

HONEYWELL **USERS GROUP** **ON THE EDGE** **OF TRANSITION**

May 2022

CONTROL NETWORK MODULE

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Honeywell

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PRESENTERS' INTRODUCTION

Honeywell staff is expected to introduce themselves. *

**Customer presenters are in principle introduced by a
customers Steering Committee member ***

*info only: please remove this info from your final presentation

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PRESENTATION OVERVIEW

1. Problem Statement

Current network solutions

2. Introduction

CNM concept, design, features and model numbers

3. Deployment

Installation options across systems

4. Roadmap

Upcoming functions

5. Summary

Value and benefits

CURRENT NETWORK SOLUTIONS

Problem Statement

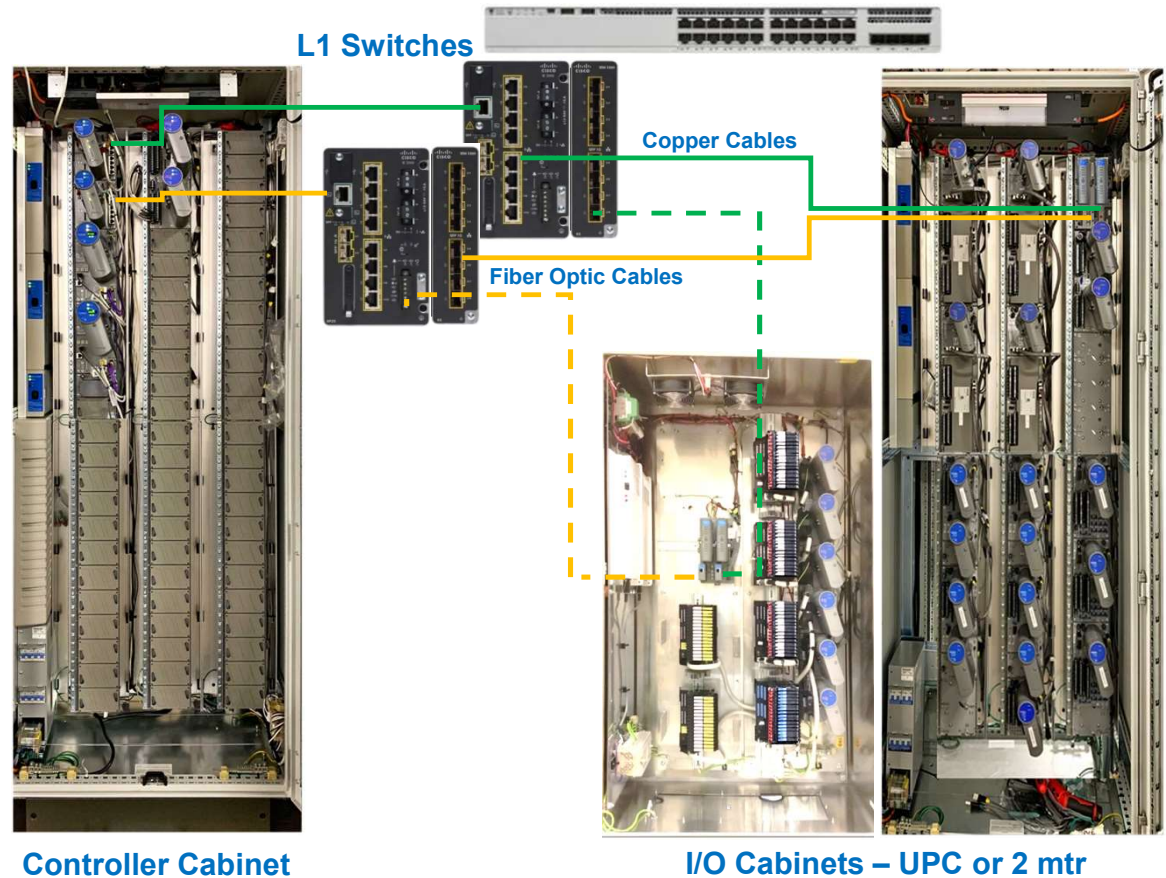
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ICSS L1 NETWORK

IO HIVE

- IO over Ethernet to multiple controllers
- Remote IO connected over Fiber
- A mix of varied network devices
- Impacting project schedule and costs

