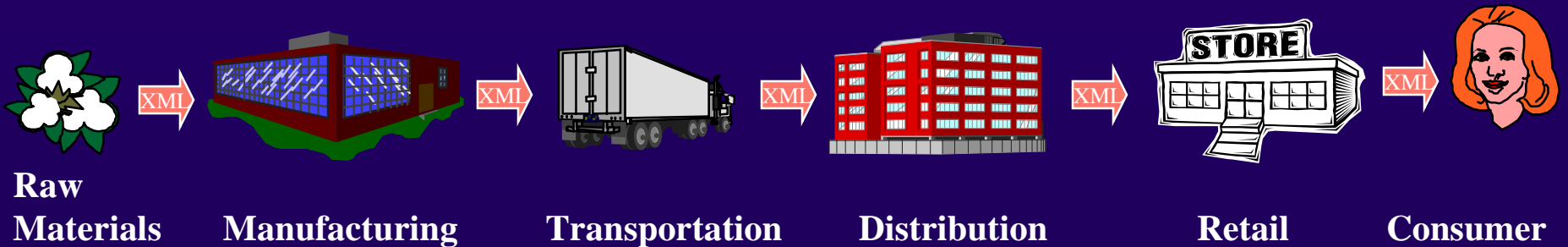


The Role of **XML** in B2B Integration



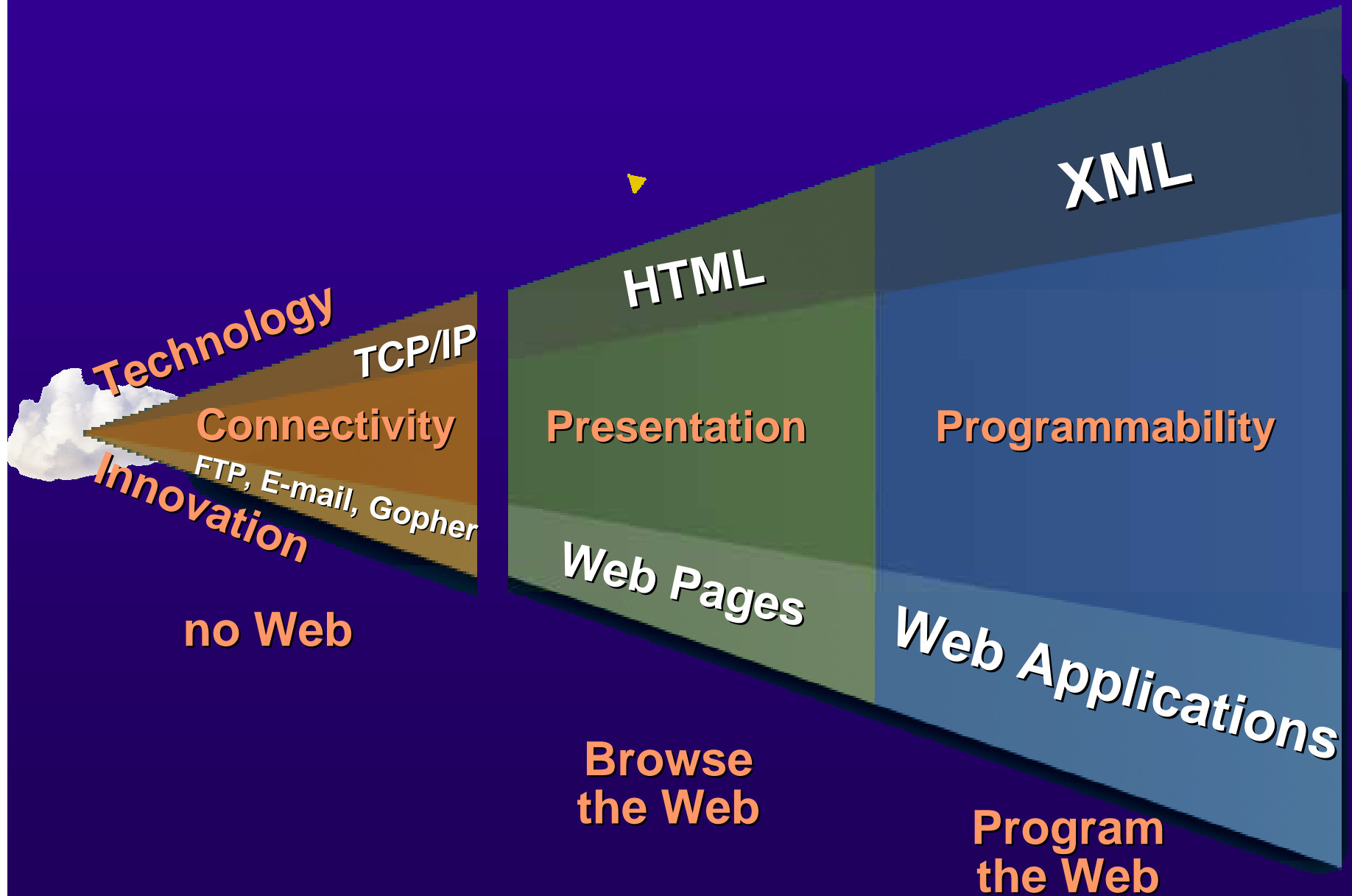
By Mike Parks



Goals For Today

- ✓ **Answer “What is XML”?**
- ✓ **Compare XML and EDI**
- ✓ **Define B2B Integration Requirements**
- ✓ **Demonstrate B2B Integration using XML**

Technical Evolution Of The Internet



What Is XML ?

eXtensible Markup Language is a set of specifications from the World Wide Web Consortium (W3C)

XML is a

- ◆ **set of rules that defines what a valid markup tag is**
- ◆ **method for putting structured data into a text file**
- ◆ **family of “vocabularies” that provide sets of tags or guidelines for specific industries**
- ◆ **subset of SGML**

