



The latest smartphones automatically plot your location and update traffic and weather. If a Facebook friend calls, they automatically find and display his or her picture. Slowly, we are weaving together the different strands of the virtual world. Henning Schulzrinne wants to make that fabric richer by making it easier to connect those services and adding sensors to the mix.

Sensors let computers measure and interact with the physical world. “Imagine you’re driving home,” Schulzrinne suggested. “If the temperature is above 80 degrees F, your GPS-enabled cellphone could turn on your air conditioner. It would then turn it off when the last family member leaves home.”

Working behind the scenes, Internet-enabled automation could use sensor data to tailor its response to the situation. Interconnected sensors could warn when household appliances need repairs, water the lawn only when it is dry, analyze traffic so you leave home with enough time to make your dinner reservation, and even check for signs of disease.

“Today, many of these web services are available to other applications,” Schulzrinne continued. A savvy developer could query a calendar program for today’s appointments or a weather program for a forecast.

“We want to leverage these services into more interesting and comprehensive systems,” Schulzrinne said. “We want to program anything that can be controlled through the Internet, from your lighting and heating to your e-mail and smartphone. We want to make it easier to build smart offices and homes, and to link your calendar with your phone.”

To make that happen, Schulzrinne is focusing on two first steps. One is to develop simple ways to interconnect services, sensors, and applications. “Today, you have to learn Java or other programming languages, or rely on tools from Internet companies. We want to make it easy for the nontechnical to moderately technical users to link things together in interesting ways,” he said.

He is also pushing for standardized interfaces that make it easy to plug sensors into the web. “There is no reason why every sensor maker should not use the same format to convey information,” Schulzrinne said. “We want to develop a standardized interface, a platform that other people can create modules that use sensor and Internet data to trigger events like services. For example, a module might trigger a stock sale depending on its performance. Another might see if it is going to rain before watering the lawn.”

Ultimately, it could lead to a physical world as interactive as the virtual world that ties it together.

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Sensing Our Connected World

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