I/O HIVE

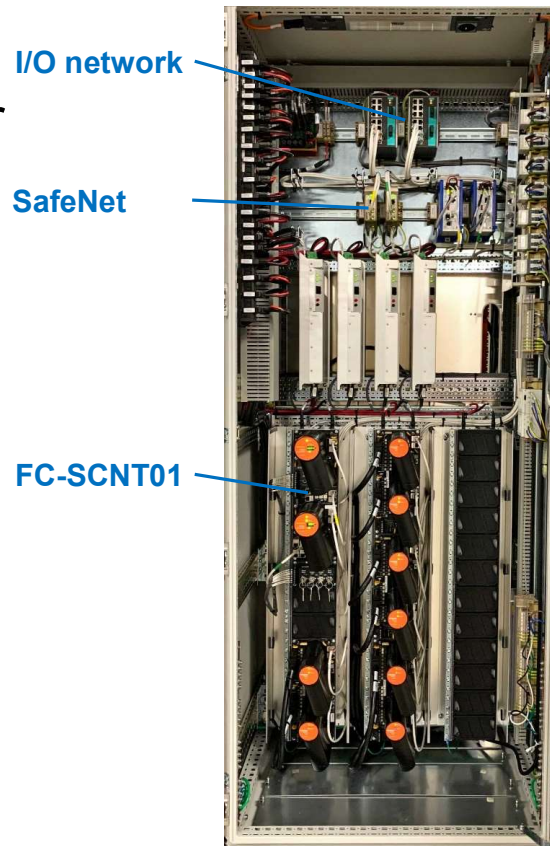


Impacting project cost, schedule – Using multiple network devices

ICSS L1 NETWORK

SM-SC

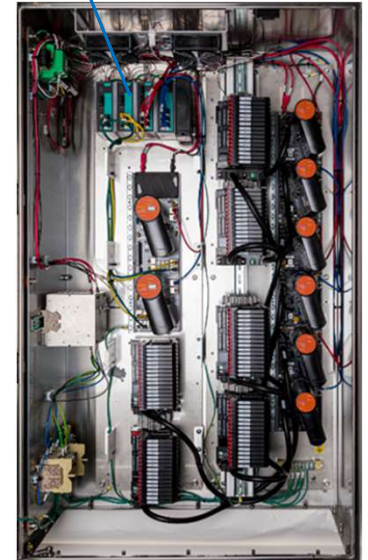
- PUIO and PDIO are connected over network devices
- SafeNet connections requires various network devices
 - Expensive solution
 - Complicated Limited Fiber optic options



SM-SC Cabinet

SM-SC

I/O network



Remote Safety Cabinet

Safety IO Link & SafeNet Integration over multiple network devices

ICSS L1 NETWORK

CC-PCNT02

- C300s are connected over Control Firewall
- Control Firewall, CF9 acts as network aggregator
 - Connecting 4 C300s over ethernet

CC-PCNT05

- C300 has an embedded Control Firewall



- No external firewall is required
- Network aggregation function of CF9 is lost

CC-PCNT02/05



CC-PCNT02 Cabinet



CC-PCNT05 Cabinet

New CC-PCNT05 requires multiple network devices for L1 integration

ICSS L1 NETWORK

PROBLEM STATEMENT

- Increased dependence on COTS switches
- Extended switch lead times with varying costs across the globe
- IT vs OT clash sometimes resulting in plant down time
- Engineering required
 - For switch configuration, backup & maintenance – Network specialist
- With IO HIVE, C300 (v5) and SM-SC IO L1 network integration costs have gone up
 - Expensive network switches
 - Limited options for ruggedized hazardous areas which are expensive
 - Expensive SFPs for fiber optic communication
 - Few of the models have limited fiber optic ports



