



EMERSON EXCHANGE 2025

ACCELERATING INNOVATION



ACCELERATING
INNOVATION

3-1407 Traditional to HCI DeltaV System Upgrade Success

May 22 2025

Disclaimer

The information and/or opinions expressed in this presentation are those of the authors and do not necessarily represent official policy or permission of Emerson or Emerson Exchange.

Important Reminders

Photography and audio/video recording is not permitted in any session, or in the exhibition areas, without press credentials or written permission from Emerson or Emerson Exchange.

Inquiries should be directed to:
EmersonExchange@Emerson.com



Matthew Peterson

Technologist / Vitro Architectural Glass



Ivan Consolo

Systems Specialist / Vinson Process Controls



Ryan Showers

Customer Success Manager / Vinson Process Controls



Agenda

Introduction

Where it Started

**Why Consider
HCI?**

Planning

Implementation

Lessons Learned

Questions

Introduction

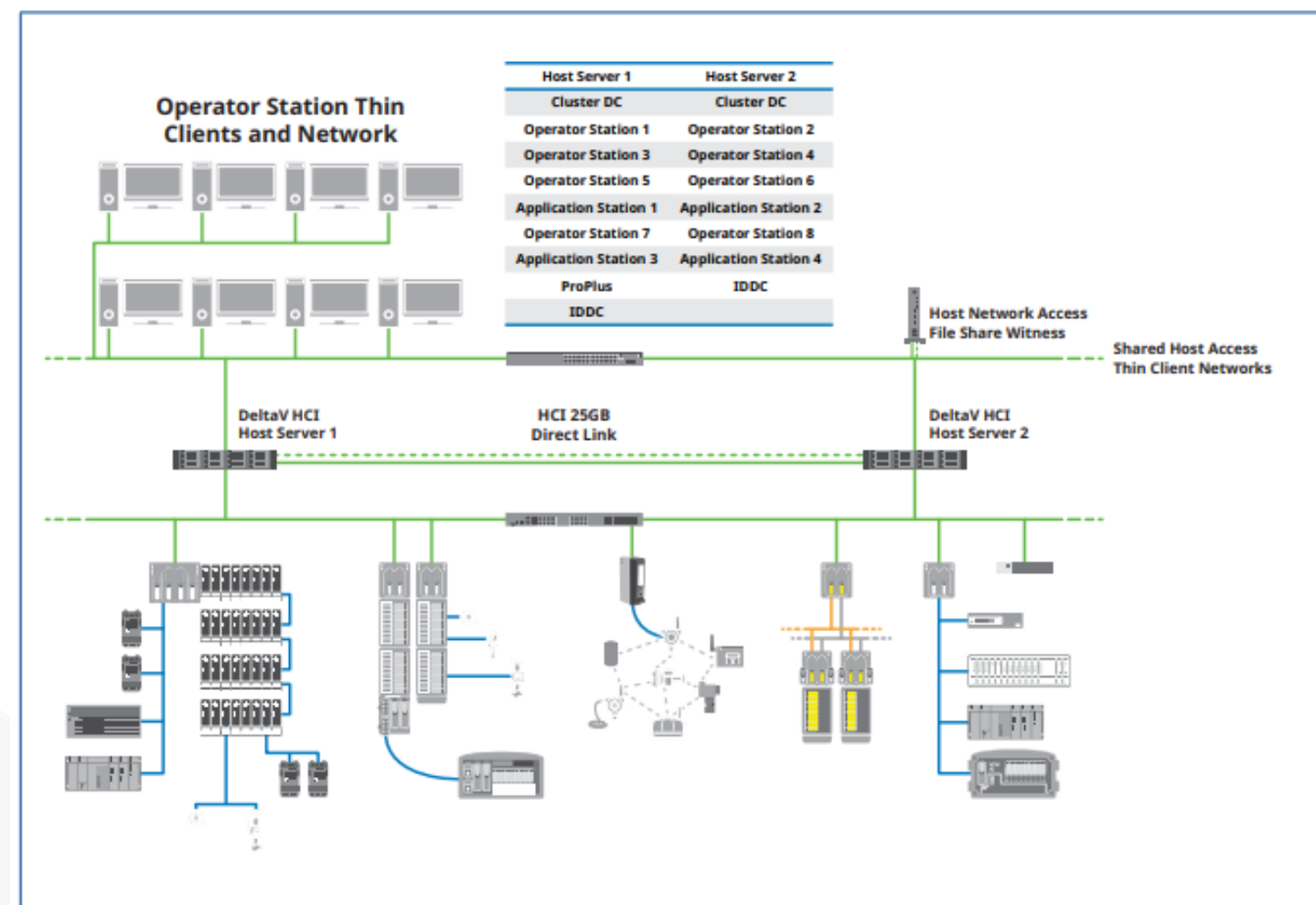
What is HCI?

