

IBIS/XML – One step further

Atul P. Agarwal
IBIS Summit
Jan 2002



Atul P Agarwal
(C) Copyright 2002 Apt Software Avenues Pvt. Ltd CF-313, Sector I, Salt Lake, Calcutta- 700 064 , India
Email: atulapt@vsnl.com Web: www.aptsoftware.com

Outline

- Why I B I S/XML
- What has been demonstrated
- What needs to be done
- Issues



Why I B I S/XML

- Separation of content from presentation
- More structured representation
- New computing paradigms
 - Web Services



Presentation info in the IBI S spec

- *"A line of the file may have at most 80 characters"*
- *"If RLC parameters are available for individual pins, they can be listed in columns 4-6 under keyword [Pin]. "*
- *"The state line is terminated with the slash '/', even if it extends over several lines to fit within the 80 character column width restriction."*



XML advantages

- Simple
 - Standard
 - Structured
 - Textual
- The Fine print
- XML documents can be very large
 - XML documents are difficult to read easily (need tools)



Web Services

- a new breed of Web applications
- self-contained, self-describing, modular applications
- can be published, located, and invoked across the Web.
- other applications (and other Web services) can discover and invoke the deployed service.
- built on XML/HTTP

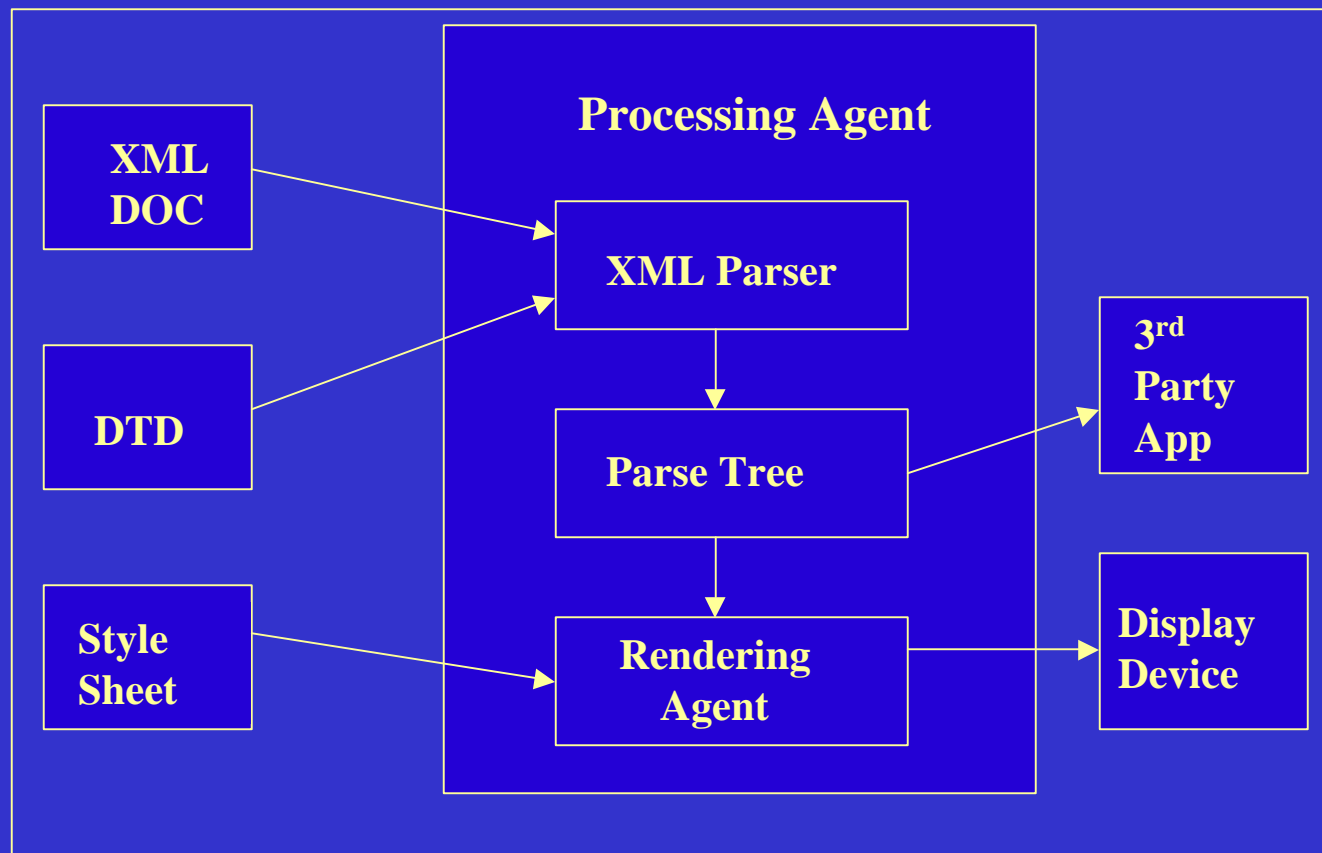


Web Services Support Components

- SOAP (remote invocation)
- UDDI (trader, directory service)
- WSDL (expression of service characteristics)
- XLANG/XAML (transactional support for complex web transactions involving multiple web services)
- XKMS (XML Key Management Specification) - ongoing work by Microsoft and Verisign to support authentication and registration



