Rethinking coverage and statuses in Virtual Facility

Jonathan Chang | Virtual Facility | 2023

Contents

Overview

In 2023, Virtual Facility (VF) made a pivotal shift in its data structure (alarms → assets), enabling facilities to gain unprecedented awareness of their campuses.

Unfortunately, this shift significantly contributed to the complexity of the platform, resulting in a disjointed product that was difficult for users to understand and adopt.

This added complexity stemmed from how VF managed coverage (showing an alarm or asset has a work ticket assigned to it) and statues (the current state of a data type).

As the lead designer I contributed to:

① Leading the effort to evaluate and reimagine the coverage experience.

② Point of contact for subject matter experts and partners.

③ Ownership of meetings, outreach, and follow-ups.

01

Business context

"This is amazing… but can ya'll use stoplight logic for the status indicators?"

- Prospective client

External pressures

Potential client requests

A high-profile client loved our product but requested that the coverage patterns be modified to reflect a stoplight system. This request garnered significant buy in from various teams in the company.

Accessibility concerns

I stepped in to temper the excitement around this change, expressing concerns that it could pose significant accessibility issues, potentially limiting us from serving clients who require an accessible product.

Internal alignment

Compounding confusion

The pivot from alarms to assets left the product in a limbo of mismatched data types and patterns.

The increased tension and confusion among teams about how the product was intended to function cohesively led to longer development times.
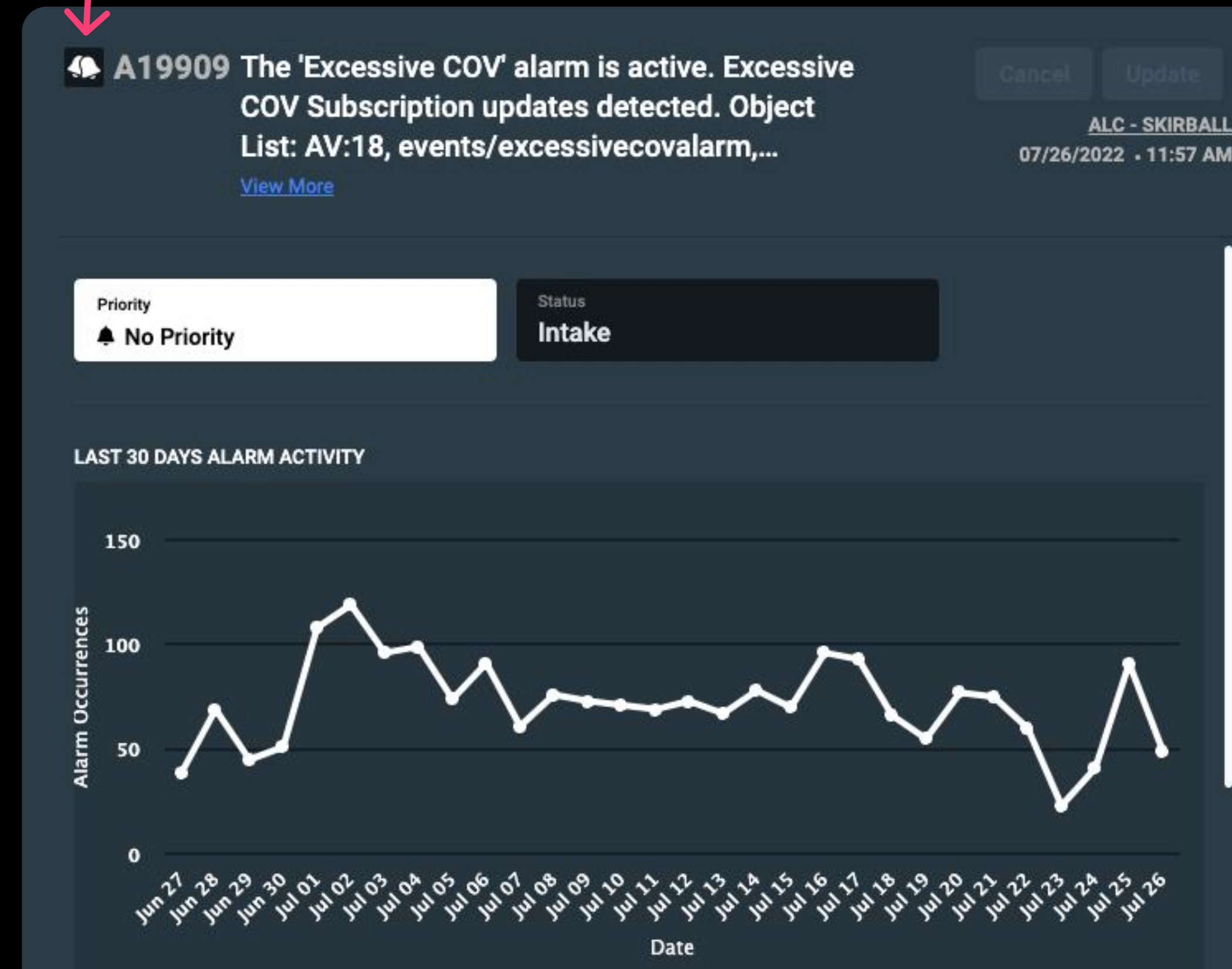
Flexibility for growth

Planned features

The company had a list of planned features and an aggressive vision for the product. This meant the statuses for the various data types would constantly change and grow.

