E-Commerce and Simple Negotiation Patterns

Document to Address Common Pattern Implementation Issues

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46 # 3 Table of Contents

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77 # Figures

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79 # 4   Introduction

80 ## 4.1   Summary

81
82 This document is meant to be included as a supporting document to the ebXML Business
83 Process (BP) Specification Schema, to address common pattern implementation issues.
84 The pattern used by the BP process may also apply to the automated negotiation of
85 Collaboration of Protocol Agreements (CPA) terms from Collaboration Protocol Profiles
86 (CPPs), and so may be relied upon by the CPP/CPA Specification.

87
88 ## 4.2   Scope and Audience

89
90 This document is intended to be read by designers and users of ebXML business
91 processes.
92

93 ## 4.3   Related Documents

94
95 ebXML Technical Architecture Specification. Version 1.0.4. 16 February 2001. ebXML
96 Technical Architecture Project Team.

97
98 UN/CEFACT Modelling Methodology. CEFACT/TMWG/N090R9. February 2001.
99 UN/CEFACT Technical Modeling Working Group.

100
101 ebXML Business Process Analysis Worksheets and Guidelines. WORK-IN-PROGRESS.
102 Version 0.9. March 10, 2001. ebXML Business Process Project Team.

103
104 ebXML Catalog of Business Processes. Version TBD. Date March 17, 2001. ebXML
105 Business Process Project Team.

106
107 ebXML Business Process Specification Schema. Version 0.90. 01/17/2001.
108 Context/Metamodel Group of the CC/BP Joint Delivery Team.

109
110 ebXML TA Glossary. Version 0.95 (TBD). 12 February 2001 (TBD). Technical
111 Architecture Project Team.
112

113 ## 4.4   Document Conventions

114
115 The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD,
116 SHOULD NOT, RECOMMENDED, NOT RECOMMENDED, MAY, and OPTIONAL,
117 when they appear in this document, are to be interpreted as described in RFC 2119
118 [Bra97].
119

120 # 5   Design Objectives

121
122 ## 5.1   Problem Description

123
124 *The Specification Schema* contemplates exchanges of *Documents* by means of atomistic
125 *Transactions* each between two parties.   In order to achieve the desired legal and
126 economic effects of these exchanges, the structure of the documents must
127 - permit the parties to exchange legally *binding* statements and terms,
128 - permit the parties to exchange *nonbinding* statements and terms, in order to
129   negotiate, and
130 - permit a logical composition of those exchanges into *Collaboration* patterns that
131   allow an agreement to be formed.
132
133 As used in this document, the words *Document, Transaction* and *Collaboration* are
134 defined below.
135
136 As a special instance, in order to initiate an ebXML transaction, two parties may wish to
137 use the negotiation pattern described in this document to negotiate a CPA in an
138 automated fashion from a pair of CPPs supplied by each party.
139
140 ## 5.2   Special Terminology

141
142 ### 5.2.1 Terms to be added to the ebXML Glossary of Terms.

143
144 *Legally Binding* – An optional character of a *document*, set by the sender, that is intended
145 to confer upon it the status of being the sender's legally enforceable statement or
146 commitment.
147
148 *Contract* – A bounded set of statements or commitments between parties that are
149 intended to be legally enforceable as between those parties.
150
151 ### 5.2.2 Terms defined for the purpose of this document.

152
153 *Acceptance* -- A responding party's *document* indicating agreement with a received *offer*.
154
155 *Collaboration* -- A "Business Collaboration" as defined in the BP Specification Schema.
156
157 *Counteroffer advice* -- A message bound *to a rejection*, indicating that the sender intends
158 to send a new *offer* regarding the same subject matter.
159
160 *Document* -- A "Business Document" as defined in *The Specification Schema*.
161
162 *Offer* -- A *document* proposing business terms by a requesting party addressed to a
163 recipient. A *binding* offer entitles the recipient to form a *contract* with the requesting
164 party by responding with a *binding acceptance*.

165
166   *Rejection* -- A responding party's *document* indicating that it rejects a received *offer*.
167
168   *Transaction* -- A "Business Transaction" as defined in *The Specification Schema*.
169
170   Other terms defined in the ebXML BP Specification and CPP/CPA Specification are used
171   in this document as defined in those specifications.
172

