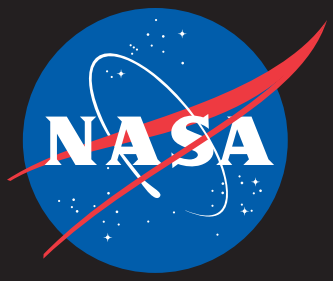
National Aeronautics and Space Administration

IT Talk

January - March 2012 Volume 2 • Issue 1

Google™ Apps



IT Talk

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IT Talk is an official publication of the Office of the Chief Information Officer of the National Aeronautics and Space Administration, Headquarters, Washington, D.C. It is published by the OCIO office for all NASA employees and external audiences.

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Message from the CIO

By Linda Cureton

The new year always starts with a ritual—an annual attempt to start afresh and turn over a new leaf. One of the best resolutions comes in an advertisement from Symantec, the IT security company, where they start the ad by saying that 2012 is the end of the Mayan calendar and therefore marks the end of the world. Their resolution is "Resolution 2012—The world is not going to end in 2012." Wow, that is a huge load off my mind. This year, just like all the rest, I have some proposed key goals. Here are my 2012 New Year's resolutions:

1. Ensure that large volumes of data are transmitted quickly and securely.
2. Do more collaboration with industry.
3. Think of innovative ways to use commercial off-the-shelf technology.
4. Work harder in communicating the value of IT. We've been forced to run a marathon at a sprinter's pace.
5. Embrace change.
6. Think past the hype. How can cloud, mobile, and consumer technologies help NASA?
7. Keep an open mind about emerging technologies.
8. Tweet and blog more.
9. Be all about the "G" word. In other words, promote professional, organizational, and personal growth.
10. Stop worrying about what I cannot control (e.g., the economy).

As we forge ahead into 2012, I would like to recognize some key IT accomplishments. NASA recently partnered with Google Apps on a new pilot program. NASA users can connect to Google Apps for Government using an existing NASA work ID, which also functions as a smart card in the card reader of compatible computers. The card was created as a common identification standard for Federal employees and contractors to increase security and reduce opportunities for identify fraud. You can read more about the pilot on page 6.

Also, our work continues with strengthening our IT operations and achieving my vision to have the best IT organization in the Federal Government. The last year produced some hefty IT challenges, including a transition to NASA's IT Infrastructure Integration Program (I3P). I3P is transforming NASA's IT service delivery from Center-based to Agency-based, resulting in IT service consistency and management, as well as enhanced IT security for our customers. We continue to move ahead in this direction. An update on the program is available in this latest issue.

No New Year's celebration would be complete without thanking the people who worked very hard on last year's resolutions. They are a key component to the success of the IT program at NASA. Thank you. I'm very proud of our team. I have many hopes and dreams for our IT community in 2012. In the coming months, I look forward to sharing my vision with you and expanding our technology at NASA.

Telework Exchange Town Hall

By Tony Facca, Emerging Technology and Desktop Standards (ETADS) Manager

Recently, NASA was represented at the 2011 Telework Exchange Town Hall meeting in Washington, DC, by Mr. Tony Facca of NASA's Emerging Technology and Desktop Standards (ETADS). The Telework Exchange is "a public-private partnership focused on demonstrating the tangible value of telework and serving the emerging educational and communication requirements of the Federal teleworker community." ETADS, chartered with defining the Agency's Desktop Computing Standards, was asked to give a presentation based on previous participation in Telework Exchange activities.

The Town Hall had special significance given the continued consumerization of information technology (IT), the explosive growth of mobility solutions, and President Obama's signing into law of the Telework Enhancement Act of 2010. While at the Town Hall, Mr. Facca discussed how telework has enhanced collaboration across a geographically dispersed Agency and among global partners and how telework has created an environment that no longer restricts innovation to 8 a.m.–5 p.m., Monday through Friday. Mr. Facca described how technologies that fuel telework are directly transferable to the flight line, to the test cell, and to continuity of operation plans (COOP). Indeed, COOP was a recurring theme as many in attendance recounted how implementing telework strategies enabled the Federal Government to remain operational during the Washington, DC, "Snowmageddon" of winter 2010.