Dissecting requirements

I analyzed various plans and conversations outlining the future vision to gain insight into the types of coverage and statuses to be expected.
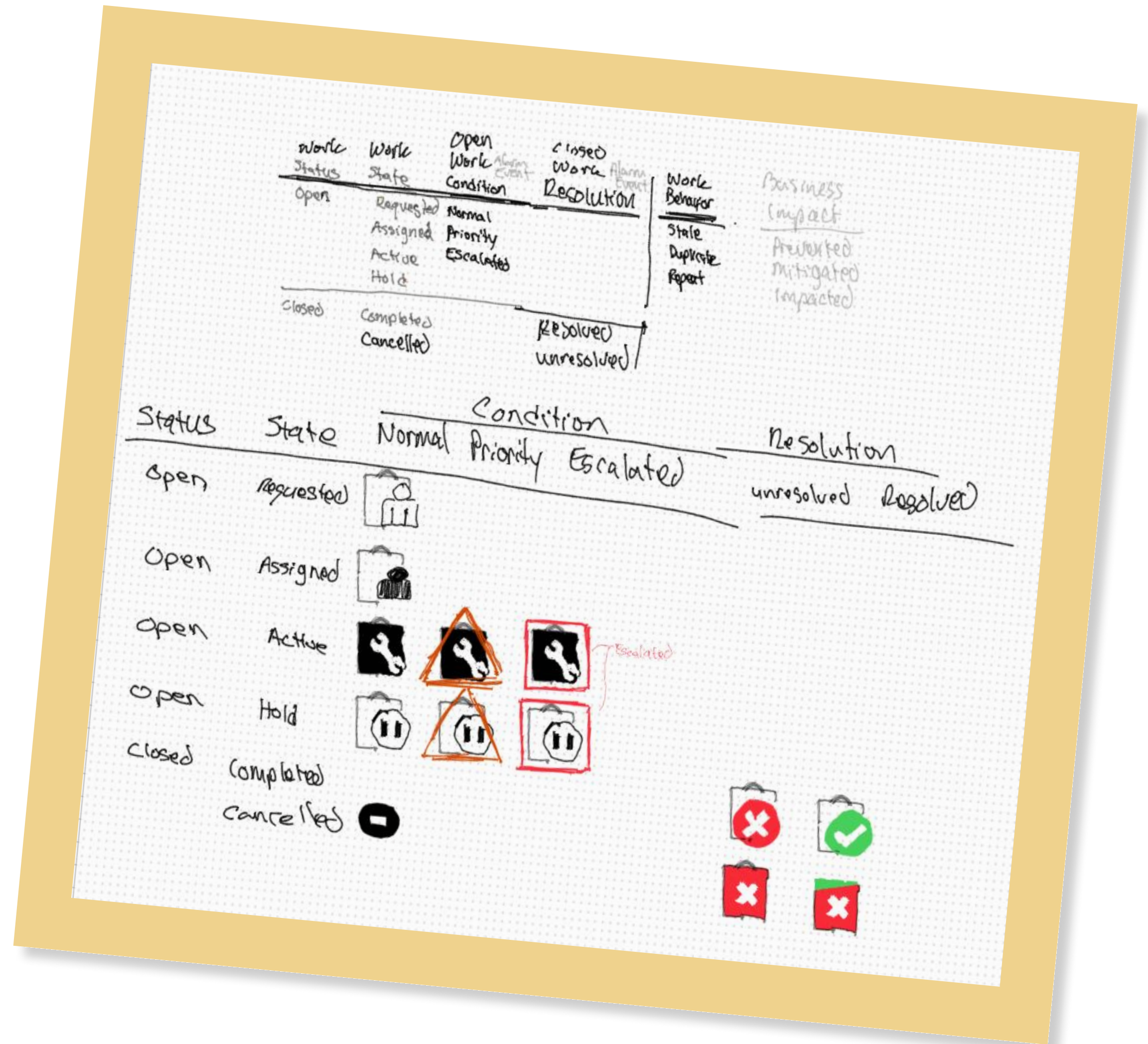
02

Problem

Insights

Leaning on previous research

I collaborated with the customer success team to go through VF's archives to gain qualitative insights on issues with coverage.

SMEs and industry standards

I worked with our SMEs to pull patterns from various ISO and ASHRAE standards. This provided a solid base to start from.
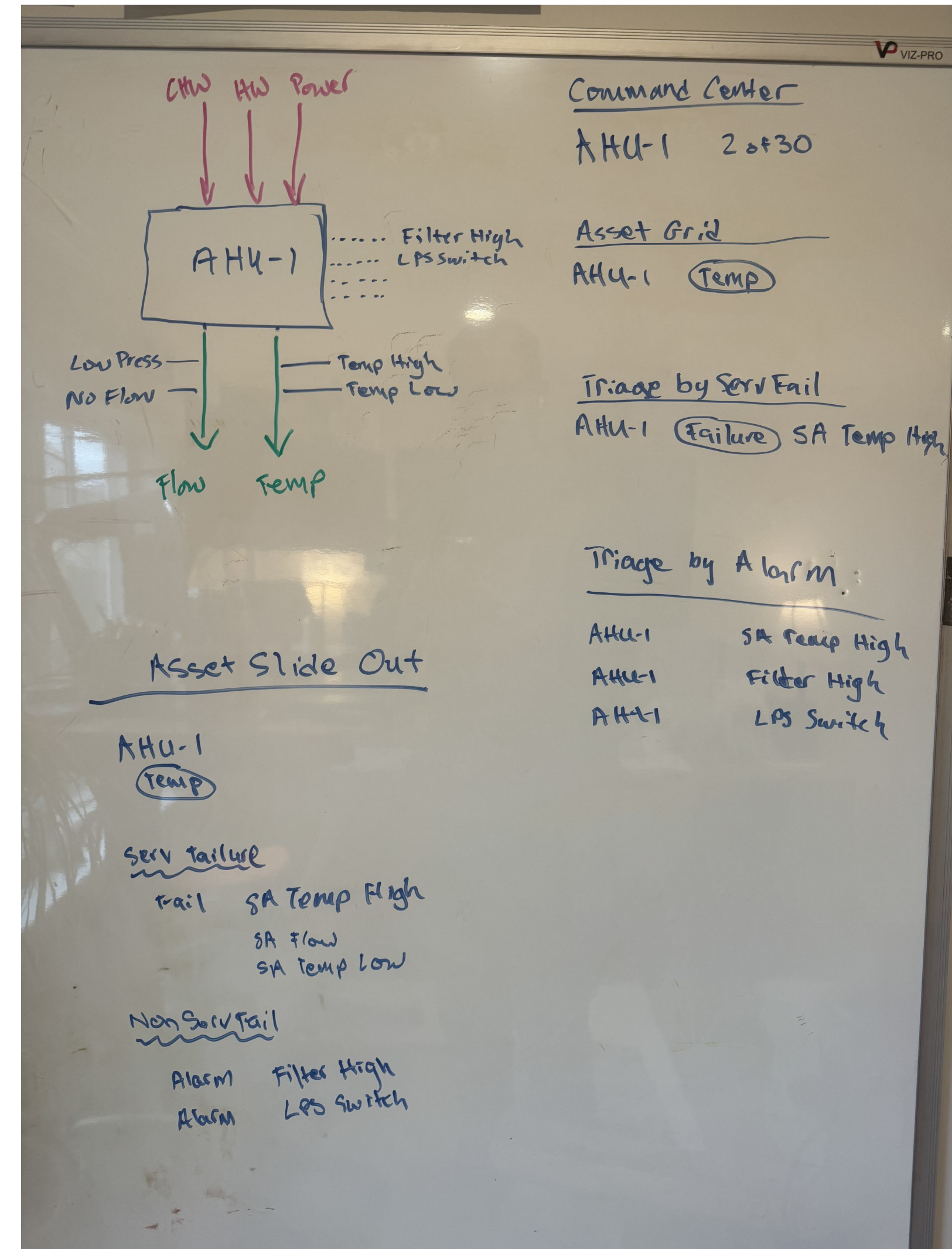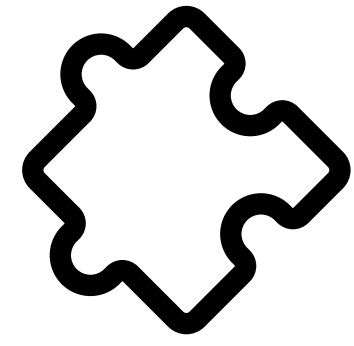
Identifying customer problems

