



# Gate Appointments

*You wouldn't let a ship berth without an appointment; why should you do the same for trucks?*



**TOPAS**



Terminal Operator and Port Authority  
Subcommittee for EDI Standards  
Development



# **Gate appointments: Government mandate or profit opportunity?**

- **Australia since 1995**
- **LA since 2000**
- **New Orleans since 2003**

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**Are they for you?**



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## Ports face challenges.

- Traffic congestion
  - China trade continues double-digit growth
- Limited real estate
  - Crowded container yards and gates
- Heightened security concerns



## Appointments improve yard work in three ways.

- Schedule resources for upcoming work
- Arrange the stacks to minimize digging
- Use otherwise idle time
  - Midday lulls
  - Nights
  - Weekends
  - Holidays

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## Improve gate process in three ways.

- Shorten gate transit time
- Identify problem transaction prior to the gate; eliminate turn-aways
- Use otherwise idle time
  - Midday lulls
  - Nights
  - Weekends
  - Holidays



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Appointments are here and now.

- Brisbane, Australia
- Buenos Aires, Argentina (mandatory)
- Fremantle, Australia
- Melbourne, Australia (mandatory)
- New Orleans, USA (mandatory)
- LA / Long Beach
- Southampton, UK
- Sydney, Australia (mandatory)



Use of appointments in practice

Real world experience

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Planning requires information.

- Who will visit the terminal?
- What will he bring or want?
- Why? (for what BL or booking)
- When?

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Gate-in is an information transfer process.

- “What equipment do you bring?”
  - Container
  - Chassis
  - Tractor
- “Why are you here?”
  - What trucking company?
  - What Booking?
  - What Bill of Lading?
    - Perhaps several iterations.



## Gate automation hardware answers “Who?”

- Container by OCR
- Chassis by OCR
- Tractor by RFID
- Driver by TWIC Card (eventually)
  - All are faster than key entry, but none are perfect.

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## Appointment answers “Why?”

- The full container is for which booking?
- I expect to pick up a container from which BL.
- The empty is being returned to whose pool?
  - An electronic appointment prior to the visit allows errors to be dealt with prior to the visit. It also eliminates the clerk-driver conversation.



## Appointments may answer “When?”

- Scheduling truck visits in specific times slots rationalizes service over all operating hours of terminals and terminal gates.
- Operators and truckers can plan resource needs more effectively.
  - Knowing transactions today means more efficient staffing tomorrow.
  - Yard management is facilitated through advance knowledge of equipment movement.

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Today, appointments are made on the Web and by phone.

- A call center with human attendants is an excellent means to negotiate a truck visit.
- A web conversation is a good way to present a dispatcher with many options for an appointment.



# Appointments are labor intensive.

- An appointment call center requires two resources
- An appointment web site requires one resource
  - An EDI appointment system requires NO resources.

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# Why EDI for appointments?

- Data move directly from trucker's system to appointment system and back
- Fewer human errors
- Increased data security
- Decreased corrections to data already entered

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Fewer human errors mean faster service at the terminal.

- Fewer requests to terminal staff for customer service.
- Unmanned gates can become a reality.
- Every hour a truck is not in the terminal is an hour saved

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## Why not X12 or EDIFACT?

- Traditional EDI is extraordinarily good at moving facts.
- Not designed for negotiations.
- Current architecture provides 30 minute response time.

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EDIFACT and X12 are great for describing completed events.

- A BL is not transmitted until it is complete.
- A322 is not sent until the container is observed passing a gate.
- A BAPLIE is not transmitted until the ship is laden.



