



INFORMATION TECHNOLOGY INFRASTRUCTURE NHERI@UCSD

Robert Beckley, IT Manager
University of California, San Diego
December 12, 2016



Overview

- Summary of equipment
 - IT equipment - List of hardware-software assets used to access NHERI resources
 - Two backup servers for both Data and Video
 - Off-site data backup during testing (daily)
 - On-site data backup during testing (daily)
 - ESEC dedicated 1Gb LAN connection
 - NHERI dedicated 10Gb WAN connection
 - Kali Penetration Testing
 - Snort Network Intrusion Detection and prevention System
 - Remote video monitoring available for researchers during testing

Overview

- Summary of Equipment
 - One DVR with (16) channels of digital video recording with immediate playback capabilities (synchronized with data)
 - Two IP Base NVR System Recording up to 57 IP Cams with immediate playback capabilities (synchronized with data)
 - One Exacq Hybrid System can support 16 Coax or 16 IP based Cameras for Safety of the site and Tests
 - One Video Camera called the VideoIQ can track 246 moving objects for safety and security of the site.
 - IRIS+ Multicopter

NHERI@UCSD SITE IT INFRASTRUCTURE

- **1-Gb Campus Wide Area Network**
 - Internet2 participant
- **802.11g Campus Wireless Network**
 - WPA-2 Enterprise security
- **Provide Researchers with meeting room and project room for Project.**
- **Site Provides Guest Wireless Account for Visitors/Researchers**
- **Site dedicated 1Gb LAN**

Room For Meetings



Wireless Access Points



NHERI@UCSD SITE IT INFRASTRUCTURE

- **Fedora Server**
 - Web server (<http://nheri.ucsd.edu>)
- **Red Hat Enterprise Linux Server**
 - Backup of nheri.ucsd.edu Web site
- **Kali Server** used for penetration testing of network
- **Snort Server** use for intrusion Detection
- **Windows Server 2008r2**
 - Online data and video storage for SFTP distribution
- **3 Buffalo TerraStations**
 - 3-TB offline data storage
- **Drobo**
 - 16-TB Offline Data Backup

Racks with Servers



Buffalo Data Backup System



Drobo Data Backup System



UPS For ESEC



NHERI@UCSD Video Recording System

- **Axis P1365 (3)**
 - Provide real-time viewing via web site/ 500 viewers per camera
 - Provide Time-Lapse for Projects
- **IDVR-Pro H.264 HD CCTV DVR (Coax)**
 - Trigger-based recording for synchronization with data
 - 16 channels of digital video recording with immediate playback capabilities (synchronized with data)
- **NUUO Hybrid Video Recorder/IP NVR**
 - Trigger-based recording for synchronization with data
 - 16 channels of digital video recording with immediate playback capabilities (synchronized with data)