Accessibility concerns

The current coverage patterns in VF was not accessible to colorblind individuals.

Multiple languages

The differing coverage patterns required users to learn different icons for the same meaning.

Learnability friction

Many users did not want to put in the effort to learn how all the icons indicated coverage.
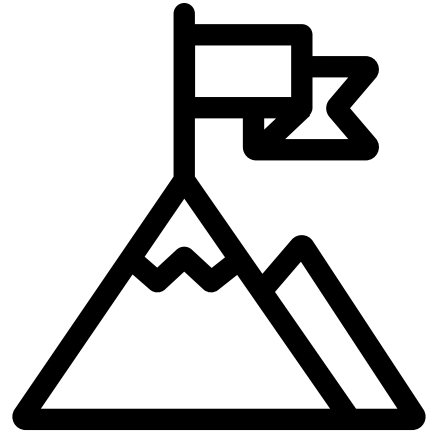
Goals

1

Reduce user reliance on support dialogs

Reduce how often users needed to open the more info dialogs to understand icon meanings.

2

Reduce the variety in coverage patterns

Have only one coverage pattern for data types such as alarms and assets.

3

Provide flexibility for growth

Ensure the solution can grow as new features and technology are added to the product.

Coverage patterns

In this pattern, work can only be created for alarms. The asset's coverage is determined by the alarm's coverage.

Alarm
Alarms serve as the reference point for assets.

🔕 Inactive alarm → 🔔 Active alarm → 🔔📋 Active alarm w/ work → 🔔📋 Active alarm w/ work

Asset
Coverage for an asset is determined by alarms.

🟢 Inactive asset → 🔴 Active asset → 🟡 Asset is covered → 🔴 Active asset

Additional alarms
Sometimes multiple alarms relate to the same asset.
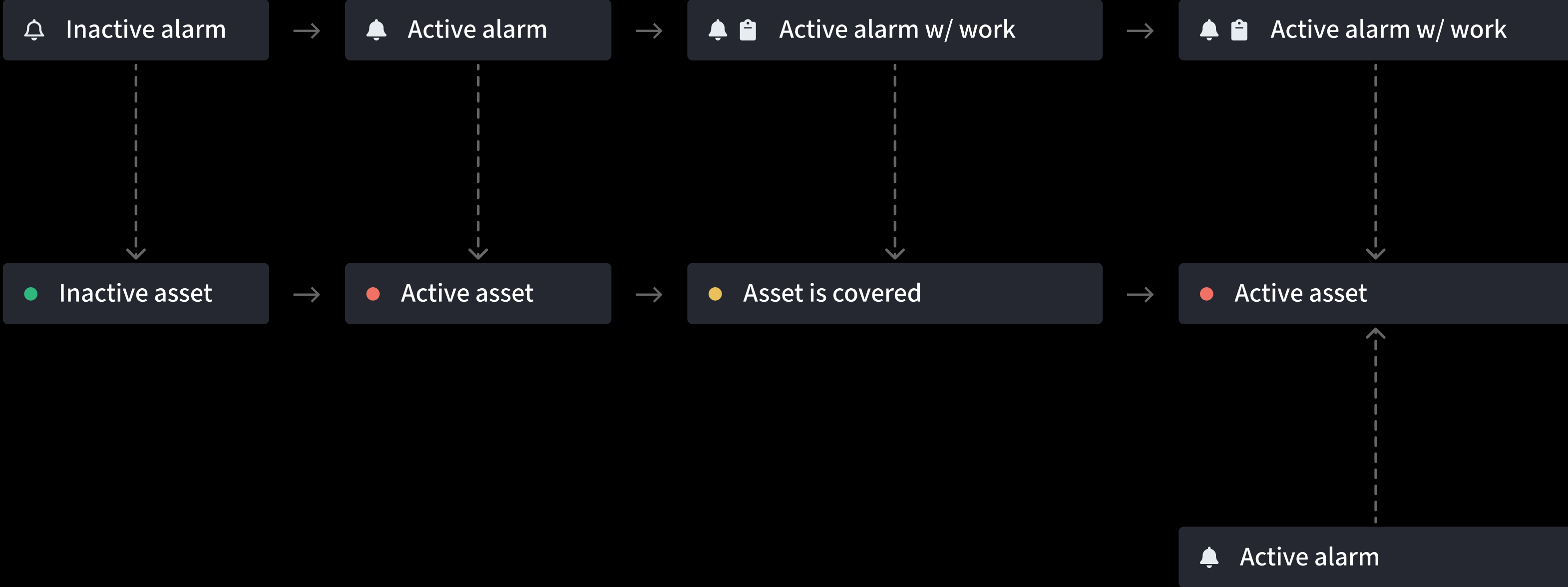
🔔 Active alarm

Icon set

These are all the icons used to detail alarm, asset, and work statuses.

