

# *Controls System Overview*

## *Lawrence Livermore National Laboratory (LLNL)*

EEHPC Meeting  
April 24, 2014

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This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. Lawrence Livermore National Security, LLC

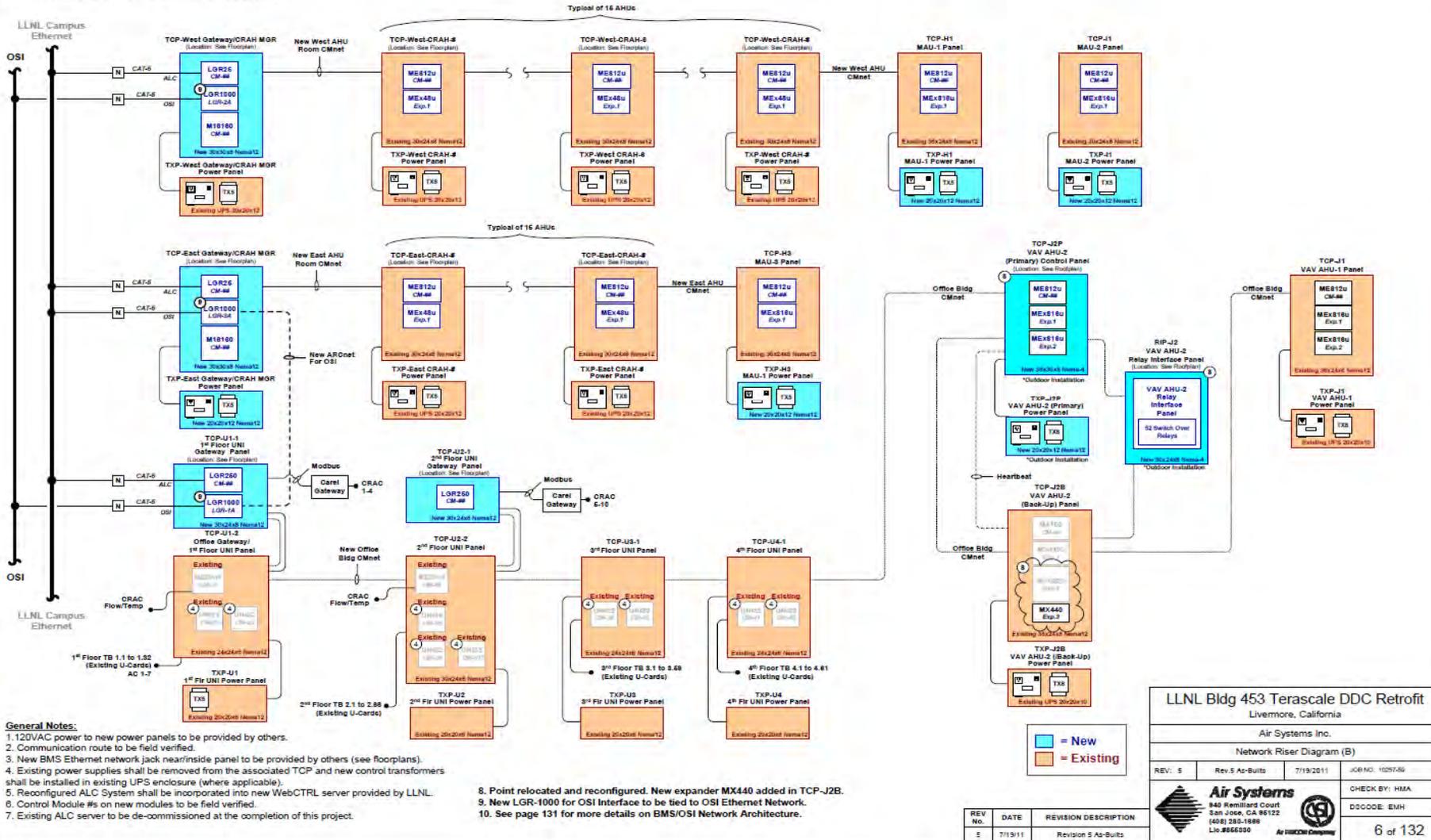


# Agenda

- LLNL Control System Overview
- Possible Future Topics
- Team Objectives and Outputs
- Comments/Discussion