What's so great about XML?

- ◆ The data is self-describing
- ◆ Flexible way of representing data
- ◆ *Platform and device independent*
- ◆ *Leverages the Internet*
- ◆ *Widely accepted standard*

Example: Self-describing data

Data stream in a typical interface...

“ABC47-Z”, “100”, “STL”, “C”, “3”, “28”

Same data stream in XML...

<Inventory>

<PartNum>ABC47-Z</PartNum>

<Quantity>100</Quantity>

<Warehouse>STL</Warehouse>

<Zone>C</Zone>

<Aisle>3</Aisle>

<Bin>28</Bin>

</Inventory>

DTD and Schema

◆ Document Type Definition

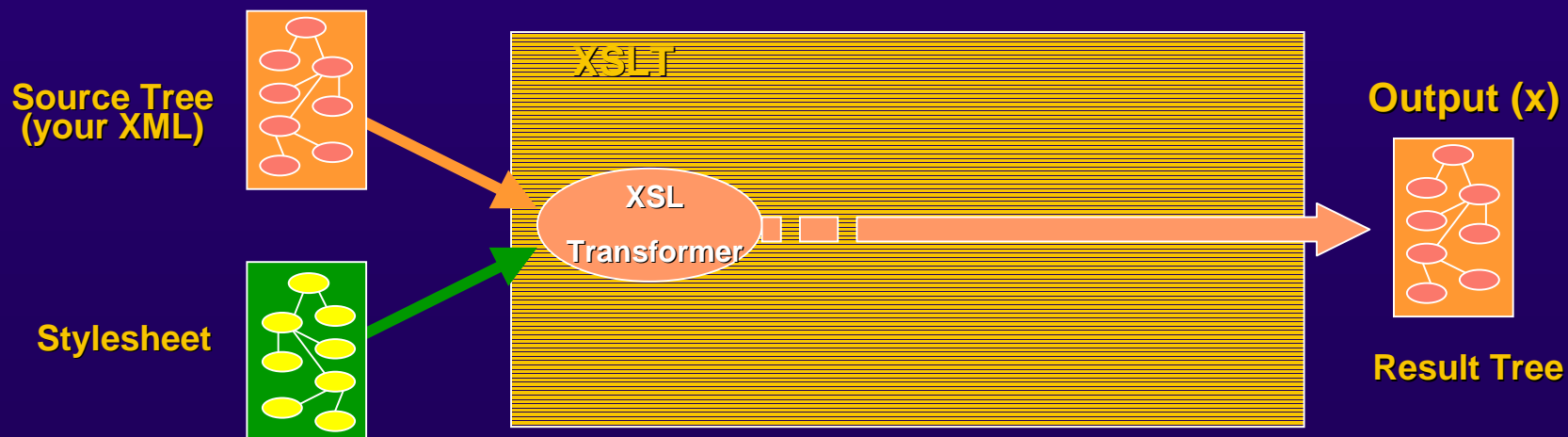
- defines the legal building blocks of an XML document
- can be declared inline in your XML document, or as an external reference

