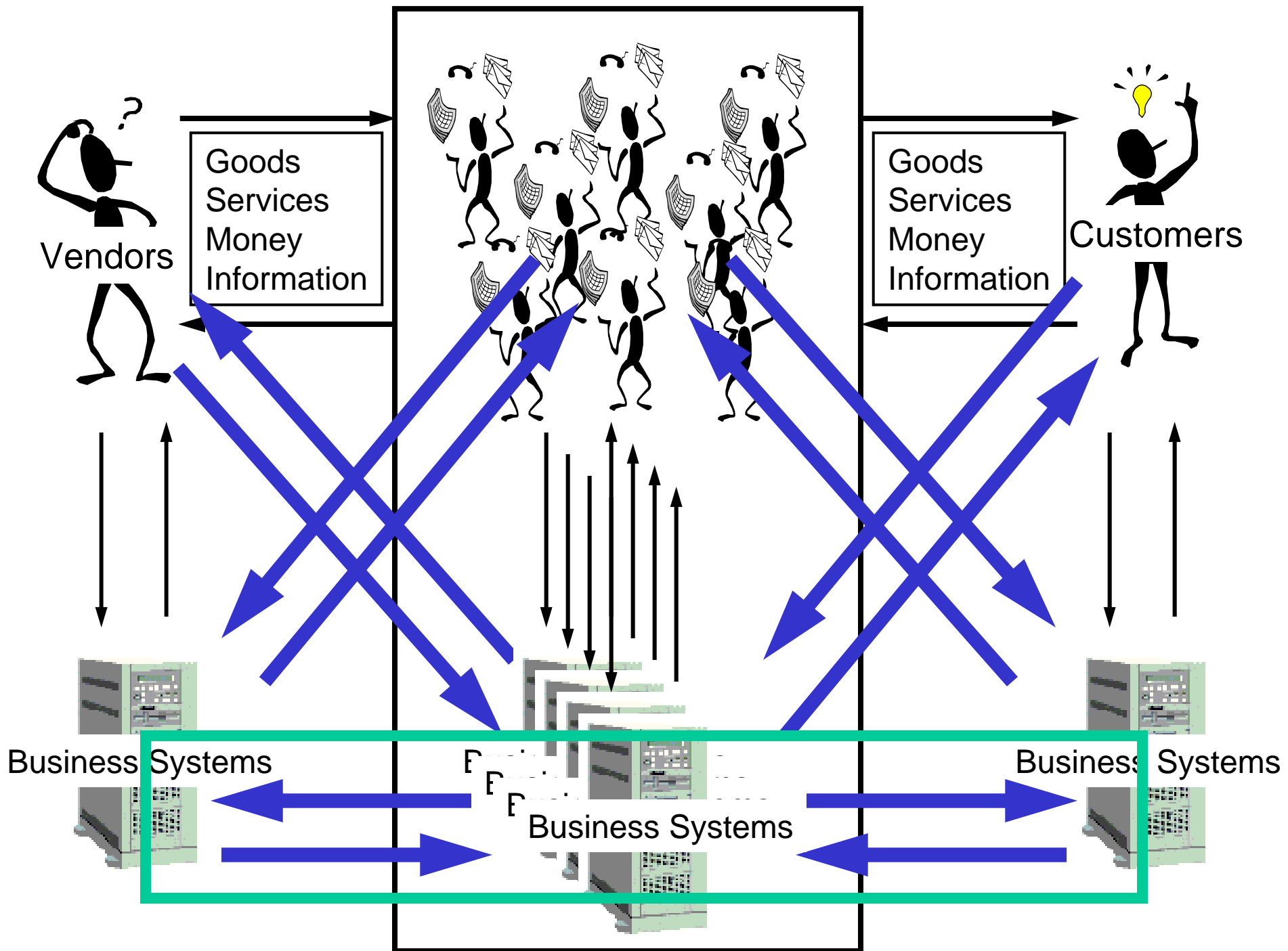


Electronic Commerce:

The Good, the Bad, and the Ugly

Presented by

Salvatore T. March
David K. Wilson Professor of Management
Owen Graduate School of Management
Vanderbilt University
Nashville, TN 37203
Sal.March@owen.vanderbilt.edu
<http://www.SalMarch.com>



