



TycheTools for Enterprise Data Centres

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 real-time visibility, operational analytics and AI driven predictive and prescriptive alerts. We make possible data driven data centres.

With TycheTools, enterprise data centre operators can solve critical pain points that current market solutions fail to address adequately.

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- Outdated SNMP or Modbus protocols mean that data may be insecure.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

Energy optimisation of data centres **requires a deep understanding** of IT power consumption, the thermal behaviour of rooms and the energy consumption of cooling systems.

- TycheTools lets infrastructure operations **staff understand and predict** the power consumption of IT equipment through externally placed **non-intrusive sensors**, which allows for IT-aware infrastructure optimisations.
- At the same time, the **TycheTools platform provides insights** to better manage IT resources taking into account the **thermal behaviour** of the room and the **characteristics of the cooling systems** (infrastructure-aware IT optimisations).
- Using AI techniques, **TycheTools can accurately estimate and predict** IT power consumption, average server load, cooling energy consumption, PUE, Performance Indicator, and many other key metrics.
- TycheTools also **highlights anomalies with no user configuration**, allowing abnormal workloads, misconfigurations, attacks or hardware failures to be quickly discovered before they have an impact on service delivery.

Pain Point 3

Enterprise data centres are critical for business continuity and data must be protected 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

There are **many infrastructure decisions** that can in principle reduce energy consumption; however, they usually **require predicting IT power consumption** in time so that a critical temperature is never reached.

- TycheTools **develops predictive models of server workload and power consumption** to enable dynamic adjustment of cooling setpoints, minimizing total energy consumption during low-load periods.
- **TycheTools facilitates grouping** of IT equipment to achieve **more homogeneous temperatures** in every room, thereby avoiding overcooling.
- TycheTools can also make **recommendations for infrastructure improvements** based on resource utilisation under actual workloads.

Pain Point 5

IT optimisations, such as workload consolidation **can cause hot spots** that require increased cooling energy consumption.

- **TycheTools** can **help to optimise** server selection based on workload by assessing performance and consumption of both IT energy and cooling energy.
- TycheTools **enables global management of low-power modes** (DVFS and/or standby and/or power-off) by predicting the implications of such changes in service quality and total energy consumption.
- TycheTools **supports optimal consolidation of virtualised services** into physical servers to minimize IT hardware needs and total cooling requirements while ensuring SLA compliance.

Pain Point 6

While business results are often intimately linked to data centre performance, **KPIs can be hard to identify**.

- TycheTools can **clarify key differences in customer and service profiles**, taking into account resource demand, behaviour over time and revenue generation.
- TycheTools **helps to understand the profitability** of different customer and service profiles in order to develop better commercial strategies.
- TycheTools can drive **optimization of partnership or federation decisions**.

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.).

