Cloud HPC REVOLUTION

A NEW HPC APPROACH

UNBEATABLE PRICE

UNLIMITED COMPUTING CAPACITY

WORLD'S LOWEST CARBON FOOTPRINT

QARNOT
COMPUTING

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RE-INVENT CLOUD HPC

A disruptive Cloud HPC service

Qarnot computing offers a full Cloud HPC service:

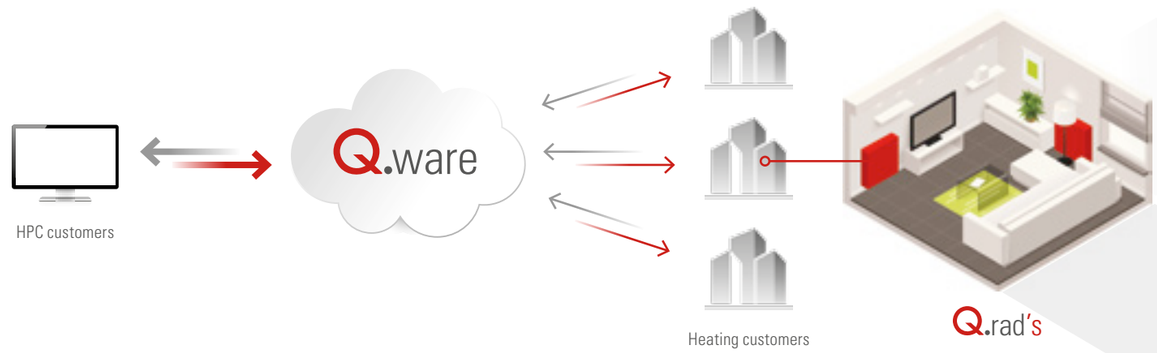
- Ready-to-use: SaaS, PaaS
- On demand: CPUs invoiced by the minute

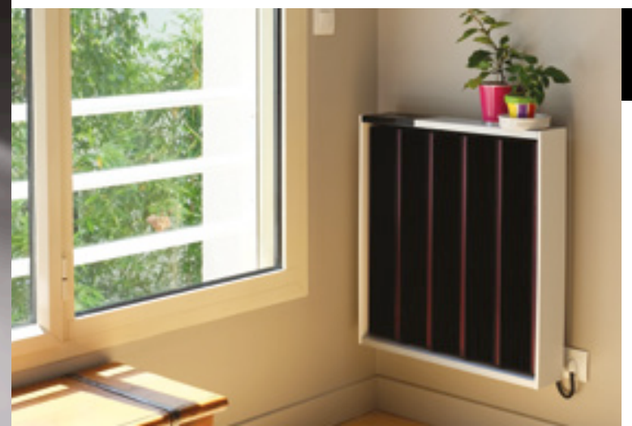
Based on 2 major innovations

- The **Q.ware** software distribution platform
- The **Q.rad** digital heater

THE Q.WARE DISTRIBUTION PLATFORM

Qarnot computing's Cloud service distributes HPC workloads securely and efficiently on the Q.rad digital heater farm, according to the host's needs for heat and HPC workload constraints.





THE Q.RAD DIGITAL HEATER

The Q.rad is a connected electric radiator embedding high performance processors as a heat source.

Completely silent, it gets its computing instructions through the Internet. The heat produced by workload processings provides free and efficient heating for all types of premises.

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THE Q.RAD DIGITAL HEATER

A smart and connected digital heater

The Q.rad digital heater merges :

- An electrical heater
- A multi-processor HPC server

Providing free heat

The electricity consumed by the Q.rad is fully reimbursed to the host

SMART & SILENT

The Q.rad is connected to the Internet and totally silent. The host has complete control over the temperature from an integrated digital thermostat or directly from any connected smartphone.

FREE HEATING

The electricity counter embedded in the Q.rad reports its consumption on a regular basis. The host is automatically reimbursed by Qarnot monthly or quarterly for the electricity consumed by each Q.rad.

