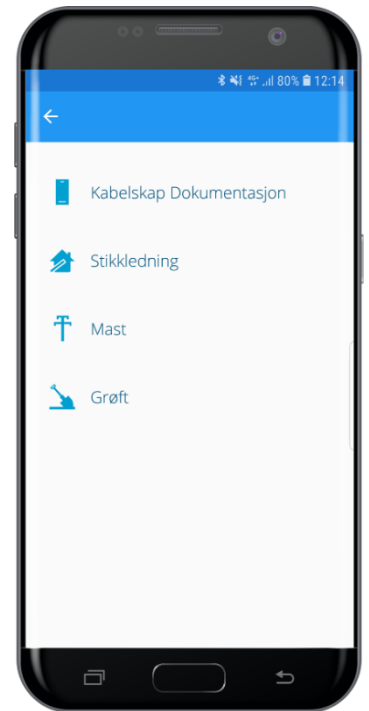# What is Network Collector?

Grid companies have different ways of working. Some hire contractors, others have their own staff, and many might have a combination of the two when the need is there. When it comes to documentation, what all of their processes have in common is that there are often many steps, a lot of paperwork, and perhaps also some unnecessary duplication of work. Furthermore, the cycle takes too much time.

Network Collector is a mobile application that has been developed to ensure that documentation of the low voltage grid is completed as soon as the work is done, by the field workers themselves. The idea is as simple as the execution: Whoever is out in the field, inputs the information they themselves have collected. A significant amount of work has been put into creating an as simple and user-friendly app as possible. This way, we avoid the feeling that the tool causes extra work for the field worker, but rather frees up time that was previously used for administrative tasks. Thus, these heroes can focus on what they do best, whilst still avoiding doubling up on work by someone else having to go back to the installation location to document the work. This is part of the Powel "field heroes" ideology, which aims to increase field workers' motivation and feeling of ownership.

Developed for users – by users

Network Collector is developed in cooperation with grid companies and field workers, and this close cooperation will continue when we develop the service further. Even though we know that grid companies have different ways of working, we also know that tasks performed in the field are often very similar. Each type of assignment in Network Collector offers the possibility to register properties, measure in the exact position, and add photos. One definite advantage of standardising this is that an external contractor hired in for a job will experience the same work practice at different grid companies. Network Collector as of today contains functionality for documentation of the most common tasks in the low voltage grid: cabinets, service lines, poles and ditch. These types of jobs are in high volume and of relatively simple complexity – a good starting point for where to begin saving time and money on being more efficient.

Work orders – planned and flexible

In order for the field workers to locate the relevant work orders in the map, these need to be established. Still, you are not entirely controlled by planned work orders if something unforeseen comes up. In all work orders, there is a "plus button" that can be used if the field worker spots

