



# Service Parts Management

**A ClickSoftware White Paper**

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## Table of Contents

|   |    |
|---|----|
| Introduction .....  | 3  |
| Market Drivers .....  | 4  |
| The problem .....   | 4  |
| Shortage of parts may cause repeat visits and low service levels .....                              | 4  |
| Parts pickup activities may lead to high travel costs and low operation performance .....           | 4  |
| Nonavailability of special equipment may lead to a suboptimal schedule .....                        | 5  |
| Streamline the billing and logistics processes .....  | 5  |
| Every service organization is different .....   | 5  |
| The Solution—A New Way of Looking at Things .....   | 6  |
| Service parts as a scheduling consideration .....   | 6  |
| Standard van stock, refill activity is reflected in the schedule .....                              | 6  |
| Standard van stock, service parts as a scheduling consideration .....                               | 7  |
| Nonstandard van stock, service parts as a scheduling consideration .....                            | 8  |
| Availability of special equipment .....   | 10 |
| Tools as a field resource's attribute .....   | 10 |
| Equipment as a managed resource .....   | 11 |
| Streamline business processes .....   | 12 |
| ClickSoftware—The Best Way of Looking at Things .....   | 13 |
| ClickSchedule—A best-in-class scheduling optimization solution .....                                | 13 |
| ClickMobile—A mobile solution to support field resources in reporting service parts execution ..... | 13 |



## Introduction

In response to shrinking product-based profit margins and increasing pressure to deliver better customer service, companies are constantly looking for ways to bring greater efficiencies to their service operations. For an increasing number of companies, the answer to greater efficiency lies in finding ways to automate and control the flow of service parts to and from asset operators.

Since the goal of effective service execution is to address the service need at the first visit, service parts management becomes central to the efficiency equation. Making sure that the best technician to address a specific service call makes it to the correct service location at the time promised to the customer is not enough if that technician does not have the right parts to complete the job.

While companies traditionally have put more emphasis on the planning of parts, service-oriented companies are beginning to focus on the intelligent management and scheduling of service parts as a means of reducing excess costs, improving service-level compliance, increasing customer loyalty, and offering a differentiated value proposition. The leading service organizations recognize the strategic importance of service parts management to their firms' respective abilities to retain and grow customers and impact both the top and bottom lines.

When it comes to parts management, organizations face several challenges:

- Improving service—Having the right parts for the required service the first time in order to meet customers' commitments and reduce or eliminate the need for parts-related repeat visits
- Managing field resources more efficiently—Having the van stock-refill process and parts pickup activities incorporated into the service day in the optimal way to reduce travel costs and use workforce working hours more efficiently
- Responding to changes in demand for service parts during the service day—Managing parts shortages during the day while still arriving on-site in time to meet customers' commitments and maintain high service levels
- Optimizing usage of the workforce and its physical resources—Managing the need for special equipment as a scheduling consideration in addition to parts management considerations

- Generating revenue/reducing costs—Streamlining billing and logistics processes, enabling a quicker billing cycle to get revenues in the door more quickly, and reducing the time and inventory costs associated with traditional parts management

In order to address the business challenges described above, service organizations need to view parts management—including van stock-refill processes and parts pickup activities—differently than they have in the past. They need to start treating parts management as a business consideration taken into account when creating the daily schedule for field resources.

By incorporating parts management as a business constraint in the scheduling solution, service organizations can ensure that parts management activities happen in accordance with the company's predetermined key performance indicators, also built into the scheduling solution. The result will be a more realistic schedule with better performance measurements, better usage of the field resource's workday with reduced travel costs, and streamlined billing and logistics processes.

In some companies, parts management is handled via an enterprise resource planning (ERP) or other such system. These systems, however, do not provide a complete solution for effective parts management. Most ERP systems do not have a way to effectively manage the need for information regarding the required parts for a work order, the need to support the parts-refill and pickup activities on the day of service, scheduling the work and the required equipment to the relevant field resources, and subsequently updating the parts usage in order to appropriately bill and track stock. To incorporate all these challenges at once, these work processes should be included in a service parts management solution.

ClickSoftware has vast experience with different types of service organizations from various industries all over the world, and our experience has taught us a lot about effective parts management. This white paper summarizes various types of business challenges service organizations may encounter while dealing with service parts management and how these challenges are best addressed by different solutions.

## Market Drivers

Leading service organizations constantly strive to meet the age-old challenge of doing more with their existing resources. But finding the right area to work toward efficiencies is not always easy. Where can a service organization make small changes that have big impacts? Parts management is certainly one such area. Managing parts and equipment in an optimized manner will minimize travel, reduce repeat visits, and help shorten billing and logistics cycles. And these are just the bottom-line drivers. By providing better service to customers, a service organization also will experience high retention and increased customer goodwill, both of which impact top-line revenues.

