Effectively Managing the Distribution of Time-Sensitive Parts and Devices

Order Fulfillment Optimization

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By John B. Jasper

When equipment failure occurs, business operations often come to a stand still and waiting for repairs becomes a major expense. Getting back online means repair technicians need the right service parts quickly. Balancing technician on-board inventory versus other supply options requires a combination of information technology and customer confidence. The following report outlines the factors to be considered in the distribution and return of critical service parts, and how these factors can best be coordinated for optimization.

Service failure response is a frequently overlooked business strategy. People, parts and information create the service failure response. Optimizing processes that allow organizations to integrate service labor, replacement parts and logistic information more effectively are on the leading edge of modern service advances and hold promise for reducing profit loss when a failure occurs. Order execution, best source location and effective delivery are all critical to the process. Proper execution of the entire response requires pre-planning, access to information and accurate operations. Finally, the umbrella of technology affects each phase of response and creates significant impact.

A March 2006 Aberdeen Group report titled "The Convergence of People and Parts in the Service Chain" asserts that best-in-class companies were almost two times more likely than other companies to have closely aligned service labor and inventory operations. These superior companies scored highest in first-call resolution rates, service level agreement (SLA) compliance and uptime of serviceable assets. Access to timely information enables technicians to make optimal decisions. Overall, net savings of 3 percent to 12 percent are possible if distribution and return of parts are optimized.

Service Failure Response

Like many industries, product service has front-office and back-office operations. The ordering, distribution and return processes involved in product service work to unite these activities in an optimal relationship that provides customers with high levels of equipment uptime. Experience shows that about 25 percent of service calls on high technology equipment and medical devices require parts. Although waiting for parts is a frustrating and usually costly situation, many SLAs allow repair site visits to be scheduled for the next day or later. Under this structure, technicians have time for thorough planning and relatively low cost overnight shipment of parts from a central location.

Many times, however, technicians must complete repairs within only a few hours. Service operations and logistics try to determine parts needs and obtain those parts before the technician travels to the site. More often, however, the need for parts is only discovered on site, so parts acquisition must be rapid. Considering the parts supply impact, it is easy to see why optimizing service parts orders is critical to achieving effective service, high customer satisfaction and minimal profit loss in service failure response. Parts service is an often underestimated key indicator of business efficiency. The importance of parts in failure correction is increasing, both for the value created in making repairs and the parts' raw costs. Design and production cycles are much shorter now than they used to be, which translates into more varied configurations of parts. Many parts are now microelectronic, which improves reliability but requires exact replacement to complete the repair. In the past, labor was more important than parts because technicians could complete many common repairs manually.

In service failure response, the job of logistics is to provide parts to technicians, when and where the parts are required, so that technicians can concentrate on customer service. With good information technology and proper communication to coordinate labor and logistics, product service can be effectively optimized.

