



SOA-EERP Business Service Level Agreement Version 1.0

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Technical Committee:

OASIS Service-Oriented Architecture End-to-End Resource Planning (SOA-EERP) TC

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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 Business Rating (bRating) and SOA-EERP Business Service Level Agreement (bSLA) which need to be understood in combination.

39 **Declared XML Namespace(s):**
40 <http://docs.oasis-open.org/ns/soa-eerp/sla/200903>

41 **Abstract:**
42 This document specifies the XML vocabulary for business service level agreement (bSLA), one of
43 three Specifications for end-to-end resource planning (EERP). Business service level agreement
44 describes the agreement between two parties, service requester and service provider, on
45 business-related characteristics or attributes of a service.

46 **Status:**
47
48 This document was last revised or approved by the SOA-EERP TC on the above date. The level
49 of approval is also listed above. Check the “Latest Version” or “Latest Approved Version” location
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54 [open.org/committees/soa-eerp/](http://www.oasis-open.org/committees/soa-eerp/).

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58 [open.org/committees/soa-eerp/ipr.php](http://www.oasis-open.org/committees/soa-eerp/ipr.php)).

59 The non-normative errata page for this specification is located at [http://www.oasis-](http://www.oasis-open.org/committees/soa-eerp/)
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138 1 Introduction

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

143 According to OASIS Reference Model for Service Oriented Architecture [SOA-RM], the Service Oriented
144 Architecture (SOA) is a paradigm for organizing and utilizing distributed capabilities that may be under the
145 control of different ownership domains. The service within SOA is a mechanism to enable access to one
146 or more capabilities, where the access is provided using a prescribed interface and is exercised
147 consistent with constraints and policies as specified by the service description. This specification further
148 defines the bSLA between the service requester and the service provider for the service which is defined
149 in SOA-RM, within the EERP technology. The applications of this specification are any kind of business
150 services, and they are not limited to only Web Services.

151 EERP applies the well-known technique for service discovery and optimization in a novel way to improve
152 business results. It models the business process and the range of potential services, and then guides the
153 selection and deployment of services based on the end-to-end business value.

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

158 The bSLA defined in this specification is the agreement between the service requestor and the service
159 provider, and primary address the bQoS content defined in "SOA-EERP Business Quality of Service
160 Version 1.0" [EERP-bQoS], and bRating defined in the "SOA-EERP Business Rating of Service Version
161 1.0" [EERP-bRating]. These contents are all business related.

162 The bSLA is different than the SLA (Service Level Agreement) in the software/IT world. The bSLA in this
163 specification is the contact between the service requester and the service provider, and the SLA is the
164 contract between the service provider and the network/system provider. The SLA is network/system
165 oriented agreement that deals with network performance and system availability. The bSLA is a business
166 oriented agreement that deals with price, time to deliver, and the quality/rating of the service.

167 1.1 Terminology

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

171 1.1.1 Notational Conventions

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

- 173 • The syntax appears as an XML instance, but values in italics indicate data types instead of literal
174 values.
- 175 • Characters are appended to elements and attributes to indicate cardinality:
 - 176 ○ "?" (0 or 1)
 - 177 ○ "*" (0 or more)
 - 178 ○ "+" (1 or more)
- 179 • The character "|" is used to indicate a choice between alternatives.

- 180 • The characters "(" and ")" are used to indicate that contained items are to be treated as a group
181 with respect to cardinality or choice.
- 182 • The characters "[" and "]" are used to call out references and property names.
- 183 • Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be
184 added at the indicated extension points but MUST NOT contradict the semantics of the parent
185 and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver
186 SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated
187 below.
- 188 • XML namespace prefixes (see Table 1) are used to indicate the namespace of the element being
189 defined.

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

- 192 • An element extensibility point is referred to using {any} in place of the element name. This
193 indicates that any element name can be used, from any namespace other than the namespace of
194 this specification.
- 195 • An attribute extensibility point is referred to using @{any} in place of the attribute name. This
196 indicates that any attribute name can be used, from any namespace other than the namespace of
197 this specification.

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

199

200 1.2 Normative References

- 201 **[RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*,
202 <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- 203 **[SOAP]** W3C Note, "SOAP: Simple Object Access Protocol 1.1", 08 May 2000.
204 <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>
- 205 **[SOAP12]** W3C Recommendation, "SOAP 1.2 Part 1: Messaging Framework", 24 June
206 2003.
207 <http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>
- 208 **[URI]** T. Berners-Lee, R. Fielding, L. Masinter, "Uniform Resource Identifiers (URI):
209 Generic Syntax", RFC 3986, MIT/LCS, Day Software, Adobe Systems, January
210 2005.
211 <http://www.ietf.org/rfc/rfc3986.txt>
- 212 **[UBL-20]** OASIS Standard, "Universal Business Language (UBL) v2.0", 12 December 2006
213 <http://docs.oasis-open.org/ubl/os-UBL-2.0/UBL-2.0.pdf>
- 214 **[UBL-20-cbc]** Universal Business Language (UBL) v2.0, Common Basic Components. October
215 2006.
216 <http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd>
- 217 **[UBL-20-udt]** Universal Business Language (UBL) v2.0. Unqualified Data Type, February
218 2005.
219 <http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd>
- 220 **[XML-Schema1]** W3C Recommendation, "XML Schema Part 1: Structures Second Edition", 28
221 October 2004.
222 <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>
- 223 **[XML-Schema2]** W3C Recommendation, "XML Schema Part 2: Datatypes Second Edition", 28
224 October 2004.
225 <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>
- 226
- 227

228	[EERP-bQoS]	OASIS Committee Draft 04, "SOA-EERP Business Quality of Service Version 1.0", 12 September 2010.
229		
230		http://docs.oasis-open.org/soa-eerp/bqos/v1.0/SOA-EERP-bQoS-Spec-cd04.pdf
231	[EERP-bRating]	OASIS Committee Draft 04, "SOA-EERP Business Rating of Service Version 1.0", 12 September 2010.
232		
233		http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Spec-cd04.pdf
234	[ISO8601]	ISO Standard 8601:2004(E), "Data elements and interchange formats – Information interchange - Representation of dates and times", Third edition, December 2004.
235		
236		
237		http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=40874
238		
239	[CEFACT]	CEFACT – Core components specifications, Recommendation 9 January 1996.
240		
241		http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd203.pdf

242 1.2.1 Reference

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

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

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

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

252 1.3 Non-Normative References

253 None.

255 2 Business Services Level Agreement Contents

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

258 2.1 Namespaces

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

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

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

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

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

264 2.2 Schema Files

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

267 `http://docs.oasis-open.org/soa-eerp/sla/v1.0/EERP-bSLA-cd04.xsd`

268 2.3 bSLA Contents

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

- 272 • SLAParties describes the parties invoked in the bSLA for the service
- 273 • SLAParameters describes the parameters for the service, which are defined ways of monitoring
274 of bQoS metrics.
- 275 • SLAObligations describes the agreed bSLA obligations for the service.
- 276 • SLATerms describes the agreed bSLA Terms for the service.

- Any additional elements for the agreement of the service

278 Syntax

```
279 <sla:BSLA xmlns:sla="..." xmlns:bqos="..." ...>  
280 <sla:SLAParties ...>sla:SLAPartiesTypeType</sla:SLAParties>  
281 <sla:SLAParameters ...>sla:SLAParametersType</sla:SLAParameters>  
282 <sla:SLAObligations ...>sla:SLAObligationsType</sla:SLAObligations> ?  
283 <sla:SLATerms ...>sla:SLATermsType</sla:SLATerms> ?  
284 ...  
285 </sla:BSLA>
```

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

287 /sla:BSLA

288 Root element of Business Service-level agreement (bSLA) for EERP

289 /sla:BSLA/sla:SLAParties

290 SLAParties is a required element in bSLA that defines parties invoked in this bSLA for the
291 service. SLAParties element has both the service provider and services requester elements, see
292 Section 3 for more details.

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

294 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
295 to the SLAParties element in the future. Unrecognized attributes MAY cause a fault or be silently
296 ignored.