An Aberdeen Group study<sup>1</sup> noted that best-in-class service organizations are 84% more likely to provide field staff with real-time visibility into parts availability than are “Laggard” service organizations—those operating below industry-average performance levels. “Given the escalating cost of service calls and increasing customer demand (and often contractual obligations) for first-call fix performance,” the research states, “implementing the technology and process to ensure part availability at the point and time of service can offer Laggards significant upside opportunities for improvement.”

## The problem

Providing a service that requires parts—whether the parts are needed to perform the service (i.e., equipment and/or tools) or are needed as part of the service being performed (i.e., spare parts)—makes service operation even more challenging. The following section details the typical challenges service organizations may face when dealing with service parts management.

### Shortage of parts may cause repeat visits and low service levels

Many service calls require that the technician performing the work has certain parts to complete the job. So it follows that when a field resource arrives at a customer location and these parts are missing or are not able to fully perform their required functions, the service can't be performed and will need to be rescheduled.

This scenario has a number of consequences for a service organization. First, the customer's problem has not been solved, his or her time has been wasted, and he or she now will need to make arrangements for a second service call on another day. This poor customer experience can translate into poor retention and possibly diminished new business if the service organization

develops a reputation for this type of performance.

In addition to the shortage of parts affecting the organization's service level, it also affects the overall efficiency of the service organization. Instead of wasting time at a customer where the field resource could not complete the work due to insufficient parts, the field resource could have been reassigned to a customer whose problem could be solved with the parts available. Now the service organization must find a time to send the field resource to the customer a second time to complete the required service, reducing the availability of the overall field workforce to handle new incoming service calls.

Adding to the shortage-of-parts challenge, there might be a scenario in which the required part for the work order requires lead time for part availability. If that lead time is not taken into consideration when creating the schedule, more of the resulting part shortage problems will occur. This makes service parts management a critical constraint when creating a schedule.

### Parts pickup activities may lead to high travel costs and low operation performance

In order to have the parts they need, field resources often have to pick them up from a central location. In many cases, these pickup activities are included as part of the field resource's daily tasks. If the parts pickup process is part of the daily work of the field resource and is being done during the course of the workday, these activities should be considered when creating the schedule. Otherwise, when parts are required during the day, the field resource may have to travel to an available depot at a less-than-optimal point in his or her daily schedule, which will take time and cost money, and may dramatically affect the planned schedule. In this scenario, the risk of not meeting customer service level agreements (SLAs) can increase dramatically.

So, poorly managed pickup activities during the day can have a significant negative impact on customer service and resource utilization. But moving pickup activities to hours outside the daily schedule is not necessarily the best solution either, as the service organization will most definitely incur higher costs this way. Whether the costs come from the increased travel required or from overtime, the potential for off-hour pickups to drive up operating expenses is great. Additionally, off-hour pickups limit the flexibility of the service organization to respond to last-minute changes in the schedule or to address same-day service needs.

### **Nonavailability of special equipment may lead to a suboptimal schedule**

In addition to the jobs that require spare parts, there also are work orders that require critical/nonstandard equipment. Usually, in the case of special or very expensive equipment, the service organization has a limited number of units available (e.g., cranes). Ignoring this business constraint when creating the schedule may result in idle resources and an unrealistic schedule. Field resources may be left waiting for equipment to perform a work order, or work may be scheduled that cannot be done due to the nonavailability of the critical equipment. Either way, the overall efficiency of the schedule will be compromised.

### **Streamline the billing and logistics processes**

Field resources are responsible for providing service in the field. Field resources also provide feedback to the organization regarding the specifics of the service provided—including parts usage, quantity, types of parts, catalog numbers, etc. This feedback from the field is critical for triggering the billing and logistics processes necessary for the business functions of the organization. The challenge of the business organization is to reduce as much as possible the time being spent on these business processes.

The importance of reducing the billing and logistics cycles includes the following factors:

- The billing cycle, which is the interval between bills for products and services, is used to calculate such things as interest and account standing, and therefore it affects the financial bottom line of the business organization.
- The logistics process encompasses a broad scope of responsibilities, extending from the vendor through to the customer. One of the critical issues in this business process is time. Products and service parts must be delivered to the customers quickly so that the business does not need to maintain costly parts inventories. In general, this demand for time reduction exists throughout each link of the supply chain so that reducing time in the service supply chain will have an overall effect.