◆ Schema

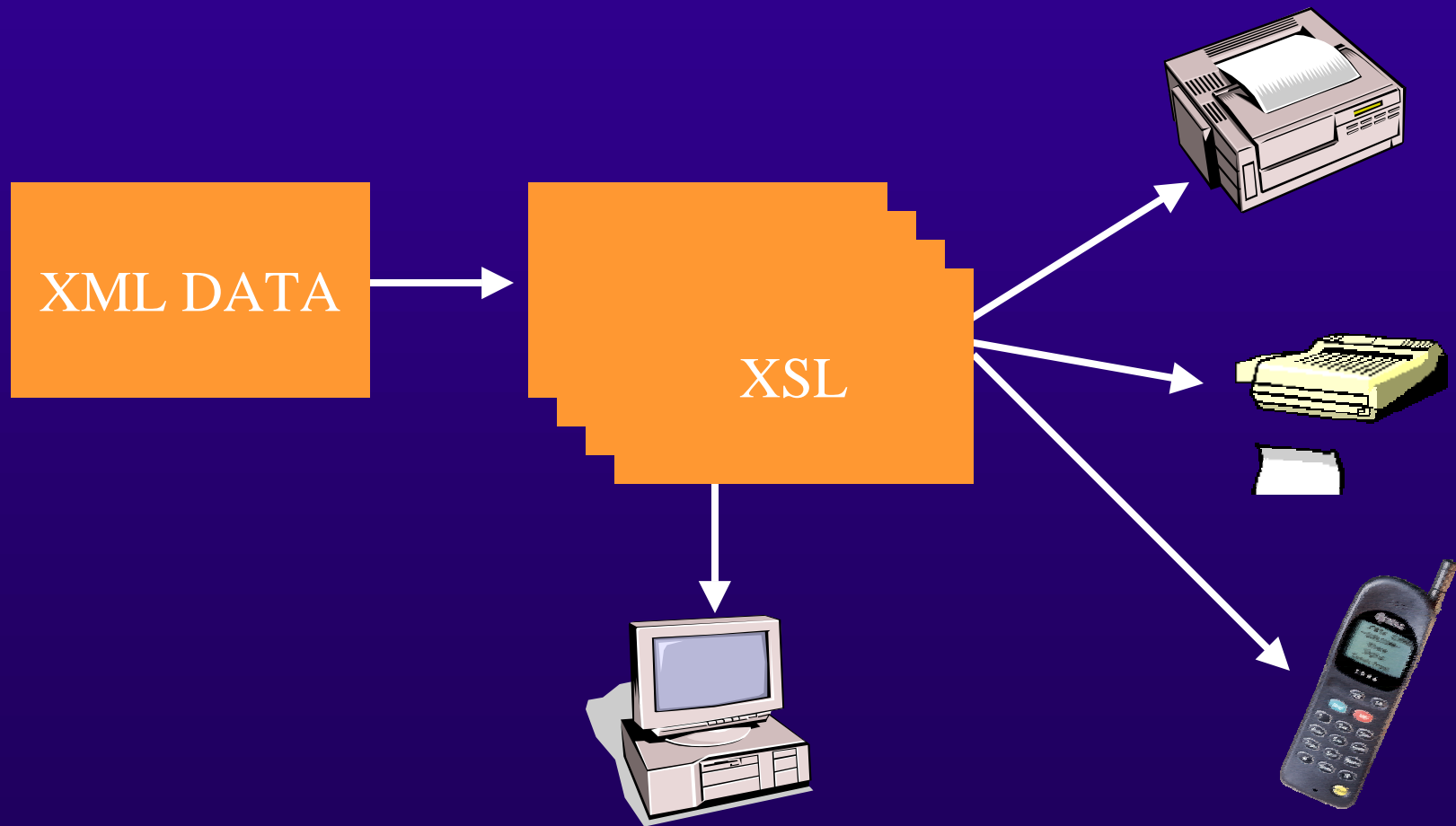
- an XML based alternative to DTD
- describes the structure of an XML document