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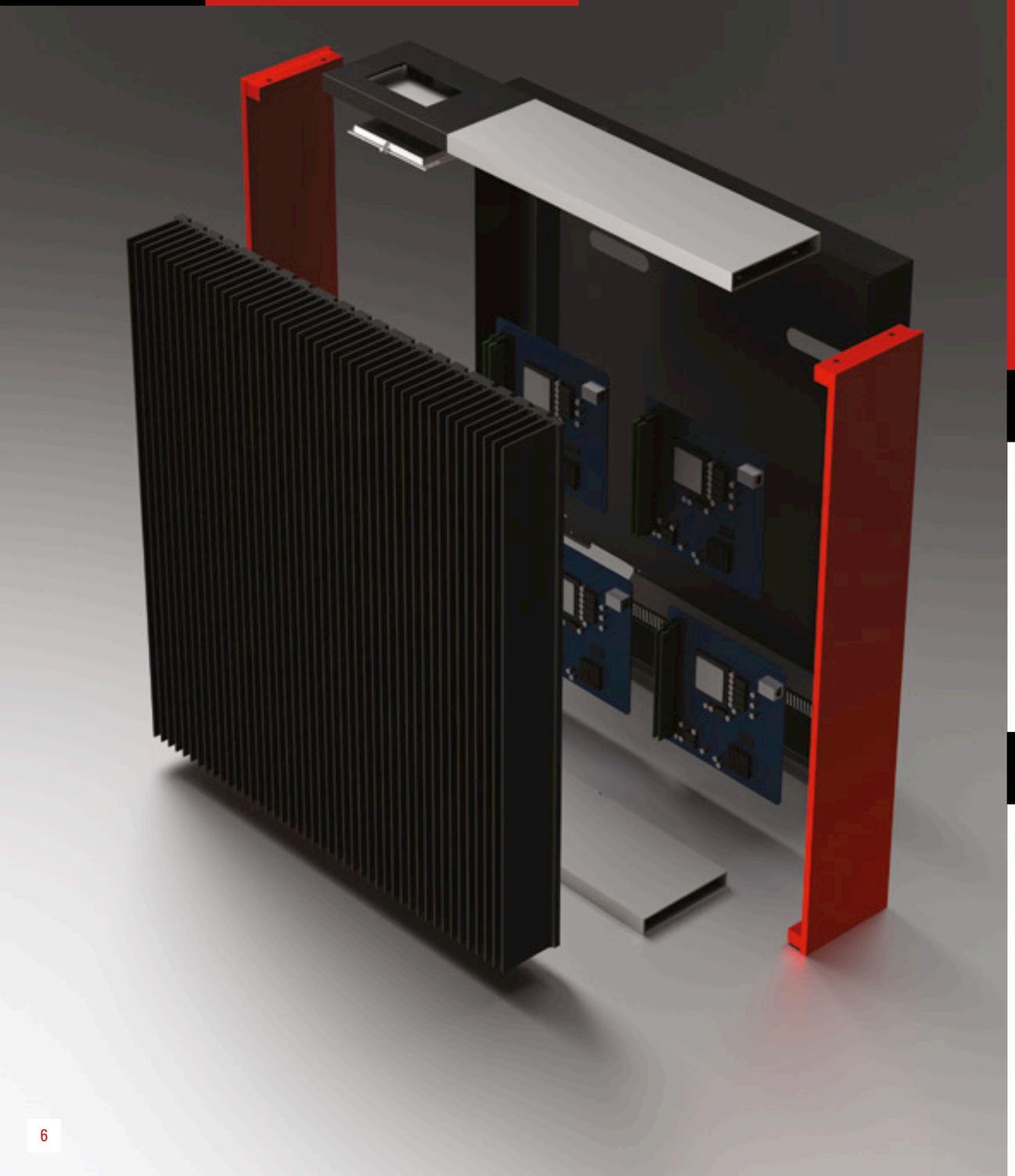
HIGH TECHNOLOGY INSIDE