### **Every service organization is different**

While we have detailed the overall challenges that a service organization may face when addressing service parts management, it is unlikely that any one service provider will encounter all these challenges. Each service organization deals with a different mix of the above challenges, which are dictated largely by the line of business the service organization supports. Altogether, without the right business processes and the proper solutions in place, service organizations that struggle with any of these problems are likely to experience:

- A higher percentage of repeat visits
- Longer travel times
- More time spent on refill and pickup activities
- Suboptimal usage of field resources and equipment

All the above will result in high costs and low customer satisfaction.

## The Solution—A New Way of Looking at Things

Now that we have written at length about the problems caused by parts shortages, pickup activities, equipment nonavailability, and extended billing and logistics cycles, let's take a closer look at the solution—viewing service parts management as a business constraint when creating the field service schedule.

Looking at the business challenges of a service organization relative to service parts management makes several things clear:

- Service parts should be part of scheduling considerations.
- Parts should be reflected in the schedule.
- Parts requirements should be transparent to the field workforce.

This means that when field resources are given their daily schedules, they should also get data about the parts they will need as well as have pickup activities built into their optimized schedules. Accordingly, since parts information already will be incorporated into the schedule, when it comes time for the field resource to report back on the execution of the service delivery, parts information can be reported quickly, streamlining the billing and logistics processes.

In order for parts management to work effectively, service organizations must take a holistic approach, enforcing parts management throughout the life cycle of a work order—from work order creation through parts billing and logistics. First, when creating the work order for each service type, service organizations should capture information regarding required service parts. In cases where special equipment is required, it also is necessary to define the general availability of this resource and whether or not it is critical to perform the work. Next, during the scheduling process, the service parts should be enforced as business constraints. This will allow service organizations to schedule work to field resources who possess the required parts. It also will help organizations be able to respond more quickly to real-time updates or unexpected events that occur during the service day. Finally, following the execution of the work, the billing and logistics cycles should be triggered quickly to facilitate faster collection on accounts receivable and to reduce the need for maintaining large inventories.

### Service parts as a scheduling consideration

One way to avoid parts being missing when needed for a service call is to load field resources' vans with extra stock. This may sound like a simple solution, but take a closer look. Extra stock means increased inventory costs, which get multiplied for every field resource who is carrying extra stock in his or her van. Moreover, this may not be a feasible solution from a logistics perspective, as it would be almost impossible for many service organizations to maintain generic inventories for all work types.

When parts are viewed as a scheduling constraint, it enables organizations to take a just-in-time approach to van stock, minimizing inventory costs while ensuring that field resources have the parts they need to complete their service calls.

There are three different scenarios of van stock management from which a company may choose. Each scenario is supported differently in the scheduling solution. The scenarios are:

- Standard van stock, refill activity is reflected in the schedule
- Standard van stock, service parts as a scheduling consideration
- Nonstandard van stock, service parts as a scheduling consideration

### Standard van stock, refill activity is reflected in the schedule

In the instances where the service organization can identify standard van stock, it should do so for all field resources and set up a certain minimum threshold and routine process by which field resources should refill this van stock. The refill process could be handled in a "pull" mode, an activity of the field resource whereby he or she would drive to the depot to refill his or her van stock. Since the refill activity may affect the schedule, refill pickups should be reflected within the schedule itself.

Another option is to handle the refill process in a "push" mode, meaning that the van stock of the field resource would be filled by another party. An example of how the push mode may work is that while the field resource is at home during off hours, a refill unit would be responsible for refilling the field resource's van according to need. This push mode may reduce the technician refill effort dramatically. In this business scenario there is no impact on the schedule.

Whether a push or pull mode is used, refills can be done as a routine process prior to the start of the service day, during working hours, or during the evening. In cases where the refill process is done by a pull mode during nonworking hours, it is not essential that the refill activity be reflected in the schedule, though it can be a good reminder for the field resource not to forget to refill his or her van stock. In cases where the refill process is done in a pull mode during working hours, the refill activity should be reflected in the field resource's schedule so that travel time and the nonavailability of the resource will be taken into consideration when creating the schedule.

In cases where the refill process is done during the working hours of the field resource, there are several ways to create repetitive and recurring refill work to be reflected in the schedule. In any process, the refill work should have location and time information. It is essential that travel time to the refill location be reflected in the schedule so that the travel time of the field resource will be calculated appropriately. The refill work then can be handled in one of several ways:

- It could become a constraint in the schedule optimization process, and the back-end system could create a schedule recurrence for refill work and send the recurrence via integration to the scheduling solution.
- The scheduler could manually create these jobs through the scheduling solution or block time in the field resource's schedule for the refill work.
- The field resource could refill his or her van stock whenever it is convenient. In this case, the technician would be able to create a refill work order through his or her mobile device or block availability for the replenishment process.

