

# Week 11:



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Case

**MIS 3537: Internet and Supply Chains**



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2003: [Video](#)





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## 7 C's of Strategic Collaboration

1. Connection with Purpose and People
2. Clarity of Purpose
3. Congruence of Mission, Strategy and Values
4. Creation of Value
5. Communication between Partners
6. Continual Learning
7. Commitment to the Partnership

Ref: *Collaboration Challenge: How Nonprofits and Businesses Succeed Through Strategic Alliances* James Austin



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## 2003 - Present

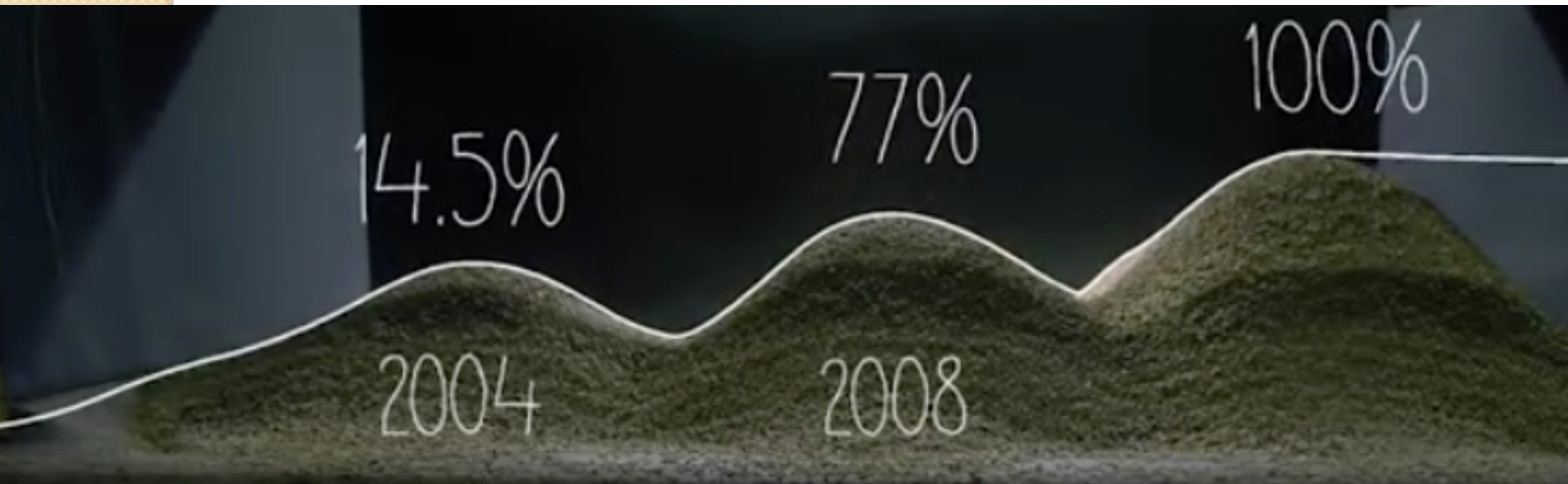
- 2004: new purchasing guidelines attracted more growers than expected
  - Higher Price
  - Incentive of being SBX Preferred Supplier (stable, hi-price buyer)
- 2004: C.A.F.E. – Coffee and Farmer Equity practices launched
  - Quality: meets SBX quality standards
  - Economic Accountability & Transparency: Suppliers submit evidence of how much of price gets to the farmer
  - Social Responsibility: 3<sup>rd</sup> party verify rights of workers
  - Environmental Leadership: 3<sup>rd</sup> party verify (waste, water, energy, emissions, carbon storage, biodiversity)



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- Starbucks verified **99% of their coffee** (> 400 mm pounds) as ethically sourced through C.A.F.E. Practices.
- With CI over **a million coffee farmers** on **four continents** have benefitted





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Present

- <http://www.starbucks.com/responsibility/global-report>

Week 11:

# Supply Chain IT Standards

**MIS 3537: Internet and Supply Chains**

ROSETTANET



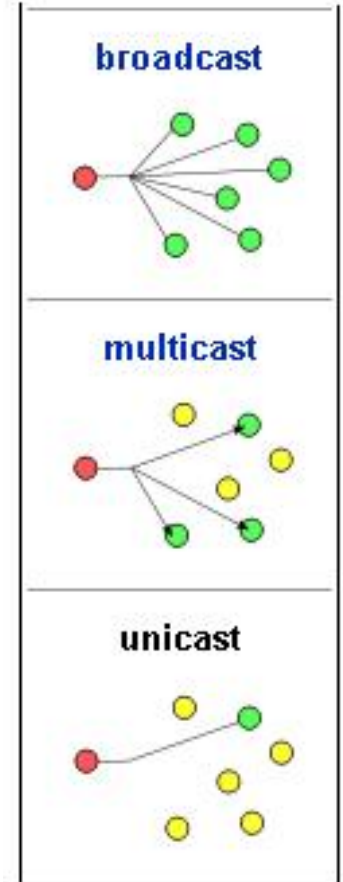


# Learning Objectives

- Electronic Data Interchange: EDI
- RosettaNet standards
- XML and Web services

# How computers communicate?

- Computers connected to a network can pass messages to each other
- Unicast
  - One sender, one receiver
- Multicast
  - One sender, many targeted receivers
- Broadcast
  - One sender, everyone else a receiver

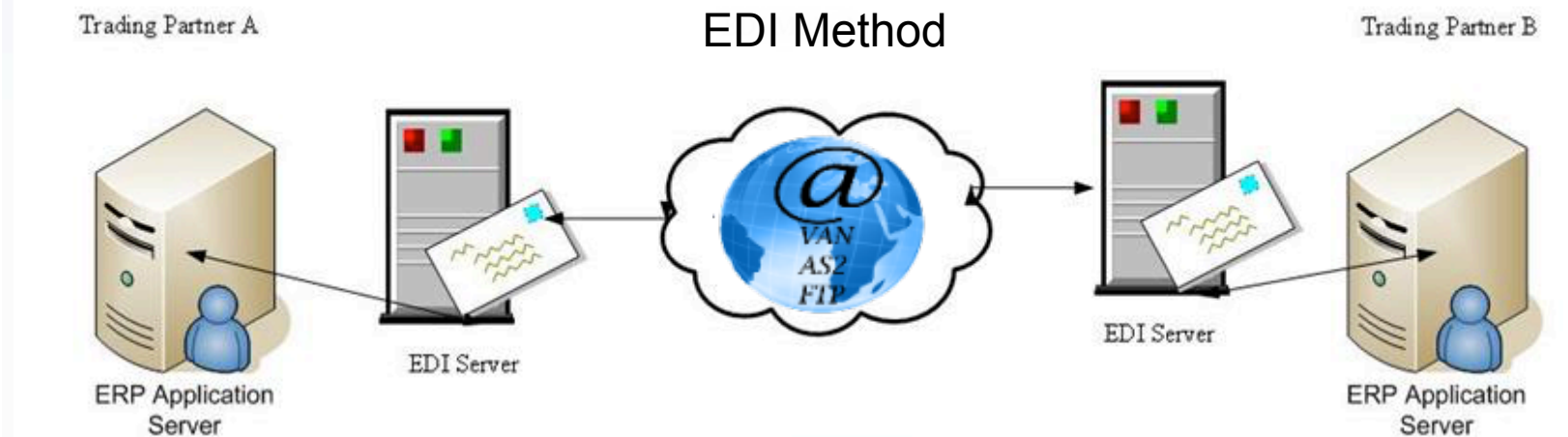
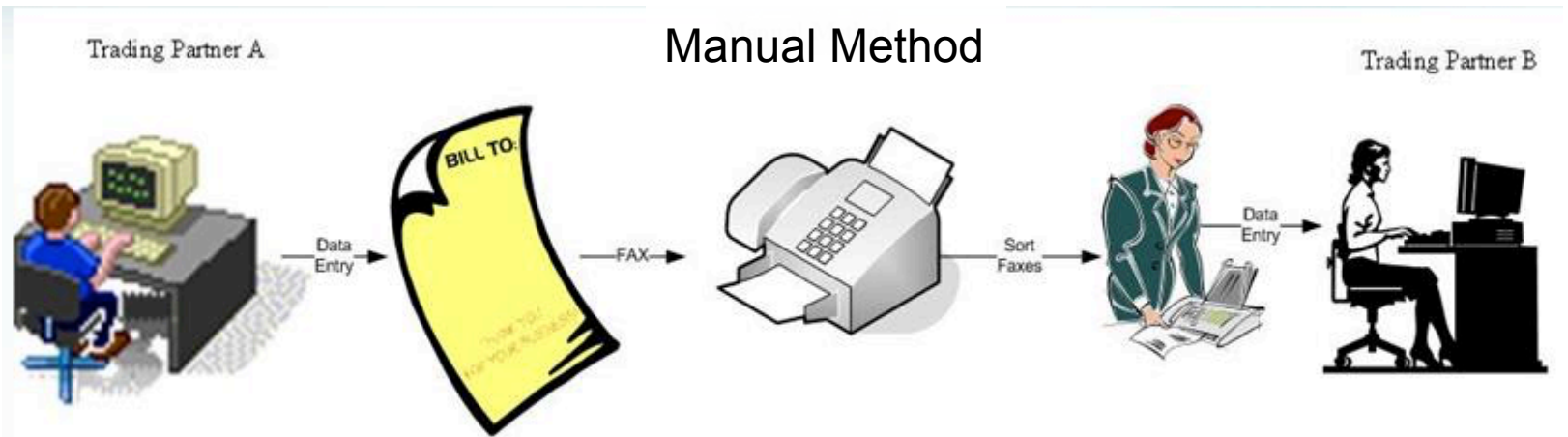