Alarm types

Indicators

🔔 Inactive alarm

🔔 Active alarm

🔴 Active alarm (alternative)

📢 Multiple recurring alarms

📢 Nuisance alarms (modifier)

Priority

🔔 🔔 None

🔔 🔔 Lowest

🔔 🔔 Low

🔔 🔔 Medium

🔔 🔔 High

🔔 🔔 Highest

Asset types

Indicators

🟢 Inactive asset

🔴 Active asset

🟡 Active asset with work

💤 Snoozed asset

Addt'l

🔴 Active asset or alarm

🟡 Active asset or alarm w/ work

Work types

Indicators

📋 Open work ticket

📋 Closed work ticket

☑️ Closed work ticket (Good work)

❌ Closed work ticket (Bad work)

📋 Multiple work tickets

In practice

Alarm pages

Alarm tiles

	A123 11:26 AM	
	PR-194 Static Pressure High	
	Building 42 | 1F | Lobby	

	A1930 10:56 AM	
	Lobby Relative Humidity High	
	Building 42 | 1F | Lobby	123

	A5938 10:34AM	
	OR-1 Pressure Low	
	Building 124 | 3F | OR-1	

Work tiles

	W2047 Due: 11-05-23 11:00 AM
	Resolve Lobby Relative Humidity High
	Building 42 | 1F | Lobby

	W2046 Due: 11-05-23 10:33 AM
	Resolve OR-1 Pressure Low
	Building 124 | 3F | OR-1

	W2045 Due: 11-05-23 09:54 AM
	Resolve A1938 Temperature High
	Building 32 | 15F | Pharmacy

Asset pages

Asset pills

OR-2	R.10	18F
OR-8	R.15	20F
OR-6	R.15	20F

Asset tables

		AHU-1	Air
		OR-3 (Rm 234)	Roc
		1	Floc
		2	Floc

Tables (Any page)

Alarms

Alarm ID			Alarm Instance Time
		A17404	05/12/2023 12:02 PM
		A19144	05/12/2023 11:46 AM
		A17341	05/12/2023 11:06 AM
		A21680	05/12/2023 10:40 AM
		A8663	05/12/2023 10:31 AM

03

Solution

Top-down coverage

Coverage revolving around ~~alarms~~ assets

In the solution, assets became the center point of coverage rather than alarms, reducing the effort required to fully cover an asset. This follows closely to how users in the field think.
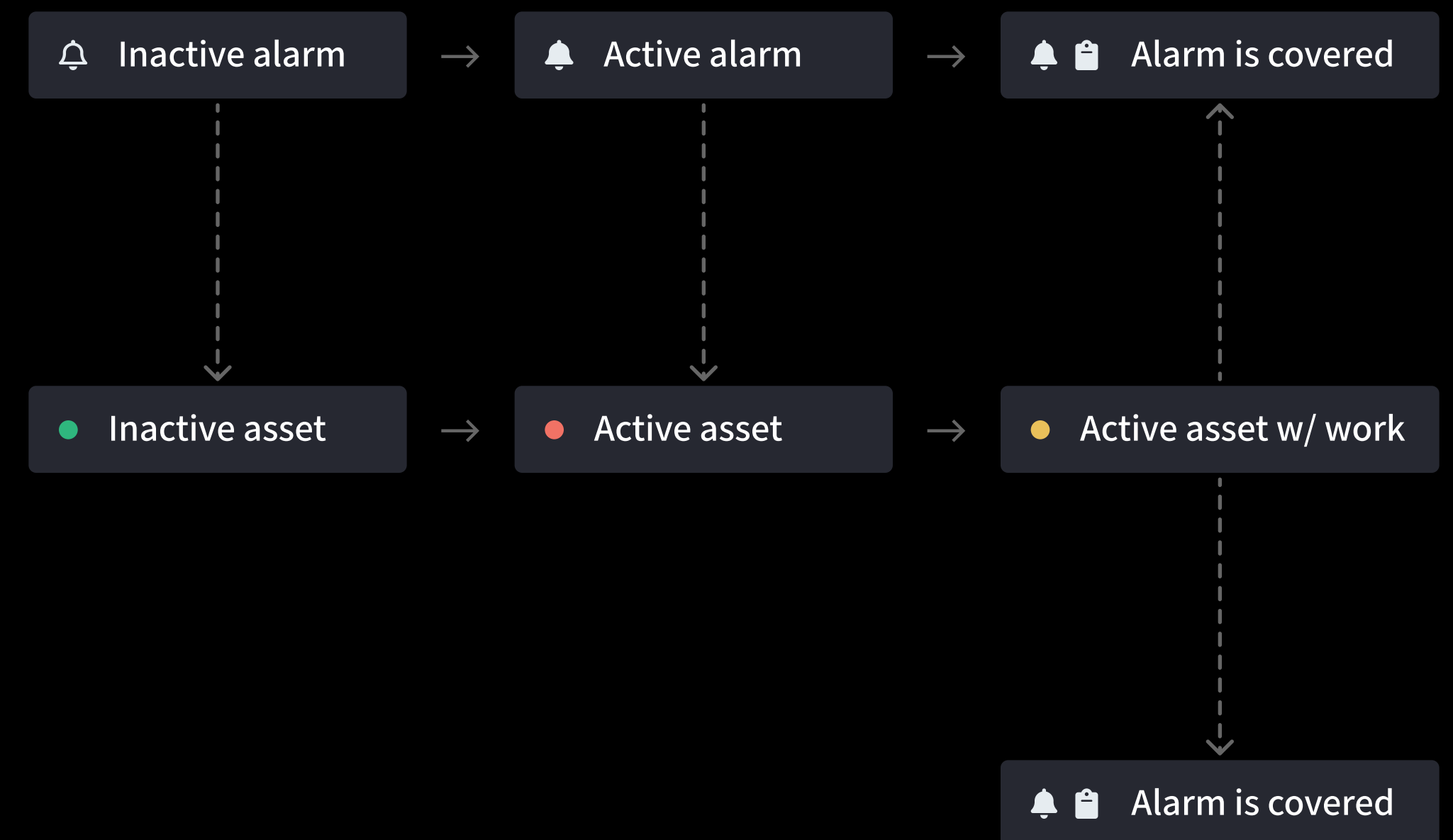
Icons - Original