Networked IT Architecture

Back End



DB Server



Engineering



Purchasing Accounting



Marketing CRM



Operations SCM

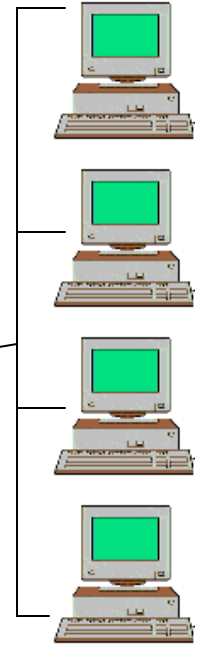


Proprietary Applications



Order Processing

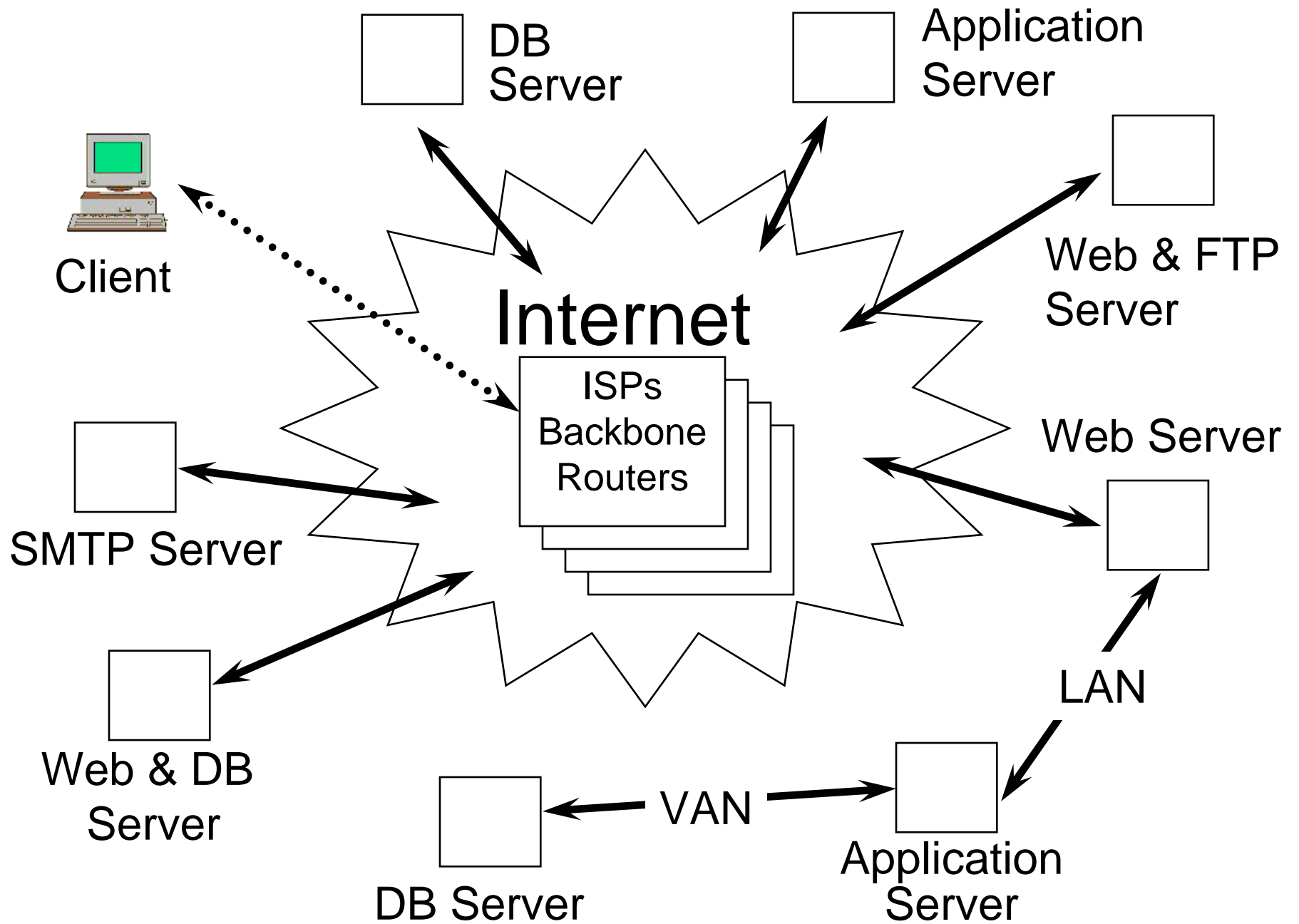
Application and Database Servers



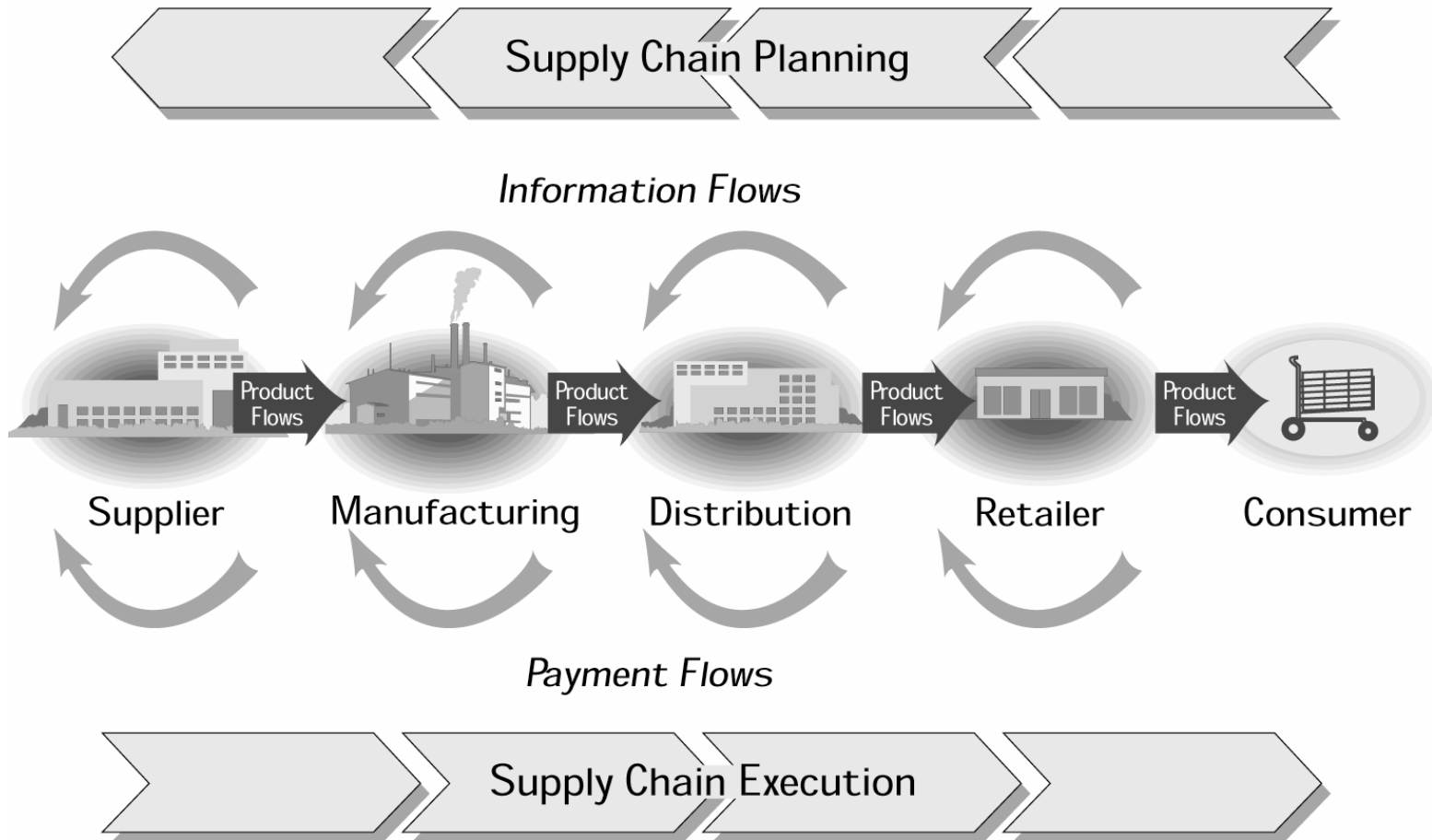
