



EMERSON EXCHANGE 2025

ACCELERATING INNOVATION



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Merck Uses DeltaV Mobile For A Virtual Control Room In the Field

Session: 3-1691

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Merck

Merck develops and produces medicines, vaccines, biologic therapies, and animal health products.

Agenda

Colleen

Introduction to Merck

Anna

DeltaV Mobile product introduction

Anna/ Colleen

Product adoption along technology evolution

Colleen

Standardization and installation best practices

Anna/ Colleen

Use cases and feedback

Colleen

Business impact

Abstract

Session Abstract: Merck adopted DeltaV Mobile platform in 2015. As early adopters, Merck established DeltaV Mobile across 15 sites of their Enterprise. Let's examine their best practices and different use cases. Merck uses end-to-end integrated manufacturing process teams (IPTs) to insure GMP from bulk to fill /finish. The product enables operators, supervisors and automation engineers to span multiples factories or off premises. Merck's operating discipline encourages key personnel to be "on the plant floor" when in the facility instead of in a control room. Merck uses DeltaV Mobile as work assist tool on the floor or in the field. Pagers and other notification methods are now replaced by DeltaV Mobile for on-call personnel as an easy cost-effective tool for 100+ operators with data at their fingertips.

Introduction to Merck

Merck Introduction



The Life Science industry is very labor intensive where DeltaV is just one component in the larger production scheme



Automation Director may be responsible for a collection of assets with multiple DeltaV systems in different buildings giving updates on the Operations supply chain.

- *For example, the West Point location has 15 DeltaV systems. Directors of Automation covers multiple buildings*



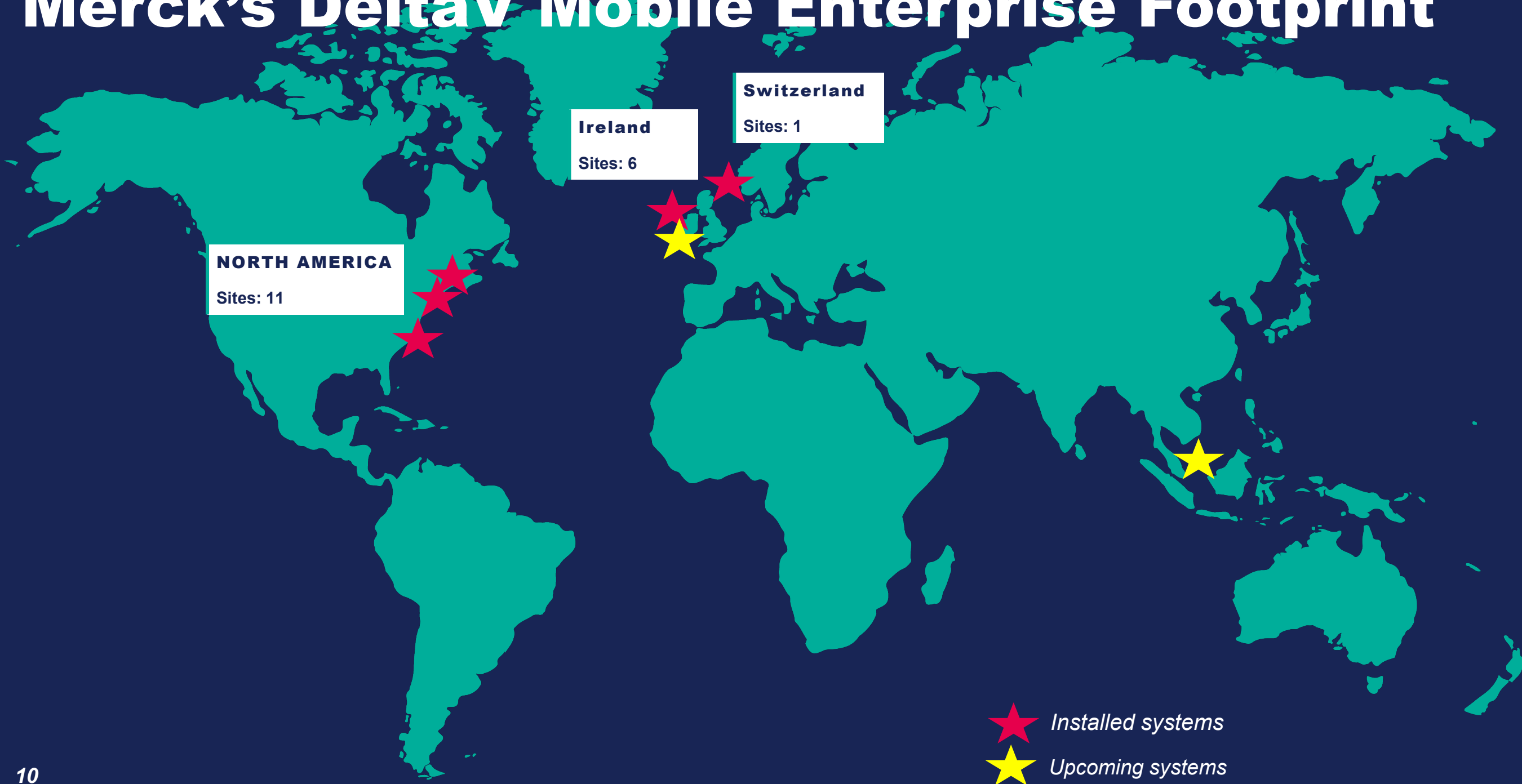
Merck wants their entire enterprise (~60 product systems) to operate most efficiently



