



# SOA-EERP Business Service Level Agreement Version 1.0

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#### Related work:

This specification is related to:

- SOA-EERP Business Rating of Service specification, Version 1, <http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Specification.pdf>
- SOA-EERP Business Quality of Service, Version 1, <http://docs.oasis-open.org/soa-eerp/bqos/v1.0/SOA-EERP-bQoS-Specification.pdf>

This document is one of three closely related specifications, SOA-EERP Business Quality of Service (bQoS), SOA-EERP Rating and SOA-EERP Service Level Agreement which need to be understood in combination.

#### Declared XML Namespace(s):

<http://docs.oasis-open.org/ns/soa-eerp/sla/200903>

#### Abstract:

This document specifies the XML vocabulary for business service level agreement (SLA), one of three Specifications for end-to-end resource planning (EERP). Business service level agreement describes the agreement between two parties, service requester and service provider, on business-related characteristics or attributes of a service.

**Status:**

This document was last revised or approved by the SOA-EERP TC on the above date. The level of approval is also listed above. Check the “Latest Version” or “Latest Approved Version” location noted above for possible later revisions of this document.

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# 1 Introduction

This document is the specification for the Business Service Level Agreement for (BSLA) for End-to-End Resource Planning (EERP), an XML vocabulary for information exchange by which a business application can manage and evaluate services with agreed business quality of service, obligations and terms.

EERP applies service discovery, composition, simulation, and optimization techniques in a novel way to improve business results. It models the business process and the range of potential services, then guide the selection and deployment of services based on the end-to-end business value.

Modeling the business service-level agreements to manage and evaluate services and establishing agreements about the business service is essential to long-term value chain improvement. The details of the business service level agreement defined in this BSLA specification will enable EERP to determine the varieties of optimization to be supported, and to manage the end-to-end business process.

## 1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

### 1.1.1 Notational Conventions

This specification uses the following syntax to define outlines for detailed elements:

- The syntax appears as an XML instance, but values in italics indicate data types instead of literal values.
- Characters are appended to elements and attributes to indicate cardinality:
  - "?" (0 or 1)
  - "\*" (0 or more)
  - "+" (1 or more)
- The character "|" is used to indicate a choice between alternatives.
- The characters "(" and ")" are used to indicate that contained items are to be treated as a group with respect to cardinality or choice.
- The characters "[" and "]" are used to call out references and property names.
- Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be added at the indicated extension points but MUST NOT contradict the semantics of the parent and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated below.
- XML namespace prefixes (see Table 2) are used to indicate the namespace of the element being defined.

Elements and Attributes defined by this specification are referred to in the text of this document using XPath 1.0 expressions. Extensibility points are referred to using an extended version of this syntax:

- An element extensibility point is referred to using {any} in place of the element name. This indicates that any element name can be used, from any namespace other than the namespace of this specification.

- 41       • An attribute extensibility point is referred to using @{any} in place of the attribute name. This  
42       indicates that any attribute name can be used, from any namespace other than the namespace of  
43       this specification.

44       Extensibility points in the exemplar may not be described in the corresponding text.

45

## 46       1.2 Normative References

- 47       **[RFC2119]**       S. Bradner, *Key words for use in RFCs to Indicate Requirement*  
48       *Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- 49       **[SOAP]**         W3C Note, "SOAP: Simple Object Access Protocol 1.1", 08 May 2000.  
50       <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>
- 51       **[SOAP12]**       W3C Recommendation, "SOAP 1.2 Part 1: Messaging Framework", 24 June  
52       2003.  
53       <http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>
- 54       **[URI]**         T. Berners-Lee, R. Fielding, L. Masinter, "Uniform Resource Identifiers (URI):  
55       Generic Syntax", RFC 3986, MIT/LCS, Day Software, Adobe Systems, January  
56       2005.  
57       <http://www.ietf.org/rfc/rfc3986.txt>
- 58       **[UBL-20]**       OASIS Standard, "Universal Business Language (UBL) v2.0", 12 December 2006  
59       <http://docs.oasis-open.org/ubl/os-UBL-2.0/UBL-2.0.pdf>
- 60       **[UBL-20-cbc]**    Universal Business Language (UBL) v2.0, Common Basic Components  
61       [http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd)  
62       [CommonBasicComponents-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd)
- 63       **[UBL-20-udt]**    Universal Business Language (UBL) v2.0. Unqualified Data Type  
64       [http://docs.oasis-open.org/ubl/os-UBL-](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)  
65       [2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)
- 66       **[XML-Schema1]**   W3C Recommendation, "XML Schema Part 1: Structures Second Edition", 28  
67       October 2004.  
68       <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>
- 69       **[XML-Schema2]**   W3C Recommendation, "XML Schema Part 2: Datatypes Second Edition", 28  
70       October 2004.  
71       <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>
- 72       **[EERP-BQoS]**     OASIS Standard (Committee Draft 03), "SOA-EERP Business Quality of Service  
73       Version 1.0", 6 January 2010.  
74       <http://docs.oasis-open.org/soa-eerp/sla/v1.0/SOA-EERP-BSLA-spec-cd03.pdf>
- 75       **[ISO8601]**       ISO Standard 8601:2004(E), "Data elements and interchange formats –  
76       Information interchange - Representation of dates and times", Third edition,  
77       December 2004.  
78       [http://isotc.iso.org/livelink/livelink/4021199/ISO\\_8601\\_2004\\_E.zip?func=doc.Fetch](http://isotc.iso.org/livelink/livelink/4021199/ISO_8601_2004_E.zip?func=doc.Fetch&nodeid=4021199)  
79       [h&nodeid=4021199](http://isotc.iso.org/livelink/livelink/4021199/ISO_8601_2004_E.zip?func=doc.Fetch&nodeid=4021199)
- 80       **[CEFACT]**       CEFACT – Core components specifications.  
81       <http://webster.disa.org/cefact-groups/tmg/>

### 82       1.2.1 Reference

83       In this document reference is made to some basic elements and data types in [UBL 2.0](#), in the following  
84       schema:

- 85       • UBL 2.0 Common Basic Components [[UBL-20-cbc](#)], [UBL-CommonBasicComponents-2.0.xsd](#)  
86       • UBL 2.0 Unqualified Data Type [[UBL-20-udt](#)], [UnqualifiedDataTypeSchemaModule-2.0.xsd](#)

87 In addition, this document also reference to some elements defined in SOA-EERP Business Quality of  
88 Service Version 1.0.

89 This specification is designed to work with the general Web Services framework including WSDL service  
90 descriptions, and [SOAP](#) message structure and message processing model. The XML vocabulary  
91 defined in BSLA should be applicable to any version of [SOAP](#).

## 92 **1.3 Non-Normative References**

93 None.

---

## 94 2 Business Services Level Agreement Contents

95 The Business Service Level Agreement (BSLA) of the XML vocabulary is defined in XML Schema format  
96 that has information on both requester and service provider and their agreement on the service level.

### 97 2.1 Namespaces

98 The XML namespace URI that MUST be used by implementations of this specification is:

99 `http://docs.oasis-open.org/ns/soa-eerp/sla/200903`

100 Table 1 lists XML namespaces that are used in this specification. The choice of any namespace prefix is  
101 arbitrary and not semantically significant.

102 *Table 1: Prefixes and XML Namespaces used in this specification.*

Prefix	Namespace	Specification(s)
S	<a href="http://schemas.xmlsoap.org/soap/envelope/">http://schemas.xmlsoap.org/soap/envelope/</a>	[SOAP]
S12	<a href="http://www.w3.org/2003/05/soap-envelope">http://www.w3.org/2003/05/soap-envelope</a>	[SOAP12]
xsd	<a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a>	[XML-Schema1], [XML-Schema2]
cbc	<a href="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2">urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2</a>	[UBL-20-cbc] , [CEFACT]
udt	<a href="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2">urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2</a>	[UBL-20-udt] , [CEFACT]
ccts	<a href="urn:un:unece:uncefact:documentation:2">urn:un:unece:uncefact:documentation:2</a>	[UBL-20]
bqos	<a href="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">http://docs.oasis-open.org/ns/soa-eerp/bqos/200903</a>	[EERP-BQoS]
sla	<a href="http://docs.oasis-open.org/ns/soa-eerp/sla/200903">http://docs.oasis-open.org/ns/soa-eerp/sla/200903</a>	This specification

### 103 2.2 Schema Files

104 A normative copy of the XML Schema [XML-Schema1, XML-Schema2] description for this specification  
105 can be retrieved from the following address:

106 `http://docs.oasis-open.org/soa-eerp/eerp-sla/200903/eerp-sla.xsd`

### 107 2.3 BSLA Contents

108 The BSLA is the root element for EERP- Business Service-level agreement (BSLA). Business SLA is a  
109 formal contract between a service provider and a client guaranteeing quantifiable business quality of  
110 service (bQoS) at defined levels. It can have one or more of the following elements:

- 111 • SLAParties describes the parties invoked in the SLA for the service
- 112 • SLAParameters describes the parameters for the service, which are defined ways of monitoring  
113 of QoS metrics.
- 114 • SLAObligations describes the agreed SLA obligations for the service.

- 115 • SLATerms describes the agreed SLA Terms for the service.
- 116 • Any additional elements for the agreement of the service

## 117 Syntax

```

118 <sla:BSLA xmlns:sla="..." xmlns:bqos="..." ...>
119 <sla:SLAParties ...>sla:SLAPartiesTypeType</sla:SLAParties>
120 <sla:SLAParameters ...>sla:SLAParametersType</sla:SLAParameters>
121 <sla:SLAObligations ...>sla:SLAObligationsType</sla:SLAObligations> ?
122 <sla:SLATerms ...>sla:SLATermsType</sla:SLATerms> ?
123 ...
124 </sla:BSLA>

```

125 The following describes the attributes and elements listed in the schema outlined above:

126 /sla:BSLA

127       Root element of Business Service-level agreement (SLA) for EERP

128 /sla:BSLA/sla:SLAParties

129       SLAParties is a required element in BSLA that defines parties invoked in this SLA for the service.

130       SLAParties element has both the service provider and services requester elements, see Section  
131       3 for more details.