Clients



Warehouse

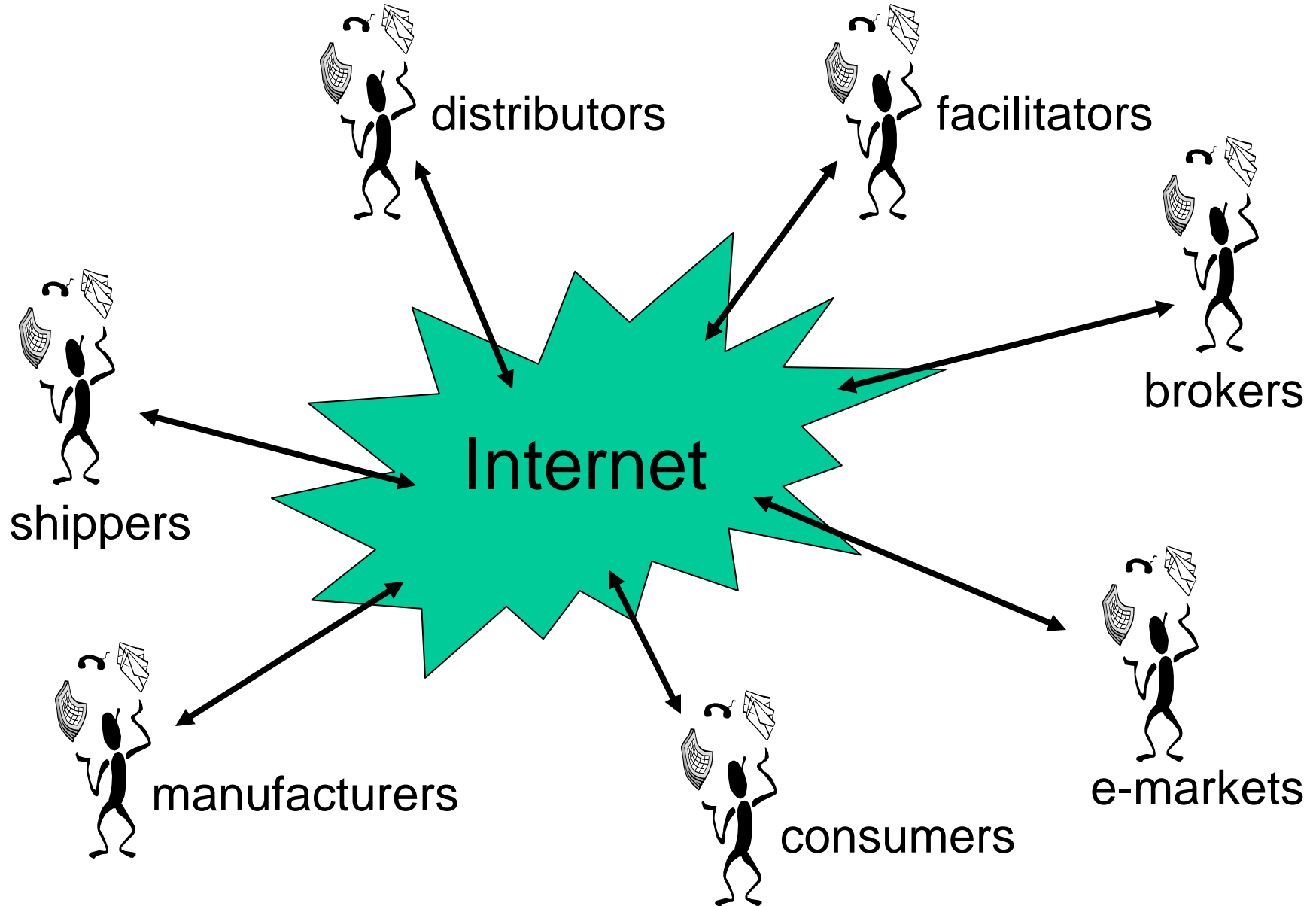


Supply Chain Management



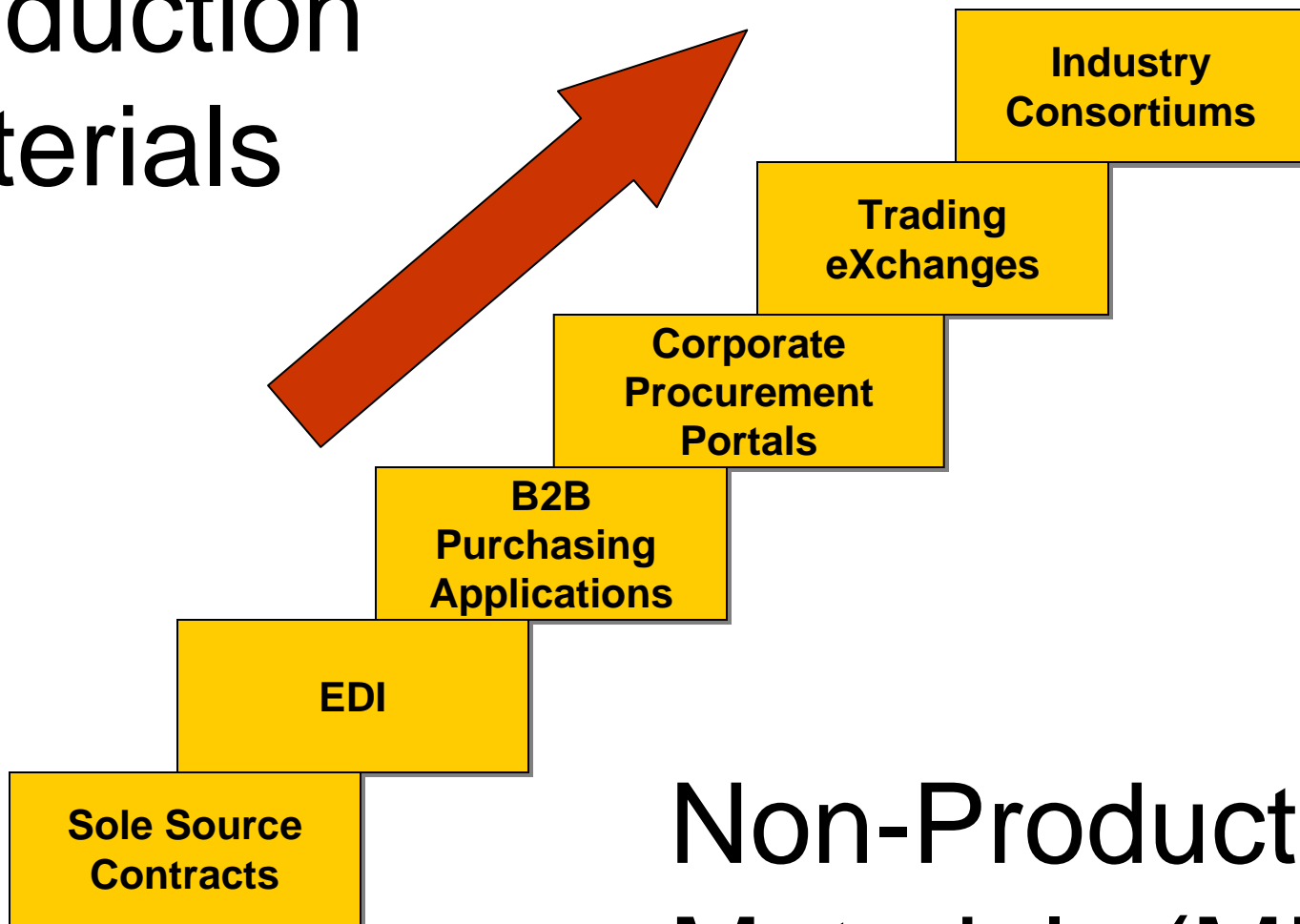
How does EC change SCM?

