Red Hat Summit

Connect

Telco: Sostenibilidad, Open RAN y la industria

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What comes to mind when you think about GHG emissions?



Image credits: Eurostat, International Energy Agency

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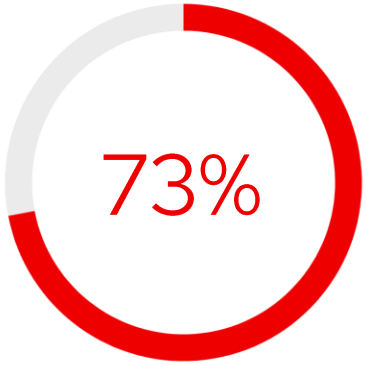
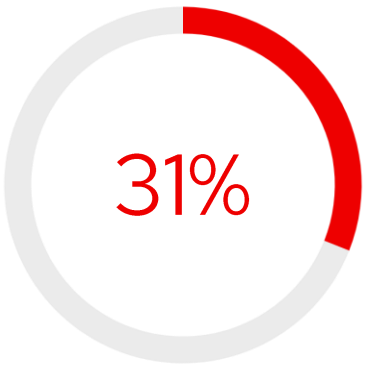
Where do global greenhouse gas emissions come from?

The world emits around 50 billion tonnes of greenhouse gases each year



Energy

Energy production of all types accounts for 73 percent of all emissions.



Electricity & Heat

Globally, the primary sources of greenhouse gas emissions are electricity and heat.

Source:
https://ourworldindata.org/emissions-by-sector

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What about these?

Image credits: The World Bank, Chad Davis/Flickr

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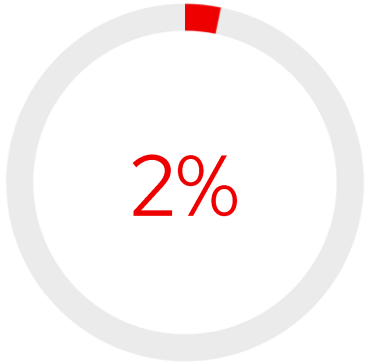
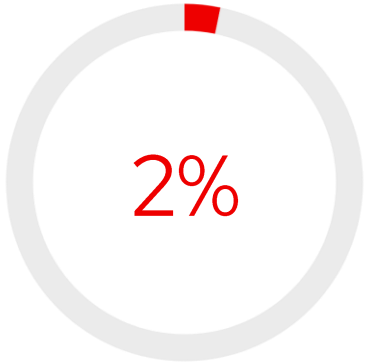
Where does the telecommunications industry stands?

Overall energy usage by the telecoms industry needs to come down as the industry consumes between 2% and 3% of global energy currently





Telecommunications

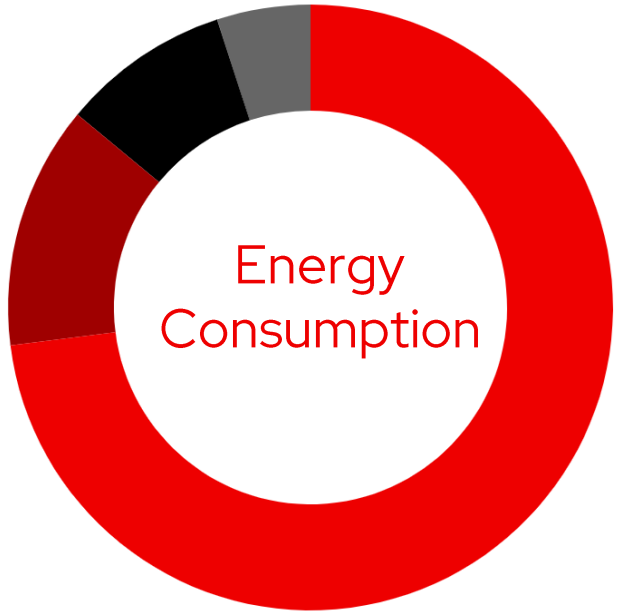
The telecoms industry uses a staggering 2% to 3% of the total power consumption of humanity

Data Centers

Every compute resource accessible, are currently using 2% of the world's energy

Sources:
GSMA, Energy Efficiency, Why is energy important for MNOs?
CNCF Environmental Sustainability Working Group

Where mobile operators use energy in their network operations?