DeltaV Mobile enables Merck to get better business results:

- *Streamline workflows with alarms and notifications*
- *Promotes best practices across production sites*
- *Transfers knowledge of SMEs across locations quickly*

Merck's DeltaV Mobile Enterprise Footprint



Merck's Production Overview

North Wales

R&D

West Point

R&D, vaccines, and biologics

Elkton

Vaccines

Rahway

R&D

Durham

HPV Vaccines, ADC

Carlow

Vaccines and biologics

Dublin

Biologics

WAG

R&D

Brinny

Vaccines

Dunboyne

R&D, APIs

Ballydine

Upcoming

Singapore

Upcoming

DeltaV Mobile Product Introduction

Overview of DeltaV Mobile

Integration Into Automation Workflows

Today's Challenges

Access

Secure access to disparate sources of data

Noise

Inform the right people at the right time

Fixed Hardware

Data, apps, are on fixed, specialized hardware consoles.

Mobility Requirements

Data

Consolidation and simplification to drive better decisions

Awareness

To drive action and response

Flexibility

To securely access your data wherever you need it.



DeltaV Mobile - Your Operations at Your Fingertips

- **Know Your Process Health On-Demand**

View real-time data, trends, and alarms from multiple DeltaV systems plus, OPC classic sources

- **Built for Cybersecurity**

Read-only. Easy secure access, both on premise and off-premise

- **No DeltaV Configuration Required**

Native integration with DeltaV makes it EASY by using existing configurations

- **Your Operations Data, Mobile**

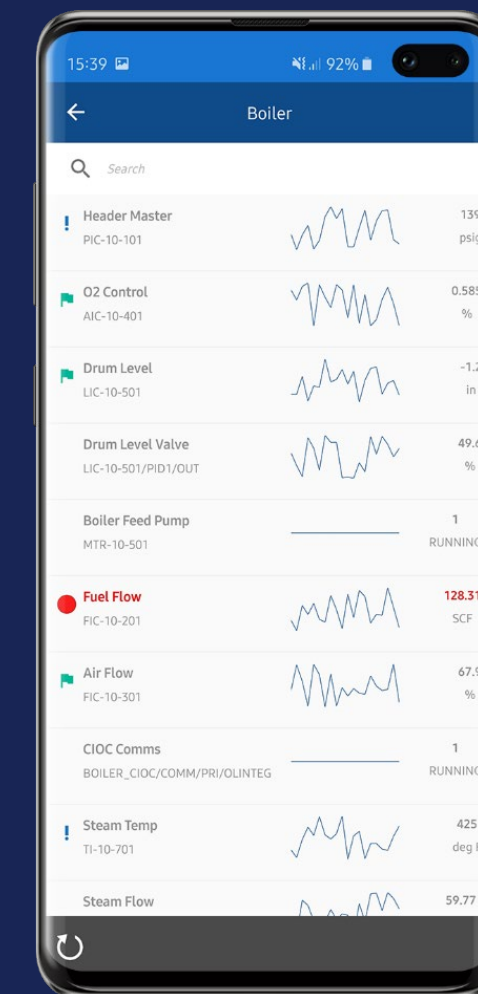
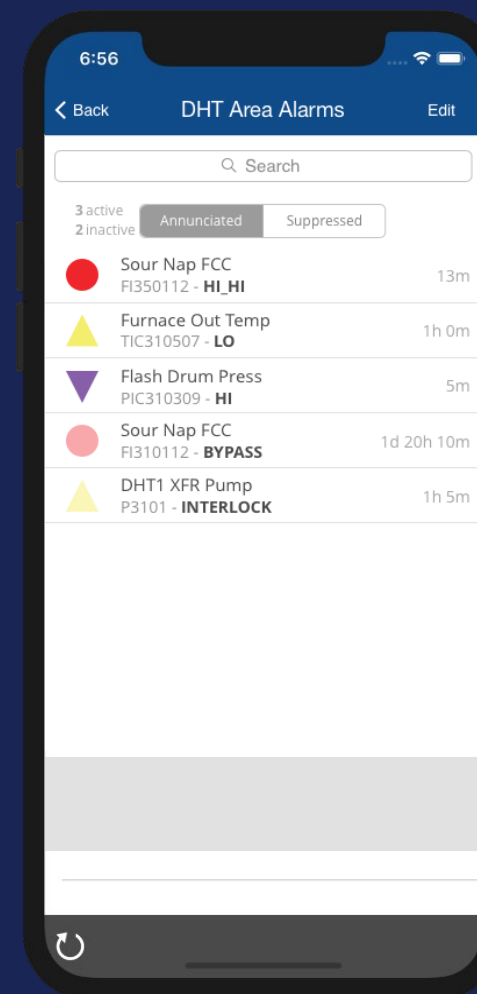
Same richness of data and alarms from DeltaV operator stations on built-for-purpose mobile screens