Internet-Enabled Value Web



Procurement Models

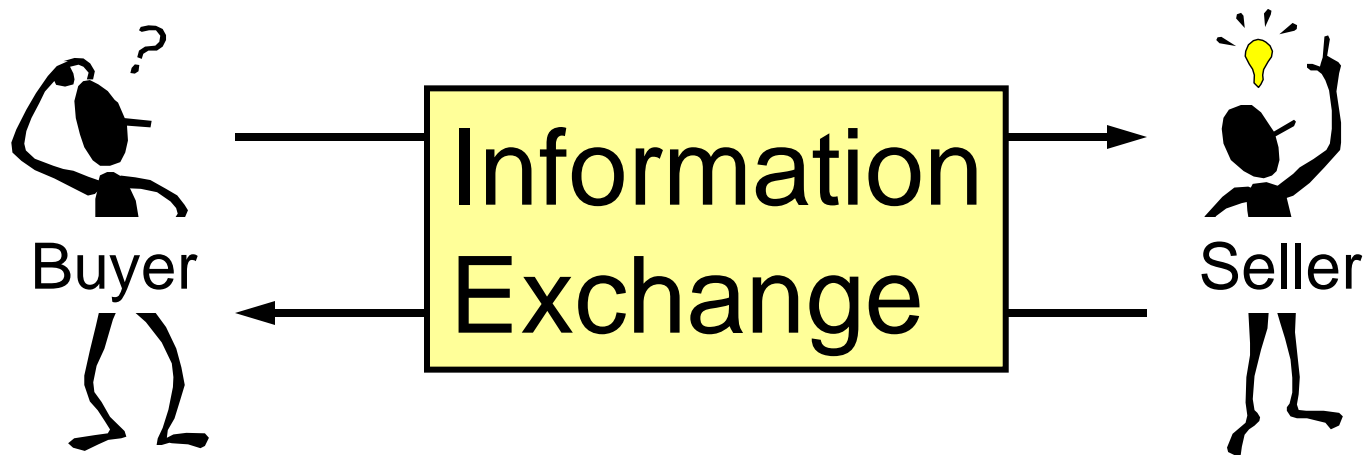
Production
Materials



Non-Production
Materials (MRO)

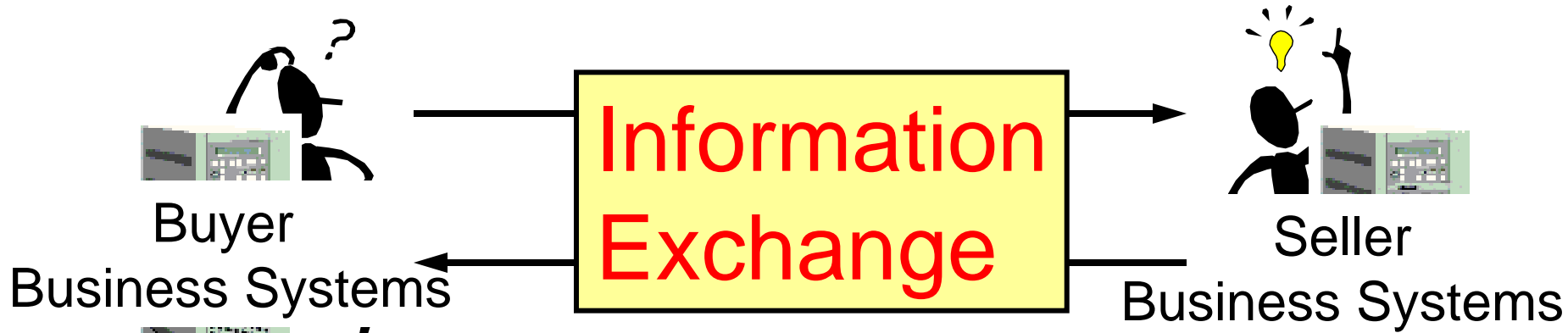
Electronic Data Interchange (EDI)

EDI is a set of standards for defining the *content* and *format* of documents used in business transactions. Business partners often establish contractual trading parameters, e.g., products, prices, and terms, and decide on the appropriate set of documents to enable electronic transactions. These are exchanged through an EDI vendor (intermediary) such as [Global eXchange Services \(GXS\)](#) or [Sterling Commerce](#). EDI vendors ensure: identity, validation, integrity, security, tracking, and non-repudiation.



Set-up for EDI:

- Product Catalog (Numbers, Descriptions, Unit of Sale, Prices)
- Delivery Options and Instructions
- EDI Identifier (both partners)
- EDI Vendors
- Version of Standard and Documents
- Role of EDI Vendors
- What to do when something "goes wrong"



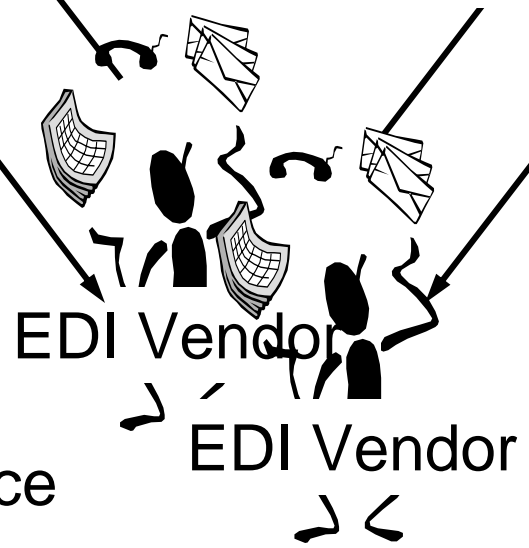
850
860*
820

855*
856

850
860*
820

855*
856

- 850 – Purchase Order
- 855 – PO Ack
- 860 – PO Change
- 856 – Ship Notice
- 820 – Remittance Notice