Another option, which may reduce the technician refill effort dramatically, is to send the service parts stock to the technician's location, whether to his or her home base or to a specific setup location.

#### **Standard van stock, service parts as a scheduling consideration**

A service organization with standard van stock can enhance its schedule quality by viewing van stock as a scheduling constraint. In this case, van stock parts are managed as part of the field resource's inventory, so that at any moment it is possible to know which parts are available in his or her van stock.

In order to take parts availability into consideration when creating the schedule, there are two prerequisites: parts required for the job and parts available in each field resource's van must be included as attributes considered in the scheduling solution. Van stock data is usually managed in a back-end system, such as an ERP or some form of legacy system, and is transferred via integration to the scheduling solution. When the work order includes information regarding the parts required for the job, these attributes then can be compared with a field resource's available van stock attribute to determine if, from a required parts perspective, the field resource is a good candidate to handle the work order. In cases where the attributes of parts required and parts available match, meaning that the field resource has the required parts for the work order, he or she will be marked as a candidate field resource available to be scheduled for the job. This should be implemented in the scheduling solution as a business rule. Once the scheduling solution has identified all the field resources who have the required parts for the work order, it can assign the job to the candidate who best fits the other business rules of the solution.

For example, in a telecommunications company, field resources may have a standard van stock of five ADSL kits, each of which is the required part for an ADSL installation. Let's assume that there are two field resources available to do the work: Worker 1 and Worker 2. Worker 1 currently has three ADSL kits, while Worker 2 already has used the last kit in his van. Accordingly, Worker 1 will have an attribute that reflects that he has three ADSL kits (as a resource attribute). Following the business constraints in the scheduling solution, only Worker 1 will be a candidate for the installation work, since there is a match between the required part (the ADSL kit) and the resource attribute (having one or more ADSL kits available).

To summarize, viewing required service parts as a consideration for scheduling so that only field resources with available parts will be candidates for specific work orders will help ensure that the assigned field resource arrives at the customer location with the required parts in hand.

In addition to standard van stock, there may be other business considerations regarding parts availability that should be taken into account when creating the schedule (e.g., a part's lead time). In the situation where a work order requires a part with a longer lead time, scheduling the work order must be based on when the

part will be delivered. In order to manage this part availability constraint, the solution should translate the “lead time” to the “earliest start” of the scheduled work. In other words, from a part-availability standpoint, what is the soonest point at which required work can be started? The solution also may identify the point at which the part becomes available so that the work can be scheduled or dispatched.

Having service parts as a consideration in the schedule requires that the refill process be reflected in the schedule as well. Since we still are writing about standard van stock, the replenishment process discussed in the previous section remains the same from a solution perspective. Whether refill work is done as a repetitive process or only when triggered by van stock crossing a minimum threshold, all the previously suggested solutions for how to reflect the refill activities in the schedule are relevant to this business scenario as well.

#### **Nonstandard van stock, service parts as a scheduling consideration**

It is common that a service organization will have some percentage of work that requires nonstandard parts. In these cases, the service organization can’t identify standard van stock for the work (e.g., when the work requires very expensive parts). Since the field resource in this scenario would not have in his or her regular van stock the parts required to perform the work order, he or she would need to pick up the required parts prior to arriving at the customer location in order to be able to provide the required service. Since the pickup activity is time-consuming, the service organization should try to create a schedule with minimized travel and pickup activities. Otherwise, suboptimal usage of resources will result.

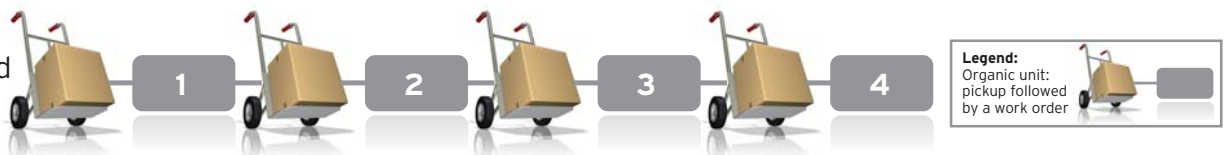
In the situation where the necessity for a nonstandard part requires a field resource to make a part pickup run, both the work order and the part pickup activities should be included in the schedule optimization process.