297 /sla:BSLA/sla:SLAParameters

298 SLAParameters element, bSLA parameters aspect of the service, is defined monitoring of
299 bQoS metrics, including service profile uri, operations and other optional elements. It is a required
300 element that uses sla:SLAParametersType, see Section 4 for more details.

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

302 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
303 to the SLAParameters element in the future. Unrecognized attributes MAY cause a fault or be
304 silently ignored.

305 /sla:BSLA/sla:SLAObligations

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

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

309 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
310 to the SLAObligations element in the future. Unrecognized attributes MAY cause a fault or be
311 silently ignored.

312 /sla:BSLA/sla:SLATerms

313 Agreed bSLA terms aspect of the service, including bSLA term elements. It is optional, see
314 Section 6 for more details.

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

316 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
317 to the SLATerms element in the future. Unrecognized attributes MAY cause a fault or be silently
318 ignored.

319 /sla:BSLA/@{any}

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

323 /sla:BSLA/sla:BSLAExtension

324 BSLAExtension element is an optional element that keeps different (extensible) elements to be
325 specified in the future.
326 /sla:BSLA/sla:BSLAExtension/{any}
327 This is an extensibility mechanism to allow different (extensible) elements to be specified in the
328 future. Unrecognized elements MAY cause a fault or be silently ignored.

330 3 SLAParties

331 The SLAParties describes the list of parties invoked in the bSLA for the service.

332 There SHOULD be one SLAParties element present in the bSLA of service.

333 Syntax

```
334 <sla:SLAParties xmlns:sla="..." ...>
335   <sla:ServiceProvider ...>sla:ServiceProviderType
336     <sla:ServiceUri ...>sla:SlaUriType</sla:ServiceUri>
337     <sla:ServiceProviderName
338 languageID="...">sla:ServiceProviderNameType</sla:ServiceProviderName>
339   </sla:ServiceProvider>
340   <sla:ServiceRequester ... >sla:ServiceRequesterType
341     <sla:ServiceRequesterUri ... >sla:SlaUriType</sla:ServiceRequesterUri>
342     <sla:ServiceRequesterName
343 languageID="...">sla:ServiceRequesterNameType</sla:ServiceRequesterName>
344   </sla:ServiceRequester>
345   ...
346 </sla:SLAParties>
```

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

348 /sla:SLAParties

349 SLAParties element, bSLA Parties aspect of the service, is for parties invoked in the bSLA for the
350 service, including both service provider and service requester elements.

351 /sla:SLAParties/sla:ServiceProvider

352 Service Provider element represents the provider for parties. It is a required element for bSLA
353 Parties.

354 /sla:SLAParties/sla:ServiceProvider/sla:ServiceUri

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

357 /sla:SLAParties/sla:ServiceProvider/sla:ServiceProviderName

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

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

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

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

364 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
365 to the ServiceProvider element in the future. Unrecognized attributes MAY cause a fault or be
366 silently ignored.

367 /sla:SLAParties/sla:ServiceRequester

368 ServiceRequester element represents requester for the service, including requester's name and
369 the URI that represents the requester. It is a required element for bSLA Parties.

370 /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterUri

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

373 /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName

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

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

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

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

378 urn:un:unecce:unecfact:codelist:specification:5639:1988.

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

380 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added

381 to the ServiceRequester element in the future. Unrecognized attributes MAY cause a fault or be

382 silently ignored.

383 /sla:SLAParties/{any}

384 This is an extensibility mechanism to allow different (extensible) elements to be specified in the

385 future. Unrecognized elements MAY cause a fault or be silently ignored.

386 **Example**

387 The following non-normative example illustrates the use of the bSLA Parties element. The Service

388 Provider is a fictitious Hangzhou Innover Co. Ltd. in China; the Service Requester is a fictitious Mianyang

389 Gas Corp. in China.

```
390 (001) <?xml version="1.0" encoding="utf-8"?>
391 (002) <SLAParties xmlns="..." ...>
392 (003)   <ServiceProvider>
393 (004)     <ServiceUri>http://www.innover.com.cn</ServiceUri>
394 (005)     <ServiceProviderName>Hangzhou Innover Co. Ltd</ServiceProviderName>
395 (006)   </ServiceProvider>
396 (007)   <ServiceRequester>
397 (008)     <ServiceRequesterUri>http://www.scmng.com</ServiceRequesterUri>
398 (009)     <ServiceRequesterName>Mianyang Gas Corp.</ServiceRequesterName>
399 (010)   </ServiceRequester>
400 (011) </SLAParties>
```

401 4 SLAParameters

402 The SLAParameters element for EERP-bSLA describes the parameters of the service used to define
403 monitoring of bQoS metrics, including the service profile URI, operations and other optional elements.

404 There SHOULD be one SLAParameters element present in the bSLA of service.

405 Syntax

```
406 <sla:SLAParameters xmlns:sla="..." ...>  
407   <sla:ServiceProfileUri ...>sla:SlaUriType</sla:ServiceProfileUri>  
408   <sla:ServiceOperations ...>sla:ServiceOperationsType  
409     <sla:hasCommittedCost>xsd:boolean</sla:hasCommittedCost>  
410     <sla:hasCommittedTime>xsd:boolean</sla:hasCommittedTime>  
411     <sla:hasAvailabilities>xsd:boolean</sla:hasAvailabilities>  
412     <sla:hasCommittedThroughput>xsd:boolean</sla:hasCommittedThroughput>  
413     <sla:hasOtherTerms>xsd:boolean</sla:hasOtherTerms>  
414     ...  
415   </sla:ServiceOperations> ?  
416   ...  
417 </sla:SLAParameters>
```

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

419 /sla:SLAParameters

420 bSLA parameters element defines aspect of the service which are defined monitoring of bQoS
421 metrics, including service uri, operations and other optional elements.

422 /sla:SLAParameters/sla:ServiceProfileUri

423 ServiceProfileUri element represents web page URL or other URI for the service profile that
424 defines the details of the services. Different service providers will share the same profile. It is a
425 required element for bSLA Parameters.

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

427 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
428 to the ServiceProfileUri element in the future. Unrecognized attributes MAY cause a fault or be
429 silently ignored.

430 /sla:SLAParameters/sla:ServiceOperations

431 Describes available operations and bQoS. It is an optional element for bSLA Parameters.

432 /sla:SLAParameters/sla:ServiceOperations/sla:hasCommittedCost

433 Describes if there is committed cost or not. It is a required element for bSLA Parameters.

434 /sla:SLAParameters/sla:ServiceOperations/sla:hasCommittedTime

435 Describes if there is committed time or not. It is a required element for bSLA Parameters.

436 /sla:SLAParameters/sla:ServiceOperations/sla:hasAvailabilities

437 Describes if there is availability or not. It is a required element for bSLA Parameters.

438 /sla:SLAParameters/sla:ServiceOperations/sla:hasCommittedThroughput

439 Describes if there is committed throughput or not. It is a required element for bSLA Parameters.

440 /sla:SLAParameters/sla:ServiceOperations/sla:hasOtherTerms

441 Describes if there are other terms or not. It is a required element for bSLA Parameters.

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

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

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

446 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
447 to the ServiceOperations element in the future. Unrecognized attributes MAY cause a fault or be
448 silently ignored.

449 /sla:SLAParameters /{any}

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

452 **Example**

453 The following non-normative example illustrates the use of bSLA Parameters element. It describes the
454 bSLA parameters:

```
455 (001) <?xml version="1.0" encoding="utf-8"?>  
456 (002) <SLAParameters xmlns="..." ...>  
457 (003)   <ServiceProfileUri>http://www.innover.com.cn</ServiceProfileUri>  
458 (004)   <ServiceOperations>  
459 (005)     <hasCommittedCost>true</hasCommittedCost>  
460 (006)     <hasCommittedTime>true</hasCommittedTime>  
461 (007)     <hasAvailabilities>true</hasAvailabilities>  
462 (008)     <hasCommittedTroughput>true</hasCommittedTroughput>  
463 (009)     <hasOtherTerms>true</hasOtherTerms>  
464 (010)   </ServiceOperations>  
465 (011) </SLAParameters>
```


466

5 SLAObligations

467 The SLAObligations element describes the agreed bSLA obligations of the service, including obligations
468 and action guarantees.

