



SOA-EERP Business Quality of Service Version 1.0

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Related work:

This specification is related to:

- SOA-EERP Business Rating of Service specification, Version 1.0,

<http://docs.oasis-open.org/soa-eerp/rt/v1.0/SOA-EERP-Rating-Specification.pdf>

- SOA-EERP Business Service Level Agreement specification, Version 1.0,

<http://docs.oasis-open.org/soa-eerp/sla/v1.0/SOA-EERP-BSLA-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.

Declared XML Namespace(s):

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

41 **Abstract:**

42 This document specifies the XML vocabulary for business quality of service (bQoS), one of three
43 Specifications for end-to-end resource planning (EERP). Business quality of service describes the
44 business-related characteristics or attributes of a service.

45 **Status:**

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

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58 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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1 Introduction

130 This document is the specification for Business Quality of Service (bQoS) for End-to-End Resource
131 Planning (EERP), an XML vocabulary by which a business application may communicate selected
132 characteristics of the service it provides.

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

141 EERP applies the well-known technique for service discovery, ~~composition, simulation,~~ and optimization
142 ~~techniques~~ in a novel way to improve business results. It models the business process and the range of
143 potential services, and then guideguides the selection and deployment of services based on the end-to-
144 end business value.

145 Modeling the business characteristics of a service is a prerequisite for estimating the business value of
146 the process that uses those services. The business characteristics of the service defined in this bQoS
147 specification will enable EERP to determine the varieties of optimization to be supported, and to select
148 optimal end-to-end solution.

149 In contrast to the QoS in the software/IT world, where the message is network/system oriented
150 measurement indicates that deals with network performance and system availability, the contents of
151 bQoS in this specification is business oriented measurement indicators that deals with business
152 characteristics of a service, such as price, performance, and quality.

1.1 Terminology

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

1.1.1 Notational Conventions

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

- 159 • The syntax appears as an XML instance, but values in italics indicate data types instead of literal
160 values.
- 161 • Characters are appended to elements and attributes to indicate cardinality:
 - 162 ○ "?" (0 or 1)
 - 163 ○ "*" (0 or more)
 - 164 ○ "+" (1 or more)
- 165 • The character "|" is used to indicate a choice between alternatives.
- 166 • The characters "(" and ")" are used to indicate that contained items are to be treated as a group
167 with respect to cardinality or choice.
- 168 • The characters "[" and "]" are used to call out references and property names.
- 169 • Ellipses (i.e., "...") indicate points of extensibility. Additional children and/or attributes MAY be
170 added at the indicated extension points but MUST NOT contradict the semantics of the parent
171 and/or owner, respectively. By default, if a receiver does not recognize an extension, the receiver

172 SHOULD ignore the extension; exceptions to this processing rule, if any, are clearly indicated
173 below.

- 174 • XML namespace prefixes (see Table 21) are used to indicate the namespace of the element
175 being defined.

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

- 178 • An element extensibility point is referred to using {any} in place of the element name. This
179 indicates that any element name can be used, from any namespace other than the namespace of
180 this specification.
- 181 • An attribute extensibility point is referred to using @{any} in place of the attribute name. This
182 indicates that any attribute name can be used, from any namespace other than the namespace of
183 this specification.

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

185

186 1.2 Normative References

- 187 **[RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*,
188 <http://www.ietf.org/rfc/rfc2119.txt>~~http://www.ietf.org/rfc/rfc2119.txt~~, IETF RFC
189 2119, March 1997.
- 190 **[SOAP]** W3C Note, "SOAP: Simple Object Access Protocol 1.1", 08 May 2000.
191 ~~<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>~~
192 ~~<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>~~
- 193 **[SOAP12]** W3C Recommendation, "SOAP 1.2 Part 1: Messaging Framework", 24 June
194 2003.
195 ~~<http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>~~
196 ~~<http://www.w3.org/TR/2003/REC-soap12-part1-20030624/>~~
- 197 **[URI]** T. Berners-Lee, R. Fielding, L. Masinter, "Uniform Resource Identifiers (URI):
198 Generic Syntax", RFC 3986, MIT/LCS, Day Software, Adobe Systems, January
199 2005.
200 ~~<http://www.ietf.org/rfc/rfc3986.txt>~~
201 ~~<http://www.ietf.org/rfc/rfc3986.txt>~~
- 202 **[UBL-20]** OASIS Standard, "Universal Business Language (UBL) v2.0", 12 December 2006
203 ~~<http://docs.oasis-open.org/ubl/os-UBL-2.0/UBL-2.0.pdf>~~
204 ~~<http://docs.oasis-open.org/ubl/os-UBL-2.0/UBL-2.0.pdf>~~
- 205 **[UBL-20-cbc]** Universal Business Language (UBL) v2.0, Common Basic Components, October
206 2006
207 ~~[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)~~
208 ~~[CommonBasicComponents-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd)~~
209 ~~[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)~~
210 ~~[CommonBasicComponents-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-2.0.xsd)~~
- 211 **[UBL-20-udt]** Universal Business Language (UBL) v2.0. Unqualified Data Type, February 2005
212 ~~[http://docs.oasis-open.org/ubl/os-UBL-](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)~~
213 ~~[2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)~~
214 ~~[http://docs.oasis-open.org/ubl/os-UBL-](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)~~
215 ~~[2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd](http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd)~~
- 216 **[XML-Schema1]** W3C Recommendation, "XML Schema Part 1: Structures Second Edition", 28
217 October 2004.
218 ~~<http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>~~
219 ~~<http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>~~

220 **[XML-Schema2]** W3C Recommendation, "XML Schema Part 2: Datatypes Second Edition", 28
 221 October 2004.
 222 <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>
 223 <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

