



SOA-EERP Business Service Level Agreement Version 1.0

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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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55 For information on whether any patents have been disclosed that may be essential to
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59 The non-normative errata page for this specification is located at [http://www.oasis-](http://www.oasis-open.org/committees/soa-eerp/)
60 [open.org/committees/soa-eerp/](http://www.oasis-open.org/committees/soa-eerp/).

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1 Introduction

This document is the specification for the Business Service Level Agreement for (~~BSLAbSLA~~) 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.

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

EERP applies the well-known technique for 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, and then guideguides 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 ~~BSLAbSLA~~ specification will enable EERP to determine the varieties of optimization to be supported, and to manage the end-to-end business process.

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

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

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)

- 182 • The character "|" is used to indicate a choice between alternatives.
- 183 • The characters "(" and ")" are used to indicate that contained items are to be treated as a group
- 184 with respect to cardinality or choice.
- 185 • The characters "[" and "]" are used to call out references and property names.
- 186 • Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be
- 187 added at the indicated extension points but MUST NOT contradict the semantics of the parent
- 188 and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver
- 189 SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated
- 190 below.
- 191 • XML namespace prefixes (see Table 21) are used to indicate the namespace of the element
- 192 being defined.

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

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

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

202

203 1.2 Normative References

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

230 <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

231 **[EERP-BQoSbQoS]** OASIS ~~Standard~~ (Committee Draft ~~03~~)04, "SOA-EERP Business Quality
232 of Service Version 1.0", ~~6 January~~12 September 2010.
233 [http://docs.oasis-open.org/soa-eerp/slabqos/v1.0/SOA-EERP-BSLAbQoS-Spec-
235 ed03cd04.pdf](http://docs.oasis-open.org/soa-eerp/slabqos/v1.0/SOA-EERP-BSLAbQoS-Spec-
234 ed03cd04.pdf)

235 **[EERP-bRating]** OASIS Committee Draft 04, "SOA-EERP Business Rating of Service Version
236 1.0", 12 September 2010.
237 <http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-bRating-Spec-cd04.pdf>

238 **[ISO8601]** ISO Standard 8601:2004(E), "Data elements and interchange formats –
239 Information interchange - Representation of dates and times", Third edition,
240 December 2004.
241 [http://isotc.iso.org/livelink/livelink/4021199/ISO_8601_2004_E.zip?func=doc.Fete
243 h&nodeid=4021199](http://isotc.iso.org/livelink/livelink/4021199/ISO_8601_2004_E.zip?func=doc.Fete
242 h&nodeid=4021199)[http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue
244 detail.htm?csnumber=40874](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=40874)

244 **[CEFACT]** CEFACT – Core components specifications-, Recommendation 9 January
245 1996.
246 http://webster.disawww.unece.org/cefact-groups/tmg//recommendations/rec09/rec09_ecetrd203.pdf
247

248 1.2.1 Reference

249 In this document reference is made to some basic elements and data types in **UBL 2.0**, in the
250 following schema:

- 251 • UBL 2.0 Common Basic Components [**UBL-20-cbc**], UBL-CommonBasicComponents-2.0.xsd
- 252 • UBL 2.0 Unqualified Data Type [**UBL-20-udt**], UnqualifiedDataTypeSchemaModule-2.0.xsd

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

255 This specification is designed to work with the general Web Services framework including WSDL service
256 descriptions, and **SOAP** message structure and message processing model. The XML vocabulary
257 defined in **BSLAbSLA** should be applicable to any version of **SOAP**.

258 1.3 Non-Normative References

259 None.

260

261 2 Business Services Level Agreement Contents

262 The Business Service Level Agreement (~~BSLA~~**bSLA**) of the XML vocabulary is defined in XML Schema
263 format that has information on both requester and service provider and their agreement on the service
264 level.

265 2.1 Namespaces

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

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

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

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

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

271 2.2 Schema Files

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

274 `http://docs.oasis-open.org/soa-eerp/eerp-sla/200903/eerp-slav1.0/EERP-bSLA-cd04.xsd`

275 2.3 ~~BSLA~~**bSLA** Contents

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

- 279 • SLAParties describes the parties invoked in the **b**SLA for the service
- 280 • SLAParameters describes the parameters for the service, which are defined ways of monitoring
- 281 of **b**QoS metrics.
- 282 • SLAObligations describes the agreed **b**SLA obligations for the service.
- 283 • SLATerms describes the agreed **b**SLA Terms for the service.
- 284 • Any additional elements for the agreement of the service

285 Syntax

```

286 <sla:BSLA xmlns:sla="..." xmlns:bqos="..." ...>
287 <sla:SLAParties ...>sla:SLAPartiesTypeType</sla:SLAParties>
288 <sla:SLAParameters ...>sla:SLAParametersType</sla:SLAParameters>
289 <sla:SLAObligations ...>sla:SLAObligationsType</sla:SLAObligations> ?
290 <sla:SLATerms ...>sla:SLATermsType</sla:SLATerms> ?
291 ...
292 </sla:BSLA>

```

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

294 /sla:BSLA

295 Root element of Business Service-level agreement (**b**SLA) for EERP

296 /sla:BSLA/sla:SLAParties

297 SLAParties is a required element in **BSLA****b**SLA that defines parties invoked in this **b**SLA for the
 298 service. SLAParties element has both the service provider and services requester elements, see
 299 Section 3 for more details.

300 /sla:BSLA/sla:SLAParties/{any}

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

304 /sla:BSLA/sla:SLAParameters

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

308 /sla:BSLA/sla:SLAParameters/{any}

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

312 /sla:BSLA/sla:SLAObligations

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

315 /sla:BSLA/sla:SLAObligations/{any}

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

319 /sla:BSLA/sla:SLATerms

320 Agreed **b**SLA terms aspect of the service, including **b**SLA term elements. It is optional, see
 321 Section 6 for more details.

322 /sla:BSLA/sla:SLATerms/{any}

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

326 /sla:BSLA/{any}
327 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
328 to the root BSLA element in the future. Unrecognized attributes MAY cause a fault or be silently
329 ignore-d.
330 /sla:BSLA/{sla:BSLAExtension
331 BSLAExtension element is an optional element that keeps different (extensible) elements to be
332 specified in the future.
333 /sla:BSLA/sla:BSLAExtension/{any}
334 This is an extensibility mechanism to allow different (extensible) elements to be specified in the
335 future. Unrecognized elements MAY cause a fault or be silently ignore-d.
336

337 3 SLAParties

338 The SLAParties describes the list of parties invoked in the **b**SLA for the service.

339 There SHOULD be one SLAParties element present in the **b**SLA of service.

340 Syntax

```
341 <sla:SLAParties xmlns:sla="..." ...>
342   <sla:ServiceProvider ...>sla:ServiceProviderType
343     <sla:ServiceUri ...>sla:SlaUriType</sla:ServiceUri>
344     <sla:ServiceProviderName
345 languageID="...">sla:ServiceProviderNameType</sla:ServiceProviderName>
346   </sla:ServiceProvider>
347   <sla:ServiceRequester ... >sla:ServiceRequesterType
348     <sla:ServiceRequesterUri ... >sla:SlaUriType</sla:ServiceRequesterUri>
349     <sla:ServiceRequesterName
350 languageID="...">sla:ServiceRequesterNameType</sla:ServiceRequesterName>
351   </sla:ServiceRequester>
352   ...
353 </sla:SLAParties>
```

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

355 /sla:SLAParties

356 SLAParties element, **b**SLA Parties aspect of the service, is for parties invoked in the **b**SLA for the
357 service, including both service provider and service requester elements.

