

# In energy crisis now, heading towards Telecom crisis later

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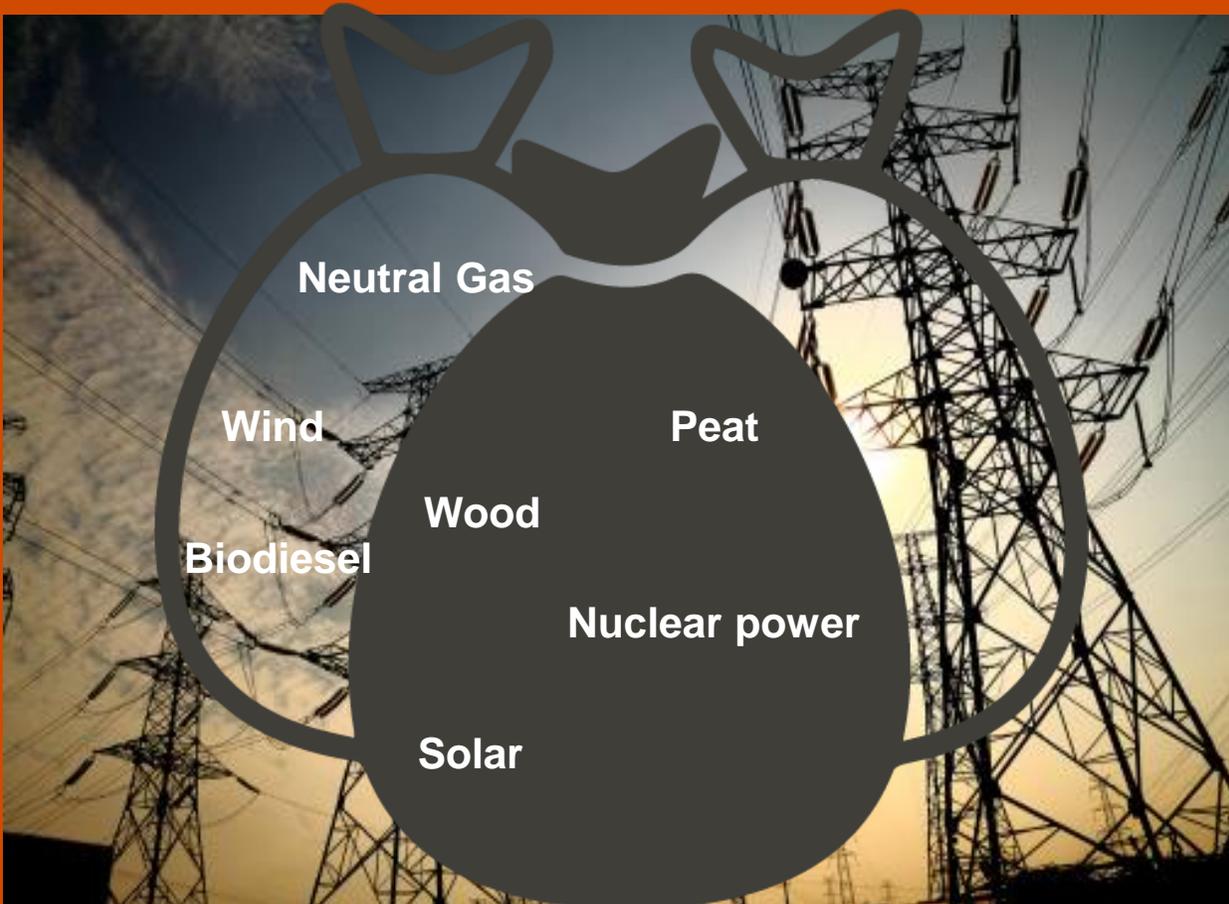
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# 1. Why are we in energy crisis now?

Is it all about war?

or was it because of the Pandemic?

Maybe a significant electricity shortage?



What is behind the electricity crisis in Europe?

In the future, electricity consumption will grow steadily in Europe, the electrification of society.

As an example: Finnish electricity consumption in the last 20 years steady: 80-90 TWh/year./v.

In risk assessments, the availability of electricity relates only weather conditions.