High quality heat

- Soft heat
- Robust materials, no moving parts
- Modular and ergonomic design

Easy to install

- Standard ethernet for data
- Standard outlet for electricity
- Plug and heat

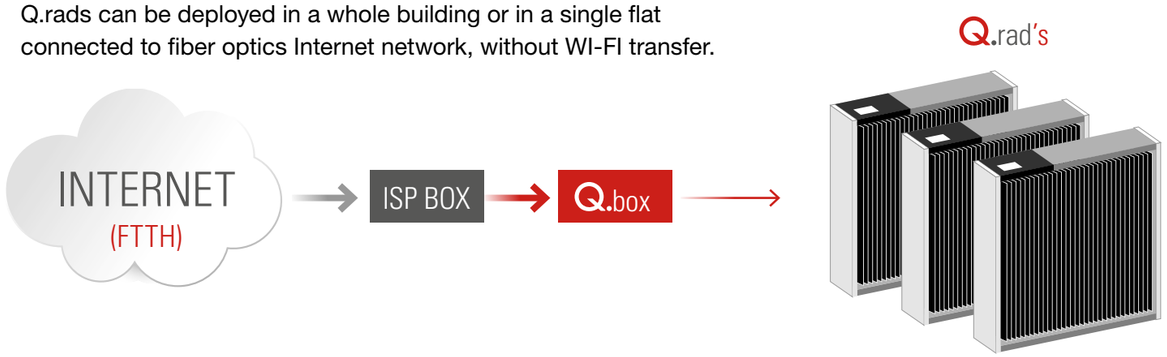
CHARACTERISTICS

Heating power	500 W
Weight	27 kg
Dimensions HxWxD	61x67x15 cm
Materials	Aluminum / Wood
Plugs	230 V / RJ45
Noise	0dB

Custom colours for sides and heat sink available on demand.

INSTALLATION

Q.rads can be deployed in a whole building or in a single flat connected to fiber optics Internet network, without WI-FI transfer.



A team of qualified technicians ensures the complete maintenance of the Q.rads.

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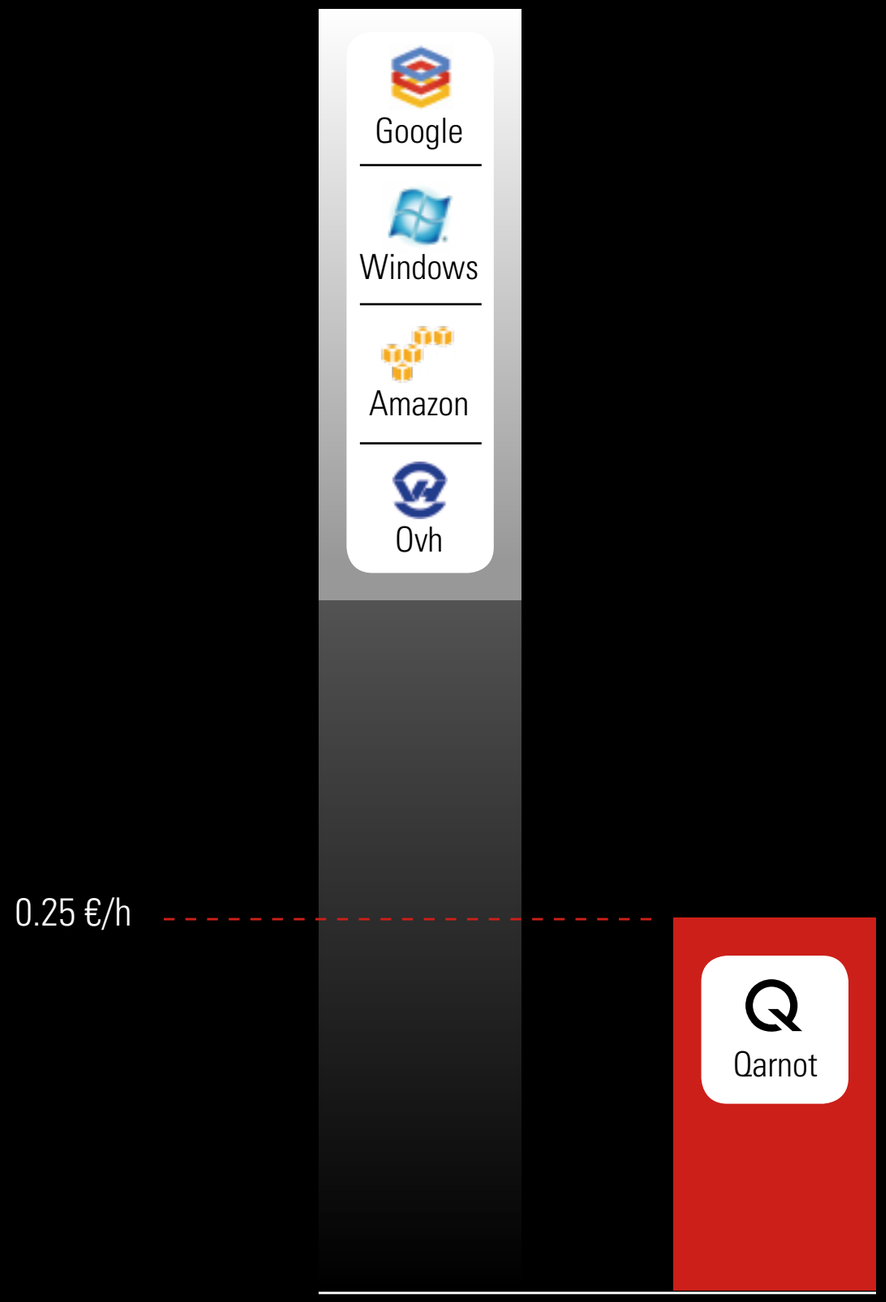
CLOUD HPC AT AN UNBEATABLE PRICE