Other agencies presenting included the National Institute of Standards and Technology (NIST), which discussed practices for secure telework experiences and technology leaders including Microsoft, Intel, Citrix, and Cisco, who offer innovative approaches to supporting telework initiatives. The Department of Defense (DOD) also participated and recounted how implementing a teleworking policy helped stem an employee exodus resulting from its Base Realignment and Closing (BRAC) initiative. The United States Patent and Trade Office was recognized as a trailblazing authority for its vast adoption of telework and its measurable results, including significant savings to the agency.

More information about the Telework Exchange can be found at http://www.teleworkexchange.com/.

More information about NASA's ETADS can be found at https://etads.nasa.gov/.

NASA Names New CTO For IT

Dr. Sasi Kumar Pillay is the new NASA Chief Technology Officer for IT. Prior to his new role, Dr. Pillay served as the Chief Information Officer at the National Aeronautics and Space Administration (NASA) John H. Glenn Research Center at Lewis Field in Cleveland, Ohio. He was responsible for advocating, managing, and implementing information technology investments and infrastructure at Glenn. Dr. Pillay had a broad scope of responsibility, including managing administrative telecommunications, desktop computing, and computer graphics and visualization; computer modeling and simulation; and high-end computing and networking. Under his leadership, Glenn served as the NASA lead for developing agency-wide standards and architecture for desktop systems and servers, with a focus on security, interoperability and collaboration. Dr. Pillay also served on the center's Strategic Management Council and the Operations Management Council.

He received a Bachelor of Science in Mechanical Engineering from Pennsylvania State University, as well as Master of Science and Doctor of Philosophy degrees in Computer Engineering from Case Western Reserve University. He also holds a Master's degree in Management of Technology from the Sloan School of Management at the Massachusetts Institute of Technology.

Dr. Pillay is the recipient of NASA's Exceptional Service Medal and the Outstanding Leadership Medal. He is also the recipient of the Presidential Rank Award recognizing him as a meritorious executive in the U.S. Federal Government. He has written approximately 20 papers on pattern recognition and medical diagnostic systems.

Humphries Named CIO At Glenn

William R. (Randy) Humphries, Jr. has been named the Chief Information Officer at the National Aeronautics and Space Administration's (NASA) Glenn Research Center in Cleveland, Ohio.

He is responsible for advocating, managing, and implementing information technology investments and infrastructure at Glenn. Mr. Humphries has a broad scope of responsibility, including managing administrative telecommunications, desktop computing, and computer graphics and visualization; computer modeling and simulation; and high-end computing and networking. He also serves on the center's Strategic Management Council and the Operations Management Council.

Prior to this appointment, Humphries served as Deputy Director for Glenn's Space Flight Systems since 2006. In this position, he was responsible for center-level planning, organizing, and directing of activities required to accomplish the directorate's responsibility to manage, conceptualize, develop, and integrate flight and ground systems in support of NASA's exploration and science objectives. Before coming to Glenn, Humphries served as manager, Exploration and Space Operations at NASA's Marshall Space Flight Center (MSFC).

Humphries joined NASA in 1991 working instrumentation on the Space Station Freedom program. He has held positions of increasing responsibility including lead instrumentation engineer for the space shuttle main engine at MSFC, subsystem manager for the solid rocket booster project at the NASA Kennedy Space Center, manager for space shuttle propulsion upgrades and deputy director of the Program Development Directorate at NASA Stennis Space Center.

During his career, Humphries has demonstrated exceptional skills in leading people, forming internal and external collaborations, and using keen business insight. Key among his accomplishments is successfully managing the implementation of the $3 billion Space Shuttle Safety Upgrade Program, leading the on-schedule launch of the $700 million Agency Pluto mission, and assembling a new organization at Marshall to support ISS and space exploration.

Humphries received his bachelor's degree in electrical and computer engineering from the University of Alabama in Huntsville in 1982.

Humphries' awards include NASA's Outstanding Leadership Medal and the prestigious NASA Silver Snoopy Award.

