



# INTERNET OF THINGS CASE STUDY



## TRANSFORMATIVE IoT BEYOND CONNECTIVITY

### Connected In-Home Care for Vulnerable Patients

#### SWEDISH START-UP CUVIVA AND TELE2 IOT ENABLE HEALTHCARE PROVIDERS TO REMOTELY MONITOR PATIENTS

Connected healthcare solutions can help society's most vulnerable patients, such as the disabled and elderly, cope with chronic illnesses. A prerequisite for this is that the connectivity has to be highly robust and reliable, as well as be available throughout the patient's home.

Working with mobile operator Tele2 IoT, part of the Tele2 Group, Gothenburg-based start-up Cuviva has developed a solution that enables healthcare providers to remotely monitor patients' well being through daily check-ins and conduct remote consultations with both the patient and concerned parties, such as relatives or friends.

The solution combines a cellular-connected laptop or tablet with IoT sensors that can measure vital signs, such as heart rate, temperature, weight, blood pressure and insulin levels.

These parameters are automatically reported to the healthcare provider, which can screen the data in real-time before storing it securely. The patient is also asked to answer a short list of daily health questions. If something is not right, such as the patient doesn't complete a check in or the sensors don't detect any motion, the solution can be configured to alert the emergency services.



## TRACKING DEVICES AND SECURELY TRANSMITTING DATA

As Cuviva needs to be sure its devices are operating and secure, it is using a virtual private network (VPN) on Tele2 IoT's cellular infrastructure and the operator's 2ACCESS service to transmit potentially sensitive health data to the patient's healthcare centre. Tele2 IoT's roaming agreements with other operators ensure that it is able to provide coverage in the homes of patients living in remote areas.

Cuviva is also using Tele2 IoT's 2DISCOVER service to help it keep track of devices, ensuring the APN (access point name) is correct, the device is connected, and that it is flagging any "aggressive" behaviour. Through 2DISCOVER, Cuviva was able to identify devices that were consuming an unusually large amount of data. A visit to the Tele2 Radio Test Lab allowed Cuviva to address and mitigate the irregularities pinpointed by 2DISCOVER.

**"Tele2 IoT brought us a secure connectivity solution that is vital to our operations, while also offering an ideal setup for scaling the infrastructure," says Henrik Cederqvist, CEO and founder of Cuviva. "2DISCOVER allows us to track our devices and ensure they're operational out in the field, which is extremely important when working with vulnerable patients. Patient confidentiality is also of paramount importance, of course, and 2ACCESS was the right solution for securely transferring sensitive data. We also have the possibility to integrate and build our services on the Tele2 IoT platform."**

## SUPPORTING COMMUNICATION AND SAFEGUARDING PRIVACY

As health data can be very sensitive, Cuviva is using two-factor authentication to log patients into its system. It offers a number of alternative authentication mechanisms to ensure each patient can find a login solution they are comfortable with. The patient also decides who can access their records and data in an on-going dialogue.

Where necessary, the solution can be used for virtual face-to-face meetings with healthcare providers, who have the patient's medical records in front of them, enabling them to compare the patient's medical history to what is happening in real time.



\* With Tele2 IoT SIMs



Moreover, concerned friends or relatives can, with the patient's permission, take part in those virtual meetings, as well as access the relevant health data.

**“This lets friends or relatives ask pertinent questions and be involved in the decision-making process,” explains Henrik Cederqvist. “It is also good from the perspective of the healthcare providers. Some patients may have cognitive problems so having a supportive friend or relative joining the calls means everyone is getting the information needed in order to provide the best care.”**

Cuviva says its solution provides a cost-effective way for patients who suffer from mobility challenges to see their healthcare provider regularly, as well as supporting patients in need of regular monitoring. “Sweden spends more than SEK250 billion (almost €24 billion) on healthcare annually,” notes Henrik Cederqvist. “Second-stage elderly patients – those with multiple chronic conditions in their twilight years – make up about 50% of that budget.”



## CREATING A CONTROL TOWER FOR HEALTHCARE

Cuviva plans to start integrating third party products, such as connected pill dispensers, into its solution, which is intended to act as a central hub for various healthcare devices and services. It also intends to expand its connected healthcare solution into other fields, such as post-acute care, post-operative care, and care for women with challenging pregnancies. Furthermore, Cuviva is building a mobile solution, which patients can take with them from place to place. Again, it is utilising Tele2's IoT support and services to ensure this new concept is viable.

Underpinned by Tele2's international roaming agreements, Cuviva is also planning to roll out its connected healthcare solution in markets beyond Sweden. “The solution is 100% globally scalable and working with Tele2 IoT as a partner means we can provide a global solution because Tele2 IoT delivers everything we need,” says Henrik Cederqvist. “There is also good scalability in the infrastructure and we have the possibility to integrate and build our services on the Tele2 IoT platform. We need to know that our solution will work and Tele2 IoT is a key partner in making that happen.”

### Find out more:

<https://tele2iot.com/case/tele2-iot-cuviva-connected-healthcare/>  
<https://tele2iot.com/products-services/connectivity-and-enabling-services/2access/>  
<https://tele2iot.com/products-services/connectivity-and-enabling-services/2discover/>



## About the GSMA

The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators and nearly 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

For more information, please visit the GSMA corporate website at [www.gsma.com](http://www.gsma.com).

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## About the GSMA Beyond Connectivity campaign

Delivering seamless IoT connectivity has been a crucial element in helping operators to launch new services such as low power wide area (LPWA) networks, using NB-IoT and LTE-M technologies and create added value and sustainable growth. Now leading IoT operators are building on this and their reputation as trusted industry partners by delivering value added services beyond connectivity.

These end-to-end solutions include services across big data, machine learning, analytics, edge computing and distributed ledger technologies. They are delivering substantial benefits to customers such as increased productivity, reduced costs and automated business processes as well as driving innovative new products and services, new lines of business and new business models. Services beyond connectivity are transforming businesses and industries.

[www.gsma.com/BeyondConnectivity](http://www.gsma.com/BeyondConnectivity)

# TELE2

## About Tele2 IoT **Makes IoT happen**

### Connectivity is at the Heart of Everything We Do - But It's Not Everything We Do

Flexibility is the foundation of Tele2 IoT, so no matter whether you're working across five cities or five continents, no matter which technology you are using, no matter what your level of maturity – we've got the solution that will perfectly suit your needs. And with our added-value services you can easily manage security and accessibility to your devices.

More about Tele2 IoT and our offering can be found at [www.tele2iot.com](http://www.tele2iot.com).

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## About Cuviva **CUVIVA**

### Our company

CUVIVA AB is a highly innovative Swedish software company that through openness and collaboration is working to create digital ecosystem for effective and sustainable distributed care, based on human needs and individual circumstances.

This way we contribute to a more equal and caring society where people with different healthcare needs receive optimum opportunities in their own home to experience security, quality of life and support from both caregivers as relatives and friends.

Find out more on: <http://cuviva.com/>