224 **[ISO8601]** ISO Standard 8601:2004(E), "Data elements and interchange formats –
 225 Information interchange - Representation of dates and times", Third edition,
 226 December 2004
 227 http://isotc.iso.org/livelink/livelink/4021199/ISO_8601_2004_E.zip?func=doc.Fetch&nodeid=4021199
 228 http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=40874

229 **[CEFACT]** CEFACT – Core components specifications–, [Recommendation 9 January 1996](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996),
 230 [http://www.unece.org/cefact-](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996)
 231 [http://www.unece.org/cefact-](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996)
 232 [groups/tmg/http://www.unece.org/cefact-](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996)
 233 [rec09/rec09_ecetrd20](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996)
 234 [3.pdf](http://www.unece.org/cefact/recommendations/rec09/rec09_ecetrd201996)
 235 **[SOA-RM]** OASIS Standard, "OASIS Reference Model for Service Oriented Architecture
 236 1.0", 12 October 2006
 237 <http://docs.oasis-open.org/soa-rm/v1.0/soa-rm.pdf>
 238

239 1.2.1 Reference

240 In this document reference is made to some basic elements and data types in ~~UBL 2.0~~UBL 2.0, in the
 241 following schema:

- 242 • UBL 2.0 Common Basic Components [~~UBL 2.0-cbc~~UBL-20-cbc], UBL-
 243 CommonBasicComponents-2.0.xsd
- 244 • UBL 2.0 Unqualified Data Type [~~UBL 2.0-udt~~UBL-20-udt], UnqualifiedDataTypeSchemaModule-
 245 2.0.xsd

246
 247 This specification is designed to work with the general Web Services framework including WSDL service
 248 descriptions, and **SOAP** message structure and message processing model. The XML vocabulary
 249 defined in bQoS should be applicable to any version of **SOAP**.

250 1.3 Non-Normative References

251 None.

2 Quality Measurement Indicators

The Business Quality of Service (~~BQoS~~**BQoS**) of the XML vocabulary is defined in XML Schema format that defines many quality measurement indicators.

2.1 Namespaces

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

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

Table 21 lists XML namespaces that are used in this specification. The choice of any namespace prefix is arbitrary and not semantically significant.

Table 41: Prefixes and XML Namespaces used in this specification.

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

2.2 Schema Files

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

[http://docs.oasis-open.org/soa-eerp/~~eerp-bqos/200903/eerp-bqosv1.0/EERP-bQoS-cd04~~.xsd](http://docs.oasis-open.org/soa-eerp/eerp-bqos/200903/eerp-bqosv1.0/EERP-bQoS-cd04.xsd)

2.3 BQoS Element

The BQoS is the root element for the Business Quality of Service schema. It can have one or more of the following elements:

- BQoSPrice indicates price or cost for the service
- BQoSPerformance indicates time to complete the service, or in the alternative, throughput and latency.

- 271 • BQoSQualities indicates additional properties and attributes.
- 272 • Any additional elements for quality of service can be either:
 - 273 ○ Technical aspect such as service availability, accessibility, integrity, reliability, and
 - 274 security; or
 - 275 ○ Business aspects such as regulatory, geo location, operation hours, and payment
 - 276 methods.

277 Syntax

```

278 <bqos:BQoS xmlns:bqos="..." ...>
279 <bqos:BQoSPrice ...>bqos:BQoSPriceType</bqos:BQoSPrice>
280 <bqos:BQoSPerformance ...>bqos:BQoSPerformanceType</bqos:BQoSPerformance> ?
281 <bqos:BQoSQualities...>bqos:BQoSQualitiesType</bqos:BQoSQualities> ?
282 ...
283 </bqos:BQoS>

```

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

285 /bqos:BQoS

286 The root element for bQoS

287 /bqos:BQoS/bqos:BQoSPrice

288 Price aspect of the service, including the price and other optional elements, see Section 3 for
289 more details.

290 /bqos:BQoS/bqos:BQoSPrice/@{any}

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

294 /bqos:BQoS/bqos:BQoSPerformance

295 Performance aspect of the service that has time period for the time to complete the whole
296 service, the throughput for duration to complete number of jobs, or optional elements, see Section
297 4 for more details.

298 /bqos:BQoS/bqos:BQoSPerformance/@{any}

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

302 /bqos:BQoS/bqos:BQoSQualities

303 Quality aspect of the service that has additional properties and attributes to describe the quality of
304 the service, see Section 5 for more details.

305 /bqos:BQoS/bqos:BQoSQualities/@{any}

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

309 /bqos:BQoS/@{any}

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

313 /bqos:BQoS/bqos:BQoSExtension

314 BQoSExtension element is an optional element that keeps different (extensible) elements to be
315 specified in the future.

316 /bqos:BQoS/bqos:BQoSExtension/{any}

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

319 **3 BQoSPrice**

320 BQoSPrice, the Price element for bQoS, describes the price for the service. Price can be expressed in
321 various ways.

322 There SHOULD be one BQoSPrice element present in the business quality of service.

323 **Syntax**

```
324 <bqos:BQoSPrice xmlns:bqos="..." ...>  
325   <bqos:Price>bqos:PriceType  
326     <bqos:Unit unitCode="clm66411:UnitCodeContentType"  
327   >cbc:BaseUnitMeasureType</bqos:Unit> ?  
328     <bqos:Amount currencyID="  
329   clm54217:CurrencyCodeContentType">cbc:AmountType</bqos:Amount>  
330   </bqos:Price>  
331   ...  
332 </bqos:BQoSPrice>
```

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

334 /bqos:BQoS/bqos:BQoSPrice

335 Price aspects of the service, including the price and other optional elements

336 /bqos:BQoS/bqos:BQoSPrice/bqos:Price

337 Price element that represent the single price for BQoSPrice

338 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Unit

339 Number of units is a optional element that includes the unit of measurement using
340 cbc:BaseUnitMeasureType

341 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Unit/@unitCode

342 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute using
343 clm66411:unitCodeContentType,
344 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001"

345 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount

346 Amount is a required element in the Price element. It uses cbc:AmountType from UBL that has a
347 required currencyID attribute for currency code.