A Cloud HPC service at a price far below:

- All data center based offers
- In-house and private cloud solutions

Only the exact amount of CPU consumed is billed:

- No charge for data transfer (in or out)
- No charge for storage/caching
- No charge for booting time

FULLY TRANSPARENT PRICING

PAY ONLY WHAT YOU USE

0.25 € / h / CPU

INVOICED PER MINUTE
OF EFFECTIVE COMPUTING
AT MAX FREQUENCY
0.0042 c/min

HIGH-END TECHNOLOGY

Intel Core i7 Quad Core processors @ 3.9 GHz
Model 4770K and above
4 Physical cores
16 GB RAM
64-bit / 8 MB cache

Our processors are renewed every 3 years maximum.

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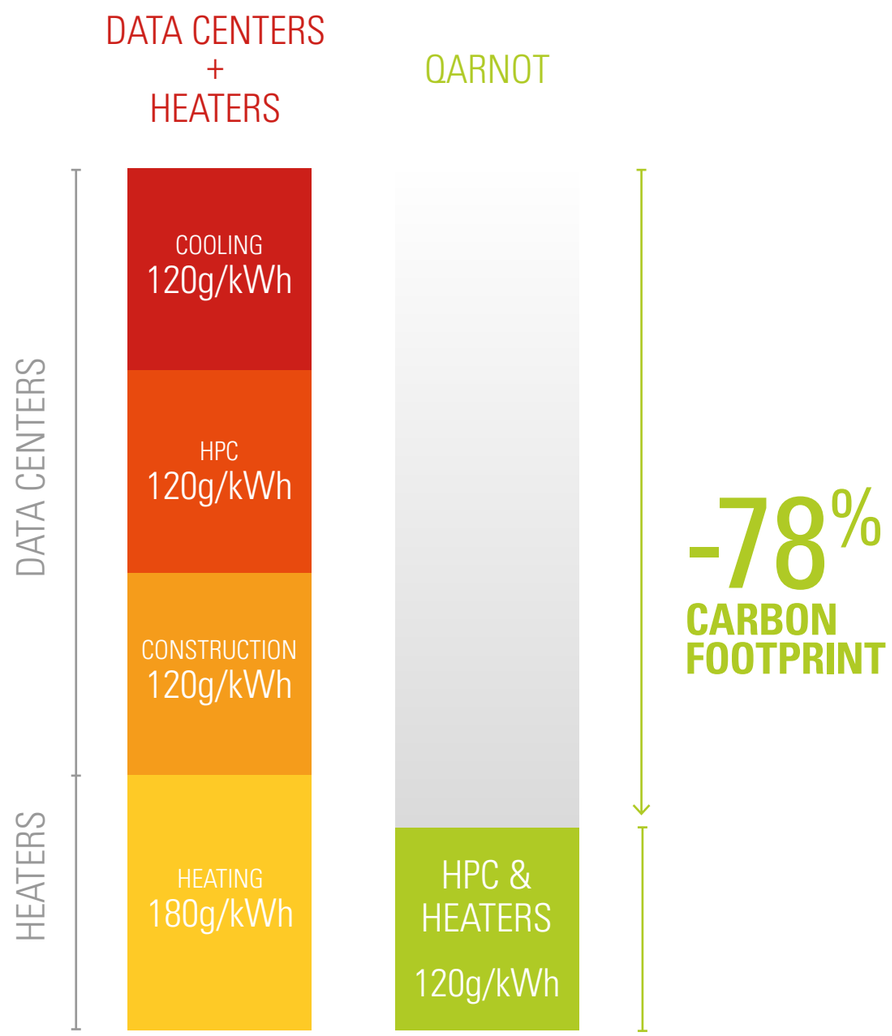
WORLD'S LOWEST CARBON FOOTPRINT



Source Ademe + CNRS

Competitive and sustainable Cloud HPC by design

- Avoiding data centers costs related to infrastructure, maintenance and cooling
- Spreading valuable heat directly in buildings, for free

AN ALTERNATIVE TO ENERGY-HUNGRY DATA CENTERS

Nowadays, data centers consume 2% of the world's electricity, of which 50% is for cooling purposes.
Data centers electricity consumption doubles every 5 years.

