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NTT Data – DELL Technologies Roundtable

"How will AI impact the role that connectivity and data play in sustainability initiatives across Industry 5.0"

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In what ways is your organization re-imagining growth objectives?

For a telecom regulator, growth objectives align to the growth objectives of the companies' active in the market overseen. The telecom industry is a mature industry and machine learning (and AI) will probably serve goals such as: network performance optimization and operational cost reduction, rather than 'growth' goals in their strict/'typical' sense.

Out of the various possibilities: advancing network predictability, dynamic radio planning and spectrum sharing, together with power management optimization and network security applications will probably give us the most interesting use cases.

Network predictability must be further explained, since all other applications are probably quite straight-forward.

As the services run over current and future networks become more and more critical, network continuity and predictability will, to my option and after a certain speed threshold, become a far more critical metric on the perceived overall network performance and quality.

Machine learning and AI, operating on software-defined networks can help scheduling traffic that appears to be chaotic, in a manner that will improve, per specific use, the overall responsiveness of the network – without having to utilize capital resources to do so. That would be like fully automating the Network Slicing concept of 5G networks. Definitely a development to look for.

What are some best practices you have observed (inside or outside your organization) in addressing both the AI fervor and Sustainability imperative – across networks, computing and applications?

Some machine learning supported initiatives on power management, pushing core and access network equipment in power save and sleep modes are very interesting. Not cutting-edge AI, but with lots of potential on having a measurable impact on operational costs related to power consumption.

In that front regulatory and standardization awareness -and action- is important, as well as industry-wide open collaborations - because such features typically need to run on a diverse set of hardware, orchestrating power management on different equipment coming from different vendors, having strict and narrow 'wake-up' time requirements.

The ICT industry will see matters related to energy consumption and CO2 footprint reduction as a collaboration opportunity and not as an opportunity to release standardization wars on one another.

The AI sustainability impact

We are discussing AI sustainability impact in a positive manner when AI will probably skyrocket datacenter/ICT power consumption in the coming years.

NVIDIA plans shipping 1.5 million AI server units between now and 2027. If these 1.5 million servers run full capacity, they will consume at least 85.4 terawatt-hours of electricity annually – That is almost 2x the annual consumption of Greece, for these 1.5 million servers alone, and that is with current model training/inference power consumption profiles which will probably be a bit outdated within the next 24h - so definitely an issue there.

However, we need to remember that AlexNet was in 2012 and Google's Transformer neural network architecture paper was 2017, so it is very difficult to tell what's happening when -historically- we are right in the middle of the events unfolding.

Currently we need to be aware of the facts and cautious, but cautious not in a way that will hinder a small team scientists figuring out 'plasma containment in nuclear fusion reactor' through machine learning an AI.