Freudinger Named CIO at Dryden

Lawrence C. Freudinger has assumed the role of Chief Information Officer (CIO) at Dryden Flight Research Center. Freudinger's prior position at Dryden in the Mission Information and Test Systems Directorate focused on advanced test technology development and network access to globally deployed airborne instrument payloads. In that role, he led a team pioneering highly specialized IT systems that changed the way NASA's airborne science program delivered services to its customers.

In addition to being the CIO, Mr. Freudinger also serves as Chief Technology Officer (CTO)-IT and supervises the Mission Information Branch at Dryden.

Mr. Freudinger began his NASA career in 1986 supporting research and testing in aeronautics. He has a bachelor of science degree in astronautical engineering from University of Illinois at Urbana-Champaign and a master of science degree in mechanical engineering from the University of Cincinnati. He is a co-inventor of patented open-source middleware designed for network-distributed testing and was the Technical Program Chairman for the 2003 International Telemetering Conference. He was a member of the 2009 Cyberinfrastructure Task Force contributing to planning efforts for an Aeronautics Research, Development, Test, and Evaluation (RDT&E) national infrastructure. He authored or co-authored more than 30 publications and is a recipient of the NASA Exceptional Engineering Achievement Medal.

NASA's Federal Personal Identity Verification

By Tim Baldridge, NASA ICAM Solutions Architect, MSFC

NASA recently began a pilot program using Google Apps, a suite of applications that brings services such as Google Docs, Images and Videos, Sites, Groups, Calendar, and Contacts together to help NASA workers in today's NASA business and engineering environment. NASA IT Labs, a part of the Office of the Chief Information Officer (CIO), sponsored the pilot to meet the growing demand from workers to access resources anywhere on any device.

About 600 IT staff from 11 NASA Centers and facilities are participating in the pilot by using existing NASA identities and credentials. Cost savings and information protection are realized by accessing cloud computing. Cloud computing refers to resources and applications that are available on the Internet from nearly any Internet-connected device. During this pilot, only nonsensitive NASA data are being placed in the cloud.

Under the pilot, NASA workers can connect to Google Apps for Government using their existing NASA work ID. Through integration between Google Apps, NASA Access Launchpad, and the NASA Consolidated Active Directory (NCAD), workers may use their existing NASA badge, one-time-password token, simplified sign-on, or username and password for access to the Google Apps pilot. This integration demonstrates the technology of the requirement for accepting externally issued identity credentials set forth in memoranda from the Federal Chief Information Officer.

The Federal Identity, Credential, and Access Management (FICAM) Roadmap and Implementation Guidance describe both the enterprise FICAM segment architecture and implementation guidance. The NASA Google Apps pilot provides an example of the benefits from the technology standards in the Federal trust framework. Because the same ID and credential are used, there are no new costs associated with registering or managing new identities or credentials that include the established level of confidence for the individual accessing the resources.

The NASA badge PIV card is issued as a common identification standard for Federal employees and contractors to increase security and reduce opportunities for identity fraud. In a similar manner, all Federal departments and agencies are required to issue PIV cards to their employees and contractors. Today there are more than 6 million PIV cards issued that can be used for personnel identification and that "(a) [are] issued based on sound criteria for verifying an individual employee's identity; (b) [are] strongly resistant to identity fraud, tampering, counterfeiting, and terrorist exploitation; (c) can be rapidly authenticated electronically; and (d) [are] issued only by providers whose reliability has been established by an official accreditation process." More information about Homeland Security Presidential Directive 12.

NASA also accepts and electronically verifies PIV credentials issued by other Federal agencies through a credential registration process. With this capability, any authorized Federal PIV cardholder, which includes the Department of Defense (DOD) Common Access Card (CAC), may access NASA applications with their PIV or CAC credential. This means that today, a PIV or CAC may be used for authentication to the Google Apps for Government NASA site.

(PIV) Credential Teams Up with Google Apps

It is important to understand the emphasis this and past administrations have placed on everyone who is in IT service delivery. With the convergence of mobile, cloud, and legacy computing infrastructures, the complexity of integration can be overwhelming, even more so when focusing on the confidentiality, integrity, and availability of the information. "The goal for Federal information security in FY 2011 is to build a defensible Federal enterprise that enables agencies to harness technological innovation, while protecting agency information and information systems."