358 /sla:SLAParties/sla:ServiceProvider

359 Service Provider element represents the provider for parties. It is a required element for **b**SLA
360 Parties.

361 /sla:SLAParties/sla:ServiceProvider/sla:ServiceUri

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

364 /sla:SLAParties/sla:ServiceProvider/sla:ServiceProviderName

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

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

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

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

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

374 /sla:SLAParties/sla:ServiceRequester

375 ServiceRequester element represents requester for the service, including requester's name and
376 the URI that represents the requester. It is a required element for **b**SLA Parties.

377 /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterUri

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

380 /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName

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

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

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

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

385 urn:un:uncece:uncefact:codelist:specification:5639:1988.

386 /sla:SLAParties/sla:ServiceRequester/{any}

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

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

389 silently ignored.

390 /sla:SLAParties/{any}

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

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

393 **Example**

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

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

396 Gas Corp. in China.

```
397 (001) <?xml version="1.0" encoding="utf-8"?>
398 (002) <SLAParties xmlns="..." ...>
399 (003)   <ServiceProvider>
400 (004)     <ServiceUri>http://www.innover.com.cn</ServiceUri>
401 (005)     <ServiceProviderName>Hangzhou Innover Co. Ltd</ServiceProviderName>
402 (006)   </ServiceProvider>
403 (007)   <ServiceRequester>
404 (008)     <ServiceRequesterUri>http://www.scmng.com</ServiceRequesterUri>
405 (009)     <ServiceRequesterName>Mianyang Gas Corp.</ServiceRequesterName>
406 (010)   </ServiceRequester>
407 (011) </SLAParties>
```

408

4 SLAParameters

409

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

410

411

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

412

Syntax

413

```

<sla:SLAParameters xmlns:sla="..." ...>
  <sla:ServiceProfileUri ...>sla:SlaUriType</sla:ServiceProfileUri>
  <sla:ServiceOperations ...>sla:ServiceOperationsType
    <sla:hasCommittedCost>xsd:boolean</sla:hasCommittedCost>
    <sla:hasCommittedTime>xsd:boolean</sla:hasCommittedTime>
    <sla:hasAvailabilities>xsd:boolean</sla:hasAvailabilities>
    <sla:hasCommittedThroughput>xsd:boolean</sla:hasCommittedThroughput>
    <sla:hasOtherTerms>xsd:boolean</sla:hasOtherTerms>
    ...
  </sla:ServiceOperations> ?
  ...
</sla:SLAParameters>

```

414

415

416

417

418

419

420

421

422

423

424

425

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

426

/sla:SLAParameters

427

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

428

429

/sla:SLAParameters/sla:ServiceProfileUri

430

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

431

432

433

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

434

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

435

436

437

/sla:SLAParameters/sla:ServiceOperations

438

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

439

440

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

441

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

442

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

443

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

444

445

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

446

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

447

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

448

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

449

450

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

451 | DescribeDescribes if there are other terms or not. It is a required element for bSLA Parameters.

452 | /sla:SLAParameters/sla:ServiceOperations/{any}

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

455 | /sla:SLAParameters /sla:ServiceOperations/@{any}

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

459 | /sla:SLAParameters /(any)

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

462 | **Example**

463 | The following non-normative example illustrates the use of bSLA Parameters element. It describes the
464 | bSLA parameters:

```
465 | (001) <?xml version="1.0" encoding="utf-8"?>  
466 | (002) <SLAParameters xmlns="..." ...>  
467 | (003)   <ServiceProfileUri>http://www.innover.com.cn</ServiceProfileUri>  
468 | (004)   <ServiceOperations>  
469 | (005)     <hasCommittedCost>true</hasCommittedCost>  
470 | (006)     <hasCommittedTime>true</hasCommittedTime>  
471 | (007)     <hasAvailabilities>true</hasAvailabilities>  
472 | (008)     <hasCommittedTroughput>true</hasCommittedTroughput>  
473 | (009)     <hasOtherTerms>true</hasOtherTerms>  
474 | (010)   </ServiceOperations>  
475 | (011) </SLAParameters>
```

476

5 SLAObligations

477 | The SLAObligations element describes the agreed **b**SLA obligations of the service, including obligations
478 | and action guarantees.

479 | There MAY be zero or one **b**SLA Obligations element present in the **b**SLA of service.

480 | Note: There is a case for zero Obligation elements on **b**SLA. Section 7.2 is an example illustrates the
481 | **b**SLA document without Obligation element. It has some additional ~~SAL~~**b**SLA terms instead.

482 Syntax

```
483 <sla:SLAObligations xmlns:sla="..." xmlns:bqos="..." ...>  
484   <sla:Obligation ...>sla:ObligationType</sla:Obligation> +  
485   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?  
486   ...  
487 </sla:SLAObligations>
```

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

489 | /sla:SLAObligations

490 | **b**SLA obligations aspect of the service, including obligations, action guarantees.

491 | /sla:SLAObligations/sla:Obligation

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

495 | /sla:SLAObligations/sla:Obligation/@{any}

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

499 | /sla:SLAObligations/sla:ActionGuarantee

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

503 | /sla:SLAObligations/sla:ActionGuarantee/@{any}

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

507 | /sla:SLAObligations/{any}

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

510 5.1 Obligation

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

513 | There MAY be one or more Obligation elements present in the **b**SLA Obligations.

514 Syntax


```

515 <sla:Obligation xmlns:sla="..." xmlns:bqos="..." ...>
516   <sla:ServiceLevelObjective ...>sla:ServiceLevelObjectiveType
517 </sla:ServiceLevelObjective>
518   <sla:ActionGuarantee ...>sla:ActionGuaranteeType</sla:ActionGuarantee> ?
519 </sla:Obligation>

```

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

521 /sla:SLAObligations/sla:Obligation

522 | Obligation element is agreed **b**SLA obligation, including Service Level Objective (SLO) and the
523 Action Guarantee that associates with this Obligation.

524 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

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

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

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

531 /sla:SLAObligations/sla:Obligation/sla:ActionGuarantee

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

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

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

539 5.1.1 ServiceLevelObjective

540 | The Service Level Objective element for Obligation in **b**SLA Obligations in EERP-~~SLA~~,**bSLA** is the
541 Service Level Objective (SLO) for the QoS guarantee, including Committed Cost, Committed Time,
542 Availabilities, Committed Throughput and SLATerm.

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

545 Syntax

```

546 <sla:ServiceLevelObjective xmlns:sla="..." xmlns:bqos="..." ...>
547   <sla:CommittedCost>bqos:PriceType</sla:CommittedCost> ?
548   <sla:CommittedTime ...>sla:CommittedTimeType</sla:CommittedTime> ?
549   <sla:Availabilities ...>sla:AvailabilitiesType</sla:Availabilities> ?
550   <sla:CommittedThroughput ...>bqos:ThroughputType</sla:CommittedThroughput>
551   ?
552   <sla:SLATerm ...>sla:SLATermType</sla:SLATerm> ?
553 </sla:ServiceLevelObjective>

```

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

555 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective

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

557 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

558 | Cost element in **b**SLA. It is an optional element for ServiceLevelObjective. See Section 5.1.1.1 for
559 more details.

