



Creating A Single Global Electronic Market

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Negotiation Details

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37 **Preface**

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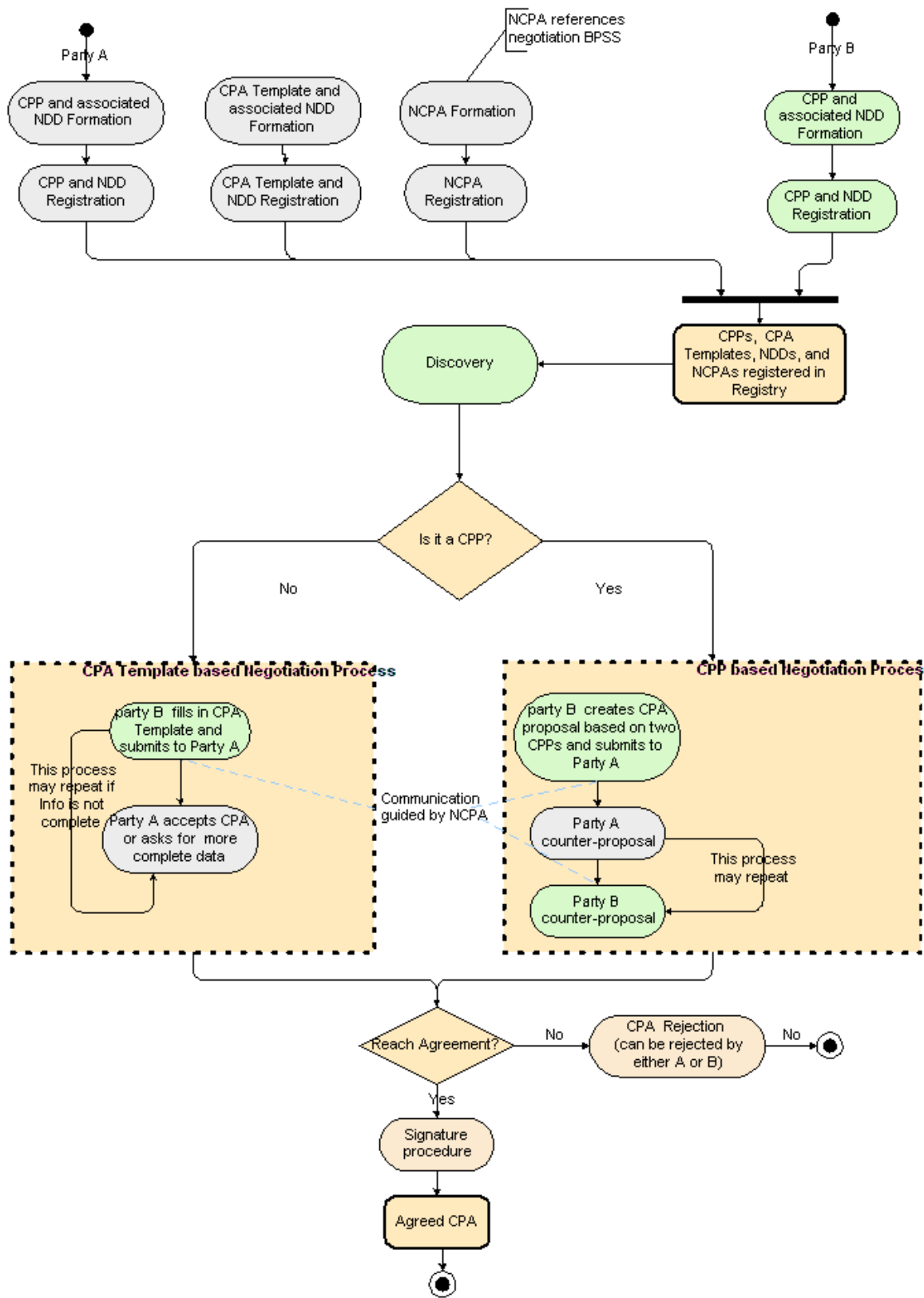
39 This document provides an overview of some elements of a auto-negotiation specification,
40 collected from team discussions. It will be updated as appropriate until the team creates a draft
41 of the specification. The main elements of the process are:

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- 43 • Formation of CPPs,
- 44 • Registration of CPPs in ebXML Registry [or other registry service](#)
- 45 • Discovery of CPPs in ebXML Registry [or other registry service](#)
- 46 • CPA composition from the two CPPs.
- 47 • Submission of proposed CPA for approval
- 48 • Some messages to be exchanged during negotiation
 - 49 ♦ CPA counterproposal advice,
 - 50 ♦ CPA acceptance (and signature procedures),
 - 51 ♦ CPA rejection advice.

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53 The following figure is a high-level view of a possible negotiation process.



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Following are some details of the negotiation process illustrated in the above figure.

- Initial inputs:
 - ◆ CPPs and the associated NDDs of two prospective partners or a CPA template and NDD that one partner provides to a prospective partner.
 - For the case of the CPA template and NDD, the CPA template might be generated by one of the parties, might be a copy of a CPA used by someone else that is almost exactly what is needed, or might be supplied by a third-party negotiation service.
 - ◆ Proposed Process Specification document (BPSS instance document)
 - The partners can negotiate about which BPSS instance document to use based on the name of the BPSS instance document (i.e. syntactic negotiation) but not over the details within a given BPSS instance document (semantic negotiation).
- The negotiation process starts with the two prospective partners exchanging NDDs or (for third-party negotiation) each prospective partner providing its NDD and CPP to the negotiation service. Alternatively, once party may provide a CPA template to the other party.
 - ◆ Which party can initially propose a CPA template?
 - The party who initiates contact with another party?
 - The party who is contacted by another party?
 - Either party?

The team agreed that either party could propose a CPA template. However there is a potential race condition in which each proposes a CPA template. If "either party" is accepted as the answer, the negotiation specification will have to include a protocol for that resolves the race condition.
- Composition tool builds initial version of CPA from the two CPPs.
- If the initial CPA is complete (syntactically valid, usable, and agreed to by both parties), does it go into effect immediately or is human review and approval required? The former would be chosen if dynamic eCommerce is desired. The choice could be specified in the NDD. NCPAs could be provided for each alternative.
 - ◆ See "Responses to CPA Proposal"
- Negotiation of items requiring human input
 - ◆ May need to indicate in the NDD, what needs human input.
- Offer, counter-offer information is in business messages exchanged using negotiation business transactions defined in the NCPA.
- End of negotiation:
 - ◆ A successful result is a CPA that is ready to use, possibly subject to human approval.
 - ◆ An unsuccessful result means that agreement was not reached on some items in the CPA. Possibly, further human interaction could resolve the disagreement.
 - ◆

1.1 CPP Formation and Editing

These are pre-discovery steps that are out of scope for the negotiation specification, they are included here in the interest of completeness.

- CPP Template
 - ◆ Supplied with software installation (configured options)

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- 101 ♦ Edited to reflect preferences
- 102 • NDD formation.
- 103 ♦ Although NDD formation is out of scope, the NDD schema is a key component of the
- 104 specification.
- 105 • Tool for custom CPP formation
- 106 • Tool for NDD formation
- 107 • Service(s) for supplying CPPs or CPA templates
- 108 ♦ UDDI advertised, SOAP, ebXML, simple HTTP GET, and so on.
- 109 • ebXML registry submission (publication)
- 110 • Can a party publish both a CPP and a CPA template?
- 111 In principle, a party should be able to publish both a CPP and a CPA template. However, this
- 112 would lead to a problem that a given prospective trading partner might find either one. If a
- 113 party intends that some prospective trading partners negotiate with a CPP while other are
- 114 expected to accept a CPA template, then the party should probably publish only the CPP and
- 115 decide whether to send a CPA template based on its knowledge of who the prospective
- 116 trading partner is.
- 117

118 **1.2 Discovery of CPPs**

119 The discovery process is out of scope for the negotiation specification; it is included here in the
120 interest of completeness.

