



Understanding dock scheduling

A guide to better understanding the value of automated dock scheduling.

WHITE PAPER

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In brief

This whitepaper's objective is to help industry professionals understand the basics of dock scheduling, supported by real industry case studies. If you haven't heard much about dock scheduling systems, it may be that, compared to warehouse and transportation management systems (WMS & TMS), dock scheduling is the poor cousin in the family of Supply Chain Management (SCM) systems. Nonetheless, it is still an essential part of your business, and if not properly addressed, can be very costly to your operation. We'll address the issues, present numerous examples taken from various industries and provide a roadmap towards a solution.

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How to determine whether you need dock scheduling.

Independent of the type of business you operate, dock scheduling relates to managing the timeliness of the shipments for both inbound and outbound traffic¹ in your facility.

Intuitively, one would think that scheduling is required only when the traffic exceeds the capacity to receive or ship. Although volume is important, it isn't the only determining factor. In fact, dock scheduling is all about maximizing the efficiency of your dock operations, from the standpoint of your labor, equipment and business requirements. To summarize, your business requires dock scheduling if:

- Driver wait times are a regular occurrence and you are charged detention fees.
- Unloading personnel receives loads at inefficient times; translating into over-time labor charges.
- Unloading personnel standing idly waiting for trailers.
- Carriers refuse to pick-up; they complain about long waiting times.
- Arrival times and dates of loads are unknown to the warehouse.
- CSRs, buyers and managers call the warehouse; checking the status on incoming goods because they have no visibility.
- Prioritizing incoming loads and product types are required.

¹ For the purpose of this paper, we'll refer to inbound and outbound traffic simply as "traffic".

Identifying the basic cost savings!

Most businesses who've determined that dock scheduling is required won't require a cost analysis – the pain is too great! Some may still need to convince themselves or their managers and will want to look at current costs in driver detention fees, dock crew downtime or overtime labor charges, premium transportation services and lost shipments. Don't be afraid to factor in items for which you do not get a direct bill but that are still costly: internal communications, manual logs and reports, time wasted in looking for shipments, etc.

You may need to crunch some numbers, and yes, implementing a dock scheduling process will require an investment of some sort; but the savings will surpass the costs.

Where do you start?

Intuitively, appointment scheduling means requiring all external parties (defined as carriers, vendors, customers, sister divisions – depending on your business reality) to book appointments. Dock scheduling, on the other hand, goes beyond simply booking trailers into a time slot. It implies managing your dock activity in accordance to your business priorities by being able to control your schedule; taking into consideration load types, standing appointments, preferred carriers, labor and equipment constraints and so forth. In other words, the external parties won't be the ones dictating your schedule; rather you'll have the necessary tools to *plan* which, where, when and how the traffic will be scheduled.

My business isn't a traditional warehouse!

Multi-Purpose Sporting Arena

Carriers hate lengthy wait times and bottlenecks; and the traditional distribution center isn't the only place they see this. For instance, a metropolitan sports arena which shares its entrance tunnel with the adjacent commercial high ris, a condominium complex and a hotel. Four different customers, one main entrance tunnel. Scheduling to their respective needs was a nightmare until they introduced a web-based scheduling application. Shipping instructions, including the link to the scheduling portal accompanies each PO. Once the vendors and carriers are ready to deliver, they log in as per instructions and request and confirm their appointment. No voice mail messages, no confusion, just an email confirmation with a gate-in bar code paving the way to a worry free delivery.

We therefore recommend, prior to simply asking all external parties to book appointments², that you evaluate your business process. This may involve meetings with the unloading personnel, warehouse managers, supply chain (logistics) managers, and buyers. You'll need to establish:

- Inbound and outbound appointment volumes.
- Percentage of live unloads versus dropped trailers in the yard.
- Percentage of collect versus prepaid shipments.
- Merchandising priorities (promotions, shortages, product types).
- Load types that your warehouse can or cannot receive during specific times of the day.
- Compliance issues.
- Labor constraints per shift. During certain shifts, is your unloading labor shared with other duties (warehousing)?
- Equipment constraints per shift per site.
- Unloading issues related to palletized, floor loaded and slip sheets.
- Physical dock restrictions.
- Current number of *standing appointments*.
- *Recurring* appointments (these may be seasonal or punctual)
- The number of hours or days of advanced notice required to plan effectively the traffic, respecting your other business constraints.

