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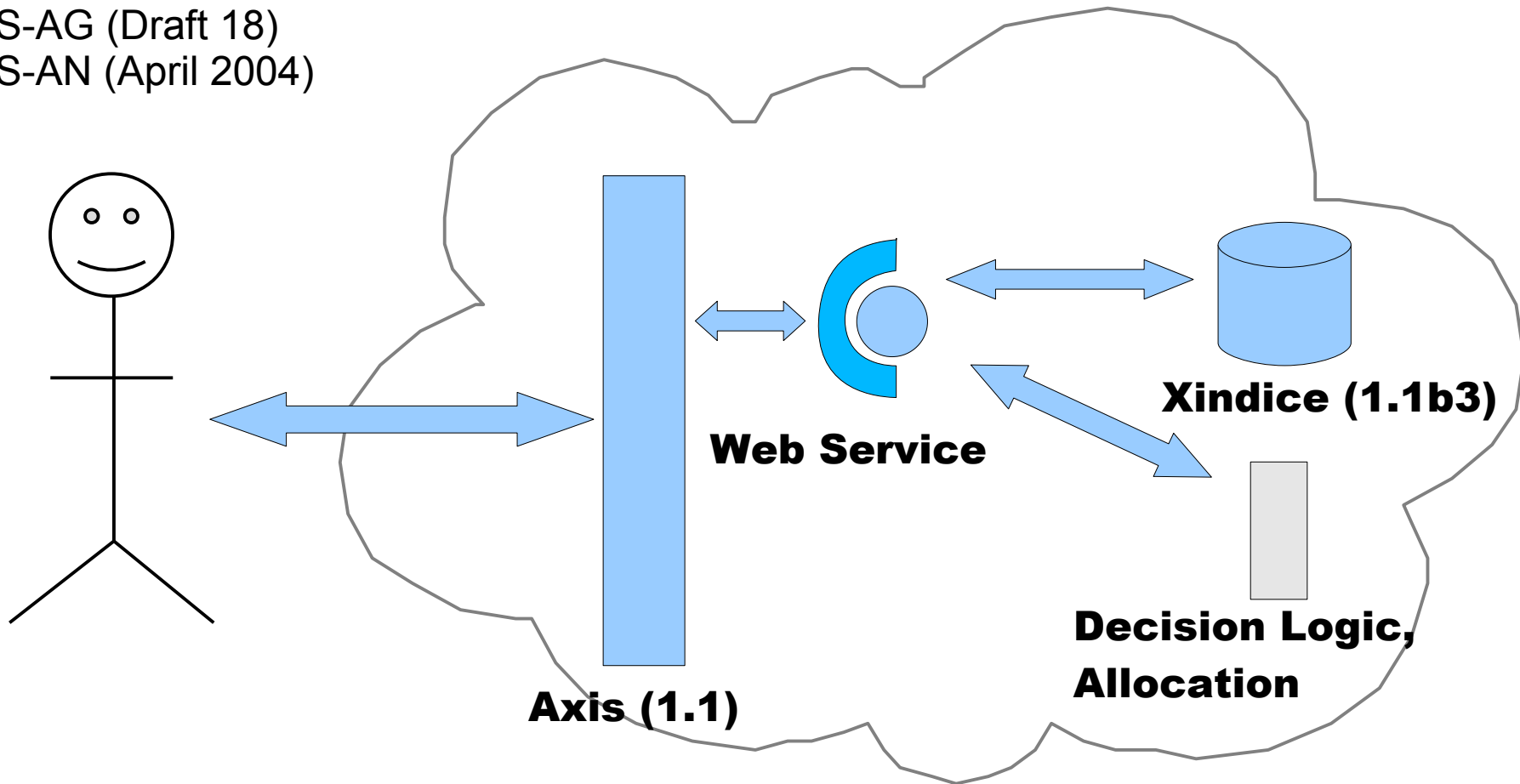# Framework for WS-Agreement Specification with Apache Axis

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Goals of the framework

WS-AG (Draft 18)
WS-AN (April 2004)

Web Service

Xindice (1.1b3)

Decision Logic,
Allocation

Axis (1.1)

Difficulties:
Internal XML representation

- Agreement representation in memory

- Java Beans (Axis default), sometimes not suitable
  - XPath expressions in variables
  - XML Schema not completely supported

- DOM tree
  - Axis allows to access SOAP messages
  - Advantage: all types supported (xsd:any)
  - No limitations by mapping but inconvenient
    (on server and client side)

- Used Axis to convert between the two (inefficient)

Difficulties:
Internal XML representation

- Namespace issues:

```
<wsag:AgreementOffer xmlns:xsi="..." xmlns:wsag="...">
  <wsag:Terms> ... </wsag:Terms>

   ...
  <wsag:Variable wsag:Name="..." wsag:Metric="...">
    <wsag:Location>
      /wsag:AgreementOffer/wsag:Terms/...
    </wsag:Location>
  </wsag:Variable>
```

- Once mapped to Java, prefixes are lost

- Workaround (just a hack!):
  static mapping of prefixes

Difficulties:
Axis support of XML mapping

- **`<xs:group ref="xs:simpleRestrictionModel"/>`**
  - Problem 1: **`xs:group`** (AXIS bug 1259)
  - Problem 2: **`xs:simpleRestrictionModel`**

- Workaround: replace with simpler subset in XML Schema namespace

- Necessary to specify data type: **`xs:any`** elements need **`@xs:type="..."`** (type is not bound to element name)

Difficulties: XML storage

- Apache Xindice

- Write once read many

- Modification language: XUpdate
  - No updates since 2000
  - Lacks support for namespaces

- Workaround:
  - Fetch document, modify, and write back
  - But Xindice has no support for transactions

Conclusion

- Axis has difficulties with XML mapping

- XPath might be a bad idea if we use mapped objects

- `xs:any` needs annotations: issues for interoperability

- `xs:simpleRestrictionModel`: difficult to support

- Xindice: don't use it :-)