* if needed

ISA*00* *00* *ZZ*13440784565I *12*6129438557 *

GS*PO*13440784565I*6129438557*000222 *0002301

ST*850*000100005

BEG*00*RL*987661**000815**AC*INR

PER*BD*Computer Generated*TE*301-111-1111

DTM*002*000816

N1*ST*Star Refinery*ZZ*Contract No 1242

PER*RP*Fred Friendly*TE*301-222-2222

PO1* 1*20*EA*54.805*IN*21228

PO1* 2*5*RL*47.23**IN*34253

PO1* 3*2000*LF*1.24*IN*61828

CTT*3

SE*11*000100005

GE*1*0001

IEA*1*0002301

An 850 – Purchase
Order Document

EDI Value Propositions

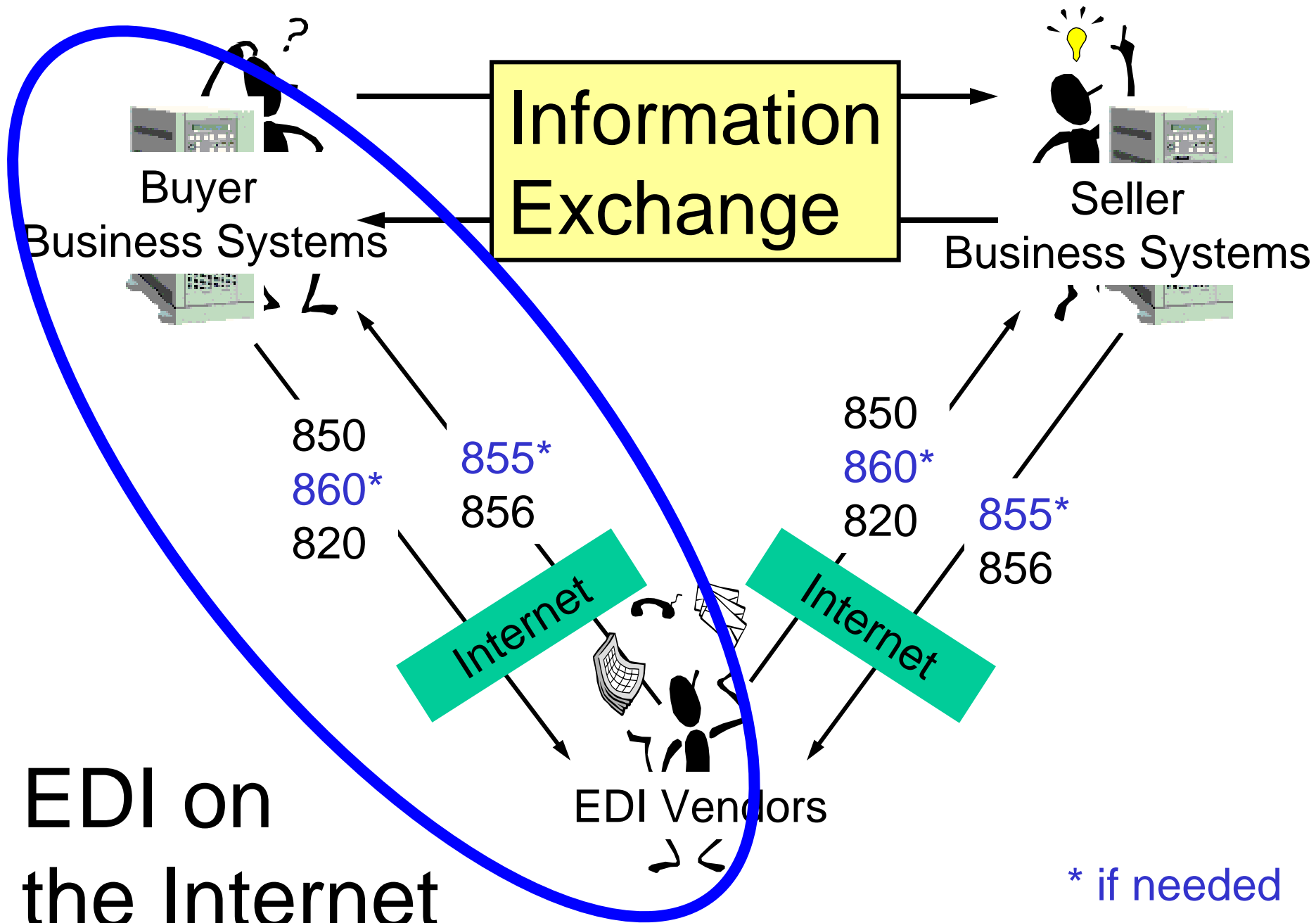
- Reduce Transaction Costs
 - Reduce Human Interaction
 - Reduce Errors
- Increase Transaction Speed
- Enable Integration
- Common Standard
- Security and Tracking
- Validation and Non-repudiation

Automation & Integration

- Sending / Receiving Documents
- Production of EDI PO 850 (buyer)
- Entry into Order Processing System (seller)
- Generation of EDI PO Acknowledgement 855 (seller)
- Generation of EDI Change 860 (buyer)
- Generation of EDI Ship Notice 856 (seller)
- Payment and generation of EDI Remit Notice 820 (buyer)
- Payment Receipt (seller)

What are the Problems?

