

Is Web Based EDI for You?

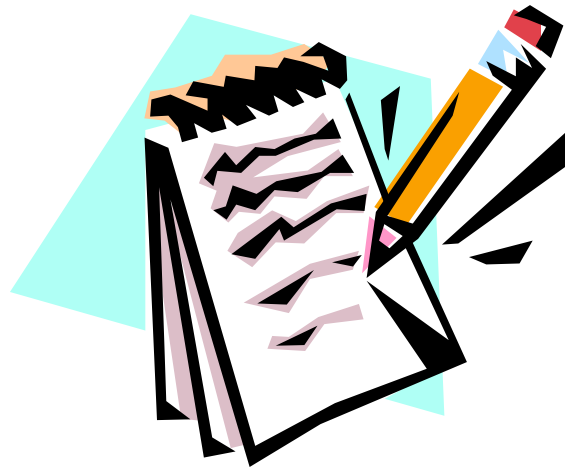
Timothy Szal
DI Consulting Opportunity Manager
Sr. Consultant, Network Services





Agenda

- ✦ History of Traditional EDI
- ✦ Internet Background
 - + Issues Driving Traditional EDI to the Internet
- ✦ Web Evolution
- ✦ Web Enabled EDI Architectures



Quotes

- ✦ EDI is not dead & will not be replaced by the Internet. The Internet affords an opportunity for small and medium sized companies to reap the benefits of EDI.

--Data Quest 2/97

- ✦ EDI is one of the most misunderstood yet critical technologies in fostering the growth of enterprise electronic commerce.

--Yankee Group 5/97

- ✦ As the demand for Internet commerce increases, so will the demand for EDI. As merchants process more electronic transactions, the advantage of EDI will be more apparent to all companies, thus propagating the use of EDI.

--Data Quest 2/97

- ✦ A common myth is that the advent of "Internet EC" will eliminate the need for complex and expensive VAN services.