- **Receive Intuitive Notifications**

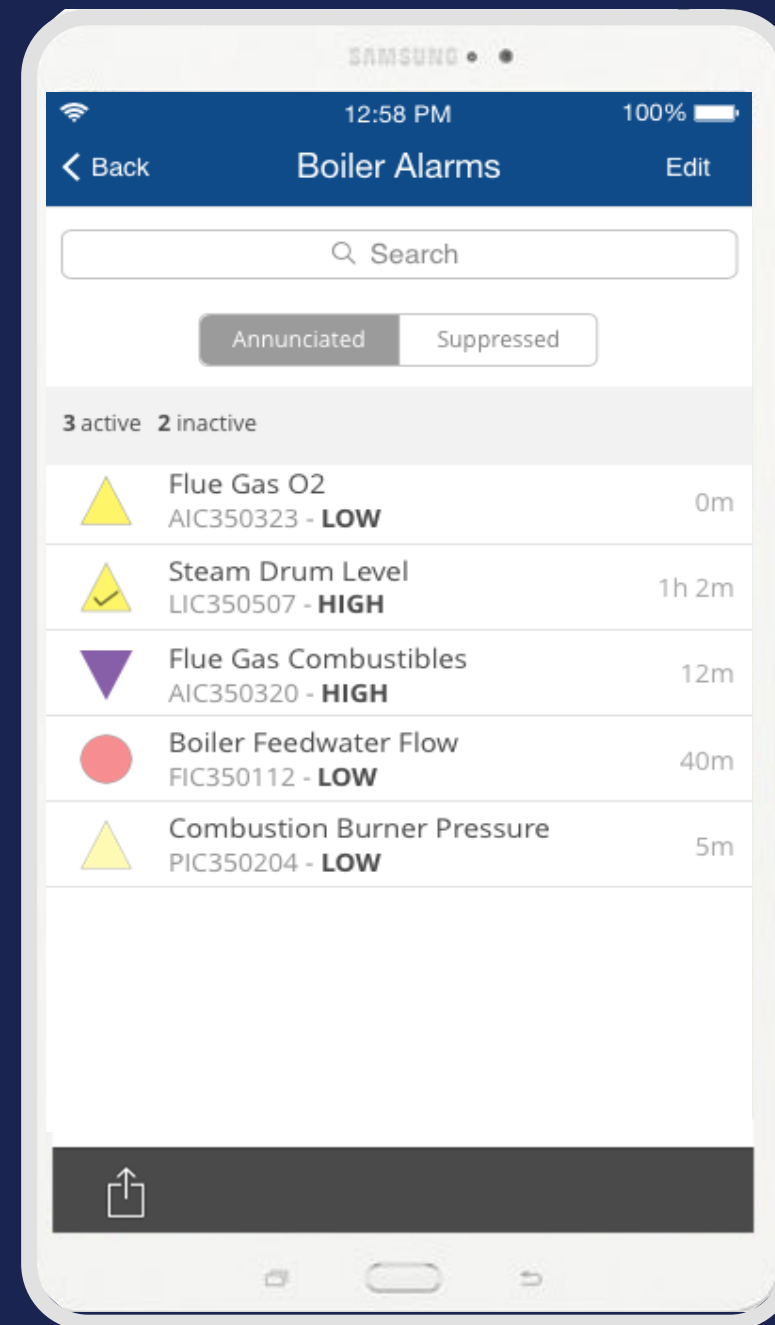
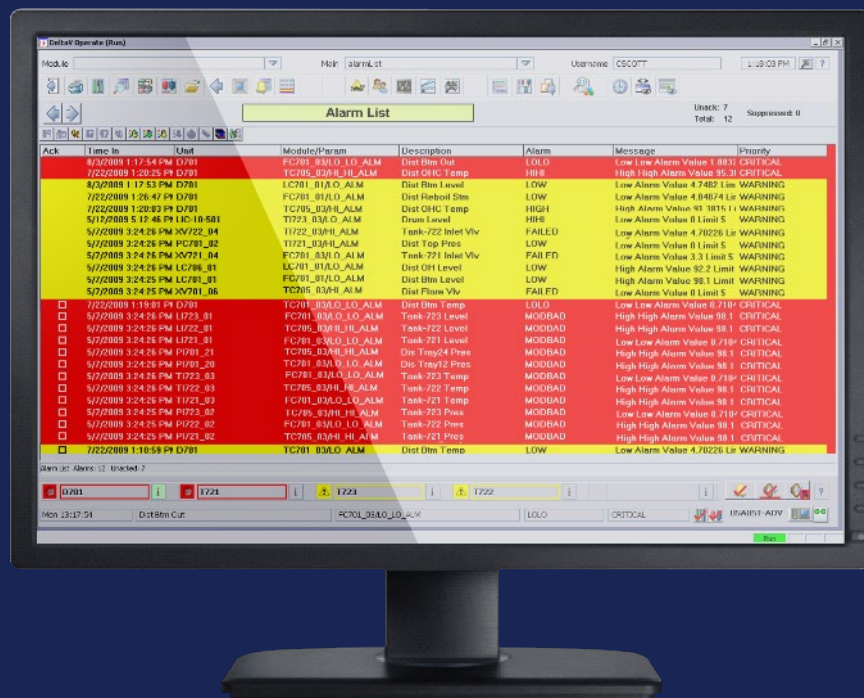
Get relevant process data, trends, and Alarm Help to take the right actions

- **Streamline Workflows**

In-app collaborative features make it easier to share important information



Simplified, Personal Views



- No longer limited to a fixed console.
- Built-for purpose views.

- Consolidate and simplify information for mobile screens.
- Customizable, filtered information.
- Easy navigation.
- Leverage native mobile device features (touch gestures, etc.)