Alarm types

Indicators

🔔 Inactive alarm

🔔 Active alarm

🔴 Active alarm (alternative)

🔊 Multiple recurring alarms

📢 Nuisance alarms (modifier)

Priority

🔔 🔔 None

🔔 🔔 Lowest

🔔 🔔 Low

🔔 🔔 Medium

🔔 🔔 High

🔔 🔔 Highest

Asset types

Indicators

🟢 Inactive asset

🔴 Active asset

🟡 Active asset with work

⣿ Snoozed asset

Addt'l

🔴 Active asset or alarm

🟡 Active asset or alarm w/ work

Work types

Indicators

📋 Open work ticket

📋 Closed work ticket

✅ Closed work ticket (Good work)

❌ Closed work ticket (Bad work)

📑 Multiple work tickets

Icons - Original

Alarm types

Indicators   🔔 Inactive alarm

🔔 Active alarm

🔴 Active alarm (alternative)

~~Multiple recurring alarms~~

~~Nuisance alarms (modifier)~~

Priority   🔔 🔔 ~~None~~

🔔 🔔 ~~Lowest~~

🔔 🔔 ~~Low~~

🔔 🔔 ~~Medium~~

🔔 🔔 ~~High~~

🔔 🔔 ~~Highest~~

Asset t...

Indicator...

Addt'l   🔴 Active asset or alarm

Work types

Indicators   📋 Open work ticket

📋 Closed work ticket

✅ Closed work ticket (Good work)

❌ Closed work ticket (Bad work)

📑 Multiple work tickets

These indicators were not industry standard and weren't being utilized by users.

The focus on assets removed the need for alarm priority.

Icons - Original

Alarm types

Indicators   🔔   Inactive alarm

                  🔔   Active alarm

                  🔴   Active alarm (alternative)

                  📢   ~~Multiple recurring alarms~~

                  📢   ~~Nuisance alarms (modifier)~~

Priority   🔔 🔔   ~~None~~

                🔔 🔔   ~~Lowest~~

                🔔 🔔   ~~Low~~

                🔔 🔔   ~~Medium~~

                🔔 🔔   ~~High~~

                🔔 🔔   ~~Highest~~

Asset types

Indicators   🟢   Inactive asset

                  🔴   Active asset

                  🟡   Active asset with work

                  ⚡   Snoozed asset

Addt'l   🔴   ~~Active asset or alarm~~

                🟡   ~~Active asset or alarm w/ work~~

Wo...

Indicators   📋   Open work ticket

                  📋   Closed work ticket

                       rk)

)

> The circle icon was chosen as the standard to provide flexibility in data types.

> The additional background indicator was removed and saved for criticality.

Icons - Original

Alarm types

Indicators   🔔 Inactive alarm

                   🔔 Active alarm

                   🔴 Active alarm (alternative)

                   📣 ~~Multiple recurring alarms~~

                   📣 ~~Nuisance alarms (modifier)~~

Priority   🔔 🔔 ~~None~~

                   🔔 🔔 ~~Lowest~~

                   🔔 🔔 ~~Low~~

                   🔔 🔔 ~~Medium~~

                   🔔 🔔 ~~High~~

                   🔔 🔔 ~~Highest~~

Open work icon was replaced with a 🔧 wrench icon to reduce confusion and prepare for workflows.

~~Active asset with work~~

💤 Snoozed asset

Closed work ticket icon was removed to reduce redundancy with the good/bad work.

Work types

Indicators   📋 Open work ticket

                   📋 ~~Closed work ticket~~

                   ✅ Closed work ticket (Good work)

                   ❎ Closed work ticket (Bad work)