Network Cabinet

Impact on project cost, schedule and increased risks

INTRODUCTION

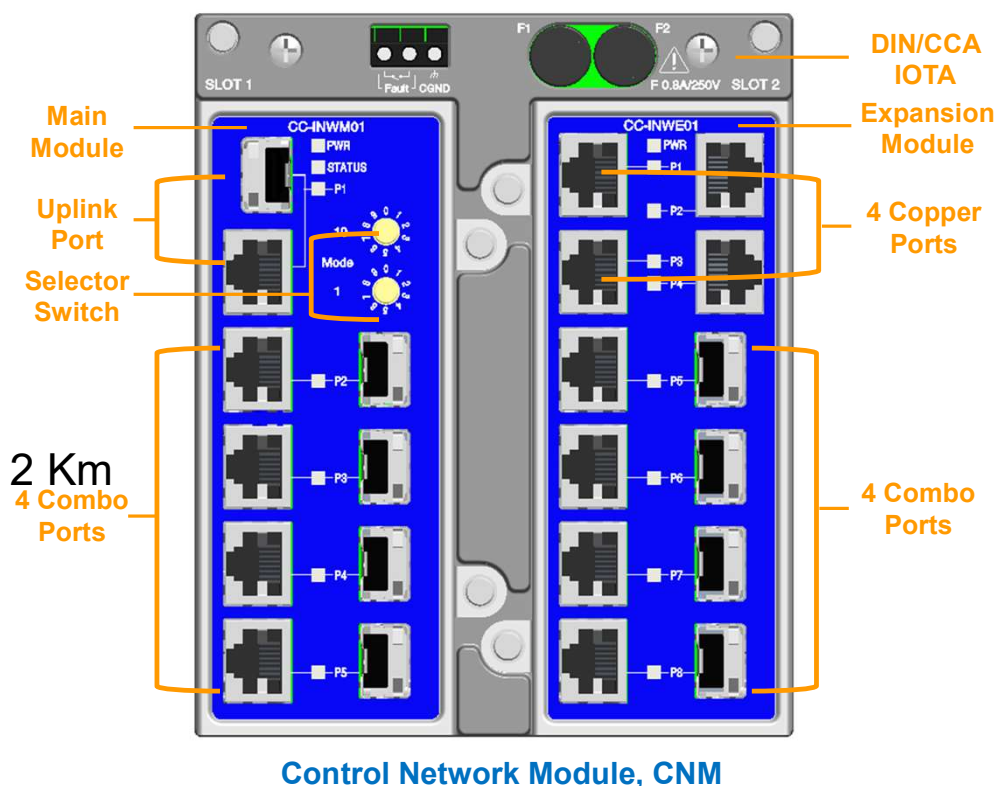
Control Network Module, CNM

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CONTROL NETWORK MODULE

- Network Device for L1 Integration
 - Safety Manager and Series C devices
- Ruggedized standard design:
 - -40 to +70 Deg C and HAZLOC installations
 - CCA and DIN rail mounting options
 - Used in UPC/USC and Safe Area cabinet
- 12 port module – Copper Fiber Optic
 - Single Mode – max.15 Km & Multi Mode – max. 2 Km
- Unmanaged network device
- ISA Secure Compliant

INTRODUCTION



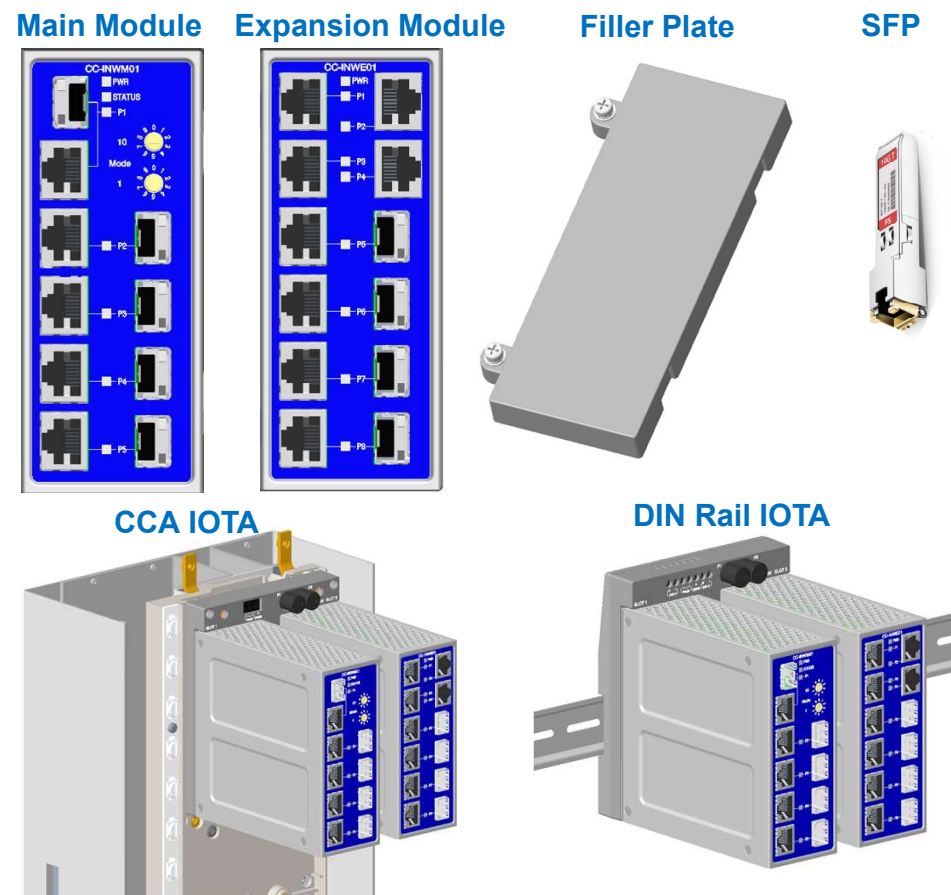
Standard solution - Reduced CAPEX and OPEX

CNM

Model Number	Description
CC-TNWC01	Network Module IOTA
CC-TNWD01	Network Module IOTA - DIN Rail
CC-INWM01	Network Module - Main
CC-INWE01	Network Module - Expansion

Model Number	Description
50154761-001	10/100M SFP Single mode 15Km (9/125um SMF)
50154762-002	10/100M SFP Multi mode 2Km (62.5/125um MMF)
50182312-001	1G SPF Single mode 10Km (9/125um SMF)
50185149-001	1G SPF Multi mode 550m (50/125um MMF)
50183493-001 ¹	1G SPF Single mode 70Km (9/125um SMF)