173   **5.3 Assumptions and Constraints**

174

175   **5.3.1 Constraints from ebXML structure**

176
177   a) An ebXML *collaboration* is conducted by two parties, each using a human or an
178   automated business logic system that interprets the *documents* transmitted and
179   decides how to (or whether to) respond.
180
181   b) All *collaborations* are composed of combinations of atomistic *transactions,* each
182   between two parties.   Multi-party or multi-path economic arrangements are
183   possible, and may be arranged in a single *collaboration*, but must be decomposed
184   into bilateral *transactions* in order to do so consistent with this document   See the
185   Drop Ship Scenario supplied in Exhibit E of the Business Process Analysis
186   Worksheets & Guidelines Document.
187
188   c) The ebXML specifications, permit a party to impose messaging or security
189   options such as "isNonRepudiationofReceiptRequired", that require that
190   electronic signatures be attached to some d*ocuments* for purposes <u>other than</u> to
191   indicate their *binding* or *nonbinding* nature. Therefore, the presence or absence of
192   an electronic signature bound to a *document* (*e.g.* by hashing) cannot be used by
193   itself to indicate its *binding* character.
194
195   d) The ebXML Business Process Specification Schema permits a trading partner to
196   designate specific *transactions* as *binding* or *nonbinding* by setting the Boolean
197   parameter "isLegallyBinding".
198

199   **5.3.2 Constraints from legal and auditing requirements**

200
201   a) The emerging laws of electronic signatures generally require that, in order for an
202   electronic message to be given the same legally enforceable effect as a signed
203   physical writing, the author must indicate his *intent* to be bound.   This may be
204   accomplished by the author intentionally conforming to a data standard that
205   specifies a mark, attribute or protocol indicating legal assent. That assumption is
206   necessary in order to form a *contract* dynamically by business logic through
207   exchanges of ebXML messages.
208
209   b) Each *offer* in a *collaboration* must be definitively resolved in order to end the
210   *collaboration*. (This is true whether or not the offers are *binding*.) Offers that are

211   followed by an <u>explicit</u> *acceptance* must be resolved as accepted. All other
212   responses – including time-outs, rejections and counteroffers – must be resolved
213   as a type of rejection. Either resolution should result in completion of the
214   *transaction*, together with an end state that informs further processing of the
215   results of the *collaboration*.
216
217   c) Each *acceptance* of an *offer* (whether or not *binding*) must unambiguously refer to
218   the *offer* accepted, in a manner that produces artifacts suitable for establishing the
219   accepted terms to a legal authority.
220

6 Pattern Requirements

222
223   These requirements will permit exchanges of ebXML documents to form *contracts*
224   consistent with the assumptions and constraints listed above. This document is captioned
225   as a "simple" negotiation pattern, in contrast to the more complex modeling and assembly
226   of commitments and fulfillments that is possible under the N90 Metamodel.   The
227   following constraints are designed to permit trading partners to exchange
228   request/response sets that will result in a demonstrably successful or failed negotiation of
229   a proposed business process.
230

6.1 Requirements for All Transaction Documents

232
233   *Contracts* MAY be formed by ebXML *collaborations* by the inclusion of *offers* and
234   *acceptances* that conform to this document.   Under this pattern, any *document* that
235   constitutes a *binding* offer or acceptance, or *nonbinding* proposals of offers or
236   acceptances, SHALL conform to the UMM N90 bilateral transaction pattern
237   "Commercial Transaction".[1] Under this pattern, other message patterns (such as
238   notifications) may be included in the same *collaboration* in which a *contract* is formed,
239   but SHALL NOT affect the *contract* terms reached, if any, or the *binding* or *nonbinding*
240   character of those terms.[2]
241

6.2 Requirements for Offers

243
244   An ebXML *document* type constituting an *offer* MAY explicitly incorporate another
245   *document* in the same *collaboration*, by reference to the incorporated *document's* [unique
246   ID].[3]   The payload of an incorporated *document* SHALL be treated as part of the
247   incorporating *offer* (as if the incorporated *document* was authored by the sender of the
248   *offer*, regardless of its actual authorship).

---

[1] . As a result, responses will always be directed to the request sender, and any handling of responses by a
       third-party on the requester's behalf will require a separate transaction.
[2] . This is not to say that notifications have no legal effect. They may be highly relevant to the
       performance, terms or duration of a contract once formed. However, this constraint assures the
       business logic of an ebXML user that its discovery, negotiation and assembly of contract terms need
       only process offers and acceptances.
[3] . This needs the right finalized Glossary phrase for the TRP unique message identifier.