132 /sla:BSLA/sla:SLAParties/@{any}

133       This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
134       to the SLAParties element in the future. Unrecognized attributes MAY cause a fault or be silently  
135       ignore.

136 /sla:BSLA/sla:SLAParameters

137       SLAParameters element, SLA parameters aspect of the service, is defined monitoring of  
138       QoS metrics, including service profile uri, operations and other optional elements. It is a required  
139       element that uses sla:SLAParametersType, see Section 4 for more details.

140 /sla:BSLA/sla:SLAParameters/@{any}

141       This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
142       to the SLAParameters element in the future. Unrecognized attributes MAY cause a fault or be  
143       silently ignore.

144 /sla:BSLA/sla:SLAObligations

145       Agreed SLA obligations aspect of the service, including obligations, action guarantees. It is a  
146       optional element that uses sla:SLAObligationsType, see Section 5 for more details.

147 /sla:BSLA/sla:SLAObligations/@{any}

148       This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
149       to the SLAObligations element in the future. Unrecognized attributes MAY cause a fault or be  
150       silently ignore.

151 /sla:BSLA/sla:SLATerms

152       Agreed SLA terms aspect of the service, including SLA term elements. It is optional, see  
153       Section 6 for more details.

154 /sla:BSLA/sla:SLATerms/@{any}

155       This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
156       to the SLATerms element in the future. Unrecognized attributes MAY cause a fault or be silently  
157       ignore.

158 /sla:BSLA/@{any}

159       This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
160       to the root BSLA element in the future. Unrecognized attributes MAY cause a fault or be silently  
161       ignore.

162 /sla:BSLA/{any}

163 This is an extensibility mechanism to allow different (extensible) elements to be specified in the  
164 future. Unrecognized elements MAY cause a fault or be silently ignore.

---

## 165 3 SLAParties

166 The SLAParties describes the list of parties invoked in the SLA for the service.

167 There SHOULD be one SLAParties element present in the SLA of service.

### 168 Syntax

```
169 <sla:SLAParties xmlns:sla="..." ...>
170   <sla:ServiceProvider ...>sla:ServiceProviderType
171     <sla:ServiceUri ...>sla:SlaUriType</sla:ServiceUri>
172     <sla:ServiceProviderName
173 languageID="...">sla:ServiceProviderNameType</sla:ServiceProviderName>
174   </sla:ServiceProvider>
175   <sla:ServiceRequester ... >sla:ServiceRequesterType
176     <sla:ServiceRequesterUri ... >sla:SlaUriType</sla:ServiceRequesterUri>
177     <sla:ServiceRequesterName
178 languageID="...">sla:ServiceRequesterNameType</sla:ServiceRequesterName>
179   </sla:ServiceRequester>
180   ...
181 </sla:SLAParties>
```

182 The following describes the attributes and elements listed in the schema outlined above:

183 /sla: SLAParties

184 SLAParties element, SLA Parties aspect of the service, is for parties invoked in the SLA for the  
185 service, including both service provider and service requester elements.

186 /sla: SLAParties/sla: ServiceProvider

187 Service Provider element represents the provider for parties. It is a required element for SLA  
188 Parties.

189 /sla: SLAParties/sla: ServiceProvider/sla: ServiceUri

190 Service identifier in URI format, such as a service URL, is a required element for Service  
191 Provider.

192 /sla: SLAParties/sla: ServiceProvider/sla: ServiceProviderName

193 Service Provider Name is the name of the service provider. It is also a required element for  
194 Service Provider.

195 /sla: SLAParties/sla: ServiceProvider/sla: ServiceProviderName/@languageID

196 Language ID is an optional attribute in the ServiceProviderName element, using xsd:language  
197 type. The value can be those defined in urn:un:unec:unefact:odelist:specification:5639:1988.

198 /sla:SLAParties/sla:ServiceProvider/@{any}

199 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
200 to the ServiceProvider element in the future. Unrecognized attributes MAY cause a fault or be  
201 silently ignore.

202 /sla: SLAParties/sla: ServiceRequester

203 ServiceRequester element represents requester for the service, including requester's name and  
204 the URI that represents the requester. It is a required element for SLA Parties.

205 /sla: SLAParties/sla: ServiceRequester/sla: ServiceRequesterUri

206 ServiceRequesterUri element represents the requester's identifier in URI format for the service  
207 requester. It is a required element for Service Requester.

208 /sla: SLAParties/sla: ServiceRequester/sla: ServiceRequesterName

209 Requester's name for the service requester. It is a required element for Service Requester.

210 /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName/@languageID

211 Language ID is an optional attribute in the ServiceRequesterName element, using

212 xsd:language type. The value can be those defined in

213 urn:un:unecce:unefact:codelist:specification:5639:1988.

214 /sla:SLAParties/sla:ServiceRequester/@{any}

215 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
216 to the ServiceRequester element in the future. Unrecognized attributes MAY cause a fault or be  
217 silently ignore.

218 /sla:SLAParties/{any}

219 This is an extensibility mechanism to allow different (extensible) elements to be specified in the  
220 future. Unrecognized elements MAY cause a fault or be silently ignore.

## 221 Example

222 The following example illustrates the use of the SLA Parties element. The Service Provider is a fictitious  
223 Hangzhou Innover Co. Ltd. in China; the Service Requester is a fictitious Mianyang Gas Corp. in China.

```
224 (001) <?xml version="1.0" encoding="utf-8"?>
225 (002) <SLAParties xmlns="..." ...>
226 (003)   <ServiceProvider>
227 (004)     <ServiceUri>http://www.innover.com.cn</ServiceUri>
228 (005)     <ServiceProviderName>Hangzhou Innover Co. Ltd</ServiceProviderName>
229 (006)   </ServiceProvider>
230 (007)   <ServiceRequester>
231 (008)     <ServiceRequesterUri>http://www.scmyng.com</ServiceRequesterUri>
232 (009)     <ServiceRequesterName>Mianyang Gas Corp.</ServiceRequesterName>
233 (010)   </ServiceRequester>
234 (011) </SLAParties>
```

---

## 235 4 SLAParameters

236 The SLAParameters element for EERP-SLA describes the parameters of the service used to define  
237 monitoring of QoS metrics, including the service profile URI, operations and other optional elements.

238 There SHOULD be one SLAParameters element present in the SLA of service.

### 239 Syntax

```
240 <sla:SLAParameters xmlns:sla="..." ...>  
241   <sla:ServiceProfileUri ...>sla:SlaUriType</sla:ServiceProfileUri>  
242   <sla:ServiceOperations ...>sla:ServiceOperationsType  
243     <sla:hasCommittedCost>xsd:boolean</sla:hasCommittedCost>  
244     <sla:hasCommittedTime>xsd:boolean</sla:hasCommittedTime>  
245     <sla:hasAvailabilities>xsd:boolean</sla:hasAvailabilities>  
246     <sla:hasCommittedThroughput>xsd:boolean</sla:hasCommittedThroughput>  
247     <sla:hasOtherTerms>xsd:boolean</sla:hasOtherTerms>  
248     ...  
249   </sla:ServiceOperations> ?  
250   ...  
251 </sla:SLAParameters>
```

252 The following describes the attributes and elements listed in the schema outlined above:

253 /sla: SLAParameters

254 SLA parameters element defines aspect of the service which are defined monitoring of QoS  
255 metrics, including service uri, operations and other optional elements.

256 /sla: SLAParameters/sla: ServiceProfileUri

257 ServiceProfileUri element represents web page URL or other URI for the service profile that  
258 defines the details of the services. Different service providers will share the same profile. It is a  
259 required element for SLA Parameters.

260 /sla: SLAParameters/sla: ServiceProfileUri/@{any}

261 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
262 to the ServiceProfileUri element in the future. Unrecognized attributes MAY cause a fault or be  
263 silently ignore.

264 /sla: SLAParameters/sla: ServiceOperations

265 Describe available operations and bQoS. It is an optional element for SLA Parameters.

266 /sla: SLAParameters/sla: ServiceOperations/sla: hasCommittedCost

267 Describe if there is committed cost or not. It is a required element for SLA Parameters.

268 /sla: SLAParameters/sla: ServiceOperations/sla: hasCommittedTime

269 Describe if there is committed time or not. It is a required element for SLA Parameters.

270 /sla: SLAParameters/sla: ServiceOperations/sla: hasAvailabilities

271 Describe if there is availability or not. It is a required element for SLA Parameters.

272 /sla: SLAParameters/sla: ServiceOperations/sla: hasCommittedThroughput

273 Describe if there is committed throughput or not. It is a required element for SLA Parameters.

274 /sla: SLAParameters/sla: ServiceOperations/sla: hasOtherTerms

275 Describe if there are other terms or not. It is a required element for SLA Parameters.

276 /sla: SLAParameters/sla: ServiceOperations/{any}

277 This is an extensibility mechanism to allow different (extensible) property or attribute elements to  
278 be specified in the future. Unrecognized elements MAY cause a fault or be silently ignore.

279 /sla:SLAParameters /sla:ServiceOperations/@{any}

280 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
281 to the ServiceOperations element in the future. Unrecognized attributes MAY cause a fault or be  
282 silently ignore.

283 /sla:SLAParameters /{any}

284 This is an extensibility mechanism to allow different (extensible) property or attribute elements to  
285 be specified in the future. Unrecognized elements MAY cause a fault or be silently ignore.

