FieldNet System Overview

The heart of the FieldNet system is a software package that combines the features needed for meter reading and service orders including a powerful route management tool in one state-of-the-art package. The meter reading/service order portion of the system receives orders from the customer information system/billing system, downloads them to handhelds, collects data in the field, uploads from the handhelds, and sends the completed order information back to the billing system. The route management portion of the system uses timestamp information to create projected read times for each end point. This time is used to help restructure and manage the meter reading routes. Once satisfactory routes are created, transactions are sent to the billing system to update the new route information. A number of standard reports can be generated automatically to benchmark and manage the meter reading and service order processes. Custom reports can be developed to the utility’s specifications.

FieldNet has a client/server system architecture using standard TCP/IP communications and database tools. FieldNet was developed using object-oriented methodologies allowing for easy customization and addition of new features. As new features are added, they are added to the base code. These new features are provided free of charge to all clients. From Windows CE or .net handhelds to handheld communications across the internet this system takes advantage of current technologies in providing the most advanced route management, meter reading, and service order system on the market.

FieldNet Modules

**Automated Route Control System (ARCS)**
- Route management
- Labor optimization
- AMR deployment optimization

**Meter Reading**
- Keyed entry
- RF reading
- Optical probing on demand, TOU and load profile meters and recorders

**Service Orders**
- Meter management
- Installs/removals, collections, disconnects, investigations, etc.
- Dynamic routing utilizing GIS data

With over 100 installations nationwide, most DB Microwave ARCS customers generally eliminate 10% of their existing meter reading routes while other ARCS users lay claim to 15%-20% route saturation. ARCS projects can return an immediate payback within the first year. ARCS is the must-have tool to keep routes optimized for active AMR projects and high growth areas.

**ARCS Highlights**
- Fully compliant with existing billing, GIS, and handheld systems
- Easy-to-use Windows interface
- Maintains accurate read times for all meters
- Route geography on the user’s desktop
- Merge electric, gas and water routes
- Automated processing
- Online management reports

Traditional methods of route management have historically been an exceedingly tedious and resource intensive process. For this reason, many utilities have not performed a comprehensive route optimization project in some time. If this applies to your utility, it is likely that route splits and sizes are out of control. If your utility is implementing any type of Automated Meter Reading system (AMR), it is unlikely that you are realizing the full benefits of the system. AMR installations, by their very nature, demand a continuous route optimization process. ARCS can also help you manage or justify the installation of AMR meters by identifying the most costly reads in the system. The orders can be generated and completed automatically within the FieldNet system.

ARCS allows the creation of efficient routes faster than ever before by fully integrating with your existing meter reading, customer information, GIS, and billing systems. For combined utilities with electric, gas, and water meters ARCS allows you to create a single efficient route with ease by interfacing with the different legacy systems.
FieldNet is, simply stated, the most advanced meter reading system on the planet. The meter reading module of FieldNet is designed to read meters in the most efficient and safe manner possible. The system has the capability to read all types of meters in all standard mediums including keyed entry, optical probing, and radio frequency reading. The system is designed to promote easy upgrades and maintenance for the administration and handheld components of the system. This is due to the robust architecture and advanced communications of FieldNet allowing for software upgrades to be managed and installed from a central site using a standard ethernet connection.

FieldNet has the capability to automatically import and export meter reading routes in multiple files (ie. a file for electric and separate file for gas). The route management subsystem (ARCS) of FieldNet has functions for merging meters from different companies into one route and then passing billing information separately back to the billing system. The handheld software supports more than 10 routes/10,000 meters per handheld. The system also allows for predefined or special messages for all handhelds, individual users and specific premises. The meter reader can also enter comments that can be carried forward for future visits to the premise. FieldNet supports the use of .wav files to audibly communicate hazardous conditions to the meter reader.

DB Microwave has maintained its meter vendor independence allowing us to probe a variety of electric meters. For any automatic reading device requiring a protocol, we use an external DLL. This means we can deliver DLLs for new protocols and new devices without needing to deploy a new version of FieldNet. These DLLs are small ranging in size from 18k for radio reading to 200k for a multifunction time-of-use (TOU) load research (LR) meter. Because of the small DLL size and the high amount of memory we have on the handheld, you will not be limited in the number of electric meter protocols that can be used in the field. DB Microwave does not charge meter vendors or utility clients for developing DLLs and has consistently delivered new meter protocols in significantly less time and at a lower total cost than the meter reading industry has seen before.

