



# University of Florida and IBM Use Open Standards to Boost the Power of Healthcare Devices

UF's "Smart House" in Gainesville spotlights improved patient healthcare delivery as working example of powerful new device-driven business architecture

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**Gainesville, FL and Armonk, NY - 24 Jul 2007:** In today's world, we expect most devices to provide a single function at a given time, and that's the end of it. In a healthcare clinic, for example, a blood-pressure monitor displays one reading and stops. But what if, at a consumer's direction, devices that are important to our daily lives could function continuously, automatically sending vital information to those who could use it to deliver new and valuable services? In such a world, a new panorama of consumer-centric enterprises could emerge.

The fact is, for a wide range of devices and functions, this world is now within our grasp.

That's because the University of Florida (UF) and IBM have introduced new, groundbreaking technology that provides a "roadmap" for extending the functionality of all kinds of devices – wireless or wired, near or far. Using the power of standards in the embedded-device and IT domains, open communities and alliances, this technology will enable automatically recognized devices to send the information they register to authorized third parties, such as specialized healthcare providers. This information, in turn, can help enterprises in many industries understand their customers' needs in real-time – once or on an ongoing basis – and help them in specially tailored, continually evolving ways. In the Healthcare Industry, the positive implications for the infirmed and elderly are substantial.

As a means of demonstrating the power of this new device-driven model, UF and IBM have prototyped cutting edge, device-driven patient-monitoring services at the University's highly publicized "Gator Tech Smart House" laboratory in Gainesville, FL. Smart House was originally designed as a stand-alone research facility for the development of wireless sensor technologies to assist the elderly in maximizing their independence and maintaining a high quality of life.

Today, thanks to the new technology, "Smart House" is prototyping a new breed of interactive healthcare services. Such services translate device usage by patients into the data required by enterprises outside the home that depend upon the constant monitoring of their patients' conditions. These enterprises, including hospitals, labs and physician's offices, can then use the information generated to return value to the consumers they serve in increasingly beneficial ways.

For example, the technology ensures that diabetic patients' use of such Smart House devices as blood

pressure and glucose monitors generates vital-signs data that are stored and made available in standardized formats to a wide range of healthcare providers via web-based assessment and monitoring consoles. Such solutions are not only able to register events such as an unacceptable jump in blood pressure but also to tie the events into the overall picture of a person's healthcare and fitness programs.

The use of an open, extensible architecture makes information accessible to extended care networks in ways that might not have been foreseen. Flows of information and critical events can be dynamically configured, enabling not only traditional targeted medical services, but also the configuration of services in response to changing conditions, emerging technologies and healthcare provider objectives.

The continuous collection and monitoring of outpatient vital signs, medications, lab results, and physical activity can enable expert collaborative assessment and treatment and provide first responders with accurate, long-term and immediate patient history. This approach allows for correlation and trend analyses of dynamic information from a myriad of integrated devices, with existing healthcare information systems, and will support their evolution and growth into web-based software healthcare solutions.

“The role of information technology in healthcare is poised for rapid change, and the ability of future healthcare information solutions to positively affect our lives will depend on their capacity to adjust and evolve with our needs and conditions,” said Mike Milinkovich, executive director, Eclipse Foundation. “We are fortunate that the Eclipse community is able to support and sponsor research and development of technology that will lead to highly configurable and manageable healthcare solutions in the future.”

The IBM and UF believe the new technology applies to a broad set of industries that include healthcare among many others. Examples include wholesalers, retailers and distributors who require immediate monitoring and control of shipments, such as RFID sensor data pumped directly into their systems; military control centers pushing beyond cargo tracking and reports that can benefit from integrated, real-time logistics and situational awareness; and shippers of hazardous materials who must track their products throughout the manufacturing and shipping processes, control environmental conditions during shipment and verify final delivery.

“Working with IBM, the University of Florida is dedicated to designing new services oriented programming models that help system integrators and enterprises focus on higher-level functionality and provide higher levels of abstraction in a given, physical realm,” said **Dr. Sumi Helal**, Professor, Computer and Information Science and Engineering, University of Florida. “By bridging the physical and digital realms with a known service or set of services, we will unlock the potential to enable the next generation of Internet-based enterprise systems.”

Today's standards integrate business systems through a set of service and event driven models that can be used, reused and combined to address all kinds of changing business priorities and demands. IBM and UF see that such an industry shift can only be realized within a strong, open community. This requires adoption of existing standards and the contribution of key enabling technologies through standards and open source. OSGi provides for modular systems that can be remotely configured, maintained and adapted. W3C standards provide for interoperable and highly scalable, reliable and secure enterprise systems. Eclipse provides a strong open-source software community. IBM has seeded this effort through the contribution of core enabling components to the device project within Eclipse's Open Healthcare Framework (OHF).

“While the monitoring and control of physical environments isn’t new, embedded-systems developers have traditionally built their complex systems in closed environments,” said Richard Bakalar, Chief Medical Officer for IBM. “UF and IBM see both the need and the opportunity to integrate the physical world of sensors and other devices directly into enterprise systems. Doing so in an open environment will remove market inhibitors that impede innovation in critical industries like Healthcare and open a broader device market that’s fueled by uninterrupted networking.”

Watch [A Smarter World for Charley](#), a video that demonstrates how new, device-driven technology can change lives for the better in the context of healthcare delivery for the elderly.

## Contact(s) information

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[University of Florida News Release: From UF and IBM, a Blueprint for "Smart" Health Care](#)

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