560 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

561 | Committed time period element in **b**SLA is an optional element for ServiceLevelObjective. see
562 | Section 5.1.1.2 for more details.

563 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/{any}

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

567 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

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

570 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities/{any}

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

574 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput

575 | Committed performance throughput is an optional element for ServiceLevelObjective. See
576 | Section 5.1.1.4 for more details.

577 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedThroughput/{any}

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

581 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:SLATerm

582 | **b**SLA Term. It is an optional element for ServiceLevelObjective, see /sla:SLATerms/sla:SLATerm
583 | in Section 6 for more details.

584 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:SLATerm/{any}

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

588 | 5.1.1.1 CommittedCost

589 | The Committed Cost element describes the cost element in **b**SLA, including Unit and Amount.

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

591 | Syntax

```
592 | <sla:CommittedCost xmlns:sla="..." xmlns:bqos="...">
593 |   <bqos:Unit unitCode="clm66411:UnitCodeContentType">
594 |     cbc:BaseUnitMeasureType </bqos:Unit> ?
595 |   <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
596 |     cbc:AmountType </bqos:Amount>
597 | </sla:CommittedCost>
```

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

599 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost

600 | CommittedCost element is the cost element in **b**SLA. It is an optional element for Service Level
601 | Objective.

602 | /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedCost/bqos:Unit

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

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

611 5.1.1.2 CommittedTime

612 The Committed Time, Committed Time element of Service Level Objective for Obligation in **b**SLA
613 Obligations in EERP-**b**SLA, is the committed time period in **b**SLA, including Duration, Latency and
614 Committed Completion Time.

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

616 Syntax

```
617 <sla:CommittedTime xmlns:sla="..." xmlns:bqos="..." ...>  
618   <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
619     cbc:DurationMeasureType </bqos:Duration>  
620   <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
621     cbc:DurationMeasureType </bqos:Latency> ?  
622   <bqos:StartTime>udt:DateTimeType</bqos:StartTime> ?  
623   <sla:CommittedCompletionTime>  
624     udt:DateTimeType</sla:CommittedCompletionTime> ?  
625 </sla:CommittedTime>
```

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

627 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime

628 CommittedTime element is an optional element for Service Level Objective which is the
629 committed time period element in **b**SLA.

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

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

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

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

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

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

646 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:CommittedTime/sla:CommittedCompleti
647 onTime

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

650 5.1.1.3 Availabilities

651 The Availabilities, Availabilities of Service Level Objective for Obligation in **b**SLA Obligations in
652 EERP-**b**SLA, is services availability indicators including a list of availabilities, including a list of
653 Availability elements.

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

655 Syntax

```
656 <sla:Availabilities xmlns:sla="..." xmlns:bqos="..." ...>  
657 <sla:Availability isAvailable="xs:boolean" ...>sla:AvailabilityType  
658 <sla:From>xs:dateTime</sla:From>  
659 <sla:To>xs:dateTime</sla:To>  
660 </sla:Availability> +  
661 </sla:Availabilities>
```

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

663 /sla:SLAObligations/sla:Obligation/sla:ServiceLevelObjective/sla:Availabilities

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

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

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

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

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

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

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

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

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

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

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

682 5.1.1.4 Committed Throughput

683 The Committed Throughput, Committed Throughput element of Service Level Objective for
684 Obligation in **b**SLA Obligations in EERP-**b**SLA, is the committed performance throughput, including
685 Duration, Quantity and Latency.

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

687 Syntax

```
688 <sla:CommittedThroughput xmlns:sla="..." xmlns:bqos="..." ...>  
689 <bqos:Duration unitCode="clm66411:UnitCodeContentType">  
690 <cbc:DurationMeasureType</bqos:Duration>  
691 <bqos:Quantity unitCode="clm66411:UnitCodeContentType">  
692 <cbc:BaseQuantityType</bqos:Quantity>  
693 <bqos:Latency unitCode="clm66411:UnitCodeContentType">  
694 <cbc:DurationMeasureType</bqos:Latency> ?
```

695 `</sla:CommittedThroughput>`

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

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

698 `CommittedThroughput` is an optional element for `ServiceLevelObjective` element. This is the
699 committed performance throughput.

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

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

704 `/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration` in Section 4: [BQoS-bQoS](#)
705 [Performance in EERP-bQoS Specification](#) for more details.

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

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

709 `/bqos:BQoSPerformance/bqos:Throughput/bqos:Quantity` in Section 4: [BQoS-bQoS](#)
710 [Performance in EERP-bQoS Specification](#) for more details.

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

712 `Latency` is an optional element for the time delay for starting the service. It uses
713 `cbc:DurationMeasureType` from UBL that has a required `unitCode` attribute for unit of
714 measurement on the time. See `/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency` in
715 Section 4: [BQoS-bQoS](#) [Performance in EERP-bQoS Specification](#) for more details.

716 5.1.1.5 **bSLA Term**

717 The ~~SLA Term~~, **bSLA Term**, `bSLA Term` element of Service Level Objective for Obligation in `bSLA`
718 Obligations in EERP-`bSLA`, is the `bSLA term` element in `bSLA`.

719 There MAY be zero or one `bSLA Term` element present in the Service Level Objective. See
720 `/sla:SLATerms/sla:SLATerm` in Section 6 for more details.

721 5.1.2 Action Guarantee

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

724 There MAY be zero or one Action Guarantee element present in the Obligation element. See Section
725 5.2 for the detail of `ActionGuaranteeType`.

726 5.2 Action Guarantee

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

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

731 Syntax

```
732 <sla:ActionGuarantee xmlns:sla="..." xmlns:bqos="..." ...>  
733   <sla:ReserveFee ...>bqos:PriceType  
734     <bqos:Unit unitCode="clm66411:UnitCodeContentType">  
735       cbc:BaseUnitMeasureType</bqos:Unit> ?
```

```

736     <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
737         cbc:AmountType</bqos:Amount>
738     </sla:ReserveFee> ?
739     <sla:Penalty ...>bqos:PriceType
740         <bqos:Unit unitCode="clm66411:UnitCodeContentType">
741             cbc:BaseUnitMeasureType</bqos:Unit> ?
742         <bqos:Amount currencyID="clm54217:CurrencyCodeContentType">
743             cbc:AmountType</bqos:Amount>
744     </sla:Penalty> ?
745 </sla:ActionGuarantee >

```

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

747 /sla:SLAObligations/sla:ActionGuarantee/sla:ReserveFee

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

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

751 Number of unit is a optional element that includes a attribute of unit of measurement uses
752 cbc:BaseUnitMeasureType. See /bqos:BQoSPrice/bqos:Price/bqos:Unit in Section 3: [BQoS](#)
753 [bQoS](#) Price in EERP-bQoS Specification for more details.

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

755 Amount element is a required element for the Reserve Fee element. It uses cbc:AmountType
756 from UBL that has a required currencyID attribute for currency code. See
757 /bqos:BQoSPrice/bqos:Price/bqos:Amount in Section 3: [BQoS-bQoS](#) Price in EERP-bQoS
758 Specification for more details.

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

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

763 /sla:SLAObligations/sla:ActionGuarantee/sla:Penalty

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

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

767 Number of unit is a optional element that includes a attribute of unit of measurement uses
768 cbc:BaseUnitMeasureType. See /bqos:BQoSPrice/bqos:Price/bqos:Unit in Section 3: [BQoS](#)
769 [bQoS](#) Price in EERP-bQoS Specification for more details.