What is HCI?

- Hyperconverged Infrastructure Replaces VRTX
 - All components of HCI host are software defined in only 2U of rack space
 - Software defined compute
 - Software defined storage
 - Software defined networking
 - Deploys Microsoft's Storage Spaces Direct (S2D)
 - Groups multiple hard drives into a logical volume that resembles a single disk to the entire cluster
 - Simplifies the deployment and expansion process of virtualized DeltaV system
 - Two or more hosts all share the same constantly updated storage space
 - If a host fails, the virtual machines automatically move and reboot on another host

HCI Benefits

- Reduced costs and increased scalability
- Automated configuration and setup
- Fewer computers and control hardware
- Extended system life with easy upgrades
- High availability and automatic disaster recovery



Where it Started

Vitro Architectural Glass

Wichita Falls, TX

Plant History

- Plant Facts
 - Broke ground in 1973 and opened in 1974 as PPG
 - Over 500 employees. 44 acres under one roof.
 - Same systems engineer onsite for 30+ years
 - DeltaV installed in 2007 for bath automation
 - Roughly 1800 IO
 - All process, instruments, and control room are downstairs
 - Server room, controllers, and IO are all upstairs
 - 2 servers and 5 workstations
 - DeltaV Version 11.3 prior to virtualization

Original Setup

- All servers were upstairs in engineering office with monitors and keyboards for each
- All workstations were upstairs and all monitors and keyboards were downstairs
 - Used VGA/Ethernet extenders
 - Failed frequently
 - Low resolution, square monitors
- Ethernet runs to the server/controller room to each node in office next door

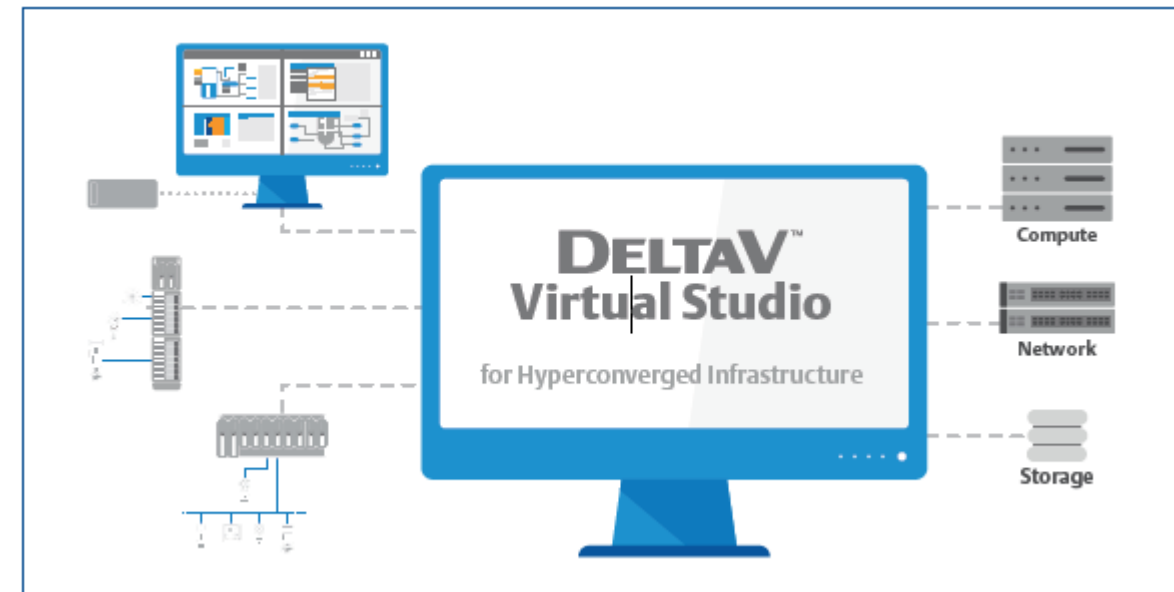


Why Consider HCI?

It's too small and not worth the cost...

