



Technology Labs

Intelligent Device Architecture

Delivering the rapid development of future-proofed, sensor-based business solutions

Over the past several years, Accenture Technology Labs has led the marketplace in the application of sensors, RFID tags and wireless technologies in advanced business solutions. From automotive telematics to fleet management to innovative environmental monitoring for a California vineyard, Accenture has helped define state-of-the-art sensor solutions.

As the sensor field matures, however, what is now needed is a way to make the creation of sensor-based solutions faster, more predictable and less risky. That goal is driving a current Labs project called the Intelligent Device Architecture—a service-oriented architecture (SOA) that removes the complexity of sensor-specific technologies, enabling organizations to focus on business needs rather than technological complexity.

According to Joel Osman, Accenture Technology Labs' program director for Intelligent Device Integration R&D, the Labs' Intelligent Device Architecture can effectively remove many of the barriers to implementation that organizations worry about. "Most of the time, the client executives we speak with see the business value of sensor-based solutions," says Osman, "but are concerned with questions such as, 'What happens if the technologies change and I'm stuck with an expensive and out-of-date investment?' Or, 'How can I leverage multiple types of sensors in a single solution that spans several business applications?'"

The Intelligent Device Architecture provides the infrastructure that makes using and integrating sensors easier and more effective. Notes Osman, "This means our clients do not need to worry about obsolescence. If the technologies change, the underlying architecture remains the same, so companies are shielded from the effects of technology change."

Built on the Microsoft .NET framework, Accenture's Intelligent Device Architecture also leverages Avanade's ACA®.NET technical architecture for a core set of common services. It resides on top of those frameworks, providing the ability to handle multiple types of sensors, as well as multiple hierarchies of sensors and devices. The architecture can integrate everything from an RFID tag all the way through to a full-blown embedded computing device.

High Performance Delivered

Osman describes three key benefits that organizations can expect to realize from the Intelligent Device Architecture:

1. Integrating multiple types of sensors. The architecture is flexible enough to handle disparate devices working within a total solution. It permits easier device and communications management. Says Osman, "If a solution requires location data, it doesn't matter if the data comes from GPS satellite, cellular triangulation or even a proprietary radio network. The business application is insulated from those details. Data management is made easier too, because all data resides in a single database."

2. Supporting multiple business applications. Because the solution is open and flexible, and because users can define new sensor profiles and hierarchies of device profiles, companies can now more easily use sensor information across multiple business applications. Different back-end applications can get easy access to sensor data without worrying about underlying configurations.

3. Future-proofing. Perhaps the most important benefit of the architecture is not having to worry about placing bets on particular sensor or network hardware and software. Users can build their business applications using the architecture without concern for the long-term viability of the sensor technologies. If and when the underlying technologies change, users can just plug in a new sensor and define a new profile.

The Intelligent Device Architecture project is a powerful example of how Accenture Technology Labs harnesses innovation to help businesses and governments achieve high performance. In the area of sensor-based solutions, the Labs has moved from research to development prototype to pioneering pilot project to a robust and reusable asset that helps make sensor-based solutions business-ready.

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About Accenture Technology Labs

Accenture Technology Labs, the dedicated technology research and development (R&D) organization within Accenture, has been turning technology innovation into business results for 20 years. The Labs create a vision of how technology will shape the future and invent the next wave of cutting-edge business solutions. Working closely with Accenture's global network of specialists, Accenture Technology Labs helps clients innovate to achieve high business performance. The Labs are located in Chicago, Illinois; Palo Alto, California; Sophia Antipolis, France; and Bangalore, India. For more information, please visit our website at www.accenture.com/accenturetechlabs.

About Accenture

Accenture is a global management consulting, technology services and outsourcing company. Committed to delivering innovation, Accenture collaborates with its clients to help them become high-performance businesses and governments. With deep industry and business process expertise, broad global resources and a proven track record, Accenture can mobilize the right people, skills and technologies to help clients improve their performance. With approximately 146,000 people in 49 countries, the company generated net revenues of US\$16.65 billion for the fiscal year ended Aug. 31, 2006. Its home page is www.accenture.com.

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