WHITEPAPER

Coromatic
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# Are you building your digital future on a weak foundation?

## Site Management Survey 2019

Coromatic

# Do you have a balanced approach to digitalization?

## The drivers of increasing digitalization

More and more companies are adopting digital strategies to keep up with the competition or try to disrupt markets. Driven by new technology and forever changing the way we work, affecting even the core business models of companies, digitalization is on most decision makers agenda.

According to major industry players like Gartner, Ericsson and Juniper, the continued annual growth rate of connected devices is somewhere between 20-30% per year. As digitalization gives birth to inventions such as connected vehicles, smart homes or digitized warehouse and logistics solutions, the need for data processing and storage increase along with them. And when processing and storage needs increase, dependence on the underlying infrastructure and communication grows even more critical than before.

According to the Coromatic Site Management survey, the spend for datacenters and sites is growing, with about 58% of respondents stating they will increase investments in the coming two years. However, this is not primarily done to secure sites through investing in risk reduction measures. The most significant driver is Performance Improvement (30%) with cost and risk reduction coming in as a close second.

Sustainability, maybe surprisingly, although being considered an important factor in decision making (considered by about 45%), was the least favorable driver (6,4%) for investments. It still seems business cases are focused on performance improvement, i.e. increased speed or capacity, than they are on backend security and stability.

This is somewhat surprising as the consequences of failure in an ever-increasing connected environment become increasingly critical for the very survival of the digitized business model and subsequently, for the company that birthed that business model. After all, an overwhelming majority, (about 80%) of respondents to the survey answered that downtime is not an option for their critical facilities at all.

When presenting previous years' survey results, we discussed the robustness and resilience in data centers, as a way of preventing and absorbing incidents. This year's survey presents us with a status quo regarding site operations, with about 67% not knowing or not planning to make any changes to their site operations.

If hosted in your own data centers or even in co-location, you might have a good idea of the built-in robustness and even the operational resilience of the sites, but what about the data and applications stored in the cloud? How much do you know about the physical robustness or operational resilience of the cloud providers' sites?

## The Cloud: flexible solution or dangerous pitfall?

The Cloud is still a divider of opinions, as shown in the survey results. According to our respondents, the most significant driver for moving to the cloud is increased flexibility (43%). Somewhat surprisingly, 18% state that the move into the cloud is motivated by security improvements (data protection, confidentiality). Looking at the reversed question, the most significant driver for not moving to the cloud, we see a mirrored image of replies, with 50% stating that a lack of control is a showstopper. Lack of flexibility is the second most favorable choice (18%).

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Either way, companies need a clear strategy for why they are moving to the cloud. Creating a business case should be a priority. It must cover questions that needs answers, such as:

- Where is the data stored?
- Are there any security, compliance or legislative implications such as for example GDPR?
- Do we need to re-write our policies?
- What exact data or processing should move to the cloud?
- Do we have any special considerations regarding personal data, payment cards, intellectual property? What about licensing?
- What about performance SLAs?
- Are there strong lock-in effects by the cloud supplier?

There are many questions, however, three areas that need be addressed early are; cost-performance optimization, security, and your business needs. So... read the contract. All of it.

**What about data loss?**

It is one thing to have an interruption in the processing of data, such as halting transactions or production systems. Such events could of course lead to costly impacts on the business, not only monetary but also on brand and reputation.

However, it is another to also lose data like for example orders, transactions, customer data, plans, blueprints or agreements. It could have a much greater legal and financial impact on the ability to operate and sustain the business.

There have been several cases on data loss reported on in the media, cases where the cloud provider refutes any and all claims for compensation. The contract states that they do not have responsibility for the customer's data. If it is lost, it is lost, and companies will get no compensation.

This illustrates the importance of performing a risk and business impact analysis for the critical infrastructure – be it in-house or outsourced. The risk analysis will outline the risks you are facing in different areas, and where you should focus your efforts to mitigate that risk. A third of survey respondents say that the most important obstacle for performing a risk and business analysis is a lack of resources and one quarter say it is too complex to do so. Keep in mind that it does not have to be, and it is more important to perform an analysis, however incomplete, than not performing one at all.

There will however always be some risk to operations that cannot be mitigated with reasonable cost. Therefore, you need to plan for the worst-case scenario. Traditionally this is accommodated by disaster recovery and business continuity planning. There will of course be some special considerations for your data in the cloud.

**Increasing demand for CO2 limitation**

2019 will be remembered as the year when a strong focus was put on the climate and actions needed to limit the

increasing temperatures and CO2 level in our atmosphere. The popular opinion was swung against politicians for not doing enough and not taking seriously the scientists predicting that we need more actions to end CO2 emissions growth across the globe. Politicians in the Nordics have responded that they plan to be CO2 neutral to negative by the 2050's and Finland has gone even further in saying that they want to reach the targeted neutrality already in 2035. Exactly what type of politically decided investments and policies need to be applied remains to be seen.