More information about Federal Information Security Management is found in Presidential Memorandum M-11-33.

The NASA Procedural Requirements NPR 2841.1 establishes requirements and responsibilities to properly manage FICAM services as an integrated end-to-end service to improve security, efficiency, and inter-Center collaboration at NASA. More information on NPR 2841.1.

The specifics of this NPR apply to owners of information and systems as well as end users, among others. The best application integration approach embraces FICAM services to leverage the full capability and cross-functional interoperability for a seamless user experience, whether it is on a workstation or laptop while the user is in the office or on a mobile device when he or she is away from the office.

For more information on PIV credentials and the Federal CIO Council's "Federal Identity, Credential, and Access Management Roadmap and Implementation Guidance," visit http://www.idmanagement.gov.

JPL Research Network Improves Access for Foreign Personnel

By Paul Averill, Jet Propulsion Laboratory, California Institute of Technology

Customer feedback is an important part of the Office of the CIO's (OCIO) quest to "Innovate Together" at NASA's Jet Propulsion Laboratory (JPL). As a result of ideas solicited from the user community, many new services are now available that provide Lab-wide benefits. The latest service had its origins in a casual lunchtime conversation with the idea of transforming the constrained IT environment for JPL foreign personnel to something that was secure, yet conducive to research.

From this simple conversation came an OCIO-led activity resulting in the May 2011 release of the JPL Research Network, a service that simplifies and improves access and ease of information sharing for JPL foreign personnel while retaining appropriate access controls.

The Research Network enhances the current working environment by enabling both JPL foreign and U.S. personnel to exchange non-export-controlled data while providing JPL foreign personnel with simplified access to public and approved internal resources. Being logically isolated outside of the JPL network perimeter, the Research Network permits access to all publicly available JPL data and securely allows transparent access to foreign personnel's permitted internal JPL resources via an access client.

Additional features and benefits of the Research Network include allowing JPL foreign personnel full administrative rights to their computers, removing the restrictive foreign personnel local firewall, and allowing changes to their permitted internal resources to be centrally managed and quickly implemented.

The creation of a simplified and secure environment for the Lab's science and foreign personnel community has been an overwhelming success. The OCIO plans to apply a similar methodology to respond to the need of other Lab communities for controlled network access.

I3P Update

NASA Enterprise Service Desk

The NASA Enterprise Service Desk (ESD) is open for business and is currently supporting thousands of customers across the Agency. Customers at Wave 1 and 2 Centers (Dryden, Goddard, Headquarters, Kennedy, Glenn, Marshall, NASA Shared Services Center, and Stennis) can now open help tickets and order new services online.

Employees are turning to ESD for support on Agency-funded ACES base services like e-mail, calendaring, directory, and NASA Data Center (NDC) password resets. On November 1, the first wave of ACES Centers went live utilizing the ESD for support on computer seats, mobile devices, printing, software, and much more. ESD's scope expanded even further in December when the first waves of the NASA Integrated Communications Services (NICS) contract transitioned to ESD for support with Local Area Network (LAN) and other communication services.

The higher-than-expected call volume has led to some longer-than-acceptable wait times during peak hours, which include Monday and Tuesday mornings. In response, ESD is adjusting staffing to meet demand which has led to improvements. The ESD Tier-0 Web site (https://esd.nasa.gov) is a great resource customers can leverage during peak hours to avoid any sort of wait time on the phone. Under the "My Tickets" option, there is an easy-to-use mechanism that allows customers to generate a new help ticket. Anyone with a NASA ID can utilize this online capability, manage all his or her open tickets, and even generate tickets on behalf of others.

To order a new service (e.g., request a move, order a new seat, or purchase an item out of the ACES product catalog), a customer can visit the ESD Web site at https://esd.nasa.gov/, select "Order Services," and browse the catalog for the appropriate option.

You cannot make ESD service requests by phone; however, you may call an agent for assistance with placing your order online. To learn more about ESD, go to https://esd.nasa.gov.