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

771 Amount element is a required element for the Penalty element. It uses cbc:AmountType from
772 UBL that has a required currencyID attribute for currency code. See
773 /bqos:BQoSPrice/bqos:Price/bqos:Amount in Section 3: [BQoS-bQoS](#) Price in EERP-bQoS
774 Specification for more details.

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

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

779 Example

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

```

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

```

```
785 (005) <bqos:Amount currencyID="USD">17.15</bqos:Amount>  
786 (006) </Penalty>  
787 (007) </ActionGuarantee>
```

788 6 SLATerms

789 The ~~SLA Terms, Terms~~ SLATerms, bSLA terms element for EERP-bSLA, is the agreed bSLA terms
790 aspect of the service, including bSLA term elements.

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

792 Syntax

```
793 <sla:SLATerms xmlns:bqos="..." ...>  
794   <sla:SLATerm ...>sla:SLATermType  
795   ...  
796   </sla:SLATerm> +  
797 </sla:SLATerms>
```

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

799 /sla:SLATerms

800 | The agreed bSLA terms aspect of the service, including bSLA term elements. It has a list of bSLA
801 | terms for SLATerms .

802 /sla:SLATerms/sla:SLATerm

803 | SLA-Term element is an any type element to describe additional term for this bSLA.

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

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

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

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

811 /sla:SLATerms/@{any}

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

815 Example

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

```
818 (001) <?xml version="1.0" encoding="utf-8"?>  
819 (002) <SLATerms xmlns="..." ...>  
820 (003)   <SLATerm xmlns:t="..." >  
821 (004)     <t:ServiceLocation>  
822 (005)       <t:Lat>37.7749295</t:Lat>  
823 (006)       <t:Lng>-122.4194155</t:Lng>  
824 (007)     </t:ServiceLocation>  
825 (008)   </SLATerm>  
826 (009) </SLATerms>
```

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7 **bSLA** Examples

The examples in this section are non-normative.

6.17.1 Committed Throughput with Penalty Example

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

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

Example

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

```
(01) (1) <?xml version="1.0" encoding="utf-8"?>
(02) (2) <BSLA xmlns="..." xmlns:bqos="..." ... >
(03) (3)   <SLAParties>
(04) (4)     <ServiceProvider>
(05) (5)       <ServiceUri>
(06) (6)         http://www.serviceprovider.com/eerp/service</ServiceUri>
(07) (7)       <ServiceProviderName languageID="EN">
(08) (8)         EERP Sample Service</ServiceProviderName>
(09) (9)     </ServiceProvider>
(10)   <ServiceRequester>
(11)     <ServiceRequesterUri>
(12)       http://www.servicerequester.com</ServiceRequesterUri>
(13)     <ServiceRequesterName languageID="EN">
(14)       EERP Service Requester</ServiceRequesterName>
(15)   </ServiceRequester>
(16) </SLAParties>
(17) <SLAParameters>
(18)   <ServiceProfileUri>
(19)     http://www.serviceprovider.com/eerp/service/profile</ServiceProfileUri>
(20)   <ServiceOperations>
(21)     <hasCommittedCost>>true</hasCommittedCost>
(22)     <hasCommittedTime>>true</hasCommittedTime>
(23)     <hasAvailabilities>>false</hasAvailabilities>
(24)     <hasCommittedThroughput>>true</hasCommittedThroughput>
(25)     <hasOtherTerms>>false</hasOtherTerms>
(26)   </ServiceOperations>
(27) </SLAParameters>
(28) <SLAObligations>
(29)   <Obligation>
(30)     <ServiceLevelObjective>
(31)       <CommittedCost>
(32)         <bqos:Unit unitCode="EA">1</bqos:Unit>
(33)         <bqos:Amount currencyID="USD">17.15</bqos:Amount>
(34)       </CommittedCost>
(35)     </ServiceLevelObjective>
(36)   </Obligation>
(37)   <Obligation>
(38)     <ServiceLevelObjective>
(39)       <CommittedTime>
```

```

880      (40)         <bqos:Duration unitCode="ANN">1</bqos:Duration>
881      (41)         <bqos:StartTime>2009-01-01T00:00:00Z</bqos:StartTime>
882      (42)         </CommittedTime>
883      (43)         <CommittedThroughput>
884      (44)           <bqos:Duration unitCode="DAY">1</bqos:Duration>
885      (45)           <bqos:Quantity unitCode="EA">10</bqos:Quantity>
886      (46)         </CommittedThroughput>
887      (47)         </ServiceLevelObjective>
888      (48)         <ActionGuarantee>
889      (49)           <Penalty>
890      (50)             <bqos:Unit unitCode="EA">10</bqos:Unit>
891      (51)             <bqos:Amount currencyID="USD">17.15</bqos:Amount>
892      (52)           </Penalty>
893      (53)         </ActionGuarantee>
894      (54)         </Obligation>
895      (55)         </SLAObligations>
896      (56)         </BSLA>
897

```

898 **6.27.2 bSLA without Obligation Example**

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

- 901 1. The service is based on the Service profile defined on
902 <http://www.serviceprovider.com/eerp/service/profile2>
- 903 2. There is no obligation
- 904 3. Additional bSLA terms include service location and service hours:
 - 905 a. Service location is near San Francisco, CA with geocoding of 37.7749295 and -
906 122.4194155
 - 907 b. Service hours will be 7 x 24, that is 7 days per week and 24hours per day.

908 **Example**

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

```

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

```

```
937 (84) </SLATerm>
938 (85) <SLATerm t:serviceHours="7x24" >
939 (86) </SLATerms>
940 (87) </BSLA>
941
```

942

78 Conformance

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

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

952 Normative text within this specification takes precedence over normative outlines (as described in section
953 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL
954 [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas
955 and/or WSDL that are part of this specification; and this specification contains further constraints on the
956 elements defined in referenced schemas.

957 The minimum set of information exchange for ~~BSLA~~SLA that would allow conforming applications to
958 exchange information and satisfy the conformance should at least to have the following elements:

- 959 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceUri
- 960 • /sla:SLAParties/sla:ServiceProvider/sla:ServiceProviderName
- 961 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterUri
- 962 • /sla:SLAParties/sla:ServiceRequester/sla:ServiceRequesterName
- 963 • /sla:SLAParameters/sla:ServiceProfileUri

964

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

```
966 (001) <?xml version="1.0" encoding="utf-8"?>  
967 (002) <BSLA xmlns="http://docs.oasis-open.org/ns/soa-eerp/sla/200903" >  
968 (003) <SLAParties>  
969 (004) <ServiceProvider>  
970 (005) <ServiceUri>http://www.sample-eerp.com/myservice</ServiceUri>  
971 (006) <ServiceProviderName>My Service Provider</ServiceProviderName>  
972 (007) </ServiceProvider>  
973 (008) <ServiceRequester>  
974 (009) <ServiceRequesterUri>http://www.u-service.com</ServiceRequesterUri>  
975 (010) <ServiceRequesterName>Your Service Requester</ServiceRequesterName>  
976 (011) </ServiceRequester>  
977 (012) </SLAParties>  
978 (013) <SLAParameters>  
979 (014) <ServiceProfileUri>  
980 http://www.sample-eerp.com/myservice/profile</ServiceProfileUri>  
981 (015) </SLAParameters>  
982 (016) </BSLA>
```

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

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

```
988 (005) <ServiceUri/>
989 (006) <ServiceProviderName/>
990 (007) </ServiceProvider>
991 (008) <ServiceRequester>
992 (009) <ServiceRequesterUri/>
993 (010) <ServiceRequesterName/>
994 (011) </ServiceRequester>
995 (012) </SLAParties>
996 (013) <SLAParameters>
997 (014) <ServiceProfileUri/>
998 (015) </SLAParameters>
999 (016) </BSLA>
```

1000 This specification defines a number of extensions; compliant services are NOT REQUIRED to implement
1001 those extensions defined in this specification. However, if a service implements an aspect of the
1002 specification, it MUST comply with the requirements specified (e.g. related "MUST" statements). If an
1003 implementation silently ~~ignore~~ignores unrecognized attributes where any attribute is allowed, or silently
1004 ~~ignore~~ignores unrecognized elements where any element is allowed, should be considered as an
1005 interoperable implementation.