469 There MAY be zero or one bSLA Obligations element present in the bSLA of service.

470 Note: There is a case for zero Obligation elements on bSLA. Section 7.2 is an example illustrates the
471 bSLA document without Obligation element. It has some additional bSLA terms instead.

472 Syntax

```
473 <sla:SLAObligations xmlns:sla="..." xmlns:bqos="..." ...>  
474   <sla:Obligation ...>sla:ObligationType</sla:Obligation> +  
475   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?  
476   ...  
477 </sla:SLAObligations>
```

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

479 /sla:SLAObligations

480 bSLA obligations aspect of the service, including obligations, action guarantees.

481 /sla:SLAObligations/sla:Obligation

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

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

486 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
487 to the Obligation element in the future. Unrecognized attributes MAY cause a fault or be silently
488 ignored.

489 /sla:SLAObligations/sla:ActionGuarantee

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

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

494 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
495 to the ActionGuarantee element in the future. Unrecognized attributes MAY cause a fault or be
496 silently ignored.

497 /sla:SLAObligations/{any}

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

500 5.1 Obligation

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

503 There MAY be one or more Obligation elements present in the bSLA Obligations.

504 Syntax

```

505 <sla:Obligation xmlns:sla="..." xmlns:bqos="..." ...>
506   <sla:ServiceLevelObjective ...>sla:ServiceLevelObjectiveType
507 </sla:ServiceLevelObjective>
508   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?
509 </sla:Obligation>

```

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

511 /sla:SLAObligations/sla:Obligation

512 Obligation element is agreed bSLA obligation, including Service Level Objective (SLO) and the
513 Action Guarantee that associates with this Obligation.

514 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

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

517 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/@{any}

518 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
519 to the ServiceLevelObjective element in the future. Unrecognized attributes MAY cause a fault or
520 be silently ignored.

521 /sla:SLAObligations/sla:Obligation/sla:ActionGuarantee

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

525 /sla:SLAObligations/sla:Obligation/sla:ActionGuarantee/@{any}

526 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
527 to the ActionGuarantee element in the future. Unrecognized attributes MAY cause a fault or be
528 silently ignored.

529 5.1.1 ServiceLevelObjective

530 The Service Level Objective element for Obligation in bSLA Obligations in EERP-bSLA is the Service
531 Level Objective (SLO) for the QoS guarantee, including Committed Cost, Committed Time, Availabilities,
532 Committed Throughput and SLATerm.

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

535 Syntax

```

536 <sla:ServiceLevelObjective xmlns:sla="..." xmlns:bqos="..." ...>
537   <sla:CommittedCost>bqos:PriceType</sla:CommittedCost> ?
538   <sla:CommittedTime ...>sla:CommittedTimeType</sla:CommittedTime> ?
539   <sla:Availabilities ...>sla:AvailabilitiesType</sla:Availabilities> ?
540   <sla:CommittedThroughput ...>bqos:ThroughputType</sla:CommittedThroughput>
541   ?
542   <sla:SLATerm ...>sla:SLATermType</sla:SLATerm> ?
543 </sla:ServiceLevelObjective>

```

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

545 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

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

547 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

548 Cost element in bSLA. It is an optional element for ServiceLevelObjective. See Section 5.1.1.1 for
549 more details.

550 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

551 Committed time period element in bSLA is an optional element for ServiceLevelObjective. see
552 Section 5.1.1.2 for more details.

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

554 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
555 to the CommittedTime element in the future. Unrecognized attributes MAY cause a fault or be
556 silently ignored.

557 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

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

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

561 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
562 to the Availabilities element in the future. Unrecognized attributes MAY cause a fault or be silently
563 ignored.

564 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput

565 Committed performance throughput is an optional element for ServiceLevelObjective. See
566 Section 5.1.1.4 for more details.

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

568 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
569 to the CommittedThroughput element in the future. Unrecognized attributes MAY cause a fault or
570 be silently ignored.

571 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:SLATerm

572 bSLA Term. It is an optional element for ServiceLevelObjective, see /sla:SLATerms/sla:SLATerm
573 in Section 6 for more details.

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

575 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
576 to the SLATerm element in the future. Unrecognized attributes MAY cause a fault or be silently
577 ignored.

578 5.1.1.1 CommittedCost

579 The Committed Cost element describes the cost element in bSLA, including Unit and Amount.

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

581 Syntax

```
582 <sla:CommittedCost xmlns:sla="..." xmlns:bqos="...">
583   <bqos:Unit unitCode="clm66411:UnitCodeContentType">
584     cbc:BaseUnitMeasureType </bqos:Unit> ?
585   <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
586     cbc:AmountType </bqos:Amount>
587 </sla:CommittedCost>
```

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

589 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

590 CommittedCost element is the cost element in bSLA. It is an optional element for Service Level
591 Objective.

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

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

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

601 5.1.1.2 CommittedTime

602 The Committed Time, Committed Time element of Service Level Objective for Obligation in bSLA
603 Obligations in EERP-bSLA, is the committed time period in bSLA, including Duration, Latency and
604 Committed Completion Time.

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

606 Syntax

```
607 <sla:CommittedTime xmlns:sla="..." xmlns:bqos="..." ...>  
608   <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
609     cbc:DurationMeasureType </bqos:Duration>  
610   <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
611     cbc:DurationMeasureType </bqos:Latency> ?  
612   <bqos:StartTime>udt:DateTimeType</bqos:StartTime> ?  
613   <sla:CommittedCompletionTime>  
614     udt:DateTimeType</sla:CommittedCompletionTime> ?  
615 </sla:CommittedTime>
```

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

617 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

618 CommittedTime element is an optional element for Service Level Objective which is the
619 committed time period element in bSLA.

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

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

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

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

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

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

636 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/sla:CommittedCompleti
637 onTime

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

640 5.1.1.3 Availabilities

641 The Availabilities, Availabilities of Service Level Objective for Obligation in bSLA Obligations in
642 EERP-bSLA, is services availability indicators including a list of availabilities, including a list of
643 Availability elements.

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

645 Syntax

```
646 <sla:Availabilities xmlns:sla="..." xmlns:bqos="..." ...>  
647 <sla:Availability isAvailable="xs:boolean" ...>sla:AvailabilityType  
648 <sla:From>xs:dateTime</sla:From>  
649 <sla:To>xs:dateTime</sla:To>  
650 </sla:Availability> +  
651 </sla:Availabilities>
```

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

653 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

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

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

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

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

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

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

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

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

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

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

669 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
670 to the Availability element in the future. Unrecognized attributes MAY cause a fault or be silently
671 ignored.

672 5.1.1.4 Committed Throughput

673 The Committed Throughput, Committed Throughput element of Service Level Objective for
674 Obligation in bSLA Obligations in EERP-bSLA, is the committed performance throughput, including
675 Duration, Quantity and Latency.

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

677 Syntax

```
678 <sla:CommittedThroughput xmlns:sla="..." xmlns:bqos="..." ...>  
679 <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
680 <cbc:DurationMeasureType</bqos:Duration>  
681 <bqos:Quantity unitCode="clm66411:UnitCodeContentType">  
682 <cbc:BaseQuantityType</bqos:Quantity>  
683 <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
684 <cbc:DurationMeasureType</bqos:Latency> ?
```

685 `</sla:CommittedThroughput>`

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

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

688 `CommittedThroughput` is an optional element for `ServiceLevelObjective` element. This is the
689 committed performance throughput.

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

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

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

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

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

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

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

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

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

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

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

706 **5.1.1.5 bSLA Term**

707 The `bSLATerm`, `bSLA Term` element of `Service Level Objective for Obligation` in `bSLA Obligations` in
708 `EERP-bSLA`, is the `bSLA term` element in `bSLA`.

709 There MAY be zero or one `bSLA Term` element present in the `Service Level Objective`. See

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

711 **5.1.2 Action Guarantee**

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

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

715 *5.2* for the detail of `ActionGuaranteeType`.

716 **5.2 Action Guarantee**

717 The `Action Guarantee`, `action guarantee` element for `bSLA Obligations` in `EERP-bSLA`, is to specify
718 what happens if the `Service Level Objective (SLO)` is met or not met, including `Reserve Fee` and
719 `Penalty` element.