### 286 **Example**

287 The following example illustrates the use of SLA Parameters element. It describes the SLA parameters:

```
288 (001) <?xml version="1.0" encoding="utf-8"?>  
289 (002) <SLAParameters xmlns="..." ...>  
290 (003)   <ServiceProfileUri>http://www.innover.com.cn</ServiceProfileUri>  
291 (004)   <ServiceOperations>  
292 (005)     <hasCommittedCost>true</hasCommittedCost>  
293 (006)     <hasCommittedTime>true</hasCommittedTime>  
294 (007)     <hasAvailabilities>true</hasAvailabilities>  
295 (008)     <hasCommittedTroughput>true</hasCommittedTroughput>  
296 (009)     <hasOtherTerms>true</hasOtherTerms>  
297 (010)   </ServiceOperations>  
298 (011) </SLAParameters>
```

299

## 5 SLAObligations

300 The SLAObligations element describes the agreed SLA obligations of the service, including obligations  
301 and action guarantees.

302 There MAY be zero or one SLA Obligations element present in the SLA of service.

303 Note: There is a case for zero Obligation elements on SLA. Section 7.2 is an example illustrates the SLA  
304 document without Obligation element. It has some additional SAL terms instead.

### 305 Syntax

```
306 <sla:SLAObligations xmlns:sla="..." xmlns:bqos="..." ...>  
307   <sla:Obligation ...>sla:ObligationType</sla:Obligation> +  
308   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?  
309   ...  
310 </sla:SLAObligations>
```

311 The following describes the attributes and elements listed in the schema outlined above:

312 /sla:SLAObligations

313 SLA obligations aspect of the service, including obligations, action guarantees.

314 /sla:SLAObligations/sla:Obligation

315 Obligation element is agreed SLA obligation, including Service Level Objective (SLO) and the  
316 Action Guarantee that associates with that SLO. There MAY be one or more obligation elements  
317 in the SLAObligations element. See Section 5.1 for more details.

318 /sla:SLAObligations/sla:Obligation/@{any}

319 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
320 to the Obligation element in the future. Unrecognized attributes MAY cause a fault or be silently  
321 ignore.

322 /sla:SLAObligations/sla:ActionGuarantee

323 Specify what happens if the Service Level Objective (SLO) is met or not met. This guarantee will  
324 be associated to all Obligations within the SLAObligations element. It is an optional element for  
325 the SLAObligations element. See Section 5.2 for more details.

326 /sla:SLAObligations/sla:ActionGuarantee/@{any}

327 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
328 to the ActionGuarantee element in the future. Unrecognized attributes MAY cause a fault or be  
329 silently ignore.

330 /sla:SLAObligations/{any}

331 This is an extensibility mechanism to allow different (extensible) property or attribute elements to  
332 be specified in the future. Unrecognized elements MAY cause a fault or be silently ignore.

### 333 5.1 Obligation

334 The Obligation, obligation element for SLA Obligations in EERP-SLA, is the agreed SLA obligation,  
335 including Service Level Objective (SLO) and the Action Guarantee that associates with that SLO.

336 There MAY be one or more Obligation elements present in the SLA Obligations.

### 337 Syntax

```

338 <sla:Obligation xmlns:sla="..." xmlns:bqos="..." ...>
339   <sla:ServiceLevelObjective ...>sla:ServiceLevelObjectiveType
340 </sla:ServiceLevelObjective>
341   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?
342 </sla:Obligation>

```

343 The following describes the attributes and elements listed in the schema outlined above:

344 /sla:SLAObligations/sla:Obligation

345 Obligation element is agreed SLA obligation, including Service Level Objective (SLO) and the  
346 Action Guarantee that associates with this Obligation.

347 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

348 Service Level Objective (SLO) for QoS guarantee. It is a required element for Obligation. See  
349 Section 5.1.1 for more details.

350 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/{any}

351 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
352 to the ServiceLevelObjective element in the future. Unrecognized attributes MAY cause a fault or  
353 be silently ignore.

354 /sla:SLAObligations/sla:Obligation/sla:ActionGuarantee

355 Service Level Objective (SLO) for QoS guarantee. This guarantee will be associated to all  
356 ServiceLevelObjective within this Obligation element. It is an optional element for Obligation. See  
357 Section 5.1.2 for more details.

358 /sla:SLAObligations/sla:Obligation/sla:ActionGuarantee/{any}

359 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
360 to the ActionGuarantee element in the future. Unrecognized attributes MAY cause a fault or be  
361 silently ignore.

## 362 5.1.1 ServiceLevelObjective

363 The Service Level Objective element for Obligation in SLA Obligations in EERP-SLA, is the Service  
364 Level Objective (SLO) for the QoS guarantee, including Committed Cost, Committed Time, Availabilities,  
365 Committed Throughput and SLATerm.

366 There SHOULD be one Service Level Objective element present in the Obligation, and it can have  
367 one and more element within this Service Level Objective element.

### 368 Syntax

```

369 <sla:ServiceLevelObjective xmlns:sla="..." xmlns:bqos="..." ...>
370   <sla:CommittedCost>bqos:PriceType</sla:CommittedCost> ?
371   <sla:CommittedTime ...>sla:CommittedTimeType</sla:CommittedTime> ?
372   <sla:Availabilities ...>sla:AvailabilitiesType</sla:Availabilities> ?
373   <sla:CommittedThroughput ...>bqos:ThroughputType</sla:CommittedThroughput> ?
374   <sla:SLATerm ...>sla:SLATermType</sla:SLATerm> ?
375 </sla:ServiceLevelObjective>

```

376 The following describes the attributes and elements listed in the schema outlined above:

377 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

378 Service Level Objective (SLO) for QoS guarantee. It is a required element for Obligation.

379 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

380 Cost element in SLA. It is an optional element for ServiceLevelObjective. See Section 5.1.1.1 for  
381 more details.

382 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

383 Committed time period element in SLA is an optional element for ServiceLevelObjective. see  
384 Section 5.1.1.2 for more details.

385 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/@{any}

386 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
387 to the CommittedTime element in the future. Unrecognized attributes MAY cause a fault or be  
388 silently ignore.

389 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

390 The services availability indicators element, including a list of availabilities, is an optional element  
391 for ServiceLevelObjective, see Section 5.1.1.3 for more details.

392 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/@{any}

393 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
394 to the Availabilities element in the future. Unrecognized attributes MAY cause a fault or be silently  
395 ignore.

396 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput

397 Committed performance throughput is an optional element for ServiceLevelObjective. See  
398 Section 5.1.1.4 for more details.

399 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput/@{any}

400 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
401 to the CommittedThroughput element in the future. Unrecognized attributes MAY cause a fault or  
402 be silently ignore.

403 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:SLATerm

404 SLA Term. It is an optional element for ServiceLevelObjective, see /sla:SLATerms/sla:SLATerm  
405 in Section 6 for more details.

406 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:SLATerm /@{any}

407 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
408 to the SLATerm element in the future. Unrecognized attributes MAY cause a fault or be silently  
409 ignore.

### 410 5.1.1.1 CommittedCost

411 The Committed Cost element describes the cost element in SLA, including Unit and Amount.

412 There MAY be zero or one Committed Cost element present in the Service Level Objective.

#### 413 Syntax

```
414 <sla:CommittedCost xmlns:sla="..." xmlns:bqos="...">  
415   <bqos:Unit unitCode="clm66411:UnitCodeContentType">  
416     cbc:BaseUnitMeasureType </bqos:Unit> ?  
417   <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">  
418     cbc:AmountType </bqos:Amount>  
419 </sla:CommittedCost>
```

420 The following describes the attributes and elements listed in the schema outlined above:

421 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

422 CommittedCost element is the cost element in SLA. It is an optional element for Service Level  
423 Objective.

424 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost/bqos:Unit

425 Number of unit is a optional element that includes a attribute of unit of measurement uses  
426 cbc:BaseUnitMeasureType. See /bqos:BQoSPrice/bqos:Price/bqos:Unit in Section 3: BQoS  
427 Price in EERP-bQoS Specification for more details.

428 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost/bqos:Amount  
429 Amount element is a required element for the Committed Cost element. It uses cbc:AmountType  
430 from UBL that has a required currencyID attribute for currency code. See  
431 /bqos:BQoSPrice/bqos:Price/bqos:Amount in Section 3: BQoS Price in EERP-bQoS  
432 Specification for more details.

### 433 5.1.1.2 CommittedTime

434 The Committed Time, Committed Time element of Service Level Objective for Obligation in SLA  
435 Obligations in EERP-SLA, is the committed time period in SLA, including Duration, Latency and  
436 Committed Completion Time.

437 There MAY be zero or one Committed Time element present in the Service Level Objective.

#### 438 Syntax

```
439 <sla:CommittedTime xmlns:sla="..." xmlns:bqos="..." ...>  
440   <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
441     cbc:DurationMeasureType </bqos:Duration>  
442   <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
443     cbc:DurationMeasureType </bqos:Latency> ?  
444   <bqos:StartTime>udt:DateTimeType</bqos:StartTime> ?  
445   <sla:CommittedCompletionTime>  
446     udt:DateTimeType</sla:CommittedCompletionTime> ?  
447 </sla:CommittedTime>
```

448 The following describes the attributes and elements listed in the schema outlined above:

449 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

450 CommittedTime element is an optional element for Service Level Objective which is the  
451 committed time period element in SLA.

452 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/bqos:Duration

453 Duration element is a required element in the CommittedTime element which is the duration to  
454 complete the service. It uses cbc:DurationMeasureType from UBL that has a required unitCode  
455 attribute for unit of measurement on the time. See  
456 /bqos:BQoSPerformance/bqos:TimePeriod/bqos:Duration in Section 4: BQoS Performance in  
457 EERP-bQoS Specification for more details.

