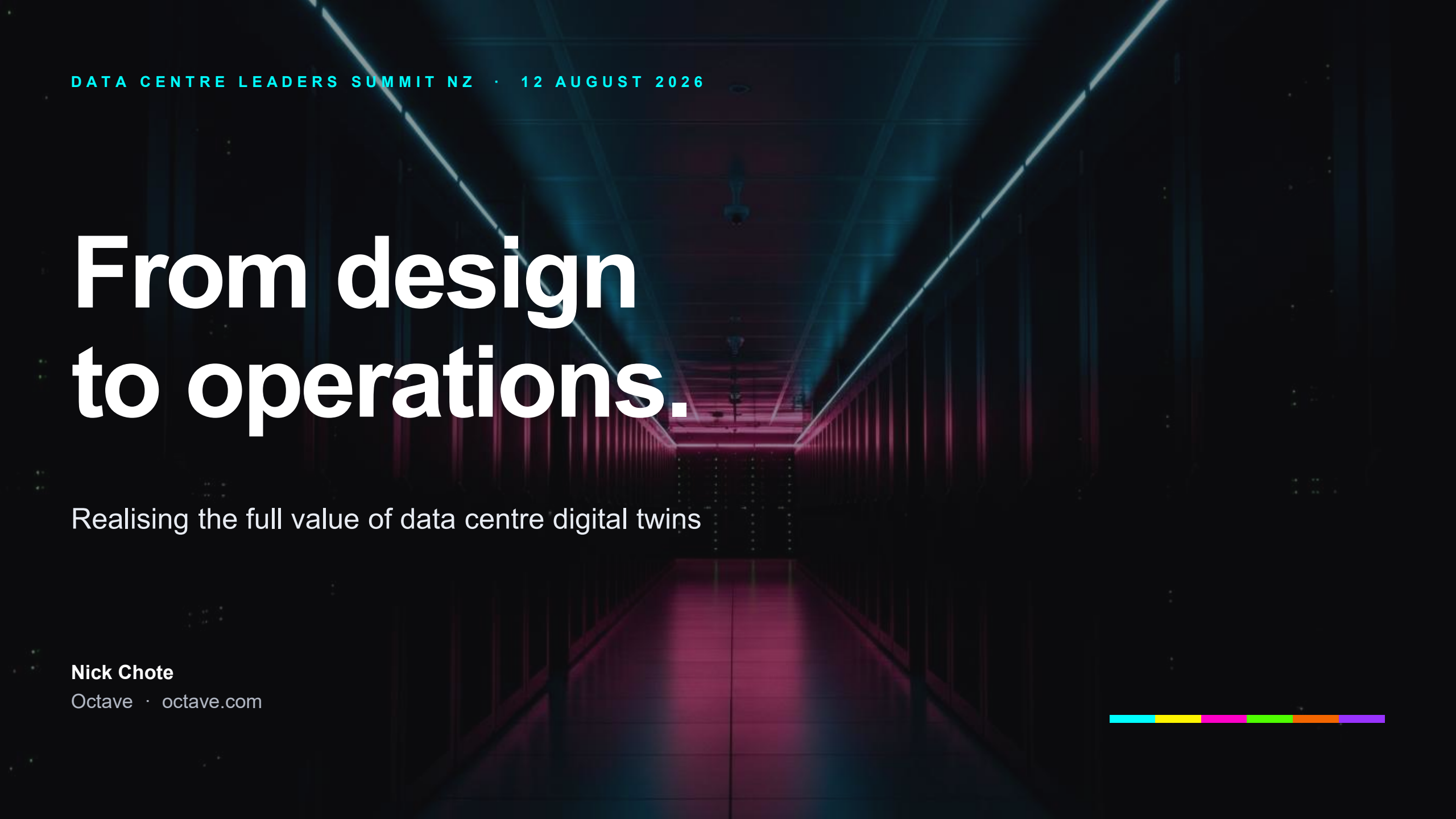


DATA CENTRE LEADERS SUMMIT NZ · 12 AUGUST 2026

From design to operations.