- Product catalogs must be entered into the buyer's purchasing system
- Many smaller companies lack the technical resources to automate and to integrate with their existing systems (ERP, SCM)
- Traditional EDI vendors can be expensive (e.g., \$0.30 per 1000 characters transferred)
- Exchanges are limited to standard EDI docs
- Significant set-up costs for each partner
- Not interactive (electronic message in a bottle)
- Limited visibility (partner to partner)



EDI on the Internet

* if needed

What Data Must Be Shared?

- Product Catalogs
- Sales Forecasts
- Current Inventory Levels
- Current Sales Orders
- Production Schedules
- Planned Promotions
- Product Designs & Changes
- Product Quality & Test Results
- Contracts

EDI document definitions are not sufficient!

XML

- XML – a hierarchic, tag-based *language* for describing data content in the form:
`<tag>data</tag>`
- Allows trading partners to define the data that will be exchanged
- Directly transmitted to partner over the Internet or via an e-marketplace
- Object support is available for software to import exchanged data directly into procurement or ERP systems for immediate processing (Web Services)

A PO in XML

Address  <http://dev.owen.vanderbilt.edu/ITEC/Purchase.xml>


 Go

Links 

```
<?xml version="1.0" ?>
<!-- PO.xml -->
- <purchase>
- <seller>
  <sname>Joe's Clothes</sname>
  <saddress>321 Nowhere St.</saddress>
  <scity>Minneapolis</scity>
  <sstate>Minnesota</sstate>
  <szip>55412</szip>
</seller>
- <buyer>
  <name>Chuck Wood</name>
  <address>123 Nowhere St.</address>
  <city>Minneapolis</city>
  <state>MN</state>
  <zip>55432</zip>
</buyer>
<line itemnum="1" itemdesc="Cap" unitprice="20" quantity="1" total="20" />
<line itemnum="2" itemdesc="Sweatshirt" unitprice="30" quantity="1"
  total="30" />
<transaction ponum="1" date="4/17/05" subtotal="50" tax="3" total="53"
  due="12/18/00" />
</purchase>
```

<C:\XML\Purchase.xml>

 Done

 Internet

XML PO Formatted using PO.xls

Address <http://dev.owen.vanderbilt.edu/ITEC/Purchasef.xml>

Go

Links

Joe's Clothes

321 Nowhere St.
Minneapolis Minnesota 55412

Sold to:

Chuck Wood
123 Nowhere St.
Minneapolis MN 55432

<C:\XML\PurchaseF.xml>

4/17/50

Item Number	Item Description	Unit Price	Quantity	Total
1	Cap	20	1	20
2	Sweatshirt	30	1	30
			<i>SUBTOTAL:</i>	<i>50</i>
			<i>TAX:</i>	<i>3</i>
			<i>TOTAL:</i>	<i>53</i>
			<i>DUE DATE:</i>	<i>5/18/05</i>

Done

Internet

XML Data Exchange

Each partner must agree on what data will be exchanged -- **tags** and their **meanings**. XML documents are technically no easier or harder to process than EDI documents. Software can be constructed to translate between EDI and XML for standard EDI documents. EDI has a fixed number of document definitions. XML allows new document type definitions (DTDs). The result is a proliferation of DTDs. Furthermore, direct buyer-seller XML communication lacks any mechanism for authentication, security, and non-repudiation provided by EDI vendors.

XML Standards Efforts

Standard XML tags (DTDs) would enable software to interpret information from different vendors. *Currently these do not exist except in specific industries.*

- [Rosetta Net](#) - Electronic Components (EC) and Semiconductor Manufacturing (SM)
- [CIDX™](#) - Chemicals Industry (ChemXML) implemented in the chemicals e-marketplace [ELEMICA](#)
- [ebXML](#) - Generic business exchanges - sponsored by [UN/CEFACT](#) and [OASIS](#)

Electronic Procurement

Company Specific Web Sites (Articles)

- [Unilever](#)
- [GEPolymerland](#)
- [Volkswagen](#)

Shared Electronic Markets (Links)

- [Covisint](#) ([EDI-XML article](#))
- [FreeMarkets](#)
- [CommerceOne](#)
- [TradeRanger](#)
- [Marketplace@Novation](#) ([article](#))