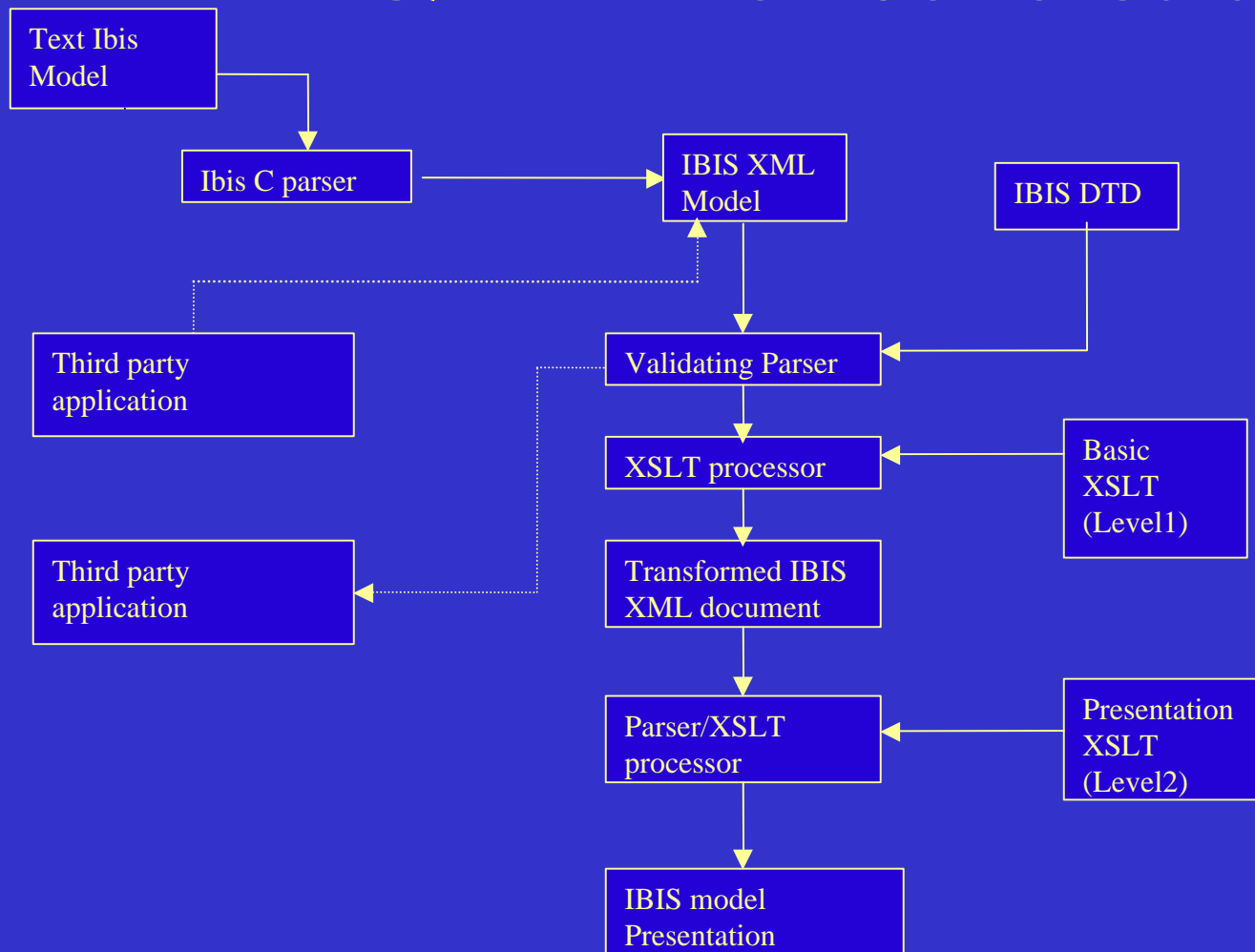
Processing an XML Document



Atul P Agarwal

(C) Copyright 2002 Apt Software Avenues Pvt. Ltd CF-313, Sector I, Salt Lake, Calcutta- 700 064 , India
Email: atulapt@vsnl.com Web: www.aptsoftware.com