Product Adoption Along Technology Evolution

Early Adoption

- In 2017, Merck adopted DeltaV Mobile mainly for its' **email communication method** to know if a room needed to be clear
- Took significant time to install the product infrastructure due to IT/OT burden
- The first site to adopt DeltaV Mobile started with 5-10 DeltaV Mobile users:
 - Biggest use case was cleaning the rooms and can get an alarm for a compromised room to clean, acknowledge, people notified to get back up to production faster
 - For context, 1000 alarms with 150 carts in process with 4 alarms with multiple groups monitoring these alarms
 - Streamline workflows and filter alarms for the cleaning crew (a non-production group) to receive an alert without an operations supervisor having to call them
 - MRL uses and customized watchlists and can change from product to product
- Device sharing was a challenge with a workaround with device licensing with shared iPads for shift supervisor

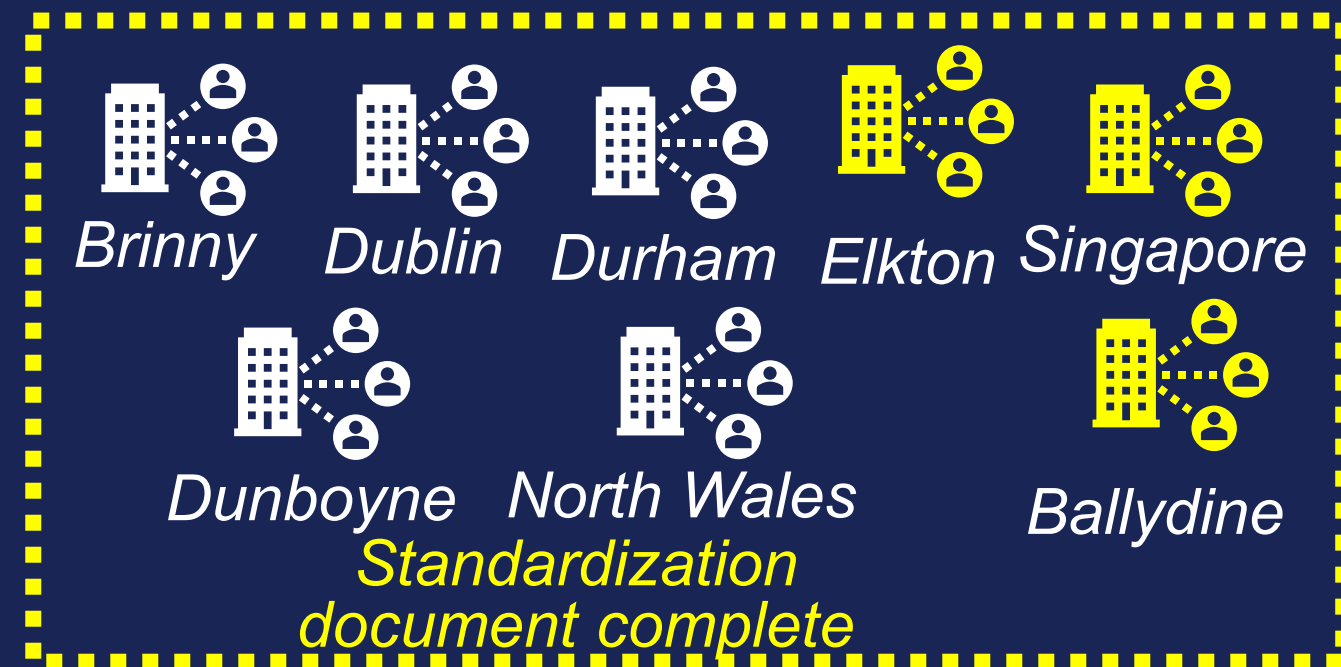


Expanding Adoption Across Multiple Sites

- Following North America and R&D center rollouts, Merck out in expanded in Europe
- Ireland deploys implementation on how to do push notifications and on iPads
- Merck took the best practices from the first site and created a **Technical Implementation Standard**
 - Overcome small barriers to adoption
 - Sites are receptive to forward looking ways to manufacture (i.e. not everyone has to be on the floor)
- Introduced DeltaV Mobile to the community practice (formerly DeltaV user group)
- Plans to do onboarding training with Emerson product team
- Merck is deploying DeltaV Mobile in Ballydine, Elkton, and Singapore locations soon



Technology Adoption Along Product Evolution



2017	2018	2019	2020	2021	2022	2023	2024	2025
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DeltaV Mobile release 1