In order to follow this practice, the work order and the pickup work must be related in the scheduling solution with a resource dependency, meaning that the same field resource will do the pickup work and carry out the work order that required the picked-up parts. The solution also must be able to reflect a relationship between the work order and the pickup order so that the work will not be scheduled to start until after the pickup is complete. Further complicating this scheduling scenario is that the pickup order and the work order may be required to be performed on the same day. This situation would require yet another constraint when scheduling the two orders—having the same day for execution.

The first challenge in scheduling is always to create the appropriate dependency between the work order and the pickup work. Once that is done, the service organization can move on to the next and perhaps more complex challenge of managing the dependency considerations while creating the schedule.

When building the scheduling solution to take dependency constraints into consideration, service organizations must take care to avoid adopting an oversimplified approach to managing the dependency when building the schedule. As is illustrated below, one way to manage the dependency is to simply schedule the work order to immediately follow the pickup order. This solution, however, will result in redundant pickup activities and will affect schedule efficiency.

Oversimplified practice:



A better practice would be to add the dependency relationship between the pickup work and the work order as part of the schedule constraints, while still having an optimization process that searches for the best overall schedule given the dependency constraints. Sending one resource to the parts pickup depot several times per day is not an efficient use of time. Therefore, the challenge is determining how to cluster pickup activities and schedule them, along with their dependent work orders, in a way that will minimize travel and improve field resource efficiency. This will enable the field resource to handle more work orders per day, even when those work orders may require picking up nonstandard parts.

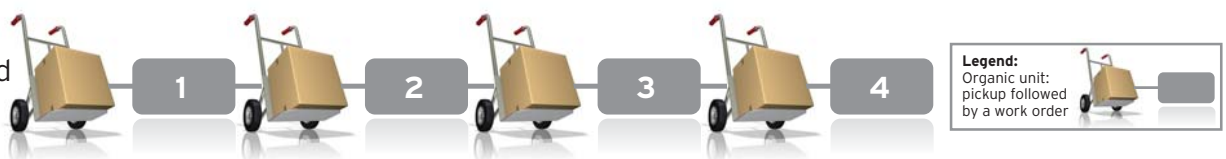
As mentioned previously, managing nonstandard parts pickup work becomes more complicated when parts pickup work is scheduled to occur on the same day that the service organization policy dictates that the work order must be completed. While it is necessary to maintain the dependencies set up between the pickup work and the work order, it is clear that having the schedule bound with fewer constraints will provide more flexibility and opportunities for efficiency within the service organization. For example, allowing for the collection of special parts a day before the actual work order due date likely will give the service organization more options regarding available field resources, will help the service organization better cluster pickup work, and will help enable a more optimized schedule overall.

So by having pickup work and work orders as part of its scheduling considerations, the service organization has the opportunity to optimize the schedule and perform even better from a service perspective. As an added benefit, having the pickup work as part of the planned schedule will enable the field resource to view the pickup activity via his or her mobile device.

Another option when optimizing pickup activities is for the service organization to treat each field resource's van stock as a pickup location so that it is not necessary to send all field resources to the nearest depot. In other words, a field resource who needs to pick up a special part would be able to pick it up from one of his or her colleagues' vans. This enhanced solution would provide more flexible pickup locations and could result in less travel time and higher field resource utilization.

In order to implement this solution, the service organization would need real-time visibility of each field resource location as well as full real-time visibility of the stock status of each van. Using this data, the scheduling solution would search for candidates for a pickup location. This pickup process could be performed only in service organizations that practice same-day optimization. This enhanced scheduling process also would require a GPS solution so that the near-real-time locations of the field resources would be available.

Oversimplified practice:

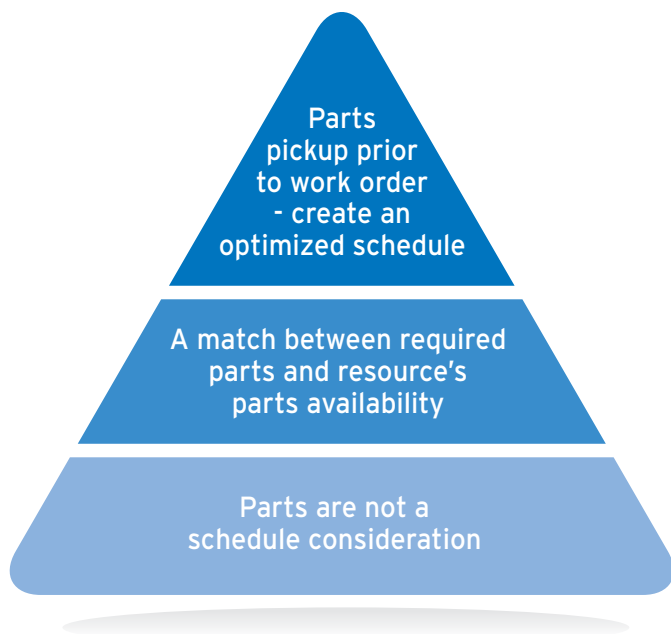


The right practice:



No matter what level of automation and optimization a service organization practices, there always will be business scenarios in which the dispatcher will need to intervene and make manual decisions that override the original system recommendations. In these cases, the scheduling solution should prompt the dispatcher with alerts and indications if one or more work orders violate the service parts constraints. Obviously, the dispatcher would be able to override these alerts and schedule the work orders as necessary.

