

Overview of NARO, Inc.

NARO, Inc. (NARO) is a non-profit that conducts research and development (R&D) in renewable energy and electric vehicle (EV) charging, with their primary focus on developing a miniature solar-powered EV charging system that has a small enough “footprint” to be deployed in the parking areas of apartment complexes. Currently, NARO has 35 staff members, with 15 on the administrative side, and 20 on the engineering side.

The primary areas on the admin side are:

- Grant writing
- Financials and accounting
- Sales

On the engineering side, the primary areas are:

- Battery technology R&D
- Solar panel technology R&D
- EV compatibility
- Hazardous material handling

Physical Office Spaces

NARO leases office space in a research park located just off highway 1604 in San Antonio, near Helotes, TX. Their facility consists of two offices in the research park. One of the offices – with the engineering group – is a stand-alone building, with office space (cubicles) for the engineers, a lab space for testing of specific equipment, a hazmat storage area, and vehicle bays where vehicles can be brought inside the building to connect them to the prototype chargers.

The second office, is approximately 100 feet from the engineering office – across the parking lot, and “two doors down.” This office is one quarter of a two-story building, occupying half of the first floor. The other half of the first floor is occupied by Geological Analysis and Surveying (GAS) a consultant for the oil and gas industry, and the second floor is currently under renovation. In this building, common areas – custodial, storage, server room, and kitchen – are shared between NARO and GAS.

The engineering building is secured with a proximity card for the doors leading to the office area. For the vehicle bays, the personnel door is secured using a key pad lock, and interior padlocks are used for the overhead doors. These doors require badge or PIN access on a 24/7 basis due to the sensitive research and design information in that area.

The exterior doors to the administrative building are usually left unlocked since the construction crews generally work “off hours” to avoid disturbing regular office hours for NARO and GAS. The office space for NARO is also secured with a proximity card. However, these doors are unlocked from 9:00 A.M. to 5:00 P.M. to allow visitors (and investors) access to their lobby area. Outside of these hours, the receptionist can disable the magnetic locks with a button located at the reception desk.

For both NARO areas, egress does not require using their proximity card – a motion sensor located just inside the door will detect someone leaving and disable the magnetic locks.

Workstations

The only workstations used by NARO, Inc. are located in the vehicle bays. These are used since laptops do not support the expansion cards which allow them to interface with the EVs in order to capture charging data from the vehicles.

All other NARO systems are laptops.

Laptops

To allow for flexibility in working remotely, NARO provides every employee with a Windows laptop with VPN software and Office 365 installed. In addition, the laptops are configured with a network drive that is mapped to the NARO file server. Employees can install any additional software – such as Matlab – on their systems. Each cubicle has a docking station, which allows employees to connect to power, monitors, Ethernet, etc. All employees have their own accounts for the Windows Domain that they use for email, filling out time cards, etc.

The engineering lab area has a mix of Windows and Linux systems. They are not part of the NARO Windows Domain. They use local accounts to log on, and use SSH, secure copy (scp), or rsync to transfer research data from the labs to the NARO servers in the administrative building. These laptops use the NARO wireless network to connect to the file servers to upload this information.

The hazmat engineer utilizes the only Mac system at NARO, which connects to the NARO Windows Domain using the NARO Wi-Fi network.

Remote Access

When working remotely, employees are able to connect to the NARO network using a VPN. The software is installed on the laptops when they are given to the employees. Users then log in using their NARO Windows Domain username and password.

Employees can access email and their calendar using a web browser, utilizing webmail through Outlook.com. They are also able to access their network drive through OneDrive.

Server Room

The server room is located in the common area in the NARO administrative building. This room has the power and cooling necessary for multiple server racks.

The room also has 2 desks, one used by NARO and one used by GAS to access their servers. Each desk has a workstation that is connected to a network KVM, allowing that workstation to directly access the servers. (NARO is connected to the NARO network, GAS to the GAS network.)

The server racks also contain the various switches, routers, and firewalls to provide internet and NARO network access. This includes an AT&T provided gateway, a Juniper SRX firewall, and a Netgear ProSafe JGS524 Gigabit switch.

Servers

NARO uses 17 servers. Twelve (12) of the servers are: Supermicro 2U Mainstream A+ SuperServer (AS - 2024S-TR). The other five (5) servers are Dell PowerEdge R940 Rack Servers.

The Dell servers are used for the Windows Domain including OneDrive configured for “On Premises” storage, while the Supermicro servers are used for the R&D data.

The Dell servers are all running Windows Server 2019.

The Supermicro servers are running Ubuntu 18.04.6 LTS (Long-Term Support)

Wireless

The wireless network is split into 2 parts – the NARO business network; and the NARO guest network.

The business network requires authentication, and applies MAC address filtering.

The guest network does not require a password.

The wireless network uses directional antennas on the roof of both buildings to put both on the same network. This wireless connection also bridges the wired networks in each building.

IT Support

NARO is not large enough to have their own IT person, so they contract with a local service provider – Prompt IT Assistance (PITA) for all of their IT needs.

All of the systems have been configured to automatically update as necessary.

A consultant will stop by every 2 months to update any systems and software that requires it; and they will also stop by if there is a specific failure for anything.

All of the systems are configured with TeamViewer so PITA can conduct remote administration, if necessary.