720 There MAY be zero or one `bSLA Obligations` element present in the `bSLA Obligations`.

721 **Syntax**

```
722 <sla:ActionGuarantee xmlns:sla="..." xmlns:bqos="..." ...>  
723   <sla:ReserveFee ...>bqos:PriceType  
724     <bqos:Unit unitCode="clm66411:UnitCodeContentType">  
725       cbc:BaseUnitMeasureType</bqos:Unit> ?
```

```

726     <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
727         cbc:AmountType</bqos:Amount>
728     </sla:ReserveFee> ?
729     <sla:Penalty ...>bqos:PriceType
730         <bqos:Unit unitCode="clm66411:UnitCodeContentType">
731             cbc:BaseUnitMeasureType</bqos:Unit> ?
732         <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
733             cbc:AmountType</bqos:Amount>
734     </sla:Penalty> ?
735 </sla:ActionGuarantee >

```

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

737 /sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee

738 ReserveFee element is the reservation fee or money amount when Service Level Objective
739 (SLO) is met. It is an optional element for Action Guarantee.

740 /sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/bqos:Unit

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

744 /sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/bqos:Amount

745 Amount element is a required element for the Reserve Fee element. It uses cbc:AmountType
746 from UBL that has a required currencyID attribute for currency code. See
747 /bqos:BQoSPrice/bqos:Price/bqos:Amount in Section 3: bQoS Price in EERP-bQoS
748 Specification for more details.

749 /sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee/@{any}

750 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
751 to the ReserveFee element in the future. Unrecognized attributes MAY cause a fault or be silently
752 ignored.

753 /sla:SLAObligations/sla:ActionGuarantee/sla:Penalty

754 Penalty element is the money amount when Service Level Objective (SLO) is not met. It is a
755 required element for Action Guarantee.

756 /sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/bqos:Unit

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

760 /sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/bqos:Amount

761 Amount element is a required element for the Penalty element. It uses cbc:AmountType from
762 UBL that has a required currencyID attribute for currency code. See
763 /bqos:BQoSPrice/bqos:Price/bqos:Amount in Section 3: bQoS Price in EERP-bQoS
764 Specification for more details.

765 /sla:SLAObligations/sla:ActionGuarantee/sla:Penalty/@{any}

766 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
767 to the Penalty element in the future. Unrecognized attributes MAY cause a fault or be silently
768 ignored.

769 Example

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

```

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

```

```
775 (005) <bqos:Amount currencyID="USD">17.15</bqos:Amount>  
776 (006) </Penalty>  
777 (007) </ActionGuarantee>
```

778 6 SLATerms

779 The SLATerms, bSLA terms element for EERP-bSLA, is the agreed bSLA terms aspect of the
780 service, including bSLA term elements.

781 There MAY be zero or one bSLA Terms element present in the bSLA of service.

782 Syntax

```
783 <sla:SLATerms xmlns:bqos="..." ...>  
784   <sla:SLATerm ...>sla:SLATermType  
785   ...  
786   </sla:SLATerm> +  
787 </sla:SLATerms>
```

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

789 /sla:SLATerms

790 The agreed bSLA terms aspect of the service, including bSLA term elements. It has a list of bSLA
791 terms for SLATerms .

792 /sla:SLATerms/sla:SLATerm

793 SLATerm element is an any type element to describe additional term for this bSLA.

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

795 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
796 to the SLATerm element in the future. Unrecognized attributes MAY cause a fault or be silently
797 ignored.

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

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

801 /sla:SLATerms/@{any}

802 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
803 to the SLATerms element in the future. Unrecognized attributes MAY cause a fault or be silently
804 ignored.

805 Example

806 The following non-normative example illustrates the use of bSLA Terms element. It describes the term
807 of the bSLA:

```
808 (001) <?xml version="1.0" encoding="utf-8"?>  
809 (002) <SLATerms xmlns="..." ...>  
810 (003)   <SLATerm xmlns:t="..." >  
811 (004)     <t:ServiceLocation>  
812 (005)       <t:Lat>37.7749295</t:Lat>  
813 (006)       <t:Lng>-122.4194155</t:Lng>  
814 (007)     </t:ServiceLocation>  
815 (008)   </SLATerm>  
816 (009) </SLATerms>
```


818

7 bSLA Examples

819 The examples in this section are non-normative.

7.1 Committed Throughput with Penalty Example

821 This bSLA example will show the following agreement between EERP Sample Service and EERP Service
822 Requester:

- 823 1. The service is based on the Service profile defined on
824 <http://www.serviceprovider.com/eerp/service/profile>
- 825 2. It will charge \$17.15 per service.
- 826 3. Starting from January 1st, 2009, the agreement last for one whole year.
- 827 4. The committed throughput is 10 services per day.
- 828 5. If the provider cannot meet the bSLA for #3 and #4, the penalty will be \$17.15 per 10 services.

829 Example

830 The following example illustrates the whole bSLA document for above agreements:

```
831 (1) <?xml version="1.0" encoding="utf-8"?>
832 (2) <BSLA xmlns="..." xmlns:bqos="..." ... >
833 (3)   <SLAParties>
834 (4)     <ServiceProvider>
835 (5)       <ServiceUri>
836 (6)         http://www.serviceprovider.com/eerp/service</ServiceUri>
837 (7)       <ServiceProviderName languageID="EN">
838 (8)         EERP Sample Service</ServiceProviderName>
839 (9)     </ServiceProvider>
840 (10)    <ServiceRequester>
841 (11)      <ServiceRequesterUri>
842 (12)        http://www.servicerequester.com</ServiceRequesterUri>
843 (13)      <ServiceRequesterName languageID="EN">
844 (14)        EERP Service Requester</ServiceRequesterName>
845 (15)    </ServiceRequester>
846 (16)  </SLAParties>
847 (17)  <SLAParameters>
848 (18)    <ServiceProfileUri>
849 (19)    http://www.serviceprovider.com/eerp/service/profile</ServiceProfileUri>
850 (20)    <ServiceOperations>
851 (21)      <hasCommittedCost>true</hasCommittedCost>
852 (22)      <hasCommittedTime>true</hasCommittedTime>
853 (23)      <hasAvailabilities>false</hasAvailabilities>
854 (24)      <hasCommittedThroughput>true</hasCommittedThroughput>
855 (25)      <hasOtherTerms>false</hasOtherTerms>
856 (26)    </ServiceOperations>
857 (27)  </SLAParameters>
858 (28)  <SLAObligations>
859 (29)    <Obligation>
860 (30)      <ServiceLevelObjective>
861 (31)        <CommittedCost>
862 (32)          <bqos:Unit unitCode="EA">1</bqos:Unit>
863 (33)          <bqos:Amount currencyID="USD">17.15</bqos:Amount>
864 (34)        </CommittedCost>
865 (35)      </ServiceLevelObjective>
866 (36)    </Obligation>
867 (37)    <Obligation>
868 (38)      <ServiceLevelObjective>
869 (39)        <CommittedTime>
```

```

870      (40)      <bqos:Duration unitCode="ANN">1</bqos:Duration>
871      (41)      <bqos:StartTime>2009-01-01T00:00:00Z</bqos:StartTime>
872      (42)      </CommittedTime>
873      (43)      <CommittedThroughput>
874      (44)      <bqos:Duration unitCode="DAY">1</bqos:Duration>
875      (45)      <bqos:Quantity unitCode="EA">10</bqos:Quantity>
876      (46)      </CommittedThroughput>
877      (47)      </ServiceLevelObjective>
878      (48)      <ActionGuarantee>
879      (49)      <Penalty>
880      (50)      <bqos:Unit unitCode="EA">10</bqos:Unit>
881      (51)      <bqos:Amount currencyID="USD">17.15</bqos:Amount>
882      (52)      </Penalty>
883      (53)      </ActionGuarantee>
884      (54)      </Obligation>
885      (55)      </SLAObligations>
886      (56)      </BSLA>
887

```

888 7.2 bSLA without Obligation Example

889 **This bSLA example will show the following agreement between EERP Sample Service and EERP**
890 **Service Requester:**

- 891 1. The service is based on the Service profile defined on
892 <http://www.serviceprovider.com/eerp/service/profile2>
- 893 2. There is no obligation
- 894 3. Additional bSLA terms include service location and service hours:
 - 895 a. Service location is near San Francisco, CA with geocoding of 37.7749295 and -
896 122.4194155
 - 897 b. Service hours will be 7 x 24, that is 7 days per week and 24hours per day.