# Getting 'em to talk



- Consider our beer supply chain
  - The retailer uses Windows PCs
  - The distributor uses Linux workstations
  - The wholesaler and the factory have old IBM mainframes
- How do you pass messages among these entities?

# Getting 'em to talk

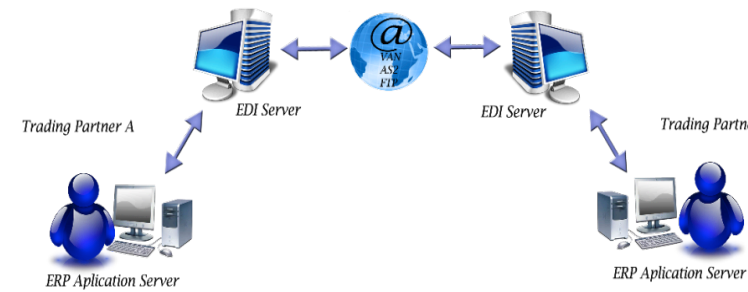


# Protocols



- Protocols are computer communication standards
  - HTTP, HTTPS, FTP, SMTP, ATM, NNTP etc.
- Protocols wrap the actual message in a packet, add some extra information (called header) to it and transport the packet across the network
- At the other end, the receiver gets the packet, knows what the protocol is, and unwraps the packet to get the message