In Nordic, the 400kV, 220kV and 110kV grid lines Have been reliable.. up to now, wind power changes the landscape.

The challenge of renewable energy concept in the EU, the debate lasted three decades and goes on!

What really is meaning of green energy in EU?

## 2. The role of electricity for society



Business models related to electricity are challenging, new producers and liability issues are difficult.

Each company and organization has to solve its own risk management related to electricity availability.

In the future, more and more companies will be society critical for the continuity of operations, which involves sanctions.

The business cannot function without electricity.  
***Electricity means same than blood for human.***

**How about?**

50%

**How long your organization  
may survive without electricity?**

## 3. ERP-systems

The production of companies depend on ERP systems.

Before, ERP systems were "Stand-Alone" solutions.

Industrial production receives raw material calculation, production quantities and cost management dynamically from the cloud of the ERP system.

If the ERP connection to the centralized system is lost, production will stop within a few hours.



ERP = Enterprise Resource Planning

## 4. Industrial production and IoT

Traditional IT and OT systems were separated.

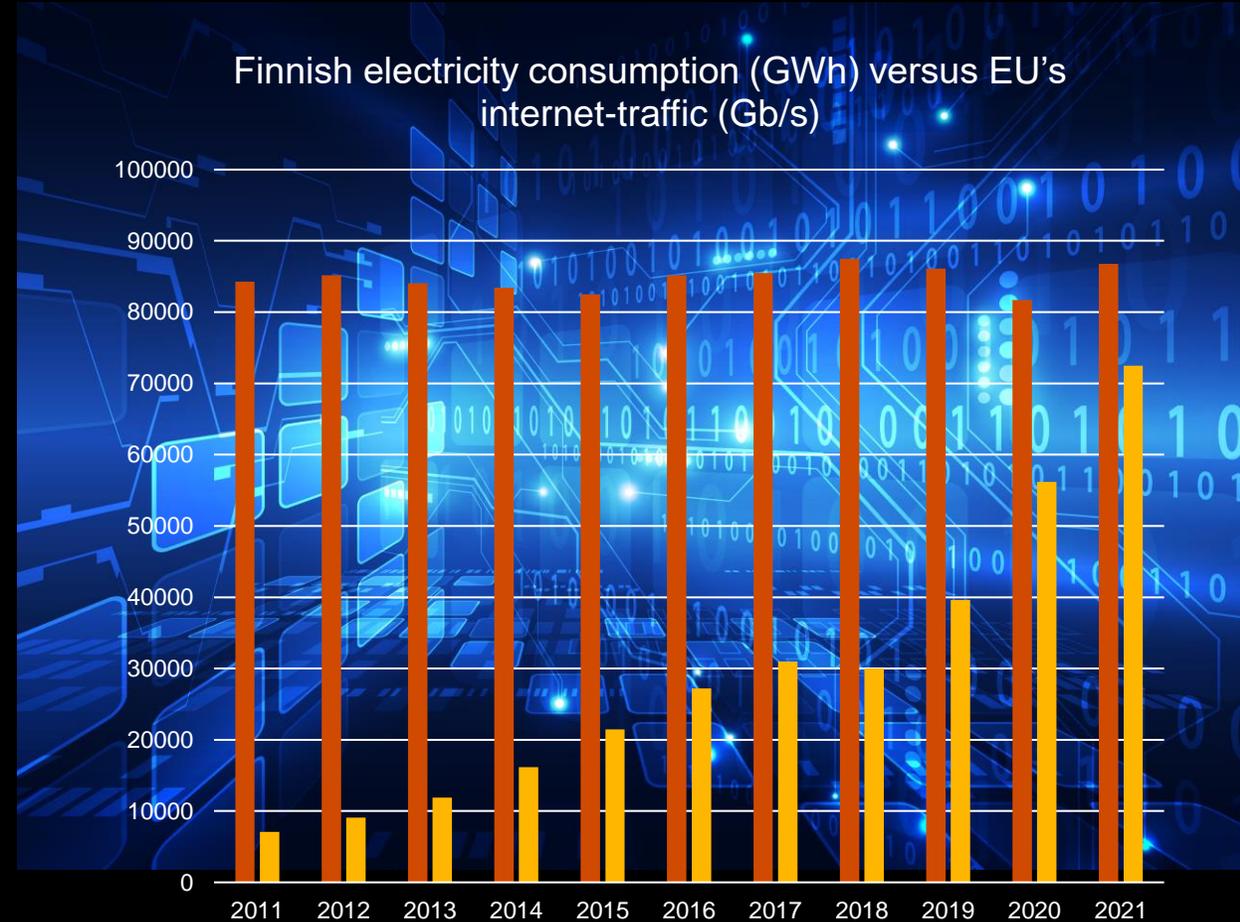
The traffic protocols of industrial production are becoming IP-based, like OPC UA standard.