ACES End-User Services

ACES began January 1, 2012, at Wave 2 Centers (Glenn, Marshall, NASA Shared Services Center, and Stennis). Hewlett-Packard Enterprise Services (HPES), the ACES service provider, had already assumed responsibility for Agency-wide services such as e-mail, calendaring, instant messaging, conferencing, and directory services.

HPES will deploy software to the Outsourcing Desktop Initiative for NASA (ODIN) seats in order to effectively manage the environment with a consistent set of tools.

Deployment of new ACES seats is based on refresh eligibility (a standard 3-year life cycle) and replacing oldest devices first. This strategy will allow the transition to proceed more efficiently and effectively.

Despite the delays in the transition implementation, HPES remains fully committed to completing an orderly transition to the ACES solution. The ACES Wave 3 implementation at Ames, Johnson, and Langley begins March 1, 2012. To learn more about ACES, visit https://aces.ndc.nasa.gov/index.html.

NASA Integrated Communications Services

Also on January 1, 2012, the NICS I3P contract assumed contractual responsibility for a portion of the work currently performed under the ODIN contract at Glenn, Marshall, the NASA Shared Services Center, and Stennis. The work consists of LAN and other local services with the associated engineering, operations, and maintenance in support of the local requirements.

The Communications Service Office will consolidate the provisioning of IT communications infrastructure services across all NASA Centers and facilities using a single Agency solution.

Benefits include the following:

- improved NASA IT security,
- improved management of NASA's IT infrastructure, and
- improved ability for NASA's IT communications infrastructure to support emerging mission requirements.

Going the Extra Mile

NASA's Office of the Chief Information Officer (OCIO) has launched the "I3P Cooperative Service Provider Award" campaign. This campaign will provide an incentive to motivate IT Infrastructure Integration Program (I3P) service providers to work cooperatively to encourage optimal end-to-end incident restoration times.

The I3P Cooperative Service Provider Award will be given to those IT service providers that work cooperatively with other IT service providers to consistently achieve total cross-provider service restoration times of less than (<) 7 hours. The OCIO will offer the I3P award in recognition of continuous monthly performance for those incidents requiring support from more than one IT service provider, as follows:

- 3 months of restoring all multiprovider incidents in < 7 hours = Bronze Award
- 6 months of restoring all multiprovider incidents in < 7 hours = Silver Award
- 9 months of restoring all multiprovider incidents in < 7 hours = Gold Award
- 12 months of restoring all multiprovider incidents in < 7 hours = Platinum Award

This award is a nonmonetary award to be provided annually by NASA's OCIO, who will be responsible for reviewing incident records and for determining if a service provider merits an award. NASA's OCIO will notify award recipients by mail. This award applies only to those service providers who participated in the resolution of cross-provider IT incidents and restoration of service and will be based on continuous months of multiprovider incident restoration.

The I3P Cooperative Service Provider Award criterion does not impose additional contractual requirements or modify any existing contractual requirements. Therefore, participation does not necessitate a contract modification or warrant an equitable adjustment to a contract.

In conclusion, this campaign will be an independent assessment of performance metrics aimed at encouraging multiprovider cooperation. OCIO will issue recognition awards to all the service providers that work cooperatively with other service providers to best address IT service management issues and incidents on behalf of NASA's I3P initiative.

End User Training Available on the ACES Web Site

By Doug LeMere, ACES Communications Lead

The Agency Consolidated End-user Services (ACES) Web site is now operational for all NASA Centers. This site provides informational dropdowns on Services, Security, Training, Reference Guides, and IT Support to assist all NASA employees.

The "Training" tab provides users with many selections. There are a variety of training options available for familiarization, including interactive Web-based training on the System for Administration, Training, and Educational Resources for NASA (SATERN), user guides, ACES Product Catalog (APC) training, and virtual Lunch and Learn training sessions.