348 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount/@currencyID

349 Currency ID in cbc:AmountType. It is a required attribute using
350 clm54217:CurrencyCodeContentType,
351 xmlns:clm54217="urn:un:unece:uncefact:codelist:specification:54217:2001"

352 /bqos:BQoS/bqos:BQoSPrice/{any}

353 This is an extensibility mechanism to allow different (extensible) price elements to be specified in
354 the future. Unrecognized elements MAY cause a fault or be silently ~~ignored~~ **ignored**.

355 **Example**

356 The following **non-normative** example illustrates the use of bQoS price element. It describes 10 units for
357 price of \$171.50 US dollar:

```
358 (001) <?xml version="1.0" encoding="utf-8"?>  
359 (002) <BQoSPrice xmlns="..." ...>  
360 (003)   <Price>  
361 (004)     <Unit unitCode="EA">10</Unit>  
362 (005)     <Amount currencyID="USD">171.50</Amount>  
363 (006)   </Price>
```


365

4 BQoSPerformance

366
367

BQoSPerformance element for bQoS is the quality of service measured in the time to complete, or alternatively as throughput and latency.

368

There MAY be zero or one BQoSPerformance element present in the business quality of service.

369

Syntax

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```
<bqos:BQoSPerformance xmlns:bqos="..." ...>
  <bqos:TimePeriod ... >bqos:TimePeriodType
    <bqos:Duration
      unitCode="clm66411:UnitCodeContentType">cbc:DurationMeasureType</bqos:Duration
    >
    <bqos:Latency
      unitCode=="clm66411:UnitCodeContentType">cbc:DurationMeasureType</bqos:Latency
    > ?
    <bqos:StartTime>udt:DateTimeType</bqos:StartTime> ?
  </bqos:TimePeriod> |
  <bqos:Throughput ...>
    <bqos:Quantity unitCode="clm66411:UnitCodeContentType"> ...
  </bqos:Quantity>
  <bqos:Duration unitCode="clm66411:UnitCodeContentType">
    cbc:DurationMeasureType</bqos:Duration>
  <bqos:Latency unitCode="clm66411:UnitCodeContentType">
    cbc:DurationMeasureType</bqos:Latency> ?
  </bqos:Throughput> |
  ...
</bqos:BQoSPerformance>
```

390

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

391

/bqos:BQoS/bqos:BQoSPerformance

392
393

Performance aspect of the service that has time period for the time to complete the whole service job, the throughput for duration to complete number of jobs, or an optional elements.

394

/bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod

395
396

TimePeriod is the time period to complete the service, including the duration to complete the service, and optional elements for start time and latency.

397

/bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Duration

398
399
400

Duration element is a required element in the TimePeriod element which is the duration to complete the service. It uses cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of measurement on the time.

401

/bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Duration/@unitCode

402
403
404

Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time, such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType, xmlns:clm66411="urn:un:unece:unefact:codelist:specification:66411:2001".

405

/bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:StartTime

406
407

StartTime is an optional element for the date and time to start the service. It uses udt:DateTimeType which is in UTC time format [ISO8601].

408

/bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Latency

409
410
411

Latency is an optional element that describes the time delay before a service is expected to begin. It uses cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of measurement on the time.

412 /bqos:BQoS/bqos:BQoSPerformance/bqos:TimePeriod/bqos:Latency/@unitCode
 413 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 414 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 415 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001".

416 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput
 417 Throughput of the performance which is measured by is the amount of work that a service can
 418 provide in a given time period. It includes the quantity of the item and the duration to complete the
 419 work.

420 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration
 421 Duration element is a required element in the Throughput element. This is the duration to
 422 complete the service. It uses cbc:DurationMeasureType from UBL that has a required unitCode
 423 attribute for unit of measurement on the time.

424 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Duration/@unitCode
 425 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 426 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 427 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001"

428 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Quantity
 429 Quantity is a required element in the Throughput element. It is the numbers for the throughput,
 430 with an attribute of unit of measurement, such as EA, pounds, cubic-feet, etc.

431 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency
 432 Latency is an optional element for the time delay for starting the service. It uses
 433 cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of
 434 measurement on the time.

435 /bqos:BQoS/bqos:BQoSPerformance/bqos:Throughput/bqos:Latency/@unitCode
 436 Unit of measurement in cbc:BaseUnitMeasureType. It is a required attribute for the duration time,
 437 such as Second, Minute, Hour, Day, Week, etc, using clm66411:unitCodeContentType,
 438 xmlns:clm66411="urn:un:unece:uncefact:codelist:specification:66411:2001".

439 /bqos:BQoS/bqos:BQoSPerformance/{any}
 440 This is an extensibility mechanism to allow different (extensible) performance or time elements to
 441 be specified in the future. Unrecognized elements MAY cause a fault or be silently ~~ignore~~ignored.

442 **ExampleExamples**

443 The following non-normative example illustrates the use of bQoS Performance element using the
 444 Throughput element instead of TimePeriod element. It describes the throughput of 10 units per day:

```

446 (001) <?xml version="1.0" encoding="utf-8"?>
447 (002) <BQoSPerformance xmlns="..." ...>
448 (003)   <Throughput>
449 (004)     <Duration unitCode="DAY">1</Duration>
450 (005)     <Quantity unitCode="EA">10.0</Quantity>
451 (006)   </Throughput>
452 (007) </BQoSPerformance>
  
```

454 The following non-normative example illustrates the use of bQoS Performance element using the
 455 TimePeriod element. It describes the 8 hours of the duration, and can be started on October 17, 2009,
 456 9:30:47.02 Zulu time:

```

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

```
459 (002) <BQoSPerformance xmlns="..." ...>
460 (003)   <TimePeriod>
461 (004)     <Duration unitCode="HUR">8</Duration>
462 (005)     <StartTime>2009-10-17T09:30:47.0Z</StartTime>
463 (006)   </TimePeriod>
464 (007) </BQoSPerformance>
```

5 BQoSQualities

465

466 The BQoSQualities, the Quality elements for bQoS, describes additional properties and attributes for the
467 service. While any quality name/value can be asserted by a Service Provider to represent the quality of
468 the service, this specification is not addressing issues of namespace management for qualities beyond
469 the three pre-defined EERP namespaces.

470 There SHOULD be zero or one BQoSQualities element present in the business quality of service.

471 Syntax

```
472 <bqos:BQoSQualities xmlns:bqos="..." ...>  
473   <bqos:Property>bqos:PropertyType  
474     <bqos:PropertyName ...>bqos:PropertyNameType</bqos:PropertyName>  
475     <bqos:PropertyValue ...>bqos:PropertyValue</bqos:PropertyValue> ?  
476   </bqos:Property> +  
477   ...  
478 </bqos:BQoSQualities>
```

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

480 /bqos:BQoS/bqos:BQoSQualities

481 Quality aspect of the service is measured in terms of additional properties and attributes. It has a
482 list of property for BQoSQualities and other optional elements.

483 /bqos:BQoS/bqos:BQoSQualities/bqos:Property

484 Property element is for additional property or attribute for quality measurement of the service in
485 bQoS that has name and value pair to describe the quality of the service.

486 /bqos:BQoS/bqos:BQoSQualities/bqos:PropertyName

487 Property name is a required element for the name in the name and value pair in the Property
488 element. It uses bqos:PropertyNameType which is a cbc:NamType from UBL that has a optional
489 languageID attribute for language code.

490 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyName/@languageID

491 Language ID is an optional attribute in the PropertyName element, using xsd:language type. The
492 value can be those defined in urn:un:unece:uncefact:odelist:specification:5639:1988.

493 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyName/@{any}

494 This is an extensibility mechanism to allow additional attributes, based on schemas, to be added
495 to the PropertyName element in the future. This can be ~~the~~ namespace and the format for the
496 Property. Unrecognized attributes MAY cause a fault or be silently ~~ignore~~ ignored.

497 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyValue

498 The property value is an optional element for the value in the name and value pair in the Property
499 element. It uses bqos:PropertyValueType which is a cbc:NamType from UBL that has a optional
500 languageID attribute for language code.

501 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/bqos:PropertyValue/@languageID

502 Language ID is an optional attribute in the PriceValue element, using xsd:language type. The
503 value can be those defined in urn:un:unece:uncefact:odelist:specification:5639:1988.

504 /bqos:BQoS/bqos:BQoSQualities/bqos:Property/@{any}

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

508 /bqos:BQoS/bqos:BQoSQualities/{any}

509 | This is an extensibility mechanism to allow different (extensible) **propertyproperties** or attribute
510 | elements to be specified in the future. Unrecognized elements MAY cause a fault or be silently
511 | **ignore-ignored**. For example, one or more
512 | /bqos:BQoS/bqos:BQoSQualities/Performance:QualityAssertion elements can be placed in here
513 | for the Service Provider to assert the specific Qualities of its services.

514 | **Example**

515 | The following **non-normative** example illustrates the use of bQoS price element. It describes the Class is
516 | Golden and it has “Network Connection” as additional property for this service:

```
517 | (001) <?xml version="1.0" encoding="utf-8"?>  
518 | (002) <BQoSQualities xmlns="..." ...>  
519 | (003)   <Property>  
520 | (004)     <PropertyName languageID="EN">Class</PropertyName>  
521 | (005)     <PropertyValue>Golden</PropertyValue>  
522 | (006)   </Property>  
523 | (003)   <Property>  
524 | (004)     <PropertyName languageID="EN">Network Connection</PropertyName>  
525 | (006)   </Property>  
526 | (007) </BQoSQualities>
```

527

6 BQoS Examples

528 | The examples in this section are non-normative.

6.1 Service Price with a Batch of Products Examples

530 | This BQoSbQoS example will show the following quality indicators:

- 531 1. The service price is CNY 120000 per service, including 1000 gas-meters for one batch.
- 532 2. The throughput is usually 1 week or 7 days for the service. In another words, it will cost 1 week or
533 7 days to provide and delivery 1000 gas-meters as one batch of product.
- 534 3. The service has additional attributes to provide the IC card gas-meters integrated with iron IC-
535 card box for the quality indicators.