something extra that ought to be registered within the same assignment, perhaps something that the planner did not consider when the work order was set up? The same applies when you register work that has not been pre-defined as an assignment. In this situation, the plus button can be used to set up a new task. Network Collector also helps the field worker find the way between assignments, by setting up a driving route with road descriptions in Google Maps, straight from the application.
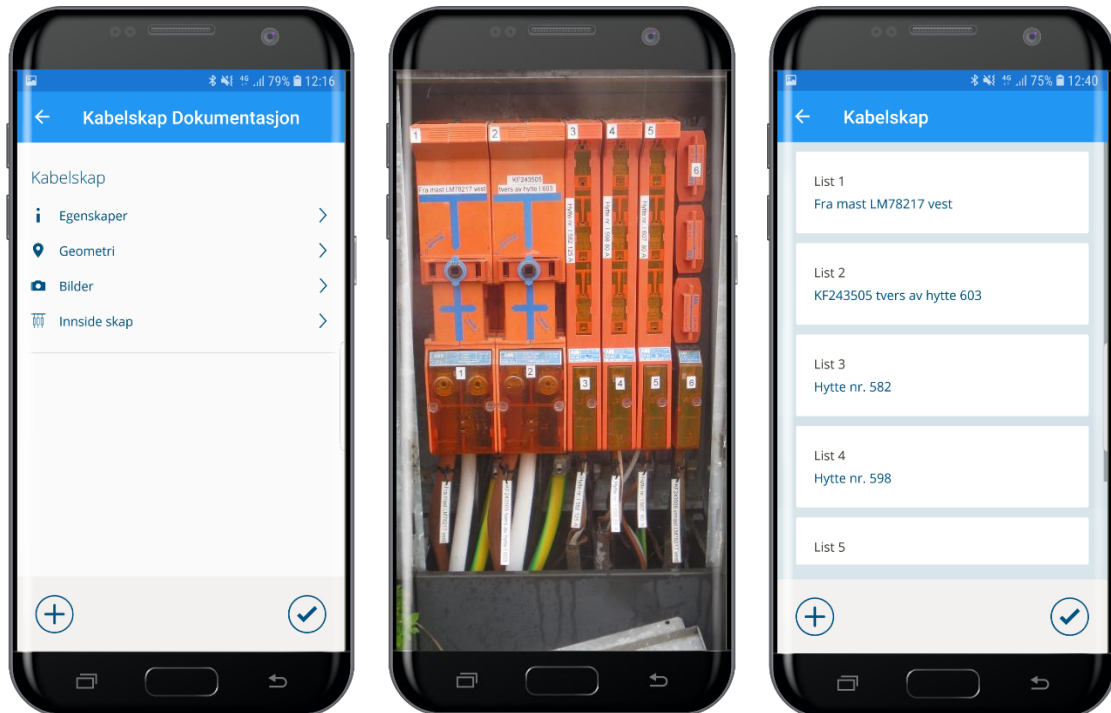
Configuration – what, how and why?

For the trial period, Network Collector will be launched with a standard configuration. This means that map views and lists with various assets, for example lists of available types of cable in a service line assignment, will be the same for all users. Download it and have a look! However, as a subscriber to the service, you can customise it to your needs.

In the configuration, you set your own defined minimum demands that needs to be completed in order to close assignments. Everything that is not a part of these demands can be deleted after having been added to the assignment – illustrated by a bin symbol. Which parts of an assignment that should be obligatory is up to you. Many people might want the photo documentation to be obligatory, whereas others do not have this need.

You can choose which background map should be displayed for your team. Configuration of what types of assignments you want to have available for each team is also available. An excavating contractor might only need the option of registering a ditch? You can also set your own demands to the precision of the measurements in the configuration.

A well thought-through configuration is important for several stakeholders. It is important for the field workers to ensure that they do not have to scroll through long lists of possible kinds of fuses from

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different suppliers when, in reality, there are only five real alternatives in use by the grid company. At the same time, the documentation responsible benefits a lot when the application is set up for using lists of alternatives instead of free text options.

Configuration will be made available as a simple self-service web application.

What do you need to get started?

The first step is to create a team with an optional number of users on Powel.net. As soon as this is done, you can download the Network Collector app from Google Play or App Store and immediately try it on your phone. All users added to the team will receive a welcoming e-mail with a link to the download. To log on, use the same user name and password as you do on Powel.net.

Precision when surveying

The demands for accuracy when it comes to surveying keep rising. Therefore, it is very important to be able to document accuracy in order to get the desired data quality. Network Collector is made in such a way that it works with the mobile phone's position, but at present this accuracy is not very precise. However, by attaching an external GNSS unit, you can achieve surveying quality. Measurements will be of both ground and height, and with the correct equipment, results will meet the requirements of the upcoming wiring chart standard.