Realising the full value of data centre digital twins

Nick Chote
Octave · octave.com

THE MOMENT WE'RE IN

Aotearoa is building fast.

NZ$7.5bn

AWS COMMITMENT TO ITS AUCKLAND REGION OVER 15 YEARS

>85%

OF NZ ELECTRICITY GENERATION IS RENEWABLE

~83%

OF NATIONAL DC CAPACITY SITS IN AUCKLAND

432→591

MEGAWATTS OF NZ IT LOAD, 2025 TO 2030 (FORECAST)

Every facility in this pipeline — hyperscale, colo, edge — will pass through the same moment:
the day the project team hands it to the operations team.

HANDOVER DAY

The day a data centre goes live is the day it loses its memory.

WHAT STILL SURVIVES AT EACH HANDOVER



The design model — thousands of engineering decisions — becomes a static file nobody opens again.

Factory and site test results are archived as PDFs in a project folder.

Commissioning settings and baselines live in the Cx tool the operator never sees.

And the operations team starts rebuilding its asset register in a spreadsheet

Data centres are not putting enough focus on how they are operated and maintained.

DATA CENTRE LEADERS SUMMIT, MARCH 2026

WHAT THE BREAK COSTS

Broken data has a price tag.

2/3

OF THE COST OF POOR DATA INTEROPERABILITY IS BORNE BY OWNERS AND OPERATORS

NIST — a 20-year-old finding the industry still hasn't fixed

US$1.85T

ESTIMATED GLOBAL COST OF BAD CONSTRUCTION DATA IN 2020 ALONE

FMI / Autodesk study of ~3,900 industry professionals

95%

OF DATA CAPTURED IN ENGINEERING & CONSTRUCTION GOES UNUSED

FMI (2018) — captured, paid for, then abandoned

UP TO 20%

OF TOTAL PROJECT COST IS REWORK

McKinsey — and up to 30% of project time. Much of it traces to data and coordination failures

Digital twins were overhyped.
Now they're necessary.
Both of those things are true.

Uptime Institute 2024 survey listed digital twins among the technologies once ascribed "transformational effects" — with, "only modest results".

The difference between the ones that failed and the ones that stuck is a pattern:

WHERE TWINS DIE

Built as a project deliverable — handed over, then never opened

Operations not at the design table - twin doesn't match how they operate

Model schemas that don't map to the maintenance system

"Twin" as a label on a static 3D model with no live data

WHERE TWINS LIVE

Owned by the operator, specified before design starts

Data contracted as a deliverable, with a schema

Connected to the systems that run the facility every day

Operations keep it current, because they use it

Source: Uptime Institute Global Data Center Survey 2024; Uptime Intelligence, "Digital twins and DCIM: why data quality must come first" (Feb 2026) and "AI-accelerated digital twins" (Jul 2026).

The 3D model is the window.
The data is the asset.

A digital twin worth paying for is a single thread of asset information that answers four questions for the life of the facility:

What was designed?

every asset, spec and decision — carried out of the model

What was actually built?

as-installed reality: serials, deviations, warranties

How did it test?

commissioning results and baselines, held per asset

How is it performing?

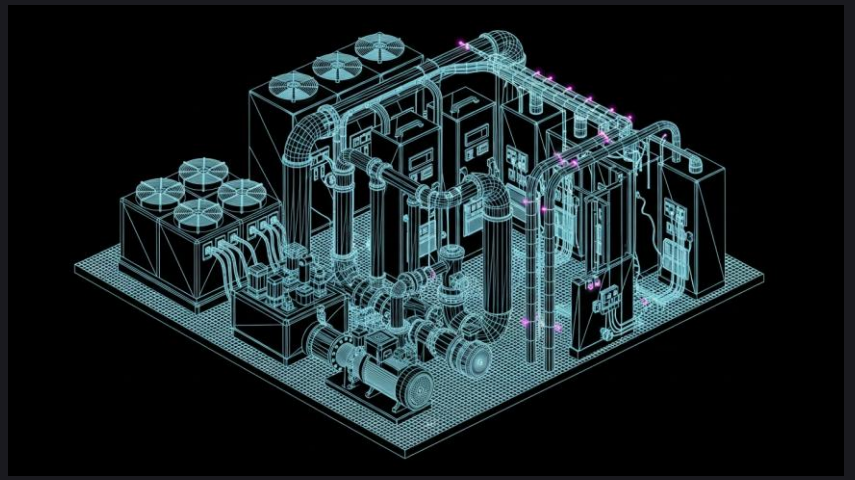
live condition, work history and cost — today

The asset register is born in the model.