1006 A. Acknowledgements

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1009 **Participants:**

1010		
1011	Rex Brooks	Individual
1012	Szu Chang	Changfeng Open Standards Platform Software Alliance
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1014	Andy Lee	Changfeng Open Standards Platform Software Alliance
1015	Carl Mattocks	Individual
1016	<u>Yulin Xu</u>	<u>Changfeng Open Standards Platform Software Alliance</u>
1017	<u>Paul Yang</u>	<u>Changfeng Open Standards Platform Software Alliance</u>
1018	James Zhili Zhang	TIBCO Software Inc.
1019	Hong Zhou	Changfeng Open Standards Platform Software Alliance

1020 B. XML Schema for Business Service Level Agreement

1021 Note: The separate machine readable schema document, listed on Section 2.2, is normative. The text
1022 included here is non-normative.

```
1023 <?xml version="1.0" encoding="UTF-8"?>
1024 <!--
1025 Document Type:      EERP Business SLA Schema CD03CD04
1026 Create On:          01/0609/12/2010
1027
1028 -->
1029 <!-- ===== xsd:schema Element With Namespaces Declarations ===== -->
1030 <!-- ===== Copyright Notice ===== -->
1031 <!--
1032 OASIS takes no position regarding the validity or scope of any
1033 intellectual property or other rights that might be claimed to pertain
1034 to the implementation or use of the technology described in this
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1073 EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY
1074 WARRANTY THAT THE USE OF THE INFORMATION HEREIN
1075 WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED
1076 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A
1077 PARTICULAR PURPOSE.
1078 -->
1079 <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.oasis-
1080 open.org/ns/soa-eerp/sla/200903" xmlns:bqos="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
1081 xmlns:eerp="http://docs.oasis-open.org/ns/soa-eerp/eerp/200903"
1082 xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
1083 xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
1084 xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:sla="http://docs.oasis-open.org/ns/soa-
1085 eerp/sla/200903" targetNamespace="http://docs.oasis-open.org/ns/soa-eerp/sla/200903"
1086 elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0">
```

```

1087     <!-- ===== Imports ===== -->
1088     <xsd:import namespace="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
1089 schemaLocation="EERP-bQoS.xsd"/>
1090     <xsd:import
1091 namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
1092 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-
1093 2.0.xsd"/>
1094     <xsd:import
1095 namespace="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
1096 schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-
1097 2.0/xsd/common/UnqualifiedDataTypesSchemaModule-2.0.xsd"/>
1098     <!-- ===== Root Element ===== -->
1099     <xsd:element name="BSLA" type="BSLAType">
1100         <xsd:annotation>
1101             <xsd:documentation>The BSLAbSLA is the root element for EERP- Service-
1102 level agreement (bSLA). Business SLA is a formal contract between a service provider and a client
1103 guaranteeing quantifiable business quality of service (bQoS) at defined levels.
1104         </xsd:documentation>
1105         </xsd:annotation>
1106     </xsd:element>
1107     <!-- ===== Element Declarations ===== -->
1108     <xsd:element name="ActionGuarantee" type="ActionGuaranteeType">
1109         <xsd:annotation>
1110             <xsd:documentation>The Action Guarantee, action guarantee element for bSLA
1111 Obligations in EERP-bSLA, is to specify what happens if the Service Level Objective (SLO) is met
1112 or not met, including Reserve Fee and Penalty element. </xsd:documentation>
1113         </xsd:annotation>
1114     </xsd:element>
1115     <xsd:element name="Availabilities" type="AvailabilitiesType">
1116         <xsd:annotation>
1117             <xsd:documentation>The services availability
1118 indicators</xsd:documentation>
1119         </xsd:annotation>
1120     </xsd:element>
1121     <xsd:element name="Availability" type="AvailabilityType">
1122         <xsd:annotation>
1123             <xsd:documentation>Availability is the quality aspect of whether the
1124 service is present or ready for immediate use.</xsd:documentation>
1125         </xsd:annotation>
1126     </xsd:element>
1127     <xsd:element name="CommittedCompletionTime" type="udt:DateTimeType">
1128         <xsd:annotation>
1129             <xsd:documentation>Committed completion time</xsd:documentation>
1130         </xsd:annotation>
1131     </xsd:element>
1132     <xsd:element name="CommittedCost" type="bqos:PriceType">
1133         <xsd:annotation>
1134             <xsd:documentation>Cost Element in bSLA</xsd:documentation>
1135         </xsd:annotation>
1136     </xsd:element>
1137     <xsd:element name="CommittedTime" type="CommittedTimeType">
1138         <xsd:annotation>
1139             <xsd:documentation>Committed time period</xsd:documentation>
1140         </xsd:annotation>
1141     </xsd:element>
1142     <xsd:element name="CommittedThroughput" type="bqos:ThroughputType">
1143         <xsd:annotation>
1144             <xsd:documentation>Committed performance throughput</xsd:documentation>
1145         </xsd:annotation>
1146     </xsd:element>
1147     <xsd:element name="From" type="xs:dateTime">
1148         <xsd:annotation>
1149             <xsd:documentation>Availability starting time</xsd:documentation>
1150         </xsd:annotation>
1151     </xsd:element>
1152     <xsd:element name="Obligation" type="ObligationType">
1153         <xsd:annotation>
1154             <xsd:documentation>Agreed bSLA obligation, including Service Level
1155 Objective (SLO) and the Action Guarantee that associates with that SLO</xsd:documentation>
1156         </xsd:annotation>
1157     </xsd:element>
1158     <xsd:element name="Penalty">
1159         <xsd:annotation>