73%
Radio Access Network

13%
Core Network

9%
Data centers(*), OSS, BSS, IT

5%
Operations

Source: GSMA Intelligence, Going green: benchmarking the energy efficiency of mobile

(*) Reflects only those data centers owned directly by operators

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Energy optimisation is crucial at every layer

Node

Innovation of CPU architecture & HW

Power consumption by CPUs, hardware accelerators, SmartNICs, and GPUs

- Granular control of unused components
- Turning off unused components
- Alternate hardware architectures
- OS Optimisation

Cluster

Holistic Cluster Optimisation

Energy Aware schedulers and de-schedulers, energy aware clusters or pod auto-scalers

- Scheduling optimisation
- Scaling optimisation
- Load Optimisation
- Features Optimisation

System

Entire clusters & other elements

All clusters, switches, routers, and antennas that comprise a mobile network

- Multi-Cluster workload placement & scheduling
- Multi-Cluster scaling optimization
- Goal-driven multi-cluster optimizations

Domain

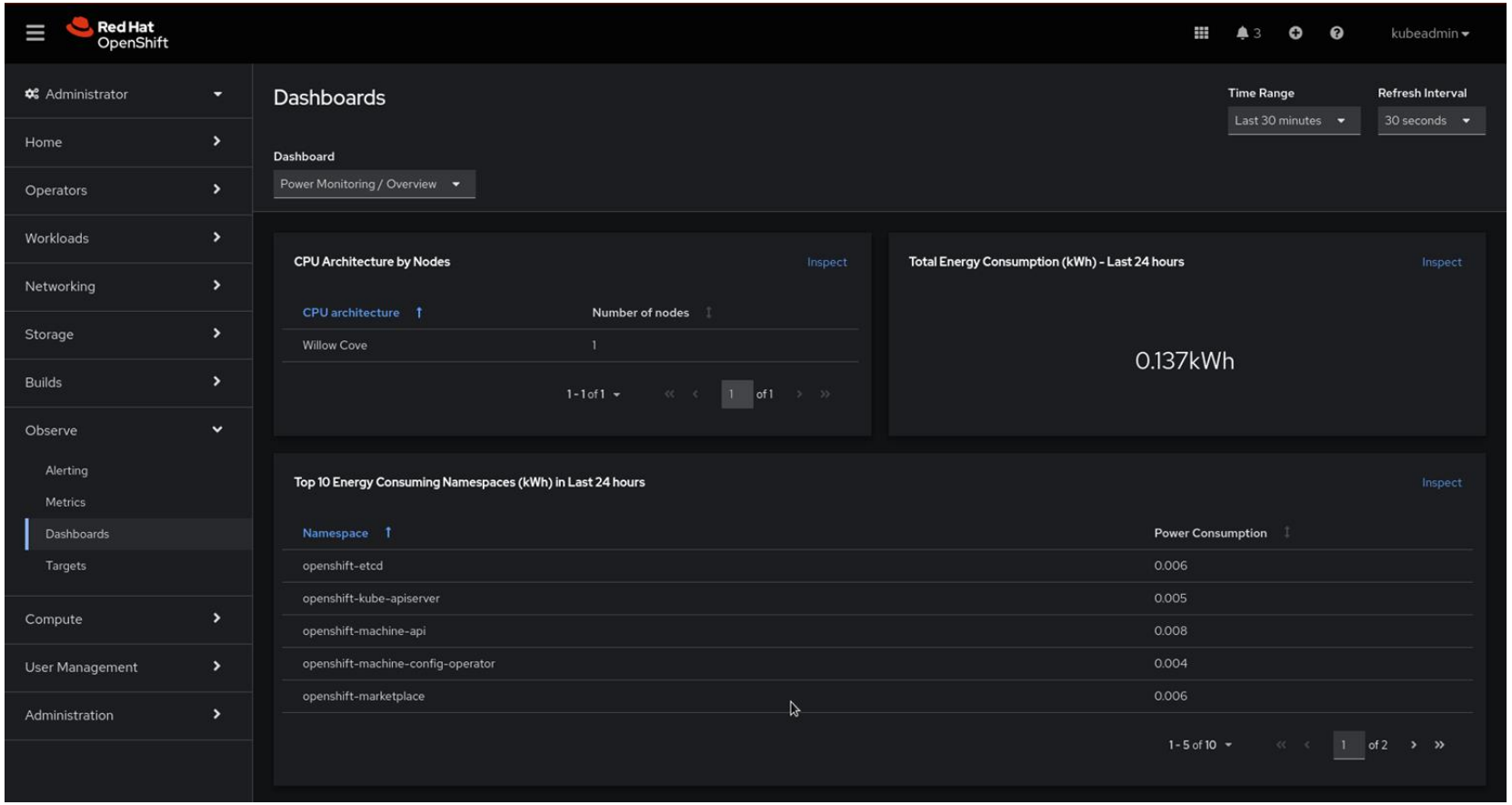
RAN domain Optimisation

Energy consumption of antennas, RUs, CUs/DUs, location of workload,..etc

- vDU-aware power optimization
- RIC Energy Optimisation recommendations
- Smart switching off RF channels

Introducing Power Monitoring for Red Hat OpenShift 4.14

Developer Preview



Embedded in the observability stack console, you can easily experiment with Kepler and observe power consumption

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Net-Zero operational GHG emissions by 2030

"We will reduce the impact we have on the environment and preserve the planet for generations to come. We all play a role in reducing our carbon footprint and this is just one of the many ways that Red Hat is doing our part."

Matt Hicks
President and Chief Executive Officer, Red Hat

Source:
https://www.redhat.com/en/about/press-releases/red-hat-announces-intent-reach-net-zero-operational-greenhouse-gas-emissions-2030

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