Onsite & offsite VPN
Email & SMS notifications

DeltaV Mobile release 2

Tablets use
Custom notifications

DeltaV Mobile release 3

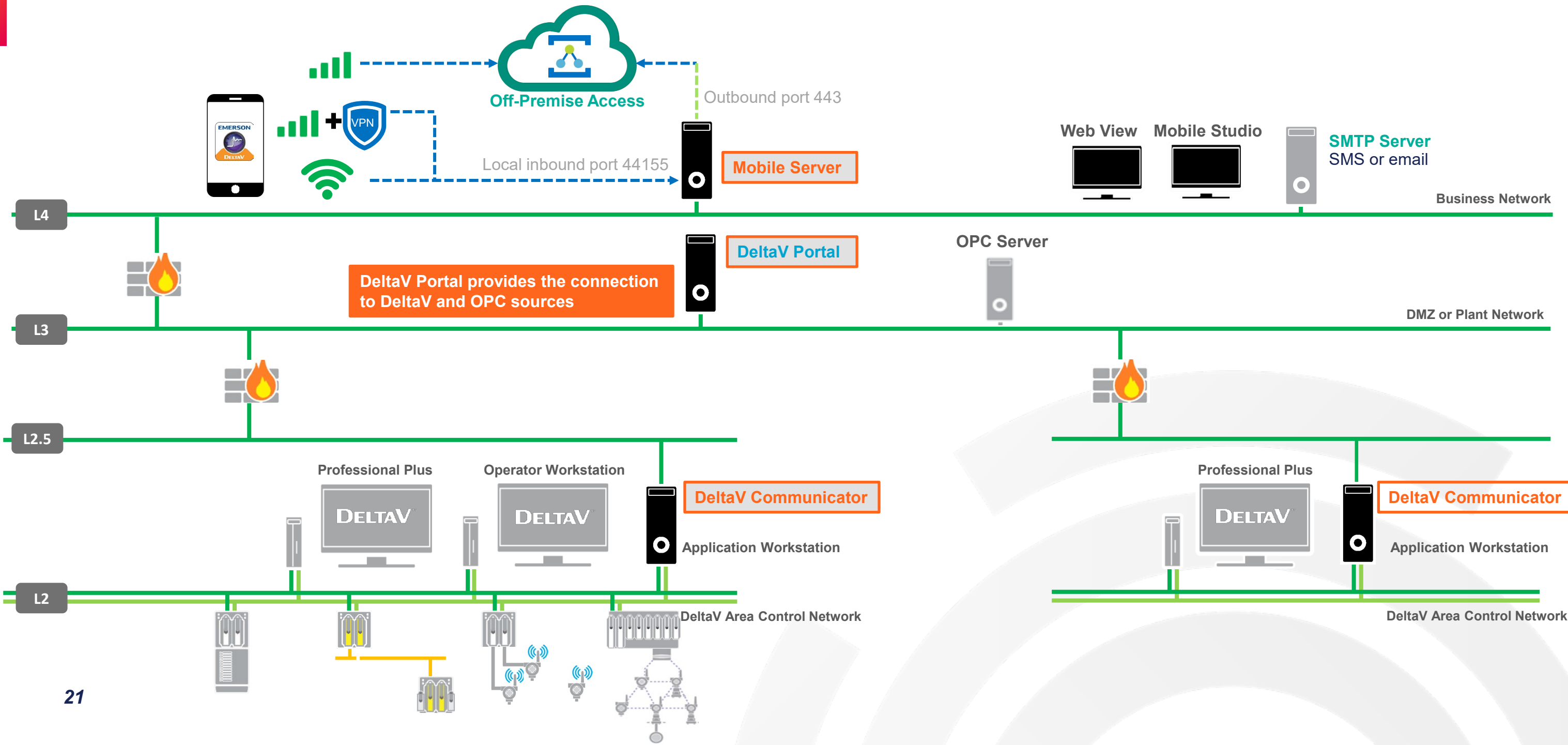
Multi-site support
Improved connector to ACH

Proxy Server
Support

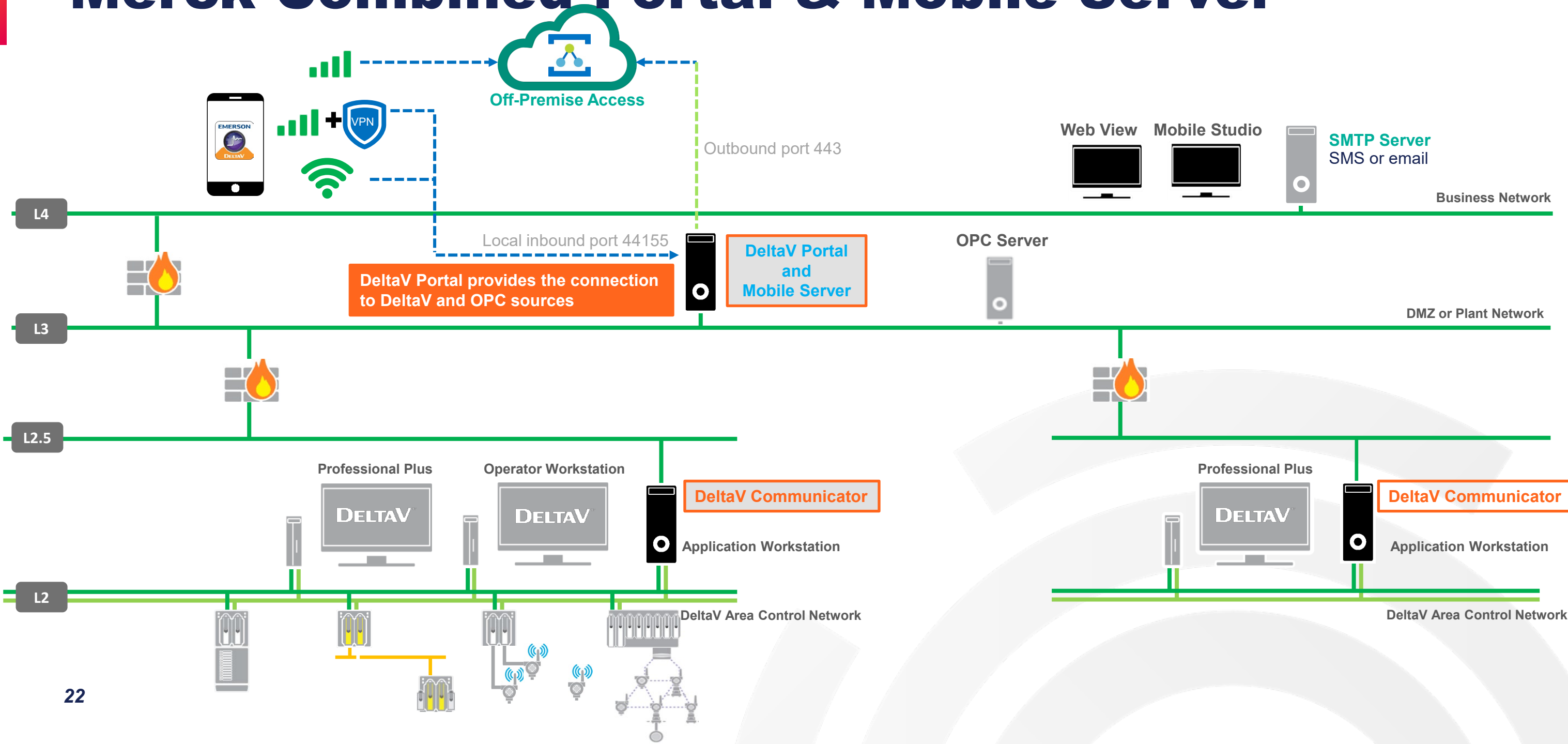
Standardization and Installation Best Practices

