PeakTamer

PATENTED PASSIVE TECHNOLOGY

Eliminate Thermal Peaks in AI Infrastructure

Passive adaptive thermal stabilization for highly dynamic AI cooling environments

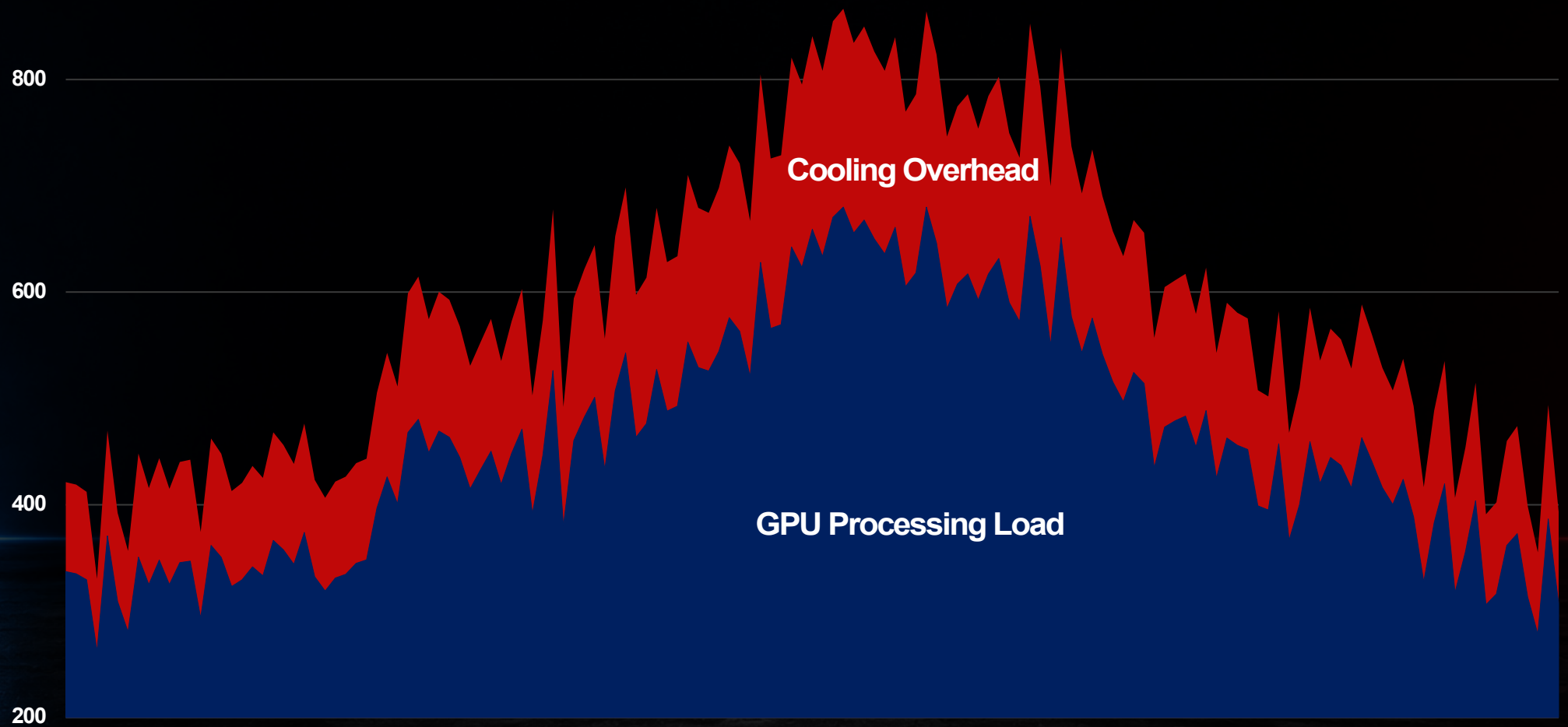
Every Watt of power your AI servers consume becomes heat that

needs to be removed immediately.

Peter Judge, Data Center Dynamics × Vertiv (global leader in data center cooling infrastructure)

PROBLEM: POWER CONSTRAINTS BLOCKING EXPANSION

Data centers are increasingly limited by power availability, peak-demand constraints, and infrastructure scalability.



PROBLEM: THERMAL INSTABILITY, COOLING WEAR, AND OPEX INEFFICIENCIES

1. Thermal Instability Compromises Performance

AI systems are becoming increasingly sensitive to thermal fluctuations as processing density and performance requirements continue to rise. Effective heat removal under dynamic load conditions is critical to maintain computational stability, efficiency, and maximum performance.

