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Nirvanix Storing Archived Photos from NASA Lunar Orbiter in the Cloud

By: Chris Preimesberger
2009-06-30

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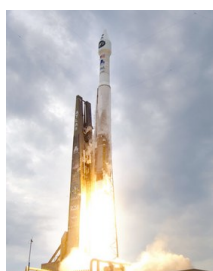
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As the archiver of new high-definition digital photos of the moon that will begin transmitting this week from NASA's Lunar Reconnaissance Orbiter, Nirvanix will be storing a large number of 2GB photos. The mission has been described as America's first step to the lasting return to the moon.

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As NASA begins looking for potential sites for new moon bases, enterprise cloud storage provider Nirvanix is doing its part to hold and protect thousands of digital images that will comprise moon-mapping history.

As the archiver of new high-definition digital photos of the moon that will begin transmitting this week from NASA's Lunar Reconnaissance Orbiter (LRO), Nirvanix will be storing a large number of 2-gigabyte-size photos. The mission, which was launched June 18 from Cape Canaveral, Fla., has been described as America's first step to the lasting return to the moon.



After the four-day, 240,000-mile trip, the LRO satellite is now orbiting the moon. It will spend at least a year in a low polar orbit collecting detailed information about the lunar environment that will help in future robotic and human missions to the moon.

Images from the Lunar Reconnaissance Orbiter Camera will be transmitted from the satellite to a project team at Arizona State University in Tempe, Ariz., for systematic processing. From there, images are replicated to secondary high-performance storage in a separate building at ASU; they are replicated a second time to the Nirvanix Storage Delivery Network.

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Nirvanix stores the third copy of each data file offsite using its CloudNAS software at ASU, which writes a copy directly from the data-receiving servers. ASU and NASA already have transferred multiple terabytes of original Apollo mission imagery from the 1970s to the Nirvanix CloudNAS-based system, Nirvanix CEO Jim Zierick told eWEEK. Ironically, Nirvanix itself won't be looking at the images it has stored—or will be storing—anytime soon. "We as a cloud storage service provider never

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look at the content we're storing. That's private information only for the owner of the data," Zierick said. "We wouldn't want to look at the content, whatever it is. It's our job to make sure the data is there in its entirety and that it is secure and accessible in our data stores, not to examine it."

Copies of all high-definition images from the moon will soon be transmitted from the LRO to the project's primary image storage center at the Fulton School of High-Performance Computing at Arizona State. Two copies of each of the photos will be stored in two different spinning [disk storage](#) area networks (SANs) there, which use mostly NetApp equipment for primary storage.

A third copy of each photo will be transmitted via the public Internet and stored on the Nirvanix Storage Delivery Network, headquartered in San Diego. Nirvanix is ready and waiting with a whopping 130 terabytes of cloud storage capacity, Zierick said.

If Nirvanix doesn't visually check out the photos to make sure they're good before archiving them, how does it know they are good to store?

"We match up our own metadata with that of each image to make sure the content is complete," Zierick said. "If there's one pixel missing [from an image], we can catch it. You can't do that with visual examinations anyway."

"The orbiter is at the moon now and is preparing for its mission to map the moon. We have seen some data come to us already. In managing our systems, we can see the flow of data and manage the storage capacity ASU is using."

Cloud Storage Replaces Old Tape System

NASA had some bad experiences with [storing data](#) and photos on tape back in the days of the Apollo missions, Zierick said.

"Data from the spacecraft is precious; it's kind of hard to re-create," Zierick said. "Security of the data is paramount. Accessibility to the data is also very important. Like a lot of companies, NASA's old backup strategy was tape, stored offsite."

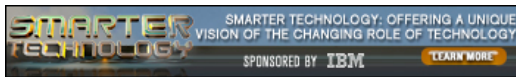
However, finding files on tape—especially large files—often can be tedious and difficult, because tape is a linear form of storage. Hard-drive-based storage enables much quicker accessibility to individual files.

"One of the big questions people have about cloud storage is: 'Can I get my data back?'" Zierick said. "Part of the story here and the reason they like working with us is that they didn't have to use any proprietary equipment or APIs [application programming interfaces] to load data to us. We just gave them a copy of our CloudNAS software product, which allows them to interface directly as if it's just another NAS mount."

"We have a three-year contract, but we haven't locked them into our business; we hope to earn their business for a very long term," Zierick said.

Zierick couldn't help to note: "While this project may be one small step for NASA ... it definitely represents a giant leap in cloud storage."

Go [here](#) to view NASA's Lunar Reconnaissance Orbiter Website. Example photos from the mission will be posted here as they are filed.



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