Remote Laboratory Experiences for

Mission Critical Operations Instruction

UNC CHARLOTTE

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NATIONAL CONSORTIUM FOR MISSION CRITICAL OPERATIONS

What is Mission Critical Operations?

In the modern economy, many businesses that rely on continual operation for their core functions and are defined as mission critical. Examples of mission critical industries include automated manufacturing, healthcare, financial services, and utilities. While the businesses vary, they share a common, growing need for employees that are versed in a variety of mechanical, electrical, and information technology skills to maintain and operate these mission critical facilities. These remote laboratory experiences are designed with mission critical operations students as the key audience, to build competence with programming, electromechanical systems, and remote troubleshooting.

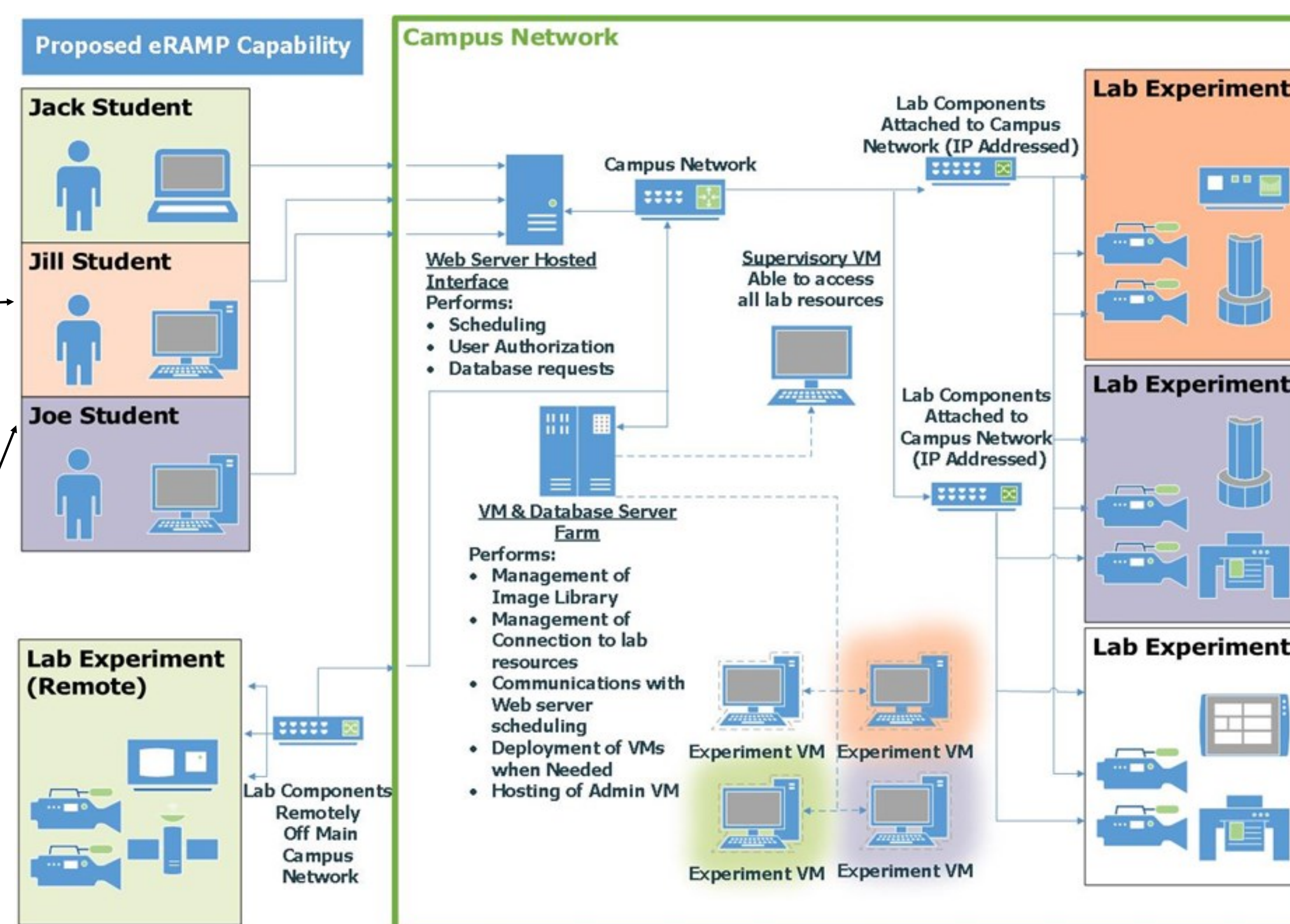## Enhanced Remote Automation Management Program (eRAMP)

