



**Marathon
Petroleum Company LP**

Noah Hahn's Co-Op Presentation

Infrastructure IT
August 10, 2022

Background



- Noah Hahn
- Incoming Junior at Texas A&M
- Majoring in Computer Engineering
- First Co-op
- Supervisor is John Smitherman
- Mentor is Darren Hokanson



- Coursework

- Intro to Digital System Design (ECEN 248)
- Electrical Circuit Theory (ECEN 214)
- Program Design & Concepts (CSCE 120)

- Languages:

- C++
- Windows Command Console

Overview of Work



- Alky 2 Analyzer Building
 - AIT
 - Diagram/Implementation
- Foyer Compaq Cabinet Removed
 - Before/After
- Server/Software Upgrades
 - Gen 8 Server Upgrade
 - Applied Patches
 - Upgraded VMWare vCenter server

Alky 2 Analyzer Building



- Introducing 2 additional analyzer transmitters (AITs) to Pipe Stills 3B (PS3B)
- Task:
 - Install and Configure 2 switches and a firewall into Input Output Room (IO Room)
 - Install and Configure 2 switches into Analyzer building
 - Tie all installed devices onto level 1 and 3 networks



Analyzer Building

Alky 2 Analyzer Building - AIT



- What are Analyzer Buildings for?
 - Brings Important information from field to engineers and board operators
 - More consistent, accurate and faster completion of engineering products
- What is the purpose of this AIT?
 - Transmit data from PS3B cooling tower to Alky 2 and PS3B Control board
 - Allows Engineers to monitor Components (Methane, Propane, Propylene, etc.)