```

```

1160         <xsd:documentation>Penalty element is the money amount when Service Level
1161 Objective (SLO) is not met. </xsd:documentation>
1162     </xsd:annotation>
1163     <xsd:complexType>
1164         <xsd:complexContent>
1165             <xsd:extension base="bqos:PriceType">
1166                 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1167             </xsd:extension>
1168         </xsd:complexContent>
1169     </xsd:complexType>
1170 </xsd:element>
1171 <xsd:element name="ReserveFee">
1172     <xsd:annotation>
1173         <xsd:documentation>ReserveFee element is the reservation fee or money
1174 amount when Service Level Objective (SLO) is met. It is an optional element for Action Guarantee.
1175 </xsd:documentation>
1176     </xsd:annotation>
1177     <xsd:complexType>
1178         <xsd:complexContent>
1179             <xsd:extension base="bqos:PriceType">
1180                 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1181             </xsd:extension>
1182         </xsd:complexContent>
1183     </xsd:complexType>
1184 </xsd:element>
1185 <xsd:element name="ServiceLevelObjective" type="ServiceLevelObjectiveType">
1186     <xsd:annotation>
1187         <xsd:documentation>SLO (Service Level Objective) for QoS
1188 guarantee</xsd:documentation>
1189     </xsd:annotation>
1190 </xsd:element>
1191 <xsd:element name="ServiceName" type="ServiceNameType">
1192     <xsd:annotation>
1193         <xsd:documentation>The service name</xsd:documentation>
1194     </xsd:annotation>
1195 </xsd:element>
1196 <xsd:element name="ServiceOperations" type="ServiceOperationsType">
1197     <xsd:annotation>
1198         <xsd:documentation>Describe available operations and
1199 bQoS</xsd:documentation>
1200     </xsd:annotation>
1201 </xsd:element>
1202 <xsd:element name="ServiceProfileUri" type="SlaUriType">
1203     <xsd:annotation>
1204         <xsd:documentation>Service Profile Uri element represents web page URL or
1205 other URI for the service profile that defines the details of the services. Different service
1206 providers will share the same profile. It is a required element for bSLA
1207 Parameters.</xsd:documentation>
1208     </xsd:annotation>
1209 </xsd:element>
1210 <xsd:element name="ServiceProvider" type="ServiceProviderType">
1211     <xsd:annotation>
1212         <xsd:documentation>Service Provider element represents the provider for
1213 parties. </xsd:documentation>
1214     </xsd:annotation>
1215 </xsd:element>
1216 <xsd:element name="ServiceProviderName" type="ServiceProviderNameType">
1217     <xsd:annotation>
1218         <xsd:documentation>The name of service provider</xsd:documentation>
1219     </xsd:annotation>
1220 </xsd:element>
1221 <xsd:element name="ServiceRequester" type="ServiceRequesterType">
1222     <xsd:annotation>
1223         <xsd:documentation>ServiceRequester element represents requester for the
1224 service, including requester's name and the URI that represents the requester.
1225 </xsd:documentation>
1226     </xsd:annotation>
1227 </xsd:element>
1228 <xsd:element name="ServiceRequesterUri" type="SlaUriType">
1229     <xsd:annotation>
1230         <xsd:documentation>Service Requester Identifier in Uri
1231 format</xsd:documentation>
1232     </xsd:annotation>

