COPPERTREE
ANALYTICS

REALISE YOUR BUILDINGS POTENTIAL

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COPPERTREE ANALYTICS

For more than 30 years CopperTree's parent companies, Delta Controls[1] and ESC[2], have been at the forefront of creating SMART buildings.

Long before 'sustainable' was a buzz word the founders were involved in energy audits and consulting — it was a natural extension to create CopperTree in response to the growing demand for building energy management services.

Our heritage means we combine an implicit understanding of the technology which controls buildings with the practicalities of maintaining them — so you get a solution which delivers genuine energy savings. *Know your energy issues — Fix what is broken.*

CopperTree's *Kaizen 2.0* extracts the data from your Building Automation System (BAS), securely streams it to our Vault cloud servers, and then analyses it to provide you with a comprehensive picture of your building's energy use and system operations.

Kaizen gives you the tools you need to make the best decisions for increasing your building's energy efficiency whilst ensuring your building is operating at peak performance. The advanced metering facility covers all key traditional utilities such as water, gas and electricity, plus renewables such as solar and wind energy.

Put simply, *CopperTree analytics* is a diagnostic tool that provides energy management and fault detection. It gives you the power to optimize your building's performance.

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[1] Delta Controls is one of the largest independent building controls manufacturers.

[2] ESC is Western Canada's largest building systems integrator.

01 HOW DOES IT WORK?

A CopperCube is the on-site hardware component of Kaizen software.

This native BACnet device (pictured below) searches your Building Automation System (BAS) network to locate all BACnet trend logs. It archives those trends, in its internal database, and sends the data to the CopperTree servers where it's then passed into the vault.

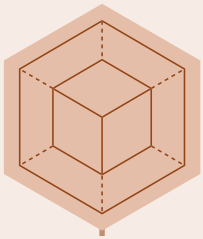
Once in the vault, the data is processed by CopperTree's cloud-based Kaizen software package (see Figure 1).

Kaizen is an enterprise level analytic service that provides advanced fault detection, energy analytics and more.

Both the CopperTree and Kaizen servers are scalable. This means we can easily add more servers, CPUs and RAM as demand increases.

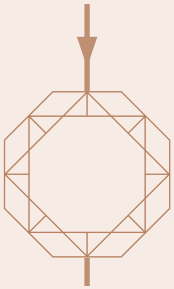
A typical air handling unit accidentally left to run 24hrs/day could cost an additional **$17,000** per year.

Figure 1 How it works



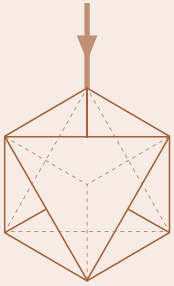
Coppercube

Building trend logs are collected by Coppercube.



Vault

Coppercube passes the information to the Vault where it's safely stored.



Kaizen

Kaizen engine receives data from the Vault, analyses it and emails insights to the building operator to action.

CopperTree's features

Native BACnet communications

Built-in web UI for feedback, operational status and configuration

Internal storage of trend log data

Configurable auto back-up to external storage device supports manual update at any time

Optional SQL connection

Firmware auto-update capability

02 LEVERAGE COPPERTREE'S SCALABLE ARCHITECTURE

CopperTree's architecture is designed to rapidly scale horizontally and vertically.

The system-wide scope of CopperTree's architecture differentiates it from other non-cloud-based analytics suites. CopperTree doesn't require a consultant or in-house resources — you don't need to buy, setup or maintain any extra servers for it to work.

Our system-wide architecture gathers and processes the data from our entire client base and is designed to easily expand horizontally or vertically as demand increases.

CopperTree maintains our cloud-based environment, freeing you from the responsibility of maintaining an independent structure.

Buildings represent one half of the electrical energy usage worldwide.

03 INSTALL AN UNLIMITED AMOUNT OF EQUIPMENT

Our scalable architecture allows you to monitor an unlimited amount of equipment.

CopperTree's scalable architecture makes it simple for you to keep adding to.

When new equipment is added to a site, all the relevant BACnet information for the new piece of equipment is relayed to Kaizen.

Kaizen continuously receives the updated BACnet information from each building. It allows users to see their analytic outcomes — including insights, widgets, charts and reports — organised by equipment.

The CopperTree Kaizen system includes a systems import tool, it reduces the data entry needed to add repetitive equipment systems — like VAVs — of which there can be hundreds in a building.

One key benefit of using the import tool is the amount of time needed to input system data. What normally would have taken days or weeks to manually enter can be done in only a few hours.