                   📑 Multiple work tickets

Icons - Final

Asset & alarm types

Indicators
- ○ Inactive
- ● Active
- 🔧 Active w/ work
- 💤 Snoozed

Work types

Indicators
- 🔧 Open work ticket
- ✅ Closed work ticket (Good work)
- ❌ Closed work ticket (Bad work)
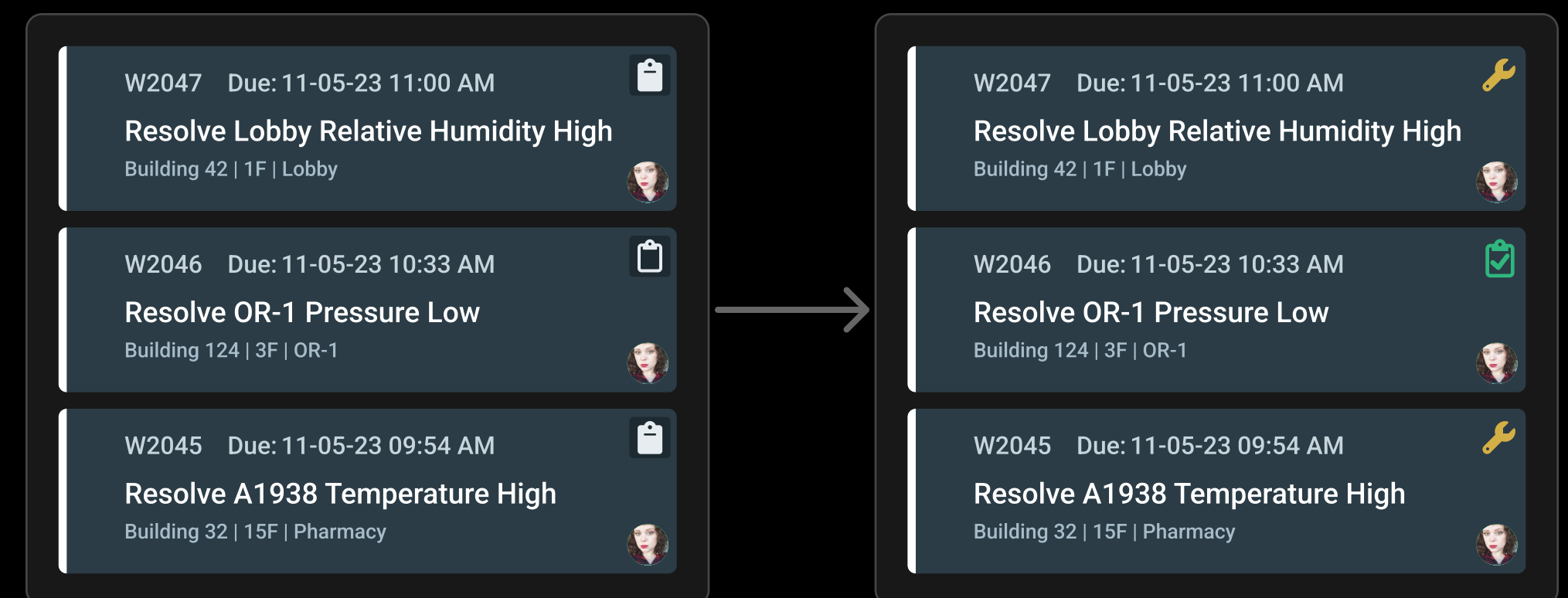- 📋 Multiple work tickets

Creating a workflow

One slot to rule them all

On live view pages, status icons were consolidated into a single 'workflow' slot, eliminating the need to interpret multiple icons and ensuring consistency across various data types.
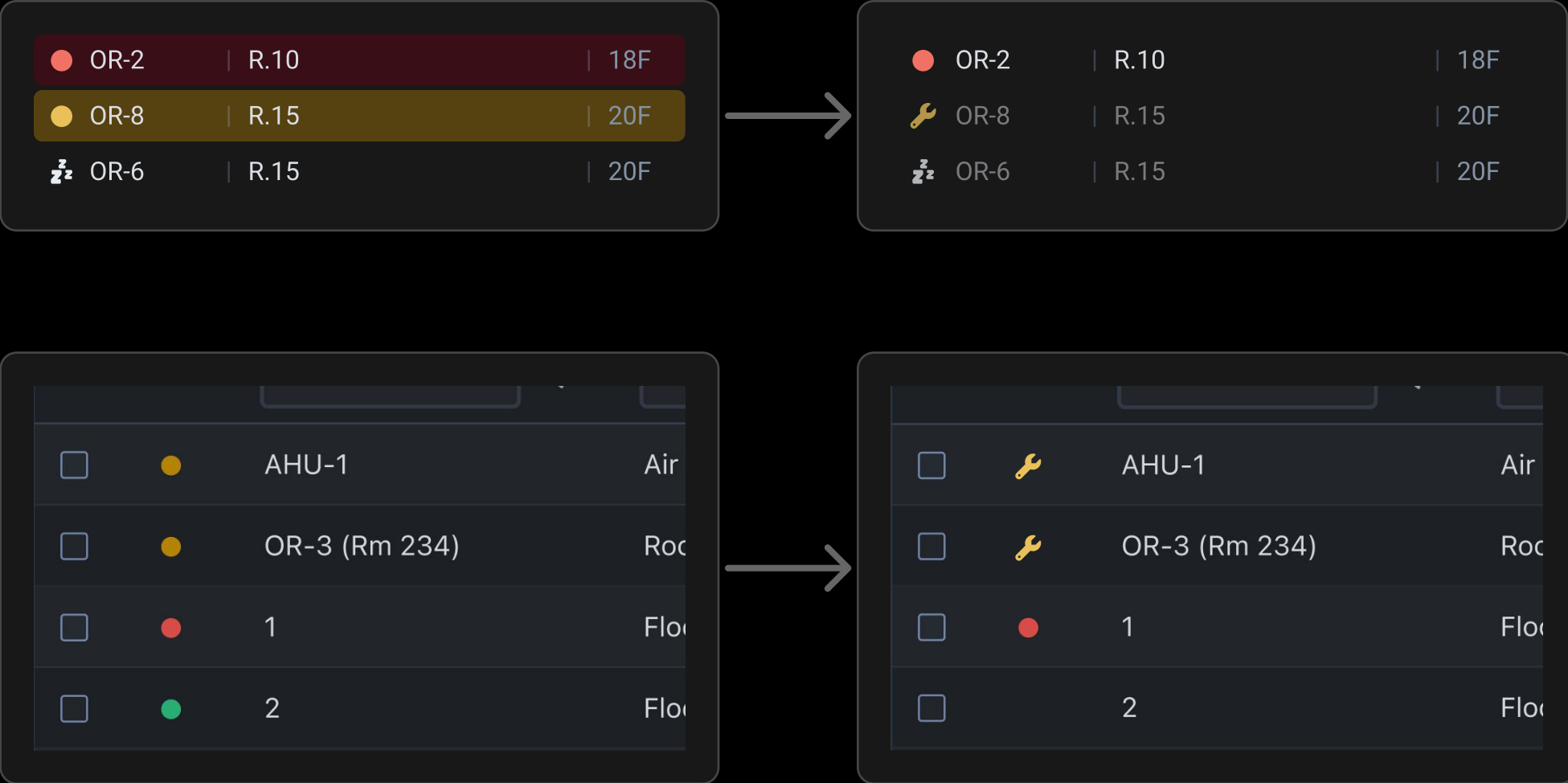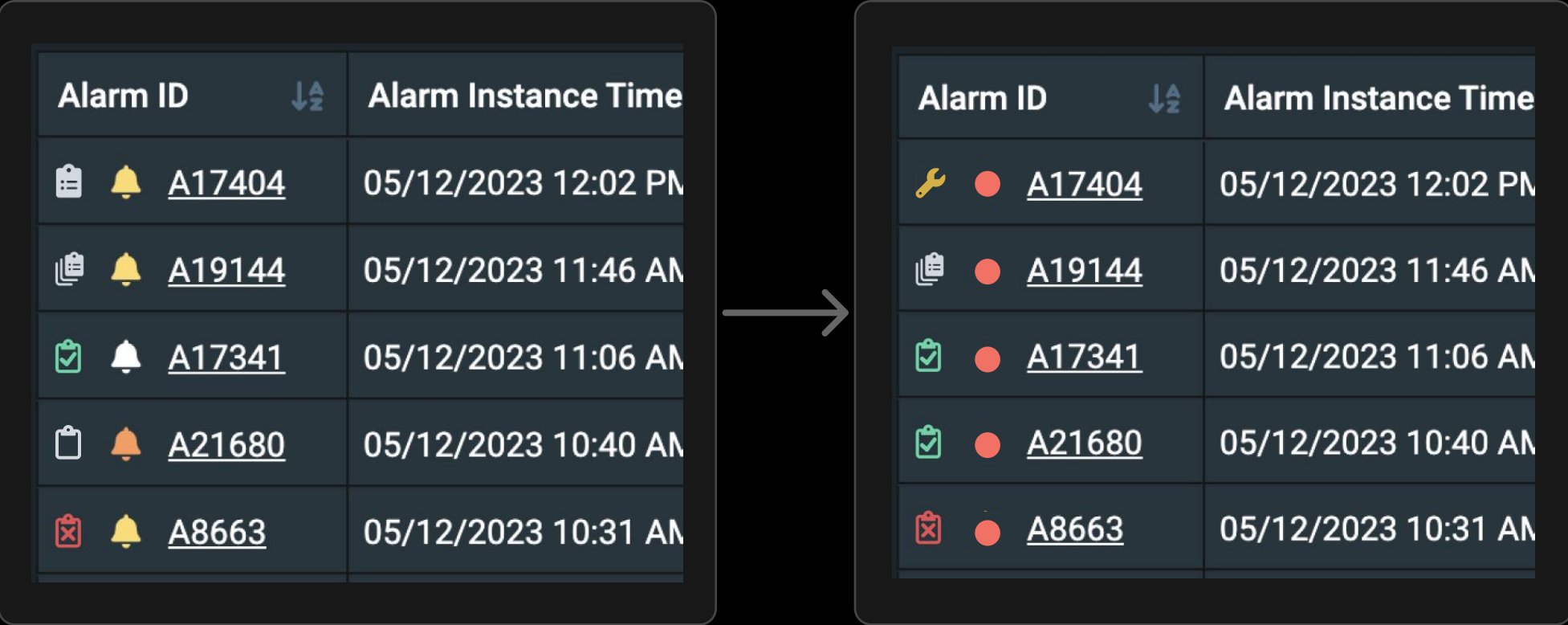