Analyzing your business process is a good investment in time. Too often, companies select oversimplified systems for their dock scheduling and regret it soon after.

² In the U.K., the term "**bookings**" replaces "appointments". In this paper, we will use only the term "appointment".

Which solution is best for your business?

Your business process analysis is instrumental in helping you select the right system. Other factors that will influence your business may be corporate culture (ie.: IT dept, resistance to change), personnel issues (dock personnel and warehouse management) and budgets (capacity to invest in a new process). Once you understand these drivers and your process, you may then consider systems that fall under three main categories:

- Manual system.
- A Centralized Appointment Information System
- Automated scheduling with external web access portals.

a) Manual system

As the name implies, a manual system is one where the business doesn't use a software tool to manage the process (other than email). The appointment requests are sent by the external parties to the business by phone, email or fax. The merchandising/vendor policy explicitly states the information that must be provided in order to request an appointment. The information most often includes:

- P.O. information
- Carrier/vendor name
- Number of pallets, cases, etc.

- Load type.
- Expected delivery date.

The scheduler validates the information and blocks off in a calendar (desktop paper calendar, spreadsheet, electronic calendar such as Outlook) the appropriate day and time; confirming to the external parties (via phone, email, fax) the appointment.

Remembering that you come from a world that was a free-for-all, first-come-first-serve basis, you've made great headway by:

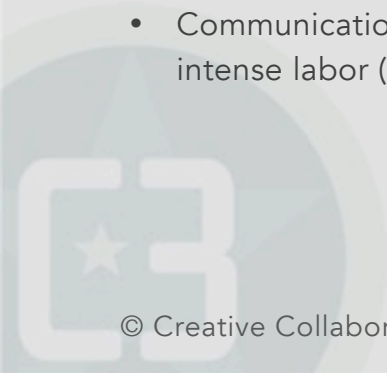
- Dictating who arrives when.
- Providing the scheduler visibility on the expected volumes.
- Reducing driver wait times, thus impacting detention fees.
- Improving labor utilization for the unloading personnel.

On the downside, remember that:

- You'll need to hire a full-time scheduler.
- The effectiveness of the manual system is dependent on the scheduler's experience and knowledge.
- Traffic information is now concentrated and dependent on the scheduling office alone.
- Communication errors may occur due to the intense labor (scheduling) requirement.

A wholesaler who benefited a whole lot!

A traditional wholesaler had the typical "green-screen" AS400 system with a generic scheduling tool. After reviewing all the dock scheduling systems available at the time, they found a SaaS less expensive than the "big systems" and maintenance free. Although they had to fight resistance at first, everyone got onboard and benefitted. They now have the discipline to book the right appointments in their respective time slots in the schedule, whether they are prepaid or collect. Balancing the loads helped them reduce overtime labor charges from over 10% to below 4% (objective being 0). Within 2 to 4 weeks, the phone calls and emails directed to the schedulers were drastically reduced, well over the 80% range.



b) Centralized Appointment Information System

In the majority of cases where companies have implemented a dock scheduling process, they'll answer that they have a system in place. This "system" is usually a combination of tools to support a call center or otherwise known as the appointment desk. The main difference, compared to the manual system, is that schedulers enter appointment data in an information system (I.S.). The communication of the appointment information by the external parties to the scheduler is still done by phone, email or fax. Instead of writing the information on a calendar, they now input the information in one of the following systems:

1. Warehouse Management System (WMS),
2. Transportation Management System (TMS),
3. ERP type systems such as SAP, Oracle and others.
4. Home grown database built on platforms such as Access or on an AS400.

Such a system is an improvement over the manual system because:

- The appointment information is now visible to other business users such as buyers, transportation and logistics managers.
- Reporting functionality may be enabled (most often limited but the potential is there); the primary focus being on the timeliness of the shipment (late or no shows).
- Potentially for ad hoc processing of information.

Unfortunately, this solution is as labor intensive as with a manual system. The scheduler's role is still vital to the system and his/her productivity is restricted due to the multiplicity of systems required to be used. For instance, they need to check the ERP system for PO validity (pallets and case count) before entering the data in either a WMS or TMS. Additionally, the window of opportunity for external parties to book an appointment is still constrained to the office hours of the scheduler, despite the presence of *I.S.* tools.