Discuss different network topologies, overcoming the IT/OT burden of installation, and finally support for using proxy servers

DeltaV Mobile Architecture Overview



Merck Combined Portal & Mobile Server



Overcoming IT/OT Convergence Barrier



- Merck created a **DeltaV Mobile Technical Implementation Standard** to overcome the IT/OT requirements

- Security concerns are mitigated with the standard documentation to IT that enables validation at other sites quicker

- A central group (product team) actively maintains these technical documents



- **Standardizing the network topology** across sites was important

- The DeltaV Mobile Server and DeltaV Portal server are combined on one machine
- The machine resides in a dedicated web services VLAN per Merck's standards

- Merck used a **proxy server** for an extra layer of security between the Mobile server and Internet

- Merck conducted a Risk Assessment of Proxy Cap software and tested the third-party vendor with consultation with Emerson.



- Push notifications using the Off Premise Access feature requires secure internet connection.

- Emerson did develop proxy server support in 2024 in the current release

- Subsequently Knowledge Based Article, [#NK-2400-0056](#), on proxy servers was released in 2025

Use Cases and Feedback

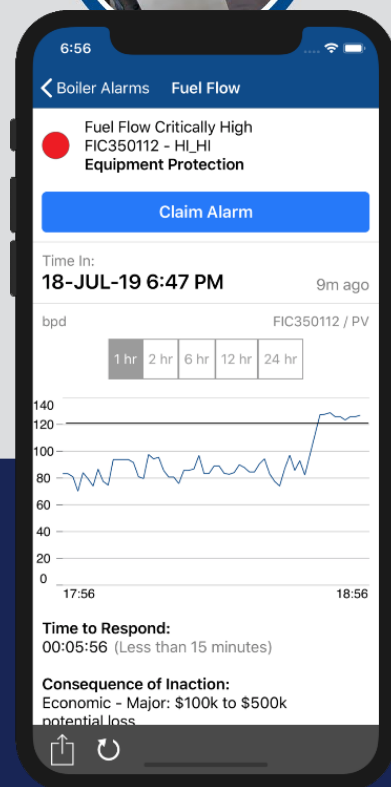
Merck's Use Cases For DeltaV Mobile

"We use DeltaV Mobile to identify which emails alerted operations of critical alarms"



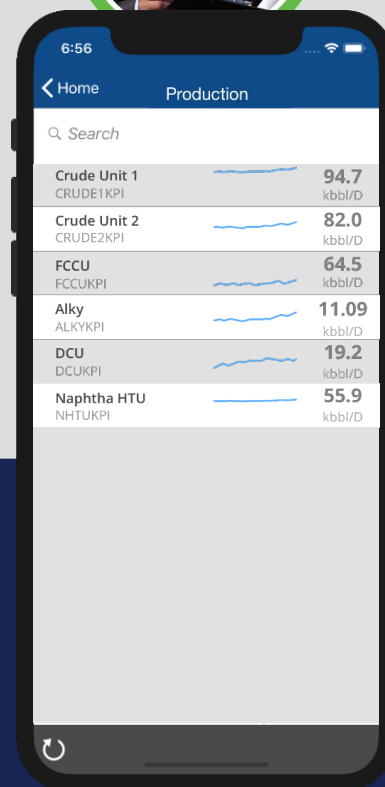
Operations

IPT Lead is curious about a unit?



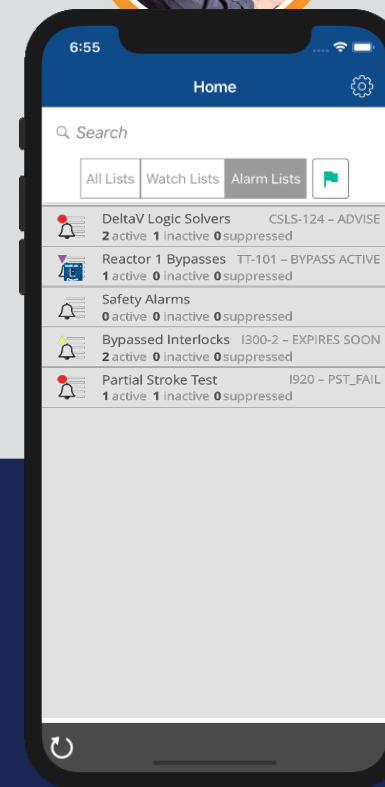
Maintenance

What is the status of my equipment?



Process Engineers

What is the status of my KPIs?