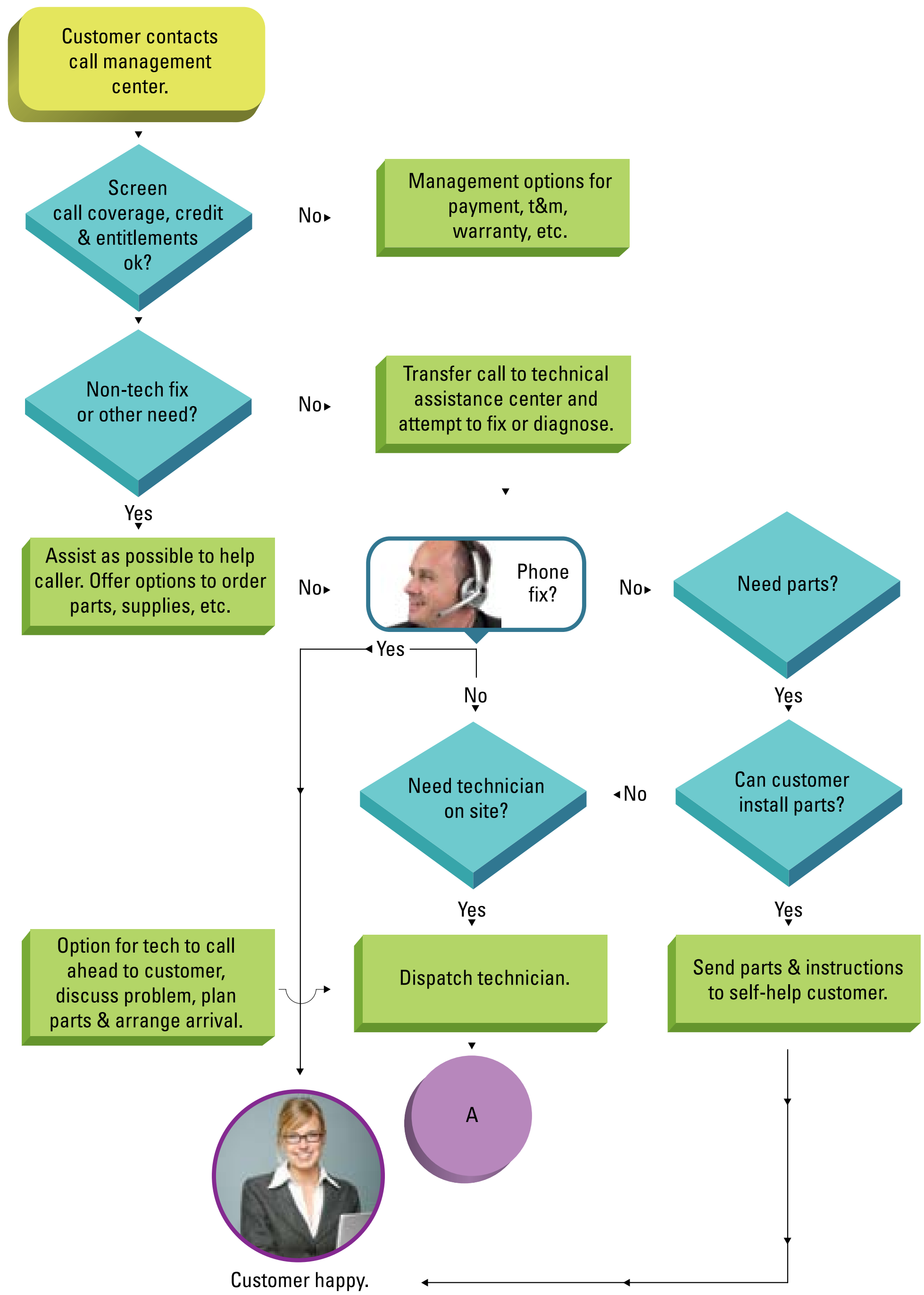
Key Performance Metrics

Four product service key performance indicators measure how successful an organization is in keeping equipment productive and completing repairs in the case of equipment failure. These Key Performance Indicators are defined in Figure 1.

Operational Availability (A_0)	The usable uptime of supported equipment.
First Call Fix Rate (FCFR)	The percentage of events in which the customer's needs are satisfied after the first call. FCFR may be a phone or Web fix, and may not require a part or technician visit to the equipment site.
First Visit Fix Rate (FVFR)	The percentage of events in which the equipment is repaired and the customer's need is satisfied after the first physical attempt at service.
Restore Time	The total time from when a problem is reported until the equipment is back in operation. Restore time should be consistent with contracted SLAs. Parts acquisition is a major component of restore time.

Figure 1 - Key Performance Metrics for Service Repair

Operational availability refers to the uptime, or opposite of downtime, of equipment. When equipment and users are highly reliable, uptime can be nearly 100 percent. However, anything mechanical will experience failure at some point. When equipment does fail, service and often a replacement part will be necessary.



Most service incidents are initiated by telephone calls or Internet queries to a centralized help desk. The majority of calls can be successfully handled during the first contact. Twenty to forty percent of all calls, depending on the product and environment, end with a technician traveling to the site. About half of these site visits also require a part to complete the repair. This diagnostic process is shown in Figure 2.

Figure 2 - Typical Help Desk and Technical Assistance Center Logic

Some service organizations do not try to diagnose problems at the initial help desk level, and instead have a field technician call the customer to perform routine diagnostics and determine what parts may be needed. More complex calls may also be elevated to more experienced aides in a technical assistance center, where the need for a part and the type of part can be determined. The objective of this pre-assessment is to solve the customer's query over the phone or Internet when possible. When remote resolution is not possible, the pre-assessment helps service organizations determine what human and parts resources they need, arrange for the parts to be delivered, and set expectations for the customer on when the repair should be complete. This upfront diagnostic process is shown in Figure 3.

First Visit Fix Rate (FVFR) means that the equipment is restored to operation during the first on-site visit. For example, if there are 100 field engineer visits to equipment sites and 90 of those 100 visits result in fixes, then the FVFR is 90 percent. Broken calls are visits that must be suspended or disrupted to get parts or other resources. Lack of parts or incorrect parts is often the reason a call is broken and the restore agreement time from the SLA is exceeded.

Know Before You Go

Know Before You Go is a valuable service concept because it enables a known part to be acquired in the best combination of time, cost and convenience. Having a technician travel to a customer location without knowing the assumed cause of the problem and carrying the resources necessary to fix the problem may result in a waste of resources. Customer satisfaction will drop, service technician frustration will increase and added costs will be incurred to get the right resources on site rapidly. When calls are broken because a part is needed, customers experience downtime, a second call must be completed, and parts must be rushed.

The site visit with the customer is crucial to the service process. The concept of good service is to repair the equipment and satisfy the customer. These days, companies hire and train technicians to be much more customer-oriented and only need limited diagnostic and site repair ability. This makes it even more necessary to provide the correct replacement part since most modern technicians are less flexible than in the past and are not as resourceful in altering components to achieve fixes.

Also, modern equipment parts are easier to replace as go/no-go items that require less technical skill and more customer-relations abilities from technicians. After finding out what the person in charge can reveal about the problem, the field technician will attempt to replicate the problem and determine how to fix it. If a part is needed and available, then everything can probably be fixed on time. If a needed part is not on hand, it must be acquired rapidly or the call must be broken until the part is obtained. This situation is illustrated in Figure 3. The process for rapid acquisition of critical parts is vital to achieving target restore times.