XSL (eXtensible Stylesheet Language)

- ◆ XSLT (eXtensible Stylesheet Language: Transformation)
- ◆ A language for transforming the structure of an XML document



Transforming XML for Presentation or Business



```

<?xml version="1.0"?>
<AUCTIONBLOCK>

  <ITEM>
    <TITLE>Vase and Stones</TITLE>
    <ARTIST>Linda Mann</ARTIST>
    <DIMENSIONS>20x30 inches</DIMENSIONS>
    <MATERIALS>oil</MATERIALS>
    <YEAR>1996</YEAR>
    <DESCRIPTION>Still Life</DESCRIPTION>
    <PREVIEW-SMALL src="bur1-s.jpg" width="300"
height="194" alt="Vase and Stones"/>
    <BIDS>
      <BID>
        <PRICE>6000</PRICE>
        <TIME>3:02:22 PM</TIME>
        <BIDDER>Chris</BIDDER>
        <TIMESTAMP>1307</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5700</PRICE>
        <TIME>2:58:42 PM</TIME>
        <BIDDER>John</BIDDER>
        <TIMESTAMP>1315</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5600</PRICE>
        <TIME>2:54:32 PM</TIME>
        <BIDDER>Andrew</BIDDER>
        <TIMESTAMP>1308</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5500</PRICE>
        <TIME>2:48:08 PM</TIME>
        <BIDDER>Chris</BIDDER>
        <TIMESTAMP>1307</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5000</PRICE>
        <TIME>2:47:58 PM</TIME>
        <BIDDER>opening price</BIDDER>
        <TIMESTAMP>1298</TIMESTAMP>
      </BID>
    </BIDS>
  </ITEM>
</AUCTIONBLOCK>

```

table.xml

Price	Time	Bidder
\$6000	3:02:22 PM	Chris
\$5700	2:58:42 PM	John
\$5600	2:54:32 PM	Andrew
\$5500	2:48:08 PM	Chris
\$5000	2:47:58 PM	opening price

bar.xml

Vase and Stones by Linda Mann

Chris (3:02 PM)	\$6000
John (2:58 PM)	\$5700
Andrew (2:54 PM)	\$5600
Chris (2:48 PM)	\$5500
\$5000 opening price (2:47 PM)	