898 Example

899 The following example illustrates the whole bSLA document for above agreements:

```

900      (57)      <?xml version="1.0" encoding="utf-8"?>
901      (58)      <BSLA xmlns="..." xmlns:bqos="..." ... >
902      (59)      <SLAParties>
903      (60)      <ServiceProvider>
904      (61)      <ServiceUri>
905      (62)      http://www.serviceprovider.com/eerp/service</ServiceUri>
906      (63)      <ServiceProviderName languageID="EN">
907      (64)      EERP Sample Service</ServiceProviderName>
908      (65)      </ServiceProvider>
909      (66)      <ServiceRequester>
910      (67)      <ServiceRequesterUri>
911      (68)      http://www.servicerequester.com</ServiceRequesterUri>
912      (69)      <ServiceRequesterName languageID="EN">
913      (70)      EERP Service Requester</ServiceRequesterName>
914      (71)      </ServiceRequester>
915      (72)      </SLAParties>
916      (73)      <SLAParameters>
917      (74)      <ServiceProfileUri>
918      (75)      http://www.serviceprovider.com/eerp/service/profile2
919      (76)      </ServiceProfileUri>
920      (77)      </SLAParameters>
921      (78)      <SLATerms xmlns:t="..." >
922      (79)      <SLATerm>
923      (80)      <t:ServiceLocation>
924      (81)      <t:Lat>37.7749295</t:Lat>
925      (82)      <t:Lng>-122.4194155</t:Lng>
926      (83)      </t:ServiceLocation>

```

```
927 (84) </SLATerm>
928 (85) <SLATerm t:serviceHours="7x24" >
929 (86) </SLATerms>
930 (87) </BSLA>
```


932

8 Conformance

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

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

942 Normative text within this specification takes precedence over normative outlines (as described in section
943 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL
944 [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas
945 and/or WSDL that are part of this specification; and this specification contains further constraints on the
946 elements defined in referenced schemas.

947 The minimum set of information exchange for bSLA that would allow conforming applications to exchange
948 information and satisfy the conformance should at least to have the following elements:

- 949 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceUri
- 950 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceProviderName
- 951 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterUri
- 952 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName
- 953 • /sla:SLAParameters/sla:ServiceProfileUri

954

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

```
956 (001) <?xml version="1.0" encoding="utf-8"?>  
957 (002) <BSLA xmlns="http://docs.oasis-open.org/ns/soa-eerp/sla/200903" >  
958 (003) <SLAParties>  
959 (004) <ServiceProvider>  
960 (005) <ServiceUri>http://www.sample-eerp.com/myservice</ServiceUri>  
961 (006) <ServiceProviderName>My Service Provider</ServiceProviderName>  
962 (007) </ServiceProvider>  
963 (008) <ServiceRequester>  
964 (009) <ServiceRequesterUri>http://www.u-service.com</ServiceRequesterUri>  
965 (010) <ServiceRequesterName>Your Service Requester</ServiceRequesterName>  
966 (011) </ServiceRequester>  
967 (012) </SLAParties>  
968 (013) <SLAParameters>  
969 (014) <ServiceProfileUri>  
970 http://www.sample-eerp.com/myservice/profile</ServiceProfileUri>  
971 (015) </SLAParameters>  
972 (016) </BSLA>
```

973 The following nearly empty artifact does not conform to this specification:

```
974 (001) <?xml version="1.0" encoding="utf-8"?>  
975 (002) <BSLA xmlns="http://docs.oasis-open.org/ns/soa-eerp/sla/200903" >  
976 (003) <SLAParties>  
977 (004) <ServiceProvider>
```

```
978 (005) <ServiceUri/>
979 (006) <ServiceProviderName/>
980 (007) </ServiceProvider>
981 (008) <ServiceRequester>
982 (009) <ServiceRequesterUri/>
983 (010) <ServiceRequesterName/>
984 (011) </ServiceRequester>
985 (012) </SLAParties>
986 (013) <SLAParameters>
987 (014) <ServiceProfileUri/>
988 (015) </SLAParameters>
989 (016) </BSLA>
```

990 This specification defines a number of extensions; compliant services are NOT REQUIRED to implement
991 those extensions defined in this specification. However, if a service implements an aspect of the
992 specification, it MUST comply with the requirements specified (e.g. related "MUST" statements). If an
993 implementation silently ignores unrecognized attributes where any attribute is allowed, or silently ignores
994 unrecognized elements where any element is allowed, should be considered as an interoperable
995 implementation.

996 **A. Acknowledgements**

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999 **Participants:**

1000	Rex Brooks	Individual
1001	Szu Chang	Changfeng Open Standards Platform Software Alliance
1002	William Cox	Individual
1003	Andy Lee	Changfeng Open Standards Platform Software Alliance
1004	Carl Mattocks	Individual
1005	Yulin Xu	Changfeng Open Standards Platform Software Alliance
1006	Paul Yang	Changfeng Open Standards Platform Software Alliance
1007	James Zhili Zhang	TIBCO Software Inc.
1008	Hong Zhou	Changfeng Open Standards Platform Software Alliance

1009 B. XML Schema for Business Service Level Agreement

1010 Note: The separate machine readable schema document, listed on Section 2.2, is normative. The text
1011 included here is non-normative.

```
1012 <?xml version="1.0" encoding="UTF-8"?>
1013 <!--
1014     Document Type:      EERP Business SLA Schema CD04
1015     Create On:         09/12/2010
1016
1017 -->
1018 <!-- ===== xsd:schema Element With Namespaces Declarations ===== -->
1019 <!-- ===== Copyright Notice ===== -->
1020 <!--
1021 OASIS takes no position regarding the validity or scope of any
1022 intellectual property or other rights that might be claimed to pertain
1023 to the implementation or use of the technology described in this
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1063 WARRANTY THAT THE USE OF THE INFORMATION HEREIN
1064 WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED
1065 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A
1066 PARTICULAR PURPOSE.
1067 -->
1068 <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.oasis-
1069 open.org/ns/soa-eerp/sla/200903" xmlns:bqos="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
1070 xmlns:eerp="http://docs.oasis-open.org/ns/soa-eerp/eerp/200903"
1071 xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
1072 xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
1073 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:sla="http://docs.oasis-open.org/ns/soa-
1074 eerp/sla/200903" targetNamespace="http://docs.oasis-open.org/ns/soa-eerp/sla/200903"
1075 elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0">
```

```

1076         <!-- ===== Imports ===== -->
1077         <xsd:import namespace="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
1078 schemaLocation="ERP-bQoS.xsd"/>
1079         <xsd:import
1080 namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
1081 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-
1082 2.0.xsd"/>
1083         <xsd:import
1084 namespace="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
1085 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-
1086 2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd"/>
1087         <!-- ===== Root Element ===== -->
1088         <xsd:element name="BSLA" type="BSLAType">
1089             <xsd:annotation>
1090                 <xsd:documentation>The bSLA is the root element for EERP- Service-level
1091 agreement (bSLA). Business SLA is a formal contract between a service provider and a client
1092 guaranteeing quantifiable business quality of service (bQoS) at defined levels.
1093 </xsd:documentation>
1094             </xsd:annotation>
1095         </xsd:element>
1096         <!-- ===== Element Declarations ===== -->
1097         <xsd:element name="ActionGuarantee" type="ActionGuaranteeType">
1098             <xsd:annotation>
1099                 <xsd:documentation>The Action Guarantee, action guarantee element for bSLA
1100 Obligations in ERP-bSLA, is to specify what happens if the Service Level Objective (SLO) is met
1101 or not met, including Reserve Fee and Penalty element. </xsd:documentation>
1102             </xsd:annotation>
1103         </xsd:element>
1104         <xsd:element name="Availabilities" type="AvailabilitiesType">
1105             <xsd:annotation>
1106                 <xsd:documentation>The services availability
1107 indicators</xsd:documentation>
1108             </xsd:annotation>
1109         </xsd:element>
1110         <xsd:element name="Availability" type="AvailabilityType">
1111             <xsd:annotation>
1112                 <xsd:documentation>Availability is the quality aspect of whether the
1113 service is present or ready for immediate use.</xsd:documentation>
1114             </xsd:annotation>
1115         </xsd:element>
1116         <xsd:element name="CommittedCompletionTime" type="udt:DateTimeType">
1117             <xsd:annotation>
1118                 <xsd:documentation>Committed completion time</xsd:documentation>
1119             </xsd:annotation>
1120         </xsd:element>
1121         <xsd:element name="CommittedCost" type="bqos:PriceType">
1122             <xsd:annotation>
1123                 <xsd:documentation>Cost Element in bSLA</xsd:documentation>
1124             </xsd:annotation>
1125         </xsd:element>
1126         <xsd:element name="CommittedTime" type="CommittedTimeType">
1127             <xsd:annotation>
1128                 <xsd:documentation>Committed time period</xsd:documentation>
1129             </xsd:annotation>
1130         </xsd:element>
1131         <xsd:element name="CommittedThroughput" type="bqos:ThroughputType">
1132             <xsd:annotation>
1133                 <xsd:documentation>Committed performance throughput</xsd:documentation>
1134             </xsd:annotation>
1135         </xsd:element>
1136         <xsd:element name="From" type="xs:dateTime">
1137             <xsd:annotation>
1138                 <xsd:documentation>Availability starting time</xsd:documentation>
1139             </xsd:annotation>
1140         </xsd:element>
1141         <xsd:element name="Obligation" type="ObligationType">
1142             <xsd:annotation>
1143                 <xsd:documentation>Agreed bSLA obligation, including Service Level
1144 Objective (SLO) and the Action Guarantee that associates with that SLO</xsd:documentation>
1145             </xsd:annotation>
1146         </xsd:element>
1147         <xsd:element name="Penalty">
1148             <xsd:annotation>