Service companies develop guidelines to govern how long a technician may wait for a part to arrive during a service call. Considerations include the number and importance of calls waiting in the queue, the expected delivery time of the part, the availability of other work that can be done while waiting, the impact to the customer for breaking the call, and the penalties for exceeding time limits of the SLA for the current or subsequently affected calls. The technician on site is best qualified to weigh these factors and determine the most efficient repair strategy.

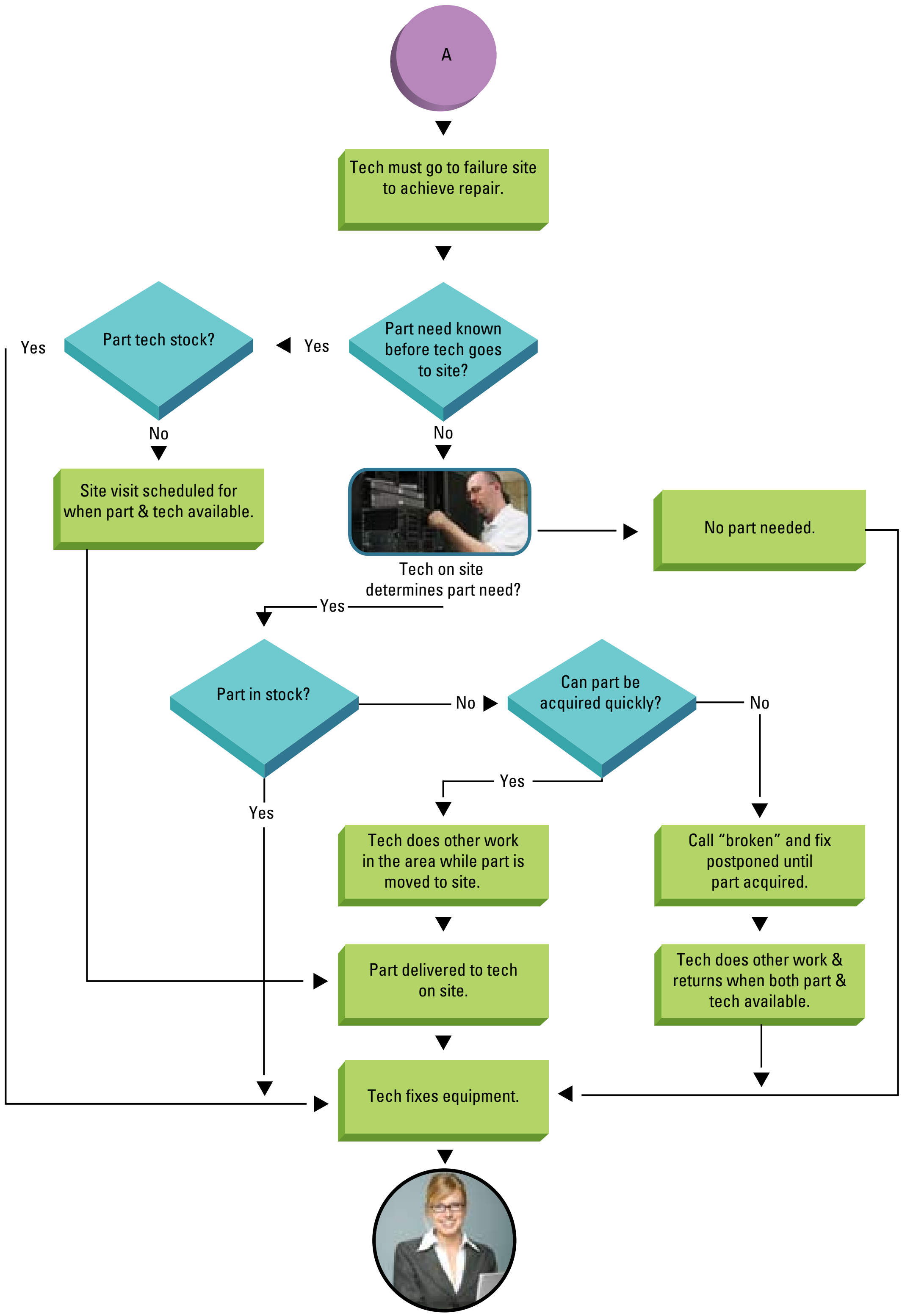


Figure 3 – Part Acquisition Challenges

What Parts to Carry

Optimizing parts distribution requires forecasting parts needs and then planning which parts a technician should carry versus which parts should be stocked at a central location for distribution. Carrying parts on-board ensures the part is in-hand quickly. This strategy also has draw backs, as the total cost of on-board parts includes tying up capital in hold stock, lack of availability of stocked parts to other field technicians, storage, handling, damage, obsolescence, tax, insurance and information costs. These factors generally direct technicians to carry high-use, low-cost items where the economies of scale bring total costs lower than if parts were delivered individually. Most parts on an authorized stock list (ASL) can be automatically replenished overnight. Trunk stock also has a high potential for damage and with limited storage space on-board, can be difficult to find.