# Network Control Diagram

## Network Riser Diagram (B)



# Strengths and Weakness

## ■ Strengths

- Good Manufacturer
- Powerful and flexible system
- Redundancy is great
- Easy to learn and use
- Great graphics
- Distributed Control

## ■ Weakness

- Expensive
- It's a Computer
- Vigor in Design Phase
- Never Enough Points
- You get what you pay for!

# Typical LLNL Control Panel

- Highlights
  - Have a good specification
  - Sequence of Operations
  - Points List
  - Wiring is color coded and labeled
  - Require redundancy for critical systems
  - Require a separate power panel for ease of access
  - Consider 10% spare capacity



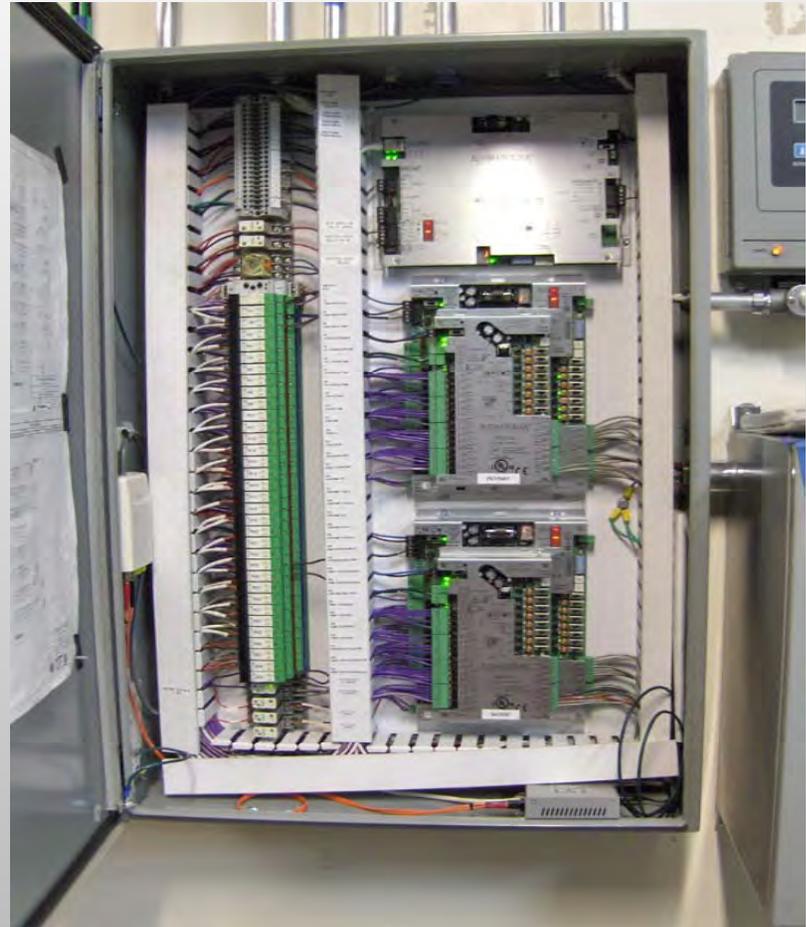
# Possible Future Topics

- Integration with the computer's infrastructure system
- Infrastructure's highly variable demands - power and cooling
- Controls Specification for Liquid Cooling Systems
- Controls Specification for Air Cooling Systems
- Challenges
- Best Practices



# Team Objectives and Outputs

- White Paper
- Best Practices
- Specifications
- ?



# Questions

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