2. Accelerated Cooling Infrastructure Degradation

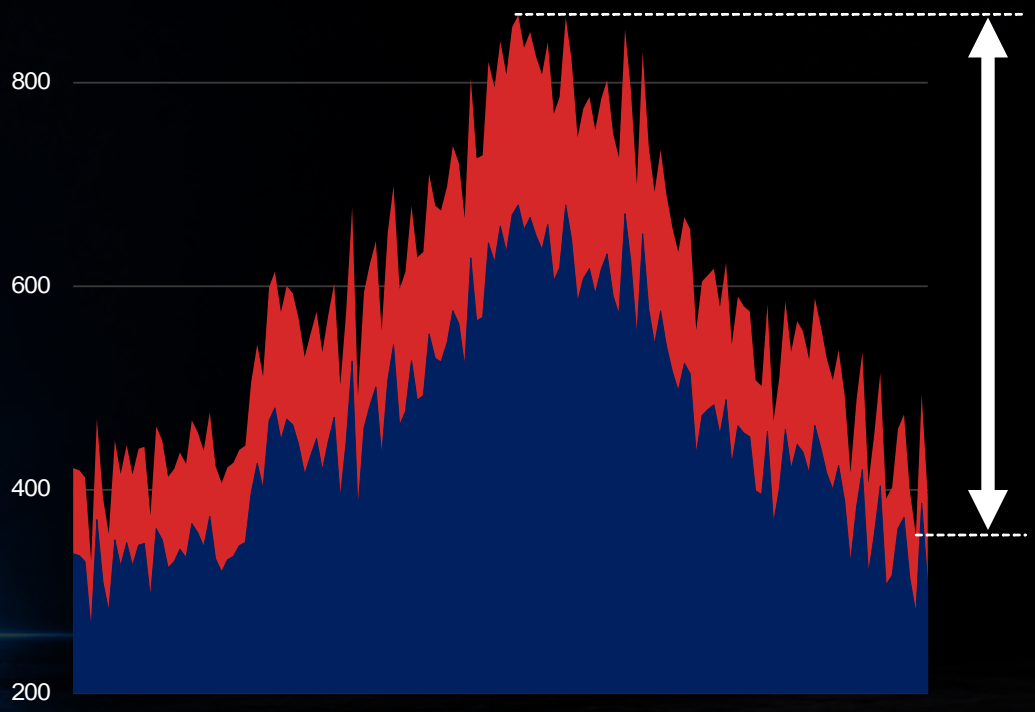
Highly dynamic AI thermal loads force cooling systems into continuous operating variation, reducing infrastructure reliability and lifespan. Stabilizing thermal demand enables more predictable operation and significantly improves cooling infrastructure lifecycle.

3. System Inflexibility Drives Higher OPEX

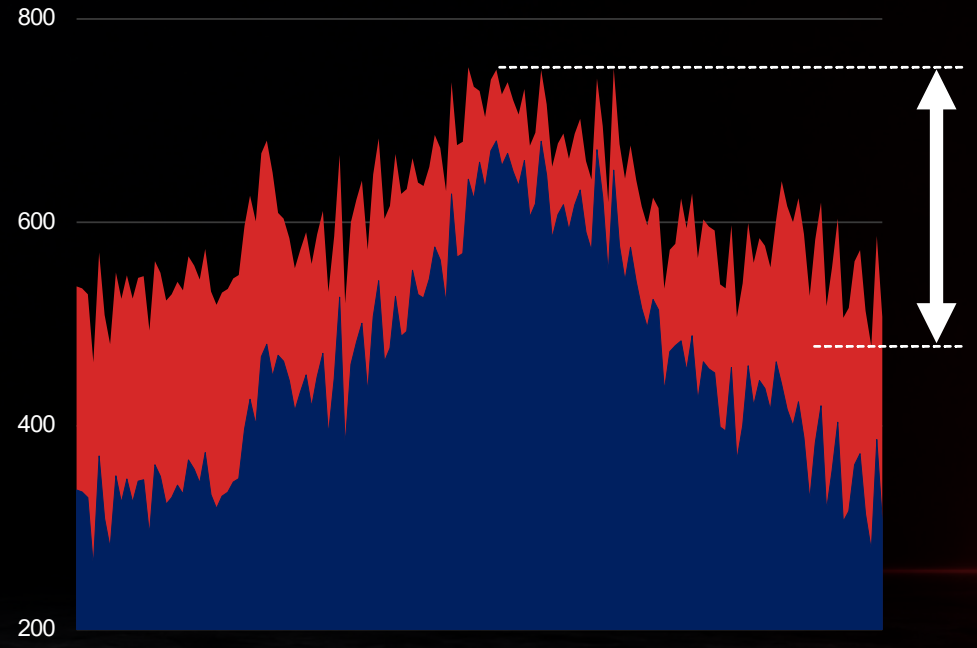
Cooling systems directly following AI processing peaks suffer from energy price differentials and power over-demand penalties. Decoupling thermal demand from instantaneous loads enables lower operating costs and greater energy flexibility.