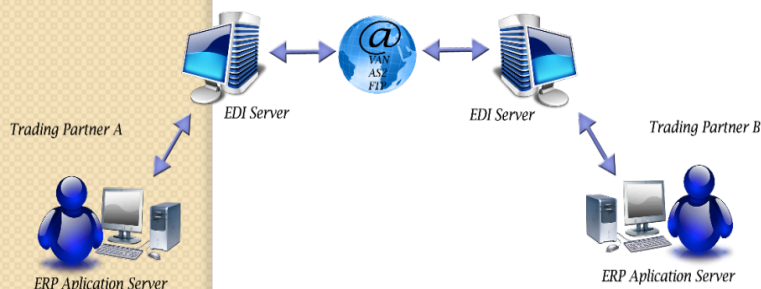
# EDI



- Electronic Data Interchange
  - Structured transmission of data between organizations by electronic means
- Is it like e-mail? No!
- EDI is like a technical representation of a business conversation between two entities, the entities being two computer systems

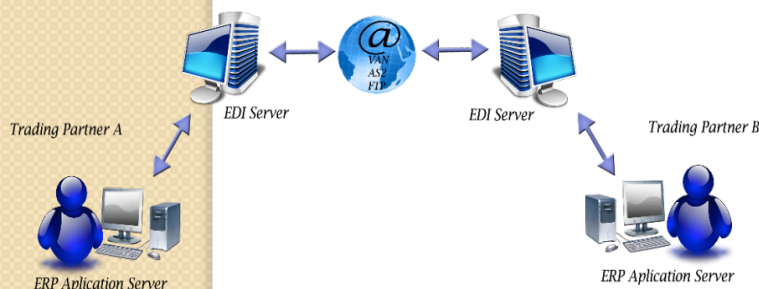
# Components of an EDI system

- Computer System
  - A computer, network and an Internet connection
- But EDI is more than just the hardware
  - Data transmission
  - Message flow
  - Document format
  - Software used to interpret documents



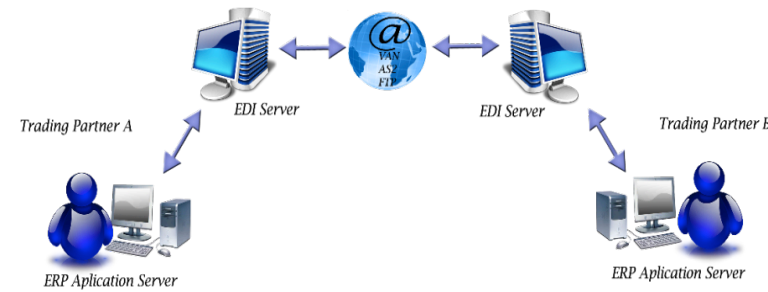
# Older than the World Wide Web

- EDI has been in use for a long time
- EDI describes the whole process
  - Communication Methods
    - Connect to partners using direct connections
    - Value Added Networks (one connection – many partners)
    - With the advent of the WWW, non-internet transmission methods are being replaced by Internet protocols



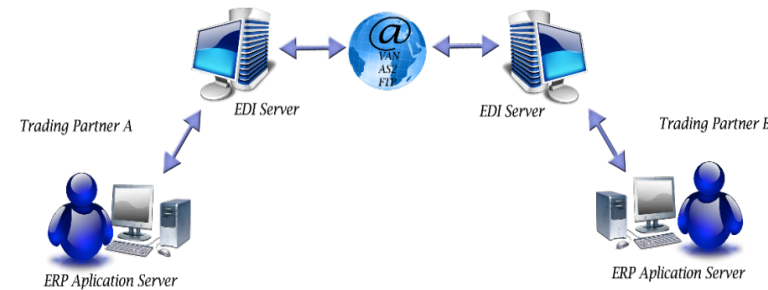


# EDI standards



- Content of the Message
  - UN/EDIFACT
    - Recommended by the UN
    - Predominantly used outside North America
  - ANSI ASC X12
    - Recommended by the US
    - Predominant in North America
  - TRADACOMS
    - Used by the UK retail industry
  - ODETTE
    - Used within the automotive industry in Europe