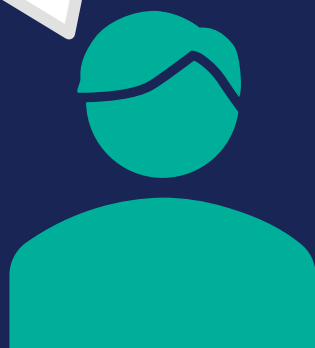


"We are using DeltaV Mobile as GMP Alarm Notification system for the entire site, in tandem with an external pager system"



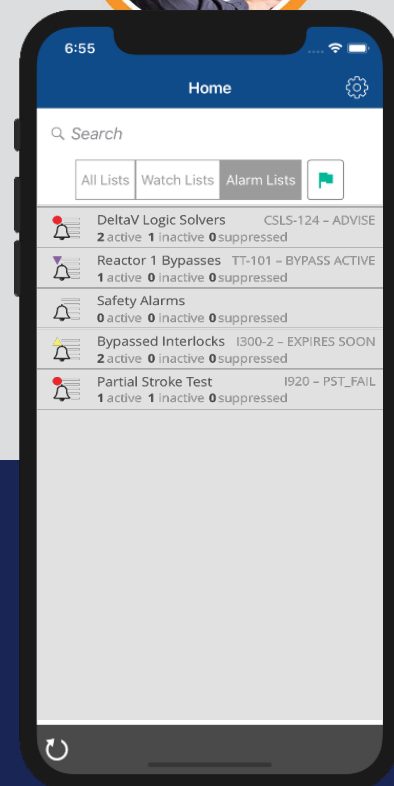
Merck's Additional Use Cases For DeltaV Mobile

"We like weekend coverage when users are not on site to monitor the alarms"



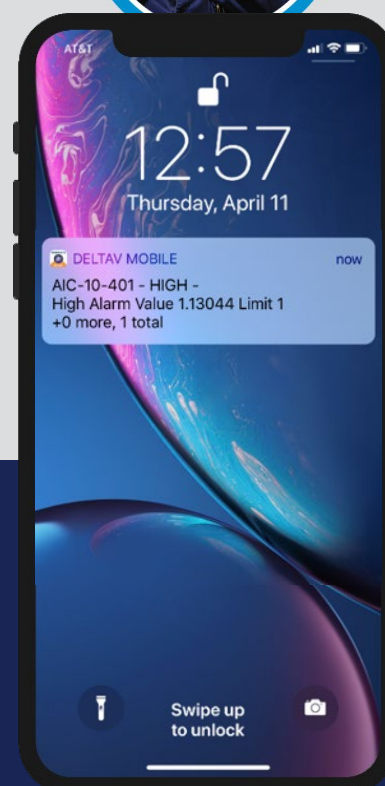
Administrators

What is the status of DeltaV?



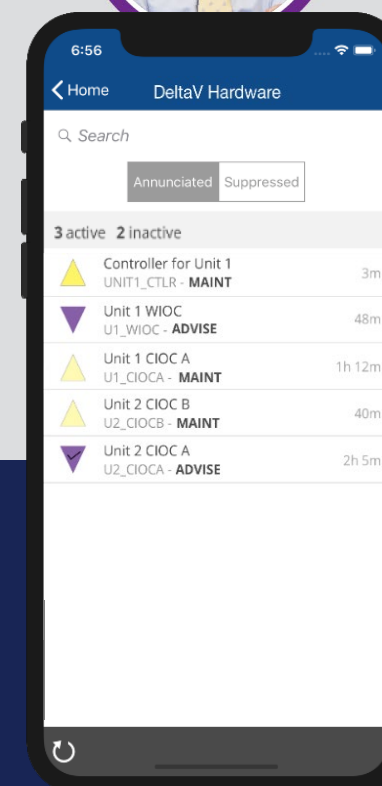
Cleaning Crew

Has the room been compromised?



Research Team

Which key parameters to check limit?



Feedback on Most Beneficial Scenarios

“For engineers doing calibration or alarm monitoring notifications”



“Utilities that are not constantly monitored”



“Manager / engineering notification of critical alarms”

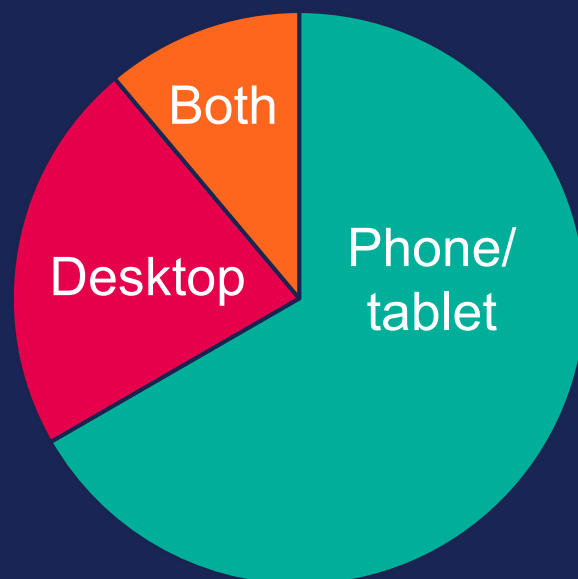


“Alarm Notifications, Historical data trends visualization”