art.xml



Vase and Stones
Linda Mann

Size: 20x30 inches Oil, 1996

High bid: \$5700 (John)
Opening bid: \$5000

Copyright © 1997 Linda Mann, all rights reserved.
Linda Mann Art Gallery

```
auction1.xml - Notepad
File Edit Format Help
<?xml version="1.0"?>
<AUCTIONBLOCK>

  <ITEM>
    <TITLE>Vase and Stones</TITLE>
    <ARTIST>Linda Mann</ARTIST>
    <DIMENSIONS>20x30 inches</DIMENSIONS>
    <MATERIALS>oil</MATERIALS>
    <YEAR>1996</YEAR>
    <DESCRIPTION>Still Life</DESCRIPTION>
    <PREVIEW-SMALL src="burl-s.jpg" width="300"
height="194" alt="Vase and Stones"/>
    <BIDS>
      <BID>
        <PRICE>6000</PRICE>
        <TIME>3:02:22 PM</TIME>
        <BIDDER>Chris</BIDDER>
        <TIMESTAMP>1307</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5700</PRICE>
        <TIME>2:58:42 PM</TIME>
        <BIDDER>John</BIDDER>
        <TIMESTAMP>1315</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5600</PRICE>
        <TIME>2:54:32 PM</TIME>
        <BIDDER>Andrew</BIDDER>
        <TIMESTAMP>1308</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5500</PRICE>
        <TIME>2:48:08 PM</TIME>
        <BIDDER>Chris</BIDDER>
        <TIMESTAMP>1307</TIMESTAMP>
      </BID>
      <BID>
        <PRICE>5000</PRICE>
        <TIME>2:47:58 PM</TIME>
        <BIDDER>opening price</BIDDER>
        <TIMESTAMP>1298</TIMESTAMP>
      </BID>
    </BIDS>
  </ITEM>
</AUCTIONBLOCK>
```

ie5.xml
ie4.xml
nav3.xml



nokia.xml
sony.xml



edi_x.xml
sap_y.xml
flat_z.xml



XML Transformation Example

- ◆ XML newsfeed
- ◆ XSL Transformation
- ◆ Result = XHTML (displayed in browser)



news.xml



news.xsl



Top IT News Stories

[Microsoft, AOL talks at an impasse](#)

[NVidia brings Xbox technology to the PC](#)

[Sega and Sony to link game consoles](#)

[AMD doubles down with Athlon MP](#)

[Germany to allow 3G cost sharing](#)

[Nextel Users Can Now Listen to E-mail](#)

[Windows of the Soul](#)

[The Standard: Lawsuits Speak Louder Than Words](#)

[H-P Agrees to Pay Pitney-Bowes \\$400 Million to Settle Legal Battle](#)

[Latest Microsoft launch aimed at couch potatoes](#)

[Sun redraws Java blueprint](#)

Electronic Data Interchange (EDI)

- ◆ **Standards based (ANSI X12 and UN/EDIFACT) application to application transfer of business documents between computers and business partners**
- ◆ **Over 90% of Fortune 1,000 firms use EDI**
- ◆ **But only 5% of smaller firms do**

Problems with EDI

- ✓ Messages are difficult to decipher.
- ✓ Needs dedicated EDI server and VAN.
- ✓ Costly to implement and maintain.
- ✓ Compatibility between X12 and EDIFACT not good.