In the Datacenter industry, a strong focus on energy and climate has been a reality for quite some time. Sustainable and low energy operations have been in the sight of datacenter owners as a way to achieve higher IT loads with minimal energy increase. The objective is to be efficient and to establish a qualitative operation for IT services. Equipment manufacturers have followed suit and new equipment is generally more efficient than older versions.

An emerging trend is that large datacenters owners invest in alternative (fossil free) energy sources such as windfarms or solar panels. Heat recycling and other methods for taking care of spillover effects from large energy operations are also increasing.

**Evolvement of Micro grids**

Mission critical sites and large datacenters are increasingly seeking to secure power through micro-grids – small scale independent power grids. In the construction of a new mission critical site that need consistent supply of energy, it is often demanded that this question is devoted special attention to build smart infrastructures.

Energy supply and storage becomes more critical when the existing energy grid cannot take care of higher energy loads needed in densely populated areas. The positives of micro grids are that they can enhance the environmental component of energy production if non-fossil sources are used.

Possibilities to cycle energy is a logical step to preserve and intelligently use the produced amount from the mission critical site. Excess heat from the cooling production can source adjacent buildings or housing areas with hot water at a relatively, low cost. Locally produced energy could also be fed back to the grid when below capacity situations occur.

Many describe a distributed energy production system where renewable energy sources such as small hydro, biomass, biogas, solar power, wind power, and geothermal power, increasingly play an important role for the electric power distribution system.

With new devices connected to the grid, energy can be stored to be used when needed. In the datacenters industry parts of this can be recognized as emergency power (EMP) and battery powered uninterruptible power supply (UPS), only on a much larger scale and produced by alternative energy sources.

**Is this the year for sustainability?**

In the curriculum for effective datacenters there is a clear focus on reducing energy. It can be done through optimization, balancing loads and through upgrading and exchanging older equipment.

The internet of Things (IoT) and the possibility to centrally collect information from several sources will also lead to better information on performance and efficiencies. Better information systems (such as DCIMs) will contain more information collated from various equipment. Artificial Intelligence (AI) will in the near future help suggesting the best way to optimize the datacenters.

Power Usage Effectiveness (PUE) is the ratio calculated to measure a datacenters energy efficiency. PUE compare

total energy consumption to the load that IT operations require, and optimum energy efficiency is equal to a value of 1.0. The problem with PUE is that it only measures energy inflow efficiency, it does not account for all energy e.g. heat outflow. Excess heat from the coolers are often dissipated into the surrounding air and simply left out of the ratio.

When looking at sustainable datacenters, hyperscale datacenters are information factories that run high capacity operations where loads are stable. On the other end of the spectrum are mid-sized and smaller operators that might have a harder time to balance the workload with the energy use.

One example where hyperscale datacenters have found ways of lowering energy use, is by moving IT loads over servers. Servers being idle can be switched off or dimmed down. If some servers are running at full capacity while others sleep, energy usage can be applied exactly to what is needed.

For example, with its application Autoscale, Facebook claims that this has lowered energy use with 10-15%. Cooling can be accounted for as much as 40-50% of the energy used in a datacenter. If traditional chillers and cooling towers are used, large amounts of water is used in evaporating systems, causing environmental issues due to an overuse of water. Getting rid of compressors and cooling towers helps in lowering both water and energy use.

Free-cooling by inlet of fresh air and semi-hot cooling are techniques that lower energy use. In 2018, the Open Compute Project launched a project on advanced cooling, with the aim of making efficient cooling systems more accessible. The aim is to influence server, storage and networking manufacturers to enable more liquid cooled products as this will lower the need for cooling the whole datacenter.

Looking at 2019 as a year for sustainability, we see indications of raised awareness through the respondents to our survey. About half the respondents sees sustainability as being important in investment decisions. But only 3% thinks it is crucial as a decision factor. In fact, the results are slightly lower since last years' survey, where 60% of respondents named sustainability as very important or crucial. However, in responding to the question on which area is most important to focus on from a sustainability perspective, 61% named continued reduction in energy use while only 22% said that CO2 reduction was important. Reduced travel and transport were the initiatives deemed second in importance to lowered energy consumption with 24% of respondents.

**Summary**

The cloud offers many attractive opportunities for the customer when evaluating flexibility and performance versus cost, and as our survey shows, these questions tend to be in focus at most companies. However, by transitioning into a cloud environment without fully investigating the security and sustainability aspects, companies run the risk of not building their new infrastructure on a solid foundation.

Business continuity aspects must always be considered, regardless of if operations are run on internal or external sites. The question of data loss warrants special attention for the data that sits in the cloud. Ensure that safeguards are in place, both logically and contractually.

Finally, do not let the important long-term sustainability policies be overshadowed by return on investment calculations. With the projected growth of the datacenter industry, and subsequently the increased energy consumption, sustainability is more important than ever.

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COROMATIC.com
Nordic
Phone: +46 8 564 605 90

COROMATIC.se
Sweden
Phone: +46 8 564 605 90

COROMATIC.no
Norway
Phone: +47 22 76 40 00

COROMATIC.dk
Denmark
Phone: +45 66 17 62 60

COROMATIC.fi
Finland
Phone: +358 10 231 60 60


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