```

```

1149         <xsd:documentation>Penalty element is the money amount when Service Level
1150 Objective (SLO) is not met. </xsd:documentation>
1151     </xsd:annotation>
1152     <xsd:complexType>
1153         <xsd:complexContent>
1154             <xsd:extension base="bqos:PriceType">
1155                 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1156             </xsd:extension>
1157         </xsd:complexContent>
1158     </xsd:complexType>
1159 </xsd:element>
1160 <xsd:element name="ReserveFee">
1161     <xsd:annotation>
1162         <xsd:documentation>ReserveFee element is the reservation fee or money
1163 amount when Service Level Objective (SLO) is met. It is an optional element for Action Guarantee.
1164 </xsd:documentation>
1165     </xsd:annotation>
1166     <xsd:complexType>
1167         <xsd:complexContent>
1168             <xsd:extension base="bqos:PriceType">
1169                 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1170             </xsd:extension>
1171         </xsd:complexContent>
1172     </xsd:complexType>
1173 </xsd:element>
1174 <xsd:element name="ServiceLevelObjective" type="ServiceLevelObjectiveType">
1175     <xsd:annotation>
1176         <xsd:documentation>SLO (Service Level Objective) for QoS
1177 guarantee</xsd:documentation>
1178     </xsd:annotation>
1179 </xsd:element>
1180 <xsd:element name="ServiceName" type="ServiceNameType">
1181     <xsd:annotation>
1182         <xsd:documentation>The service name</xsd:documentation>
1183     </xsd:annotation>
1184 </xsd:element>
1185 <xsd:element name="ServiceOperations" type="ServiceOperationsType">
1186     <xsd:annotation>
1187         <xsd:documentation>Describe available operations and
1188 bQoS</xsd:documentation>
1189     </xsd:annotation>
1190 </xsd:element>
1191 <xsd:element name="ServiceProfileUri" type="SlaUriType">
1192     <xsd:annotation>
1193         <xsd:documentation>Service Profile Uri element represents web page URL or
1194 other URI for the service profile that defines the details of the services. Different service
1195 providers will share the same profile. It is a required element for bSLA
1196 Parameters.</xsd:documentation>
1197     </xsd:annotation>
1198 </xsd:element>
1199 <xsd:element name="ServiceProvider" type="ServiceProviderType">
1200     <xsd:annotation>
1201         <xsd:documentation>Service Provider element represents the provider for
1202 parties. </xsd:documentation>
1203     </xsd:annotation>
1204 </xsd:element>
1205 <xsd:element name="ServiceProviderName" type="ServiceProviderNameType">
1206     <xsd:annotation>
1207         <xsd:documentation>The name of service provider</xsd:documentation>
1208     </xsd:annotation>
1209 </xsd:element>
1210 <xsd:element name="ServiceRequester" type="ServiceRequesterType">
1211     <xsd:annotation>
1212         <xsd:documentation>ServiceRequester element represents requester for the
1213 service, including requester's name and the URI that represents the requester.
1214 </xsd:documentation>
1215     </xsd:annotation>
1216 </xsd:element>
1217 <xsd:element name="ServiceRequesterUri" type="SlaUriType">
1218     <xsd:annotation>
1219         <xsd:documentation>Service Requester Identifier in Uri
1220 format</xsd:documentation>
1221     </xsd:annotation>