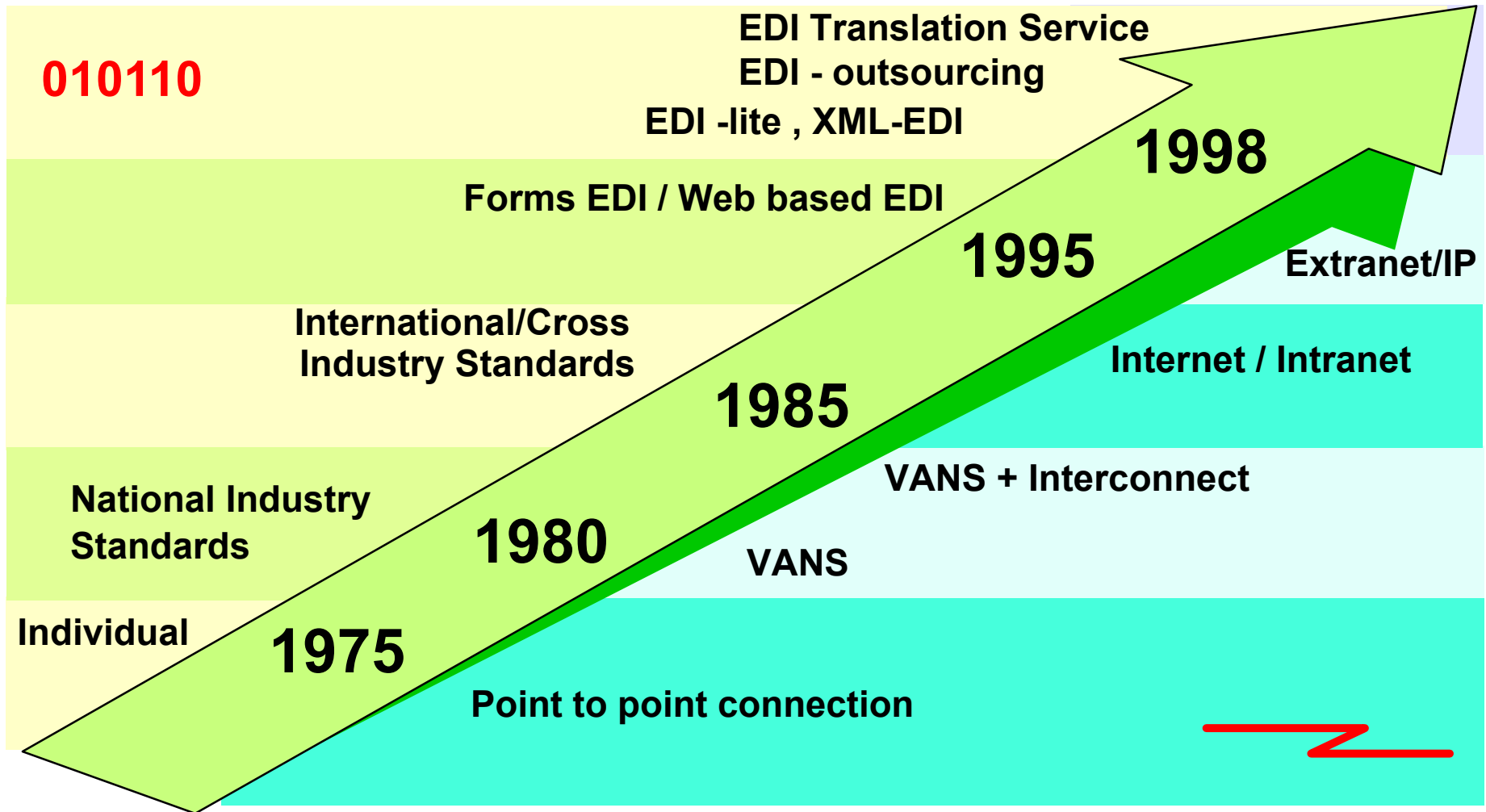
--Yankee Group 5/97

- ✦ Typical cost to process a purchase order is \$55. Traditional EDI can reduce to about \$2.50, and Internet-based EDI could reduce further -- to less than \$2 per order.