Every pump, PDU, CRAH and switchboard in the model is a future maintainable asset. Tag it once, in design — don't re-key it after handover.

Specify the operational data you'll need before design starts — asset information requirements, written into the contract. ISO 19650 gives you the framework and the language.

Modular and prefab designs multiply the payoff: template a cooling module's assets once, deploy it fifty times across the campus — identical structure, PM regime and spares list every time.



ASK YOUR NEXT PROJECT

“Which assets in this model will operations maintain for the next 15 years — and where is that list contracted to end up?”

If the answer is “a spreadsheet, later”, the thread is already cut.

Capture reality while it happens.

As-installed is never as-designed. Serial numbers, actual models fitted, deviations, warranty start dates — capture them at installation, not from a box of manuals at handover.

Prefab flips the sequence: modules arrive with their factory test data. That data belongs in the asset record before the module is even craned in.

Construction-phase asset records also carry the safety load — pre-starts, energisation permits and pressure-test certificates recorded against the real asset, creating the audit trail your insurer, your customers and any operational audit will later ask for.



WHY IT PAYS

Prefab compresses the schedule. Factory build and site works run in parallel, and the module arrives largely complete.

Speed only converts to reliable operations if the data arrives with the modules.

Where the thread usually snaps.

L1	L2	L3	L4	L5
Factory acceptance	Site acceptance	Installation & start-up	Functional testing	**Integrated systems test**

Level 5 integrated systems testing alone can run 20+ working days on a complex facility — every failure mode provoked deliberately, every setpoint proven at load, in front of witnesses.

It is the deepest interrogation the plant will ever get. It will never be examined that thoroughly again.

Then the results are archived as PDFs, and the maintenance system starts from zero.



Done right, handover is a state change — not a document dump. Commissioning completes against the asset record: baselines stored per asset, PM schedules activating the day status flips to operational, spares already identified. Day one starts with history.

The twin that lives — and learns.

FIND

Technicians locate any asset in spatial context — which hall, which row, what's upstream, where the isolation points are. The model becomes a daily tool, not a design archive.

COMPARE

Live condition data trends against the commissioning baseline — drift becomes visible years before failure statistics would catch it.

FEED BACK

Operational learning flows into the next build's design — and with national IT load up ~37% by 2030, and Australian capacity doubling every four years, the next build is already underway.



THE PAYOFF

Uptime you defend with information

You can't shorten a 128-week lead time. You can start it earlier.

One thread. Four pillars.

Design

BricsCAD

- Schematics & 3D
- Engineering & Analysis
- Engineering Info Management
- Geospatial

Build

Octave Onsite

- Construction Management
- Project Performance
- Supply Chain Management
- Completions

Operate

Attune EAM

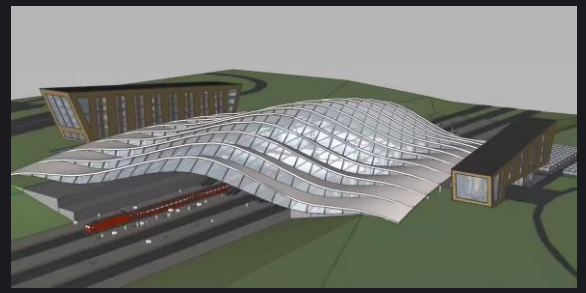
- Enterprise Asset Management
- Asset Performance
- Quality Assurance
- Operations Optimization