# Economics of X12

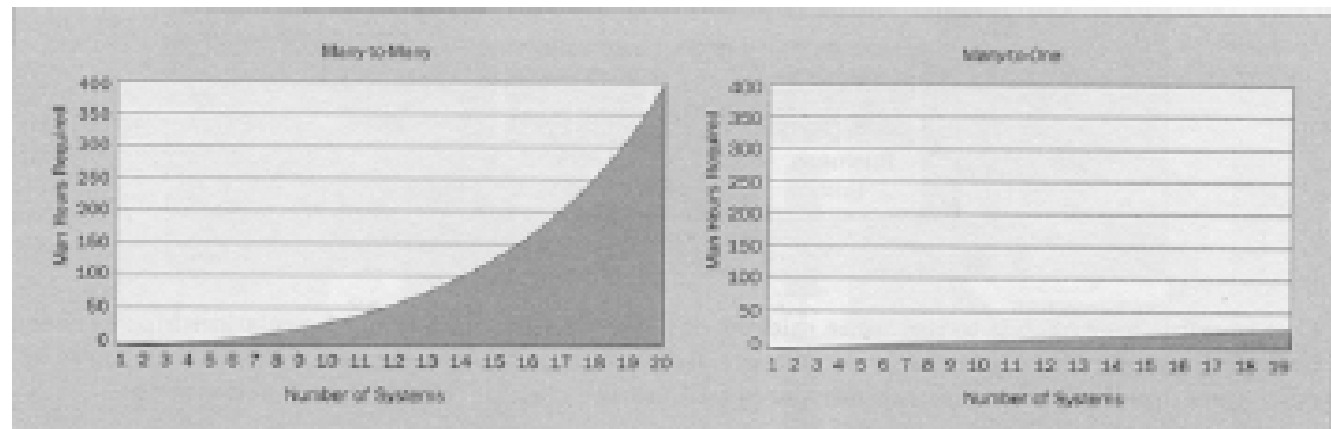
- 200-300 hours to establish a trading partner relation.
  - How do you use this field?
  - What delivery method shall we use?
  - How shall we do corrections?

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# Cost to enable large populations



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X12/EDIFACT

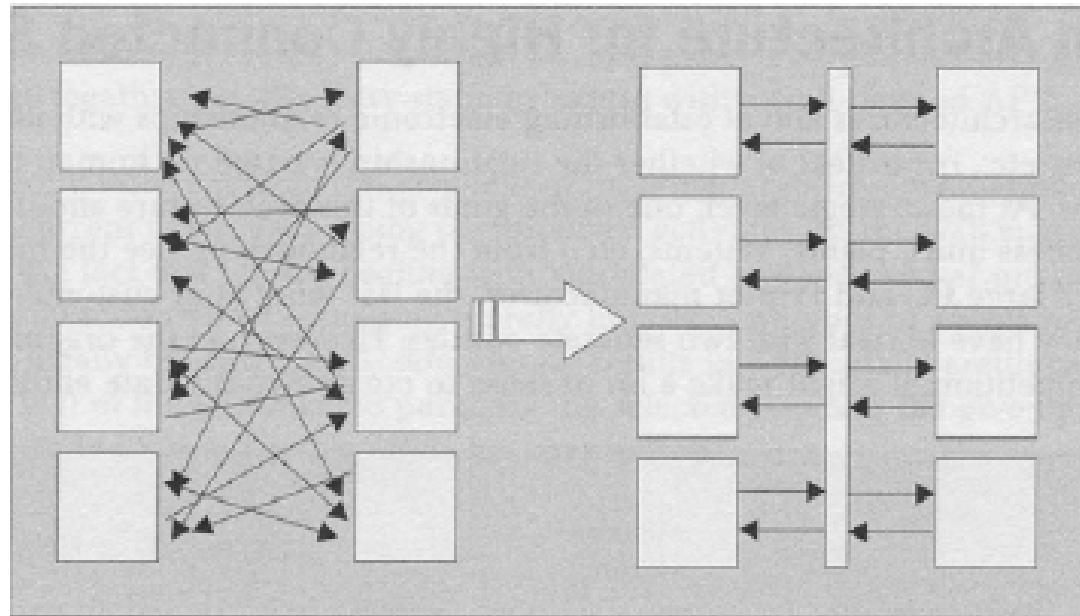
ebXML



# Number of set-ups required

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X12/EDIFACT

ebXML



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# Paradigm shift N° 1

## Accommodate a much larger community.

- If we want to include truckers in our EDI community:
  - Our community will grow by a factor of 125.
  - The number of trading partner relations will grow by a factor of 1000.
  - The solution needs to be cheaper for new users.



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## Appointments need a new trading partner model.

- Addition of 50,000 trucking companies to community
- Addition of 50 Feeder Carriers
- Equipped with PCs and internet connection
- No mainframe, EDI processor, or VAN connection
- No dedicated EDI resource



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## Paradigm shift N° 2

### Accommodate differing message sets.

- Not every appointment negotiation will be the same:
  - Booking numbers may be required in the US, not in Asia.
  - Driver information may be mandatory in the US, nowhere else.
  - Appointments may involve a fee in Australia, not in the US.
- A prescriptive data model for appointments is not the right way to go.