In theory, scientific analysis can determine maximum efficiency regarding what parts a technician should carry. Calculations based on previous annual usage can be used to determine a best case scenario for meeting usual business needs. 10 percent to 20 percent of stock items can usually fill 85 percent of all needs. Using these assumptions, product service organizations may build an ASL for that stock location. Every stocking location, from technician on-board stock to global distribution centers, should have a standard ASL. Some ASLs can be handled with basic business software. Calculating multiple stock locations is much more complex, however, and requires dedicated, sophisticated forecasting and planning software tools to handle the numbers and interactions projected.

SLA restore times will also impact ASL. If the restore time is next day, then fewer parts are required on-board because replacement parts can be sent overnight. The business of service, however, is shifting toward specifying same-day restore times since high technology equipment affects more people and more revenue. The configuration of equipment that must be repaired the same day is essential. Since these are the crucial parts that must be nearby in order to achieve the expected restore time, these parts should be included on the ASL. Even with accurate technician ASLs that cover 65 percent to 85 percent of needs and can use routine replenishment, critical inventory items must cover the remaining 15 percent to 35 percent of low-use parts that are required rapidly when needed. This requires an effective distribution and transportation network in addition to the efficient planning, ordering and forward stocking facilities.

Part Acquisition Time

Forward inventory deployment describes the process for rapid part supply. If restore time requirements are for next day, then central stock with overnight supply can be a very effective strategy. However, since most service for telecommunications, semiconductor, biomedical and other high tech equipment is covered by an SLA restore time of four hours or less, with high penalties for restore time overages, additional costs to complete equipment repairs on time must be incurred.

One relatively recent concept for supplying these critical parts is called strategic stocking. Strategic stocking schemes place important and often expensive parts strategically where several field techs can share them. These shared parts must be physically controlled so the parts are available and ready for use. All too often when shared parts are carried in a technician's vehicle, the parts are needed when the vehicle is unavailable and no one has access to the parts. Placing those parts in a physical strategic stocking facility is much more effective.

Logistics organizations such as FedEx® Critical Inventory Logistics and UPS-Supply Chain Services have established stocking locations that are staffed according to customer needs. Many FedEx Kinko's Office and Print Centers® that operate 24 hours a day have been modified to provide forward stocking locations for service parts customers. FedEx distinguishes itself among logistics service providers because the company has numerous physical facilities for forward stocking and sophisticated information networks to support ordering, whereas other providers use mostly subcontractors utilizing shared facilities.

Carrying Versus Delivering

Weighing the cost of on-boarding a part versus critical delivery is tricky. Costs of carrying are estimated at 30 percent of the part's value per year. Costs of not carrying a part will be the financial expense to acquire the part on an emergency basis including pick-pack-ship (sometimes after normal business hours), next flight out (NFO) aircraft ($250 is a typical charge), technician living expenses and any additional travel. All these factors can have probabilities associated with them for the many varied situations that are encountered. Local delivery or pickup by the technician adds options at nearby forward stocking locations, with unattended smart lockers used as stock locations in less populated geography. Formal forward stocking facilities may cost more, but also provide assurance that parts are available when needed.

Previously, service companies used a typical industry standard to determine whether or not to stock the part on-board. If part usage was four times or more annually, then the part was added to the ASL. This synchronized with the additional guideline that technicians should carry about 85 percent of their parts needs. Both rules were generalities that can be improved upon now that the factors that influence the economic and emotional tradeoffs are known. Figures 5 and 6 illustrate that the tradeoff can more accurately be determined based on the frequency of use and cost of the part. The spreadsheet calculations shown in Figure 5 are for parts costing from $400 to $1,200. The reason for illustrating high value parts is that many companies have rules that do not let technicians carry parts valued over a few hundred dollars. As the spreadsheet and the plot show, if a $1,200 part is used more than 10 times a year, the low cost solution is for the technician to carry the part.

Data Table
Carry versus Deliver

Example Number	Part Cost $	Annual Demands	Annual Carrying Cost $	Annual Delivery Cost $	Carry	Deliver
1	$400	5	$120	$175	x	
2	$400	2	$120	$70		x
3	$800	5	$240	$175		x
4	$1,000	9	$300	$315	x	
5	$1,200	8	$360	$280		x
6	$1,200	12	$360	$420	x	

Figure 5 – Calculations

Space to carry the part and potential for damage should also be considered. The advantage of a tech carrying a high-use component is that it is frequently needed and quickly available. Stocking those parts with a logistics partner can be more effective in that less technician vehicle space is required, the part is kept in a temperature controlled environment, a wider range of parts can be available, and disciplined handling will assure the part is in good shape when the technician receives it. For many service organizations a significant factor is that shared inventory reduces financial investment and puts fewer service parts assets on the balance sheet.