Protect

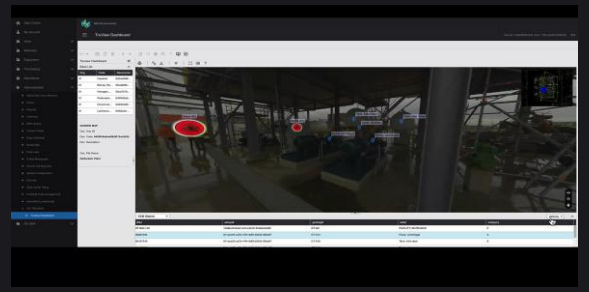
Octave Coda

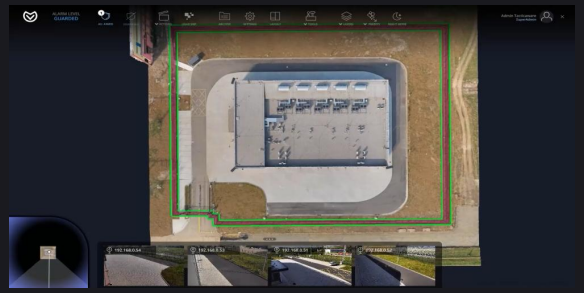
- Public Safety
- Inter-Agency Collaboration
- Physical Security
- Industrial Cyber Security

HANDOVER







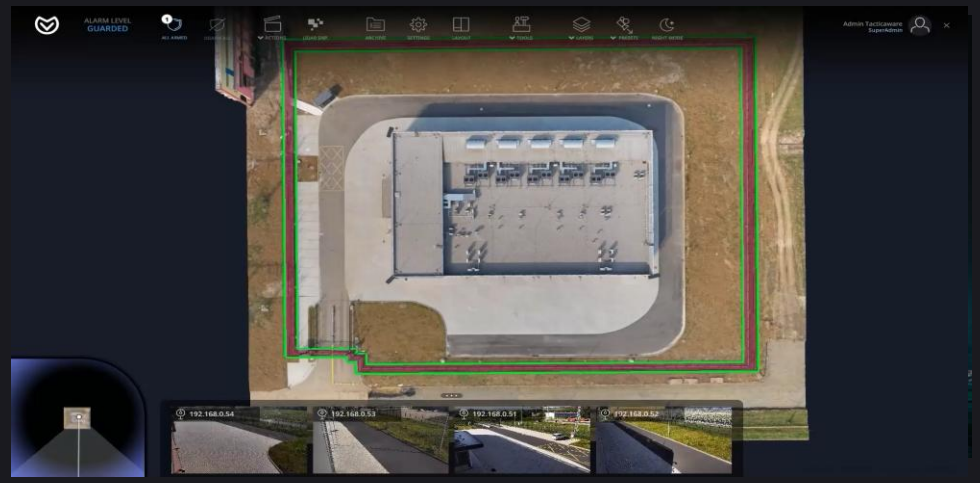


The perimeter is part of the asset record.

Facilities are under a level of public attention they weren't under five years ago — water, power, land, who benefits.

A perimeter event is an asset event.

Someone crosses a fence. A contractor ends up in a hall they weren't cleared for. A cable tray gets disturbed. That incident is identified in the security system —the assets involved live in a completely different one.



DETECT Octave Coda

Detection zones around the site; correlated camera feeds; alarm state at a glance.

→

TRACK Automatically

The crossing is tracked across cameras — trajectory, not a single frame.

→

RESPOND One workflow

Response tasks assigned, coordinated and logged as the incident runs.

→

RECORD In Attune EAM

An inspection work order raised against the assets along that path.

THREE ACTIONS

1

Put operations at the design table.

Write asset information requirements into the next project's contracts — ISO 19650 gives you the words.

2

Make digital handover a deliverable.

A structured, schema-based data handover with acceptance criteria — not a folder of PDFs.

3

Commission into the maintenance system.

Test results and baselines land against asset records; PM schedules go live at status change.

This industry told itself in March it isn't focusing enough on operations.

The fix starts before ground is broken.