Alarm tiles
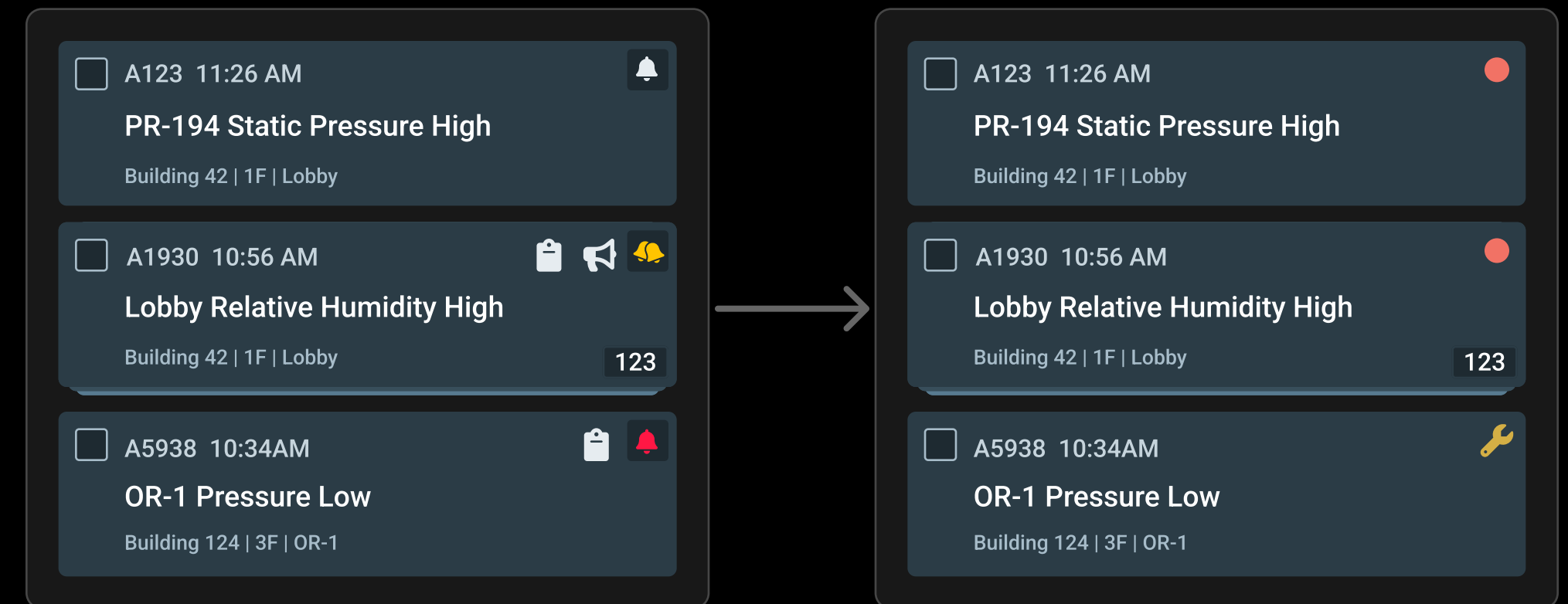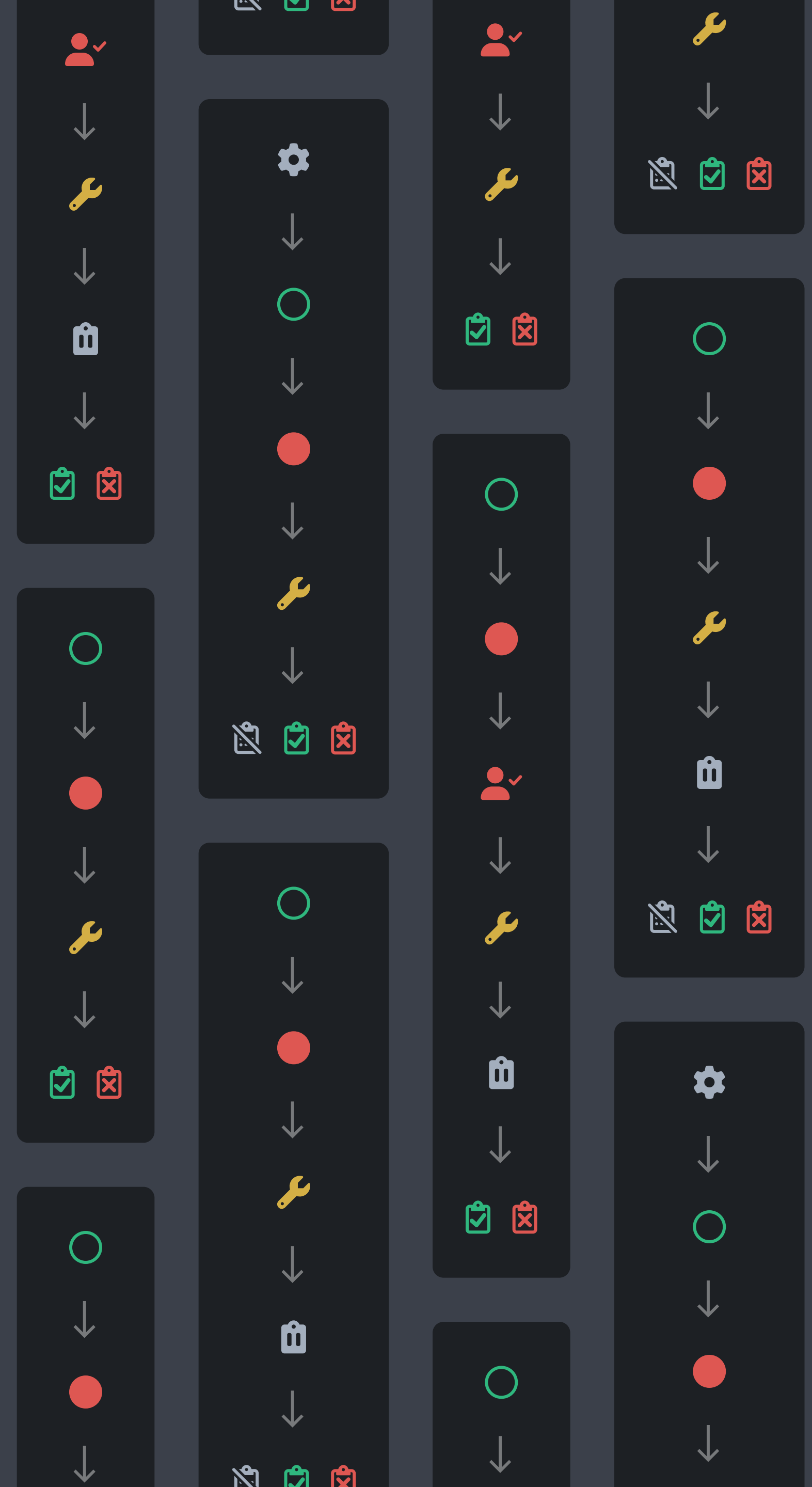