536 Example

537 | The following example illustrates the whole BQoSBQoS document for quality indicators:

```
538 (01) (1) <?xml version="1.0" encoding="UTF-8"?>
539 (02) (2) <bqos:BQoS xmlns:bqos="..." ... >
540 (03) (3) <bqos:BQoSPrice
541 (04) (4) <bqos:Price>
542 (05) (5) <bqos:Unit unitCode="EA">1000</bqos:Unit>
543 (06) (6) <!-- CNY: Chinese Yuan -->
544 (07) (7) <bqos:Amount currencyID="CNY">120000</bqos:Amount>
545 (08) (8) </bqos:Price>
546 (09) (9) </bqos:BQoSPrice>
547 (10) <bqos:BQoSPerformance>
548 (11) <bqos:Throughput>
549 (12) <!-- delivery: 1 week -->
550 (13) <bqos:Duration unitCode="DAY">7</bqos:Duration>
551 (14) <!-- batch production, generally 1000 sets a batch -->
552 (15) <bqos:Quantity>1000</bqos:Quantity>
553 (16) <bqos:Latency unitCode="DAY">0</bqos:Latency>
554 (17) </bqos:Throughput>
555 (18) </bqos:BQoSPerformance>
556 (19) <bqos:BQoSQualities>
557 (20) <bqos:Property>
558 (21) <bqos:PropertyName languageID="zh-cn">外壳</bqos:PropertyName>
559 (22) <bqos:PropertyValue languageID="zh-cn">铁壳</bqos:PropertyValue>
560 (23) </bqos:Property>
561 (24) <bqos:Property>
562 (25) <bqos:PropertyName languageID="en">MeterType</bqos:PropertyName>
563 (26) <bqos:PropertyValue languageID="en">IC card gas-
564 meter</bqos:PropertyValue>
565 (27) </bqos:Property>
566 (28) <bqos:Property>
567 (29) <bqos:PropertyName languageID="en">IC-Card-Box</bqos:PropertyName>
568 (30) <bqos:PropertyValue
569 languageID="en">integrated</bqos:PropertyValue>
570 (31) </bqos:Property>
571 (32) </bqos:BQoSQualities>
572 (33) </bqos:BQoS>
```

573 6.2 Storage Service Examples

574 | This BQoSBQoS example will show a storage service with the following quality indicators:

- 575 1. The storage service price is 600 Euro in total.
- 576 2. The time period for the storage service is 4 day, starting from July 15, 2009, 16:30, UTC time.

577 3. The service has additional attributes of internet tracking and temperature from 70 to 85 degree
578 Fahrenheit the quality indicators.

579 **Example**

580 The following example illustrates the storage service bQoS for quality indicators:

```
581 (01) (1) <?xml version="1.0" encoding="UTF-8"?>  
582 (02) (2) <bqos:BQoS xmlns:bqos="..." ... >  
583 (03) (3) <BQoSPrice>  
584 (04) (4) <Price>  
585 (05) (5) <Amount currencyID="EUR">600</Amount>  
586 (06) (6) </Price>  
587 (07) (7) </BQoSPrice>  
588 (08) (8) <BQoSPerformance>  
589 (09) (9) <TimePeriod>  
590 (10) <Duration unitCode="DAY">4</Duration>  
591 (11) <StartTime>2009-07-15T16:30:00.0Z</StartTime>  
592 (12) </TimePeriod>  
593 (13) </BQoSPerformance>  
594 (14) <BQoSQualities>  
595 (15) <Property>  
596 (16) <PropertyName>Internet Tracking</PropertyName>  
597 (17) </Property>  
598 (18) <Property>  
599 (19) <PropertyName>Temperature</PropertyName>  
600 (20) <PropertyValue>70F-78F</PropertyValue>  
601 (21) </Property>  
602 (22) </BQoSQualities>  
603 (23) </bqos:BQoS>
```

604

7 Conformance

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

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

614 Normative text within this specification takes precedence over normative outlines (as described in section
615 1.4.1), which in turn take precedence over the XML Schema [XML Schema Part 1, Part 2] and WSDL
616 [WSDL 1.1] descriptions. That is, the normative text in this specification further constrains the schemas
617 and/or WSDL that are part of this specification; and this specification contains further constraints on the
618 elements defined in referenced schemas.

619 The minimum set of information exchange for bQoS that would allow conforming applications to
620 exchange information and satisfy the conformance should at least to have
621 /bqos:BQoS/bqos:BQoSPrice/bqos:Price/bqos:Amount element, like this:

```
622 (001) <?xml version="1.0" encoding="utf-8"?>  
623 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
624 (003)   <BQoSPrice>  
625 (004)     <Price>  
626 (005)       <Amount currencyID="USD">0.0</Amount>  
627 (006)     </Price>  
628 (007)   </BQoSPrice>  
629 (008) </BQoS>
```

630 A nearly empty artifact does not conform to this specification. The following are three non-conform
631 examples.

632 Non-conform example 1:

```
633 (001) <?xml version="1.0" encoding="utf-8"?>  
634 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
635 (003)   <BQoSPrice />  
636 (004) </BQoS>
```

637 Non-conform example 2:

```
638 (001) <?xml version="1.0" encoding="utf-8"?>  
639 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
640 (003)   < BQoSPerformance />  
641 (004) </BQoS>
```

642 Non-conform example 3:

```
643 (001) <?xml version="1.0" encoding="utf-8"?>  
644 (002) <BQoS xmlns="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903">  
645 (003)   <BQoSPrice>  
646 (004)     <Price />
```

647 | (005) </BQoSPrice>
648 | (006) </BQoS>

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

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658 **Participants**⚡

659

660	Rex Brooks	Individual
661	Szu Chang	Changfeng Open Standards Platform Software Alliance
662	William Cox,	Individual
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667	James Zhili Zhang	TIBCO Software Inc.
668	Hong Zhou	Changfeng Open Standards Platform Software Alliance
669		