There are currently over 200 different logic rules available in the Kaizen community library and more are added every day.

04 THE VAULT PROVIDES FAST, SECURE DATA STORAGE

Your building's data is safe in the cloud.

The CopperTree Vault continually collects and securely stores live building data fed from the CopperCube installed in your building. This data is the passed on to the Kaizen Analytics Engine.

Data can be stored from trendlogs, controller databases or both; and is available on a continuous basis.

The Vault also carries out some categorisation of information, speeding up the analytics process.

Security

The Vault's remote storage ensures a higher level of security than an on-site system, giving you peace of mind in a disaster recovery situation. CopperTree protects your building data by storing it in multiple server sites so you can be confident your data is securely backed up. For further security, data transmission is encrypted.

Continuity

There is no limit to the amount of data you an store on Vault, allowing you to access live and historical figures to prepare a year-to-year comparison. Even more powerful is the ability for you to view long-term trends and progress in energy use efficiency.

Future Proof

It's difficult to know whether reports will be useful in the future as your reporting needs may change. Vault stores your historical data so that it's always available. It can be retrieved and used in accordance with your needs.

05 KAIZEN 2.0 LETS YOUR WALLS TALK TO YOU

The answers you need to better manage your portfolio are already right there in your buildings.

When it comes to decision-making, the masses of raw data generated by your building automation system aren't much help.

That's where Kaizen 2.0 comes in.

Kaizen is a powerful analytics engine that translates your building's output data into the *meaningful reports and alerts* that your team can immediately action.

With Kaizen 2.0, your building walls — equipment and systems — can continually and automatically talk to you. They can tell you what's working and what's not so you can spend less time finding and more time fixing.

That's the actionable information you need to ***improve your building's performance and your bottom line.***

Change is good. Continuous improvement is better.

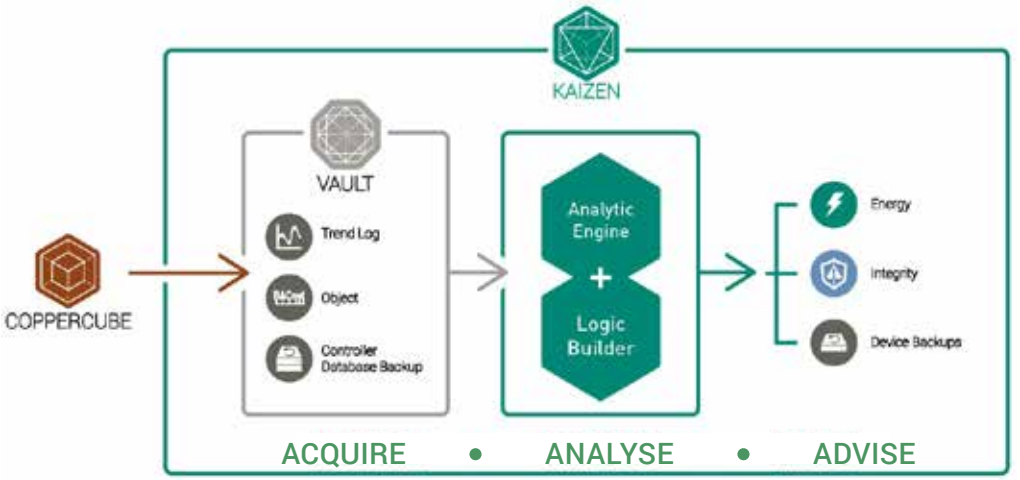
kai **zen**

In the Japanese theory of continuous improvement, kai means change and zen means good.

10 ways that Kaizen 2.0 can help you

1. Reveal battling systems that are consuming energy in excess of what's required.
2. Forecast and monitor energy loads and set up strategies to minimize demand charges
3. Pull additional business-critical variables into Kaizen for analysis — anything you need to measure or monitor, from weather forecasts to enterprise data, and more
4. Query large amounts of raw and historical trendlog data — previously a prohibitively time-consuming task
5. Identify specific equipment and systems that need servicing, repair or replacement
6. Model the effects and ROI of potential commissioning, renovations, repairs and retrofits
7. Move away from scheduled, rotational maintenance to predictive maintenance
8. Get notified immediately when there's a problem and have alerts sent to key team members so they can take action
9. Set up reports to monitor the performance of your employees and contractors
10. Verify the depth and integrity of your commissioning and preserve it.

Figure 2 CopperTree overview



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