- 121
- 122 • UDDI ebXML Registry bootstrap.
- 123 • ~~ebXML registry s~~Search and retrieval in ebXML registry or similar registry.
- 124 • Well-known address as done in eCo framework.
- 125 • Should/can a registry have any further role(s), perhaps as value-added services?
- 126 ♦ Notification of CPP expirations?
- 127 ♦ Accept filled-out CPA templates?

128 **1.3 NDDs**

- 129 • An NDD could be placed in a registry along with the CPP. NDD and CPP would have to be
- 130 connected by registry metadata. We do not want to include a link to the NDD in the CPP
- 131 since there may be many NDDs, with different negotiation details, associated with one CPP.
- 132 • We believe that the recommended procedure should be not to include an NDD in the registry.
- 133 Instead, one a party is discovered by a prospective trading partner, the NDDs should be
- 134 exchanged in the opening step of the negotiation. This permits a party to send an NDD that it
- 135 considers appropriate for the particular prospective trading partner.
- 136 • It should not be necessary to exchange revised NDDs after each negotiation step. The
- 137 negotiation process can maintain the detailed state and compose an acceptable CPA at the
- 138 end without repeated exchanges of NDDs. Appropriate state information can be exchanged in
- 139 the negotiation messages.
- 140 • It might be desirable to exchange NDDs and/or a partially completed CPA occasionally as a
- 141 checkpoint.
- 142 • It is suggested that in the first version of the specification, NDDs be exchanged only during
- 143 initialization of the negotiation process. Based on initial experience, intermediate exchanges

- 144 of NDDs could be added later.
- 145 • One aspect of designing the NDD is to design the means by which the NDD refers to specific
- 146 items in the CPP. Possibilities :
- 147 ♦ Xpath
- 148 ♦ ID attributes (these would have to be added to every element in the CPP).
- 149 ♦ Do we want an NDD to be able to reference a "chunk" of the CPP as well as to reference
- 150 individual elements and attributes?
- 151

152 1.4 CPA Template

- 153 • A CPA template can be placed in a registry in place of a CPP when a party wishes to dictate
- 154 all terms and conditions of the final CPA. The prospective trading partner would only have
- 155 to fill in a minimal set of information, such as an endpoint address and a certificate to be
- 156 ready to do business.
- 157 • With a CPA template, the accompanying NDD would be very simple but would indicate
- 158 which elements and attributes need to be completed by the prospective trading partner.
- 159 Having the NDD probably facilitates identifying the items to be negotiated or filled in
- 160 compared with having to parse the CPA template to find those items.
- 161 • For a CPA template, it is likely that a party would not have multiple NDDs for the same
- 162 template. Therefore, it may be appropriate to tie the NDD to the CPA template in the
- 163 registry. Possibilities include:
- 164 ♦ Embedding the CPA template in the NDD
- 165 ♦ Importing the CPA template namespace and the template itself into the NDD.
- 166 • If party A discovers party B's CPP in a registry, Party B does not have party A's CPP. Party
- 167 A could compose a CPA template using Party B's CPP, and present that template to Party B.
- 168 This would save the extra steps for Party A to send its CPP to Party A and the exchange of
- 169 NDDs. Note, however, that in this process, Party A is dominant. This might have a very
- 170 different outcome than would result from a peer negotiation between Party A and Party B
- 171 using two CPPs and two NDDs.
- 172

173 1.5 CPA composition

- 174 • One party (or the intermediary) creates the initial draft of the CPA by CPA composition from
- 175 the two CPPs.
- 176 • There is a possibility that both prospective trading partners might compose and send a draft
- 177 CPA to each other. This race condition will have to be dealt with.
- 178 • A draft of a CPA composed from two CPPs is somewhat similar to a CPA template in that it
- 179 is probably incomplete. However, the CPA template, by definition offers few choices to the
- 180 other party whereas a draft composed from two CPPs may include a large number of
- 181 negotiable items.
- 182 • It is likely that the process from the point that a CPA draft is composed from two CPPs will
- 183 be very similar to the process for a CPA template except for the number of negotiable items
- 184 in the two cases.
- 185 • The process of composing the CPA draft from two CPPs will often narrow down the amount
- 186 of negotiation relative to the negotiation possibilities expressed in the NDDs. Many items
- 187 that are potentially negotiable in the CPPs will be no longer negotiable after the CPA is