To summarize, we have looked at several different approaches to parts management in the service organization. As is depicted in the graphic below, each scenario offers an opportunity for different levels of optimization. Organizations with standard parts can achieve a level of optimization by simply incorporating van refill activities into their processes. To reach a higher level of optimization, organizations can include the parts themselves as constraints within the schedules. When nonstandard parts are necessary for completing a work order, incorporating dependencies between parts pickup work and work orders into the schedule will help ensure that work is scheduled for when special parts are in stock.



But parts management is just the tip of the iceberg for some organizations. Read on to explore best practices in managing the availability of special equipment.

### Availability of special equipment

A service organization may have equipment that is critical for performing certain work orders but is limited in number of units (i.e., not every field resource has his or her own at his or her disposal). Since the equipment is critical, it has the potential to affect the schedule and as such should be considered when building the schedule. Not taking special equipment into consideration when making the schedule may result in an unrealistic schedule, including idle resources and sub-utilized equipment.

To provide an overview of the different solution options for managing special equipment as part of the schedule we will focus on two main business scenarios, discussing for each what the best solution would be. The two scenarios are tools that are managed as a field resource's attribute and equipment that is managed as a resource.

### Tools as a field resource's attribute

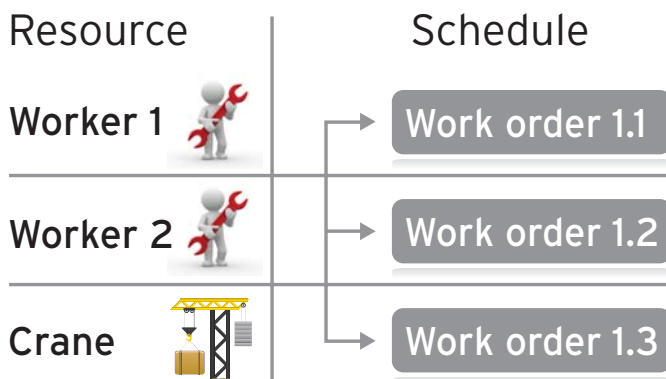
When dealing with personal equipment, the service organization equips its field resources with certain tool kits according to resources' skills and the work orders they can perform. A good example may be a specialty tool that belongs to a field resource. In the case of a work order that requires a specialty tool to perform the work, the specialty tool should be defined as a work order requirement. In the case of a field resource who is equipped with this specialty tool, the specialty tool should be defined as an attribute of the field resource—in which case it may be one of several attributes according to the needs of the service organization. After adding the work order requirements and the field resource attributes, there is a need for a business rule that, for all work orders with the specialty tool requirement, will search only for field resources who have this specialty part, so that only those field resources with the specialty part will be candidates for the scheduling of this work order.

**Equipment as a managed resource**

An example of equipment to be viewed as a managed resource is a crane that may require more than one field resource to operate. In the following solutions, the crane is managed as a resource.

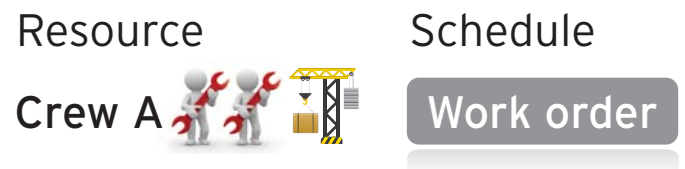
One option is to manage the crane as a resource with certain availability. The group of required resources (field resources and physical resources) is then teamed ad hoc to complete the work order. This special work order would be reflected as three work orders with a same-start dependency among them, tying together the crane with the field resources needed to operate it.