249
250 If an incorporating *offer* has a *binding* character, the payload of an incorporated *document*
251 doing so SHALL also be *binding* on the sender of the *offer*.
252
253 *Documents* that incorporate other *documents* MUST refer only to the <u>entire</u> incorporated
254 *document*.[4]
255
256 ## 6.3   Requirements for Acceptances
257
258 A *document* constituting an *acceptance* MUST contain an explicit reference, by [a
259 message ID][5], to the requesting *offer document* to which it responds, and generates an end
260 state indicating the acceptance and the termination.
261
262 Repeating the terms of an offer, in the *document* constituting an *acceptance* to that *offer*,
263 is NOT RECOMMENDED. [6]
264
265 ## 6.4   Requirements for Rejections and Counteroffers
266
267 ### 6.4.1   Handling of explicit rejections
268
269 A *document* constituting a *rejection* MUST contain an explicit reference, by [a message
270 ID], to the requesting *document* to which it responds.
271
272 A *document* constituting a *rejection* terminates the *transaction* initiated by the *offer* being
273 rejected.
274
275 ### 6.4.2   Handling of counteroffers
276
277 Use of the Commercial Transaction request-response pattern requires that all
278 counteroffers be made by two documents, a rejection (to properly close the request-
279 response pair initiated by the offer) and a counteroffer. In the latter case, the counteroffer
280 is a new offer and the rejecting party is the new initiator.
281
282 In order to propose new or modified terms, the rejecting party MUST send a new *offer*
283 containing the proposed terms, thereby starting a new *transaction* response-request pair.
284

---

[4] . A party who wishes to incorporate <u>part</u> of a prior document in a new message will therefore be
        required to restate the terms within the payload of the new message.
[5] . We need to resolve what unique identifier can be used for cross-references to transaction documents.
[6] . Repetition of terms previously transmitted creates ambiguity. If the terms sent "as accepted" are
        identical to those sent "as offered", a comparison by the offering party is redundant. (The parties have
        already made provision for the desired level of message integrity and security by setting data
        parameters in the CPA or the selection of a business process design. Therefore it is possible that the
        parties are <u>already</u> reflecting back acknowledgement messages.   This pattern must be
        acknowledgement-agnostic.)   If the comparison reveals a difference, the comparing party is faced
        with legal ambiguity and no clear rule for whether the document type or the document contents govern.

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285 A *document* constituting a *rejection* MAY be bound to a signal indicating that a
286 counteroffer is coming, which is called a "*counteroffer advice*" in this document. A
287 *counteroffer advice* MUST NOT be treated as an *offer,* nor as a *binding* document.
288
289 A *counteroffer advice* MAY be communicated by a message *document* bound to the
290 *rejection document* in a manner compliant with ebXML standards (such as in a common
291 document flow envelope/container), <u>or</u> by a unique *rejection document* subtype used only
292 to signify a *counteroffer advice* as well as a *rejection*. However, the method of indicating
293 a *counteroffer advice* MUST be specified in the applicable CPA.
294
295 Receipt of a *counteroffer advice* MUST NOT toll or re-set a *transaction* time-out clock
296 started by the rejected *offer*.   The business logic interface of an ebXML user MAY use
297 the *counteroffer advice* for its own purposes (which may, as noted below, include a
298 *collaboration* time-out clock).
299
300 A separate *document* type for offers not capable of a counteroffer -- or "unalterable"
301 offers -- is NOT RECOMMENDED because, in this pattern, <u>every</u> *offer* must be simply
302 *accepted* or *rejected* on a "take it or leave it" basis.   Processing of counteroffers
303 generally is best handled by the recipient's business logic interface, not *document* type.