The number of new IoT solutions is increasing globally. The factories' equipment are widely connected to the cloud services of different suppliers with the online monitoring.

External connections: the devices have their own "SIM" cards or a port open in the factory firewall.

New standards and regulation in the EU; IoT CE with the continuous updateability and five-year life-time security support.

The internet of things is growing explosively.



Sources: Finnish Statics Center (electricity) European IXP report (internet peak-traffic)

Electricity Consumption in Finland

Internet traffic in EU

OPC UA = Open Platform Communication Unified Architecture

<https://opcfoundation.org/about/opc-technologies/opc-ua/>

## 5. Transportation infrastructure

New cars have a built-in connection to telecommunication networks. A lot of technology related data and location data are collected.

Cars are moving IT infrastructures like any industrial production plants.

Largest over the air firmware upgrade packages contain up to 20 GB data.

Cars are manufactured by the large network of subcontractors, and those vendors need analytics data, with an independent data connections.

Significant amount of data flows back and forth to manufacturers' and global data centers.

## 6. Telecommunication infrastructure

Typical telecommunications backbone network has capacity of: 100 Gb/s or 400 Gb/s.

Telecom operators are consumer-oriented with their business models.

Customer management is based on SIM card related subscription authorization to access network.

The subscription-specific CDR file compiles the subscription's data usage and identify user locations for the basis of billing.

Roaming is based on framework agreement arrangements between operators to allow global visit on the other operator's networks seamlessly.



## 7. Telecommunication market

Telecommunication data trade between operators are based on traffic loads and costs which are balanced, cross-compensated between the operators.

Data pricing and routing is based on "upstream" and "downstream" traffic management.

Data overload causes: overflowing traffic is re-routed via an alternative route or re-routing can be based on a more favorable costing.

Routing is mainly automated by artificial intelligence based on predefined routing rules and network behaviour during peak loads.

Telecom data trading has similarities with the same characteristics as in the today's European electricity exchange.



# Heading towards telecom crisis

## 9. A step towards a growing and deepening telecommunications crisis

Data transmission delay: in case of a car or train travels at 100 km/h or 36 centimetres per hundredth of a second.

If data travels from the cloud back and forward thousands of kilometers, it causes significant delays.

### 1: Telecommunication delay "low latency"

In industry, machining tolerances requirements, are often in micrometers.

In the future, thousands of sensors and devices will be in a small space: an uninterrupted data connection, with just the right information security authorizations of equal quality in both directions of communication: so that the industrial production of biotechnology with infinite accuracy can be successful.

### 2: Lots of IoT devices. Uninterrupted data connectivity

The high video resolution enables, combined with artificial intelligence, a really accurate video analysis. This is needed in industry, social security and entertainment without limits.

### 3: High-speed data transfer capacity requirements



Data cannot travel to global cloud solutions on the other side of the world and back. It takes too much time, electricity, new security risks and eventually facing data availability problems!

**The development of telecommunications  
Follows the electricity market footsteps?**

## 10. 5G technology enables changes in communication infrastructure



Data capacity on the network edge must be optimized according to data needs..

Network technology was before the sovereignty of telecom operators, tomorrow 5G private networks by anybody. Implementation and ownership of the private 5G networks belong the user's, numerous alternative suppliers with new business models.

Data no longer needs to be transferred to a centralized cloud and back.

More flexibility with optimized data modelling, new type of connectivity solved by the different equipment suppliers.