Some of the SATERN courses offered include "Getting Started with Windows 7," "Microsoft Office 2010," and "Word for Mac 2011." Users can also find a variety of user guides and training courses for the APC—"Bulk Order Training and How To Order Seats and Augmentation Using the APC," "Computer and Mobile Hardware," "Printer Hardware," "Quick Reference Training Guides," and "Software User and WebEx User Guides." To learn more about ACES, visit the ACES Web site at https://aces.ndc.nasa.gov.

Liquid Galaxy
Unlocking Data through Visualization

By Nicholas Skytland, Open Government Initiative

Data (and hence information) play an increasingly important role for NASA's exploration and aeronautics missions. NASA produces more than 10 terabytes of new data each day, but quickly interpreting those data without thorough analysis is an overwhelming task. Fortunately, the same data when presented graphically convey the information more effectively. Data visualization is the study of the visual representation of data and has recently become a very active area of research. To demonstrate the power of data visualization at NASA, the Agency's Open Government Initiative (OpenGov) team and Tietronix Software, Inc. recently led a technology demonstration project to construct Google's open-sourced immersive visualizer known as the "Liquid Galaxy."

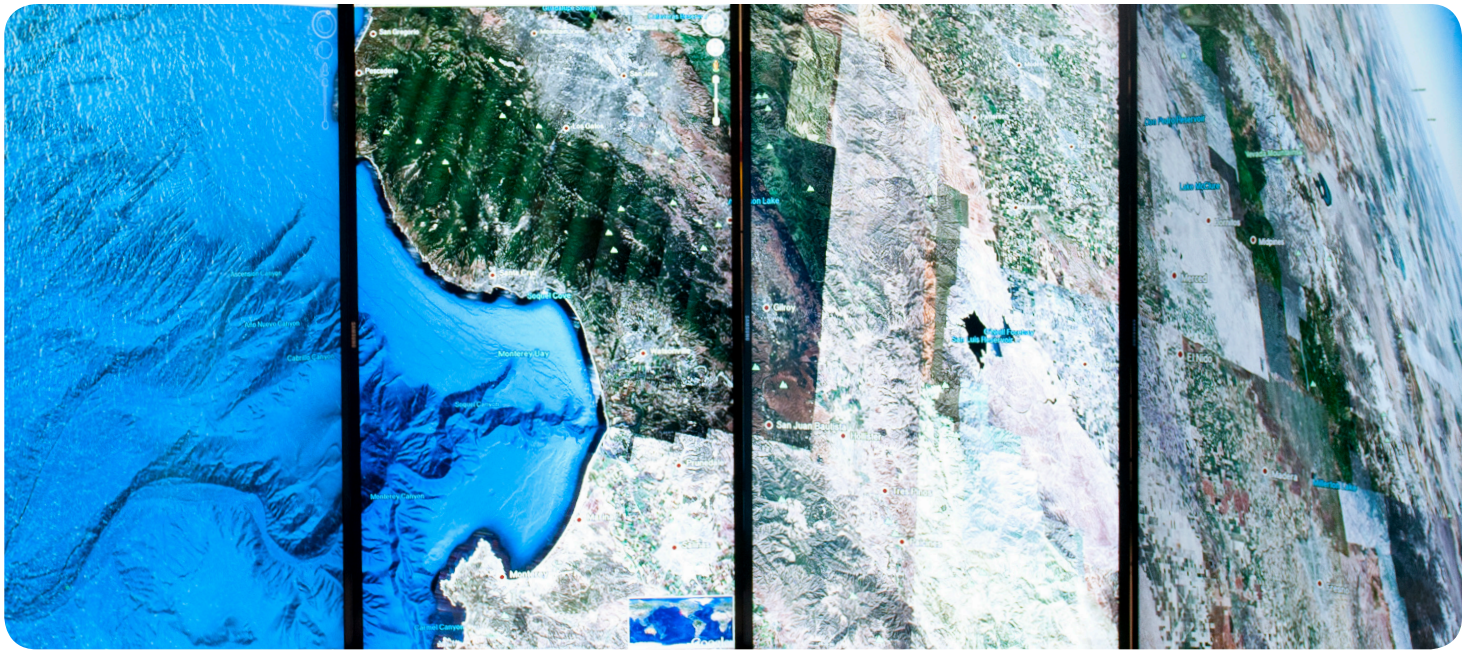
Tracee McCall takes a tour of Earth via the Liquid Galaxy.