MODEL NUMBERS



HONEYWELL - One stop shop for L1 integration

Note 1: Planned for future release

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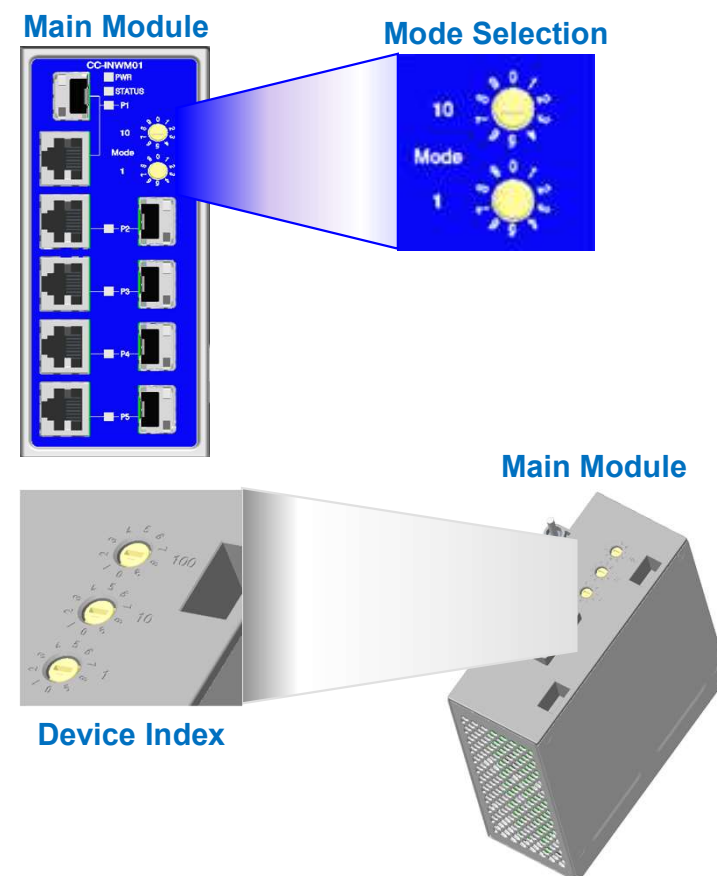
CNM

- Function selection switch
 - 99 selections with two rotary switches
 - Various safety and process topologies
 - Zero configuration footprint

Mode 10	Mode 1	Functions	Integration
0	1	Safety: IO Link integration	Safety: L1 - SM-SC, PUIO, PDIO
0	2	Safety: SafeNet integration	Safety: L1 - SM-SC to SM-SC
0	3	Process: IO HIVE & Process Control integration	Process: L1 - CN100, C300v5

- Device Index Selection
 - Three rotary switches
 - ip address setting
 - Are not FTE indices

SELECTOR SWITCH



LEAP - One module for multiple functions

CNM

- No additional cable/hardware for configuration
- Plug & Play – No configuration required
- Reduces human/gross errors in file handling
- Reduces engineering hours
- Zero footprint – No external UI clients
- L1 integration in standard 2 mtr cabinet
- Clear demarcation between IT & OT
- Reduced SPARES
- Single module with Fiber and Copper solutions

FEATURES



Switch#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Switch#show flash:
Directory of flash:/
2 -rw- 1197 Jan 01 1980 05:57:21 +00:00 config.text
3 -rw- 3721216 Jan 01 1980 00:24:47 +00:00 c2950-16k212q4-wz.121-22,EA11
4 -rw- 57 Mar 11 1993 00:02:10 +00:00 env_vars
5 -rw- 24 Mar 11 1993 05:57:21 +00:00 private-config.text
7741440 bytes total (409640 bytes free)
Switch#dir nvram:
Directory of nvram:
30 -rw- 1197 <no date> startup-config
31 ---- 24 <no date> private-config
32768 bytes total (31495 bytes free)