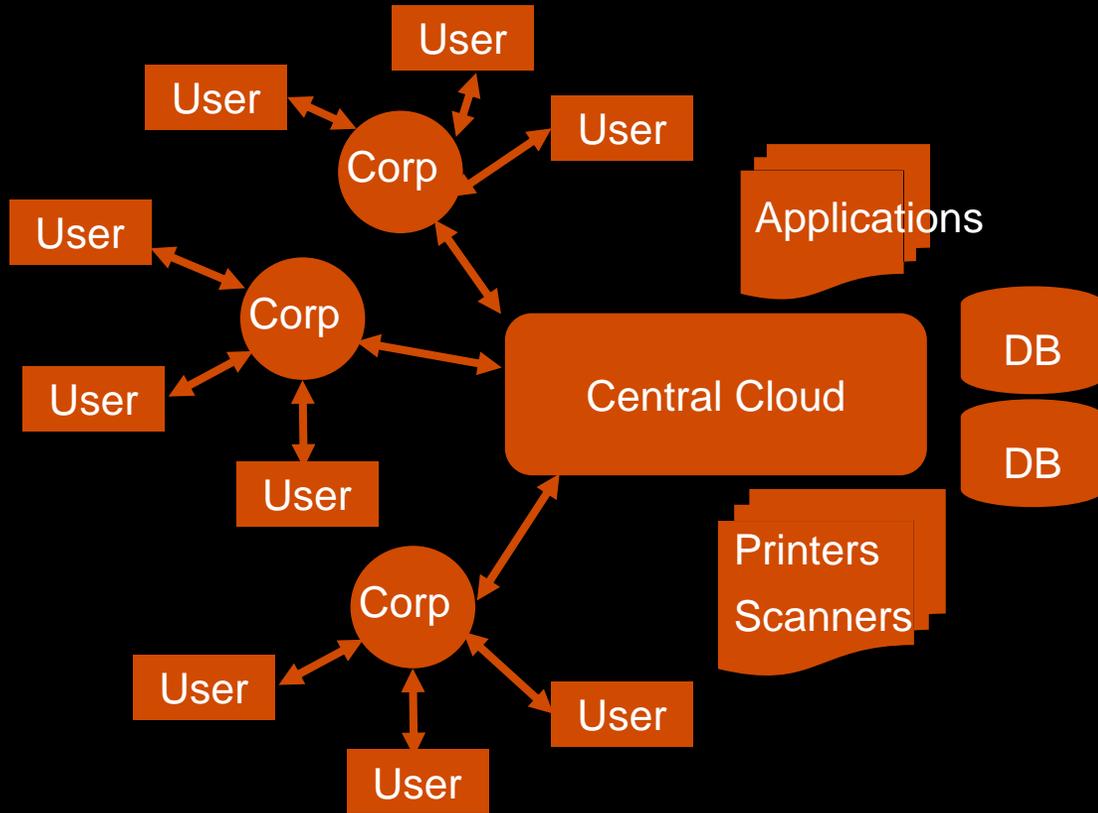
Data processing and management can be handled partly nearby and partly far away.

Data is going to be transmitted to the centralized cloud only when necessary and if in an optimized way.