670

~~B.A.~~ ~~Non-Normative Text~~

671

~~None~~

672

C.B. XML Schema

673

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

674

675

```
<?xml version="1.0" encoding="UTF-8"?>
```

676

```
<!--
```

677

```
Document Type:      EERP-bQoS CD03CD04
```

678

```
Create On:          01/0609/12/2010
```

679

```
-->
```

680

```
<!-- ===== xsd:schema Element With Namespaces Declarations ===== -->
```

681

```
<!-- ===== Copyright Notice ===== -->
```

682

```
<!--
```

683

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730

```
-->
```

731

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.oasis-
```

732

```
open.org/ns/soa-eerp/bqos/200903" xmlns:bqos="http://docs.oasis-open.org/ns/soa-eerp/bqos/200903"
```

733

```
xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
```

734

```
xmlns:udt="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
```

735

```
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://docs.oasis-open.org/ns/soa-
```

736

```
eerp/bqos/200903" elementFormDefault="qualified" attributeFormDefault="unqualified"
```

737

```
version="1.0">
```

738

```
<!-- ===== Imports ===== -->
```

739

```
<xsd:import namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
```

740

```
schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-2.0/xsd/common/UBL-CommonBasicComponents-
```

741

```
2.0.xsd"/>
```

742

```
<xsd:import
```

743

```
namespace="urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2"
```

744