Plug & Play + No configuration – Reduction in engg effort and schedule

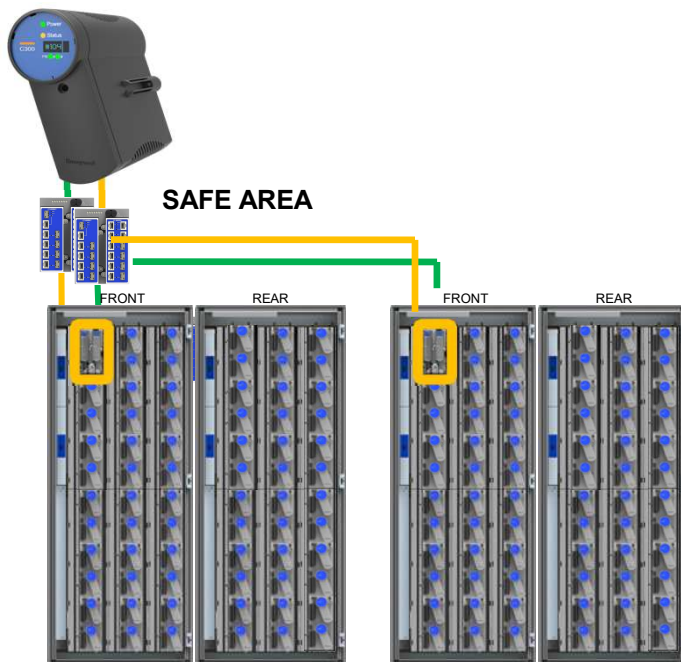
DEPLOYMENT

L1 integration with Process and Safety
Systems

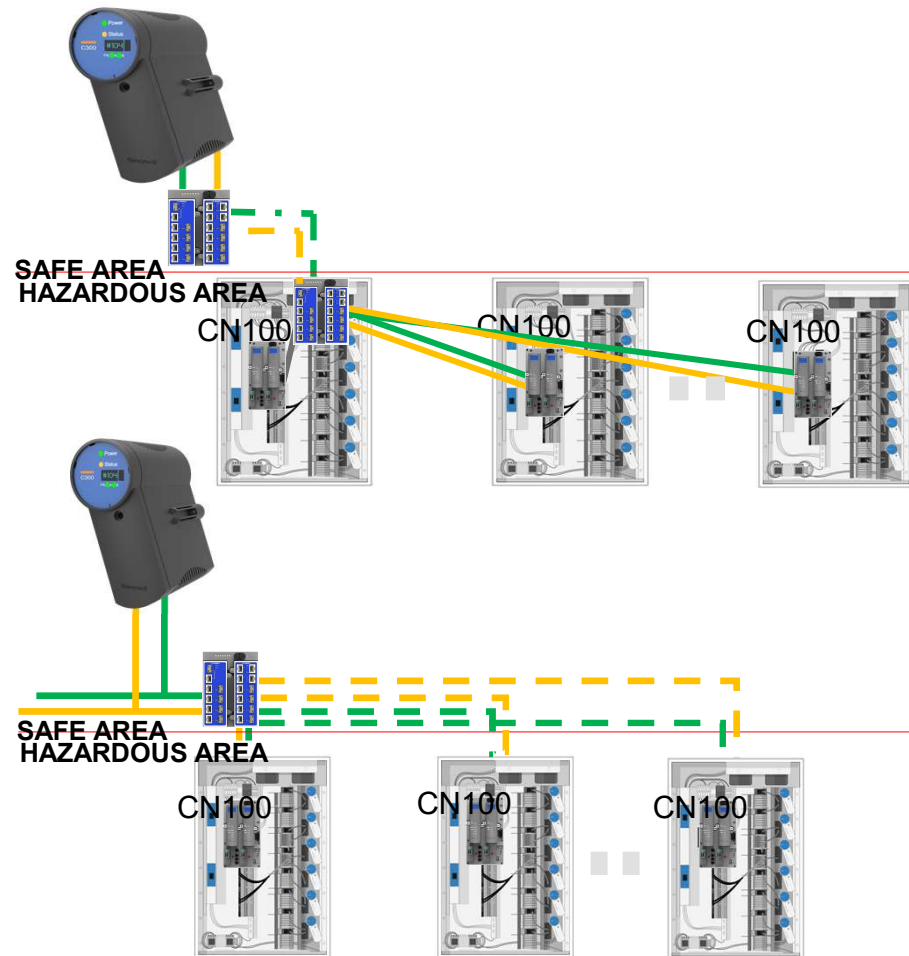
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CNM R100

- Safe area/HAZLOC mountable
- CCA or DIN rail mountable
- Equivalent replacement for HON L1 devices integration