EDI Vs XML

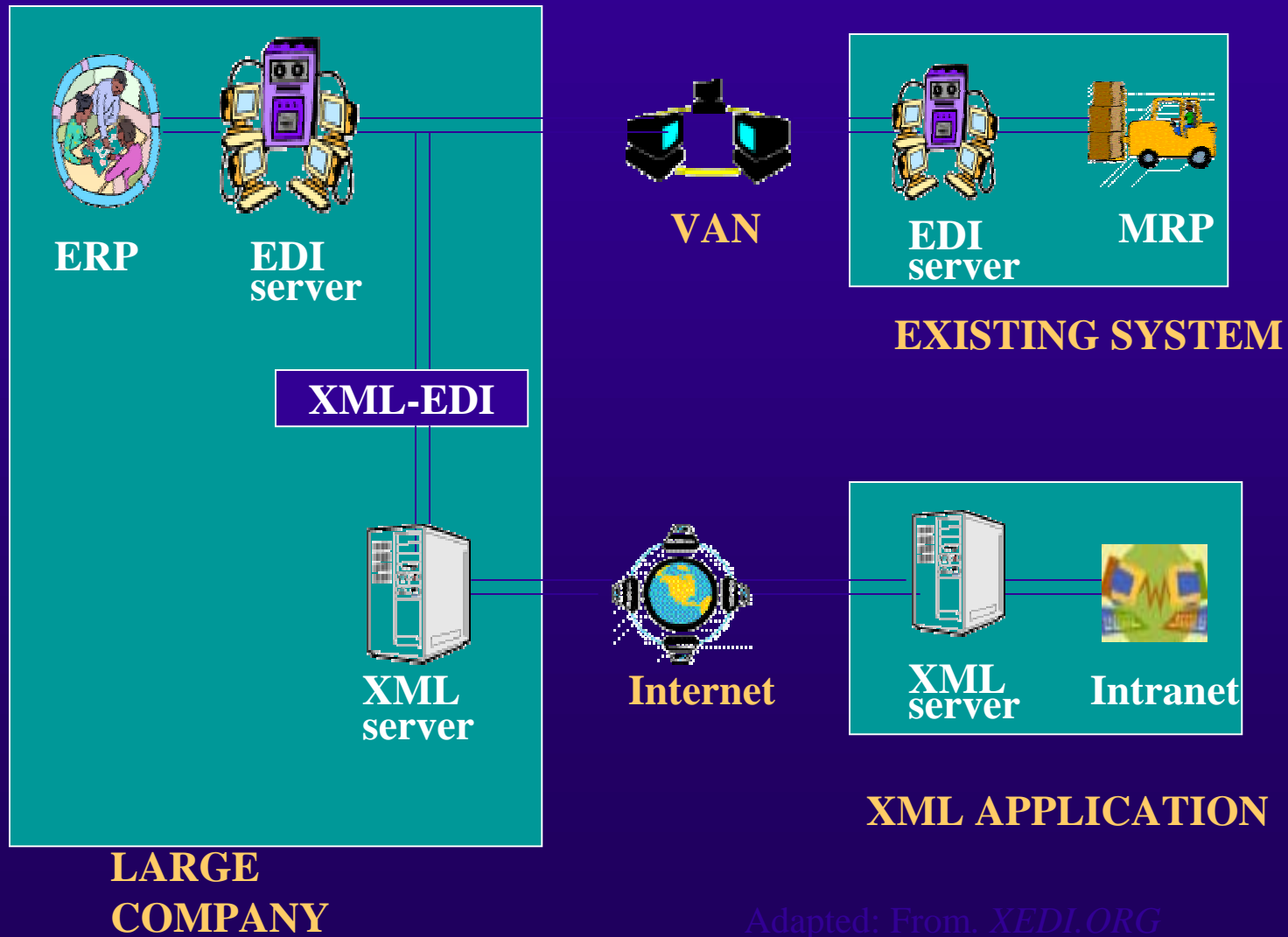
EDI

```
ISA*00*                *00*                *08*61112500TST  1*DEMO WU000003
*970911*1039*U00302000009561*O*P?
GS*PO*6111250011*WU000003 *970911*1039*9784*X*003020
ST*850*397822
BEG*00*RE*1234** 990208
REF*AH*M109
```

XML

```
< ?xml version="1.0" ? >
< purchase-order
  < header >
    < po-number >1234< /po-number >
    < date >1999-02-08< /date >< time >14:05< /time >
  < /header>
```

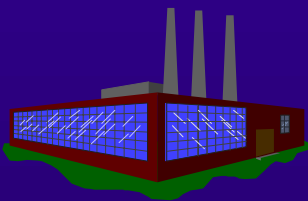
XML\EDI TRADING SYSTEM



Adapted: From, *XEDI.ORG*

B2B Integration

Balancing Supply and Demand By Synchronizing The Flow of Information Throughout the Supply Chain



Suppliers

- *Forecasts*
- *Schedules*
- *Orders*
- *Product plans & designs*
- *Capacities*
- *Delivery performance*

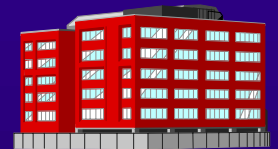


The Enterprise

**Enterprise Integration:
Coordinating Functions**

- Integrated manufacturing process control measures
- Global inventory balances
- Product data
- Production capacities
- Consolidated financial results
- Order status