```

```

1222     </xsd:element>
1223     <xsd:element name="ServiceRequesterName" type="ServiceRequesterNameType">
1224         <xsd:annotation>
1225             <xsd:documentation>Name of the service requester</xsd:documentation>
1226         </xsd:annotation>
1227     </xsd:element>
1228     <xsd:element name="ServiceUri" type="SlaUriType">
1229         <xsd:annotation>
1230             <xsd:documentation>Service Identifier in URI format </xsd:documentation>
1231         </xsd:annotation>
1232     </xsd:element>
1233     <xsd:element name="SLAParties" type="SLAPartiesType">
1234         <xsd:annotation>
1235             <xsd:documentation>SLAParties element, bSLA Parties aspect of the service,
1236 is for parties invoked in the bSLA for the service, including both service provider and service
1237 requester elements. </xsd:documentation>
1238         </xsd:annotation>
1239     </xsd:element>
1240     <xsd:element name="SLATerm" type="SLATermType">
1241         <xsd:annotation>
1242             <xsd:documentation>bSLA Term element is an any type element to describe
1243 additional term for this bSLA. </xsd:documentation>
1244         </xsd:annotation>
1245     </xsd:element>
1246     <xsd:element name="SLATerms" type="SLATermsType">
1247         <xsd:annotation>
1248             <xsd:documentation>The bSLA Terms, Terms element for EERP-bSLA, is the
1249 agreed bSLA terms aspect of the service, including bSLA term elements.</xsd:documentation>
1250         </xsd:annotation>
1251     </xsd:element>
1252     <xsd:element name="SLAParameters" type="SLAParametersType">
1253         <xsd:annotation>
1254             <xsd:documentation>The SLAParameters element for EERP-bSLA describes the
1255 parameters of the service used to define monitoring of bQoS metrics, including the service
1256 profile URI, operations and other optional elements.</xsd:documentation>
1257         </xsd:annotation>
1258     </xsd:element>
1259     <xsd:element name="SLAObligations" type="SLAObligationsType">
1260         <xsd:annotation>
1261             <xsd:documentation>The SLAObligations element describes the agreed bSLA
1262 obligations of the service, including obligations and action guarantees.</xsd:documentation>
1263         </xsd:annotation>
1264     </xsd:element>
1265     <xsd:element name="To" type="xs:dateTime">
1266         <xsd:annotation>
1267             <xsd:documentation>Availability ending time</xsd:documentation>
1268         </xsd:annotation>
1269     </xsd:element>
1270     <!-- Extension -->
1271     <xsd:element name="BSLAExtension">
1272         <xsd:annotation>
1273             <xsd:documentation>Additional element</xsd:documentation>
1274         </xsd:annotation>
1275         <xsd:complexType mixed="true">
1276             <xsd:choice minOccurs="0" maxOccurs="unbounded">
1277                 <xsd:any processContents="skip" minOccurs="0"
1278 maxOccurs="unbounded"/>
1279             </xsd:choice>
1280             <xsd:attribute name="optional" type="xsd:boolean" use="optional"
1281 default="true"/>
1282         </xsd:complexType>
1283     </xsd:element>
1284     <!-- ===== Type Definitions ===== -->
1285     <xsd:complexType name="ActionGuaranteeType">
1286         <xsd:annotation>
1287             <xsd:documentation>Complex type for action guarantee</xsd:documentation>
1288         </xsd:annotation>
1289         <xsd:sequence>
1290             <xsd:element ref="ReserveFee" minOccurs="0">
1291                 <xsd:annotation>
1292                     <xsd:documentation>ReserveFee element is the reservation
1293 fee or money amount when Service Level Objective (SLO) is met. It is an optional element for
1294 Action Guarantee. </xsd:documentation>

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1295         </xsd:annotation>
1296     </xsd:element>
1297     <xsd:element ref="Penalty" minOccurs="0">
1298         <xsd:annotation>
1299             <xsd:documentation>Penalty element is the money amount when
1300 Service Level Objective (SLO) is not met. It is a required element for Action Guarantee.
1301 </xsd:documentation>
1302         </xsd:annotation>
1303     </xsd:element>
1304 </xsd:sequence>
1305 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1306 </xsd:complexType>
1307 <xsd:complexType name="AvailabilitiesType">
1308     <xsd:annotation>
1309         <xsd:documentation>Complex type for Availabilities of multiple
1310 Availability elements</xsd:documentation>
1311     </xsd:annotation>
1312     <xsd:sequence>
1313         <xsd:element ref="Availability" maxOccurs="unbounded"/>
1314     </xsd:sequence>
1315     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1316 </xsd:complexType>
1317 <xsd:complexType name="AvailabilityType">
1318     <xsd:annotation>
1319         <xsd:documentation>Complex type for the service is available or not
1320 available for a given From time To time. The default is available when the isAvailable element is
1321 missing or set to true.</xsd:documentation>
1322     </xsd:annotation>
1323     <xsd:sequence>
1324         <xsd:element ref="From">
1325             <xsd:annotation>
1326                 <xsd:documentation>Availability starting
1327 time</xsd:documentation>
1328             </xsd:annotation>
1329         </xsd:element>
1330         <xsd:element ref="To">
1331             <xsd:annotation>
1332                 <xsd:documentation>Availability ending
1333 time</xsd:documentation>
1334             </xsd:annotation>
1335         </xsd:element>
1336     </xsd:sequence>
1337     <xsd:attribute name="isAvailable" type="xs:boolean" use="optional"
1338 default="true"/>
1339     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1340 </xsd:complexType>
1341 <xsd:complexType name="CommittedTimeType">
1342     <xsd:annotation>
1343         <xsd:documentation>Complex type for committed completion
1344 time</xsd:documentation>
1345     </xsd:annotation>
1346     <xsd:complexContent>
1347         <xsd:extension base="bqos:TimePeriodType">
1348             <xsd:sequence>
1349                 <xsd:element ref="CommittedCompletionTime" minOccurs="0"/>
1350             </xsd:sequence>
1351         </xsd:extension>
1352     </xsd:complexContent>
1353 </xsd:complexType>
1354 <xsd:complexType name="ObligationType">
1355     <xsd:annotation>
1356         <xsd:documentation>Complex type for obligation</xsd:documentation>
1357     </xsd:annotation>
1358     <xsd:sequence>
1359         <xsd:element ref="ServiceLevelObjective"/>
1360         <xsd:element ref="ActionGuarantee" minOccurs="0"/>
1361     </xsd:sequence>
1362     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1363 </xsd:complexType>
1364 <xsd:complexType name="ProviderIDType">
1365     <xsd:annotation>
1366         <xsd:documentation>Complex type for provider ID </xsd:documentation>
1367     </xsd:annotation>

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1368         <xsd:simpleContent>
1369             <xsd:extension base="cbc:IDType"/>
1370         </xsd:simpleContent>
1371     </xsd:complexType>
1372     <xsd:complexType name="ServiceLevelObjectiveType">
1373         <xsd:annotation>
1374             <xsd:documentation>Complex type for SLO</xsd:documentation>
1375         </xsd:annotation>
1376         <xsd:sequence>
1377             <xsd:element ref="CommittedCost" minOccurs="0">
1378                 <xsd:annotation>
1379                     <xsd:documentation>Committed cost element in
1380 bSLA</xsd:documentation>
1381                 </xsd:annotation>
1382             </xsd:element>
1383             <xsd:element ref="CommittedTime" minOccurs="0"/>
1384             <xsd:element ref="Availabilities" minOccurs="0">
1385                 <xsd:annotation>
1386                     <xsd:documentation>Whether the service is
1387 present or ready for immediate use</xsd:documentation>
1388                 </xsd:annotation>
1389             </xsd:element>
1390             <xsd:element ref="CommittedThroughput" minOccurs="0">
1391                 <xsd:annotation>
1392                     <xsd:documentation>Committed performance
1393 throughput</xsd:documentation>
1394                 </xsd:annotation>
1395             </xsd:element>
1396             <xsd:element ref="SLATerm" minOccurs="0"/>
1397         </xsd:sequence>
1398         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1399     </xsd:complexType>
1400     <xsd:complexType name="ServiceNameType">
1401         <xsd:annotation>
1402             <xsd:documentation>Complex type for the name of the
1403 service</xsd:documentation>
1404         </xsd:annotation>
1405         <xsd:simpleContent>
1406             <xsd:extension base="cbc:NameType"/>
1407         </xsd:simpleContent>
1408     </xsd:complexType>
1409     <xsd:complexType name="ServiceOperationsType">
1410         <xsd:annotation>
1411             <xsd:documentation>Complex type for service operations</xsd:documentation>
1412         </xsd:annotation>
1413         <xsd:sequence>
1414             <xsd:element name="hasCommittedCost" type="xsd:boolean">
1415                 <xsd:annotation>
1416                     <xsd:documentation>has committed cost or
1417 not</xsd:documentation>
1418                 </xsd:annotation>
1419             </xsd:element>
1420             <xsd:element name="hasCommittedTime" type="xsd:boolean">
1421                 <xsd:annotation>
1422                     <xsd:documentation>has committed time or
1423 not</xsd:documentation>
1424                 </xsd:annotation>
1425             </xsd:element>
1426             <xsd:element name="hasAvailabilities" type="xsd:boolean">
1427                 <xsd:annotation>
1428                     <xsd:documentation>has availabilities or
1429 not</xsd:documentation>
1430                 </xsd:annotation>
1431             </xsd:element>
1432             <xsd:element name="hasCommittedThroughput" type="xsd:boolean">
1433                 <xsd:annotation>
1434                     <xsd:documentation>has committed throughput or
1435 not</xsd:documentation>
1436                 </xsd:annotation>
1437             </xsd:element>
1438             <xsd:element name="hasOtherTerms" type="xsd:boolean">
1439                 <xsd:annotation>

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1440                                     <xsd:documentation>has other SLA terms or
1441 not</xsd:documentation>
1442                                     </xsd:annotation>
1443                                     </xsd:element>
1444                                     <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1445 maxOccurs="unbounded"/>
1446                                     </xsd:sequence>
1447                                     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1448                                 </xsd:complexType>
1449                                 <xsd:complexType name="SlaUriType">
1450                                     <xsd:annotation>
1451                                         <xsd:documentation>Complex type for the service URI or service profile
1452 URI</xsd:documentation>