- Server housed virtual machines (VMs)
- Virtual Computing Laboratory (VCL) managed reservation system
- Equipment setups remote configurable for microcontroller or PLC exercises
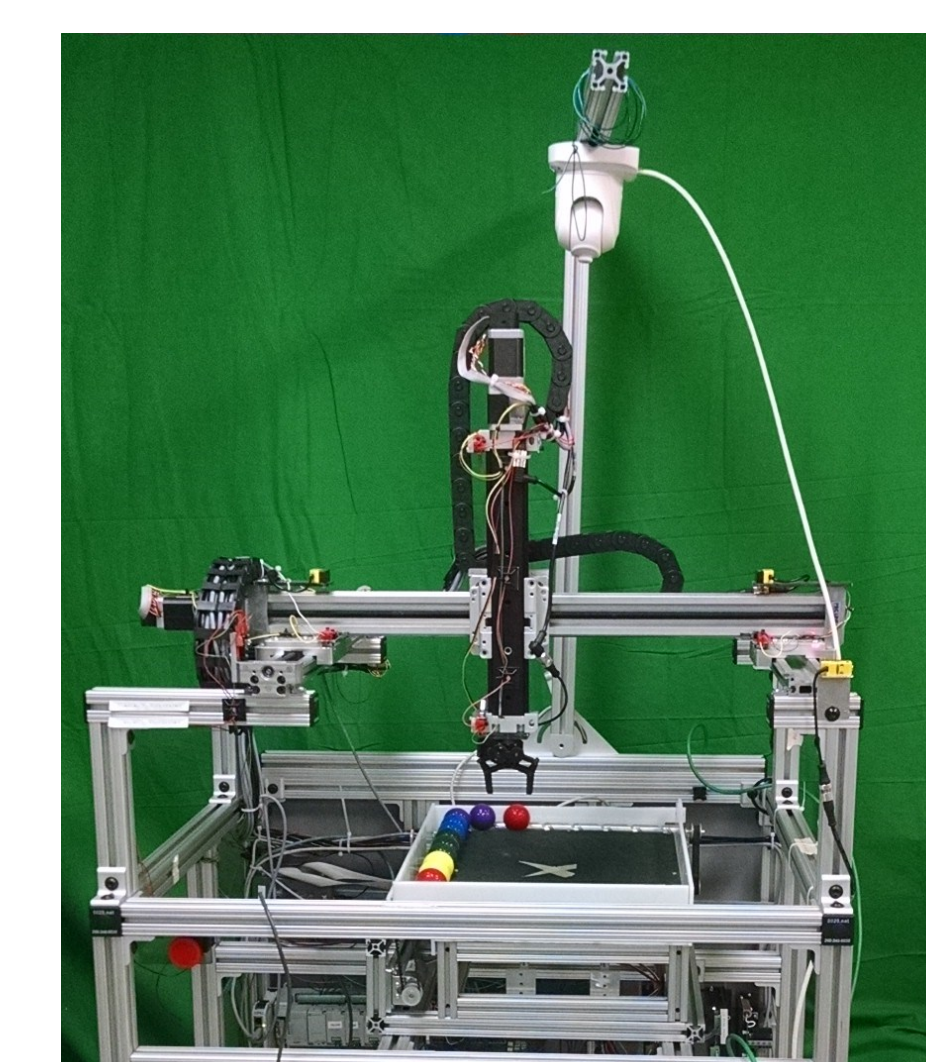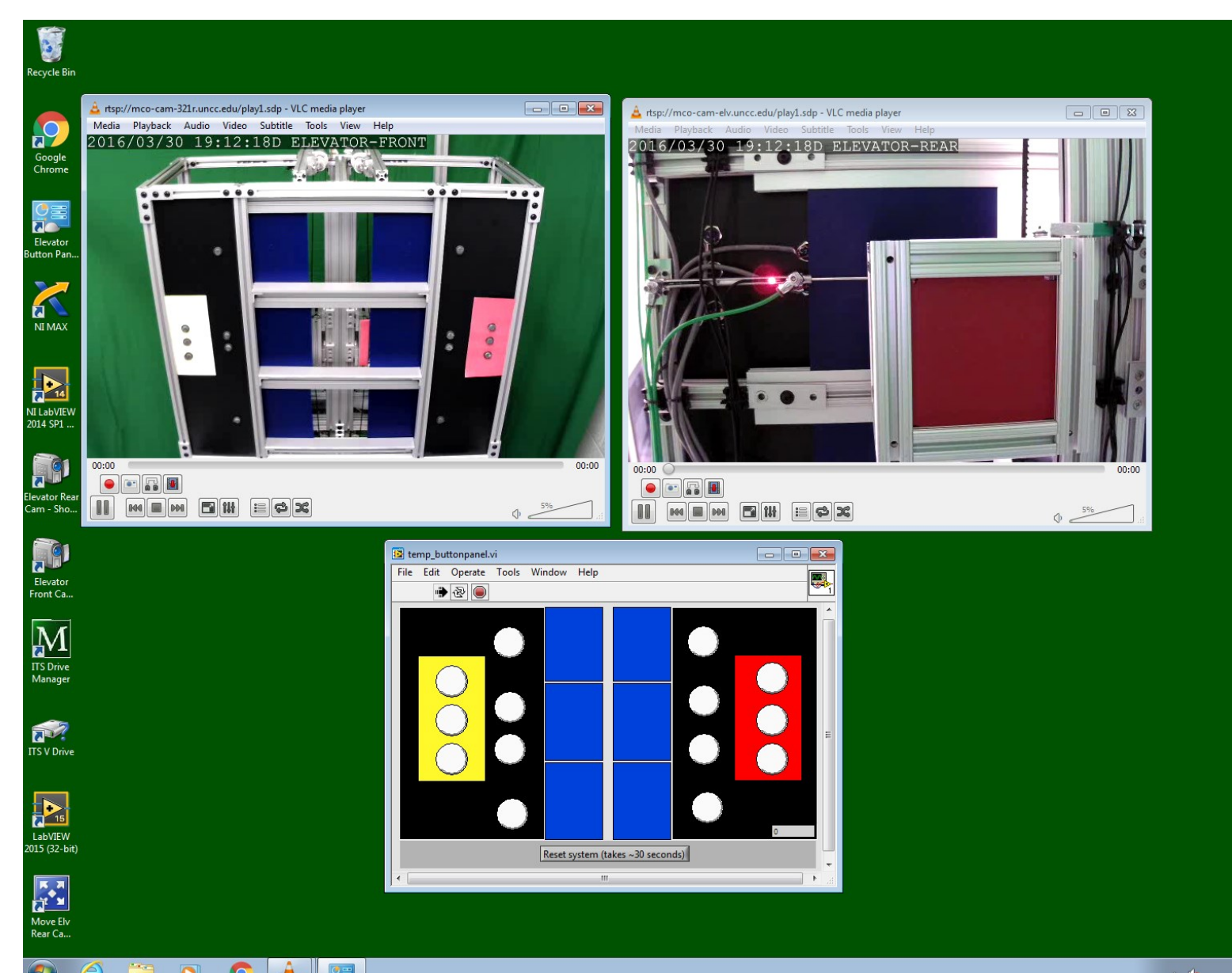- Mix of commercial and custom made experimental setups
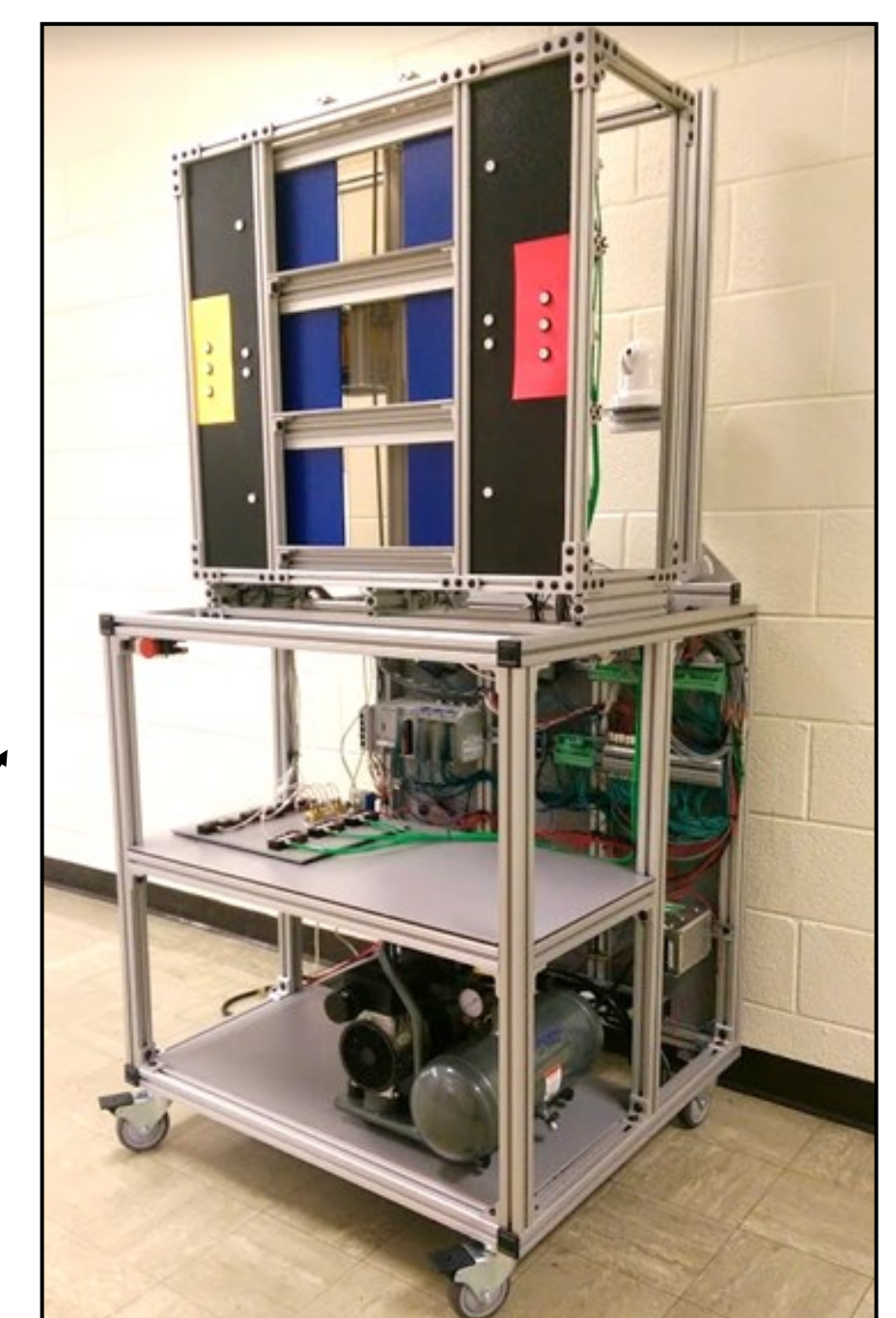