- *Forecasts*
- *Inventory balances*
- *Orders*
- *Delivery performance*



**Distributors
&
Customers**

B2B Integration Solutions

- ◆ **Custom solutions**
 - Expensive
 - Doesn't scale
 - Proprietary
- ◆ **Electronic Data Interchange (EDI)**
 - Expensive
 - Un-extensible
 - Two standards (X12 & EDIFACT)
- ◆ **XML**
 - Less expensive
 - Scales very well
 - Highly extensible
 - Single standard supported by W3C

XML Integration Approach

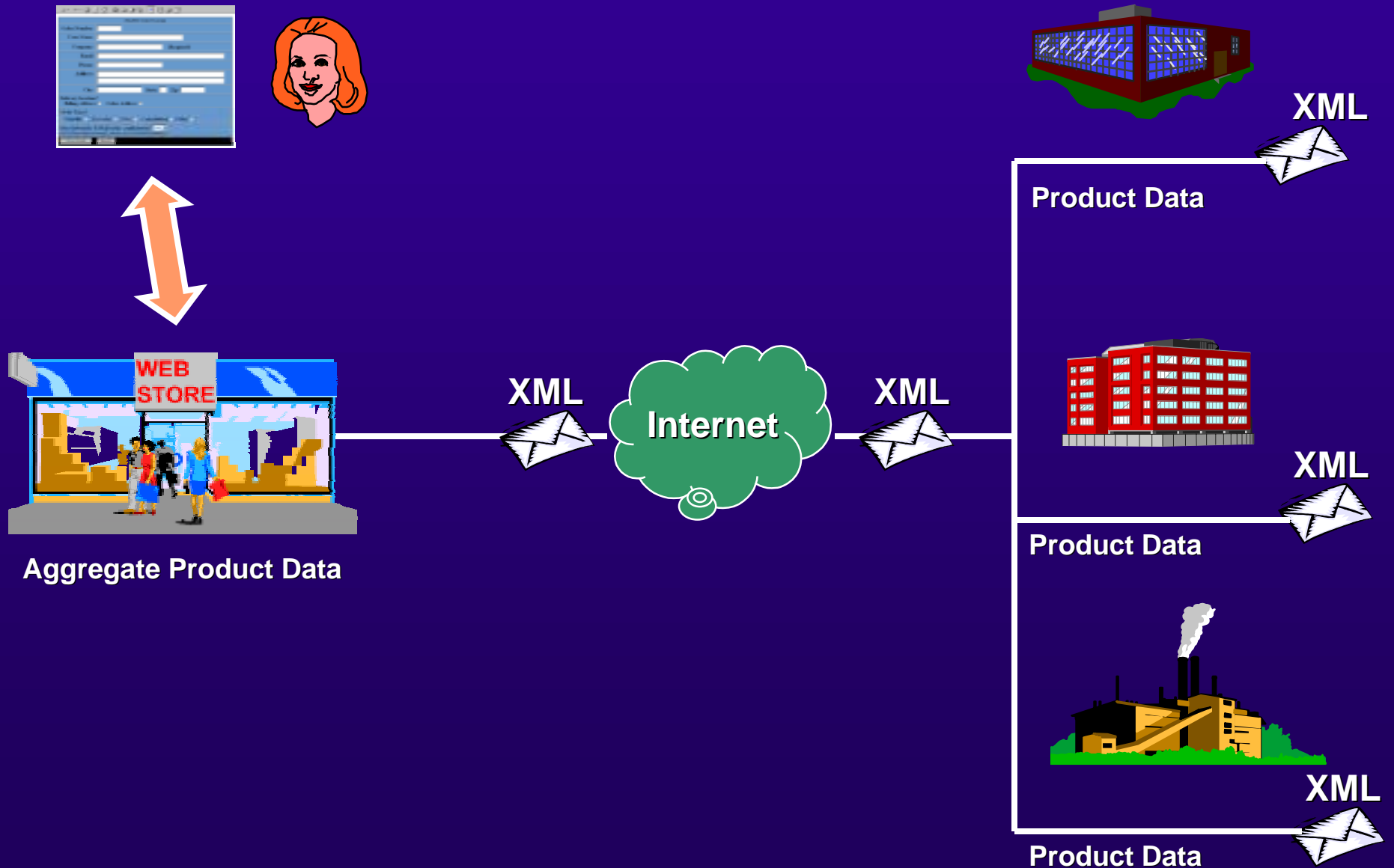
◆ Drop box

- XML document created and “dropped” onto a web server, where it waits to be “picked-up” by another application