IBIS/XML Flow demonstrated



Atul P Agarwal

(C) Copyright 2002 Apt Software Avenues Pvt. Ltd CF-313, Sector I, Salt Lake, Calcutta- 700 064 , India
Email: atulapt@vsnl.com Web: www.aptsoftware.com

IBIS/XML for Pin

```
<Pin>
  <Pin_name_section>
    <Pin_name Max_len="5"> A11 </Pin_name>
  </Pin_name_section>
  <Signal_name_section>
    <Signal_name Max_len="20" > wrn </Signal_name>
  </Signal_name_section>
  <Pin_model_name_section>
    <Model_name Max_len="40"> BT2Z50CX </Model_name>
  </Pin_model_name_section>
  <Pin_package_info_section>
  </Pin_package_info_section>
</Pin>
```



XSL for Transformation 1

```
<xsl:template match = "Pin" >
  <column width = "5" >
    <xsl:value-of select = "Pin_name_section/Pin_name" />
  </column>
  <column width = "15" >
    <xsl:value-of select = "Signal_name_section/Signal_name" />
  </column>
  <column width = "15" >
    <xsl:apply-templates select = "Pin_model_name_section" />
  </column>
  <xsl:apply-templates select = "Pin_package_info_section" />
</xsl:template>
```



```
java org.apache.xalan.xslt.Process
```

```
-I N Sample.xml
```

```
-XSL sampleformat.xsl
```

```
-OUT format.xml
```



Presentation XML for a Pin

<rowdata>

<column width="5"> **A14** </column>

<column width="15"> **a[7]** </column>

<column width="15"> **BT2Z50CX_PU50K** </column>

<column width="5"> **35m** </column>

<column width="5"> **3.69nH** </column>

<column width="5"> **0.48pF** </column>

</rowdata>



XSL for Transformation 2

```
<xsl:template match="rowdata">
  <xsl:for-each select="column">
    <xsl:choose>
      <xsl:when test="child:keyword">
      </xsl:when>
      <xsl:when test="child:comment">
        <xsl:apply-templates select="comment" />
      </xsl:when>
      <xsl:otherwise>
        <xsl:value-of select="text()" />
        <xsl:call-template name="do-the-padding">
          <xsl:with-param name="abc" select="text()" />
          <xsl:with-param name="width" select="@width" />
        </xsl:call-template>
      </xsl:otherwise>
    </xsl:choose>
  </xsl:for-each>
</xsl:template>
```



Generating the Text Format

```
java org.apache.xalan.xslt.Process
```

```
-IN format.xml
```

```
-XSL ibistextformat.xsl
```

```
-OUT sample1.ibs
```



The I B I S text format

A12 a[0] BT2Z50CX_PU50K 32m 3.45nH 0.46pF



XML for GND Clamp

```
<Gnd_clamp_section>
  <Comment>
    <Comment_char> | </Comment_char>
    <Comment_line> voltage I (typ) I (min) I (max) </Comment_line>
  </Comment>
  <Gnd_clamp>
    <voltage> <Number> -3.30000 </Number> </voltage>
    <typ> <Number> -11.46380A </Number> </typ>
    <min> <Number> -11.71150A </Number> </min>
    <max> <Number> 11.40800A </Number> </max>
  </Gnd_clamp>
</Gnd_clamp_section>
```



Elements vs Attributes

```
<Gnd_clamp_section>  
  <Comment>  
    <Comment_char> | </Comment_char>  
    <Comment_line> voltage I (typ) I (min) I (max) </Comment_line>  
  </Comment>  
  <Gnd_clamp>  
    <Point> voltage= -3.30000  
           typ      = -11.46380A  
           min      = -11.71150A  
           max      =  11.40800A  
    </Point>  
  </Gnd_clamp>  
</Gnd_clamp_section>
```



What next ?

- Standardize on the I B I S XML tags
- Standardize on the I B I S XML DTD/XSD
- Standardize on an I B I S Presentation XML
- Modify the Parser to generate XML



Issues

- XML is an evolving standard
- XSLT is complex
- DTD cannot capture the complete grammar
 - Need XSD (XML schema definition)
- Very few validating Parsers



Useful Links

- XML info
 - www.w3.org
 - www.xml.com
 - www.xslt.com
- EDA XML
 - <http://www.oasis-open.org/cover/xmlAndEDA.html>
 - <http://www.zapthink.com/online/acronyms.htm#>
- In House Info
 - <http://www.eda.org/pub/ibis/xml/>
 - <http://www.eda.org/pub/summits/jun00/labonte.zip>



Acknowledgments

- Bob Ross
 - For providing the sample I B I S models
- Pallavi Ray & Hriday Ranjan Daga
 - For doing all the hard work

