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Recent humanitarian projects involving Internet2 and NRENs

Examples of NREN Support to Humanitarian Aid Efforts

- Haiti GIS data from California Institute for Telecommunications and Information Technology (Calit2) to Washington DC
- Rapid transmission of multispectral images for relief efforts in Haiti
- Pacific Disaster Center
- TEIN3 – THEOS satellite image transfer

Haiti GIS data from Calit2 to DC

- Problem
 - Governments and aid agencies need satellite and aerial geographical data about Haiti to assess the damage and provide means for situational awareness in reconstruction efforts
 - Data stored in California
 - No connectivity with sufficient capacity in Haiti
- Solution
 - Transfer data from California to Washington DC
 - Write data on to portable disk drives, then transport by airplane to Port-Au-Prince

Haiti GIS data from Calit2 to DC

- How?
 - Using Internet2 Georgetown University established a connection to Calit2
 - University Information Services staff at Georgetown transfer more than 1.2 terabytes of data – and amount equivalent to 1.2 million books or 12 percent of the entire contents of the Library of Congress – over a four day period
 - Data is written to portable disks, delivered to World Bank, then flown by airplane to Haiti
 - Before and after high-resolution aerial and satellite imagery provides a building-by-building assessment of damage in severely affected regions of Haiti

Rapid transmission of multispectral images for relief efforts in Haiti

- Problem
 - Rochester Institute of Technology (RIT) Information Products Laboratory for Emergency Response (IPLER) realizes an opportunity to engage the IPLER collaboration and RIT remote sensing technology to aid in the recovery effort
 - Deploys airborne sensor system and LiDAR to Haiti
 - Need to transfer large quantities of image and radar data from University of Puerto Rico to RIT
- Solution
 - Base flights in Puerto Rico
 - Use Internet2 network links University of Puerto Rico and RIT

Rapid transmission of multispectral images for relief efforts in Haiti

- How?
 - Daily flights from Aguadillo PR, refuel Puerto Plata DR, shoot 9,000 frames per day, return PR
 - Daily transfer of data from University of Puerto Rico to RIT
 - Data transfer peaked at 150 Gb in 40 minutes (47 Mbps)
 - 250 sq. miles flown in 7 days
 - RIT team work around the clock to process data and distribute information
 - Example of use: Able to detect blue relief tarps, thereby determining the exact geographic location of refugees to help direct distribution of relief materials to areas in greatest need

Pacific Disaster Center

- Mission: Leverages the results of high level, innovative R&D, contributes to data collection, and develops usable, often visualized, forms of data
- Joined Internet2 in June 2007 to enhance its ability to transfer and process large quantities of data at high speeds to support decision makers on the ground at a disaster
- “The value of super-speed data transmission is not only the speed itself. Having access to greater speed means being capable of sending larger files. Many of the imagery results, disaster models and GIS files created at PDC are measured in multiple gigabytes.”

TEIN3 – THEOS satellite image transfer

- **Thailand Earth Observation Satellite (THEOS)** collects high-resolution images for analysis and deployment in areas such as cartography, land use, crop yield forecast, coastal zone monitoring, flood risk management and disaster response
- Images outside the coverage area of the ground receiving station in Bangkok are transmitted to northern Sweden, then sent by DVDs to the processing centre in Thailand
- Using TEIN3 data will be transferred via GEANT and TEIN3 networks
- A more rapid data transfer means disasters can be responded to more quickly, or averted all together

Other Activities

- Digital Library of the Caribbean
 - Initiative to Support the Vulnerable Libraries and Archives of Haiti
- REN Haiti (Proposal stage)
 - Improve the networking infrastructure to support significantly enhanced education and tele-health

Questions?

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