Feedback from a pilot customer was clear: *getting information of what is to be documented, together with demands regarding precision, gives correct data with a quality guarantee.*
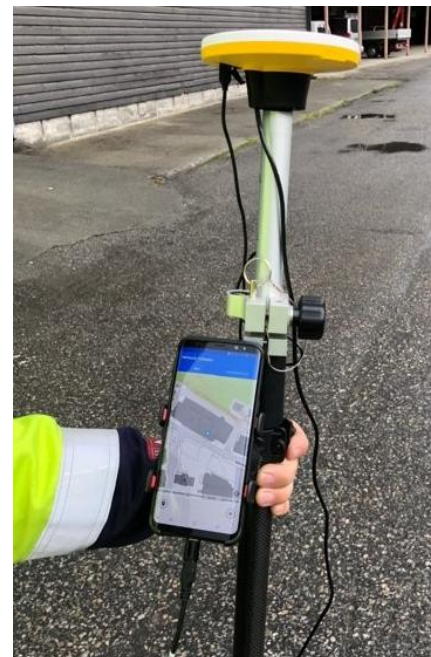
Network Collector is compatible with any GNSS unit providing Bluetooth connection. You can already test the application by using the equipment you have already invested in. Contact us if you experience trouble getting the same precision on your measurements as you get by using this equipment. As of today, we have tested successfully with hardware from vendors like Trimble, Leica and Topcon.

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If you do not already have any GNSS hardware, or already now see the need to invest in more since the use of Network Collector will entail an increased demand for this hardware – then we recommend the antenna called Trimble Catalyst. Trimble Catalyst is relatively cheap compared to the available competitors when it comes to unit price. It is also easy to start using since we have implemented it as a part of our application using their SDK. This way, the user does not need to consider any additional settings to get the hardware running – log in and setup will be handled by the Network Collector app. As a user, you sign up for a separate subscription for GNSS services with Trimble where the price will be set according to your need for precision and use. With sufficient signal, it is possible to achieve accuracy down to 1-2 centimetres. For an optimal utilization we recommend implementing both the Trimble licence and correction data from a CPOS-licence from Kartverket (the Norwegian Mapping Authority). We can help you set up this.

Network Collector is a cloud solution – what does that entail?

Network Collector is a cloud service built on the Microsoft Azure platform. This provides advantages such as reduced costs, increased flexibility and improved security. The log-in is via powel.net and all data will be available via web services. Powel ensures the secure handling of this data.

As a SaaS solution, Network Collector places no demands on your own IT system. Powel will ensure that you always have the latest version through continuous updates via Google Play or App Store. Pay attention to our release notes for the latest changes.

As a consequence of this being a cloud solution, Network Collector only works online. However, in the event of network problems, you will not lose your work as the solution saves data temporarily in order to upload them again as soon as you have connection.