458 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/bqos:Latency

459 Latency is an optional element for the time delay for starting the service. It uses  
460 cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of  
461 measurement on the time. See /bqos:BQoSPerformance/bqos:TimePeriod/bqos:Latency in  
462 Section 4: BQoS Performance in EERP-bQoS Specification for more details.

463 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/bqos:StartTime

464 StartTime is an optional element for the date and time to start the service. It uses  
465 udt:DateTimeType which is in UTC time format [ISO8601].. See  
466 /bqos:BQoSPerformance/bqos:TimePeriod/bqos:StartTime in Section 4: BQoS Performance in  
467 EERP-bQoS Specification for more details.

468 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/sla:CommittedCompleti  
469 onTime

470 CommittedCompletionTime is an optional element for the date and time for committed completion  
471 time. It uses udt:DateTimeType which is UTC time format [ISO8601]..

### 472 5.1.1.3 Availabilities

473 The Availabilities, Availabilities of Service Level Objective for Obligation in SLA Obligations in  
474 EERP-SLA, is services availability indicators including a list of availabilities, including a list of Availability  
475 elements.

476 There MAY be zero or one Availabilities element present in the Service Level Objective.

#### 477 Syntax

```
478 <sla:Availabilities xmlns:sla="..." xmlns:bqos="..." ...>  
479 <sla:Availability isAvailable="xs:boolean" ...>sla:AvailabilityType  
480 <sla:From>xs:dateTime</sla:From>  
481 <sla:To>xs:dateTime</sla:To>  
482 </sla:Availability> +  
483 </sla:Availabilities>
```

484 The following describes the attributes and elements listed in the schema outlined above:

485 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

486 Availabilities is an optional element for Service Level Objective which is the services availability  
487 indicators including a list of availabilities.

488 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/sla:Availability

489 Availability is a required element for the quality aspect of whether the service is present or ready  
490 for immediate use.

491 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/sla:Availability/sla:From

492 From is a required element for the date and time for availability starting time. It uses  
493 udt:DateTimeType which is UTC time format [ISO8601].

494 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/sla:Availability/sla:To

495 To is a required element for the date and time for availability ending time. It uses  
496 udt:DateTimeType which UTC time format [ISO8601].

497 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/sla:Availability/@isAvailable

498 isAvailable is an optional attribute to illustrate whether the Availability is available or not. It uses  
499 xs:boolean type.

500 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/sla:Availability/@{any}

501 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
502 to the Availability element in the future. Unrecognized attributes MAY cause a fault or be silently  
503 ignore.

### 504 5.1.1.4 Committed Throughput

505 The Committed Throughput, Committed Throughput element of Service Level Objective for  
506 Obligation in SLA Obligations in EERP-SLA, is the committed performance throughput, including  
507 Duration, Quantity and Latency.

508 There MAY be zero or one Committed Throughput element present in the Service Level Objective.

#### 509 Syntax

```
510 <sla:CommittedThroughput xmlns:sla="..." xmlns:bqos="..." ...>  
511 <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
512 <cbc:DurationMeasureType</bqos:Duration>  
513 <bqos:Quantity unitCode="clm66411:UnitCodeContentType">  
514 <cbc:BaseQuantityType</bqos:Quantity>  
515 <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
516 <cbc:DurationMeasureType</bqos:Latency> ?
```

517 `</sla:CommittedThroughput>`

518 The following describes the attributes and elements listed in the schema outlined above:

519 `/sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput`

520 `CommittedThroughput` is an optional element for `ServiceLevelObjective` element. This is the  
521 committed performance throughput.

522 `/sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput/bqos:Duration`

523 `Duration` element is a required element in the `CommittedThroughput` element. This is the  
524 duration to complete the service. It uses `cbc:DurationMeasureType` from UBL that has a required  
525 `unitCode` attribute for unit of measurement on the time. See

526 `/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration` in *Section 4: BQoS Performance in*  
527 *EERP-bQoS Specification* for more details.

528 `/sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput/bqos:Quantity`

529 `Quantity` is a required element in the `Throughput` element. It is the numbers for the throughput,  
530 with an attribute of unit of measurement, such as EA, pounds, cubic-feet, etc. See

531 `/bqos:BQoSPerformance/bqos:Throughput/bqos:Quantity` in *Section 4: BQoS Performance in*  
532 *EERP-bQoS Specification* for more details.

533 `/sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput/bqos:Latency`

534 `Latency` is an optional element for the time delay for starting the service. It uses

535 `cbc:DurationMeasureType` from UBL that has a required `unitCode` attribute for unit of

536 measurement on the time. See `/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency` in

537 *Section 4: BQoS Performance in EERP-bQoS Specification* for more details.

### 538 **5.1.1.5 SLA Term**

539 The SLA Term, SLA Term element of Service Level Objective for Obligation in SLA Obligations in  
540 EERP-SLA, is the SLA term element in SLA.

541 There MAY be zero or one SLA Term element present in the Service Level Objective. See

542 `/sla:SLATerms/sla:SLATerm` in Section 6 for more details.

### 543 **5.1.2 Action Guarantee**

544 The Action Guarantee, action guarantee element for SLA Obligations in EERP-SLA, is to specify  
545 what happens if the SLO is met or not met, including Reserve Fee and Penalty element.

546 There MAY be zero or one Action Guarantee element present in the Obligation element. See Section

547 5.2 for the detail of `ActionGuaranteeType`.

## 548 **5.2 Action Guarantee**

549 The Action Guarantee, action guarantee element for SLA Obligations in EERP-SLA, is to specify

550 what happens if the Service Level Objective (SLO) is met or not met, including Reserve Fee and  
551 Penalty element.

552 There MAY be zero or one SLA Obligations element present in the SLA Obligations.

### 553 **Syntax**

```
554 <sla:ActionGuarantee xmlns:sla="..." xmlns:bqos="..." ...>  
555   <sla:ReserveFee ...>bqos:PriceType  
556     <bqos:Unit unitCode="c1m66411:UnitCodeContentType">  
557       cbc:BaseUnitMeasureType</bqos:Unit> ?
```

558  
559  
560  
561  
562  
563  
564  
565  
566  
567

```
<bqos:Amount currencyID="clm54217:CurrencyCodeContentType">  
  cbc:AmountType</bqos:Amount>  
</sla:ReserveFee> ?  
<sla:Penalty ...>bqos:PriceType  
  <bqos:Unit unitCode="clm66411:UnitCodeContentType">  
    cbc:BaseUnitMeasureType</bqos:Unit> ?  
  <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">  
    cbc:AmountType</bqos:Amount>  
</sla:Penalty> ?  
</sla:ActionGuarantee >
```

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600

The following describes the attributes and elements listed in the schema outlined above:

`/sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee`  
ReserveFee element is the reservation fee or money amount when Service Level Objective (SLO) is met. It is an optional element for Action Guarantee.

`/sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/bqos:Unit`  
Number of unit is a optional element that includes a attribute of unit of measurement uses `cbc:BaseUnitMeasureType`. See `/bqos:BQoSPrice/bqos:Price/bqos:Unit` in Section 3: *BQoS Price in EERP-bQoS Specification* for more details.

`/sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/bqos:Amount`  
Amount element is a required element for the Reserve Fee element. It uses `cbc:AmountType` from UBL that has a required `currencyID` attribute for currency code. See `/bqos:BQoSPrice/bqos:Price/bqos:Amount` in Section 3: *BQoS Price in EERP-bQoS Specification* for more details.

`/sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/@{any}`  
This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the ReserveFee element in the future. Unrecognized attributes MAY cause a fault or be silently ignore.

`/sla:SLAObligations/sla:ActionGuarantee/sla:Penalty`  
Penalty element is the money amount when Service Level Objective (SLO) is not met. It is a required element for Action Guarantee.

`/sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/bqos:Unit`  
Number of unit is a optional element that includes a attribute of unit of measurement uses `cbc:BaseUnitMeasureType`. See `/bqos:BQoSPrice/bqos:Price/bqos:Unit` in Section 3: *BQoS Price in EERP-bQoS Specification* for more details.

`/sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/bqos:Amount`  
Amount element is a required element for the Penalty element. It uses `cbc:AmountType` from UBL that has a required `currencyID` attribute for currency code. See `/bqos:BQoSPrice/bqos:Price/bqos:Amount` in Section 3: *BQoS Price in EERP-bQoS Specification* for more details.

`/sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/@{any}`  
This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the Penalty element in the future. Unrecognized attributes MAY cause a fault or be silently ignore.

601 **Example**

602 The following example illustrates the use of Action Guarantee element. It describes the penalty:

603  
604  
605  
606

```
(001) <?xml version="1.0" encoding="utf-8"?>  
(002) <ActionGuarantee xmlns="..." xmlns:bqos="..." ...>  
(003)   <Penalty>  
(004)     <bqos:Unit unitCode="EA">10</bqos:Unit>
```

```
607 (005) <bqos:Amount currencyID="USD">17.15</bqos:Amount>  
608 (006) </Penalty>  
609 (007) </ActionGuarantee>
```

610

## 6 SLATerms

611 The SLA Terms, Terms element for EERP-SLA, is the agreed SLA terms aspect of the service,  
612 including SLA term elements.

613 There MAY be zero or one SLA Terms element present in the SLA of service.

### 614 Syntax

```
615 <sla:SLATerms xmlns:bqos="..." ...>  
616   <sla:SLATerm ...>sla:SLATermType  
617   ...  
618   </sla:SLATerm> +  
619 </sla:SLATerms>
```

620 The following describes the attributes and elements listed in the schema outlined above:

621 /sla:SLATerms

622 The agreed SLA terms aspect of the service, including SLA term elements. It has a list of SLA  
623 terms for SLATerms .

624 /sla:SLATerms/sla:SLATerm

625 SLA Term element is an any type element to describe additional term for this SLA.

626 /sla:SLATerms/sla:SLATerm /@{any}

627 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
628 to the SLATerm element in the future. Unrecognized attributes MAY cause a fault or be silently  
629 ignore.