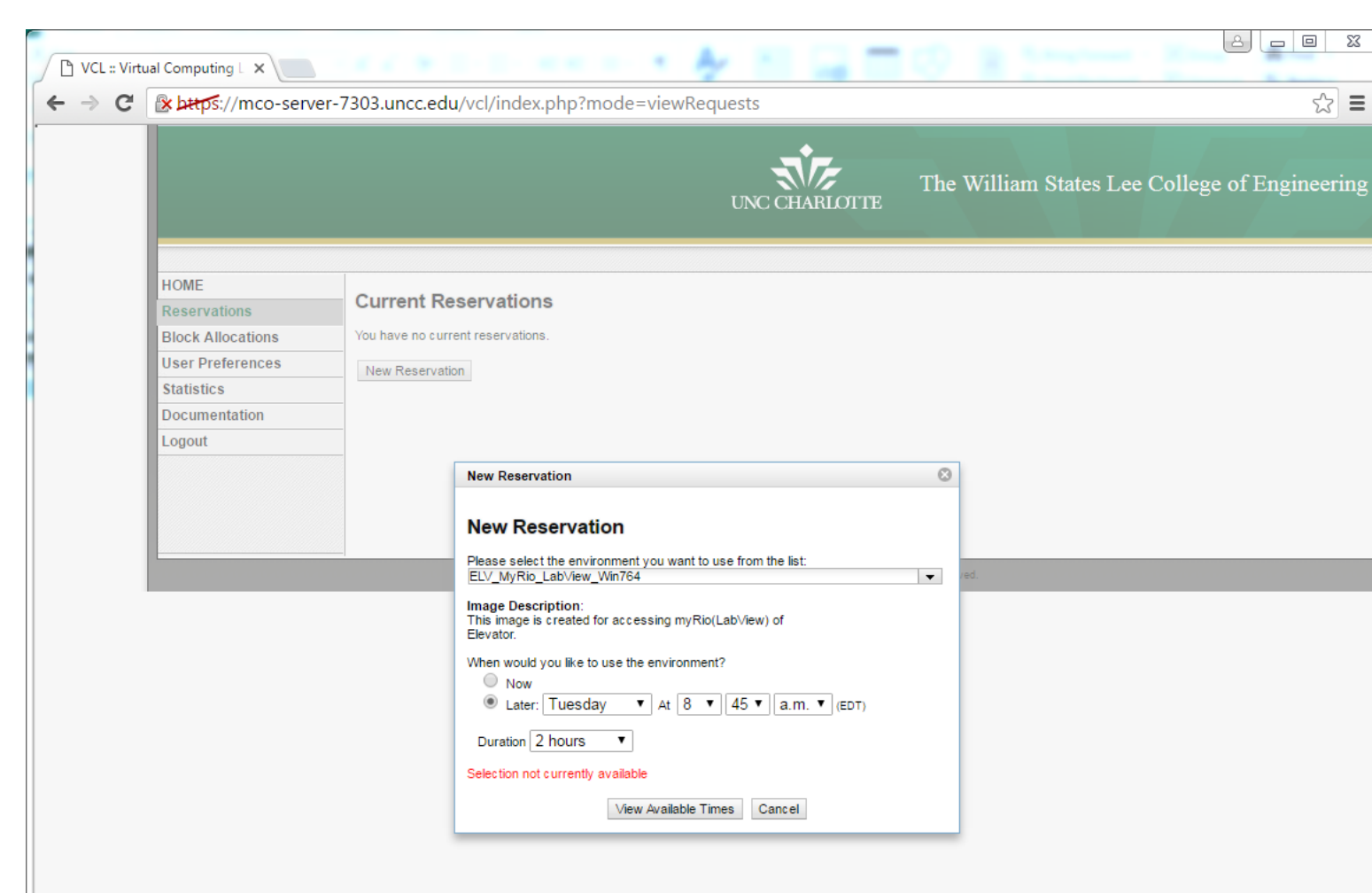
User Reservation Page

Elevator Setup Image Feed on the Virtual Machine

eRAMP architecture overview

Elevator Setup

Cartesian Setup

Future Setups

Usage Statistics (March 2016)

- Over 140 total reservations
- Over 130 hours of reservations

Acknowledgement

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