System architecture
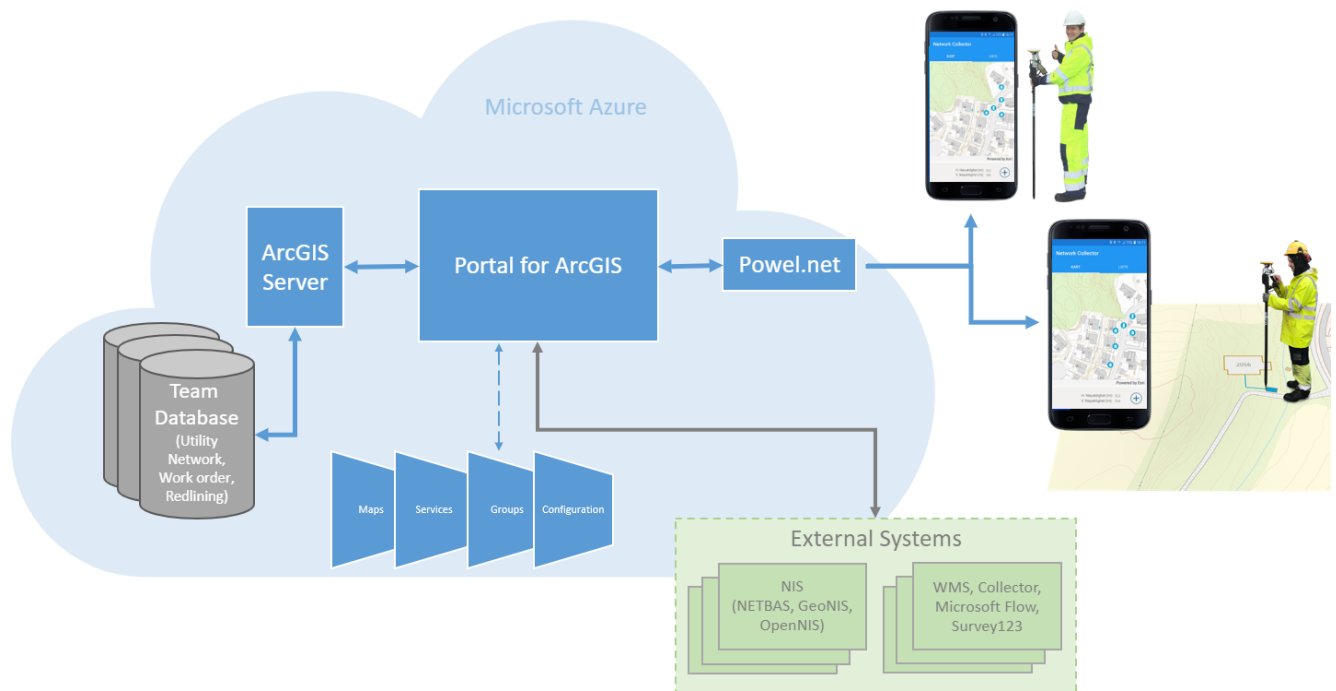
When a new team is set up, it is automatically connected to a database via ArcGIS Enterprise. Saved in *postgresqlm,* this database initially contains a standard configuration with map view and other set-ups saved in a JSON file. This can easily be configured to your needs, see the section above covering configuration.

The ArcGIS Server delivers the service that handles each team's database and the security here is governed by portal for ArcGIS. All infrastructure can be found in the cloud platform Microsoft Azure and all data is stored in Europe. No personal data is stored, only logged-in user and user's position when this person is working.

How to get access to the data

Network Collector is delivered with an API which gives access to reading the data saved in your team's database. This API contains geometry, attributes, topology, job types, and other configuration specifically for the particular team.

During the trial period, you will get access to see your collected data in a dashboard in powel.net. When subscribing, you are free to use the collected data to set up personalized webapps or dashboards to get required insights and overview. Our ArcGIS consultants can help you investigate needs and possibilities.

Many grid companies are interested in having direct access to this data in their NIS. This service is not a part of Network Collector, but the solution is built considering this. Powel will deliver a standard solution for integration with NIS solutions delivered by us, as an additional product to each NIS solution. As of today, this is at testing phase with pilot customers or still in development. Contact us to get updated information.

Should you wish to adjust your data or utilise them connected to a service not delivered by Powel, we can assist with consultancy services and help you get started.

A new practice for grid documentation

Network Collector is not just a new tool, it also represents the start of a new way of thinking about documentation. In conjunction with the start-up, we can offer consultancy in the form of a workshop or another preferred format, to get you as a customer to join our thought process. How far have you already come in this way of thinking? How does this enable you to streamline your entire work process, and not least, prepare you for the future? We encourage you to have a dialogue with us.

What happens next?

Network Collector has been developed for and with grid companies. For Powel, this is part of a commitment to field solutions. We have several ideas on how to take this further when it comes to functionality and scope, together with our customers.

The first step is Network Collector covering the execution and documentation stages of the bigger cycle. Our further goal is to review the whole planning process. You own your data, and there are some good opportunities for improved efficiency if you do not have to enter this same data several times in many different systems? The goal is to able to have a seamless integration from NIS, via a

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simple verification process where any "as-built" changes will be documented immediately, directly back to your NIS. Are you joining us?

Questions?

If you still have questions that have not been covered here, an idea, or other feedback? We would love to hear from you, please do not hesitate to contact Product Manager Eirin Bye at **Eirin.bye@powel.no**.

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