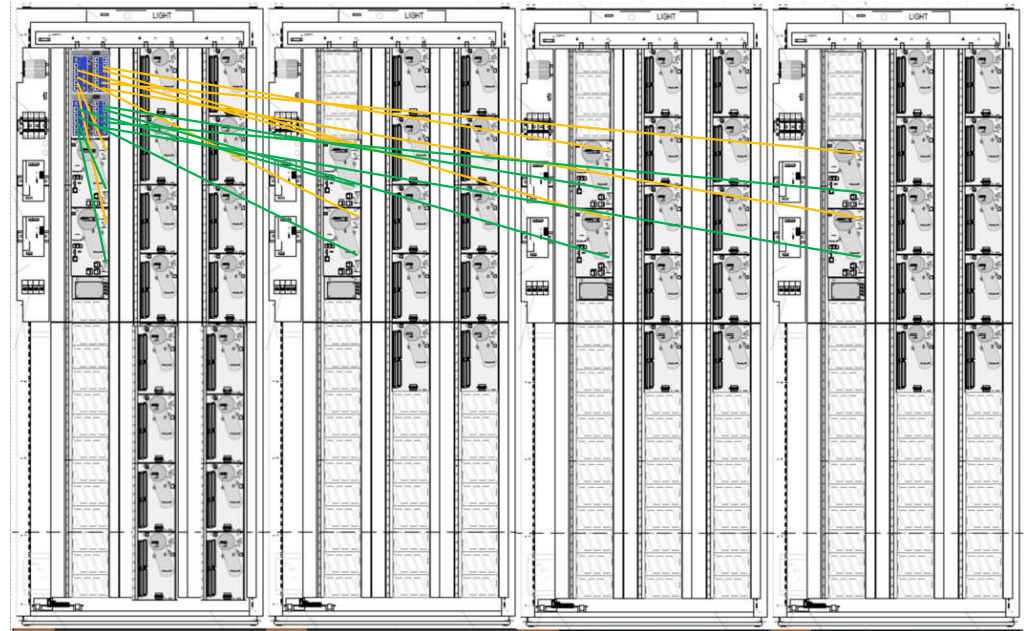
L1 TOPOLOGY – IO HIVE



CNM R100

- CCA mountable
- Connects C300v5 with CN100/C300s for L1 integration
- Equivalent replacement for HON L1 device integration