SOLUTION: REACTIVE VS ORCHESTRATED THERMAL INFRASTRUCTURE

Reactive Thermal Infrastructure
Wide and unpredictable operating range



Orchestrated Thermal Infrastructure
Controlled and stabilized operating envelope

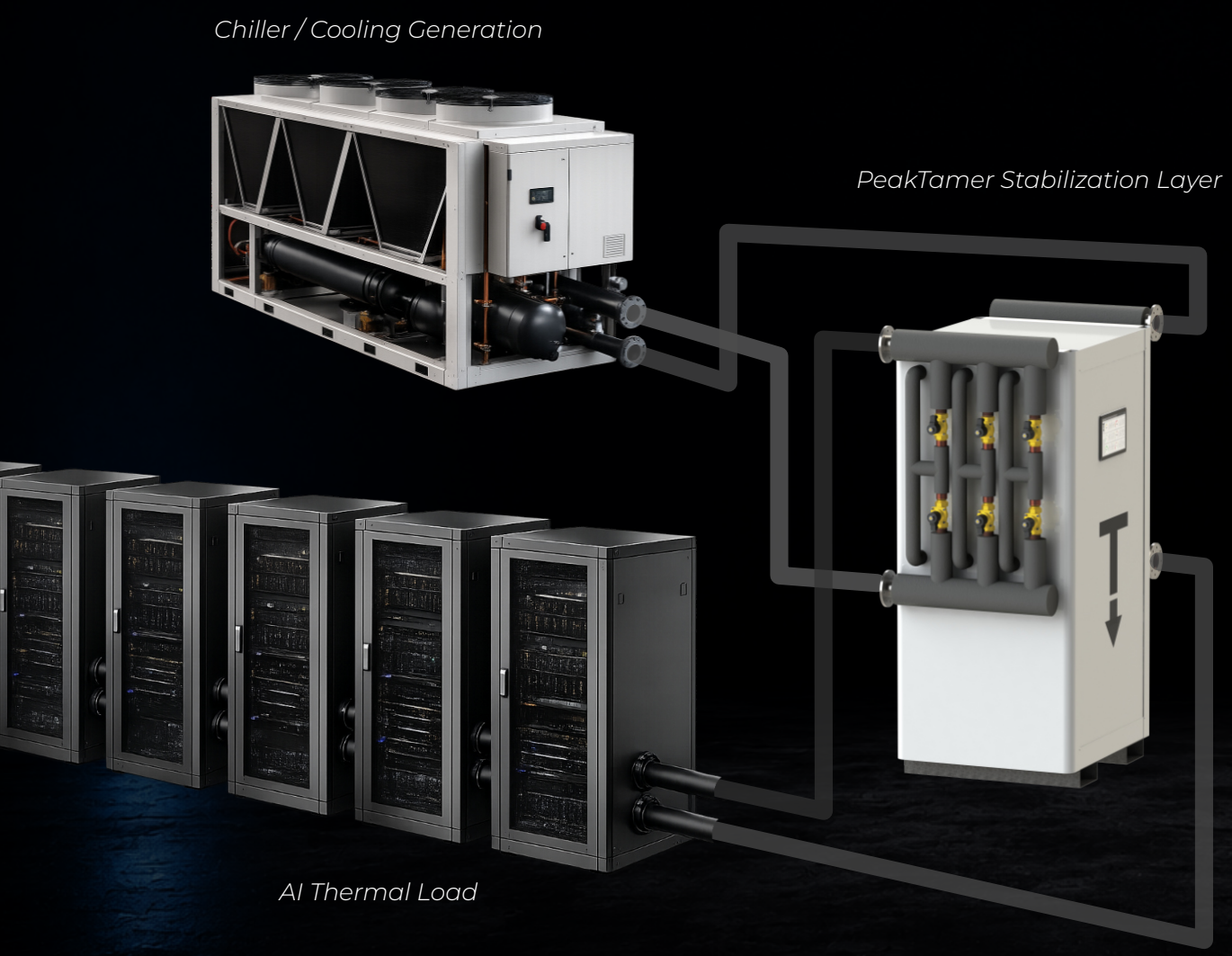


THERMAL RANGE COMPRESSION
Narrower cooling operating envelope

LOAD DECOUPLING
Cooling shifted away from AI peaks

INFRASTRUCTURE STABILIZATION
Predictable and stable operation

SYSTEM ARCHITECTURE: THE PASSIVE STABILIZATION LAYER



1. STRATEGIC THERMAL LAYER
Passive intermediate layer positioned between active cooling generation and dynamic AI thermal demand infrastructure.