# EDI standards



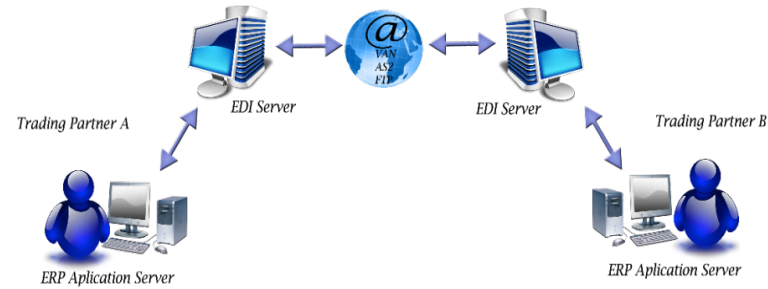
- Standards prescribe
  - Data formats
  - Character sets (e.g.: language, encoding)
  - Data elements
- Drawback
  - Requires effort to get different standards to interoperate among each other
    - Software tools (EDI translators) help overcome this
    - Electronic Hubs (e.g. Elemica) also do translations
  - Managing Partner specific details (e.g. code maps)



# Advantages & disadvantages

- Advantages

- Increased efficiency
- Cost savings
- Weeds out paper-based systems



- Disadvantages

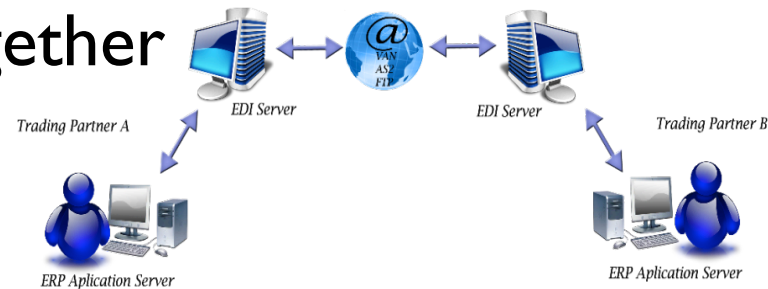
- Requires changes to business processes
- Initial setup cost and time
- Forced adoption: (e.g. **WAL★MART**<sup>®</sup> requires all partners to have compliant EDI systems)

# What's your EDI View?



- I/T View

- a Data format
- Connect the systems together



- Business View

- System for exchanging business documents (PO's, Orders, Shipping papers, etc.) with external entities
- Integrate data from the documents into internal systems

# Learning Objectives

- Electronic Data Interchange
- RosettaNet standards
- XML and Web services

# ROSETTANET

- RosettaNet is a self-funding non-profit organization
- Founded in 1998 by 40 IT companies; now over 350 member companies
- Creates, implements and promotes industry-wide e-business standards that form a common language and align processes throughout the global high-tech trading network
- Members include IT, electronic components and semiconductor manufacturing companies

# ROSETTANET standards

- RosettaNet dictionaries
  - Provide a common set of properties for business transactions
- RosettaNet Implementation Framework
  - Provides common exchange protocols
- Partner Interface Processes
  - Define business processes between trading partners

# The standards in perspective

- RosettaNet standards enable communication
- Dictionaries provide words for the communication
- RNIF provides the grammar
- PIPs for the dialog