In the meantime, households continue to spend on average $2000 yearly on heating.

Qarnot's solution reduces HPC energy and carbon footprint by 78%

QARNOT facts

Job #1358 03/25/2014 13:54:12

Backtest_1423.py

Period	**2500d**
Precision	1.0E-6
Sampling	1.5E+6
Avg. time	2m 28s
Computation	**4d 6h 32m**
Job duration	45 min
Average #CPUs	134
Data in	1.6 GB
Data out	956 MB
CO_2 saved	**160 g**
Energy consumed	11 kWh
Energy saved	32 kWh
People heated	2.7 man days

A GREEN PROCESSING SOLUTION

The Q.rad dissipates the heat produced by data processing on our platform in all types of premises, for free.

Thanks to our « Qarnot facts » label delivered after each job, our HPC clients can instantaneously measure the positive impact of every workload and easily communicate the huge HPC carbon footprint reduction.

The next generation of Cloud computing

- High-end, reliable hardware
- Permanent availability
- Tailor-made Cloud
- High security benchmarks
- Scalable technology

PERFORMANCE & RELIABILITY

Our HPC farm relies on high-end hardware renewed every 3 years, which is better than the market benchmarks. The Q.rads' failure rate is significantly lower than that of any standard server since they do not have mobile parts. Moreover, the Q.ware system handles the workload redistribution in case of a Q.rad failure.

AVAILABILITY

Qarnot dedicates on average 50% of its capacity to low-priority academic computations, for free. This reserve can be instantly mobilized for our clients' needs.

SCALABILITY

Unlike data centers, the Q.rad technology is extensible by design. It can therefore be easily deployed in any type of building or housing structure.

FLEXIBILITY & COMPATIBILITY

Up to several thousands CPUs can be called for durations as small as one minute. The Q.rad bare metal platform boots customer environments according to our clients' needs.

SECURITY

Data and computation tasks are highly secure. Our fully encrypted, decentralized and no storage approach responds to the most demanding security requirements and eliminates the threat of targeted attacks existing for data centers.

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SEASONALITY

Qarnot maintains its full computing capacity for businesses all year long by:

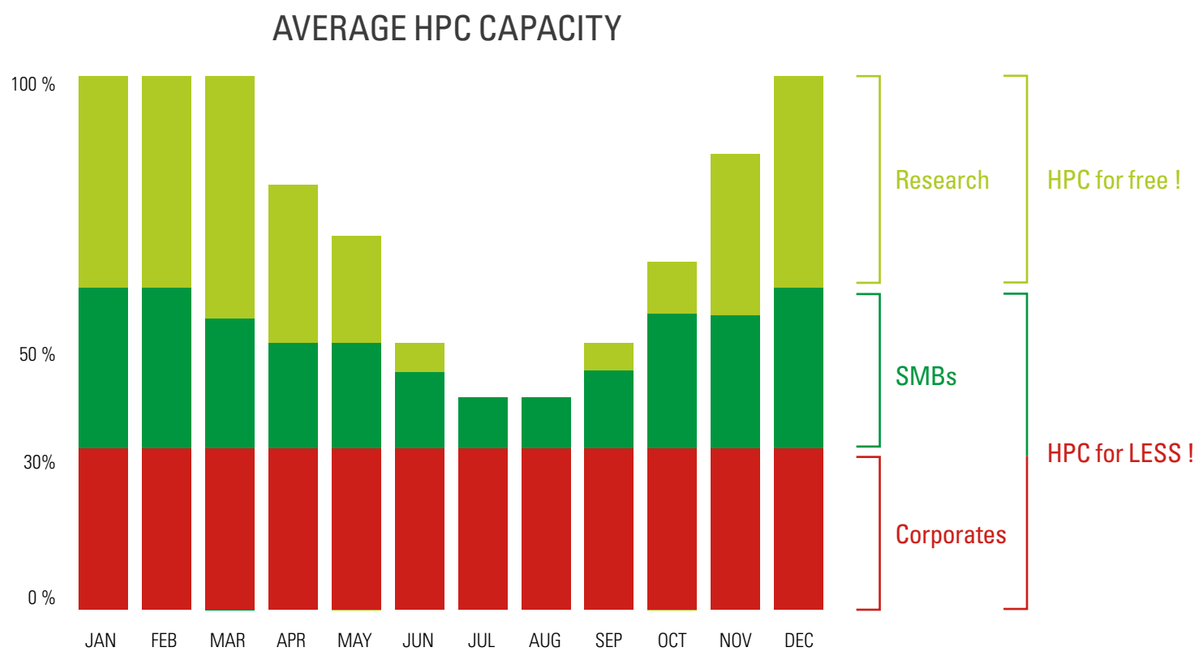
- Using a summer mode on the digital heaters
- Equipping strategic sites
- Computing for free for research institutes in winter