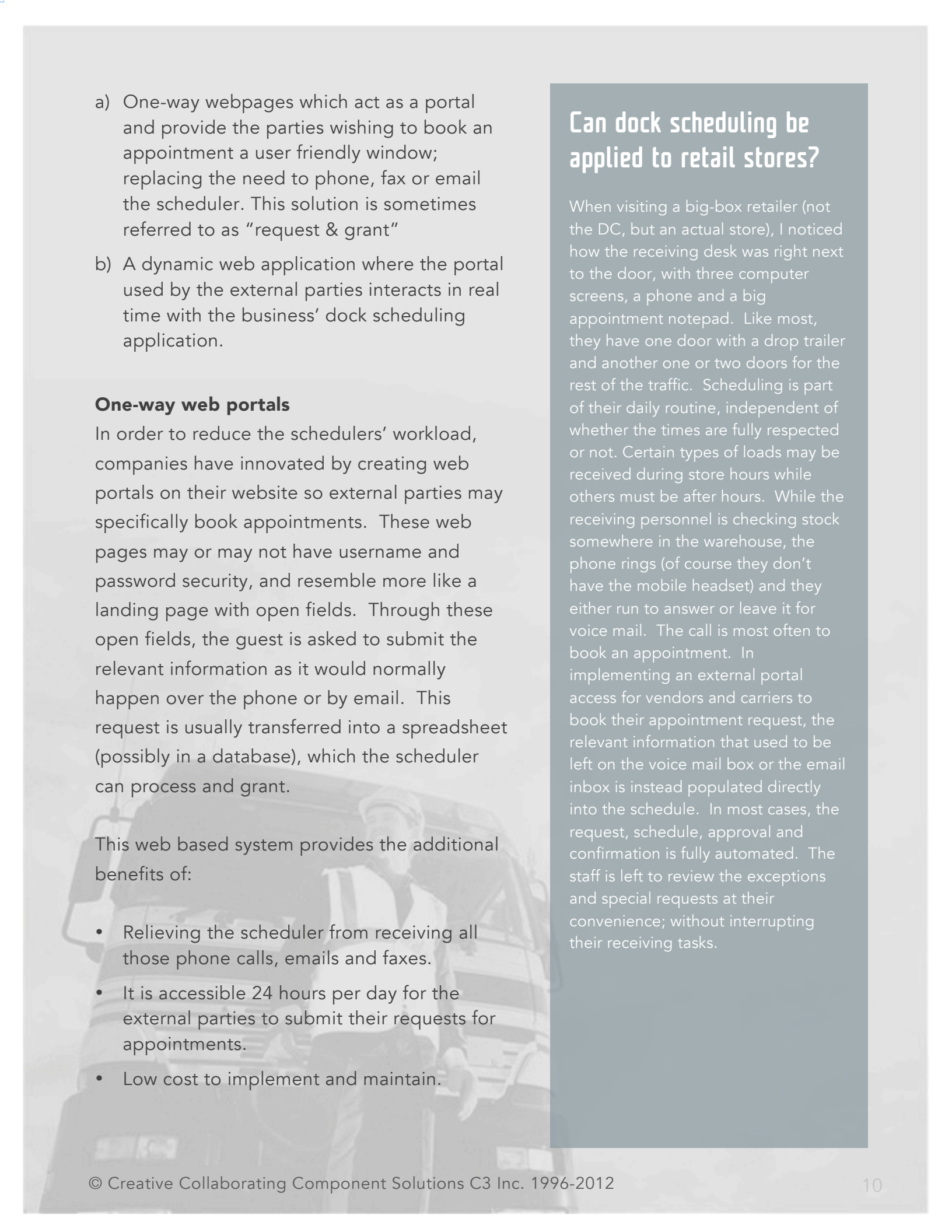
c) Automated scheduling with external web access portals

The availability of high speed Internet in most, if not all, companies, combined with the proliferation of web based applications has created great opportunities for all fields of supply chain management, including dock scheduling.

If your objective is to automate the dock scheduling process as much as possible, gain the greatest efficiencies and produce the best savings, then you'll be interested in examining web based solutions. We've found they fall in two categories:

How can I schedule my customer pick-ups?

