



ADVANTAGE SWEDEN

EXPANDING TO SWEDEN – DATA CENTERS

2015 / 16

Data Centers

Some of the world's leading companies develop and find innovation in Sweden – companies such as Intel, Google, Apple, Huawei, Arm, Microsoft, Motorola, Oracle, Sun, Sony, Samsung, EA, Facebook, IBM, Bosch, Mediatek and Activision.

The people of Luleå welcome
Facebook to their city.



"I know from personal experience that almost every visitor we've had in our four years here has gone away in love with this country, and determined to come back"

Paul Johnston, British Ambassador to Sweden

CHILLING WITH FACEBOOK IN LULEÅ

Let's face it. Not many people outside of Sweden have heard of Luleå. So how did one of the world's hottest technology companies decide to call this icy outpost home?

It all started in 2008, when regional development agencies began looking for ways to boost the regional economy by leveraging existing resources to entice new businesses to establish operations in northern Sweden.

Within a year Business Sweden joined the project, helping arrange meetings in the United States with prospective companies. Facebook was among them.

"We met 14 companies and we couldn't dream one of them, Facebook, would be interested," Matz Engman, CEO of Luleå Näringsliv, an agency which helped entice the internet giant, told Science|Business in 2015.

But it turns out little Luleå had "everything Facebook needed", Engman said, and in 2010 Facebook came for a visit.

And finally, in February 2011, Karl Petersen, Luleå's mayor at the time, received the phone call he'd been waiting for.

"Hello Mr. Mayor, this is Facebook," said the voice on the other end of the line. "You are the mayor and have to know first – we are coming to Luleå."

Luleå's Facebook server hall was the first Facebook datacenter outside of the US, and started serving traffic in 2013. It was ground-breaking – and spot on.

"We really like it here. The Luleå region offers many key components that are good conditions for data centers," Facebook Site Manager Joel Kjellgren explains. "Good climate conditions, a reliable power supply, and commitment from the local community are factors that influenced the choice, and Luleå has served Facebook well."

So well, in fact, that the social media giant has decided to build another massive server hall a stone's throw from the first.

"Every day is a new day and at Facebook things move fast. In 2014 we started the construction of our second data centre in Luleå," Kjellgren says. "Like our first data center in Luleå, the second one will

be among the most advanced and energy-efficient facilities of its kind."

The second Luleå data center will also be built to Open Compute Project (OCP) specifications, Kjellgren confides.

OCP is the industry-wide coalition of technology companies that is creating cost and energy efficient designs, sharing them for free under an open source model.

"When developing data centers we continuously refine our designs and construction processes to maximize efficiency, reduce material use, and speed up build time," Kjellgren explains.

"Our second data center in Luleå will continue the energy efficiency that characterize our already existing data center in Luleå."

The new design fits in perfectly with the Swedish model too, balancing and optimizing a number of factors including operating efficiency and minimizing environmental impact.



Joel Kjellgren,
Facebook Site Manager

Luleå's subarctic climate is of course a key factor for Facebook's operations. Even in the warm season, the average daily temperature is just 15°C, making it ideal for cooling high-power data centers.

"We can cool the data center just with outside air," Kjellgren confirms.

"There is also reliable power from a hydroelectric source. Even though our data centers are the most energy efficient in the world, we still need power to run them. We appreciate being able to power our facility with 100 percent renewable energy, and we are really happy with the way our data centers in Luleå contribute to our mission of making the world more open and connected."

But it's not just the climate that lured Facebook way up north. Kjellgren adds that the community is just as important.

"We're happy to be a part of the Luleå community," he says. "We enjoy having access to a strong pool of competence for



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» construction and operations staff, and we co-operate with a great set of community partners.”

The Luleå University of Technology is one of Facebook’s valued neighbours in the area, with a rich history of innovation and excellent communications technology. Proximity to the university and its more than 17,000 students was one of Facebook’s own reasons for choosing the area.

Indeed, the entire region is strong in the tech field, and has only grown stronger since Facebook moved in.

“It was a huge event in Luleå’s history,” Karl Petersen said after Facebook’s choice was revealed. Until the deal was done and dusted it was rather secretive, known in Luleå as ‘Project Gold’.

“It was a unique establishment that all of Europe was pining for.”

Support on regional and national levels also played a role, and Kjellgren adds that Sweden on the whole has been “tremendously welcoming and helpful”.

“The data centre industry is growing and more companies are looking for favourable locations. Sweden has been successful in identifying and understanding the comparative advantages, in terms of climate, IT competence, etc. It’s the optimal location for this new type of base industry.”

The cool region is quickly becoming a hot spot for data and technology, and the municipalities of Luleå, Boden, and Piteå form the Node Pole.

Applications to the University of Technology have risen significantly, and Petersen added that Luleå’s local science park experienced a 25 percent rise in companies coming to the area after Facebook’s first server was built there.

But the 47,000 residents of Luleå will always remember: Facebook got their first.

“We’re very happy to see that Facebook’s arrival has been able to trigger the growth and development of the region,” Kjellgren says.

Facebook is constantly growing and Kjellgren says the company is committed to continuously develop technologies and infrastructure to ensure the best possible experience to all of the millions of people around the world who use the service every day.

The company’s mission is to give people the power to share and make the world more open and connected – and Sweden is the perfect match.

“Representatives for Luleå and Sweden have proved to be very supportive partners along the way, showing true commitment to the cause. ➤



“Sweden has everything we need”

Byrne Murphy, Chairman of DigiPlex, is no stranger to international business. He’s already taken three unique American business concepts to Europe. But Sweden is something special, he says.

