



## Company profile

Cloud&Heat Technologies

### **From green start-up to international all-rounder**

**Secure, green, and smart: since 2011, Cloud&Heat Technologies has been revolutionizing the global cloud and data center market with its integrated and sustainable technology. Born out of the idea to use waste heat from servers for heating, the Dresden-based company has developed into an end-to-end partner for energy-efficient, secure, and scalable public, private, and hybrid cloud solutions – and has positioned itself as a real alternative to the major US providers that currently dominate the cloud market. Today, Cloud&Heat employs over 100 people, operates data centers at over 24 locations worldwide, maintains international partnerships in Europe and Asia, and has also won an array of awards, including the German Data Center Prize (on no less than three occasions) and the 2019 Tech Tour Innovation Award.**

Deep learning image recognition software capable of detecting cancer and other diseases at an early stage, going head-to-head in breathtaking game worlds with VR equipment from the comfort of your couch, and AI systems capable of discovering financial fraud: as digitalization changes up a gear, the need for smart, high-performance, and secure data processing is also growing rapidly – [by a factor of 10 in the next 3 years, according to experts](#). While this means boom times for data center markets, ecologically it's a powerful and unacceptable stress factor for the environment. The ramping-up of data center capacity to drive digital advances in research, consumer devices, and business, is matched by a sharp rise in the consumption of resources and energy to develop and operate these IT infrastructures. [Forecasts therefore predict the global rate of electricity consumption for information and communication technology \(ICT\) will rise by 21 percent by 2030](#). This is the paradox that Dresden-based Cloud&Heat Technologies was formed to resolve. The company's vision is to use a sustainable, integrated approach to drive technological innovation, and so design the digitalization of society and the economy to be environmentally compatible.

### **Green IT: integrated solutions meet rising demand for computing power**

Initially formed in 2011 as AoTerra, Cloud&Heat helps companies to achieve sustainable technological progress by designing, building, and operating tailor-made IT solutions. As an end-to-end partner, the company not only offers conventional data center products but also specializes in supplying custom IT infrastructures like Micro Data Centers (MDCs) or Data Center Containers (DCCs). Since it operates its own data centers, Cloud&Heat also provides GPU, CPU, and storage products using an Infrastructure-as-a-Service model that offers flexible scalability. Cloud&Heat can also support DC operators and project developers looking to implement green building initiatives and integrated prosumer solutions with its products for distributed edge computing architectures, IoT, and other forms of digitalization. An innovative warm water direct liquid cooling system enables the re-use of waste heat from data centers to heat buildings or connect to district and local heating networks. As a result, temperatures can be held constant at 60 °C without the need for heat pumps. This approach not only cuts the cost of heating and cooling but also dramatically reduces the carbon footprint for data centers.

### **Cloud&Heat data centers heat Frankfurt high-rise and smash energy efficiency records**

Since early 2018, Cloud&Heat has been showing how sustainability can go hand-in-hand with a digital future with its data center located in the 111-meter high Eurotheum in downtown Frankfurt. On two floors, totaling 640 square meters of space, this data center is used by companies working in AI, big data, and machine learning to meet their varying demands for custom IT infrastructure and stringent security standards. And the businesses leasing space here also benefit: every computation performed

#### Media enquiries:

Cloud&Heat Technologies, Konstantin Kleinichen, +49 (0)351 479 367 28, [konstantin.kleinichen@cloudandheat.com](mailto:konstantin.kleinichen@cloudandheat.com)  
BEIL<sup>2</sup> – Die PR-Strategen, Sascha Lindemann, +49 (0)40 882 153 227, [sascha.lindemann@beilquadrat.de](mailto:sascha.lindemann@beilquadrat.de)