# Partners: Electronic Components Industry

## Semiconductor Suppliers

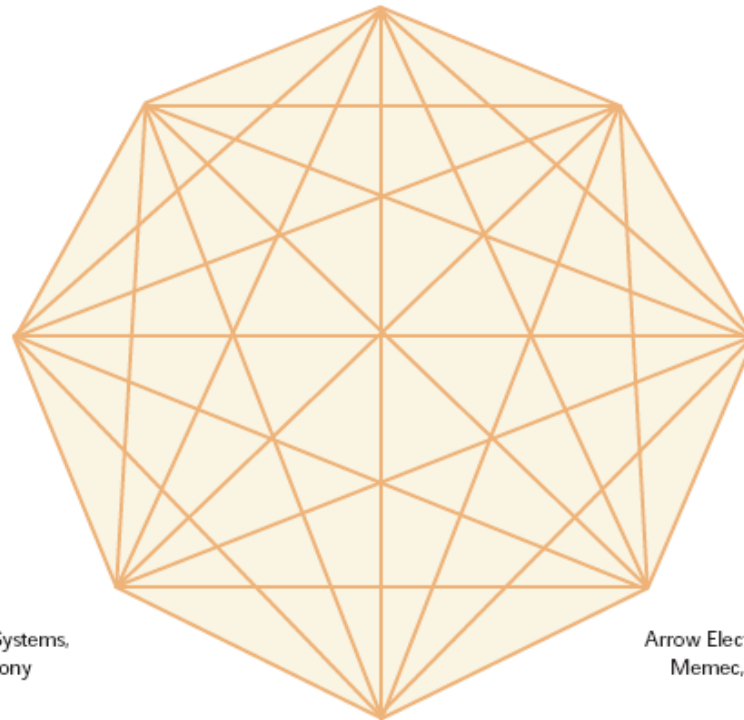
Altera, AMD, Hitachi Semiconductor, Intel,  
Lucent Technologies, Micron Technology, Motorola,  
National Semiconductor, NEC Corporation,  
Philips Semiconductors, Samsung Electronics,  
STMicroelectronics, Texas Instruments,  
Toshiba America Electronic Components,  
Tyco Electronics, Xilinx

**Connector Suppliers**  
FCI, Molex

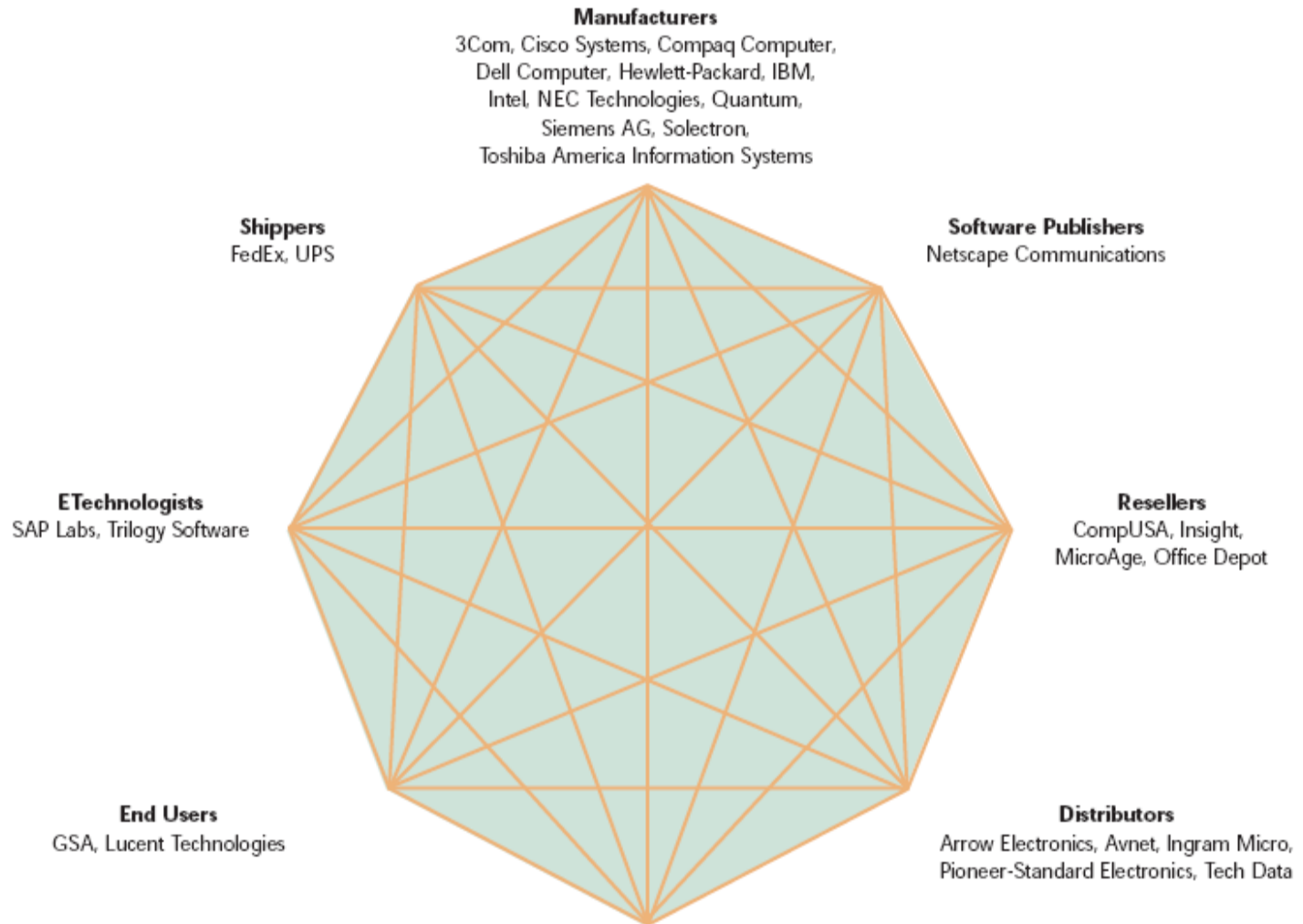
**Passive Suppliers**  
AVX, Bourns, KEMET