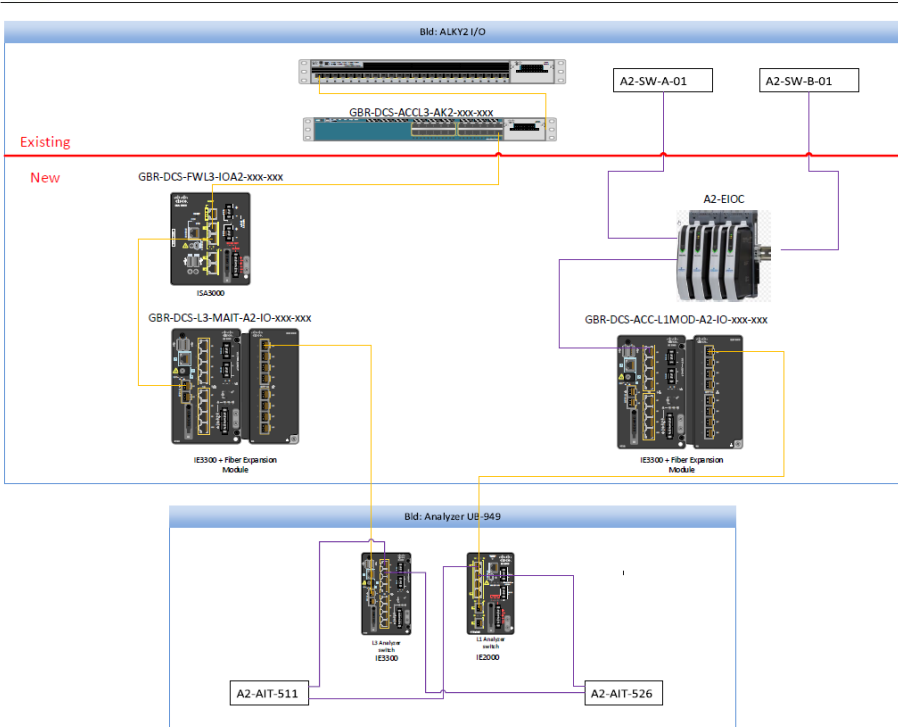
Analyzer Transmitter

Alky 2 Analyzer Building – Diagram/Implementation



ALKY I/O Analyzer Network

August 12, 2021



IO Room

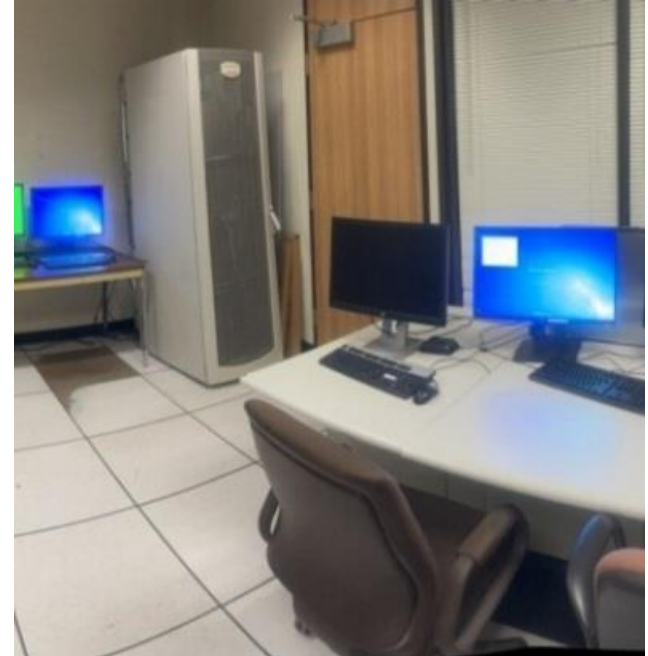


Analyzer Building

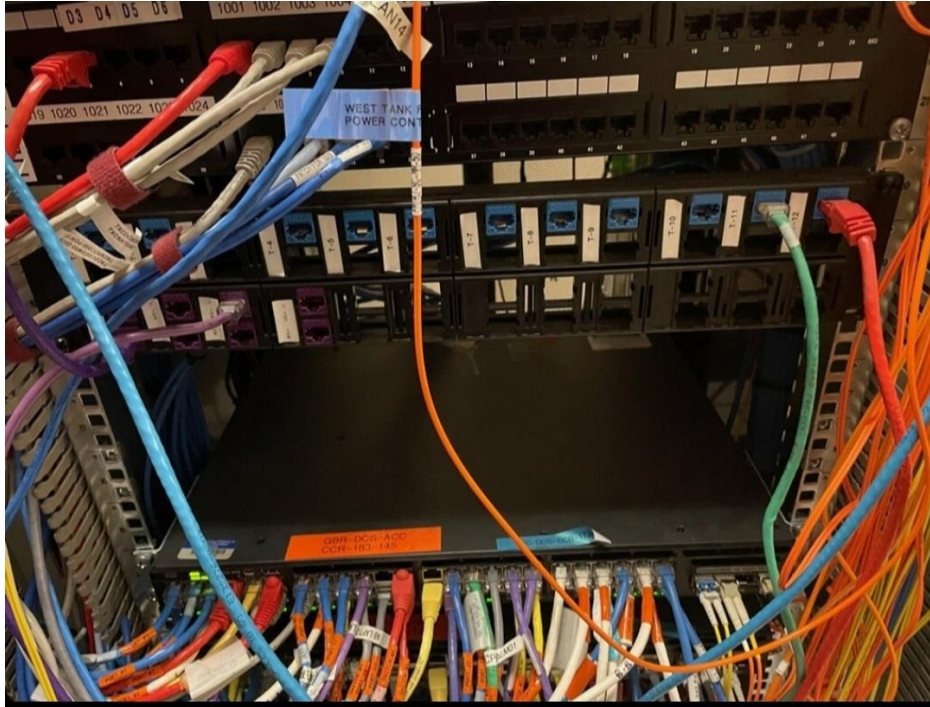
Network/Server Cabinet Consolidation



- Installation of 2 new cabinets for upcoming ABB project to house new equipment
 - Old Compaq cabinet will need to be removed
- Task:
 - Move workstations & servers to a temporary location
 - Relocate all connections from switch in cabinet
 - Houses critical systems (Expertune, Triconex, HRVOC Analyzers)
- Solution:
 - Temporary switch allowed systems to stay active during installation of new cabinets
 - Worked with Process Support Team to monitor alarms
 - Worked With Fiber Team due to cables being run under the floor tiles



Foyer Compact Cabinet Removed – Before/After



- Server upgrade/refresh
 - Built ten HP ProLiant Gen10 servers
 - Utilized Acronis Cyber Protect to re-image servers to new hardware
 - REG-WKS-Server ()
 - TXCOPC03 (OPC server)
- Windows Server Security Patching
 - CSG4 (Cyber Security Group 4) for PI and other PI related servers
 - CSG2 (Cyber Security Group 2) for Emerson DeltaV DCS System
- Upgraded VMWare vCenter server from 6.7 to 7.0

Experience Gained During Co-op Term



● Tools:

- Visio (Network Diagramming)
- Putty (Remote Access)
- WSUS (Patching Tool)
- XIA (Asset Inventory)
- vCenter Server
- Acronis Cyber Protect (Backup/Restore)

● Skills

- Troubleshooting server OS issues
- Configure and installing switches/firewalls
- Collaborating with other teams
- Creating network diagrams
- Deeper network understanding

- What I liked about working at Marathon:
 - Work environment
 - Introduction to work force
- What Marathon could improve for future co-ops:
 - More intern events
 - Better informed on the projects we will be working on
 - 1-5 final rating scale on PDP

Questions?

