

Japan to Push RFID Development

Jun Murai, head of the Auto-ID Center's new lab in Japan, says his country will play an important role in the development of ubiquitous RFID systems.

Feb. 20, 2003 - Last month, the Auto-ID Center opened a lab in Japan. It will be headed by Jun Murai, a renowned Japanese computer scientist. Murai has led the WIDE project in Japan, which aims to establish a widely integrated distributed computing environment. He also has been working on the next generation Internet protocol, known as IP version 6. Murai recently spoke to *RFID Journal* editor Mark Roberti about the role of the Auto-ID Center's lab in Japan would play in the development of radio frequency identification systems.

RFID Journal: *You are known as an expert in networking, not automatic identification. Why did you accept this position at the Auto-ID Center?*

Murai: I've been working on network architecture, especially on the next generation Internet protocol, IP version 6. From a technology point of view, IPv6 extends the address space from 32 to 128 bits, which provides enough unique addresses to connect every single object to the Internet. My research project has also been working on RFID for three years. We already did a large-scale test, putting RFID transponders in nametags. We've been focusing on how RFID can be an element to construct the next generation of the information space.

RFID Journal: *Some people say companies won't share data over the Internet because it's not secure or reliable. Do you agree?*

Murai: Reliability and security are the responsibility of the end system. Any RFID system should be designed to ensure reliability and security.

RFID Journal: *What if the Internet backbone goes down and companies can't share data?*

Murai: From that point, the Internet is more reliable than telephone and other networks. The reason is the Internet provides for alternate routes, rather than just one direct route. If you want to be connected with other parties, that reliability is the strongest advantage for using the Internet.

RFID Journal: *The Auto-ID Center has four labs now. What is the Japanese lab's role?*

Murai: We have four major areas of research, three of which are Japanese-specific. First is networking architecture, which is basically how Auto-ID readers will communicate over the Internet. Second is the name and ID mapping mechanism. If you want to specify some kind of object using a name or other number, that number has to be mapped somehow to the Electronic Product Code. Consider how domain names are mapped to URLs on the Internet. That kind of numeric representation is very helpful and powerful.

Third is to establish a test bed. We've been running large-scale tests on Internet mobility in Japan. For example, 2,000 taxi's were equipped last year with wireless devices that enabled them to connect to the Internet. We can test how auto-ID can be used on thousands of cars driving around a big city. Our lab will be able to take advantage of existing tests to test auto-ID technology and then provide feedback to the other labs. And lastly, we will work on other standards for supply chain applications, but that research is not specific to Japan.

RFID Journal: *The UHF area of the spectrum can't be used for RFID tracking in Japan, but many other countries will use it. How will products with UHF tags be identified in Japan?*

Murai: We've been discussing this issue with the Japanese government, which has been very cooperative. Frequency reallocation will take five to 10 years, so we've been looking at other options. One is to use the frequencies around the 800 and 900 MHz. Another option is to use some areas of the spectrum that haven't been allocated. We haven't reached any conclusions yet on what is the best way to go.

RFID Journal: *How do you see companies adopting RFID technology in Japan?*

Murai: Japanese companies are interested in using RFID for supply chain management, but in a different way from companies in the US. For instance, the shrinkage rate is not that high in this country, so it's harder to convince supply chain management people of the benefits of the technology. On the other hand, the consumer demand is very strong in this country. Adoption of Internet refrigerators and home networks is more advanced here, so I think companies here will have a greater interest in using auto-ID on the consumer side than in the United States.

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