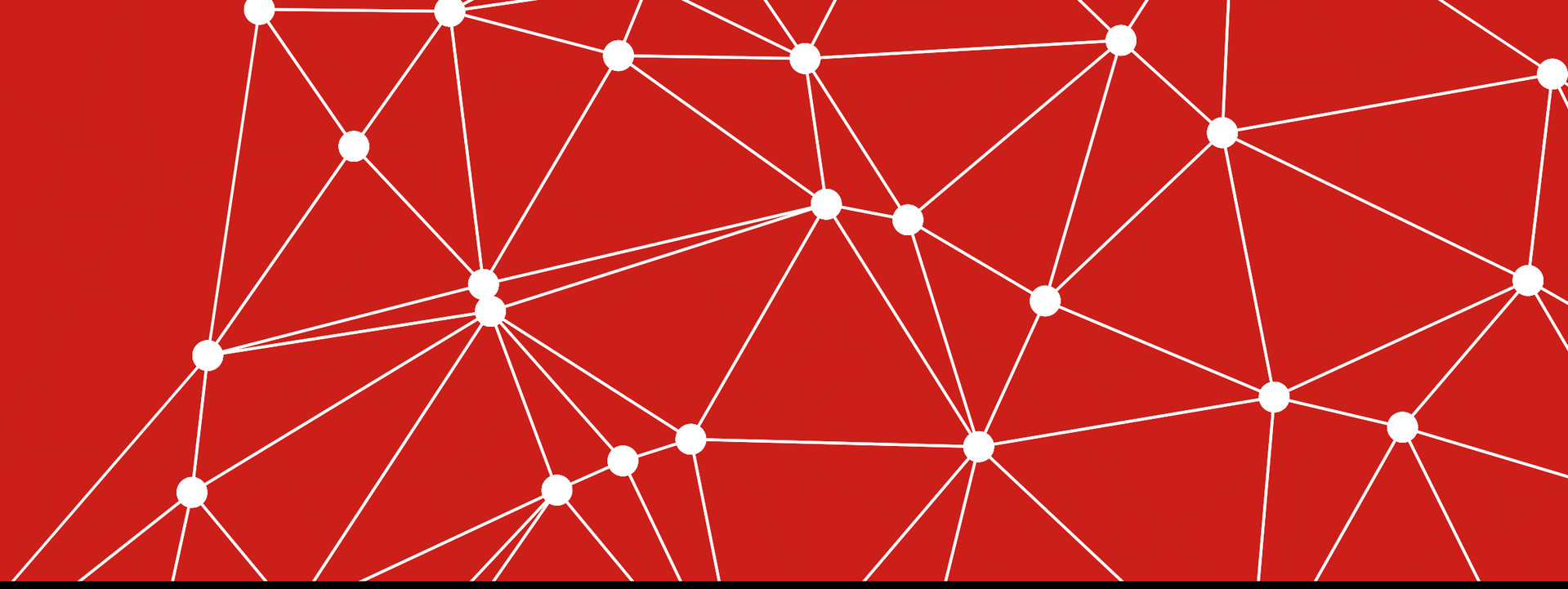
GUARANTEED CAPACITY IN SUMMER

Thanks to the «summer mode», the Q.rad generates unperceptible heat, allowing Qarnot to maintain important computing power during the hot months for its clients' needs. Qarnot deploys Q.rads in schools, universities, offices and high-altitude areas to maintain processing capacity during the summer.

FREE COMPUTING IN WINTER

Qarnot makes its platform available to research institutes and non-profit organizations launching intensive calculation campaigns. In case of a high demand for heating, this reserve can instantaneously be mobilized.





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