Work tiles

Other areas

Asset pages

Tables

Supporting the future

Growing the workflow

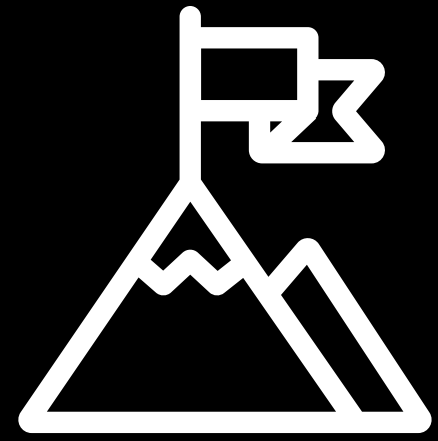With the solution centered on workflows, it easily adapts to the various processes our clients use, allowing new steps to be seamlessly integrated into the flow.
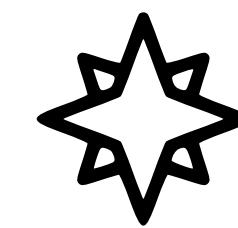
04

Outcome

The solution simplified coverage, providing a lower learning curve

-63%
Decrease in usage of the support dialog.

-57%
Decrease in the # of icons used to show coverage.

Teams were aligned around a clear direction.

Next iteration

1

Criticality statuses for assets and urgency statuses for work

The removal of alarm priority was done in preparation to focus on criticality and urgency.

2

Customer facing interface for workflow customization

Provide customers the ability to change their own workflow instead of relying on internal VF teams.

Thank you!

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