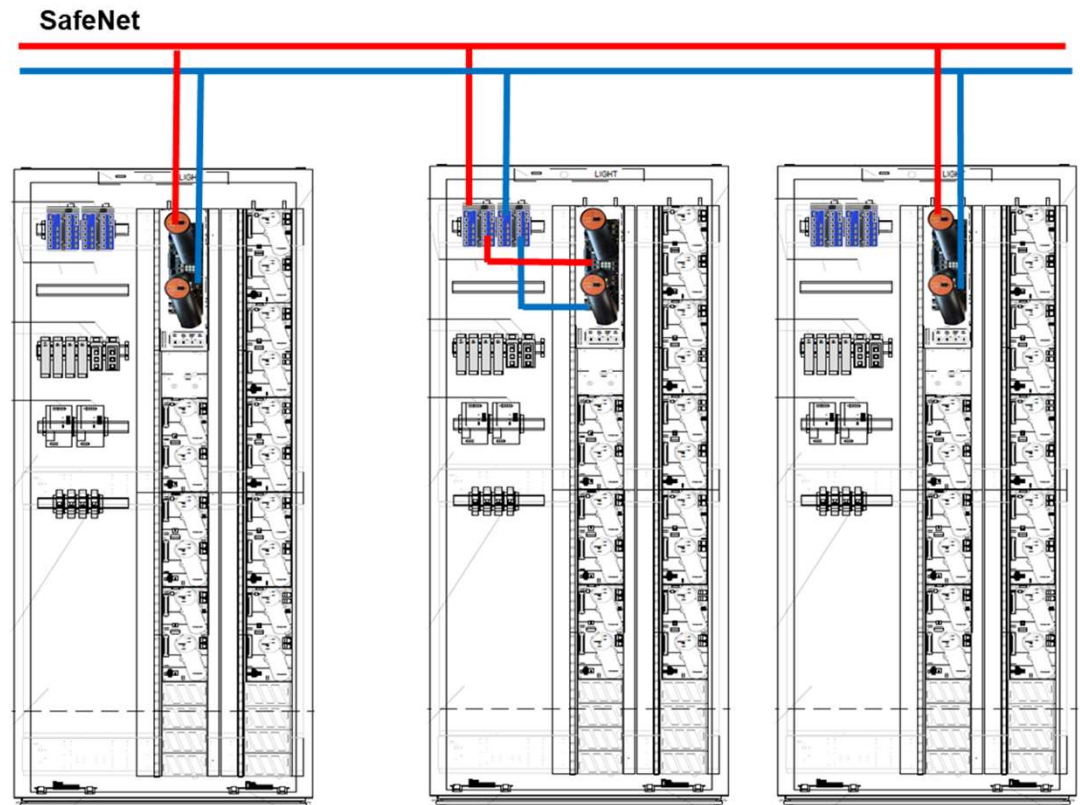
L1 TOPOLOGY – C300V5



CNM R100

L1 TOPOLOGY-SAFETY SAFENET

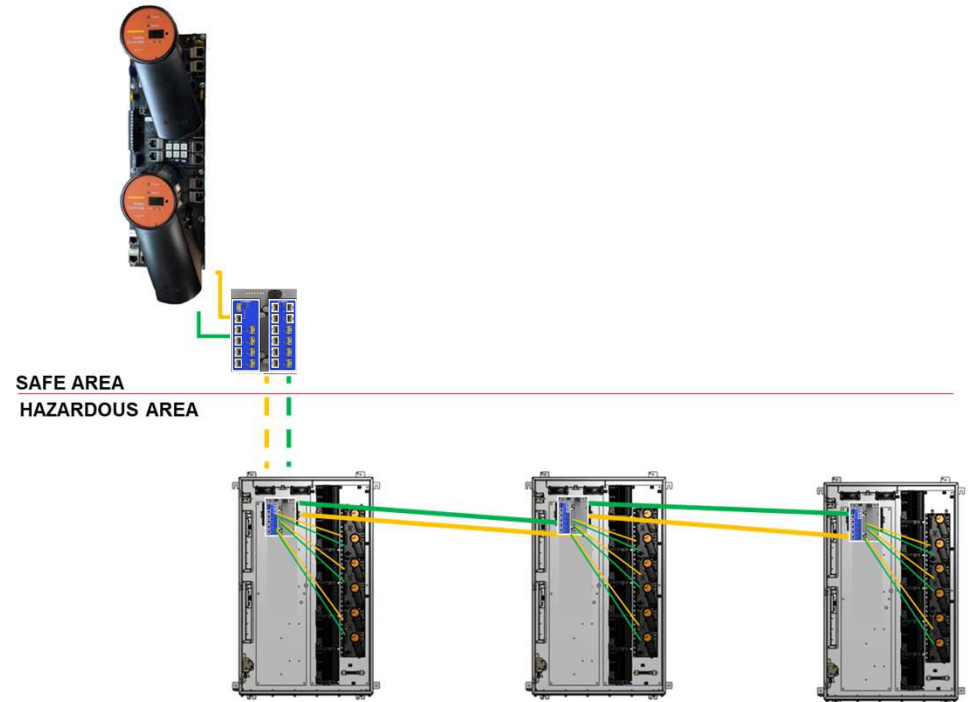
- Leaner solution with DIN rail
- More FO ports for remote locations
- Equivalent replacement for HON L1 Safety IO Link device integration



CNM R100

- DIN rail mount
- 4 port CNM in USC
- Allows daisy chaining of multiple USCs
- HAZLOC certified
- Equivalent replacement for HON L1 SafeNet integration

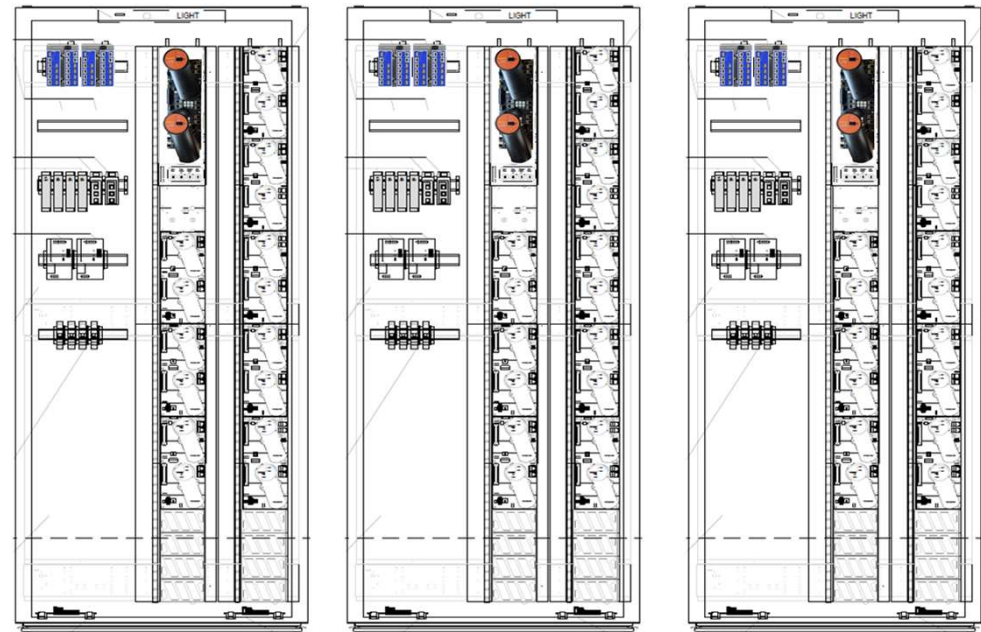
L1 TOPOLOGY-SAFETY USC



CNM R100 L1 TOPOLOGY -SAFETY SM-SC IO LINK

- Leaner solution with DIN rail
- MCAR (CCA) solution for IO cabinets only
- Equivalent replacement for HON L1 SafeNet integration

SAFE AREA

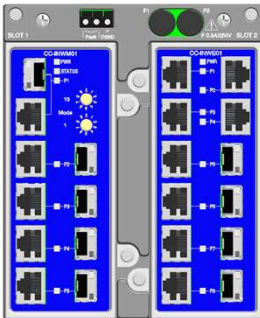


ROADMAP

Functions and features timeline

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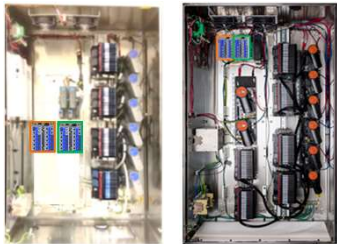
Universal Marshalling Solution – Road Map