Decision for the Future

- Overall Goals
 - Upgrade to a supported version of DeltaV (at the time)
 - Reduce footprint in crowded cabinet and engineering room
 - Simplify networking wiring between the two floors
 - Provide a comfortable environment for the IT manager
 - Streamlining IT operations
 - Improve overall plant performance
 - Multiple failures of hard drives and towers in the past
 - Infrastructure that IT manager and technician could support together
- Is this worth it for the 2x cost?

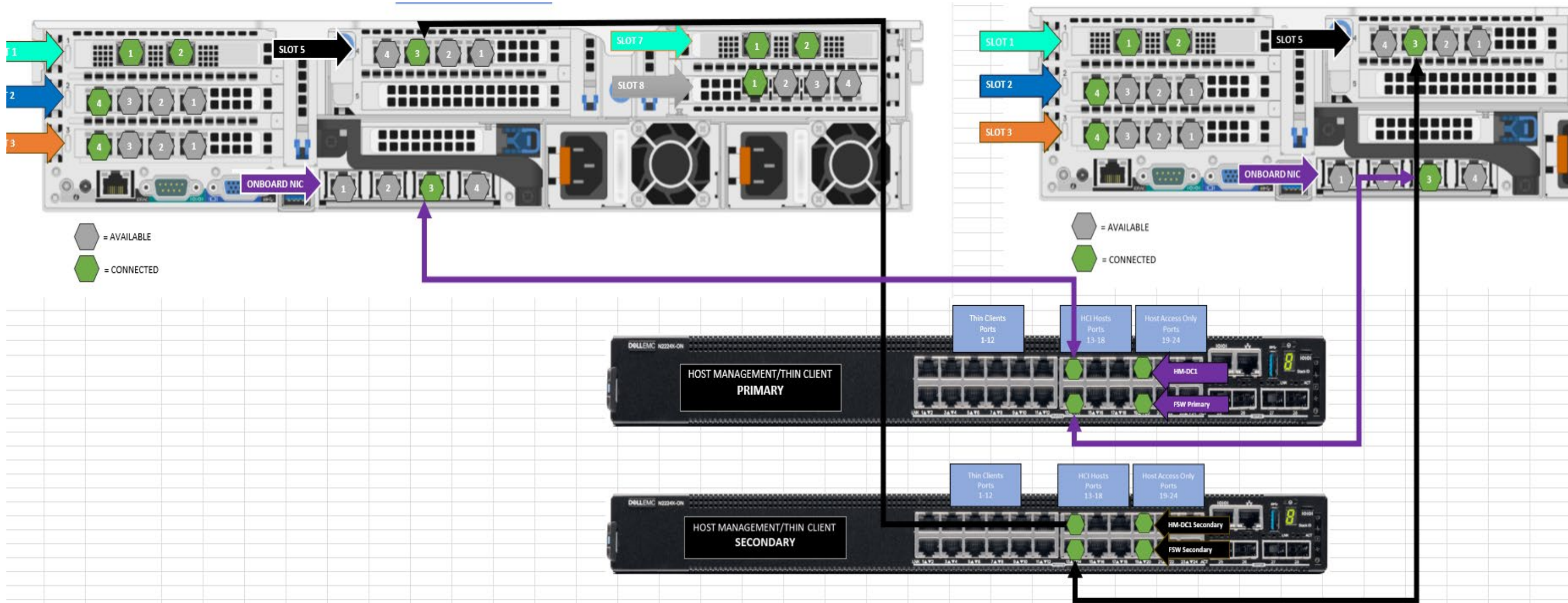


Planning

Planning Spreadsheet

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Node Name	OS	iDRAC	DeltaV Primary	DeltaV Secondary	DeltaV Plant LAN	DeltaV VLAN 1	Host Access Primary	Host Access Secondary	Thin Client Primary	Thin Client Secondary	Storage Access Network (Fiber)	Storage Access 1	Storage Access 2
HOST DOMAIN													
HM-DC1 (Physical)	Server 2022	xxx.xxx.xx x.xxx					192.168.128.x	192.168.129.x			192.168.0.x		
HM-DC2 (Virtual)	Server 2022	Virtual					192.168.128.x	192.168.129.x			192.168.0.x		
HCI-SRV1 (Physical)	Server 2022	xxx.xxx.xx x.xxx					192.168.128.x	192.168.129.x			192.168.0.x	192.168.1.11	192.168.2.1 1
HCI-SRV2 (Physical)	Server 2022	xxx.xxx.xx x.xxx					192.168.128.x	192.168.129.x			192.168.0.x	192.168.1.12	192.168.2.1 2
File Share Witness (Cluster)	Server 2022						192.168.128.x	192.168.129.x					
DeltaV DOMAIN													
DeltaV Domain Controller	Server 2022	Virtual	10.4.130.x	10.8.130.x					192.168.128.x	192.168.129.x	192.168.0.x		
DeltaV Domain Controller	Server 2022	Virtual	10.4.130.x	10.8.130.x					192.168.128.x	192.168.129.x	192.168.0.x		
Proplus	Windows 10 LTSC	Virtual	10.4.0.6	10.8.0.6					192.168.128.x	192.168.129.x	192.168.0.x		