The meter reading module for FieldNet is powerful on its own as many of our clients have recognized. When combined with the other modules, a FieldNet meter reading system stands alone in the value it delivers to utilities.

**Meter Reading Highlights**

- Electric, Gas and Water reading support
- Supports on-cycle and off-cycle reads
- Keyed entry, probing, and RF reading support
- Windows CE handhelds with high speed TCP/IP communication
- Integrated with ARCS for maximum route efficiency
- Independent multi-vendor support
- TOU/LP optical probing including programming & reading
- 3rd party AMR support
- Automated processing
- Online management reports
Service Orders

The original basis of justification for handheld meter reading was to eliminate paper, increase efficiency, and improve customer satisfaction through better service. There is no doubt that handheld meter reading has proven its value over the years. The fact is, many utilities have realized the benefits of paperless meter reading. The evolution of this concept has now been realized with the FieldNet system to include service orders in one integrated system.

The distinct advantage of integrating the meter reading and service order process on one rugged device is to maximize efficiency from a work flow stand point. The most significant aspect of our system is that all of the account data collection or service requirements for an account are incorporated into an efficient route. FieldNet supports work assignments by category, order type, and urgency making sure that the right person is there on time to perform the work required.

Service Order Highlights
- Real time distribution of orders to field personnel using TCP/IP
- Real time posting of order status and completion data from field personnel using TCP/IP
- Predefined business rules for dynamic service order sorting, routing and assignment
- Easy-to-use Windows interface
- Maintains history of service calls by premise and crew
- Automated processing
- Online management reports

An Example of Service Order Process Improvements with FieldNet

<table>
<thead>
<tr>
<th>Process</th>
<th>Simple Order Cycle Times</th>
<th>Complex Order Cycle Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Paper</td>
<td>2-3 days</td>
<td>3-7 days</td>
</tr>
<tr>
<td>FieldNet Batch Process</td>
<td>Overnight</td>
<td>2-3 days</td>
</tr>
<tr>
<td>FieldNet Mobile Data</td>
<td>Real Time</td>
<td>Overnight</td>
</tr>
</tbody>
</table>

FieldNet supports a large number of service order types. These include but are not limited to collections, meter installs/removals, account disconnects/reconnects, investigations, meter management, and customer appointment management.
DB Microware’s FieldNet® System is an integrated route management, meter reading, and service order package which utilizes the latest software and hardware technologies available. The software is being used today at 28 of the largest 100 electric & gas utilities in the United States and well over 100 utilities internationally. The clients that have used the FieldNet system have consistently reported successful projects with benefits that far exceeded business case expectations. These extended benefits include increased efficiencies, balanced work loads, labor cost reductions, increased cash flow, and more satisfied end customers.

We invite you to talk to any of our current or past clients. The fact is, we pride ourselves on delivering exceptional customer service before, during, and after the installation of any DB Microware System.

DB Microware’s FieldNet is the only system available today that allows the option of incorporating meter reading with service orders on one rugged mobile Windows CE or .net device. There is no doubt that the FieldNet system is the most advanced system available today. This is a state-of-the-art system that solves many utility operational difficulties in an elegant and practical manner.

DB Microware Information
DB Microware is located in Plano, Texas and was incorporated in 1987. During this time, it has dedicated itself solely to the software solutions sector of the utility industry. DB Microware became a wholly owned subsidiary of Neptune Technology Group in December 2002. Neptune is located in Tallassee, Alabama and employs over 700 employees worldwide. Additional information on Neptune can be found at www.neptunetg.com.

First and foremost, DB Microware is a software development company. As such, we are willing and able to customize our systems to meet the exact requirements of our customers. Whether it is simply changing some of FieldNet’s terminology or incorporating a new function, our clients have a system that truly reflects their operation.

DB Microware is a Value-Added Reseller (VAR) of DAP Technologies. DAP handhelds have been the industry standard for quality and durability over the past decade. When FieldNet is installed on this particular handheld, which operates in a Win/CE/.net environment, the DAP handheld can read meters, probe meters, program meters, or simply work service orders.