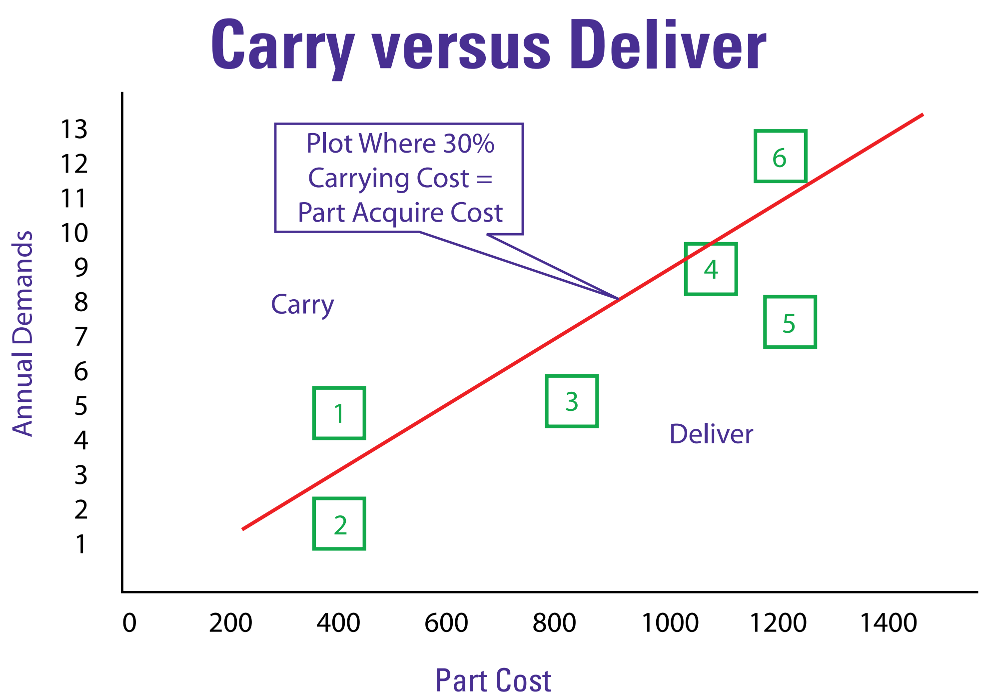


Figure 6 – Plot of costs and demands

Case Study

Consider the case of a service organization that covers North America for retail point-of-sale products with a 300 technician service staff. The company sells SLAs with about half at four-hour restore requirements and the remainder next-business-day. They have 34,000 SKUs in the part master, with 2,200 of these active. Total inventory cost $26 million and has present book value of $17 million with about $20 million used last year, for a turn of 1.2. Present first pass fill rate (FPFRs) from tech-carried stocks is 47 percent, and from two strategic stocking locations is 50 percent. Ninety percent of their parts shipments are rushed overnight or faster. Other aspects of operation are in relatively good order.

The potential improvement among these few items is substantial. Trying to cover North America with just 300 technicians means a lot of technician travel. The four-hour restore time means that techs either carry parts forecast to fix failures, or stock many of those parts at strategic forward stocking locations. Statistical analysis shows that 485 SKUs fill over 85 percent of needs, with 480 more filling to 90 percent and 1,100 meeting 95 percent. The last 5 percent adds 1,100 parts, which only the global distribution center will carry unless the parts are for unique products and it makes sense to stock them at on-site locations.

The company's savings in tech time is mostly from avoidance of broken calls. A broken call costs the company a minimum of $150. Their technicians target three calls per day. If over half of all their calls require parts, and about half of those parts calls are broken, calculations show that $33,750 per day is spent on inadequate service parts delivery.

300 techs x 0.75 calls per day broken for parts x $150 = $33,750 or $112.50 per person

Those needed parts can be delivered by a logistics partner within two hours or less in most cases, to accomplish the fix during the same day. The technician may work a little overtime, but the repair will be accomplished, the customer satisfied and the tech can move to the next stop.

300 techs
x 0.75 calls per day
x $150
= $33,750
or $112.50 per person

Better total planning can improve field FPFR to over 85 percent per SLA and at the same time reduce total inventory by at least 30 percent. Optimizing distribution and return can improve support and also bring turns from the present 1.2 to over 3.0. Service benchmark is 3.5, but dispersed geography and unique products lead to lower turns. If the company needs parts worth $20 million annually for repair at the current level of 1.2 turns, then 3 turns will require only $7 million in parts investment. Even if the actual balance sheet is slightly higher, inventory savings of at least $10 million will far exceed any additional logistics costs. Optimization will allow fewer parts to support new products. Optimized distribution will still require as many parts to fix failures, but much more value will be gained by keeping fewer parts in active use.

Major improvement will come from reducing the inventory carried by each technician, which, although inadequate to meet first pass fill rates, averages $20,000 per tech. This can be reduced by about $15,000 by evaluating the value versus use tradeoff illustrated in Figures 5 and 6. This scenario cuts inventory carried by techs to about $5,000 each for a total of $1.5 million versus the previous $4.5 million.