**Customers**  
Agilent Technologies, Cisco Systems,  
IBM, Nokia, Solectron, Sony

**Distributors**  
Arrow Electronics, Avnet, Future Electronics,  
Memec, Pioneer-Standard Electronics,



# Partners: IT Industry



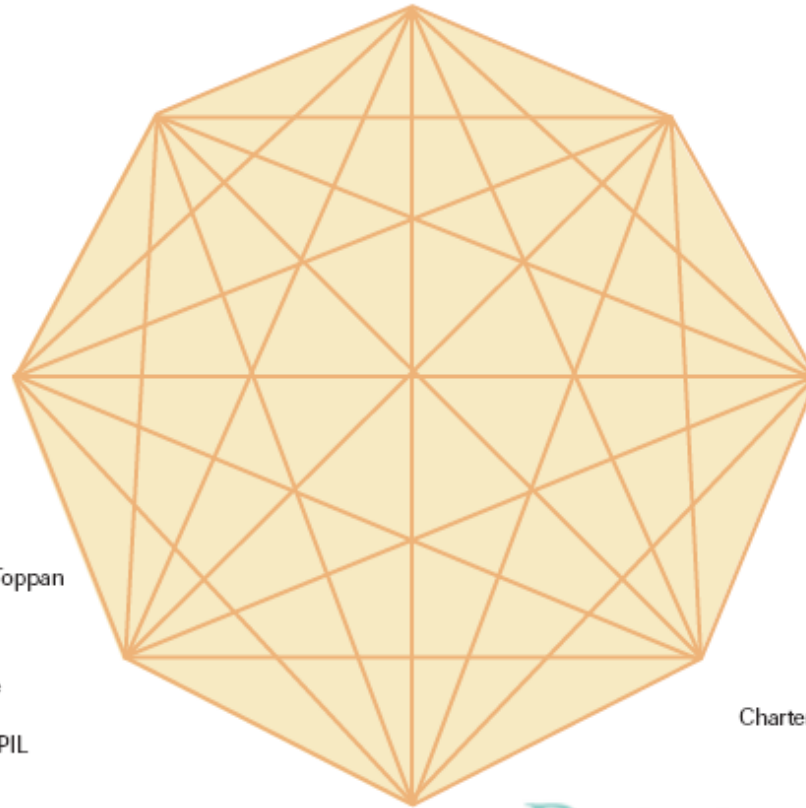
# Partners: Semiconductor Industry

## Integrated Device Manufacturers

United States: Agilent Technologies,  
Intel, Lucent Technologies, Micron Technology, Motorola,  
National Semiconductor, Texas Instruments