Whereas traditional scenarios involve scheduling inbound loads from carriers and vendors, there are facilities (mainly manufacturing) where the need is to schedule customer pick-ups efficiently. Since customer orders are entered within a short delay prior to pick-ups, the pressure is on the shipping team to schedule, communicate and execute efficiently the steady stream of pick-ups during their day. The solution in both cases is to ensure your order management system communicates the ready-to-ship order information to your dock scheduling application. By having the data in the scheduling tool, the scheduler easily clicks-and-drags the POs into the daily schedule like one would fill up an electronic calendar. In a matter of minutes, the daily schedule is laid out and once approved; instant communications via email are sent to carriers and customers. As an added benefit, pick-up times and duration are also logged into the appointment information, providing their customers visibility on when the order was picked-up.

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- a) One-way webpages which act as a portal and provide the parties wishing to book an appointment a user friendly window; replacing the need to phone, fax or email the scheduler. This solution is sometimes referred to as “request & grant”
 - b) A dynamic web application where the portal used by the external parties interacts in real time with the business’ dock scheduling application.

One-way web portals

In order to reduce the schedulers’ workload, companies have innovated by creating web portals on their website so external parties may specifically book appointments. These web pages may or may not have username and password security, and resemble more like a landing page with open fields. Through these open fields, the guest is asked to submit the relevant information as it would normally happen over the phone or by email. This request is usually transferred into a spreadsheet (possibly in a database), which the scheduler can process and grant.

This web based system provides the additional benefits of:

- Relieving the scheduler from receiving all those phone calls, emails and faxes.
- It is accessible 24 hours per day for the external parties to submit their requests for appointments.
- Low cost to implement and maintain.

Can dock scheduling be applied to retail stores?

When visiting a big-box retailer (not the DC, but an actual store), I noticed how the receiving desk was right next to the door, with three computer screens, a phone and a big appointment notepad. Like most, they have one door with a drop trailer and another one or two doors for the rest of the traffic. Scheduling is part of their daily routine, independent of whether the times are fully respected or not. Certain types of loads may be received during store hours while others must be after hours. While the receiving personnel is checking stock somewhere in the warehouse, the phone rings (of course they don’t have the mobile headset) and they either run to answer or leave it for voice mail. The call is most often to book an appointment. In implementing an external portal access for vendors and carriers to book their appointment request, the relevant information that used to be left on the voice mail box or the email inbox is instead populated directly into the schedule. In most cases, the request, schedule, approval and confirmation is fully automated. The staff is left to review the exceptions and special requests at their convenience; without interrupting their receiving tasks.

Understanding that these systems are usually home-grown or low cost platforms, they do not perform to all businesses' expectation due to the following weaknesses:

- Although the portal is open 24 hours per day, the information isn't treated until the scheduler is present.
- Appointment confirmations wait until the scheduler actually reviews and grants the appointment. Confirmations and amendments can only be sent by email, phone or fax.
- Reporting and compliance features are difficult to implement and are dependent on the type of system the information is stored in.
- Limited capabilities to reflect scheduling constraints.
- Limited capability of automatically updating the appointment details in other systems (WMS, TMS, etc.)

A dynamically interactive dock scheduling application

The most automated dock scheduling tools are those that are offered via an interactive web based application. Their greatest asset is that of being a stand-alone system, not relying on complementary systems for the data. Since the external web portal used by the parties to book appointments is linked implicitly with the schedule, the appointment information, from the initial request until the gate-out process of the shipment, is contained in one data store. In addition to providing real-time appointment information, this opens the door to powerful features such as prioritized rules, load tags, preferred carriers, standing and recurring appointments and so forth. If you still need to communicate with other information systems, then data integration can be accomplished via Web Services and by other means. Lastly, reporting and managing compliance issues are made easy.



As expected, the level of sophistication of this solution provides advantages which reflect its potential.

- Not only does this system eliminate the phone calls, emails and faxes that burden the appointment desk, the seamless integration of the appointment information into the schedule means that little or no intervention is required by a scheduler.
- A programmable rule engine provides the ability to plan your schedule around your true capacity and constraints and to calculate appointment duration.
- Data-integration with other information systems (TMS, WMS, ERP, home-grown) can be achieved in real-time through Web Services and by other means.
- Appointment documentation (BOL, P/S, pictures) may be attached electronically with the appointment information.
- Since the entire appointment process is time stamped, the reporting data is easily accessible for continuous improvement initiatives and compliance enforcement.
- In addition to measuring the timeliness of shipments, it can also capture qualitative issues (faults such as damaged goods, etc.).