Some of these parts must go into forward stocking locations to meet speed of delivery required by SLAs. Detailed planning will be required to assure that specific parts are within necessary acquisition time of critical sites. This will require around 40 forward stocks per part, with costs of perhaps $1.5 million inventory total in the forward stocks. The Global Distribution Center will need about $4 million in inventory since this site will do considerable overnight shipping and replenish both tech and forward stocks. Wherever possible, parts will be shipped directly from central distribution to the tech or end user.

With this system of optimization, inventory is cut from $17 million present book value to under $7 million, and levels of support are improved. Annual carrying cost on the difference of $10 million will produce $3 million in annual expense savings. These savings will not be instantaneous, since the extra inventory already purchased has been worked off by use and not repaired to meet these targets, but the savings will be substantial. The company must pay for the forward stocking locations and rapid shipments, but the expenses will be much less than the savings. Additionally, techs and customers will be positively motivated by the faster repairs, less time arranging for parts and higher first-visit-fix rates.

Information Holds the Key

Technician stocking is also affected by emotional confidence. If a tech feels he or she will get a rapid, dependable supply of parts, then the tech will not feel compelled to stockpile parts in reserve. An unfortunately common situation is thinking that a part is in stock, but not finding it because someone else took it without reporting it or ordering a replacement. Noting utilization and reordering are crucial when a part is removed from good inventory. If several people have access to a parts stock, then tasks such as keeping stock neat, reordering as necessary, returning defectives and a number of other housekeeping chores necessary to maintain critical service parts may fall through the cracks. Smart lockers, such as a TEKLocker delivery and pickup station, provide physical security for parts that can be picked up 24 hours a day by any person who has an access card or specific identification number. Wireless information systems notify technicians when a desired part is ready for pickup, notify the supplier when the part is picked up and accepts returning items. To address these information concerns, e-mail or phone notification can be provided directly to the field tech in addition to Web tracking.

Too many service organizations do not have a single information system that integrates parts with labor elements. Information means facts, direction, guidance and knowledge. This is much more than just data or statistics. Modern service requires timely, accurate, valid data that will guide decision-making processes. A fundamental requirement is an information technology (IT) system that intuitively and accurately guides the technician to enter data on the spot. This results in accurate, timely, valid data that can then be translated into knowledge and guidance. Modern PDAs (personal digital assistants), Blackberries, laptop computers and even phone voice recognition or prompted key strokes facilitate easy data entry. Contrast this with hand-written reports that are often smudged and stained, while the data is reconstructed from many notes made during the reporting period, then key-entered by someone who may not comprehend irregularities or questionable entries. Late and inaccurate reports of parts activity prohibit optimized orders.

Real Time Operations Guidance

Real time sourcing and routing options available through a logistics command center or over the Internet illustrate price and timing of possible shipments to the customer. These services enable technicians and dispatchers the ability to select the best sourcing and routing before booking an order, and then execute the order that best meets their requirements and has the most positive impact to the bottom line. This enables service people to choose faster service restoration at higher cost if the tradeoff is best for the situation. In other cases, the technician or manager will decide that money can be saved and the customer will still be happy if a later delivery is selected. The key is knowledge of what items are in stock and where they are, so the best combination of delivery time and cost can be balanced during the optimization process. Fortunately, better information usually results in less stock inventory, since many more activities can then be planned just-in-time instead of the more erratic just-in-case.

When a technical assistance center or a site technician determine the need for a part, the first check is electronically for the physical inventory to determine if the part is in the technician's stock or a nearby location under the service company's control. If they use a logistics partner, they will also access the partner's logistics command center, usually via Internet portal, to locate the inventory, process the order, monitor delivery progress and take any necessary additional actions.

Dealing with high-cost tech requests in order to meet the tech's perceived delivery times can best be addressed with facts. Figure 7 illustrates shipping information that can be available to the call manager or technician to help them make the best selection of sourcing location and delivery time versus cost. Usually this choice will be made by the field tech since the on-site tech knows all of the mitigating factors. For example, if the site visit can be scheduled for the next morning, then FedEx Priority Overnight® will be the best and lowest-cost method. For a few dollars more, FedEx First Overnight® can gain an hour or so and possibly allow the technician to be standing at the customer's door with the part when the business opens.

To aid in making these decisions, FedEx Critical Inventory Logistics provides order level sourcing and delivery optimization that is fully integrated with customer shipping networks and designed to ensure the customer's parts are delivered on time. This sophisticated technology interface allows service people to consider the best combination of delivery time and cost for a specific situation through a fully automated process. The process is as follows:

1. First, the availability of the required parts stocked in their Global Distribution Center and network of FedEx Kinko's Office and Print Centers is determined. An order often can be fulfilled from the central stocking location and meet the required SLA.
2. Once these potential sourcing locations have been identified, the most cost-effective routes and modes of transportation, which meet the order's delivery requirements, are determined. A range of air and ground networks is considered to fulfill shipments, even including courier NFO.
3. Then the optimal fulfillment and delivery scenarios are presented to the decision-maker in an order ranked by arrival time, duration and total cost.
4. Finally, the decision-maker reviews the scenarios and makes an informed business decision. Many times a stocking location farther away from delivery point will be more cost-efficient than one located nearest the destination.