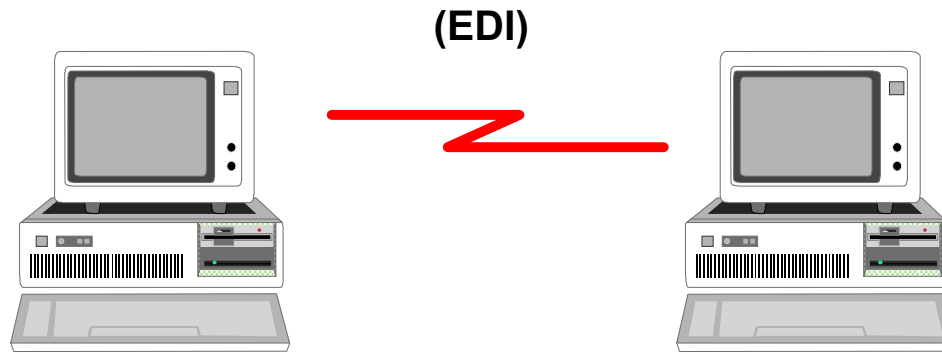
--Forrester Research 2/98



EDI Implementation Alternatives



Electronic Data Interchange - Basic Concepts

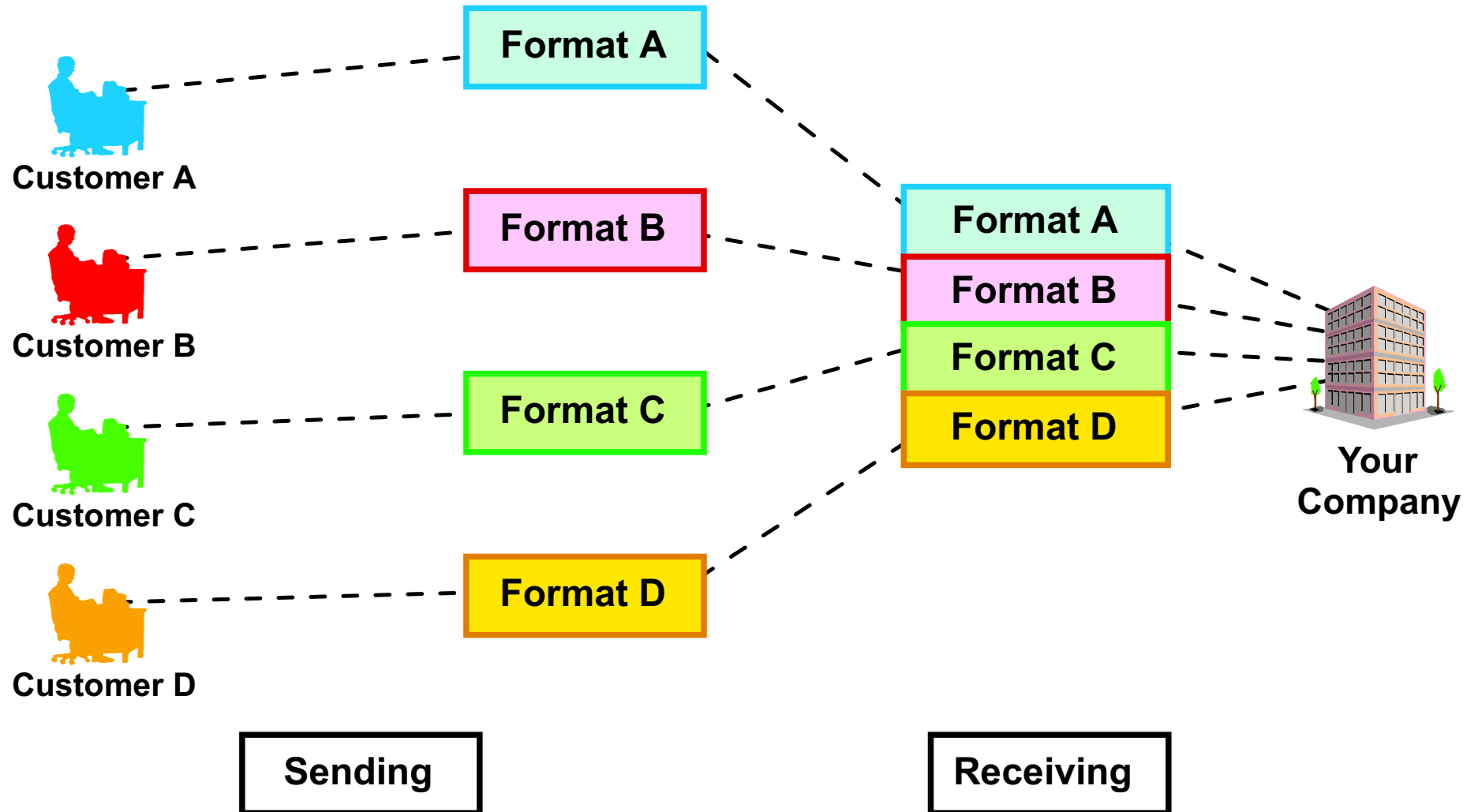


✦ What is EDI?

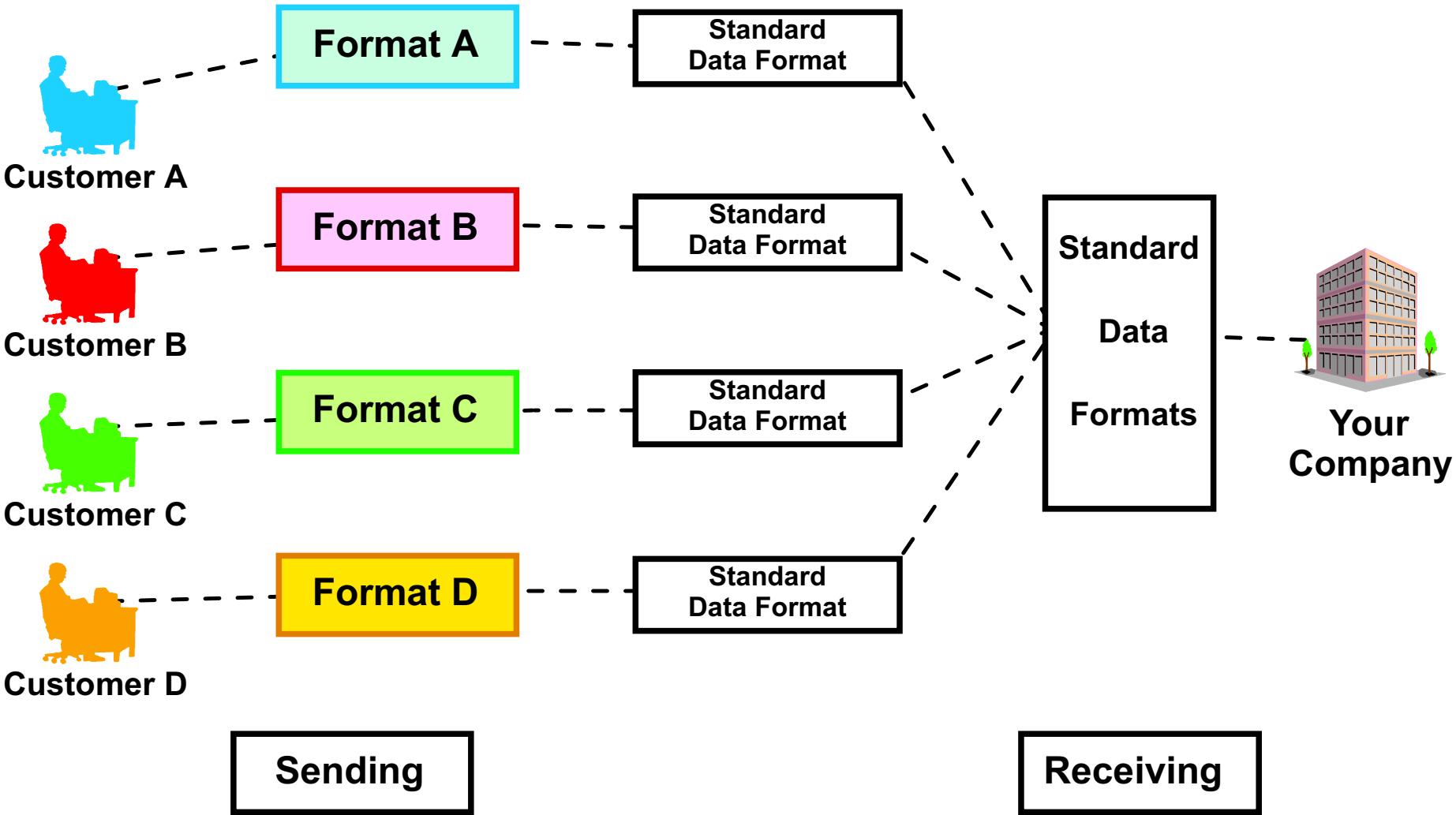
- + The automated application to application exchange of business documents in a standard format
- + A method of translating business document data into machine readable code
- + A method of structuring data into a format that is readable by both sender and receiver
- + A way to combine data processing, data communications, and telecommunications
- + An application that can be implemented on any type of computer.