After graduating in the US, American Byrne Murphy sailed from Boston to New Zealand, worked in yacht yards, went to business school, moved abroad, and then spent years battling French politicians to defend the concept of outlet centers, featuring the concept of offering end-of-season products for luxury brands at deep discounts.

“In the early days of Paris, I was a naïve young American deeply in over my head in the multicultural world of Europe, and it was very difficult to penetrate through

the bureaucracy,” Murphy says. “Paris is a fabulous place to live, but a terrible place to be an entrepreneur.”

But when he finally decided to invest in Sweden, “Everything just fell into place.”

“The entire structure of doing business is simplified in Sweden. As a result you are able to accelerate what you are trying to achieve.”

This time the concept was data centers. Murphy is Chairman of DigiPlex, which provides large scale, high-powered, energy-efficient data centres to house mission critical

equipment for companies and government agencies.

"We started in Norway, and when it was time to expand we actually looked at Finland first, and then Denmark. But we came quickly to the conclusion that Sweden was next."

As the company pondered its next endeavor, Murphy received encouragement from all sides to enter the Swedish market.

"On the one hand we had help from Business Sweden," Murphy says. "They were proactive, friendly, cooperative, and very helpful in getting us all the information we needed. I highly recommend them."

Meanwhile, Murphy visited a friend in Switzerland – the US ambassador.

"We went over to the Swedish ambassador's residence for a party, and when he found out I was considering Sweden he pulled me aside and gave me ten reasons I should choose Sweden," Murphy recalls. "It made sense. After speaking with the ambassador, I never went back."

And indeed, Murphy saw a demand in Sweden for services which no one was delivering. As the country with the largest IT services industry in the Nordics, Sweden was going to be in desperate need of wholesale datacenters – ie datacenters that can tailor large scale IT housing solutions.

"We saw the market opportunity and grabbed it."

The team selected a site in Upplands Väsby north of Stockholm - a location which had "everything we need".



Today DigiPlex is constructing a 13,000m building on the site – where the first customer NASDAQ OMX is scheduled to take occupancy on January 1, 2016 – and plans for several more buildings in the near future. When fully built, the campus will become the largest commercial data center in Sweden – and the most power efficient.

"I come to Sweden every three to four weeks," Murphy says. "Everything is going well. The welcome that I receive from everyone in Sweden, my own team, the business community, the township, the designers – it's all working well."

Murphy has 23 years of experience working in 18 countries across Europe – but he says there's no place like Sweden for business development.

"It's easier to have a successful development project in Sweden than the majority of other countries where I have worked," he

confides. "I am by far the happiest being in Sweden at this moment."

The Nordic nations have ideal conditions for hosting data centers – cool air being an obvious benefit.

"In any data center you have to cool the servers, and in the Nordics you can just open the windows," Murphy laughs, but adds seriously, "that can reduce the bill for power by up to 25 percent."

Access to enormous amounts of renewable energy is also a lure to Sweden, and the cost is competitive.

"The price of power in the Nordics is approximately half the price than in the UK, and 40 percent less than in Germany," Murphy says. "That's huge. And that's why the biggest tech companies in the world – Facebook, Google, Apple, Microsoft – either already have massive data centers in Scandinavia, or are in the process of developing them."

"The Nordics present directness and simplicity in doing business," Murphy says. "Swedes say what they mean and mean what they say, and they keep it simple."

Transparency of legislation and behaviour in general means it's easier to know what needs to be done, he says. Legal documents are much shorter and there are very few

The entire structure of doing business is simplified in Sweden. As a result you are able to accelerate what you are trying to achieve.

Byrne Murphy, Chairman of DigiPlex,

"obstructionists" – partly due to an efficient, problem-solving, family-oriented culture.

"The Nordics have a very good work-life balance. People here do not live to work. They do work hard, but they mostly live well."

And that's one of the best parts of business in the country. Although getting accustomed to a new business culture can be frustrating at first, Murphy said it's definitely a key to success.

"If you're going to be a foreign investor abroad, you have to remember that it may be your concept, but it's their country. And that context matters a lot, a whole lot."

But in general, what goes around comes around, Murphy says.

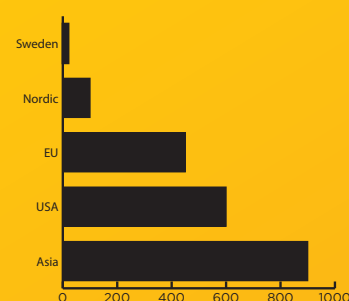
"If you take the time to appreciate the Swedish working culture, which is based on consensus decision making, the dividends will come back to you tenfold." ➤

Advantage Data Centers

Why Sweden?

- Clean energy footprint
- Low cost renewable electricity
- Industry-grade electricity infrastructure
- World-leading digital infrastructure and competence

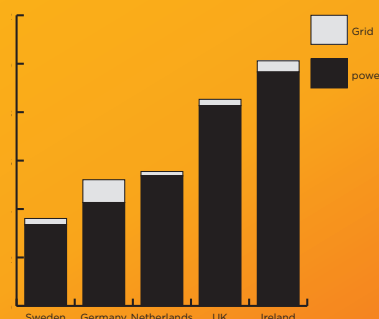
Carbon footprint in grams CO₂ per kWh power generated in 2013



#3

Sweden ranks number three after USA and UK in the Data Centre Risk Index 2013. The index ranks key established and emerging locations by the risks affecting data centre operations.

30 MW Datacenter power & grid costs (pre-tax)



Source:
Cushman & Wakefield,
International Energy Agency
Vattenfall

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