Users can define the desired criteria to filter and to determine sourcing rules in these scenarios. Additionally, the software will consider consolidation opportunities for order clusters coming from a given facility or group of facilities to ensure that each move will meet applicable service level commitments.

Delivery Information

Destination: NWC
9010 Bellanca Avenue
Los Angles , CA 90045
Contact: John Jasper
901-263-8559

Shipment Information

Total Weight: 5lbs
Total Dim. Weight: 1.237
Total Declared Value: 1.00 USD
Estimated # of pkgs during quoting: 1

This is the header to route selection.If you don't find a route that meets your needs see Services Info for more information.
Click on column name to sort.

	Items	Service	Origin location	Pickup time	Delivery time	Duration	Price (USD) ▲
○	ITEMS	FedEx SameDay courier	Network Courier Burbank 14920-A Oxnard Street, Van Nuys, California 91411	April 27, 2007 4:27 p.m.	April 27, 2007 5:11 p.m.	0hrs44min	$60.72
○	ITEMS	FedEx Priority Overnight	Memphis, TN CSL 5025 Tuggle Road, Memphis, Tennessee 38118	April 27, 2007 10:55 p.m.	April 28, 2007 10:29 a.m.	13hrs34min	$68.77
○	ITEMS	FedEx First Overnight	Memphis, TN CSL 5025 Tuggle Road, Memphis, Tennessee 38118	April 27, 2007 8 p.m.	April 28, 2007 7:59 a.m.	13hrs59min	$96.77
◉	ITEMS	FedEx SameDay NFO	Memphis, TN CSL 5025 Tuggle Road, Memphis, Tennessee 38118	April 27, 2007 6:27 p.m.	April 28, 2007 11:01 a.m.	18hrs34min	$232.32

This is the footer to route selection..

Customer price detail

Quoted Price: $232.32

Number	Description	Actual	Included	Charged	Unit	Rate ({0})	Total ({0})	Context type
1	FF - Piece Charge - Outbound	1.0	0.0	1.0	units	$3.33	$3.33	Order
2	FF - Line Item Charge - Outbound	1.0	0.0	1.0	units	$3.73	$3.73	Order
3	Base Charge Will Call	1.0	0.0	1.0	units	$0.00	$0.00	Order
4	FF - Order Handling Charge - Outbound	1.0	0.0	1.0	units	$5.60	$5.60	Order
5	Mileage Charge	7.0	7.0	0.0	miles	$0.00	$0.00	Order
6	Security Charge	1.0	0.0	1.0	units	$10.00	$10.00	Order
7	FF - Line Item Charge - Outbound (CSL)	1.0	0.0	1.0	units	($2.83)	($2.83)	Order
8	Base Charge	5.0	0.0	5.0	lbs	$37.22	$186.08	Order
9	FF - Order Handling Charge - Outbound (CSL)	1.0	0.0	1.0	units	$5.60	$5.60	Order
10	FF - Piece Charge - Outbound (CSL)	1.0	0.0	1.0	units	($2.83)	($2.83)	Order

Visibility Provides Control

Effectively managing the information available to service organizations requires a command and control center that can monitor orders, manage exceptions and re-optimize shipments when problems are encountered throughout the entire delivery process. Many manufacturers and third party logistics companies now use activity boards to display shipment-level status and summary information for quick identification. This enables the continual monitoring of the orders in progress based on milestones. When these benchmarks are not met, the boards trigger alerts that coincide with specific exceptions. Figure 5 shows an actual screen display of open orders.