630 /sla:SLATerms/sla:SLATerm/{any}

631 This is an extensibility mechanism to allow different (extensible) property or attribute elements to  
632 be specified in the future. Unrecognized elements MAY cause a fault or be silently ignore.

633 /sla:SLATerms/@{any}

634 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added  
635 to the SLATerms element in the future. Unrecognized attributes MAY cause a fault or be silently  
636 ignore.

### 637 Example

638 The following example illustrates the use of SLA Terms element. It describes the term of the SLA:

```
639 (001) <?xml version="1.0" encoding="utf-8"?>  
640 (002) <SLATerms xmlns="..." ...>  
641 (003)   <SLATerm xmlns:t="..." >  
642 (004)     <t:ServcieLocation>  
643 (005)       <t:Lat>37.7749295</t:Lat>  
644 (006)       <t:Lng>-122.4194155</t:Lng>  
645 (007)     </t:ServcieLocation>  
646 (008)   </SLATerm>  
647 (009) </SLATerms>
```

648

## 7 SLA Examples

649

### 7.1 Committed Throughput with Penalty Example

650

This SLA example will show the following agreement between EERP Sample Service and EERP Service Requester:

651

652

1. The service is based on the Service profile defined

653

on <http://www.serviceprovider.com/eerp/service/profile>

654

2. It will charge \$17.15 per service.

655

3. Starting from January 1<sup>st</sup>, 2009, the agreement last for one whole year.

656

4. The committed throughput is 10 services per day.

657

5. If the provider cannot meet the SLA for #3 and #4, the penalty will be \$17.15 per

658

10 services.

659

#### Example

660

The following example illustrates the whole SLA document for above agreements:

661

```
(01) <?xml version="1.0" encoding="utf-8"?>
```

662

```
(02) <BSLA xmlns="..." xmlns:bqos="..." ... >
```

663

```
(03)   <SLAParties>
```

664

```
(04)     <ServiceProvider>
```

665

```
(05)       <ServiceUri>
```

666

```
(06)         http://www.serviceprovider.com/eerp/service</ServiceUri>
```

667

```
(07)       <ServiceProviderName languageID="EN">
```

668

```
(08)         EERP Sample Service</ServiceProviderName>
```

669

```
(09)     </ServiceProvider>
```

670

```
(10)     <ServiceRequester>
```

671

```
(11)       <ServiceRequesterUri>
```

672

```
(12)         http://www.servicerequester.com</ServiceRequesterUri>
```

673

```
(13)       <ServiceRequesterName languageID="EN">
```

674

```
(14)         EERP Service Requester</ServiceRequesterName>
```

675

```
(15)     </ServiceRequester>
```

676

```
(16)   </SLAParties>
```

677

```
(17)   <SLAParameters>
```

678

```
(18)     <ServiceProfileUri>
```

679

```
(19)       http://www.serviceprovider.com/eerp/service/profile</ServiceProfileUri>
```

680

```
(20)     <ServiceOperations>
```

681

```
(21)       <hasCommittedCost>true</hasCommittedCost>
```

682

```
(22)       <hasCommittedTime>true</hasCommittedTime>
```

683

```
(23)       <hasAvailabilities>>false</hasAvailabilities>
```

684

```
(24)       <hasCommittedThroughput>true</hasCommittedThroughput>
```

685

```
(25)       <hasOtherTerms>>false</hasOtherTerms>
```

686

```
(26)     </ServiceOperations>
```

687

```
(27)   </SLAParameters>
```

688

```
(28)   <SLAObligations>
```

689

```
(29)     <Obligation>
```

690

```
(30)       <ServiceLevelObjective>
```

691

```
(31)         <CommittedCost>
```

692

```
(32)           <bqos:Unit unitCode="EA">1</bqos:Unit>
```

693

```
(33)           <bqos:Amount currencyID="USD">17.15</bqos:Amount>
```

694

```
(34)         </CommittedCost>
```

695

```
(35)       </ServiceLevelObjective>
```

696

```
(36)     </Obligation>
```

697

```
(37)   </SLAObligations>
```

698

```
(38)   <ServiceLevelObjective>
```

699

```
(39)     <CommittedTime>
```

700

```
(40)       <bqos:Duration unitCode="ANN">1</bqos:Duration>
```

```

701      (41)      <bqos:StartTime>2009-01-01T00:00:00Z</bqos:StartTime>
702      (42)      </CommittedTime>
703      (43)      <CommittedThroughput>
704      (44)      <bqos:Duration unitCode="DAY">1</bqos:Duration>
705      (45)      <bqos:Quantity unitCode="EA">10</bqos:Quantity>
706      (46)      </CommittedThroughput>
707      (47)      </ServiceLevelObjective>
708      (48)      <ActionGuarantee>
709      (49)      <Penalty>
710      (50)      <bqos:Unit unitCode="EA">10</bqos:Unit>
711      (51)      <bqos:Amount currencyID="USD">17.15</bqos:Amount>
712      (52)      </Penalty>
713      (53)      </ActionGuarantee>
714      (54)      </Obligation>
715      (55)      </SLAObligations>
716      (56)      </BSLA>
717

```

## 718 7.2 SLA without Obligation Example

719 This SLA example will show the following agreement between EERP Sample Service and  
720 EERP Service Requester:

- 721 1. The service is based on the Service profile defined  
722 on <http://www.serviceprovider.com/erp/service/profile2>
- 723 2. There is no obligation
- 724 3. Additional SLA terms include service location and service hours:
  - 725 a. Service location is near San Francisco, CA with geocoding of 37.7749295 and  
726 -122.4194155
  - 727 b. Service hours will be 7 x 24, that is 7 days per week and 24hours per day.

### 728 Example

729 The following example illustrates the whole SLA document for above agreements:

```

730      (57)      <?xml version="1.0" encoding="utf-8"?>
731      (58)      <BSLA xmlns="..." xmlns:bqos="..." ... >
732      (59)      <SLAParties>
733      (60)      <ServiceProvider>
734      (61)      <ServiceUri>
735      (62)      http://www.serviceprovider.com/erp/service</ServiceUri>
736      (63)      <ServiceProviderName languageID="EN">
737      (64)      EERP Sample Service</ServiceProviderName>
738      (65)      </ServiceProvider>
739      (66)      <ServiceRequester>
740      (67)      <ServiceRequesterUri>
741      (68)      http://www.servicerequester.com</ServiceRequesterUri>
742      (69)      <ServiceRequesterName languageID="EN">
743      (70)      EERP Service Requester</ServiceRequesterName>
744      (71)      </ServiceRequester>
745      (72)      </SLAParties>
746      (73)      <SLAParameters>
747      (74)      <ServiceProfileUri>
748      (75)      http://www.serviceprovider.com/erp/service/profile2
749      (76)      </ServiceProfileUri>
750      (77)      </SLAParameters>
751      (78)      <SLATerms xmlns:t="..." >
752      (79)      <SLATerm>
753      (80)      <t:ServiceLocation>
754      (81)      <t:Lat>37.7749295</t:Lat>
755      (82)      <t:Lng>-122.4194155</t:Lng>
756      (83)      </t:ServiceLocation>
757      (84)      </SLATerm>

```

```
758      (85)      <SLATerm t:serviceHours="7x24" >  
759      (86)      </SLATerms>  
760      (87)      </BSLA>
```

761

## 8 Conformance

762 An implementation conforms to this specification if it satisfies all of the MUST or REQUIRED level  
763 requirements defined within this specification. A SOAP Node MUST NOT use the XML namespace  
764 identifier for this specification (listed in Section 1.1) within SOAP Envelopes unless it is compliant with this  
765 specification.

766 This specification references a number of other specifications (listed in Section 1.4.2). In order to comply  
767 with this specification, an implementation MUST implement the portions of referenced specifications  
768 necessary to comply with the required provisions of this specification. Additionally, the implementation of  
769 the portions of the referenced specifications that are specifically cited in this specification MUST comply  
770 with the rules for those portions as established in the referenced specification.

771 Normative text within this specification takes precedence over normative outlines (as described in section  
772 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL  
773 [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas  
774 and/or WSDL that are part of this specification; and this specification contains further constraints on the  
775 elements defined in referenced schemas.

776 The minimum set of information exchange for BSLA that would allow conforming  
777 applications to exchange information and satisfy the conformance should at least to have  
778 the following elements:

- 779 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceUri
- 780 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceProviderName
- 781 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterUri
- 782 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName
- 783 • /sla:SLAParameters/sla:ServiceProfileUri

784

785 Example of such minimum set of information could like this:

```
786 (001) <?xml version="1.0" encoding="utf-8"?>  
787 (002) <BSLA xmlns="http://docs.oasis-open.org/ns/soa-eerp/sla/200903" >  
788 (003) <SLAParties>  
789 (004) <ServiceProvider>  
790 (005) <ServiceUri>http://www.sample-eerp.com/myservice</ServiceUri>  
791 (006) <ServiceProviderName>My Service Provider</ServiceProviderName>  
792 (007) </ServiceProvider>  
793 (008) <ServiceRequester>  
794 (009) <ServiceRequesterUri>http://www.u-service.com</ServiceRequesterUri>  
795 (010) <ServiceRequesterName>Your Service Requester</ServiceRequesterName>  
796 (011) </ServiceRequester>  
797 (012) </SLAParties>  
798 (013) <SLAParameters>  
799 (014) <ServiceProfileUri>  
800 http://www.sample-eerp.com/myservice/profile</ServiceProfileUri>  
801 (015) </SLAParameters>  
802 (016) </BSLA>
```

803 This specification defines a number of extensions; compliant services are NOT REQUIRED to implement  
804 those extensions defined in this specification. However, if a service implements an aspect of the  
805 specification, it MUST comply with the requirements specified (e.g. related "MUST" statements). If an  
806 implementation silently ignore unrecognized attributes where any attribute is allowed, or silently ignore

807 unrecognized elements where any element is allowed, should be considered as interoperable  
808 implementation.