◆ Dynamic

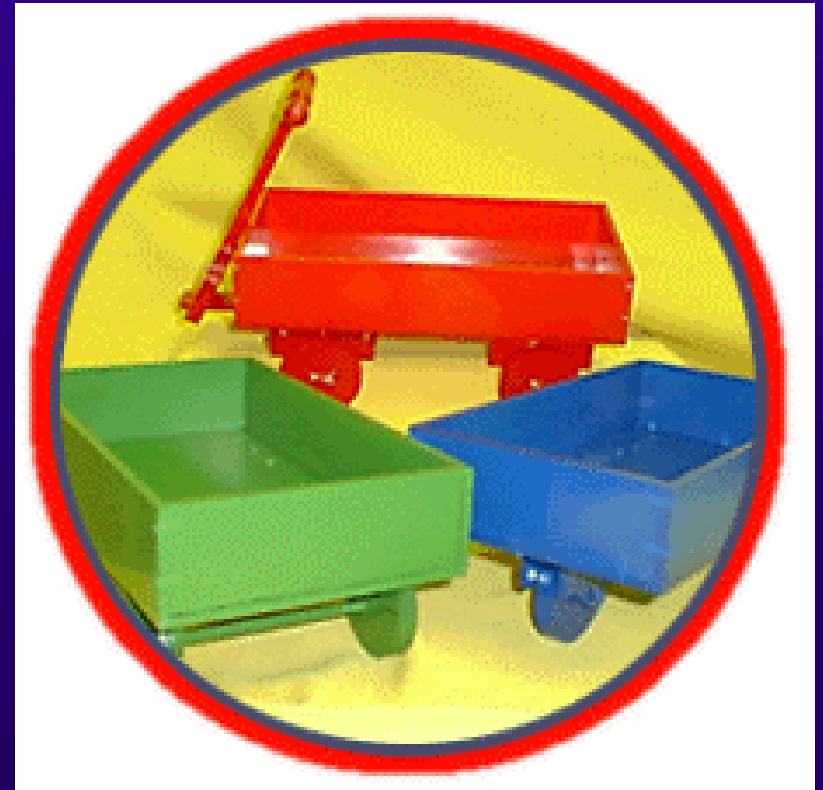
- XML document created and immediately transferred to receiving application

B2B Integration Example



Wagon Supply Chain

- ◆ **Three products**
 - **Wagon**
 - **Wheelbarrow**
 - **Garden Cart**



Wagon Supply Chain

Customers



Wagonstore.com

- Pure-play e-tailer
- Product aggregator



ManufacturingSystems.net

- DTD/Schema Repository
- Validation

XML



Internet

XML



Catalog.xml



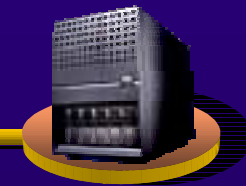
Wagonwarehouse



Catalog.xml



Wagonho



Catalog.xml



WagonParts



Catalog.xml



RedWagons

Catalog.xml

```
<?xml version="1.0" ?>
- <root>
- <Supplier ID="WagonWarehouse">
  - <Products>
    <Item ID="L100" Color="Red" Cat="Wagons" Price="250" QOH="10" />
    <Item ID="W100" Color="Clear" Cat="Wheelbarrows" Price="150" QOH="1" />
    <Item ID="L200" Color="Green" Cat="Wagons" Price="250" QOH="5" />
    <Item ID="W167" Color="Blue" Cat="Wheelbarrows" Price="150" QOH="3" />
  </Products>
</Supplier>
</root>
```