1453                                     </xsd:annotation>
1454                                     <xsd:simpleContent>
1455                                         <xsd:extension base="xsd:anyURI">
1456                                             <xsd:anyAttribute namespace="##any" processContents="lax"/>
1457                                         </xsd:extension>
1458                                     </xsd:simpleContent>
1459                                 </xsd:complexType>
1460                                 <xsd:complexType name="ServiceProviderType">
1461                                     <xsd:annotation>
1462                                         <xsd:documentation>Complex type for the service
1463 provider</xsd:documentation>
1464                                     </xsd:annotation>
1465                                     <xsd:sequence>
1466                                         <xsd:element ref="ServiceUri"/>
1467                                         <xsd:element ref="ServiceProviderName"/>
1468                                     </xsd:sequence>
1469                                     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1470                                 </xsd:complexType>
1471                                 <xsd:complexType name="ServiceProviderNameType">
1472                                     <xsd:annotation>
1473                                         <xsd:documentation>Complex type for the service provider
1474 name</xsd:documentation>
1475                                     </xsd:annotation>
1476                                     <xsd:simpleContent>
1477                                         <xsd:extension base="cbc:NameType"/>
1478                                     </xsd:simpleContent>
1479                                 </xsd:complexType>
1480                                 <xsd:complexType name="ServiceRequesterType">
1481                                     <xsd:annotation>
1482                                         <xsd:documentation>Complex type for the service
1483 requester</xsd:documentation>
1484                                     </xsd:annotation>
1485                                     <xsd:sequence>
1486                                         <xsd:element ref="ServiceRequesterUri">
1487                                             <xsd:annotation>
1488                                                 <xsd:documentation>Service Requester Identifier in URI
1489 format</xsd:documentation>
1490                                             </xsd:annotation>
1491                                         </xsd:element>
1492                                         <xsd:element ref="ServiceRequesterName"/>
1493                                     </xsd:sequence>
1494                                     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1495                                 </xsd:complexType>
1496                                 <xsd:complexType name="ServiceRequesterUriType">
1497                                     <xsd:annotation>
1498                                         <xsd:documentation>Complex type for the service requester
1499 ID</xsd:documentation>
1500                                     </xsd:annotation>
1501                                     <xsd:simpleContent>
1502                                         <xsd:extension base="cbc:IDType"/>
1503                                     </xsd:simpleContent>
1504                                 </xsd:complexType>
1505                                 <xsd:complexType name="ServiceRequesterNameType">
1506                                     <xsd:annotation>
1507                                         <xsd:documentation>Complex type for the service request
1508 name</xsd:documentation>
1509                                     </xsd:annotation>
1510                                     <xsd:simpleContent>
1511                                         <xsd:extension base="cbc:NameType"/>
1512                                     </xsd:simpleContent>

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1513     </xsd:complexType>
1514     <xsd:complexType name="SLAObligationsType">
1515         <xsd:annotation>
1516             <xsd:documentation>Complex type for bSLA Obligations</xsd:documentation>
1517         </xsd:annotation>
1518         <xsd:sequence>
1519             <xsd:element ref="Obligation" maxOccurs="unbounded">
1520                 <xsd:annotation>
1521                     <xsd:documentation>The Obligation, obligation element for
1522 bSLA Obligations in EERP-bSLA, is the agreed bSLA obligation, including Service Level Objective
1523 (SLO) and the Action Guarantee that associates with that SLO.</xsd:documentation>
1524                 </xsd:annotation>
1525             </xsd:element>
1526             <xsd:element ref="ActionGuarantee" minOccurs="0">
1527                 <xsd:annotation>
1528                     <xsd:documentation>The Action Guarantee, action guarantee
1529 element for bSLA Obligations in EERP-bSLA, is to specify what happens if the Service Level
1530 Objective (SLO) is met or not met, including Reserve Fee and Penalty element.
1531 </xsd:documentation>
1532                 </xsd:annotation>
1533             </xsd:element>
1534             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1535 maxOccurs="unbounded"/>
1536         </xsd:sequence>
1537         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1538     </xsd:complexType>
1539     <xsd:complexType name="SLAParametersType">
1540         <xsd:annotation>
1541             <xsd:documentation>Complex type for bSLA parameters </xsd:documentation>
1542         </xsd:annotation>
1543         <xsd:sequence>
1544             <xsd:element ref="ServiceProfileUri">
1545                 <xsd:annotation>
1546                     <xsd:documentation>Service Profile Uri element represents
1547 web page URL or other URI for the service profile that defines the details of the services.
1548 Different service providers will share the same profile. It is a required element for bSLA
1549 Parameters.</xsd:documentation>
1550                 </xsd:annotation>
1551             </xsd:element>
1552             <xsd:element ref="ServiceOperations" minOccurs="0"/>
1553             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1554 maxOccurs="unbounded"/>
1555         </xsd:sequence>
1556         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1557     </xsd:complexType>
1558     <xsd:complexType name="SLAPartiesType">
1559         <xsd:annotation>
1560             <xsd:documentation>Complex type for bSLA parties</xsd:documentation>
1561         </xsd:annotation>
1562         <xsd:sequence>
1563             <xsd:element ref="ServiceProvider">
1564                 <xsd:annotation>
1565                     <xsd:documentation>Service Provider element represents the
1566 provider for parties. </xsd:documentation>
1567                 </xsd:annotation>
1568             </xsd:element>
1569             <xsd:element ref="ServiceRequester">
1570                 <xsd:annotation>
1571                     <xsd:documentation>ServiceRequester element represents
1572 requester for the service, including requester's name and the URI that represents the requester.
1573 </xsd:documentation>
1574                 </xsd:annotation>
1575             </xsd:element>
1576             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1577 maxOccurs="unbounded"/>
1578         </xsd:sequence>
1579         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1580     </xsd:complexType>
1581     <xsd:complexType name="SLATermType">
1582         <xsd:annotation>
1583             <xsd:documentation>Complex type for one bSLA term</xsd:documentation>
1584         </xsd:annotation>
1585         <xsd:sequence>

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1586         <xsd:any namespace="##any" processContents="skip" minOccurs="0">
1587             <xsd:annotation>
1588                 <xsd:documentation>
1589 The definition of the bSLA Terms
1590         </xsd:documentation>
1591             </xsd:annotation>
1592         </xsd:any>
1593     </xsd:sequence>
1594     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1595 </xsd:complexType>
1596 <xsd:complexType name="SLATermsType">
1597     <xsd:annotation>
1598         <xsd:documentation>Complex type for bSLA Terms </xsd:documentation>
1599     </xsd:annotation>
1600     <xsd:sequence>
1601         <xsd:element ref="SLATerm" maxOccurs="unbounded"/>
1602     </xsd:sequence>
1603     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1604 </xsd:complexType>
1605 <xsd:complexType name="BSLAType">
1606     <xsd:annotation>
1607         <xsd:documentation>Complex type for bSLA which is a formal contract
1608 between a service provider and a client guaranteeing quantifiable business quality of service
1609 (bQoS) at defined levels.</xsd:documentation>
1610     </xsd:annotation>
1611     <xsd:sequence>
1612         <xsd:element ref="SLAParties">
1613             <xsd:annotation>
1614                 <xsd:documentation>SLAParties element, bSLA Parties aspect
1615 of the service, is for parties invoked in the bSLA for the service, including both service
1616 provider and service requester elements. </xsd:documentation>
1617             </xsd:annotation>
1618         </xsd:element>
1619         <xsd:element ref="SLAParameters">
1620             <xsd:annotation>
1621                 <xsd:documentation>The SLAParameters element for EERP-bSLA
1622 describes the parameters of the service used to define monitoring of bQoS metrics, including the
1623 service profile URI, operations and other optional elements.</xsd:documentation>
1624             </xsd:annotation>
1625         </xsd:element>
1626         <xsd:element ref="SLAObligations" minOccurs="0">
1627             <xsd:annotation>
1628                 <xsd:documentation>The SLAObligations element describes the
1629 agreed bSLA obligations of the service, including obligations and action
1630 guarantees.</xsd:documentation>
1631             </xsd:annotation>
1632         </xsd:element>
1633         <xsd:element ref="SLATerms" minOccurs="0">
1634             <xsd:annotation>
1635                 <xsd:documentation>The bSLA Terms, Terms element for EERP-
1636 bSLA, is the agreed bSLA terms aspect of the service, including bSLA term
1637 elements.</xsd:documentation>
1638             </xsd:annotation>
1639         </xsd:element>
1640         <xsd:element ref="BSLAExtension" minOccurs="0" maxOccurs="unbounded"/>
1641     </xsd:sequence>
1642     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1643 </xsd:complexType>
1644 </xsd:schema>

```

1645 **C. Non-Normative Text**

1646 None

1647

D. Revision History

1648

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
WD08	05/10/2010	Szu Chang	Changed after the public review comments
WD09	06/23/2010	Szu Chang	Changed after the first round of review PR comments
CD04	09/12/2010	Szu Chang	TC approved, changed from WS09 to CD04

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