---

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812 **Participants:**

813		
814	Rex Brooks	Individual
815	Szu Chang	Changfeng Open Standards Platform Software Alliance
816	William Cox	Individual
817	Andy Lee	Changfeng Open Standards Platform Software Alliance
818	Carl Mattocks	Individual
819	James Zhili Zhang	TIBCO Software Inc.
820	Hong Zhou	Changfeng Open Standards Platform Software Alliance

## 821 B. XML Schema for Business Service Level Agreement

```
822 <?xml version="1.0" encoding="UTF-8"?>
823 <!--
824     Document Type:      EERP Business SLA Schema CD03
825     Create On:         01/06/2010
826
827 -->
828 <!-- ===== xsd:schema Element With Namespaces Declarations ===== -->
829 <!-- ===== Copyright Notice ===== -->
830 <!--
831     OASIS takes no position regarding the validity or scope of any
832     intellectual property or other rights that might be claimed to pertain
833     to the implementation or use of the technology described in this
834     document or the extent to which any license under such rights
835     might or might not be available; neither does it represent that it has
836     made any effort to identify any such rights. Information on OASIS's
837     procedures with respect to rights in OASIS specifications can be
838     found at the OASIS website. Copies of claims of rights made
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840     available, or the result of an attempt made to obtain a general
841     license or permission for the use of such proprietary rights by
842     implementors or users of this specification, can be obtained from
843     the OASIS Executive Director.
844
845     OASIS invites any interested party to bring to its attention any
846     copyrights, patents or patent applications, or other proprietary
847     rights which may cover technology that may be required to
848     implement this specification. Please address the information to the
849     OASIS Executive Director.
850
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866
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870     This document and the information contained herein is provided on
871     an "AS IS" basis and OASIS DISCLAIMS ALL WARRANTIES,
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873     WARRANTY THAT THE USE OF THE INFORMATION HEREIN
874     WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED
875     WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A
876     PARTICULAR PURPOSE.
877 -->
878 <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.oasis-
879 open.org/ns/soa-eerp/sla/200903" xmlns:bqos="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
880 xmlns:eerp="http://docs.oasis-open.org/ns/soa-eerp/eerp/200903"
881 xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
882 xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
883 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:sla="http://docs.oasis-open.org/ns/soa-
884 eerp/sla/200903" targetNamespace="http://docs.oasis-open.org/ns/soa-eerp/sla/200903"
885 elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0">
886     <!-- ===== Imports ===== -->
887     <xsd:import namespace="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
888 schemaLocation="EERP-bQoS.xsd"/>
```

```

889         <xsd:import
890 namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
891 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-
892 2.0.xsd"/>
893     <xsd:import
894 namespace="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
895 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-
896 2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd"/>
897     <!-- ===== Root Element ===== -->
898     <xsd:element name="BSLA" type="BSLAType">
899         <xsd:annotation>
900             <xsd:documentation>The BSLA is the root element for EERP- Service-level
901 agreement (SLA). Business SLA is a formal contract between a service provider and a client
902 guaranteeing quantifiable business quality of service (bQoS) at defined levels.
903 </xsd:documentation>
904         </xsd:annotation>
905     </xsd:element>
906     <!-- ===== Element Declarations ===== -->
907     <xsd:element name="ActionGuarantee" type="ActionGuaranteeType">
908         <xsd:annotation>
909             <xsd:documentation>The Action Guarantee, action guarantee element for SLA
910 Obligations in EERP-SLA, is to specify what happens if the Service Level Objective (SLO) is met
911 or not met, including Reserve Fee and Penalty element. </xsd:documentation>
912         </xsd:annotation>
913     </xsd:element>
914     <xsd:element name="Availabilities" type="AvailabilitiesType">
915         <xsd:annotation>
916             <xsd:documentation>The services availability
917 indicators</xsd:documentation>
918         </xsd:annotation>
919     </xsd:element>
920     <xsd:element name="Availability" type="AvailabilityType">
921         <xsd:annotation>
922             <xsd:documentation>Availability is the quality aspect of whether the
923 service is present or ready for immediate use.</xsd:documentation>
924         </xsd:annotation>
925     </xsd:element>
926     <xsd:element name="CommittedCompletionTime" type="udt:DateTimeType">
927         <xsd:annotation>
928             <xsd:documentation>Committed completion time</xsd:documentation>
929         </xsd:annotation>
930     </xsd:element>
931     <xsd:element name="CommittedCost" type="bqos:PriceType">
932         <xsd:annotation>
933             <xsd:documentation>Cost Element in SLA</xsd:documentation>
934         </xsd:annotation>
935     </xsd:element>
936     <xsd:element name="CommittedTime" type="CommittedTimeType">
937         <xsd:annotation>
938             <xsd:documentation>Committed time period</xsd:documentation>
939         </xsd:annotation>
940     </xsd:element>
941     <xsd:element name="CommittedThroughput" type="bqos:ThroughputType">
942         <xsd:annotation>
943             <xsd:documentation>Committed performance throughput</xsd:documentation>
944         </xsd:annotation>
945     </xsd:element>
946     <xsd:element name="From" type="xs:dateTime">
947         <xsd:annotation>
948             <xsd:documentation>Availability starting time</xsd:documentation>
949         </xsd:annotation>
950     </xsd:element>
951     <xsd:element name="Obligation" type="ObligationType">
952         <xsd:annotation>
953             <xsd:documentation>Agreed SLA obligation, including Service Level
954 Objective (SLO) and the Action Guarantee that associates with that SLO</xsd:documentation>
955         </xsd:annotation>
956     </xsd:element>
957     <xsd:element name="Penalty">
958         <xsd:annotation>
959             <xsd:documentation>Penalty element is the money amount when Service Level
960 Objective (SLO) is not met. </xsd:documentation>
961         </xsd:annotation>

```

```

962         <xsd:complexType>
963             <xsd:complexContent>
964                 <xsd:extension base="bqos:PriceType">
965                     <xsd:anyAttribute namespace="##any" processContents="lax"/>
966                 </xsd:extension>
967             </xsd:complexContent>
968         </xsd:complexType>
969     </xsd:element>
970     <xsd:element name="ReserveFee">
971         <xsd:annotation>
972             <xsd:documentation>ReserveFee element is the reservation fee or money
973 amount when Service Level Objective (SLO) is met. It is an optional element for Action Guarantee.
974 </xsd:documentation>
975         </xsd:annotation>
976     </xsd:complexType>
977         <xsd:complexContent>
978             <xsd:extension base="bqos:PriceType">
979                 <xsd:anyAttribute namespace="##any" processContents="lax"/>
980             </xsd:extension>
981         </xsd:complexContent>
982     </xsd:complexType>
983 </xsd:element>
984 <xsd:element name="ServiceLevelObjective" type="ServiceLevelObjectiveType">
985     <xsd:annotation>
986         <xsd:documentation>SLO (Service Level Objective) for QoS
987 guarantee</xsd:documentation>
988     </xsd:annotation>
989 </xsd:element>
990 <xsd:element name="ServiceName" type="ServiceNameType">
991     <xsd:annotation>
992         <xsd:documentation>The service name</xsd:documentation>
993     </xsd:annotation>
994 </xsd:element>
995 <xsd:element name="ServiceOperations" type="ServiceOperationsType">
996     <xsd:annotation>
997         <xsd:documentation>Describe available operations and
998 bQoS</xsd:documentation>
999     </xsd:annotation>
1000 </xsd:element>
1001 <xsd:element name="ServiceProfileUri" type="SlaUriType">
1002     <xsd:annotation>
1003         <xsd:documentation>Service Profile Uri element represents web page URL or
1004 other URI for the service profile that defines the details of the services. Different service
1005 providers will share the same profile. It is a required element for SLA
1006 Parameters.</xsd:documentation>
1007     </xsd:annotation>
1008 </xsd:element>
1009 <xsd:element name="ServiceProvider" type="ServiceProviderType">
1010     <xsd:annotation>
1011         <xsd:documentation>Service Provider element represents the provider for
1012 parties. </xsd:documentation>
1013     </xsd:annotation>
1014 </xsd:element>
1015 <xsd:element name="ServiceProviderName" type="ServiceProviderNameType">
1016     <xsd:annotation>
1017         <xsd:documentation>The name of service provider</xsd:documentation>
1018     </xsd:annotation>
1019 </xsd:element>
1020 <xsd:element name="ServiceRequester" type="ServiceRequesterType">
1021     <xsd:annotation>
1022         <xsd:documentation>ServiceRequester element represents requester for the
1023 service, including requester's name and the URI that represents the requester.
1024 </xsd:documentation>
1025     </xsd:annotation>
1026 </xsd:element>
1027 <xsd:element name="ServiceRequesterUri" type="SlaUriType">
1028     <xsd:annotation>
1029         <xsd:documentation>Service Requester Identifier in Uri
1030 format</xsd:documentation>
1031     </xsd:annotation>
1032 </xsd:element>
1033 <xsd:element name="ServiceRequesterName" type="ServiceRequesterNameType">
1034     <xsd:annotation>