Asia: NEC Corporation,  
Samsung Electronics, Winbond Electronics

Europe: Philips Semiconductors



## Materials Suppliers

Air Products and Chemicals,  
Applied Materials, JSR,  
Shin-Etsu Handoutai,  
Shinko Electric Industries,  
Sumitomo Bakelite,  
Sumitomo Metal Industries SITIX, Toppan

## Assembly, Test, Probe Companies

Amkor Technology, ASE, SPIL

## Fabless Device Manufacturers

Xilinx

## Foundries

Chartered Semiconductor Manufacturir  
TSMC, UMC

# Learning Objectives

- Electronic Data Interchange
- RosettaNet standards
- XML and Web services

# Markup and tags

- HTML – Hypertext Markup Language
  - A way to define how a web browser displays content
  - Makes use of tags; tags control display
  - Any content within `<b>` and `</b>` will be displayed in bold
  - The function of each tag is defined; not possible to modify
  - Tags can be nested; `<b><u>content</u></b>`
  - New tags cannot be defined



# eXtensible Markup Language

- XML is not HTML; it is not an extension of HTML
- XML also uses tags; but all XML tags are user-defined
- XML is not used to control how content is displayed; it defines the content



# eXample

```
<student>  
  <student-name>  
    <first-name>Jane</first-name>  
    <last-name>Doe</last-name>  
  <year>Junior</year>  
  <major>MIS</major>  
  <major2></major2>  
  <minor>Marketing</minor>  
</student>
```



# Understanding XML

- In the previous example
  - A student's details are presented in XML format
  - Each XML file has a schema – a file that defines what tags are permitted, and what nesting is permitted in each XML file
  - Similar XML files share the same schema
  - When information is transmitted between parties, if the schema is sent along with the content, the receiver can make sense of the content that is being transmitted

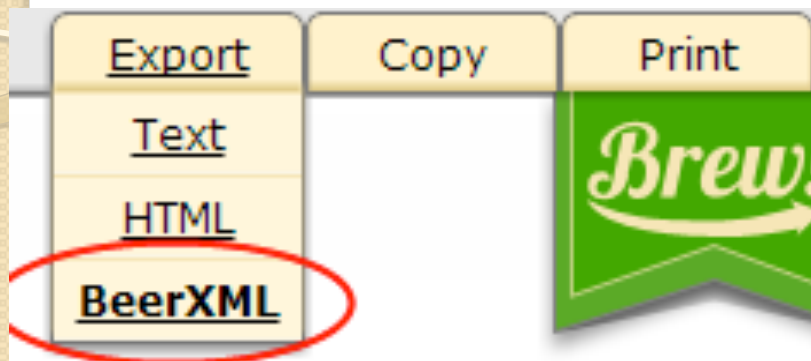




## How does it help?

- All that two parties need to do is to agree on the schema
- No special systems needed to decode the incoming data
- XML is a popular and widely-used standard; everyone is adopting it

# Examples



# Chemistry XML



# Web services

- Web services are business and consumer applications that are delivered over the Internet
- Users access these services to get the information they need
- Uses a set of shared protocols and standards, largely based on XML
- Can be accessed through a variety of systems and devices

# Why do Web Services matter?

- Faster, cheaper integration

**Integration at a discount**

Projected impact of Web services on systems integration costs

Category	Share of cost	Fixed cost	Impact of Web services
Systems interfacing • Legacy • Packaged	40–50%	Yes	High <sup>1</sup>
Customization	15–20%	Yes	Low
Configuration	15–20%	Yes	Low
License	15–20%	No	Low

Possible 20% savings

- Systems integration is the single biggest IT expense for most companies
- Web Services obviate the need to create develop interfaces – less work, less worry!

XML



< Questions ? />