2. DECOUPLED COOLING OPERATION
Cooling generation no longer needs to synchronously follow instantaneous AI compute peaks.

3. ORCHESTRATED THERMAL STORAGE
Seamlessly integrates with chillers and centralized thermal storage infrastructure to support flexible charging and discharging strategies.

4. DYNAMIC PEAK ABSORPTION
Buffers transient thermal peaks and stabilizes thermal conditions before disturbances propagate across the cooling infrastructure.

PRODUCT PLATFORM OVERVIEW: MODULAR FROM 60KW TO 12MW

1. MODULAR EXCHANGER ARCHITECTURE

Scalable multi-element platform supporting flexible deployment from 60kW to 12MW infrastructures.

2. COMPACT INFRASTRUCTURE FOOTPRINT

High thermal density and compact mechanical integration for space-constrained environments.

3. FLEXIBLE SYSTEM INTEGRATION

Compatible with existing chillers, thermal storage systems and retrofit cooling infrastructures.

4. PASSIVE SELF-REGULATING OPERATION

Thermal transfer capacity dynamically self-adjusts without active mechanical modulation.

Scalable modular exchanger architecture

Integrated hydraulic stabilization platform

PATENTED PASSIVE TECHNOLOGY: SELF-ADJUSTING THERMAL RESPONSE

Simplified exchanger representation

1. PASSIVE SELF-EXPANDING THERMAL RESPONSE

The active thermal exchange region naturally expands under elevated thermal demand conditions.

2. DYNAMIC THERMAL CAPACITY

Thermal transfer capability passively self-adjusts according to instantaneous operating conditions.

3. NO ACTIVE MODULATION REQUIRED

Self-regulating thermal response without valves, compressors or control algorithms.

4. FIELD-PROVEN THERMAL ARCHITECTURE

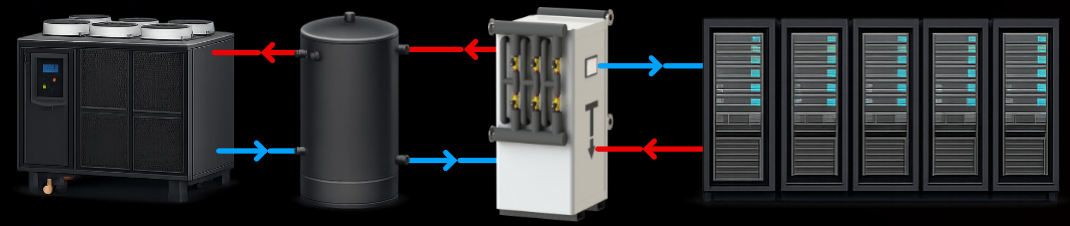
Core thermal exchange platform derived from real-world systems deployed since 2015 across multiple operating environments.

COMPARATIVE SCENARIO: 1 MW AI PROCESSING INFRASTRUCTURE

Same AI processing demand. Different cooling infrastructure strategy.

1. REACTIVE COOLING INFRASTRUCTURE

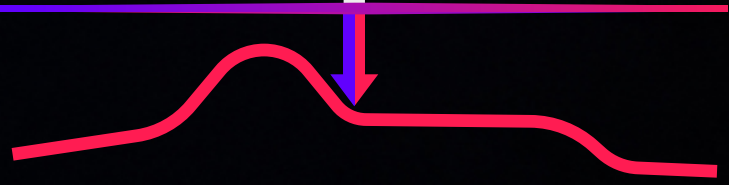
2. PEAKTAMER-ORCHESTRATED COOLING INFRASTRUCTURE



	1. Reactive Cooling	2. PeakTamer-Orchestrated Cooling
Total Processing + Cooling Power Range	from 396 to 1250 kW_e	from 530 to 1000 kW_e
Thermal Peak Shifting Window	None	Up to 6 hours
Supplied Water Temperature Amplitude	Up to 15 °C	Up to 5 °C
Load Shift OPEX Potential *	None	675 k€
Power Demand OPEX Potential	None	300 k€
Total Cooling Infrastructure Investment	1800 k€	1750 k€

** Illustrative 15-year infrastructure lifecycle scenario assuming a 50 €/MWh peak-to-off-peak energy price differential and elimination of monthly power over-demand.*

PeakTamer



PASSIVE ADAPTIVE THERMAL INFRASTRUCTURE

Enabling narrower operating envelopes, stabilized thermal conditions and flexible cooling infrastructure operation.

EXPLORING PILOT DEPLYMENTS
AND INFRASTRUCTURE PARTNERSHIPS

INFO@PEAKTAMER.COM

+351 967 088 923