```

```

1035         <xsd:documentation>Name of the service requester</xsd:documentation>
1036     </xsd:annotation>
1037 </xsd:element>
1038 <xsd:element name="ServiceUri" type="SlaUriType">
1039     <xsd:annotation>
1040         <xsd:documentation>Service Identifier in URI format </xsd:documentation>
1041     </xsd:annotation>
1042 </xsd:element>
1043 <xsd:element name="SLAParties" type="SLAPartiesType">
1044     <xsd:annotation>
1045         <xsd:documentation>SLAParties element, SLA Parties aspect of the service,
1046 is for parties invoked in the SLA for the service, including both service provider and service
1047 requester elements. </xsd:documentation>
1048     </xsd:annotation>
1049 </xsd:element>
1050 <xsd:element name="SLATerm" type="SLATermType">
1051     <xsd:annotation>
1052         <xsd:documentation>SLA Term element is an any type element to describe
1053 additional term for this SLA. </xsd:documentation>
1054     </xsd:annotation>
1055 </xsd:element>
1056 <xsd:element name="SLATerms" type="SLATermsType">
1057     <xsd:annotation>
1058         <xsd:documentation>The SLA Terms, Terms element for EERP-SLA, is the
1059 agreed SLA terms aspect of the service, including SLA term elements.</xsd:documentation>
1060     </xsd:annotation>
1061 </xsd:element>
1062 <xsd:element name="SLAParameters" type="SLAParametersType">
1063     <xsd:annotation>
1064         <xsd:documentation>The SLAParameters element for EERP-SLA describes the
1065 parameters of the service used to define monitoring of QoS metrics, including the service profile
1066 URI, operations and other optional elements.</xsd:documentation>
1067     </xsd:annotation>
1068 </xsd:element>
1069 <xsd:element name="SLAObligations" type="SLAObligationsType">
1070     <xsd:annotation>
1071         <xsd:documentation>The SLAObligations element describes the agreed SLA
1072 obligations of the service, including obligations and action guarantees.</xsd:documentation>
1073     </xsd:annotation>
1074 </xsd:element>
1075 <xsd:element name="To" type="xs:dateTime">
1076     <xsd:annotation>
1077         <xsd:documentation>Availability ending time</xsd:documentation>
1078     </xsd:annotation>
1079 </xsd:element>
1080 <!-- Extension -->
1081 <xsd:element name="Extension">
1082     <xsd:annotation>
1083         <xsd:documentation>Additional element</xsd:documentation>
1084     </xsd:annotation>
1085     <xsd:complexType mixed="true">
1086         <xsd:choice minOccurs="0" maxOccurs="unbounded">
1087             <xsd:any processContents="skip" minOccurs="0"
1088 maxOccurs="unbounded"/>
1089         </xsd:choice>
1090         <xsd:attribute name="optional" type="xsd:boolean" use="optional"
1091 default="true"/>
1092     </xsd:complexType>
1093 </xsd:element>
1094 <!-- ===== Type Definitions ===== -->
1095 <xsd:complexType name="ActionGuaranteeType">
1096     <xsd:annotation>
1097         <xsd:documentation>Complex type for action guarantee</xsd:documentation>
1098     </xsd:annotation>
1099     <xsd:sequence>
1100         <xsd:element ref="ReserveFee" minOccurs="0">
1101             <xsd:annotation>
1102                 <xsd:documentation>ReserveFee element is the reservation
1103 fee or money amount when Service Level Objective (SLO) is met. It is an optional element for
1104 Action Guarantee. </xsd:documentation>
1105             </xsd:annotation>
1106         </xsd:element>
1107         <xsd:element ref="Penalty" minOccurs="0">

```

```

1108         <xsd:annotation>
1109             <xsd:documentation>Penalty element is the money amount when
1110 Service Level Objective (SLO) is not met. It is a required element for Action Guarantee.
1111 </xsd:documentation>
1112         </xsd:annotation>
1113     </xsd:element>
1114 </xsd:sequence>
1115     <xsd:anyAttribute namespace="##any" processContents="lax" />
1116 </xsd:complexType>
1117 <xsd:complexType name="AvailabilitiesType">
1118     <xsd:annotation>
1119         <xsd:documentation>Complex type for Availabilities of multiple
1120 Availability elements</xsd:documentation>
1121     </xsd:annotation>
1122     <xsd:sequence>
1123         <xsd:element ref="Availability" maxOccurs="unbounded" />
1124     </xsd:sequence>
1125     <xsd:anyAttribute namespace="##any" processContents="lax" />
1126 </xsd:complexType>
1127 <xsd:complexType name="AvailabilityType">
1128     <xsd:annotation>
1129         <xsd:documentation>Complex type for the service is available or not
1130 available for a given From time To time. The default is available when the isAvailable element is
1131 missing or set to true.</xsd:documentation>
1132     </xsd:annotation>
1133     <xsd:sequence>
1134         <xsd:element ref="From">
1135             <xsd:annotation>
1136                 <xsd:documentation>Availability starting
1137 time</xsd:documentation>
1138             </xsd:annotation>
1139         </xsd:element>
1140         <xsd:element ref="To">
1141             <xsd:annotation>
1142                 <xsd:documentation>Availability ending
1143 time</xsd:documentation>
1144             </xsd:annotation>
1145         </xsd:element>
1146     </xsd:sequence>
1147     <xsd:attribute name="isAvailable" type="xs:boolean" use="optional"
1148 default="true" />
1149     <xsd:anyAttribute namespace="##any" processContents="lax" />
1150 </xsd:complexType>
1151 <xsd:complexType name="CommittedTimeType">
1152     <xsd:annotation>
1153         <xsd:documentation>Complex type for committed completion
1154 time</xsd:documentation>
1155     </xsd:annotation>
1156     <xsd:complexContent>
1157         <xsd:extension base="bqos:TimePeriodType">
1158             <xsd:sequence>
1159                 <xsd:element ref="CommittedCompletionTime" minOccurs="0" />
1160             </xsd:sequence>
1161         </xsd:extension>
1162     </xsd:complexContent>
1163 </xsd:complexType>
1164 <xsd:complexType name="ObligationType">
1165     <xsd:annotation>
1166         <xsd:documentation>Complex type for obligation</xsd:documentation>
1167     </xsd:annotation>
1168     <xsd:sequence>
1169         <xsd:element ref="ServiceLevelObjective" />
1170         <xsd:element ref="ActionGuarantee" minOccurs="0" />
1171     </xsd:sequence>
1172     <xsd:anyAttribute namespace="##any" processContents="lax" />
1173 </xsd:complexType>
1174 <xsd:complexType name="ProviderIDType">
1175     <xsd:annotation>
1176         <xsd:documentation>Complex type for provider ID </xsd:documentation>
1177     </xsd:annotation>
1178     <xsd:simpleContent>
1179         <xsd:extension base="cbc:IDType" />
1180     </xsd:simpleContent>

```

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1181     </xsd:complexType>
1182     <xsd:complexType name="ServiceLevelObjectiveType">
1183         <xsd:annotation>
1184             <xsd:documentation>Complex type for SLO</xsd:documentation>
1185         </xsd:annotation>
1186         <xsd:sequence>
1187             <xsd:element ref="CommittedCost" minOccurs="0">
1188                 <xsd:annotation>
1189                     <xsd:documentation>Committed cost element in
1190 SLA</xsd:documentation>
1191                 </xsd:annotation>
1192             </xsd:element>
1193             <xsd:element ref="CommittedTime" minOccurs="0"/>
1194             <xsd:element ref="Availabilities" minOccurs="0">
1195                 <xsd:annotation>
1196                     <xsd:documentation>Whether the service is
1197 present or ready for immediate use</xsd:documentation>
1198                 </xsd:annotation>
1199             </xsd:element>
1200             <xsd:element ref="CommittedThroughput" minOccurs="0">
1201                 <xsd:annotation>
1202                     <xsd:documentation>Committed performance
1203 throughput</xsd:documentation>
1204                 </xsd:annotation>
1205             </xsd:element>
1206             <xsd:element ref="SLATerm" minOccurs="0"/>
1207         </xsd:sequence>
1208         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1209     </xsd:complexType>
1210     <xsd:complexType name="ServiceNameType">
1211         <xsd:annotation>
1212             <xsd:documentation>Complex type for the name of the
1213 service</xsd:documentation>
1214         </xsd:annotation>
1215         <xsd:simpleContent>
1216             <xsd:extension base="cbc:NameType"/>
1217         </xsd:simpleContent>
1218     </xsd:complexType>
1219     <xsd:complexType name="ServiceOperationsType">
1220         <xsd:annotation>
1221             <xsd:documentation>Complex type for service operations</xsd:documentation>
1222         </xsd:annotation>
1223         <xsd:sequence>
1224             <xsd:element name="hasCommittedCost" type="xsd:boolean">
1225                 <xsd:annotation>
1226                     <xsd:documentation>has committed cost or
1227 not</xsd:documentation>
1228                 </xsd:annotation>
1229             </xsd:element>
1230             <xsd:element name="hasCommittedTime" type="xsd:boolean">
1231                 <xsd:annotation>
1232                     <xsd:documentation>has committed time or
1233 not</xsd:documentation>
1234                 </xsd:annotation>
1235             </xsd:element>
1236             <xsd:element name="hasAvailabilities" type="xsd:boolean">
1237                 <xsd:annotation>
1238                     <xsd:documentation>has availabilities or
1239 not</xsd:documentation>
1240                 </xsd:annotation>
1241             </xsd:element>
1242             <xsd:element name="hasCommittedThroughput" type="xsd:boolean">
1243                 <xsd:annotation>
1244                     <xsd:documentation>has committed throughput or
1245 not</xsd:documentation>
1246                 </xsd:annotation>
1247             </xsd:element>
1248             <xsd:element name="hasOtherTerms" type="xsd:boolean">
1249                 <xsd:annotation>
1250                     <xsd:documentation>has other SAL terms or
1251 not</xsd:documentation>
1252                 </xsd:annotation>
1253             </xsd:element>