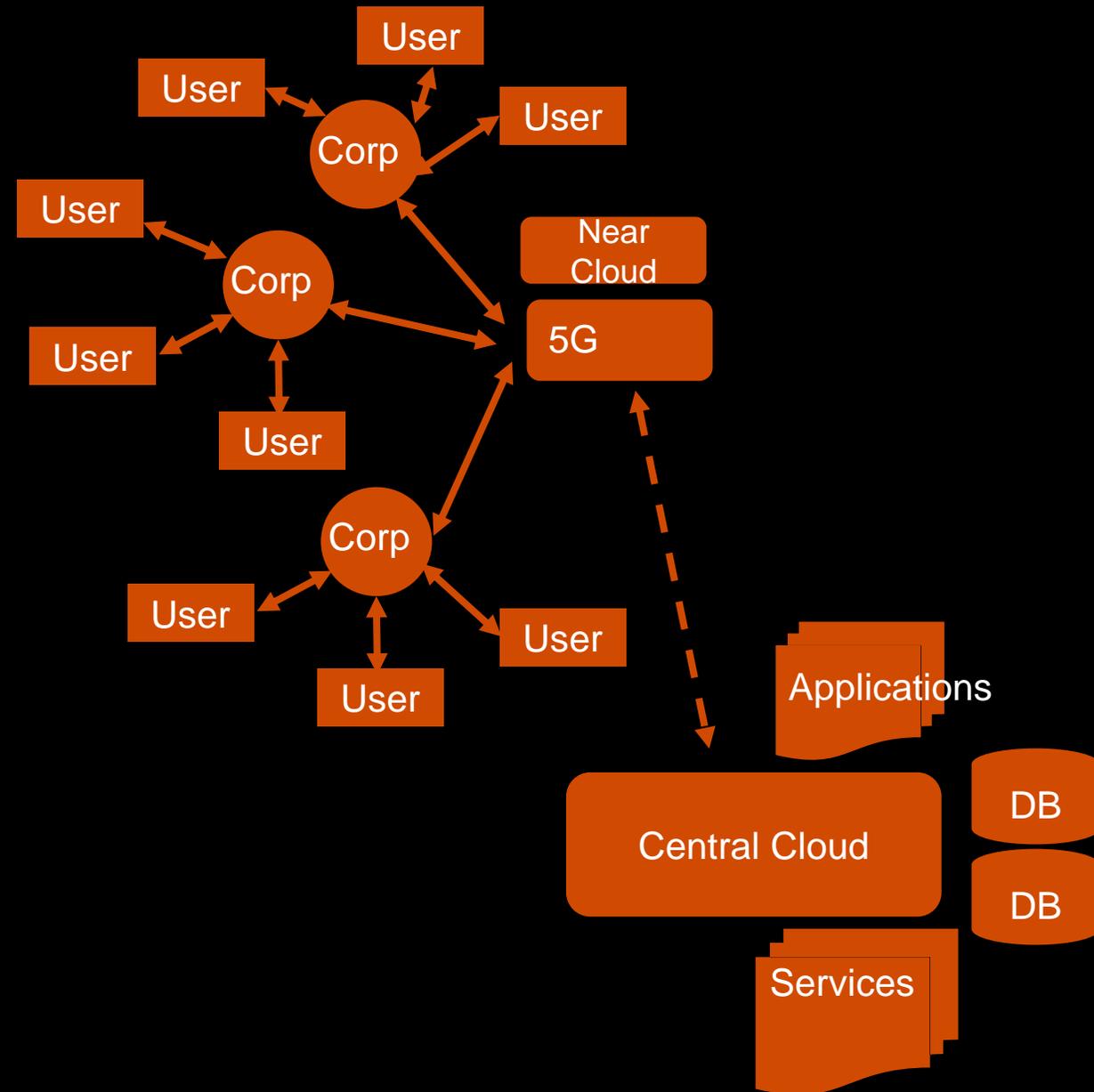
New type of design secure production continuity, even if the global data connection or overseas cables are cut.

# 11. Analogy to history

In 2020 Corporate IT-infrastructure



Future Data infrastructure with 5G technology



Upcoming digitization transmission

”The physical and digital worlds are integrated.

The number of devices connected to the Internet is growing at an unprecedented way.

The economic impact of 5G is estimated 13 200 billion dollars globally.

But it's about much more than that:

**It is about survival of the whole world digitization!”**

Risk management is just ignored expense for business. What if it could be **an opportunity**?  
When the risk is eliminated, it immediately creates a new opportunity.

In business, it is necessary to be prepared and assess:

- availability, trust and quality of supplier chains
- total safety of suppliers
- accelerating changes with dynamic lining of regulation.

**We are in an energy crisis, and heading towards a telecommunications crisis.**

**We have the technology and know-how to shift crises into opportunities.**

Nordics has Europe's most advanced 5G networks, high electricity self-sufficiency.

"Blood and Air" for business are available to maintain the company's vital functions.

Nordics has ready and predictable legislation.

An example Finland, UK, German and France have already private network frequencies available for all companies.

Nordics is ready for competitive digitization breakthroughs..

# We help shift risks into new opportunities!

# Thank you for your interest!



[juha.remes@pwc.com](mailto:juha.remes@pwc.com)

5G & Risk Assurance Services

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