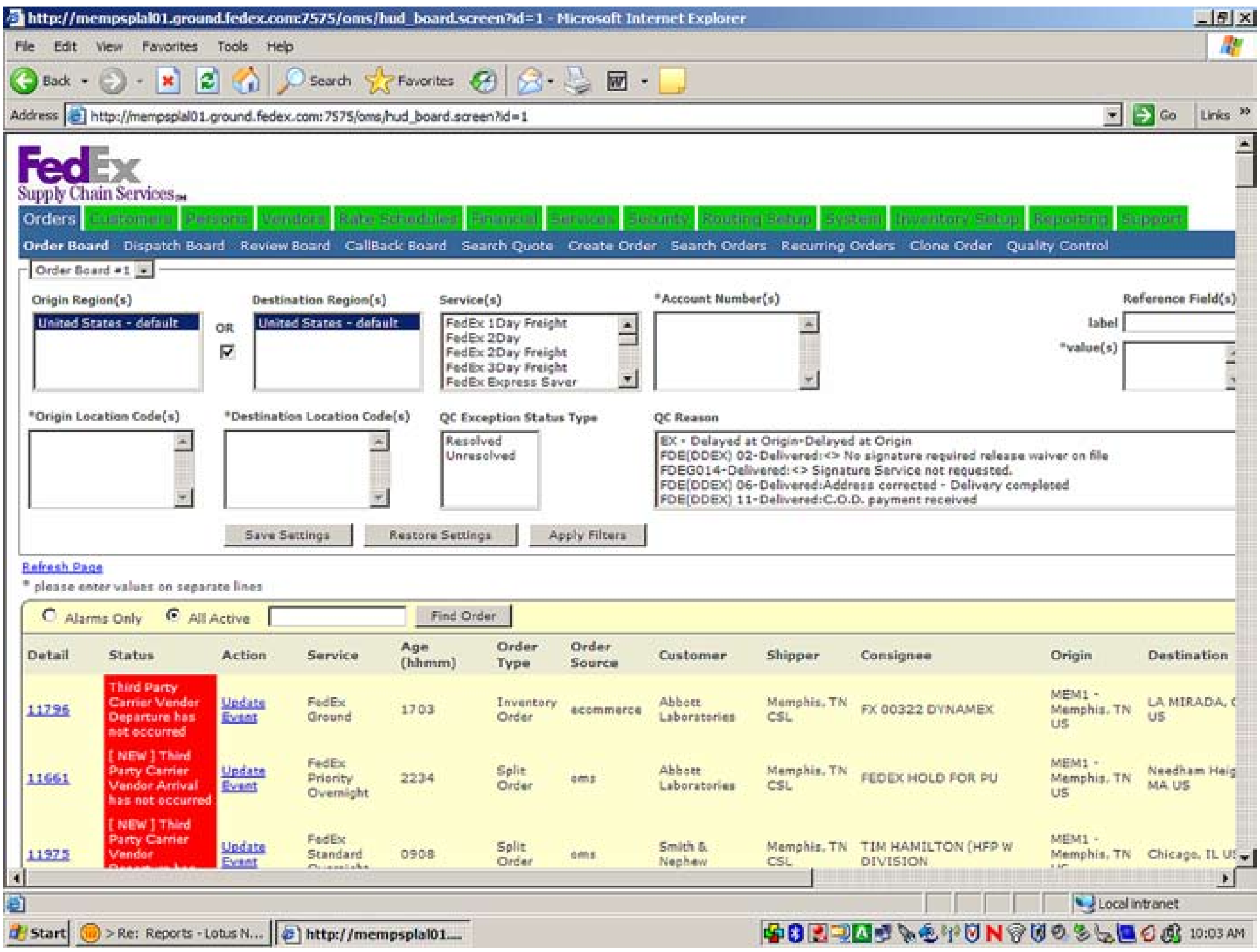


Figure 5 – Screen Image of Active Orders

Status updates can be sent at all shipment checkpoints to anyone authorized to receive the information. Filters allow customization so that each person gets only the information he or she wants and needs. Multiple modes of communication, ranging from automated telephone voice messaging through cell phone text messaging to Web messages, provide flexibility to address special notification needs. These capabilities enable:

- Confidence-building notifications of progress at every selected step of the order and distribution process.
- Assurance to all authorized parties that critical shipments are progressing correctly, or they are notified of problems and the means to achieve alternate solutions.
- Increased communication with customers at very low cost.
- More productive field technicians with automated parts information via mobile devices.

In Conclusion

The value of optimizing delivery and return of critical parts is essential for competitive business. Optimizing resources for the business of service is a challenging task. People, parts and information must come together in a unified and effective process. The impact of optimization is dependant on a number of business elements, such as starting processes and metrics, number of technicians, number of service calls per day, parts used per call, value of parts, financial treatment of service parts, and capacity of customers to wait for longer restoration times.

Knowing what parts will likely be required and providing those parts before a technician goes on-site is desirable and often possible. In the remaining, often critical, cases where restore time is short or a part need is determined while a technician is on-site, integrating communications and information systems with strategic forward stocks and a rapid delivery system can assure that parts are acquired fast enough to meet SLA restore times and effectively optimize service resources. Consolidating parts from individual technicians to forward strategic stocking facilities and central distribution can meet SLAs at lower inventory cost and less technician effort. The ability to quickly see what locations have the required part and how soon it can be obtained associated to related costs, greatly aids optimizing parts orders. All these factors collaborate to optimize distribution and return costs of critical inventory, improve customer satisfaction, and increase profits.

Summary

Optimized delivery provides advantages in business factors in a number of ways.

Tech Available Service Time

1. Time spent ordering parts – ASLs planned with auto-replenishment and easy added orders

2. Time spent getting parts – Logistics gets parts directly to tech; less tech travel

3. Calls not broken – If part is not on-board, a number of options can facilitate quick delivery to site

4. Return parts pack & ship – Repack part in delivery container and return ship drop off

Investment in Parts Inventory

1. Fewer parts required – Consolidated stocks, rather than individual tech inventory

2. Faster returns for reuse – More use from fewer parts (higher turns)

Fulfillment and Transportation Costs

1. Individual shipments – More low-cost shipments with fewer high-cost rushed shipments

2. Tradeoff time for cost – Information access allows best choice decision-making by situation

3. Reduce technician vehicle and mileage costs- fewer parts to carry can enable smaller, lower-cost vehicles withre-duced fuel, insurance and maintenance expenses.

Customer Satisfaction

1. High probability of first visit fix – Rapid delivery of part, whether known in advance or not

For additional information, please contact

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