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Appointments do not conform to the EDIFACT/X12 data model.

- X12 and EDIFACT are designed to transmit data about completed supply chain events:
  - Shipper and carrier have completed a BL; here is a copy for you to use.
  - A container entered a container yard today; here is a 322 message with the details.
  - The ship departed today; here is the BAPLIE that describes the stow plan.



## Paradigm shift N° 3

### Take advantage of web communications.

- Fifteen-minute transmission cycle results in a half hour query-response cycle.
- Use secure internet transmissions to replace VANs.

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Transmission of historical data must be prompt, but needn't be instantaneous.

- This group agreed last year to EDI transmissions every 15 minutes, 24x7.
- A response time of 30 minutes is not sufficient to support the negotiation of an appointment that might have multiple queries and responses as part of a single negotiation.

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Negotiation requires near-synchronous communications.

- An appointment requires multiple query/response pairs:
  - Trucking company authorized?
  - Time slot available?
  - Container available?

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The logo consists of the letters 'SMDG' in a bold, blue, sans-serif font. The letters are overlaid on a small rectangular image showing a port or industrial facility with cranes and buildings.

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Making an appointment requires a multi-stage negotiation.

- I would like to send a truck next Monday at 6:00 AM.
- We open at 7:00 AM.
- I would like to pick up ABCD-1234567.
- That container will not clear Customs until Tuesday.

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## ebXML offers a solution.

- Data in XML (self defining messages)
- XML allows lists of options to be delivered.
- ebXML provides secure transmission with non-repudiation over the web.

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# Introduction to ebXML.

- Electronic business XML
- Supported by international bodies
  - UN/CEFACT
  - OASIS
  - RosettaNet
  - China
  - Because this standard is being developed by volunteers (like the TOPAS committee) it will not receive as much press as Web Services being supported by commercial entities.



A Trucker wants to establish an electronic trading relation with a terminal.

- Goes across the web to an industry registry to look for terminal operator
  - (Think DNS look-up)
- Finds terminal operator, goes to its ebXML site
- Finds there a CPP (*how we work*)

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# Automated implementation of trading partner relation

- Trucker system reads CPP, accepts it, and creates a CPA (agreement between trucker and terminal how they communicate).
- Trucker system makes first appointment.

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# CPA

## Collaboration Protocol Agreement

(completely automated)

- Partners agree to communicate with XML according to these schemas (think document templates in Word):
  - Inquire Appointment
  - Request Appointment
  - Modify Appointment
  - Cancel Appointment
  - Enquire Reports
- The trucker's address on the web is:  
<http://ebxml.trucker.com>
- The terminal's address on the web is:  
<http://ebxml.terminal.com>

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# Request Appointment Business Process – Simple terminal

- Describe the process in UML.
- We communicate in XML in a SOAP envelope.
- Trucker tells terminal day he wants to send truck.
- Terminal grants appointment for one truck on one day.

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# Request Appointment Business Process – Complex terminal

- Trucker describes full mission:
  - Truck ID, Container ID, Driver ID
  - Date and time of proposed visit
  - BL Number
- Terminal grants appointment for one time slot, gives secret code number, promises to serve within one hour, and charges appointment fee.

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## ebXML provides

- Automated discovery of partner offerings:
  - Partner business process
  - Normal data requirements
- Automated negotiation of business process and document format
- Secure communication
- Non-repudiation



# ebXML does not prescribe

- Business process
- Supporting documents
- Data requirements
- Data format
- Data definitions

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# UN/CEFACT Core Components for Transportation “Bigfoot”

- It is thirty years more current than those used in some X12 and EDIFACT sets.
- It shares definitions with our customers.

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## We developed a sample ebXML template

- Template business process
- Data definitions in accord with the Bigfoot list
- None of this an ebXML standard, but ebXML makes it possible

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## Why should you care?

- Unless we accommodate a larger trading community.
- With more business process integration
- Solving community problems requires inclusion of a larger community; ebXML makes that cost effective.



# ebXML drives down cost.

- Linux supports ebXML.
- Cheaper than \$200,000 EDI translator

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# Review of Paradigm shifts

- (1) Larger population
- (2) Business process integration (not just data replication)
- (3) Use of web communications

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## Where is ebXML?