by the DC supplies the Eurotheum with heating and hot water, thanks to the sophisticated water cooling technology from Cloud&Heat. As a result, the offices and the hotel based in the building achieve annual cost savings of up to EUR 65,000 for central heating. Since the liquid-cooled servers also save up to EUR 95,000 every year compared to conventional air-cooled systems, the data center also achieves CO<sub>2</sub> reductions of up to 557 metric tons every year – the equivalent of 80 soccer pitches of forest. A second data center from Cloud&Heat has also been setting the global standards to follow in energy efficiency since 2015. With a power usage effectiveness (PUE) of 1.014, Cloud&Heat comes in at over 40 percent lower than other DC operators like Google, for example. In relation to both Smart City and Green City models, as well as in terms of current requirements for secure and scalable IT, both examples show how technological advances and sustainability can achieve synergies together in a very wide range of sectors. This is especially relevant in the telecommunications sector as well as industries that depend on high-performance computing (HPC).

### **Maximum security and transparency for the cloud**

Cloud&Heat has complemented its innovative hardware solutions with the (ongoing) development of software-based cloud services. The aim here is to make the cloud secure for all of its users by establishing an alternative to a market dominated by US providers and thereby bringing 'digital sovereignty' back onto European soil. Based on OpenStack, the open source standard for cloud platforms, the company focuses strongly on topics such as compliance and data security in the cloud. In 2019, the company partnered with secunet Security Networks AG to form secustack GmbH. By offering end-to-end encryption, comprehensive key management, and strict segregation in multi-tenancy, this new company can provide fully auditable, secure cloud solutions to businesses and institutions with especially high security requirements, such as government agencies, hospitals, and banks. In the AUDITOR project, Cloud&Heat is also working with ten partners from research and business to establish an EU-wide certification scheme for cloud services to the EU GDPR standard.

### **Energy supplier – and ideal partner**

Cloud&Heat sees data center capacity as a source of energy that can be transported more easily and more quickly across long distances than electricity or district heating. This means utilities are a natural partner for scaling: they have the necessary infrastructure plus expertise in energy, heat, and power. Unsurprisingly, both national and international players have already shown strong interest in a long-term partnership with Cloud&Heat. In a Demand-Side Management (DSM) model, data centers can be used in the future to compensate for the volatility introduced into power generation by renewable energy sources, so as to add flexibility to the energy supply and demand, as well as reducing costs. In line with this approach, Cloud&Heat is now devoting considerable effort to developing a smart software solution for the efficient local allocation of applications in a distributed data center network according to load and availability.

### **A worldwide presence: global growth and new markets**

Recognizing the fact that data centers currently represent one of the fastest-growing but also least-sustainable sectors, UK-based ETF Partners and Inven Capital from Czech Republic invested EUR 10 million in the company and ongoing R&D projects in September 2018. This level of investment was naturally only achieved by the international success of the Cloud&Heat systems in the fields of HPC and on-site installations. Prestigious names, such as German-based companies Commerz Real, Otto Group Digital Solutions, and Innogy, and Envirotech in Norway use Cloud&Heat's hardware and software solutions. In Asia and Europe, successful business partnerships have also been established with leading air conditioning engineers STULZ as well as Japan's IK Inabata (also a Cloud&Heat customer), for example. With the opening of an office in San Francisco and the formation of a US subsidiary in early 2019, Cloud&Heat is now aiming to move into the US market.

#### Media enquiries:

Cloud&Heat Technologies, Konstantin Kleinichen, +49 (0)351 479 367 28, [konstantin.kleinichen@cloudandheat.com](mailto:konstantin.kleinichen@cloudandheat.com)  
BEIL<sup>2</sup> – Die PR-Strategen, Sascha Lindemann, +49 (0)40 882 153 227, [sascha.lindemann@beilquadrat.de](mailto:sascha.lindemann@beilquadrat.de)



### **#futureofcompute: creating a digital future that's secure and green**

Cloud&Heat's portfolio of solutions not only creates the environment needed for the IT applications of the future while maximizing protection for cloud-based data but is also making an exemplary contribution to climate protection. Progress here will also be boosted by a new piece of software that calculates and assigns a standardized CO<sub>2</sub> score to processor jobs. It's now the turn of businesses, the government, and society at large to make greater efforts to ensure that the digital future really is green and secure, and not just a vision 'Made in Dresden'.