No doubt process automation has proven a valuable investment for businesses. In this case, implementing a dynamically integrated dock scheduling application may be a major change in your process. Beware; you'll first have to find a project champion. Don't think you'll be able to circumvent the I.T. department and remember that you'll need to get a fairly broad company buy-in before you take this route. You'll need to train, monitor and discipline the various users, and for those companies who publish vendor guides, you'll need to update that information as well.

Scheduling Systems Comparative Table

| CRITERIA | MANUAL SYSTEM | APPT. DESK + I.S. | ONE-WAY WEB PORTAL | INTERACTIVE WEB PORTALS |
|--|---------------|-------------------|--------------------|-------------------------|
| Is the scheduler's role labor intensive? | ✓ | ✓ | ✓ | |
| Do the external parties depend on the scheduler for visibility on appointment information? | ✓ | ✓ | | |
| Automatically track late arrivals, no shows, and on-time appointments? | | | Limited | ✓ |
| Does the system provide automated scorecarding capabilities? | | | | ✓ |
| Does the system have data integration capability? | | | ✓ | ✓ |
| Are communications automated and accessible 24/7? | | | Restricted | ✓ |
| Update reports automatically. | | | | ✓ |
| View all your warehouse schedules from one screen. | | | | ✓ |
| Can you attach documents electronically? | | | | ✓ |

My business isn't a traditional warehouse! Why not a hospital?

You wouldn't think a hospital located in one of North America's most densely populated cities needs to schedule appointments. When you have thousands of suppliers and recent construction has reduced the number of receiving docks by 25%, a first-come, first-serve approach is unmanageable. Hiring schedulers to staff the phones 24/7 isn't the ideal and most cost-effective solution. An automatic web-based application with rule-based exceptions is!

Other Factors to consider.

As stated in the introduction, the intent of this whitepaper is to *introduce* the *basic* notions of dock scheduling. We do not pretend to be capable in this brief report to cover all the issues and all the complementary solutions we've encountered. For the sake of stimulating your thought process (and possibly introducing future subject matter in our whitepapers and blogs), you may wish to consider:

- The pro's and con's of having either a centralized or decentralized scheduling decision making process.
- Going Green! Does your business have an initiative of reducing the use of paper? If yes, then electronic documents should be a consideration combined with electronic signatures at your dock.
- Compliance. This affects your entire business; but how is it managed at the dock level and do you want to implement a *receiving audit process*?
- Labor management software for your dock. Investigate how an automated schedule can assist in better managing your unloading service (or your own labor).
- Your existing WMS, TMS (or some other IS) currently has a dock scheduling function to it. Evaluate the strengths and weaknesses of each in comparison to implementing a stand-alone dock scheduling system.
- Reporting and dashboards: have you evaluate who needs what? Consult the internal users. For example, which reports would you need to effectively manage chargebacks?

- Try to forecast your future needs. Will the system you select today respond to your business needs in 5 years? For instance, do you expect your business will embrace mobile technology in the near future?
- Do you need to capture trailer seal information? How can basic or electronic seal information be integrated in my dock scheduling process?

In summary, we have tried to assist you in answering the 5 **W's** (**who** needs it, **what's** in it for my business, **where** to start, **which** is the best solution, **what** else should I know). If you're considering implementing a dock scheduling system, be certain that testimonials are unanimously claiming a high level of satisfaction and an immediate payback. If you already have a dock scheduling system in place, then don't satisfy yourself with the status quo – push forward to the next level of automation. If you don't, your competitors most likely will!

About C3 Solutions

Founded in 2000, C3 has become the leader in Yard Management and Site Flow solutions, including dock scheduling, with an impressive roster of Global 5000 clients in manufacturing, grocery, retail, logistics and parcel post across three continents.

The web-based appointment scheduling system, **C3 Reservations**, allows you to improve the productivity of your logistics operation by enabling third parties to book appointments for goods delivery and pickup. C3 Reservations eliminates site congestion and improves your operations productivity by helping you plan, control and monitor access to your facility.

Yard Smart, C3's award winning yard management system (YMS) provides the ability to totally automate your yard operations. Yard Smart will manage your gates, provide visibility for both trailers and the product inside the trailers and dramatically increase the productivity of your yard, drivers and dock workers.

For more information, visit www.c3solutions.com

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