Seller-Side Private Market

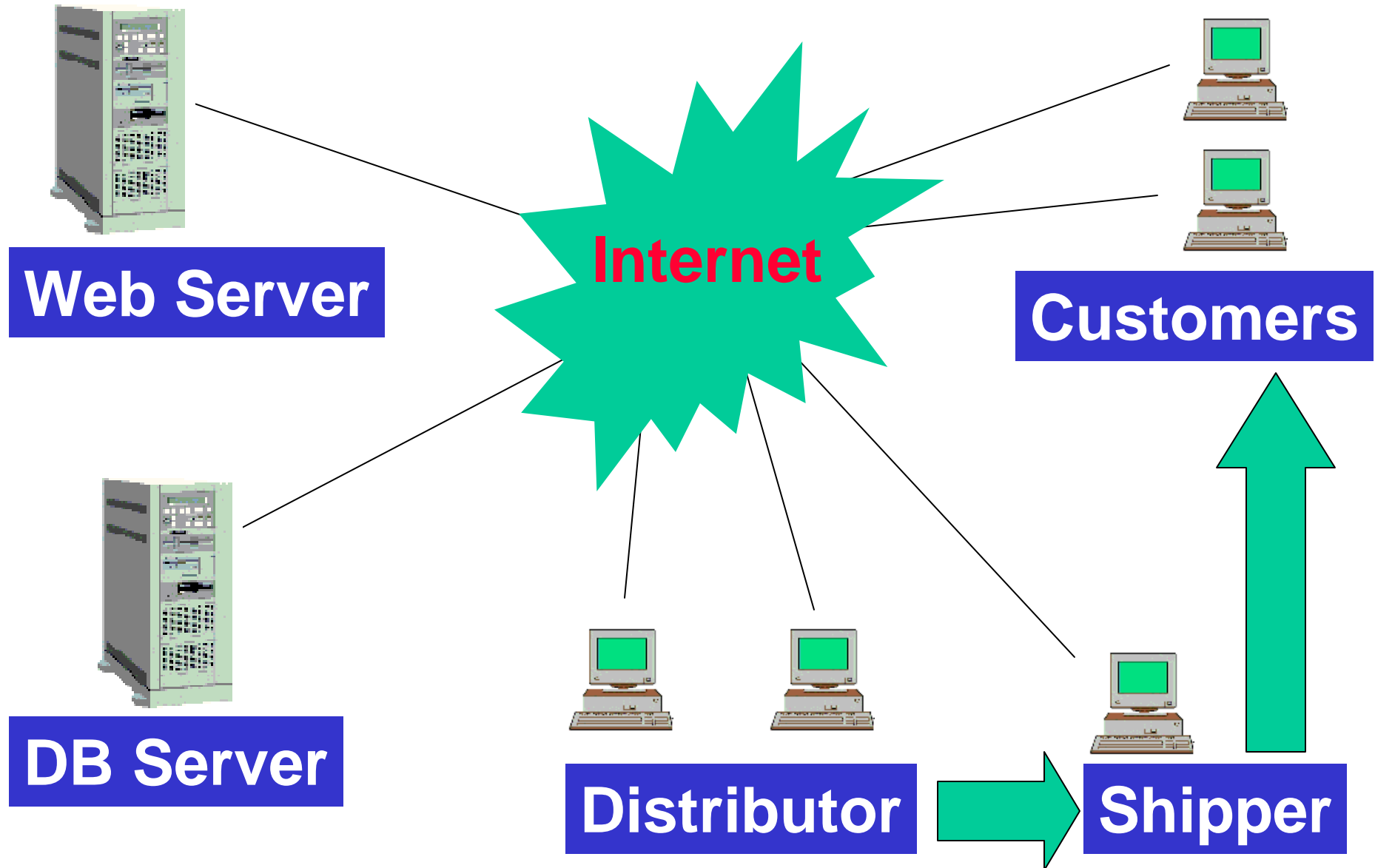
GE Polymerland

- E-Market for GE Resins Division - Product information, ordering, order tracking
- Estimated \$4 B in 2002 (50% of sales)
- 95% of online orders require no manual intervention
- Significantly reduced customer calls
- Customers can integrate with their purchasing systems

WSJ, May 21, 2001

Chemical Wheel, Sept 18, 2002

e-Fulfillment



<http://www2.owen.vanderbilt.edu/Sal.March/Storefront/Production/>

DuPont Performance Coatings Division

- Products: Paint and related products for the Auto Industry
- "Direct to OEM" group uses Covisint
- \$3.8 B sold in secondary markets such as collision and repair shops
- Highly competitive, fragmented market
- Distributors account for 98% of sales in this market
- E-Portal directed to distributors

InternetWeek, November 8, 2001

Buyer-Side Electronic Market

Eastman Kodak

- \$6 B annual procurement expenses
- e-Procurement initiative using employee initiated, self-service reverse auctions
- Goal is to move 20% to reverse auctions
- Pilot project reduced prices of purchased goods by 20-40%
- Ran 400 reverse auctions in 2002
- Integrated with back-end ERP systems

[InternetWeek, 10/29/01](#)

Multiple Buyer-Seller Market Covisint

"Covisint is about strengthening existing and developing business relationships. Covisint is bringing together global trading partners in an open collaborative environment that exponentially streamlines new and emerging business processes while offering the most comprehensive suite of internet based business solutions that touch every phase of the automotive product lifecycle."

<http://www.covisint.com/>

Giga-Booz Allen Survey

Nearly half of the respondents reported that exchanges have "mostly" or "absolutely" failed to meet their expectations, and only 10% of respondents felt exchanges met expectations.

The greatest potential benefit listed by respondents is reducing spending and costs—cutting the price of purchased goods they buy and reducing the costs of the processes for buying and selling. Respondents also said savings can result from collaborative product development, better demand planning and forecasting.

The Bottom Line

"While companies are disappointed with the benefits they've gotten from e-marketplaces, they still see great potential for these intermediaries."

Andrew Bartels, VP, Giga

"Companies now realize that exchanges are not panacea and that hooking up to them is not exactly 'plug and play.' Still, it's clear that companies believe the benefits outweigh the challenges."

Tim Laseter, VP, Booz Allen