Phase 1B

- 12 Port CNM
- HAZLOC Certs

Sep, 2022



Phase 1C

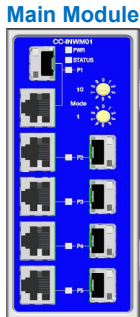
- UPC and USC integration

Dec, 2022

June, 2022

Phase 1a

- 4 Port CNM
- Safe Area



SUMMARY

Value & Benefits

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CNM SUMMARY

- CNM 12 port – Fiber/Copper options with standard HON SFPs
- Certified for HAZLOC and safe area usage @ extended temperatures -40 to + 70 Deg C
- Single model number used with DCS and Safety applications
 - With UPC, USC, SM-SC or C300 (v5)
 - L1 integration of DCS FTE and Safety Systems – IO Link and SafeNet
- Standard design across Process and Safety – Reduced spares and OPEX
- ONE STOP SHOP – Honeywell: For L1 Integration
- Project costs significantly reduced by 30%
- Extending LEAP to network integration

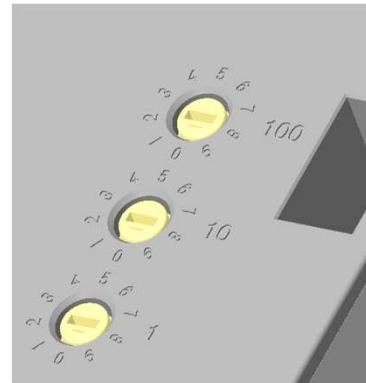
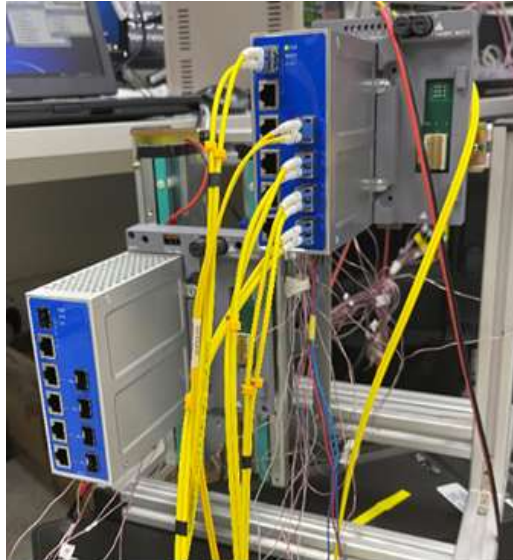
Reduced CAPEX, OPEX, Standard solution

THANK YOU

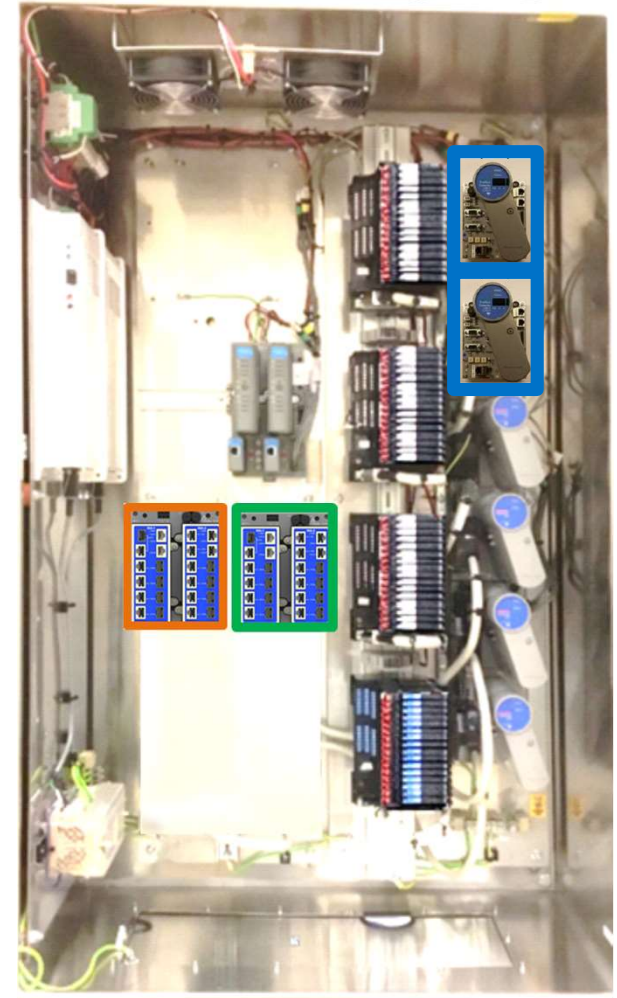
Venkat Ramanjulu Thotakura

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CNM



BACKUP



CNM

- UI is with a Web Browser on any Experion Node
- Provides the overview status
- Provides connectivity status for ports and devices
- Replaces expensive 3rd party Network Status Monitoring software like Whatsup GOLD etc

USER INTERFACE