```
schemaLocation="http://docs.oasis-open.org/ubl/os-UBL-
```

745

```
2.0/xsd/common/UnqualifiedDataTypeSchemaModule-2.0.xsd"/>
```

746

```
<!-- ===== Root Element ===== -->
```



```

747 <xsd:element name="BQoS" type="BQoSType">
748 <xsd:annotation>
749 <xsd:documentation>Root element of Business Quality of Service (bQoS)</xsd:documentation>
750 </xsd:annotation>
751 </xsd:element>
752 <!-- ===== Element Declarations ===== -->
753 <xsd:element name="Amount" type="cbc:AmountType">
754 <xsd:annotation>
755 <xsd:documentation>Amount element</xsd:documentation>
756 </xsd:annotation>
757 </xsd:element>
758 <xsd:element name="BQoSPerformance" type="BQoSPerformanceType">
759 <xsd:annotation>
760 <xsd:documentation>Performance aspect of the service that has time period for the time to
761 complete the whole service job, the throughput for duration to complete number of jobs, or an
762 optional elements. </xsd:documentation>
763 </xsd:annotation>
764 </xsd:element>
765 <xsd:element name="BQoSPrice" type="BQoSPriceType">
766 <xsd:annotation>
767 <xsd:documentation>The Price element for bQoS, price aspects of the service, describes the
768 price for the service, including the price and other optional elements. </xsd:documentation>
769 </xsd:annotation>
770 </xsd:element>
771 <xsd:element name="BQoSQualities" type="BQoSQualitiesType">
772 <xsd:annotation>
773 <xsd:documentation>Quality aspect of the service is measured in terms of additional
774 properties and attributes. It has a list of property for BQoSQualities and other optional
775 elements. </xsd:documentation>
776 </xsd:annotation>
777 </xsd:element>
778 <xsd:element name="Duration" type="cbc:DurationMeasureType">
779 <xsd:annotation>
780 <xsd:documentation>Duration element is the duration to complete the service. It uses
781 cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of measurement
782 on the time. </xsd:documentation>
783 </xsd:annotation>
784 </xsd:element>
785 <xsd:element name="Latency" type="cbc:DurationMeasureType">
786 <xsd:annotation>
787 <xsd:documentation>Latency describes the time delay before a service is expected to begin.
788 It uses cbc:DurationMeasureType from UBL that has a required unitCode attribute for unit of
789 measurement on the time. </xsd:documentation>
790 </xsd:annotation>
791 </xsd:element>
792 <xsd:element name="Price" type="PriceType">
793 <xsd:annotation>
794 <xsd:documentation>Price element for bQoS that is the single price </xsd:documentation>
795 </xsd:annotation>
796 </xsd:element>
797 <xsd:element name="Property" type="PropertyType">
798 <xsd:annotation>
799 <xsd:documentation>Property element is for additional property or attribute for quality
800 measurement of the service in bQoS that has name and value pair to describe the quality of the
801 service.</xsd:documentation>
802 </xsd:annotation>
803 </xsd:element>
804 <xsd:element name="PropertyName" type="PropertyNameType">
805 <xsd:annotation>
806 <xsd:documentation>Property name is a required element for the name in the name and value
807 pair in the Property element. It uses bqos:PropertyNameType which is a cbc:NamType from UBL that
808 has a optional languageID attribute for language code. </xsd:documentation>
809 </xsd:annotation>
810 </xsd:element>
811 <xsd:element name="PropertyValue" type="PropertyValueType">
812 <xsd:annotation>
813 <xsd:documentation>Value of the Property or Attribute</xsd:documentation>
814 </xsd:annotation>
815 </xsd:element>
816 <xsd:element name="Quantity" type="cbc:BaseQuantityType">
817 <xsd:annotation>
818 <xsd:documentation>Quantity is the numbers for the throughput, with an attribute of unit of
819 measurement, such as EA, pounds, cubic-feet, etc. </xsd:documentation>
820 </xsd:annotation>
821 </xsd:element>
822 <xsd:element name="StartTime" type="udt:DateTimeType">
823 <xsd:annotation>
824 <xsd:documentation>StartTime is the date and time to start the
825 service.</xsd:documentation>
826 </xsd:annotation>
827 </xsd:element>
828 <xsd:element name="TimePeriod" type="TimePeriodType">

```

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829     <xsd:annotation>
830     <xsd:documentation>TimePeriod is the time period to complete the service, including the
831 duration to complete the service, and optional elements for start time and latency
832 </xsd:documentation>
833 </xsd:element>
834 </xsd:element>
835 <xsd:element name="Throughput" type="ThroughputType">
836 <xsd:annotation>
837 <xsd:documentation>The performance is measured by is the amount of work that a service can
838 provide in a given time period. </xsd:documentation>
839 </xsd:annotation>
840 </xsd:element>
841 <xsd:element name="Unit" type="cbc:BaseUnitMeasureType">
842 <xsd:annotation>
843 <xsd:documentation>Number of units with unit of measurement</xsd:documentation>
844 </xsd:annotation>
845 </xsd:element>
846 <!-- Extension -->
847 <xsd:element name="ExtensionBQoSExtension">
848 <xsd:annotation>
849 <xsd:documentation>Additional bQoS elements </xsd:documentation>
850 </xsd:annotation>
851 <xsd:complexType mixed="true">
852 <xsd:choice minOccurs="0" maxOccurs="unbounded">
853 <xsd:any processContents="skip" minOccurs="0" maxOccurs="unbounded"/>
854 </xsd:choice>
855 <xsd:attribute name="optional" type="xsd:boolean" use="optional" default="true"/>
856 </xsd:complexType>
857 </xsd:element>
858 <!-- ===== Type Definitions ===== -->
859 <xsd:complexType name="BQoSPerformanceType">
860 <xsd:annotation>
861 <xsd:documentation>Complex type for the performance aspect of the service
862 bQoS</xsd:documentation>
863 </xsd:annotation>
864 <xsd:choice>
865 <xsd:element ref="TimePeriod">
866 <xsd:annotation>
867 <xsd:documentation>TimePeriod is the time period to complete the service, including the
868 duration to complete the service, and optional elements for start time and
869 latency.</xsd:documentation>
870 </xsd:annotation>
871 </xsd:element>
872 <xsd:element ref="Throughput"/>
873 <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
874 </xsd:choice>
875 <xsd:anyAttribute namespace="##any" processContents="lax"/>
876 </xsd:complexType>
877 <xsd:complexType name="BQoSPriceType">
878 <xsd:annotation>
879 <xsd:documentation>Complex type for the price/cost aspect of the service
880 bQoS</xsd:documentation>
881 </xsd:annotation>
882 <xsd:sequence>
883 <xsd:element ref="Price">
884 <xsd:annotation>
885 <xsd:documentation>Price element that represent the single price for
886 BQoSPrice.</xsd:documentation>
887 </xsd:annotation>
888 </xsd:element>
889 <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
890 </xsd:sequence>
891 <xsd:anyAttribute namespace="##any" processContents="lax"/>
892 </xsd:complexType>
893 <xsd:complexType name="BQoSQualitiesType">
894 <xsd:annotation>
895 <xsd:documentation>Complex type for the Quality related aspects of the service BQoS
896 </xsd:documentation>
897 </xsd:annotation>
898 <xsd:sequence>
899 <xsd:element ref="Property" maxOccurs="unbounded">
900 <xsd:annotation>
901 <xsd:documentation>Property element is for additional property or attribute for quality
902 measurement of the service in bQoS that has name and value pair to describe the quality of the
903 service.</xsd:documentation>
904 </xsd:annotation>
905 </xsd:element>
906 <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
907 </xsd:sequence>
908 <xsd:anyAttribute namespace="##any" processContents="lax"/>
909 </xsd:complexType>
910 <xsd:complexType name="BQoSType">

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911     <xsd:annotation>
912     <xsd:documentation>Complex type for the Business QoS</xsd:documentation>
913   </xsd:annotation>
914   <xsd:sequence>