Multiple File Formats Created Implementation Issues



Common Data Standards "Solved" Some Issues



Translation

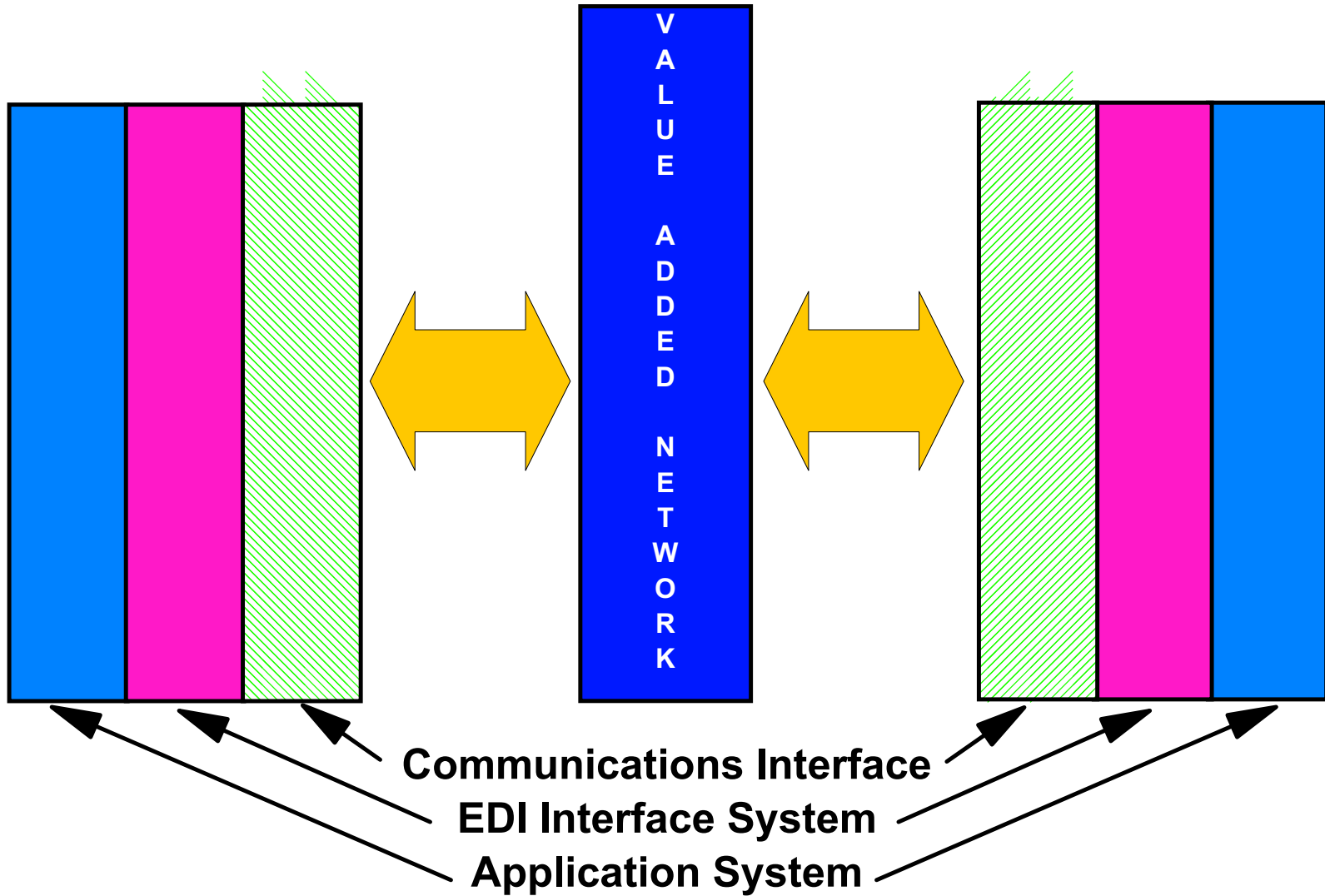
ISA*00* *00* *01*123456789
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SMITH*TE*817-555-1000!N1*SU*The Supply Company!N3*24
W. 55th St.!N4*New York*NY*10021!N1*ST*IBM!N3*182
NorthStreet!N4*Rochester*MN*55904!PO1*1*1*EA*4.00*PE*
BP*PN623!PO1*2*1*EA*5.00*PE*BP*PN624!CTT*2!SE*13*1234!
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To or From

| | | | | |
|----------------------|---------------|----------|----|-------|
| 010188000000001BUYER | 321 NORTH ST. | ANYTOWN | CA | 33333 |
| 001BX000000100PN623 | | 00000500 | | |
| 002BX000000100PN624 | | 00000400 | | |