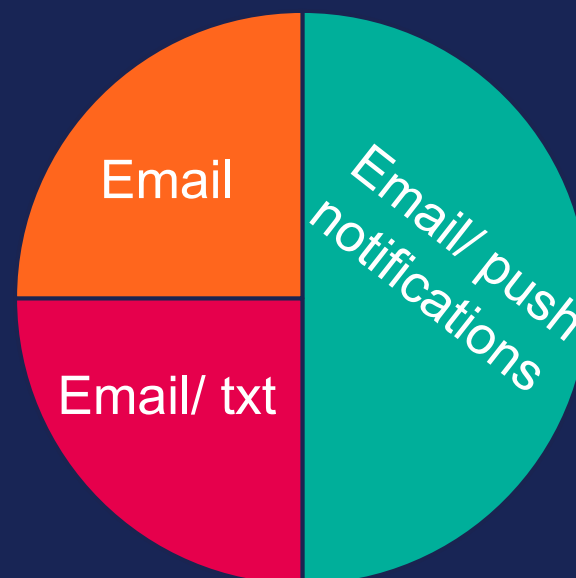


Feedback

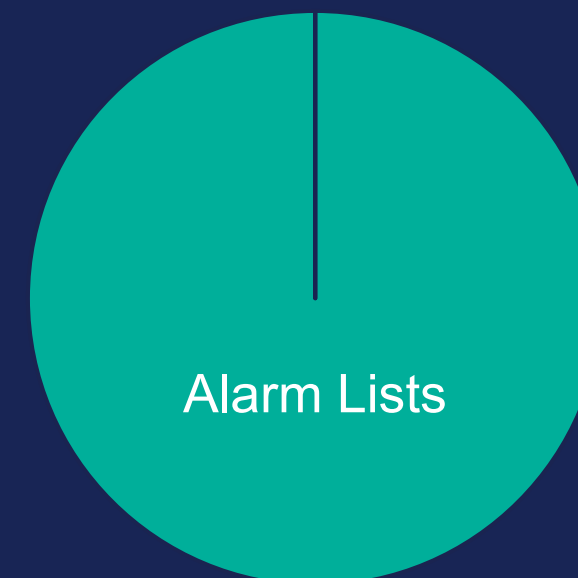
Receive notifications



Communication method



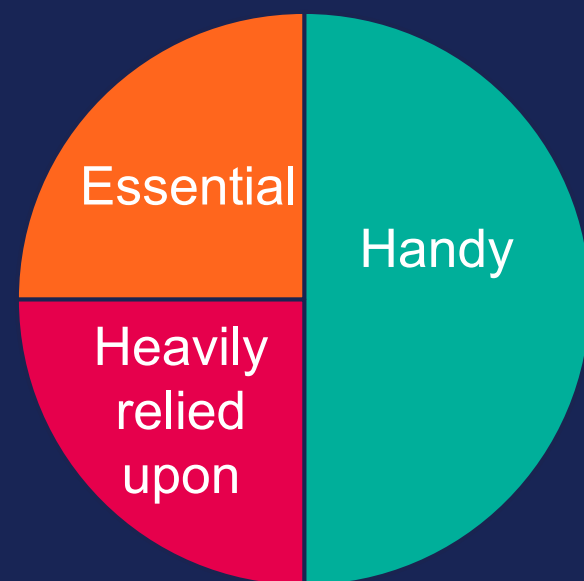
Features used*



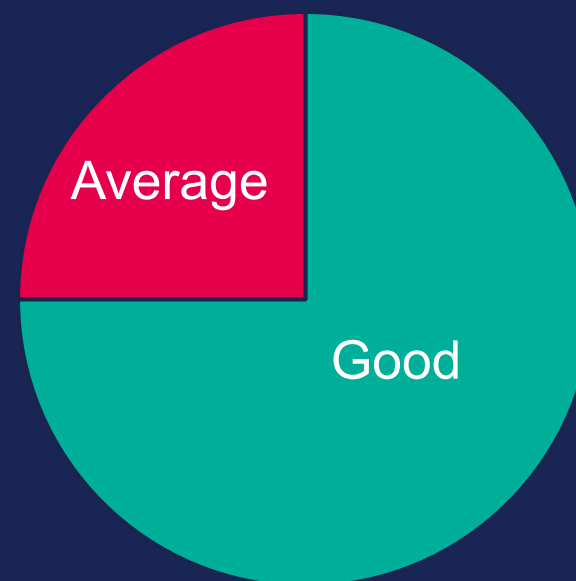
Future opportunity to familiarize with Watchlists & Custom notifications

Feedback

Overall value



Reliability



Administrative Time Per Month (DeltaV Mobile Studio)



- *Managing the DeltaV Mobile users*
- *Creating alarm lists*

Constructive Feedback

“Was pretty difficult to setup on our IT infrastructure. Found problems with connecting to the webhosted browser for management vs just an application.”



“Alarms sometimes on email notification and sms "combine" Alarm X + 10 others which is difficult for end users to know whether to respond or not.”



“Limitations with notifications - more detailed description or alternate text instead of CM for user friendliness”



“No audit trails for notifications, alarms/watch lists configurations changes, logins, etc. Unable to see system connection health status from DeltaV Mobile server or DeltaV Mobile studio.”



Business Impact

DeltaV Mobile Saves Time, Improves Efficiencies, and Increases Accessibility



– DeltaV Mobile is an **early warning system** to help keep production running and not have to sit in the facility

- Alert comes in → respond and be proactive → mobilize automation people before facilities or operations gets involved for the cleaning crew (~50 classified spaces)
- Multiple experiments running and have better timing when limit was crossed for development batches
- For example, the DeltaV administrator for a site may need to be alerted for 5 or 6 alarms from different areas
- Operations interacts with DeltaV Mobile 10 times per day
- On average all users interact with DeltaV Mobile 5-10 times per day
- DeltaV Mobile helped avoid product discards and yield loss



Find More Information

DeltaV Mobile Booth in the Exhibit Hall

Contacts

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Thank You