- (1) Defined Standard
- (2) Commercial Support – infant stage
- (3) B2B is a certainty; ebXML is the leading candidate method.

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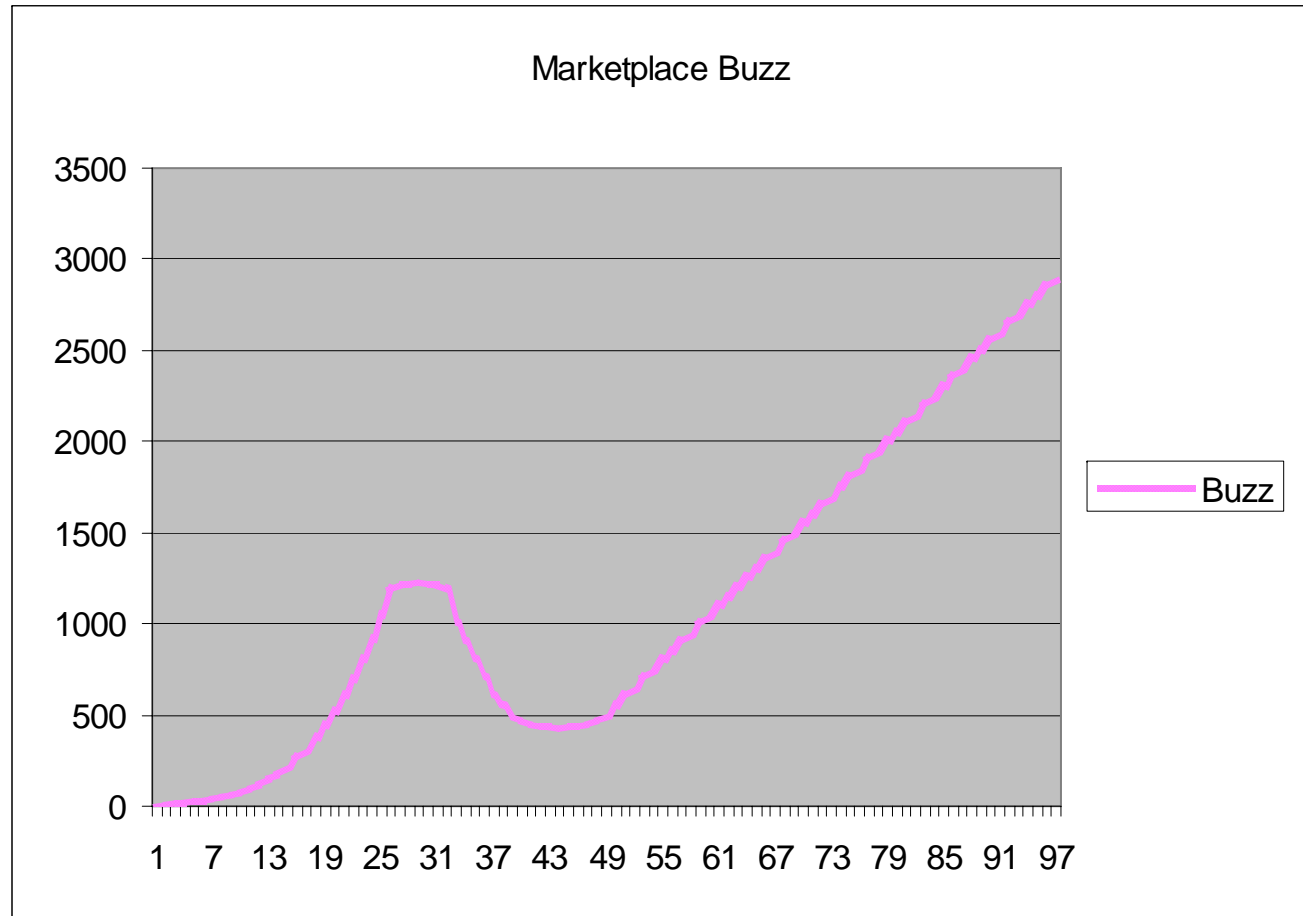
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# Silent Period





# Where are we? (last six months progress)

- (1) Built a business model
- (2) Built a transaction model
- (3) Defined message schema
- (4) Harmonized with Bigfoot

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## Where do we go? (next six month's work)

(1) Implement a prototype

Probably using Web Services tools

(2) Prototype demo October 2005

TOPAS in DC; SMDG in Hamburg

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