Coax Cams 1080p HD



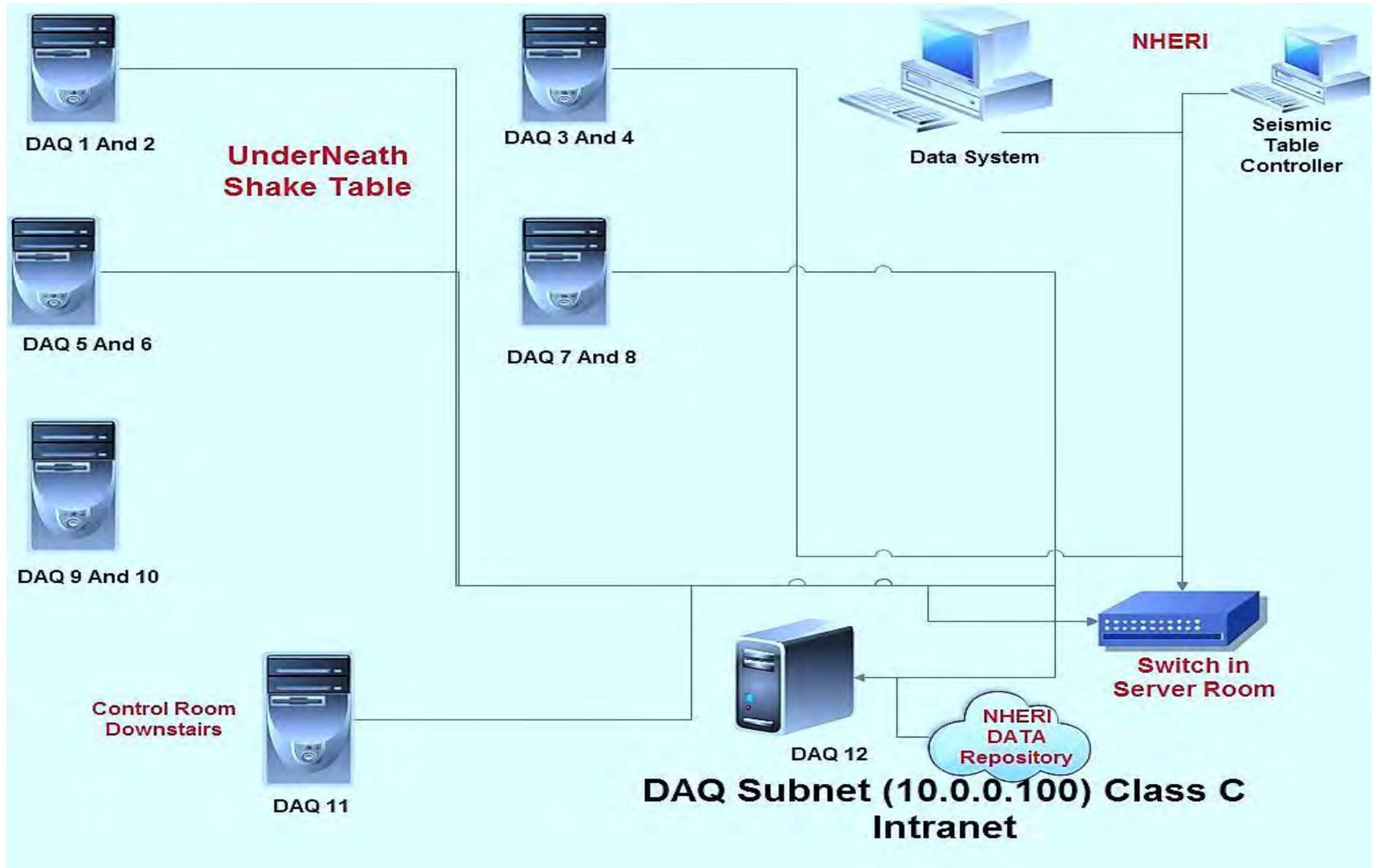
GoPro Cameras



SITE IT NETWORK

- The site has two types of networks:
 - The general site network visible to the outside
 - The DAQ and Video intranet not visible to outside world

DAQ and VIDEO Intranet



ExacqVision Safety Server/Security



Cameras and lighting for Protections For Site



SITE IT Cyber-SECURITY

- Physical access controlled for all facilities
- Fedora Server
 - Hot spare server for website
- Data Acquisition Access Control
 - Systems on dedicated intranet, access restricted to key personnel
 - Data transferred using dedicated physical devices
- Data Curation/Archiveing
 - Data and metadata backed up immediately
 - Data transferred off-site at end of each test day

SITE IT Cyber-SECURITY

- Security auditing by IT manager per university regulations
 - Done weekly by UCSD IT security department
 - UCOP has initiated a network/security audit of all UC Campuses, which will include network vulnerability scanning, penetration testing and remediation activity. The vulnerability scanning is very similar to the existing Qualys scanning service already deployed at UCSD.
 - Kali Linux setup for Penetration Testing on the Network
 - Snort Network intrusion Detection and Prevention System

THANK YOU!