7 Practical Consequences for Negotiation of Terms

305
306 The foregoing rules will result in two general cases of *contract* formation.
307
308 • Parties may exchange *nonbinding* proposed terms, and form a *contract* by sending
309 a *binding* offer incorporating a set of the proposed terms, followed by a *binding*
310 acceptance of that offer.
311
312 • Parties may send *binding* terms at the outset, and the recipient may form *contracts*
313 exclusively from those terms by sending a *binding* acceptance.
314
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329   The generalized flow of transactions resulting from the foregoing rules is illustrated
330   below.
331
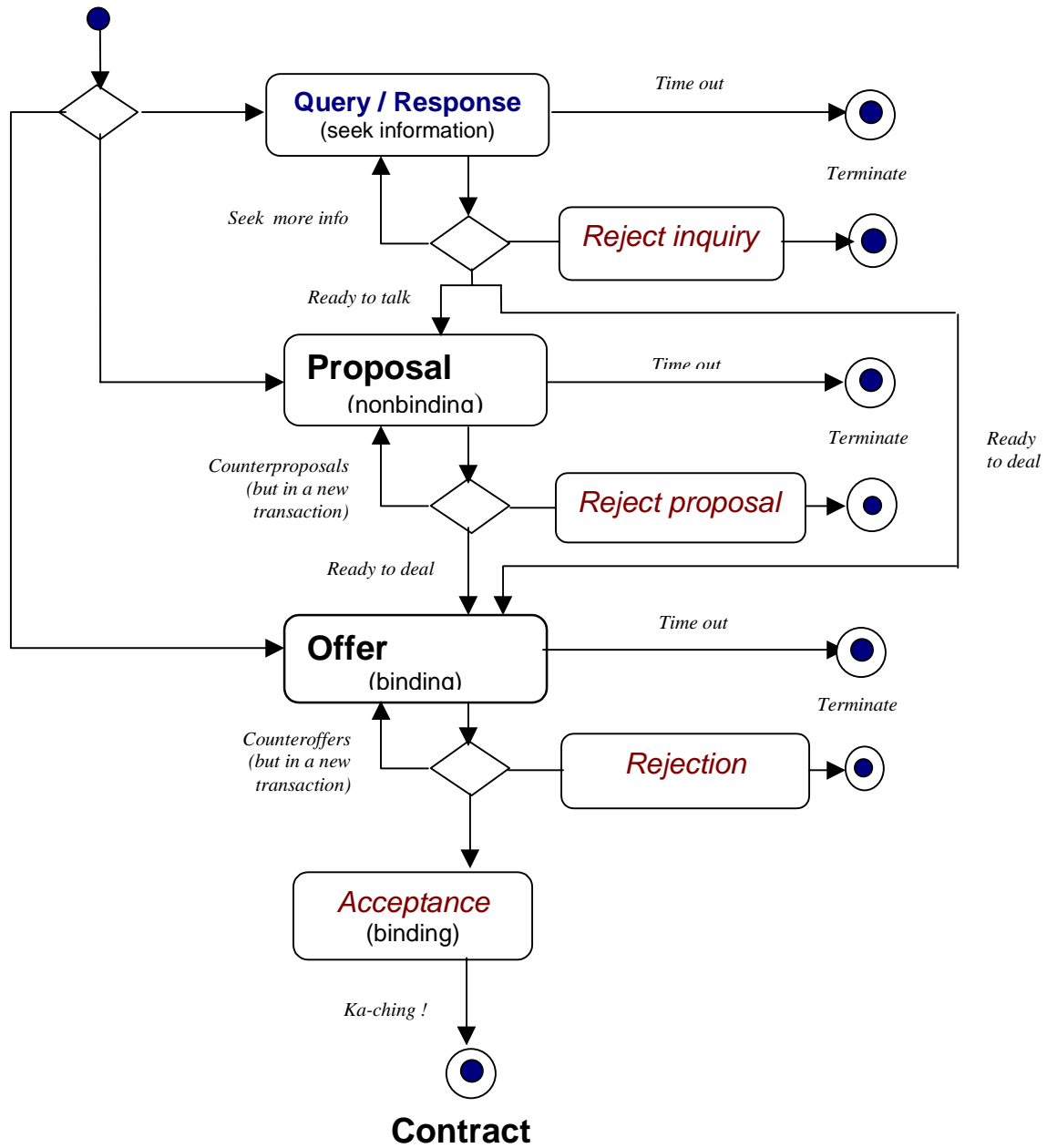
Figure 7-1 Flow Of Transactions Resulting From The Foregoing Rules

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332

8   Recommendation Regarding Collaborations

334

335 We recommend that a *collaboration* handling system include a separate collaboration
336 time-out clock, distinct from the time-out rules applicable to an individual *transaction*.
337 The rules for that clock may include an explicit manner for handling *counteroffer advice*
338 messages.

339

9   CPA Negotiation

341

342 Some ebXML users may initiate communications by selecting from a sheaf of pre-set
343 CPAs. Others may wish to negotiate a CPA dynamically by negotiating a choice from
344 among a pre-set group of CPAs, or assembling a CPA from two CPPs.   The pattern in
345 this document may be used to perform either of the latter negotiations, generally
346 consistent with the document "ebXML Automatic CPA Negotiation" version 0.1 dated 14
347 Feb 2001.

348

349 If a CPA is to be assembled from two CPPs, the parties may additionally elect to invoke a
350 set of default business rules[7] that should assure successful resolution of each CPA term
351 from most pairs of CPAs.   However, parties are free to accept or reject the adoption of
352 those rules.[8]

353

---

[7]. *E.g,,* the "Conflict resolution of equally weighted options" issue set out in the above document.
[8]. If I want to specify in a registry that I only transact in cuneiform on clay tablets, albeit wrapped in an ebXML data structure --- or that I am only willing to enter into transactions where the valid responses are either "I worshipfully accept" or "I beg your monopolyship's leave to decline" -- the *standards* often leave me free to do so. Of course, the *market* may also have something to say about it.

1
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354

10   Disclaimer

356

357 The views and specification expressed in this document are those of the authors and are
358 not necessarily those of their employers. The authors and their employers specifically
359 disclaim responsibility for any problems arising from correct or incorrect implementation
360 or use of this design.

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