The Tradition EDI System Components

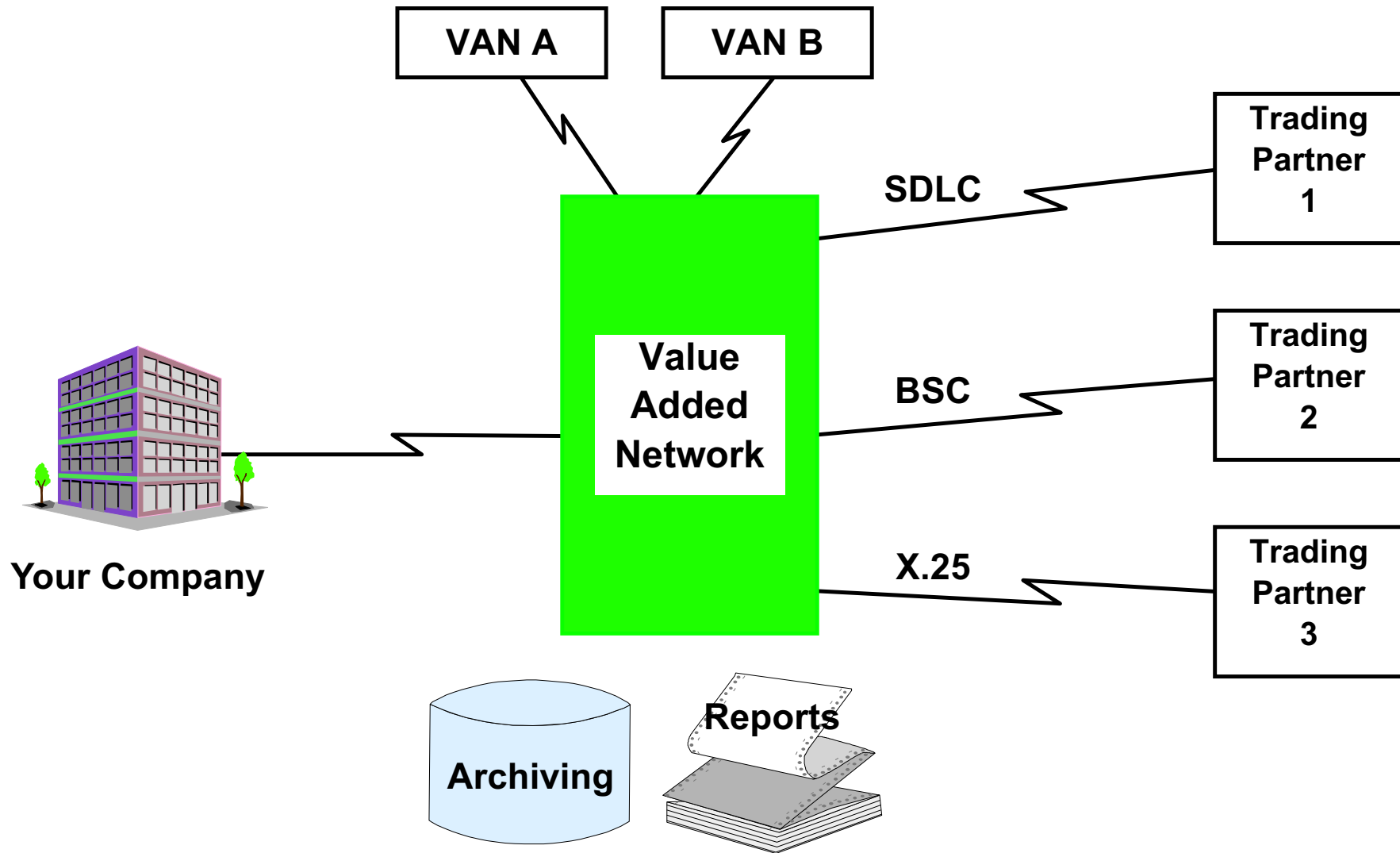


EDI System Components

- ✦ The application system generates business documents or data, and/or processes incoming data.
- ✦ The EDI interface system is made up of two parts and its job is to handle and process EDI transactions.
 - + The first part is the application interface. It moves electronic transactions to and from the application system.
 - + The second part is the EDI translator. It translates between standard formats and internal system formats.
- ✦ The communications system is also made up of two parts.
 - + The communications interface transmits translated data to the network and receives incoming data. It includes controls to ensure that data is sent and received properly and to detect any errors or failures.
 - + The network receives translated data and stores it in the appropriate mailbox. It may also provide data storage and archiving.



Additional VAN Features



Notes: Additional VAN Features . . .