```

```

1233     </xsd:element>
1234     <xsd:element name="ServiceRequesterName" type="ServiceRequesterNameType">
1235         <xsd:annotation>
1236             <xsd:documentation>Name of the service requester</xsd:documentation>
1237         </xsd:annotation>
1238     </xsd:element>
1239     <xsd:element name="ServiceUri" type="SlaUriType">
1240         <xsd:annotation>
1241             <xsd:documentation>Service Identifier in URI format </xsd:documentation>
1242         </xsd:annotation>
1243     </xsd:element>
1244     <xsd:element name="SLAParties" type="SLAPartiesType">
1245         <xsd:annotation>
1246             <xsd:documentation>SLAParties element, bSLA Parties aspect of the service,
1247 is for parties invoked in the bSLA for the service, including both service provider and service
1248 requester elements. </xsd:documentation>
1249         </xsd:annotation>
1250     </xsd:element>
1251     <xsd:element name="SLATerm" type="SLATermType">
1252         <xsd:annotation>
1253             <xsd:documentation>bSLA Term element is an any type element to describe
1254 additional term for this bSLA. </xsd:documentation>
1255         </xsd:annotation>
1256     </xsd:element>
1257     <xsd:element name="SLATerms" type="SLATermsType">
1258         <xsd:annotation>
1259             <xsd:documentation>The bSLA Terms, Terms element for EERP-bSLA, is the
1260 agreed bSLA terms aspect of the service, including bSLA term elements.</xsd:documentation>
1261         </xsd:annotation>
1262     </xsd:element>
1263     <xsd:element name="SLAParameters" type="SLAParametersType">
1264         <xsd:annotation>
1265             <xsd:documentation>The SLAParameters element for EERP-bSLA describes the
1266 parameters of the service used to define monitoring of bQoS metrics, including the service
1267 profile URI, operations and other optional elements.</xsd:documentation>
1268         </xsd:annotation>
1269     </xsd:element>
1270     <xsd:element name="SLAObligations" type="SLAObligationsType">
1271         <xsd:annotation>
1272             <xsd:documentation>The SLAObligations element describes the agreed bSLA
1273 obligations of the service, including obligations and action guarantees.</xsd:documentation>
1274         </xsd:annotation>
1275     </xsd:element>
1276     <xsd:element name="To" type="xs:dateTime">
1277         <xsd:annotation>
1278             <xsd:documentation>Availability ending time</xsd:documentation>
1279         </xsd:annotation>
1280     </xsd:element>
1281     <!-- Extension -->
1282     <xsd:element name="BSLAExtension">
1283         <xsd:annotation>
1284             <xsd:documentation>Additional element</xsd:documentation>
1285         </xsd:annotation>
1286         <xsd:complexType mixed="true">
1287             <xsd:choice minOccurs="0" maxOccurs="unbounded">
1288                 <xsd:any processContents="skip" minOccurs="0"
1289 maxOccurs="unbounded"/>
1290             </xsd:choice>
1291             <xsd:attribute name="optional" type="xsd:boolean" use="optional"
1292 default="true"/>
1293         </xsd:complexType>
1294     </xsd:element>
1295     <!-- ===== Type Definitions ===== -->
1296     <xsd:complexType name="ActionGuaranteeType">
1297         <xsd:annotation>
1298             <xsd:documentation>Complex type for action guarantee</xsd:documentation>
1299         </xsd:annotation>
1300         <xsd:sequence>
1301             <xsd:element ref="ReserveFee" minOccurs="0">
1302                 <xsd:annotation>
1303                     <xsd:documentation>ReserveFee element is the reservation
1304 fee or money amount when Service Level Objective (SLO) is met. It is an optional element for
1305 Action Guarantee. </xsd:documentation>

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1306         </xsd:annotation>
1307     </xsd:element>
1308     <xsd:element ref="Penalty" minOccurs="0">
1309         <xsd:annotation>
1310             <xsd:documentation>Penalty element is the money amount when
1311 Service Level Objective (SLO) is not met. It is a required element for Action Guarantee.
1312 </xsd:documentation>
1313         </xsd:annotation>
1314     </xsd:element>
1315 </xsd:sequence>
1316 <xsd:anyAttribute namespace="##any" processContents="lax"/>
1317 </xsd:complexType>
1318 <xsd:complexType name="AvailabilitiesType">
1319     <xsd:annotation>
1320         <xsd:documentation>Complex type for Availabilities of multiple
1321 Availability elements</xsd:documentation>
1322     </xsd:annotation>
1323     <xsd:sequence>
1324         <xsd:element ref="Availability" maxOccurs="unbounded"/>
1325     </xsd:sequence>
1326     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1327 </xsd:complexType>
1328 <xsd:complexType name="AvailabilityType">
1329     <xsd:annotation>
1330         <xsd:documentation>Complex type for the service is available or not
1331 available for a given From time To time. The default is available when the isAvailable element is
1332 missing or set to true.</xsd:documentation>
1333     </xsd:annotation>
1334     <xsd:sequence>
1335         <xsd:element ref="From">
1336             <xsd:annotation>
1337                 <xsd:documentation>Availability starting
1338 time</xsd:documentation>
1339             </xsd:annotation>
1340         </xsd:element>
1341         <xsd:element ref="To">
1342             <xsd:annotation>
1343                 <xsd:documentation>Availability ending
1344 time</xsd:documentation>
1345             </xsd:annotation>
1346         </xsd:element>
1347     </xsd:sequence>
1348     <xsd:attribute name="isAvailable" type="xs:boolean" use="optional"
1349 default="true"/>
1350     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1351 </xsd:complexType>
1352 <xsd:complexType name="CommittedTimeType">
1353     <xsd:annotation>
1354         <xsd:documentation>Complex type for committed completion
1355 time</xsd:documentation>
1356     </xsd:annotation>
1357     <xsd:complexContent>
1358         <xsd:extension base="bqos:TimePeriodType">
1359             <xsd:sequence>
1360                 <xsd:element ref="CommittedCompletionTime" minOccurs="0"/>
1361             </xsd:sequence>
1362         </xsd:extension>
1363     </xsd:complexContent>
1364 </xsd:complexType>
1365 <xsd:complexType name="ObligationType">
1366     <xsd:annotation>
1367         <xsd:documentation>Complex type for obligation</xsd:documentation>
1368     </xsd:annotation>
1369     <xsd:sequence>
1370         <xsd:element ref="ServiceLevelObjective"/>
1371         <xsd:element ref="ActionGuarantee" minOccurs="0"/>
1372     </xsd:sequence>
1373     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1374 </xsd:complexType>
1375 <xsd:complexType name="ProviderIDType">
1376     <xsd:annotation>
1377         <xsd:documentation>Complex type for provider ID </xsd:documentation>
1378     </xsd:annotation>

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1379         <xsd:simpleContent>
1380             <xsd:extension base="cbc:IDType"/>
1381         </xsd:simpleContent>
1382     </xsd:complexType>
1383     <xsd:complexType name="ServiceLevelObjectiveType">
1384         <xsd:annotation>
1385             <xsd:documentation>Complex type for SLO</xsd:documentation>
1386         </xsd:annotation>
1387         <xsd:sequence>
1388             <xsd:element ref="CommittedCost" minOccurs="0">
1389                 <xsd:annotation>
1390                     <xsd:documentation>Committed cost element in
1391 | bSLA</xsd:documentation>
1392                 </xsd:annotation>
1393             </xsd:element>
1394             <xsd:element ref="CommittedTime" minOccurs="0"/>
1395             <xsd:element ref="Availabilities" minOccurs="0">
1396                 <xsd:annotation>
1397                     <xsd:documentation>Whether the service is
1398 present or ready for immediate use</xsd:documentation>
1399                 </xsd:annotation>
1400             </xsd:element>
1401             <xsd:element ref="CommittedThroughput" minOccurs="0">
1402                 <xsd:annotation>
1403                     <xsd:documentation>Committed performance
1404 throughput</xsd:documentation>
1405                 </xsd:annotation>
1406             </xsd:element>
1407             <xsd:element ref="SLATerm" minOccurs="0"/>
1408         </xsd:sequence>
1409         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1410     </xsd:complexType>
1411     <xsd:complexType name="ServiceNameType">
1412         <xsd:annotation>
1413             <xsd:documentation>Complex type for the name of the
1414 service</xsd:documentation>
1415         </xsd:annotation>
1416         <xsd:simpleContent>
1417             <xsd:extension base="cbc:NameType"/>
1418         </xsd:simpleContent>
1419     </xsd:complexType>
1420     <xsd:complexType name="ServiceOperationsType">
1421         <xsd:annotation>
1422             <xsd:documentation>Complex type for service operations</xsd:documentation>
1423         </xsd:annotation>
1424         <xsd:sequence>
1425             <xsd:element name="hasCommittedCost" type="xsd:boolean">
1426                 <xsd:annotation>
1427                     <xsd:documentation>has committed cost or
1428 not</xsd:documentation>
1429                 </xsd:annotation>
1430             </xsd:element>
1431             <xsd:element name="hasCommittedTime" type="xsd:boolean">
1432                 <xsd:annotation>
1433                     <xsd:documentation>has committed time or
1434 not</xsd:documentation>
1435                 </xsd:annotation>
1436             </xsd:element>
1437             <xsd:element name="hasAvailabilities" type="xsd:boolean">
1438                 <xsd:annotation>
1439                     <xsd:documentation>has availabilities or
1440 not</xsd:documentation>
1441                 </xsd:annotation>
1442             </xsd:element>
1443             <xsd:element name="hasCommittedThroughput" type="xsd:boolean">
1444                 <xsd:annotation>
1445                     <xsd:documentation>has committed throughput or
1446 not</xsd:documentation>
1447                 </xsd:annotation>
1448             </xsd:element>
1449             <xsd:element name="hasOtherTerms" type="xsd:boolean">
1450                 <xsd:annotation>

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1451 |           <xsd:documentation>has other SALSLA terms or
1452 | not</xsd:documentation>
1453 |           </xsd:annotation>
1454 |           </xsd:element>
1455 |           <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1456 | maxOccurs="unbounded"/>
1457 |       </xsd:sequence>
1458 |       <xsd:anyAttribute namespace="##any" processContents="lax"/>
1459 |   </xsd:complexType>
1460 |   <xsd:complexType name="SlaUriType">
1461 |       <xsd:annotation>
1462 |           <xsd:documentation>Complex type for the service URI or service profile
1463 | URI</xsd:documentation>
1464 |       </xsd:annotation>
1465 |       <xsd:simpleContent>
1466 |           <xsd:extension base="xsd:anyURI">
1467 |               <xsd:anyAttribute namespace="##any" processContents="lax"/>
1468 |           </xsd:extension>
1469 |       </xsd:simpleContent>
1470 |   </xsd:complexType>
1471 |   <xsd:complexType name="ServiceProviderType">
1472 |       <xsd:annotation>
1473 |           <xsd:documentation>Complex type for the service
1474 | provider</xsd:documentation>
1475 |       </xsd:annotation>
1476 |       <xsd:sequence>
1477 |           <xsd:element ref="ServiceUri"/>
1478 |           <xsd:element ref="ServiceProviderName"/>
1479 |       </xsd:sequence>
1480 |       <xsd:anyAttribute namespace="##any" processContents="lax"/>
1481 |   </xsd:complexType>
1482 |   <xsd:complexType name="ServiceProviderNameType">
1483 |       <xsd:annotation>
1484 |           <xsd:documentation>Complex type for the service provider
1485 | name</xsd:documentation>
1486 |       </xsd:annotation>
1487 |       <xsd:simpleContent>
1488 |           <xsd:extension base="cbc:NameType"/>
1489 |       </xsd:simpleContent>
1490 |   </xsd:complexType>
1491 |   <xsd:complexType name="ServiceRequesterType">
1492 |       <xsd:annotation>
1493 |           <xsd:documentation>Complex type for the service
1494 | requester</xsd:documentation>
1495 |       </xsd:annotation>
1496 |       <xsd:sequence>
1497 |           <xsd:element ref="ServiceRequesterUri">
1498 |               <xsd:annotation>
1499 |                   <xsd:documentation>Service Requester Identifier in URI
1500 | format</xsd:documentation>
1501 |               </xsd:annotation>
1502 |           </xsd:element>
1503 |           <xsd:element ref="ServiceRequesterName"/>
1504 |       </xsd:sequence>
1505 |       <xsd:anyAttribute namespace="##any" processContents="lax"/>
1506 |   </xsd:complexType>
1507 |   <xsd:complexType name="ServiceRequesterUriType">
1508 |       <xsd:annotation>
1509 |           <xsd:documentation>Complex type for the service requester
1510 | ID</xsd:documentation>
1511 |       </xsd:annotation>
1512 |       <xsd:simpleContent>
1513 |           <xsd:extension base="cbc:IDType"/>
1514 |       </xsd:simpleContent>
1515 |   </xsd:complexType>
1516 |   <xsd:complexType name="ServiceRequesterNameType">
1517 |       <xsd:annotation>
1518 |           <xsd:documentation>Complex type for the service request
1519 | name</xsd:documentation>
1520 |       </xsd:annotation>
1521 |       <xsd:simpleContent>
1522 |           <xsd:extension base="cbc:NameType"/>
1523 |       </xsd:simpleContent>

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1524     </xsd:complexType>
1525     <xsd:complexType name="SLAObligationsType">
1526         <xsd:annotation>
1527             <xsd:documentation>Complex type for bSLA Obligations</xsd:documentation>
1528         </xsd:annotation>
1529         <xsd:sequence>
1530             <xsd:element ref="Obligation" maxOccurs="unbounded">
1531                 <xsd:annotation>
1532                     <xsd:documentation>The Obligation, obligation element for
1533 | bSLA Obligations in EERP-bSLA, is the agreed bSLA obligation, including Service Level Objective
1534 | (SLO) and the Action Guarantee that associates with that SLO.</xsd:documentation>
1535                 </xsd:annotation>
1536             </xsd:element>
1537             <xsd:element ref="ActionGuarantee" minOccurs="0">
1538                 <xsd:annotation>
1539                     <xsd:documentation>The Action Guarantee, action guarantee
1540 | element for bSLA Obligations in EERP-bSLA, is to specify what happens if the Service Level
1541 | Objective (SLO) is met or not met, including Reserve Fee and Penalty element.
1542 </xsd:documentation>
1543                 </xsd:annotation>
1544             </xsd:element>
1545             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1546 | maxOccurs="unbounded"/>
1547         </xsd:sequence>
1548         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1549     </xsd:complexType>
1550     <xsd:complexType name="SLAParametersType">
1551         <xsd:annotation>
1552             <xsd:documentation>Complex type for bSLA parameters </xsd:documentation>
1553         </xsd:annotation>
1554         <xsd:sequence>
1555             <xsd:element ref="ServiceProfileUri">
1556                 <xsd:annotation>
1557                     <xsd:documentation>Service Profile Uri element represents
1558 | web page URL or other URI for the service profile that defines the details of the services.
1559 | Different service providers will share the same profile. It is a required element for bSLA
1560 | Parameters.</xsd:documentation>
1561                 </xsd:annotation>
1562             </xsd:element>
1563             <xsd:element ref="ServiceOperations" minOccurs="0"/>
1564             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1565 | maxOccurs="unbounded"/>
1566         </xsd:sequence>
1567         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1568     </xsd:complexType>
1569     <xsd:complexType name="SLAPartiesType">
1570         <xsd:annotation>
1571             <xsd:documentation>Complex type for bSLA parties</xsd:documentation>
1572         </xsd:annotation>
1573         <xsd:sequence>
1574             <xsd:element ref="ServiceProvider">
1575                 <xsd:annotation>
1576                     <xsd:documentation>Service Provider element represents the
1577 | provider for parties. </xsd:documentation>
1578                 </xsd:annotation>
1579             </xsd:element>
1580             <xsd:element ref="ServiceRequester">
1581                 <xsd:annotation>
1582                     <xsd:documentation>ServiceRequester element represents
1583 | requester for the service, including requester's name and the URI that represents the requester.
1584 </xsd:documentation>
1585                 </xsd:annotation>
1586             </xsd:element>
1587             <xsd:any namespace="##other" processContents="lax" minOccurs="0"
1588 | maxOccurs="unbounded"/>
1589         </xsd:sequence>
1590         <xsd:anyAttribute namespace="##any" processContents="lax"/>
1591     </xsd:complexType>
1592     <xsd:complexType name="SLATermType">
1593         <xsd:annotation>
1594             <xsd:documentation>Complex type for one bSLA term</xsd:documentation>
1595         </xsd:annotation>
1596     </xsd:complexType>