Application Station	Server 2022	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
Operator Station	Windows 10 LTSC	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
Operator Station	Windows 10 LTSC	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
Operator Station	Windows 10 LTSC	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
Operator Station	Windows 10 LTSC	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
Operator Station	Windows 10 LTSC	Virtual	10.4.0.x	10.8.0.x					192.168.128.x	192.168.129.x	192.168.0.x		
SEH-UTN DONGLEPRO													
DonglePro usb-to-ip							192.168.128.x						
Thin Clients													
DeltaV Domain Controller									192.168.128.x	192.168.129.x			

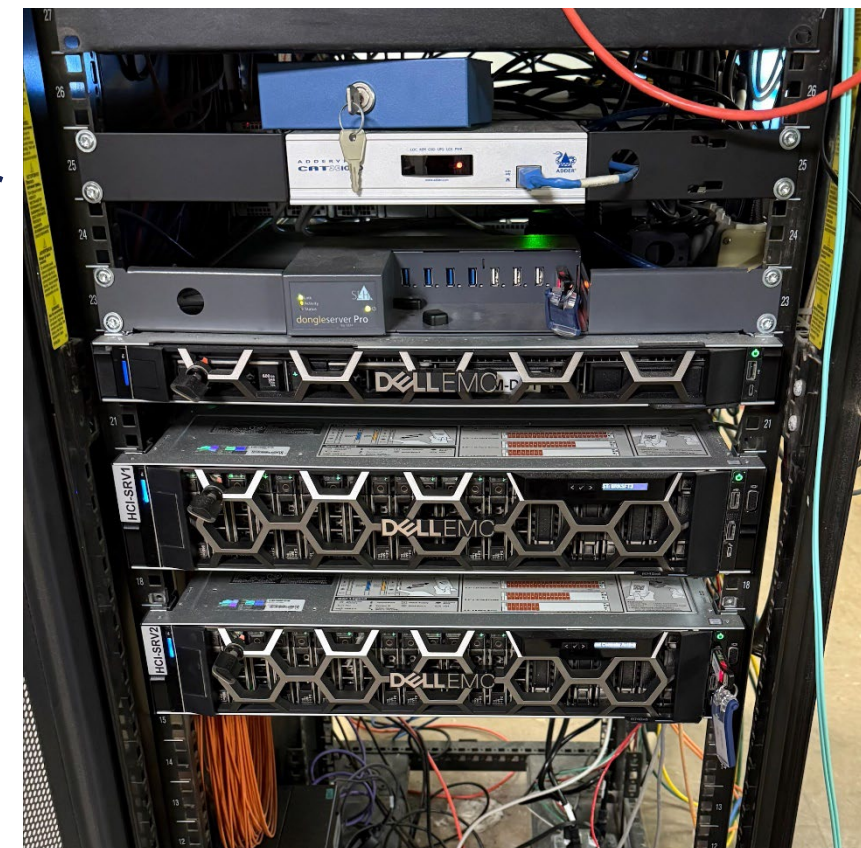
Network Ports Setup



Implementation

Details of install, upgrade, multiple trips

- Treated as a classic rip and replace as all servers and VMs were set up ahead of time.
- All servers and workstations are now racked in server room in same cabinet as switches
- Repurposed old switches as thin client network
- Upgrade from v11 to v14.LTS
 - Had an issue with a particular module and controller switchover
 - Once resolved able to move forward with online switchover



Current State



Lessons Learned

Where Are We Today

- Transition from physical to virtual went smoothly overall
 - Improved communications with IT and Operations now
 - More engagement than just the senior process engineer
 - Pulled IT, Operations, and Electricians into conversations
- Easier platform to plan from now for IT-minded team
 - Remote Connections
 - Upgrades
 - Smoother with VM updates instead of change of hardware each time
 - Graphics

Questions



EMERSON EXCHANGE 2025

ACCELERATING
INNOVATION

Thank You