- ✦ Additional features provided by a VAN can include:
 - + Interconnection to other VANs
 - + Service hours to accommodate the wide range of business hours, both domestic and international
 - + The cost-effectiveness may be a viable alternative to building and managing network connection in-house
 - + Data management features such as archiving, audit reports, etc.
 - + Support provided by trained professionals
 - + Protocol conversion and line speed support
 - + Support for different types of equipment



Issues Driving Traditional EDI to the Internet



Traditional and Internet EDI Systems

The Traditional EDI System used Vans or a point to point communication protocol

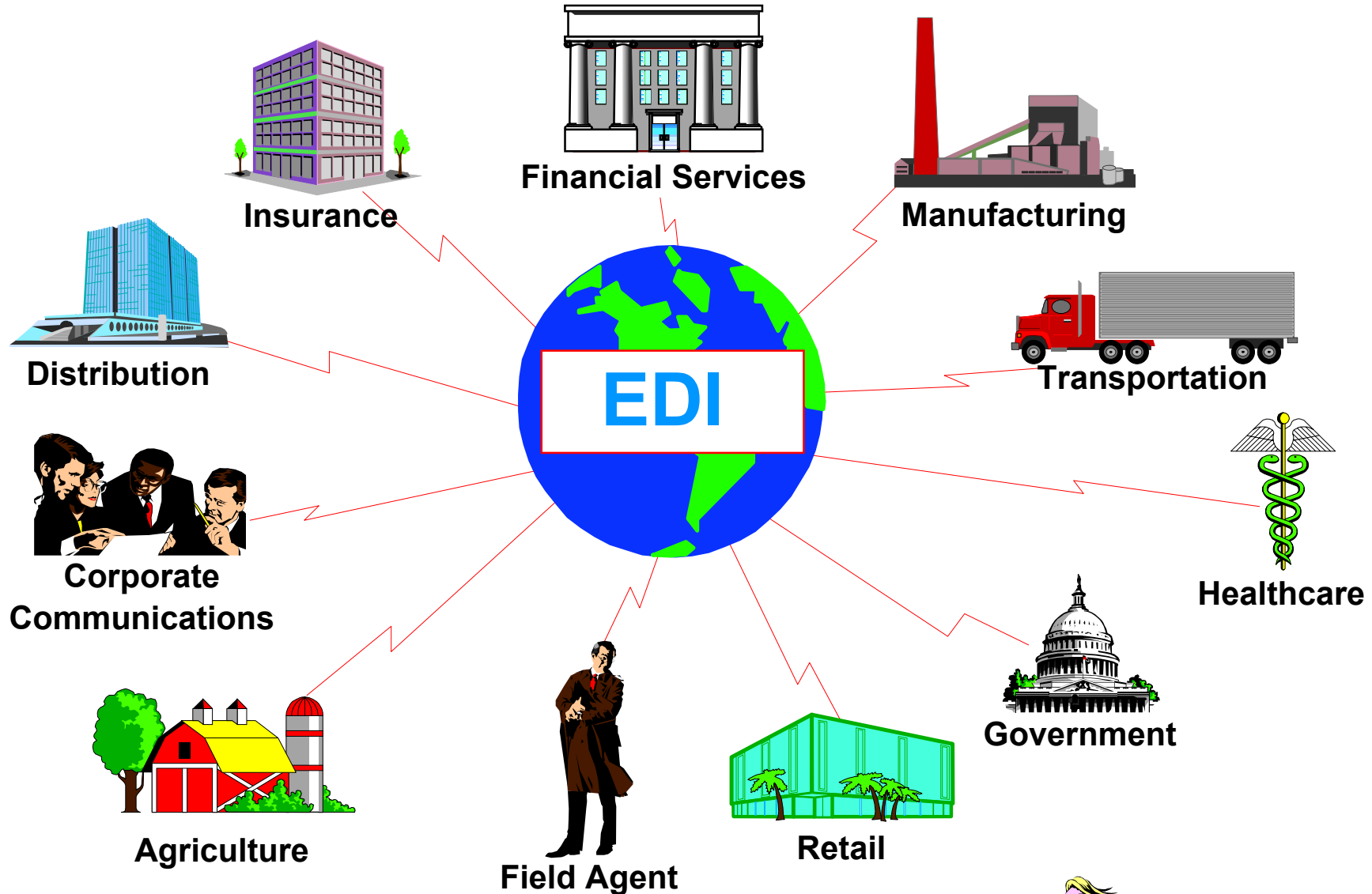
Now

The "Enhanced" EDI system is using additional components:

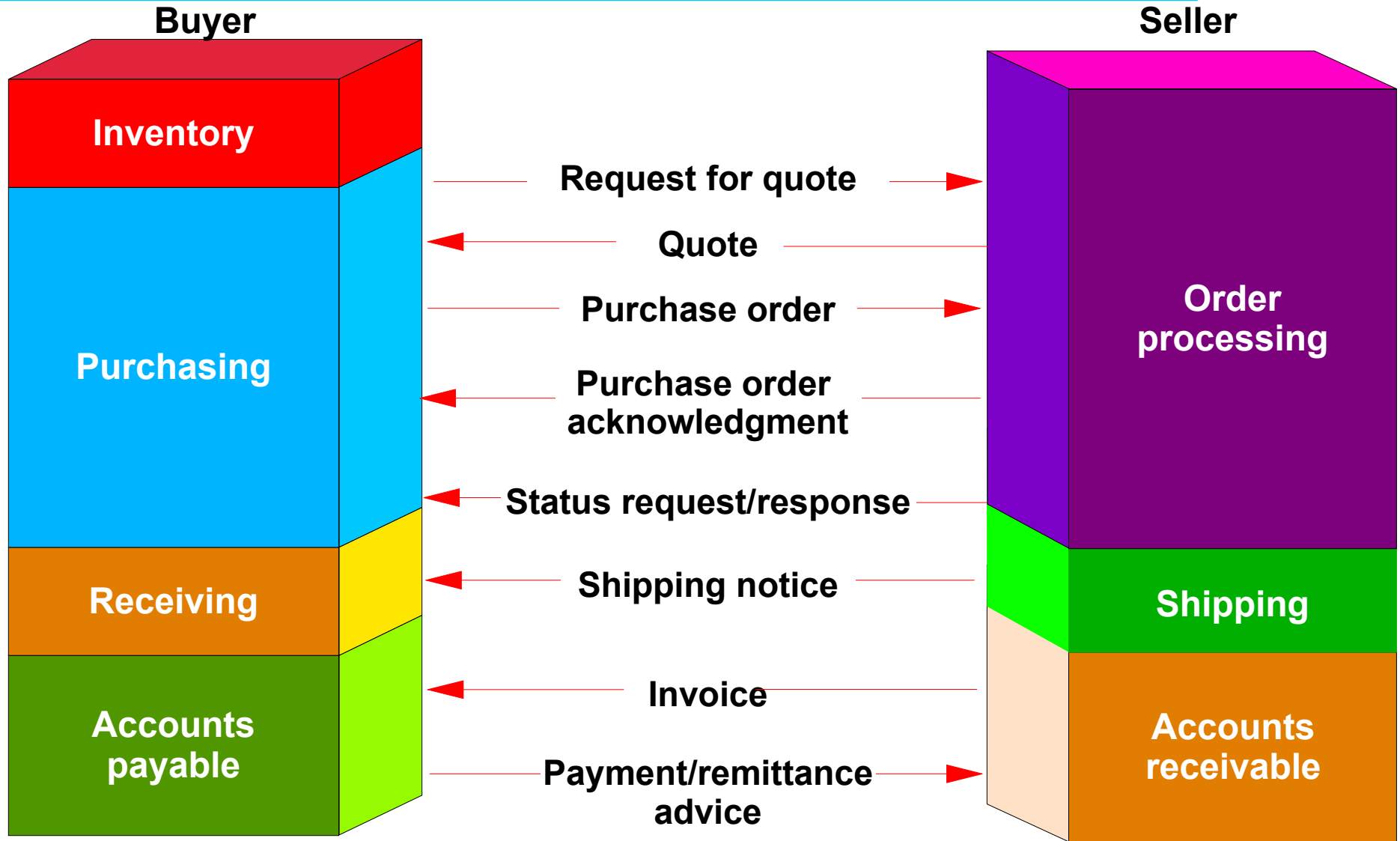
- + A "server" is now added to the traditional system
- + The Internet and related protocols are incorporated into the system



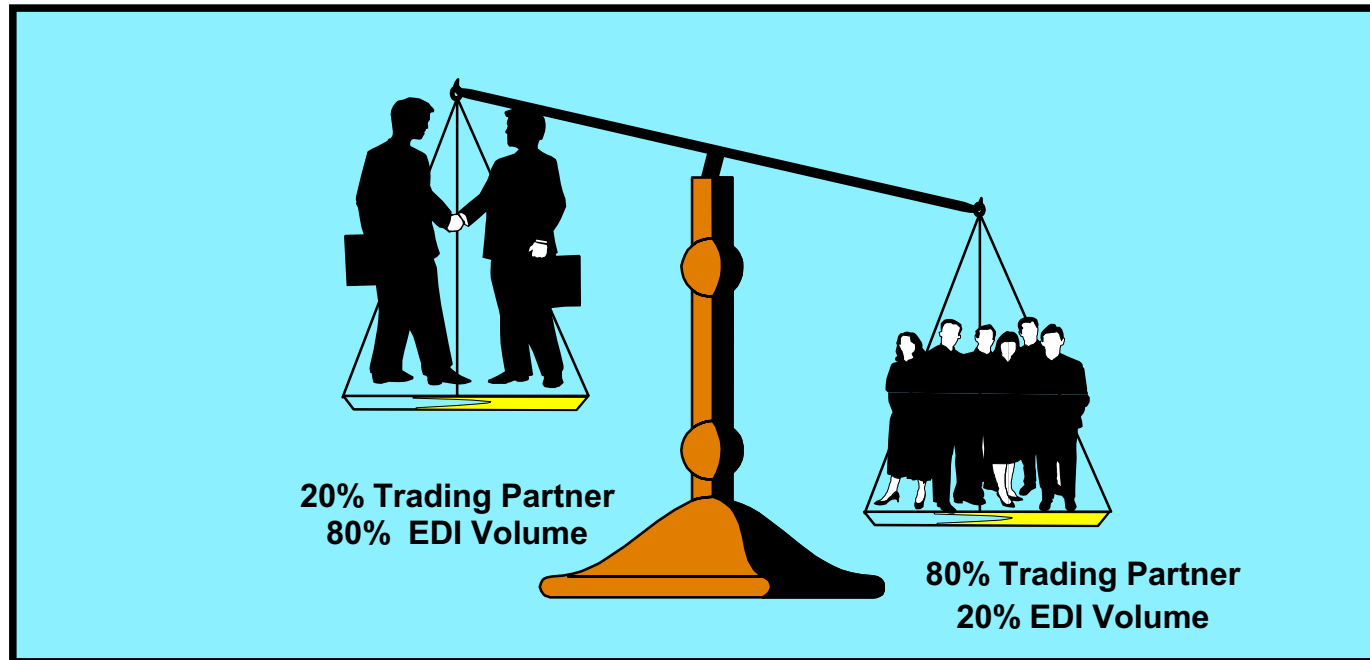
The Goal of EDI was to connect the World's Businesses



