Platform-Independent Software Offers Flexibility and Ease When Controlling and Monitoring Remote Devices and Sensors
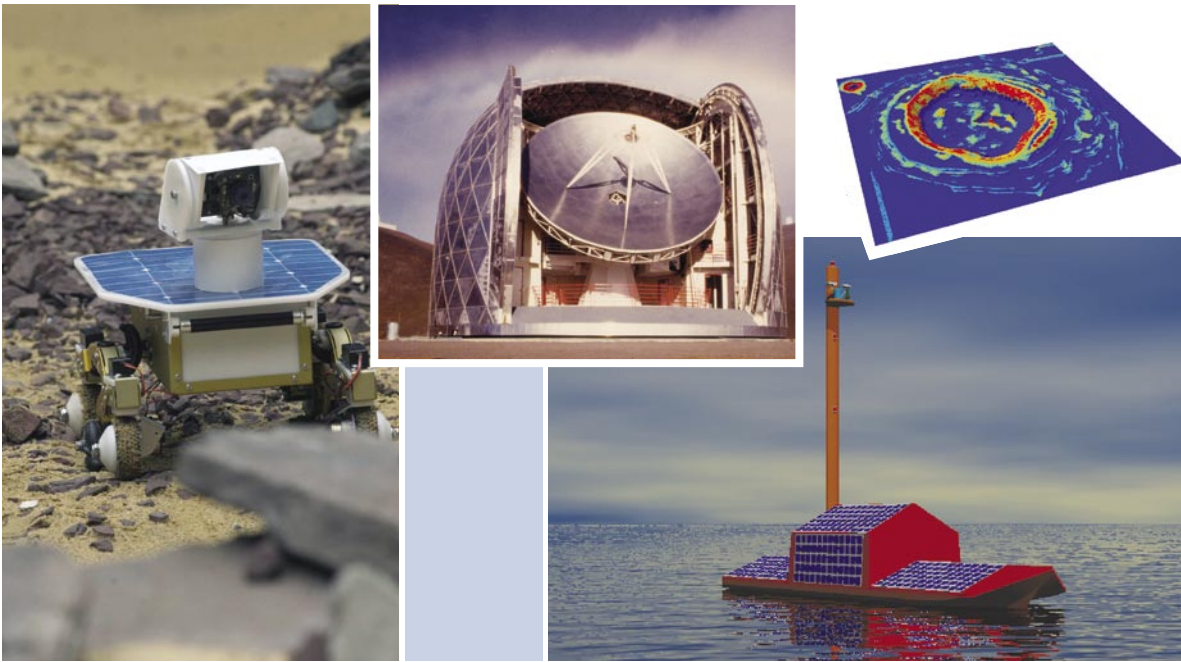
tech transfer *success*

The Interoperable Remote Component (IRC) Architecture is a software application uniquely suited for controlling and monitoring remote devices and sensors and allowing all types of software systems to operate with one another. Originally developed by the NASA Goddard Space Flight Center for NASA science missions, IRC is now available to private industry and has been acquired by organizations in factory automation, nuclear science, aerospace, medical devices, and metrology.

Benefits of the Technology

IRC is flexible, which makes it simple to use and maintain. Its strength lies in its ability to reconfigure itself based on eXtensible Markup Language descriptions that tell the framework which algorithms and application components to plug in, what the graphical user interface should look like, which devices to connect to and how to communicate with them, and what interface to present to peers. As a result, IRC offers users:

- **Platform independence**: Implemented in Java, IRC can be used on Windows, Mac OS, Solaris, several variants of Linux operating systems, and embedded environments.

- **High performance**: IRC can process data within the framework at hundreds of megabits per second without special hardware.

- **Flexibility**: Processes can run on a single computer or on multiple heterogeneous computers as well as remotely over the Internet.

- **Configurability**: Software solutions are easily developed, enhanced, and reused for different devices, instruments, and domains, thus saving time and development costs.

About NASA Goddard's Information Systems Division

The NASA Goddard Information Systems Division, which developed IRC, is made up of more than 300 civil servants and private-sector partners who collaborate with the science community and others to identify, develop, and sponsor advanced and emerging information-systems technologies.

Technology Origins

Technology developers originally designed IRC as a low-cost control system for all types of remotely operated instruments and platforms. For example, IRC is used in the Submillimeter High Angular Resolution Camera on the ground-based Caltech Submillimeter Observatory as well as in autonomously operated ocean-faring research platforms developed by NASA and the National Oceanic and Atmospheric Administration. Through continuous improvements, the technology now allows all types of software systems to operate with one another, broadening its potential use across multiple industries.

Other Uses for IRC

Because IRC allows multiple instruments or software packages to work in a coordinated manner without the need to rewrite new code each time a new instrument or application is brought into the system, it has broad appeal to industry, academia, and other government agencies, including those in:

- Medical equipment
- Weather monitoring
- National security
- Factory automation
- Nuclear science
- Aerospace applications

Accessing IRC

The code for the IRC architecture is available for download via NASA Goddard Space Flight Center's Open Source software site (http://opensource.gsfc.nasa.gov/projects/IRC/IRC.php). Except for Java JVM version 1.4 or later, potential users do not need special software or hardware to run IRC.

Goddard inventors also will entertain working directly with users to develop enhancements for specific applications.

For More Information

This technology (GSC-14308-1) is part of NASA's Innovative Partnerships Program (IPP), which seeks to transfer technology into and out of NASA to benefit the space program and U.S. industry. For information and forms related to partnering with NASA for technology transfer, please visit the Licensing and Partnering page of Goddard's IPP Office Web site (http://ipp.gsfc.nasa.gov/lic-partnerships.html).

For More Information

If you would like additional information about this technology (GSC-14308-1) or Goddard's technology transfer opportunities, please contact:

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