ensures high energy-efficiency results in a long battery-operated lifetime for all sensors strengthened with fully automatic operation provides easy installation.

Today, smart lighting is gaining popularity and better control of the luminaires while bringing considerable energy savings and lighting quality to users. Wirepas Connectivity makes it even more effective as it offers a de-centralized connectivity for large-scale outdoor or indoor lighting while ensuring low latency (less than 10 ms per hop for the luminaires) as well as low energy use (e.g., over 10 years of battery autonomy for connected sensors and beacons).

Notably, a spotting example of Wirepas technology implementation is a current deployment of a smart metering system (in partnership with Aidon) which will cover 700,000 electricity connections in Oslo area scheduled for completion in 2018. The core of this smart metering solution consists of Aidon's energy service devices and head-end-system for the data management of the smart meters, as well as a Wirepas' communication solution for data delivery.

Responding to Customers' Needs

Wirepas maintains industry-leading standards in its solutions and provides excellent customer service. The company's commitment to innovation satisfies customers' demands and anticipates future expectations. Wirepas designs all its solutions with the customers' success in mind, to build long-lasting relationships.

"We are hungry for problems and always ready to provide updates and new releases to solve customers' issues constantly."

-Teppo Hemiä, Chief Executive Officer, Wirepas

Wirepas focuses on a mutually beneficial partnership with customers, understanding the importance of good relationships with both parties to ensure best-in-class quality for its solutions. Thus, the company places importance on combining qualified employees, using the latest technologies, and constantly developing excellent product quality and exceptional customer value across different applications.

Wirepas follows all the market trends, strengthening its market leadership. Notably, the company showed a vital growth in 2016 when it doubled the revenue. Furthermore, with the promising opportunities in its pipeline, Wirepas expects to triple its revenue in 2017. While the company is already present in 4 continents (having its offices in Australia, Europe, South Korea, and the United States), Wirepas is looking for further successful expansion and consistently leverages the growth potential in its target markets and new opportunities.

Conclusion

Today, the connectivity solution tailored to the needs of the customer's business case and application is essential to developing and growing the IoT-based business. Leveraging this trend, Wirepas provides value for its customers with Wirepas Connectivity—a de-centralized radio communications protocol that ensures scalability, reliability, security, and flexibility with hardware-independent architecture for electricity and water meters, sensors, lighting, and beacons. With the focus on de-centralized network management, the company promptly responds to the customer needs through its continual product development, providing best-in-class quality and support.

For its leading Wirepas Connectivity solution and deep focus on partnership relations with customers, Wirepas earns Frost & Sullivan's 2017 Product Leadership Award in the Europe Internet of Things market.

Significance of Product Leadership

Ultimately, growth in any organization depends upon customers purchasing from a company and then making the decision to return time and again. A comprehensive product line, filled with high-quality, value-driven options, is the key to building an engaged customer base. To achieve and maintain product excellence, an organization must strive to be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.

- Acquire competitors' customers
- Increase renewal rates
- Increase upsell rates
- Build a reputation for value
- Increase market penetration

- Earn customer loyalty
- Foster strong corporate identity
- Improve brand recall
- Inspire customers
- Build a reputation for creativity

DEMAND

BRAND

Product Leadership

COMPETITIVE POSITIONING

- Stake out a unique market position
- Promise superior value to customers
- Implement strategy successfully
- Deliver on the promised value proposition
- Balance price and value

Understanding Product Leadership

Demand forecasting, branding, and differentiating all play a critical role in finding growth opportunities for your product line. This three-fold focus, however, must be complemented by an equally rigorous focus on pursuing those opportunities to a best-in-class standard. Customer communications, customer feedback, pricing, and competitor actions must all be managed and monitored for ongoing success. If an organization can successfully parlay product excellence into positive business impact, increased market share will inevitably follow over time.

Key Benchmarking Criteria

For the Product Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Product Family Attributes and Business Impact—according to the criteria identified below.

Product Family Attributes

Criterion 1: Match to Needs
Criterion 2: Reliability and Quality
Criterion 3: Product/Service Value
Criterion 4: Positioning
Criterion 5: Design

Business Impact

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

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

Frost & Sullivan analysts 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 of 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 recipient	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
10	**Take strategic action**	Upon licensing, company is able to 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

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 participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

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 more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.