Work toward sustainability with help from Red Hat and Intel

Sustainability is a major priority for many organizations across different industries, both in order to help fight global climate change and to reduce costs associated with power consumption.

The need for a more sustainable telecommunications industry

Telecommunications (telco) service providers face pressure from all sides to increase sustainability while network demands continue to grow.

Telcos are being given mandates from many stakeholders, including national governments, to uphold sustainability goals, with new regulations worldwide requiring publicly listed companies to publish standardized reports. This means moving toward carbon neutral operations within the next few years, which is a daunting task. For telcos, the most important factor in achieving this will be managing energy consumption.

Due to immense power consumption requirements, improving energy efficiency is of particular importance for telcos seeking to reduce costs and become more eco-friendly. The largest factor in reducing power consumption is optimizing the radio access network (RAN), which accounts for about 3-quarters of total power consumption for most telcos.

To accomplish this task, telcos need to adopt technologies and techniques that support their sustainability initiatives and help to reduce energy costs while maintaining regulatory compliance and high levels of service quality.

Red Hat is building a collaborative ecosystem to adopt shared standards and solutions for environmental sustainability—and Intel is one of our closest partners.

With the right tools and solutions, telcos can optimize their energy efficiency by:

▸ Gaining greater visibility and control over their power consumption.

▸ Managing power consumption levels, based on changing network conditions.

▸ Achieving more efficient power consumption without sacrificing processing capacity.

Optimize energy efficiency with solutions from Red Hat and Intel

Red Hat and Intel have been strategic partners for many years. Now, they are collaborating to help telcos achieve their sustainability goals by providing solutions that can help optimize power management.

With Red Hat® OpenShift® integrated across Intel hardware, such as 4th Gen Intel® Xeon Scalable processors and Intel Ethernet 800 series network adapters, and using tools that include Intel Infrastructure Power Manager, processor power states (P-states) and idle states (C-states) can be managed, helping telcos to reduce total power consumption for core-based workloads.

Red Hat and Intel solutions, working in tandem with our telco partners, have proven to improve RAN energy efficiency by up to 20%.[2]

Suggested solution

Red Hat OpenShift running on 4th Gen Intel Xeon Scalable processors, using Intel Infrastructure Power Manager.

Red Hat OpenShift

Red Hat OpenShift is a unified platform to build, modernize, and deploy applications at scale. With Red Hat OpenShift, telcos can optimize energy efficiency and improve sustainability by:

▸ Prioritizing power-efficient profiles or creating custom tuned profiles with the node-tuning operator.

▸ Temporarily disabling applications not being used to reduce power consumption.

▸ Automatically scaling workloads, based on power consumption metrics.

▸ Deactivating clusters, reducing resource consumption during times they are not being actively used.

4th Gen Intel Xeon Scalable processors with Intel vRAN Boost

Designed for powering cloud-ready vRAN, the 4th Gen Intel Xeon Scalable processors with Intel vRAN Boost include powerful features that can help optimize workload performance. These processors deliver up to twice the capacity of previous generations, without increasing power consumption for vRAN workloads.[1] Intel vRAN Boost fully integrates vRAN acceleration in the 4th Gen Intel Xeon system-on-a-chip (SoC), eliminating the need for an external accelerator card. This architectural enhancement results in an additional compute power savings of approximately 20%.[1]

Intel Infrastructure Power Manager

Intel Infrastructure Power Manager is a cloud-based software solution that allows telcos to continuously recalibrate the power states of individual processor cores, based on workload requirements. By dynamically managing power consumption, this software can deliver an average power savings of 30% while maintaining key performance metrics.[2] And by integrating Intel Infrastructure Power Manager with Red Hat solutions, such as Red Hat OpenShift, telcos can optimize the balance between P-states and C-states, resulting in increased energy efficiency.

Get started

By combining these tools and solutions from Red Hat and Intel and integrating them across the network, telcos can reduce their overall power consumption, achieve greater visibility into power usage, and manage consumption based on changing requirements. These are necessary steps if telcos are to move toward carbon-neutral operations while satisfying the ever-greater demand for network capacity.

Discover how Intel, Red Hat, and our ecosystem of partners are collaborating to provide sustainable solutions for telcos everywhere.

Read the Sustainable service providers whitepaper to find out more about Red Hat's commitment to helping telcos achieve energy efficiency.

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1 "Intel accelerates 5G leadership with new products." Intel, 27 Feb. 2023.

2 "Brief for Intel Infrastructure Power Manager." Intel.com, accessed 18 Sept. 2023.

About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with award-winning support, training, and consulting services.