188 composed. For example, there may be only one transport protocol that is common to the two
189 parties. The negotiation process must evaluate the NDDs against the composed CPA and not
190 attempt to negotiate items for which the composition process fixed the result.

- 191 • It was noted during the Jan. 30, 2002 face to face meeting that it might not be necessary to
192 create an XML document containing the composed CPA draft. The negotiation process could
193 maintain the intersection of the two CPPs in an internal form and not complete the actual
194 CPA document until the negotiation process has converged. However, some people preferred
195 to start the negotiation by creating an initial draft CPA and providing it to both parties.
196

197 **1.6 Submission of Proposed CPA to One or Both Parties**

- 198 • Protocol(s) for submission and CPAId conventions if ebXML MSG used.
- 199 • Lightweight PUT or POST of proposed CPA (to permit use with non-ebXML MSG transport
200 MSHes).
- 201 • Response-to URLs?
202

203 **1.7 Responses to CPA Proposal**

204 This is an example of what might be specified.

- 205 • Accept with no changes
- 206 ◆ Accept
- 207 ◆ Accept and deploy (dynamic eCommerce)
- 208 • Accept with value changes only.
- 209 • Counterproposal:
- 210 ◆ Deleted elements,
- 211 ◆ Added elements
- 212 ◆ Re-ordered elements using an Xpath based list of changes with status of required or
213 preferred.
- 214 • Rejection: with reason(s) for rejection
215

216 **1.8 Counterproposal Acceptance**

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218 **1.9 Counterproposal Counter**

219 **1.10 Offer-Counter Offer Algorithm**

- 220 • The offer-counter offer procedure must be designed to avoid infinite loops. The algorithm
221 must converge rapidly to either success or failure. Some kind of forward progress indicator
222 must be included.
- 223 • The convergence procedure must distinguish between an offer-counter offer loop over the
224 same negotiable item and successive negotiations over different items.
- 225 • The NDD focuses the offers and counter offers on what is acceptable. Any offer or counter
226 offer that is outside the limits defined in either NDD must be rejected.
- 227 • The algorithm generally should avoid backtracking over items for which the negotiation has
228 converged. However there may be cases in which multiple negotiable items interact. For

229 such a case, backtracking might a necessary part of of converging the negotiation of the set
230 of interacting items.
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232 **1.11 Counterproposal Rejection of Proposal or Counterproposal**

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234 **1.12 Reasons for Rejection during Negotiation**

235 NOTE: The automated composition tool will detect many problems before the negotiation
236 process begins. Examples are mismatched Process Specification document and mismatched
237 delivery channel requirements. These should be elaborated in the document that relates to the
238 composition tool.

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240 Rejection message includes reason, contact name, phone, and/or URL for further information.

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242 Following are some reasons for rejection:

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- 244 • CPP/CPA contents. Examples:
 - 245 ♦ base CPP deprecated
 - 246 ♦ signature on CPP failed validation
 - 247 ♦ Signature on agreed CPA failed validation
 - 248 ▪ CPA is not signed until it is agreed to.
 - 249 ♦ proposed security too weak
 - 250 ♦ proposed packaging not supported
 - 251 ♦ unable to support signals requested (Process Specification document)
- 252 • Business relationship
 - 253 ♦ CPA unsupported without existing business relation
- 254 • Negotiation process
 - 255 ♦ too many counterproposals tried (no forward progress to convergence),
 - 256 ♦ proposed CPA previously received and not accepted.
- 257 • CPP/CPA format problems
 - 258 ♦ parsing error/data invalid
- 259 • Internal System Error