TycheTools for Hyperscalers

TycheTools is the first AI-driven, SaaS predictive analytics platform for data centre (DC) operators. Our award-winning solutions work out-of-the-box to increase operational productivity and efficiency through edge connectivity, real-time visibility, operational analytics and AI driven predictive and prescriptive alerts. We make possible data driven data centres.

With TycheTools, hyperscalers, can solve critical pain points that current market solutions fail to address adequately, specially at their edge locations.

Pain Point 1

You can't optimize what you can't measure. Most sensors on the market today are not fit for purpose for critical infrastructure environments:

• Outdated SNMP or Modbus protocols mean that data may be insecure.
• Limited sensor precision restricts line-of-sight regarding the data points needed to deliver on SLAs, anticipate problems and optimize operations.
• Limited scalability implies low network density, single points of failure and little ability to pinpoint the micro-variations in operating environments that generate costs and systemic risks.
• High prices and difficult installation processes limit ROI.

Tychetools sensors are proper eyes purpose-built for critical infrastructure monitoring:

• Unmatched **accuracy** with **no extra calibration**.
• **Ultra-easy network** provisioning and deployment of **thousands of sensors with a single Gateway**.
• A **sensor network designed for critical infrastructures**: secure, reliable even in the worst-case scenario and with no single point of failure.
• **Ultra-low power consumption** enabling uninterrupted operation for **more the 3 years** with a button battery.
• Much **better value** at a much **better price**.

Pain Point 2

Insights about the infrastructure and the thermal behaviour of the room are critical to understanding implications of IT management.

However, **hyperscalers usually lack the necessary information about the infrastructure** of their edge locations to optimise energy consumption.
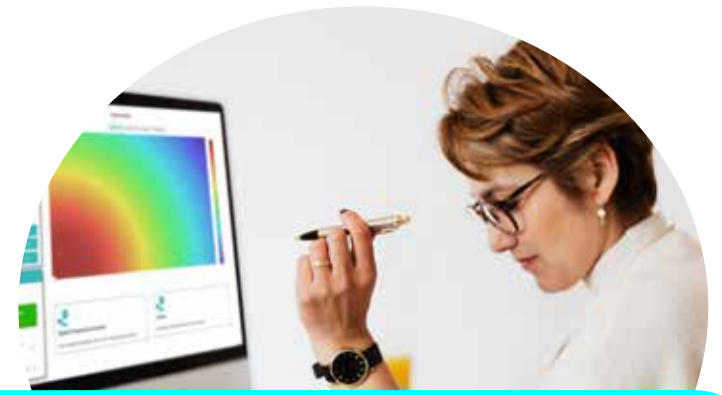
• With TycheTools, hyperscalers can **easily understand and predict** the thermal behaviour of the room and cooling system energy consumption through **non-intrusive sensors** attached to their own servers.
• **TycheTools uses AI** to accurately **estimate and predict** IT power consumption, average server load, cooling energy consumption, PUE, Performance Indicator, **and many other key metrics.**

Pain Point 3

Hyperscalers **need to protect their data** in edge locations against emerging threats.

• TycheTools delivers a **higher standard of security that avoids single points of failure**, an essential value proposition for critical data centre infrastructures.
• Our **wireless sensors** use **mesh networking** to ensure fault-tolerance.
• **Network security, application security, and device security** are addressed independently. Different applications use different cryptographic keys to minimize information access rights.

Pain Point 4

Hyperscalers **need to be efficient** in order to increase computing density as much as possible with the available power capacity. With the ever-increasing demands of cloud and edge computing services, IT operations teams must be data-driven to deliver on performance and sustainability KPIs.

TycheTools' AI-driven, data-rich models allow hyperscalers to:

• **Optimise server selection** for their workload by assessing **performance and consumption** of both IT energy and cooling energy.
• **Globally manage low-power modes of physical servers** (DVFS and/or standby and/or power-off) by predicting the implications of such changes in service quality and total energy consumption.
• **Consolidate virtualised services into physical servers** in an optimal way to minimize IT hardware needs and total cooling requirements while ensuring SLA compliance.

How we do it

SECURE SMART SENSOR NETWORK – enables monitoring, collection and local analysis of an unprecedented variety of data about DC activity (cooling, power, servers).

PRESCRIPTIVE AND PREDICTIVE ALERTS – enhance operational optimization and reduce risks with AI-driven alerts based on customized behaviour modelling for each DC rack and room.

INTUITIVE DASHBOARD – provides operators with real-time insights into the most critical drivers of operational efficiency (anomalies, key decisions, etc.).