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1254         <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1255 maxOccurs="unbounded" />
1256     </xsd:sequence>
1257     <xsd:anyAttribute namespace="##any" processContents="lax" />
1258 </xsd:complexType>
1259 <xsd:complexType name="SlaUriType">
1260     <xsd:annotation>
1261         <xsd:documentation>Complex type for the service URI or service profile
1262 URI</xsd:documentation>
1263     </xsd:annotation>
1264     <xsd:simpleContent>
1265         <xsd:extension base="xsd:anyURI">
1266             <xsd:anyAttribute namespace="##any" processContents="lax" />
1267         </xsd:extension>
1268     </xsd:simpleContent>
1269 </xsd:complexType>
1270 <xsd:complexType name="ServiceProviderType">
1271     <xsd:annotation>
1272         <xsd:documentation>Complex type for the service
1273 provider</xsd:documentation>
1274     </xsd:annotation>
1275     <xsd:sequence>
1276         <xsd:element ref="ServiceUri" />
1277         <xsd:element ref="ServiceProviderName" />
1278     </xsd:sequence>
1279     <xsd:anyAttribute namespace="##any" processContents="lax" />
1280 </xsd:complexType>
1281 <xsd:complexType name="ServiceProviderNameType">
1282     <xsd:annotation>
1283         <xsd:documentation>Complex type for the service provider
1284 name</xsd:documentation>
1285     </xsd:annotation>
1286     <xsd:simpleContent>
1287         <xsd:extension base="cbc:NameType" />
1288     </xsd:simpleContent>
1289 </xsd:complexType>
1290 <xsd:complexType name="ServiceRequesterType">
1291     <xsd:annotation>
1292         <xsd:documentation>Complex type for the service
1293 requester</xsd:documentation>
1294     </xsd:annotation>
1295     <xsd:sequence>
1296         <xsd:element ref="ServiceRequesterUri">
1297             <xsd:annotation>
1298                 <xsd:documentation>Service Requester Identifier in URI
1299 format</xsd:documentation>
1300             </xsd:annotation>
1301         </xsd:element>
1302         <xsd:element ref="ServiceRequesterName" />
1303     </xsd:sequence>
1304     <xsd:anyAttribute namespace="##any" processContents="lax" />
1305 </xsd:complexType>
1306 <xsd:complexType name="ServiceRequesterUriType">
1307     <xsd:annotation>
1308         <xsd:documentation>Complex type for the service requester
1309 ID</xsd:documentation>
1310     </xsd:annotation>
1311     <xsd:simpleContent>
1312         <xsd:extension base="cbc:IDType" />
1313     </xsd:simpleContent>
1314 </xsd:complexType>
1315 <xsd:complexType name="ServiceRequesterNameType">
1316     <xsd:annotation>
1317         <xsd:documentation>Complex type for the service request
1318 name</xsd:documentation>
1319     </xsd:annotation>
1320     <xsd:simpleContent>
1321         <xsd:extension base="cbc:NameType" />
1322     </xsd:simpleContent>
1323 </xsd:complexType>
1324 <xsd:complexType name="SLAObligationsType">
1325     <xsd:annotation>
1326         <xsd:documentation>Complex type for SLA Obligations</xsd:documentation>

```

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1327     </xsd:annotation>
1328   </xsd:sequence>
1329     <xsd:element ref="Obligation" maxOccurs="unbounded">
1330       <xsd:annotation>
1331         <xsd:documentation>The Obligation, obligation element for
1332 SLA Obligations in EERP-SLA, is the agreed SLA obligation, including Service Level Objective (SLO)
1333 and the Action Guarantee that associates with that SLO.</xsd:documentation>
1334       </xsd:annotation>
1335     </xsd:element>
1336     <xsd:element ref="ActionGuarantee" minOccurs="0">
1337       <xsd:annotation>
1338         <xsd:documentation>The Action Guarantee, action guarantee
1339 element for SLA Obligations in EERP-SLA, is to specify what happens if the Service Level
1340 Objective (SLO) is met or not met, including Reserve Fee and Penalty element.
1341 </xsd:documentation>
1342       </xsd:annotation>
1343     </xsd:element>
1344     <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1345 maxOccurs="unbounded" />
1346   </xsd:sequence>
1347   <xsd:anyAttribute namespace="##any" processContents="lax" />
1348 </xsd:complexType>
1349 <xsd:complexType name="SLAParametersType">
1350   <xsd:annotation>
1351     <xsd:documentation>Complex type for SLA parameters </xsd:documentation>
1352   </xsd:annotation>
1353   <xsd:sequence>
1354     <xsd:element ref="ServiceProfileUri">
1355       <xsd:annotation>
1356         <xsd:documentation>Service Profile Uri element represents
1357 web page URL or other URI for the service profile that defines the details of the services.
1358 Different service providers will share the same profile. It is a required element for SLA
1359 Parameters.</xsd:documentation>
1360       </xsd:annotation>
1361     </xsd:element>
1362     <xsd:element ref="ServiceOperations" minOccurs="0" />
1363     <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1364 maxOccurs="unbounded" />
1365   </xsd:sequence>
1366   <xsd:anyAttribute namespace="##any" processContents="lax" />
1367 </xsd:complexType>
1368 <xsd:complexType name="SLAPartiesType">
1369   <xsd:annotation>
1370     <xsd:documentation>Complex type for SLA parties</xsd:documentation>
1371   </xsd:annotation>
1372   <xsd:sequence>
1373     <xsd:element ref="ServiceProvider">
1374       <xsd:annotation>
1375         <xsd:documentation>Service Provider element represents the
1376 provider for parties. </xsd:documentation>
1377       </xsd:annotation>
1378     </xsd:element>
1379     <xsd:element ref="ServiceRequester">
1380       <xsd:annotation>
1381         <xsd:documentation>ServiceRequester element represents
1382 requester for the service, including requester's name and the URI that represents the requester.
1383 </xsd:documentation>
1384       </xsd:annotation>
1385     </xsd:element>
1386     <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1387 maxOccurs="unbounded" />
1388   </xsd:sequence>
1389   <xsd:anyAttribute namespace="##any" processContents="lax" />
1390 </xsd:complexType>
1391 <xsd:complexType name="SLATermType">
1392   <xsd:annotation>
1393     <xsd:documentation>Complex type for one SLA term</xsd:documentation>
1394   </xsd:annotation>
1395   <xsd:sequence>
1396     <xsd:any namespace="##any" processContents="skip" minOccurs="0">
1397       <xsd:annotation>
1398         <xsd:documentation>
1399 The definition of the SLA Terms

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1400     </xsd:documentation>
1401         </xsd:annotation>
1402     </xsd:any>
1403 </xsd:sequence>
1404     <xsd:anyAttribute namespace="##any" processContents="lax" />
1405 </xsd:complexType>
1406 <xsd:complexType name="SLATermsType">
1407     <xsd:annotation>
1408         <xsd:documentation>Complex type for SLA Terms </xsd:documentation>
1409     </xsd:annotation>
1410 <xsd:sequence>
1411     <xsd:element ref="SLATerm" maxOccurs="unbounded" />
1412 </xsd:sequence>
1413     <xsd:anyAttribute namespace="##any" processContents="lax" />
1414 </xsd:complexType>
1415 <xsd:complexType name="BSLAType">
1416     <xsd:annotation>
1417         <xsd:documentation>Complex type for BSLA which is a formal contract
1418 between a service provider and a client guaranteeing quantifiable business quality of service
1419 (bQoS) at defined levels.</xsd:documentation>
1420     </xsd:annotation>
1421 <xsd:sequence>
1422     <xsd:element ref="SLAParties">
1423         <xsd:annotation>
1424             <xsd:documentation>SLAParties element, SLA Parties aspect
1425 of the service, is for parties invoked in the SLA for the service, including both service
1426 provider and service requester elements. </xsd:documentation>
1427         </xsd:annotation>
1428     </xsd:element>
1429     <xsd:element ref="SLAParameters">
1430         <xsd:annotation>
1431             <xsd:documentation>The SLAParameters element for EERP-SLA
1432 describes the parameters of the service used to define monitoring of QoS metrics, including the
1433 service profile URI, operations and other optional elements.</xsd:documentation>
1434         </xsd:annotation>
1435     </xsd:element>
1436     <xsd:element ref="SLAObligations" minOccurs="0">
1437         <xsd:annotation>
1438             <xsd:documentation>The SLAObligations element describes the
1439 agreed SLA obligations of the service, including obligations and action
1440 guarantees.</xsd:documentation>
1441         </xsd:annotation>
1442     </xsd:element>
1443     <xsd:element ref="SLATerms" minOccurs="0">
1444         <xsd:annotation>
1445             <xsd:documentation>The SLA Terms, Terms element for EERP-
1446 SLA, is the agreed SLA terms aspect of the service, including SLA term
1447 elements.</xsd:documentation>
1448         </xsd:annotation>
1449     </xsd:element>
1450     <xsd:element ref="Extension" minOccurs="0" maxOccurs="unbounded" />
1451 </xsd:sequence>
1452     <xsd:anyAttribute namespace="##any" processContents="lax" />
1453 </xsd:complexType>
1454 </xsd:schema>

```

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1455 **C. Non-Normative Text**

1456 None

1457

## D. Revision History

1458

Revision	Date	Editor	Changes Made
0.9	03/10/2009	Szu Chang	Initial draft
WD01	04/24/2009	Szu Chang	Renamed draft 0.9 to working draft 01
WD02	05/12/2009	Szu Chang	Fixed issue # I011, I012, and I014
WD03	05/17/2009	Szu Chang	Added conformance section
WD04	06/08/2009	Szu Chang	Fixed issue # I017, I018, and I020
WD05	06/24/2009	Szu Chang	Fixed issue # I028, I031, and I038, I041, I047, and I056
WD06	07/05/2009	Szu Chang	Fixed issue # I028, I035, I038, I043, I051, and I055
CD02	07/11/2009	Szu Chang	Changed WD06 to CD02 after approved by TC
CD03	01/06/2010	Szu Chang	Changed NS and fixed URIs from CD02 to CD03

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