Let's look at an example of how this might work. Worker 1 is a senior engineer and Worker 2 is a junior engineer. Both Worker 1 and Worker 2 specialize in crane work. In this case, when a new work order requiring a two-person crane enters the back-end system, the work order itself should be broken down into three different work orders (one for the crane, one for the senior engineer with the knowledge of how to operate the crane, and one for the junior engineer with the same knowledge), with a start-to-start dependency among them. This will ensure that all work can be executed at the same time. As part of the scheduling process having to deal with two-person crane work, the scheduling solution will search for an available crane and two field resources (i.e., one senior engineer and one junior engineer) who fit the requirement of the three connected work orders. Once the right candidates have been found, the scheduling solution would allocate the two field resources as an ad hoc team, allocating the crane as another resource of this team. The schedule would be presented as follows:



Another option is to allocate the crane to a predefined crew of two field resources that is consistently scheduled for crane work. In this case, the crew teaming is known in advance. To continue from our previous example, Crew A would include Worker 1 and Worker 2 (the senior and junior engineers specializing in crane work) as well as the crane itself. This crew teaming would be done as a prescheduling process and would generally last a day or more, depending on the service organization policy. Now, when a new work order that requires crane work with a crew of two field resources enters the back-end system, the scheduling process will search for a crew that fits the work order requirements. In other words, the scheduling process will search for a match between the work order requirements and the crew's attributes rather than the attributes of three individual resources. The crew inherits its attributes from its resources, so that in the scheduling process Crew A would be a candidate for a work order requiring a senior and a junior engineer with crane work knowledge. Once the right crew candidates have been found, the scheduling solution would schedule the work order to the available crew, in this case Crew A.

The schedule would be presented as follows:



This scheduling solution requires a background business process of resource teaming, which defines the crew allocation, field resources, and equipment allocation.

To summarize, managing tools and equipment availability may be performed in different ways. Having the equipment as an attribute of a specific resource will provide a good solution for managing personal tools, though the service organization may have less flexibility in transferring the tools from one resource to another. Having field resources allocated ad hoc with equipment will provide the service organization more flexibility in deciding who does what and when, though it is more complicated to reflect in the schedule (there is the need to change the representation of the work orders in the back-end system). Having field resources allocated with the equipment as a crew will provide

the service organization scheduling simplicity, though it requires the preprocessing work of crew teaming and equipment allocation. Each presented solution has its pros and cons, but in general, service organizations have a number of options from which to select the solution that is right for each business process and/or each business scenario.

### Streamline business processes

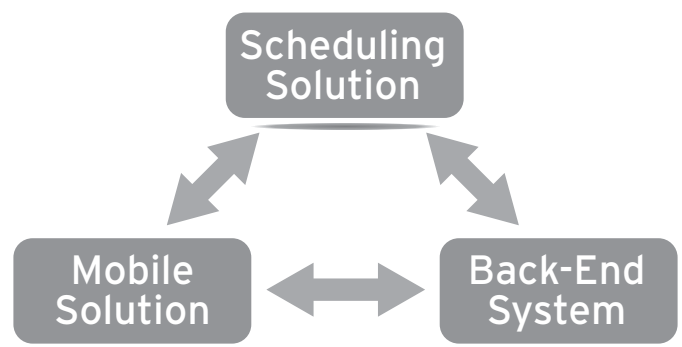
Having service parts managed and scheduled by the scheduling solution provides the service organization with an enormous business opportunity—shortening critical business functions such as billing and logistics processes. The growing challenge of the business organization to reduce the duration of these important cycles requires advanced technology to support it. This challenge emphasizes the need for a platform that will allow execution reports from the field in real time.

After a field resource completes a work order, he or she has to report on the service execution, including the time and duration of the actual service as well as other service information. Since the field resource updates essential service data anyway, it would be highly beneficial if he or she were able to report on the usage of service parts as well. Reporting on service parts execution allows the service organization to update inventory in real time and trigger the billing process. By enabling the general billing cycle to be activated promptly, the service organization is able to collect on accounts receivable more quickly.

Reporting on work execution, including parts usage, also may affect the schedule. For example, when managing van stock as a field resource attribute, the parts that are available in the van stock can be treated as a scheduling consideration (as suggested in the subsection “Tools as a field resource’s attributes”). Therefore, in a case where the field resource ends up using either more or fewer parts than were originally thought to be required, it might affect the schedule. In this instance, the solution would have to include an exception management process in which it would trigger an inconsistency alert that would provide the dispatcher the ability to be proactive in changing the schedule as necessary. The service organization would have to define the business process for dealing with exceptions—whether the dispatcher would call the field resource and verify his or her ability to complete the next scheduled work order or just reassign the work to a more-equipped field resource.

In order to allow this important data flow, the scheduling solution should be able to update the logistics and billing application

databases, resulting in the need for triple-tight integration: between the mobile device and the scheduling solution; between the mobile device and the relevant back-end system (ERP/billing or other); and between the scheduling solution and the back-end system. This scheduling solution would support the critical business processes so that a new inventory order could be triggered as needed and the business would be able to start the billing process immediately following the service execution. This streamlined process would then result in bringing in revenues on a more timely basis.