```



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1597         <xsd:any namespace="##any" processContents="skip" minOccurs="0">
1598             <xsd:annotation>
1599                 <xsd:documentation>
1600 | The definition of the bSLA Terms
1601         </xsd:documentation>
1602             </xsd:annotation>
1603         </xsd:any>
1604     </xsd:sequence>
1605     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1606 </xsd:complexType>
1607 <xsd:complexType name="SLATermsType">
1608     <xsd:annotation>
1609 |         <xsd:documentation>Complex type for bSLA Terms </xsd:documentation>
1610     </xsd:annotation>
1611     <xsd:sequence>
1612         <xsd:element ref="SLATerm" maxOccurs="unbounded"/>
1613     </xsd:sequence>
1614     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1615 </xsd:complexType>
1616 <xsd:complexType name="BSLAType">
1617     <xsd:annotation>
1618 |         <xsd:documentation>Complex type for bSLAbSLA which is a formal contract
1619 between a service provider and a client guaranteeing quantifiable business quality of service
1620 (bQoS) at defined levels.</xsd:documentation>
1621     </xsd:annotation>
1622     <xsd:sequence>
1623         <xsd:element ref="SLAParties">
1624             <xsd:annotation>
1625 |                 <xsd:documentation>SLAParties element, bSLA Parties aspect
1626 of the service, is for parties invoked in the bSLA for the service, including both service
1627 provider and service requester elements. </xsd:documentation>
1628             </xsd:annotation>
1629         </xsd:element>
1630         <xsd:element ref="SLAParameters">
1631             <xsd:annotation>
1632 |                 <xsd:documentation>The SLAParameters element for EERP-bSLA
1633 describes the parameters of the service used to define monitoring of bQoS metrics, including the
1634 service profile URI, operations and other optional elements.</xsd:documentation>
1635             </xsd:annotation>
1636         </xsd:element>
1637         <xsd:element ref="SLAObligations" minOccurs="0">
1638             <xsd:annotation>
1639 |                 <xsd:documentation>The SLAObligations element describes the
1640 agreed bSLA obligations of the service, including obligations and action
1641 guarantees.</xsd:documentation>
1642             </xsd:annotation>
1643         </xsd:element>
1644         <xsd:element ref="SLATerms" minOccurs="0">
1645             <xsd:annotation>
1646 |                 <xsd:documentation>The bSLA Terms, Terms element for EERP-
1647 bSLA, is the agreed bSLA terms aspect of the service, including bSLA term
1648 elements.</xsd:documentation>
1649             </xsd:annotation>
1650         </xsd:element>
1651 |         <xsd:element ref="BSLAExtension" minOccurs="0" maxOccurs="unbounded"/>
1652     </xsd:sequence>
1653     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1654 </xsd:complexType>
1655 </xsd:schema>

```

1656 **C. Non-Normative Text**

1657 None

1658

D. Revision History

1659

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

1660