The Liquid Galaxy is essentially a chamber of monitors arranged in a circle around you to create an immersive simulated environment. Engineers at Google built the first Liquid Galaxy in 2009 as a "20-percent project," and Google decided to open-source the code so that anyone could build his or her own. Google's version of Liquid Galaxy allowed you to fly anywhere in the world in seconds through the Google Earth platform. In December 2011, a 48-screen version was built by Google at the Paris Center for Architecture and Urbanism that shows Google Earth in 100 million pixels.

The vision for NASA's Liquid Galaxy was less focused on exploring the world via Google Earth (although it is impressive) and more about what we might be able to do with an immersive wraparound platform to visualize NASA data in a new way. The pilot project was funded by the Innovation Charge Account at Johnson Space Center (JSC) in spring 2011 and built for a fraction of the cost of Google's original version. The pilot project resulted in an eight-screen plasma monitor system that was completed this fall. The installation at JSC was met with great interest, and OpenGov was asked to build an even more impressive nine-monitor liquid crystal display (LCD) system at NASA Headquarters, which was completed in December. Both exhibits are on display at their respective locations through the first quarter of 2012.

OpenGov collaborated with a variety of groups on different aspects of the project. The project really kicked off during the NASA Forward Maker Camp at JSC in August 2011. Employees from the Space Life Sciences and Engineering Directorates joined the OpenGov team in designing a unique 80/20-based rack system that would eventually be used to mount the monitors vertically. This particular solution provides a configuration that will work for either a HyperWall or an Immersive Cave configuration of the Liquid Galaxy. OpenGov also worked with people from the Mission Operations Directorate and the new Commercial Crew and Cargo Program Office (C3PO) to overcome hurdles encountered with system configuration and optimization.

The OpenGov team has also made a number of improvements to the original Google Liquid Galaxy configuration, including installing ClusterGL, which provides graphics applications programming interfaces (API) calls over a network so that other machines can draw the graphics themselves



Brady Decker, CTO and Enterprise Architect for NASA HQ shows off the Moon.

without needing the application on their machine. This means that you can run one copy of a software program on one machine and set up the other machines to draw additional screens of data in order to make the field of view larger, essentially creating one giant computer. The OpenGov team has also configured both systems such that they can remotely monitor and control the system in order to make maintenance and repair easier.

If you have an idea for how to use the Liquid Galaxy platform to visualize NASA data in a new way, we want to hear from you! The big plans for Liquid Galaxy in the future are predicated on your vision for how it can be used. Visit the http://open.nasa.gov blog to find out more information (and view a short video of the exhibit) and contact the OpenGov team with any ideas at http://www.nasa.gov/open/.

IT Security Corner

Employees Still Careless with E-mail

When it comes to e-mail, workers remain a major source of risk to both their employers and themselves. Despite the fact that e-mail has been in use 40 years, it is still a key way for business secrets to leak.

A recent survey of how people use e-mail shows that employees may still be a bit too loose with their e-mail use when it comes to sensitive and protected information.

Accidental Disclosure

For instance, respondents were asked: "Have you or any member of your organization ever sent information via e-mail that was in violation of regulatory compliance?" An unexpectedly high 73.7 percent of respondents said they had done so accidentally, while another 28 percent admitted to doing so intentionally.

"Sender's remorse" is a common affliction among e-mail users. About 50 percent indicated that they have worried about what might happen to e-mails after they sent them, and 20 percent said that e-mails have "haunted" them after being sent.

A surprisingly low 3 out of 10 respondents said they send private and confidential business information by e-mail.

About 10 percent of respondents said they have accidentally leaked confidential information, and 60 percent of those surveyed admitted that they have made the classic mistake of accidentally hitting "reply all" when responding to an e-mail.

E-mail sent unencrypted is insecure and vulnerable to potential disclosure. Any e-mail which transmits sensitive information, either within the message body or as an attachment, must be encrypted.

Protect | Prevent | Preserve

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