### The Benefits

Service organizations that manage service parts as part of managing the overall service are likely to improve their operations in the following ways:

- **High performance:** Managing parts from the service requirements through scheduling and execution will provide the service organization with better operational results (e.g., field resources will arrive to appointments on time with the correct parts to complete the work orders).
- **Reduced mileage and dispatch costs:** Improving the first-time fix rate by having the right parts at the right time the first time will automatically affect the bottom line through reduced need for repeat visits and additional dispatch time.
- **High resource effectiveness:** Having parts pickup processes planned as part of the schedule optimization will result in less travel and more-effective work. Having fewer repeat visits will allow the service organization to utilize its resources and equipment, and will enable it to do more with the same or fewer resources.

- **Customer satisfaction:** Adding the service parts consideration into the schedule will ensure that customers will receive service on time as committed. Meeting the SLA will result in improved customer satisfaction.
- **Streamlined billing and logistics processes:** Having the parts execution report in real time will trigger the start of the billing process, which will be reflected in the financial bottom line (accounts receivable). Real-time reporting also will provide for real-time updates of the inventory, which will enable a shortened logistics cycle and result in lower inventory costs.
- **Better resource utilization:** Managing equipment as part of the schedule will result in a more realistic schedule, with fewer work cancellations and fewer repeat visits, which can occur when physical resources and field resources are not available as anticipated.

## ClickSoftware—The Best Way of Looking at Things

ClickSoftware has vast experience with the different needs of service organizations relating to field workforce management. By understanding our customers' varied business problems, ClickSoftware has shaped its products to address all these needs. Managing service parts throughout the service supply chain is challenging, since service organizations need to deliver high service levels while maintaining high operational performance. ClickSoftware has a comprehensive solution for service parts management throughout the service chain. The solution is based on our ServiceOptimization Suite of products and includes:

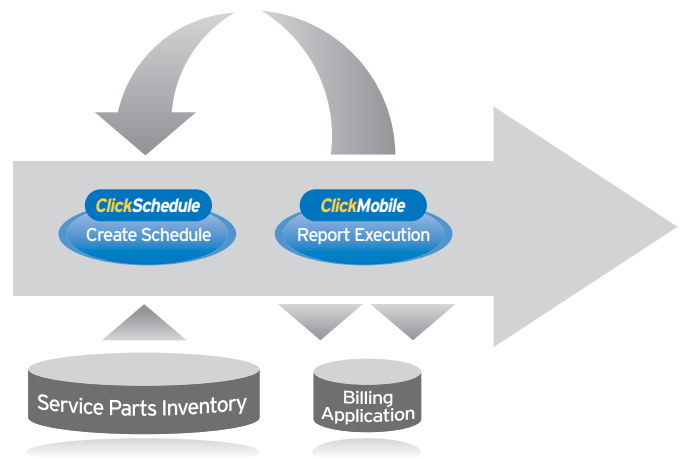
### ClickSchedule—A best-in-class scheduling optimization solution

- Presents the required parts for a work order.
- Creates and manages service parts pickup processes.
- Manages service parts as business constraints for scheduling.
- Updates service parts van stock.
- Updates the schedule following service parts updates from the field.
- Manages equipment as resources.
  - Manages crew teaming.
  - Manages resource nonavailability.
- Presents refill activities.

- Integrates with the mobile solution and the back-end system.

### ClickMobile—A mobile solution to support field resources in reporting service parts execution

- Creates and views parts pickup activities.
- Reports on work execution, including parts usage.
- Integrates with the scheduling solution and/or the back-end system.



For more information on how to impact both your top and bottom lines using ClickSoftware solutions, visit [www.clicksoftware.com](http://www.clicksoftware.com) or email [sales@clicksoftware.com](mailto:sales@clicksoftware.com)

## About ClickSoftware

ClickSoftware is the leading provider of mobile workforce management and service optimization solutions that create business value for service operations through higher levels of productivity, customer satisfaction and cost effectiveness. Combining educational, implementation and support services with best practices and its industry-leading solutions, ClickSoftware drives service decision making across all levels of the organization. From proactive customer demand forecasting and capacity planning to real-time decision making, incorporating scheduling, mobility and location-based services, ClickSoftware helps service organizations get the most out of their resources. With over 100 customers across a variety of industries and geographies, and strong partnerships with leading platform and system integration partners - ClickSoftware is uniquely positioned to deliver superb business performance to any organization. The company is headquartered in Burlington, Mass. and Israel, with offices in Europe, and Asia Pacific.

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