915     <xsd:element ref="BQoSPrice">
916       <xsd:annotation>
917         <xsd:documentation>The Price element for bQoS that describes the price for the service.
918 Price can be expressed in various ways.</xsd:documentation>
919       </xsd:annotation>
920     </xsd:element>
921     <xsd:element ref="BQoSPerformance" minOccurs="0">
922       <xsd:annotation>
923         <xsd:documentation>BQoSPerformance element for bQoS is the quality of service measured
924 in the time to complete, or alternatively as throughput and latency.</xsd:documentation>
925       </xsd:annotation>
926     </xsd:element>
927     <xsd:element ref="BQoSQualities" minOccurs="0">
928       <xsd:annotation>
929         <xsd:documentation>The Quality elements for bQoS that describes additional properties
930 and attributes for the service. It has a list of property for BQoSQualities and other optional
931 elements. </xsd:documentation>
932       </xsd:annotation>
933     </xsd:element>
934     <xsd:element ref="ExtensionBQOSExtension" minOccurs="0" maxOccurs="unbounded">
935       <xsd:annotation>
936         <xsd:documentation>Other aspects of "quality of business"</xsd:documentation>
937       </xsd:annotation>
938     </xsd:element>
939   </xsd:sequence>
940   <xsd:anyAttribute namespace="##any" processContents="lax"/>
941 </xsd:complexType>
942 <xsd:complexType name="PriceType">
943   <xsd:annotation>
944     <xsd:documentation>Complex type for Pricing or Billing for the service</xsd:documentation>
945   </xsd:annotation>
946   <xsd:sequence>
947     <xsd:element ref="Unit" minOccurs="0">
948       <xsd:annotation>
949         <xsd:documentation>Number of units is a optional element that includes the unit of
950 measurement. </xsd:documentation>
951       </xsd:annotation>
952     </xsd:element>
953     <xsd:element ref="Amount">
954       <xsd:annotation>
955         <xsd:documentation>Amount is a required element in the Price element. It uses
956 cbc:AmountType from UBL that has a required currencyID attribute for currency
957 code.</xsd:documentation>
958       </xsd:annotation>
959     </xsd:element>
960   </xsd:sequence>
961 </xsd:complexType>
962 <xsd:complexType name="PropertyType">
963   <xsd:annotation>
964     <xsd:documentation>Complex type for additional property or attribute for
965 quality</xsd:documentation>
966   </xsd:annotation>
967   <xsd:sequence>
968     <xsd:element ref="PropertyName"/>
969     <xsd:element ref="PropertyValue" minOccurs="0">
970       <xsd:annotation>
971         <xsd:documentation>Value of the Property or Attribute. It uses bqos:PropertyValue
972 which is a cbc:NamType from UBL that has a optional languageID attribute for language code.
973 </xsd:documentation>
974       </xsd:annotation>
975     </xsd:element>
976   </xsd:sequence>
977   <xsd:anyAttribute namespace="##any" processContents="lax"/>
978 </xsd:complexType>
979 <xsd:complexType name="PropertyNameType">
980   <xsd:annotation>
981     <xsd:documentation>Complex type for property or attribute name </xsd:documentation>
982   </xsd:annotation>
983   <xsd:simpleContent>
984     <xsd:extension base="cbc:NameType">
985       <xsd:anyAttribute namespace="##any" processContents="lax"/>
986     </xsd:extension>
987   </xsd:simpleContent>
988 </xsd:complexType>
989 <xsd:complexType name="PropertyValueType">
990   <xsd:annotation>
991     <xsd:documentation>Complex type for property or attribute value. </xsd:documentation>
992   </xsd:annotation>

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993     <xsd:simpleContent>
994       <xsd:extension base="cbc:ValueType"/>
995     </xsd:simpleContent>
996   </xsd:complexType>
997   <xsd:complexType name="QualitiesType">
998     <xsd:annotation>
999       <xsd:documentation>Complex type for Quality elements </xsd:documentation>
1000     </xsd:annotation>
1001     <xsd:sequence>
1002       <xsd:element ref="Property" maxOccurs="unbounded"/>
1003       <xsd:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
1004     </xsd:sequence>
1005     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1006   </xsd:complexType>
1007   <xsd:complexType name="TimePeriodType">
1008     <xsd:annotation>
1009       <xsd:documentation>Complex type for Time period </xsd:documentation>
1010     </xsd:annotation>
1011     <xsd:sequence>
1012       <xsd:element ref="Duration">
1013         <xsd:annotation>
1014           <xsd:documentation>Duration to complete the service. It uses cbc:DurationMeasureType
1015             from UBL that has a required unitCode attribute for unit of measurement on the time.
1016         </xsd:documentation>
1017         </xsd:annotation>
1018       </xsd:element>
1019       <xsd:element ref="Latency" minOccurs="0">
1020         <xsd:annotation>
1021           <xsd:documentation>Latency is an optional element that describes the time delay before a
1022             service is expected to begin. It uses cbc:DurationMeasureType from UBL that has a required
1023             unitCode attribute for unit of measurement on the time. </xsd:documentation>
1024         </xsd:annotation>
1025       </xsd:element>
1026       <xsd:element ref="StartTime" minOccurs="0">
1027         <xsd:annotation>
1028           <xsd:documentation>StartTime is an optional element for the date and time to start the
1029             service. It uses udt:DateTimeType which is in UTC time format .</xsd:documentation>
1030         </xsd:annotation>
1031       </xsd:element>
1032     </xsd:sequence>
1033     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1034   </xsd:complexType>
1035   <xsd:complexType name="ThroughputType">
1036     <xsd:annotation>
1037       <xsd:documentation>Complex type for the throughput </xsd:documentation>
1038     </xsd:annotation>
1039     <xsd:sequence>
1040       <xsd:element ref="Duration">
1041         <xsd:annotation>
1042           <xsd:documentation>Duration element is a required element in the Throughput element.
1043             This is the duration to complete the service. It uses cbc:DurationMeasureType from UBL that has a
1044             required unitCode attribute for unit of measurement on the time. </xsd:documentation>
1045         </xsd:annotation>
1046       </xsd:element>
1047       <xsd:element ref="Quantity">
1048         <xsd:annotation>
1049           <xsd:documentation>Quantity is the numbers for the throughput, with an attribute of unit
1050             of measurement, such as EA, pounds, cubic-feet, etc. The numbers for the throughput, with
1051             attribute of Unit of measurement, such as EA, lb, cubic-feet, etc.</xsd:documentation>
1052         </xsd:annotation>
1053       </xsd:element>
1054       <xsd:element ref="Latency" minOccurs="0"/>
1055     </xsd:sequence>
1056     <xsd:anyAttribute namespace="##any" processContents="lax"/>
1057   </xsd:complexType>
1058 </xsd:schema>

```

1059

C. Non-Normative Text

1060

None

1061

D. Revision History

1062

Revision	Date	Editor	Changes Made
0.8	03/02/2009	Szu Chang	Initial draft
0.9	03/09/2009	Szu Chang	Change the syntax to include the data type
WD01	04/15/2009	Szu Chang	Rename draft 0.9 to working draft 0.1
WD02	04/29/2009	Szu Chang	Added whole example and some minor edits
WD03	05/07/2009	Szu Chang	Added issue list and some minor edits. This is to get ready for CD01
WD04	05/17/2009	Szu Chang	Added conformance section
WD05	06/24/2009	Szu Chang	Fixed issues I022, I026, I029, I032, I036, I039, and I045.
WD06	07/03/2009	Szu Chang	Fixed issues I026, I029, I033, I042, I044, I049 and I053.
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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