### **Company facts and figures**

- **Four-strong management team:** Nicolas Röhrs (CEO), Dr. Marius Feldmann (COO), Dr. Jens Struckmeier (CTO), and Kristina Rübenkamp (CFO)
- **106** employees worldwide (as of June 2019)
- **EUR 15.48 million** revenue in 2018 – representing year-on-year growth of 400%
- **Over 1,000** Cloud&Heat servers deployed globally (as of June 2019)

#### Media enquiries:

Cloud&Heat Technologies, Konstantin Kleinichen, +49 (0)351 479 367 28, [konstantin.kleinichen@cloudandheat.com](mailto:konstantin.kleinichen@cloudandheat.com)  
BEIL<sup>2</sup> – Die PR-Strategen, Sascha Lindemann, +49 (0)40 882 153 227, [sascha.lindemann@beilquadrat.de](mailto:sascha.lindemann@beilquadrat.de)



## Cloud&Heat Technologies – a timeline

- 2011 | Following the conclusion of a multi-year research project, the company is formed by Prof. Christof Fetzter and Dr. Jens Struckmeier as AoTerra GmbH.  
Business proposition: using warm water direct liquid cooling to exploit waste server heat. Cost-effective cloud management and automation software for installation and monitoring routines to enable almost fully-automated cloud operations is also developed simultaneously.
- 2013 | Crowdfunding success: 883 investors invest EUR 1 million in the young start-up via the Seedmatch platform.
- 2014 | Company renamed to Cloud&Heat Technologies GmbH.
- 2015 | Appointment of new management team: Nicolas Röhrs (CEO), Dr. Marius Feldmann (COO), Dr. Jens Struckmeier (CTO).  
Cloud&Heat introduces new 'Datacenter in a Box' (DiaB) generation of servers, offering secure and sustainable DCs for corporate private and public cloud customers. Thanks to ultra-efficient direct liquid cooling, waste server heat can be used for building heating.  
Company awarded German Data Center Prize for its innovative energy- and cost-effective business model.
- 2016 | Cloud&Heat develops the world's first water-cooled mobile data center in a shipping container for the Norwegian company Envirotech.  
Company wins the German Data Center Prize for the second year running.
- 2017 | Development and marketing of a short run of mobile container data centers for HPC applications.
- 2018 | Trade agreement signed with Inabata & Co. Ltd., Japan: this partnership opens up the Asian market for Cloud&Heat, with the Japanese Group ordering a fully-specified container featuring GPU-based computing.  
Commissioning of a new data center in Frankfurt's Eurotheum high-rise, with two floors of servers provided for public cloud services. Server waste heat is used to heat offices and a hotel in this 111-meter skyscraper.  
Successful series B round: UK-based ETF Partners and Inven Capital, Sicav, a.s. from Czech Republic invest EU 10 million to drive Cloud&Heat's ongoing growth.
- 2019 | No fewer than 24 sites in Germany, including several apartment buildings and terraced properties (totaling just under 300 residential units) plus a nursery school.  
Signing of a global agreement with STULZ GmbH, the world's leading specialist for high-precision HVAC systems.  
Internationalization efforts continue with the formation of San Francisco-based US subsidiary Cloud&Heat Technologies US Inc.  
Cloud&Heat wins the German Data Center Prize for a third time in the 'Resource-Efficient Data Centers' category for a software solution that enables the use of energy optimization strategies within federated DCs (networks of data centers).  
Cloud&Heat forms secustack GmbH with leading IT security specialists secunet Security Networks AG. The new company offers wide-ranging solutions for the secure execution of cloud-based applications.

### Media enquiries:

Cloud&Heat Technologies, Konstantin Kleinichen, +49 (0)351 479 367 28, [konstantin.kleinichen@cloudandheat.com](mailto:konstantin.kleinichen@cloudandheat.com)  
BEIL<sup>2</sup> – Die PR-Strategen, Sascha Lindemann, +49 (0)40 882 153 227, [sascha.lindemann@beilquadrat.de](mailto:sascha.lindemann@beilquadrat.de)