An EDI Objective was to Shorten the Business Cycle



Issues Driving Traditional EDI to Use the Internet



- ✦ "EDI isn't working how it was supposed to"
- ✦ Small number of trading partners using EDI (reach)
 - + Only 2% to 4% of business use EDI
- ✦ Partner doesn't want to play (cost)
- ✦ Few transactions (volume)
- ✦ Paper replacement only



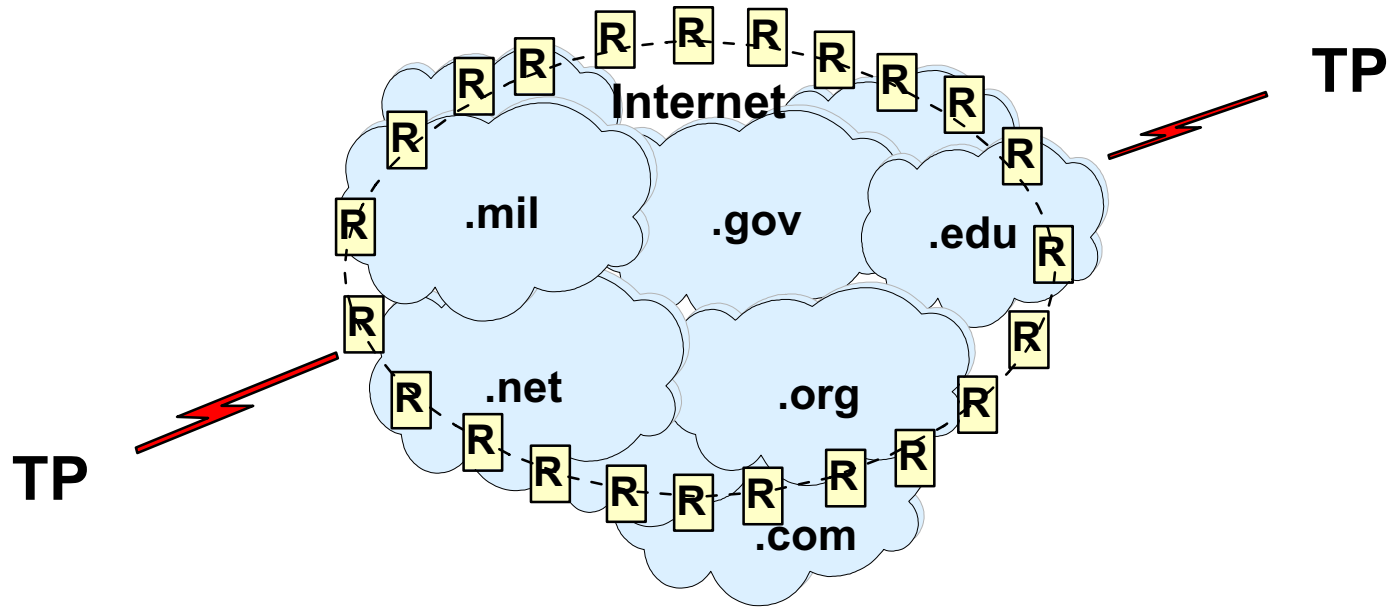
Reasons For EDI Not Reaching Everyone

- ✦ More difficult to justify for smaller companies
 - + Smaller number of transactions
 - + May need several solutions
- ✦ HW/SW/Service investment
- ✦ People/skills/consulting investment
- ✦ EDI standards
- ✦ Develop new processes around EDI
 - + Internal and external
 - + Integrated with exiting systems
 - + Administration and testing



The Internet

- ✦ The Internet consists of multiple independent networks.

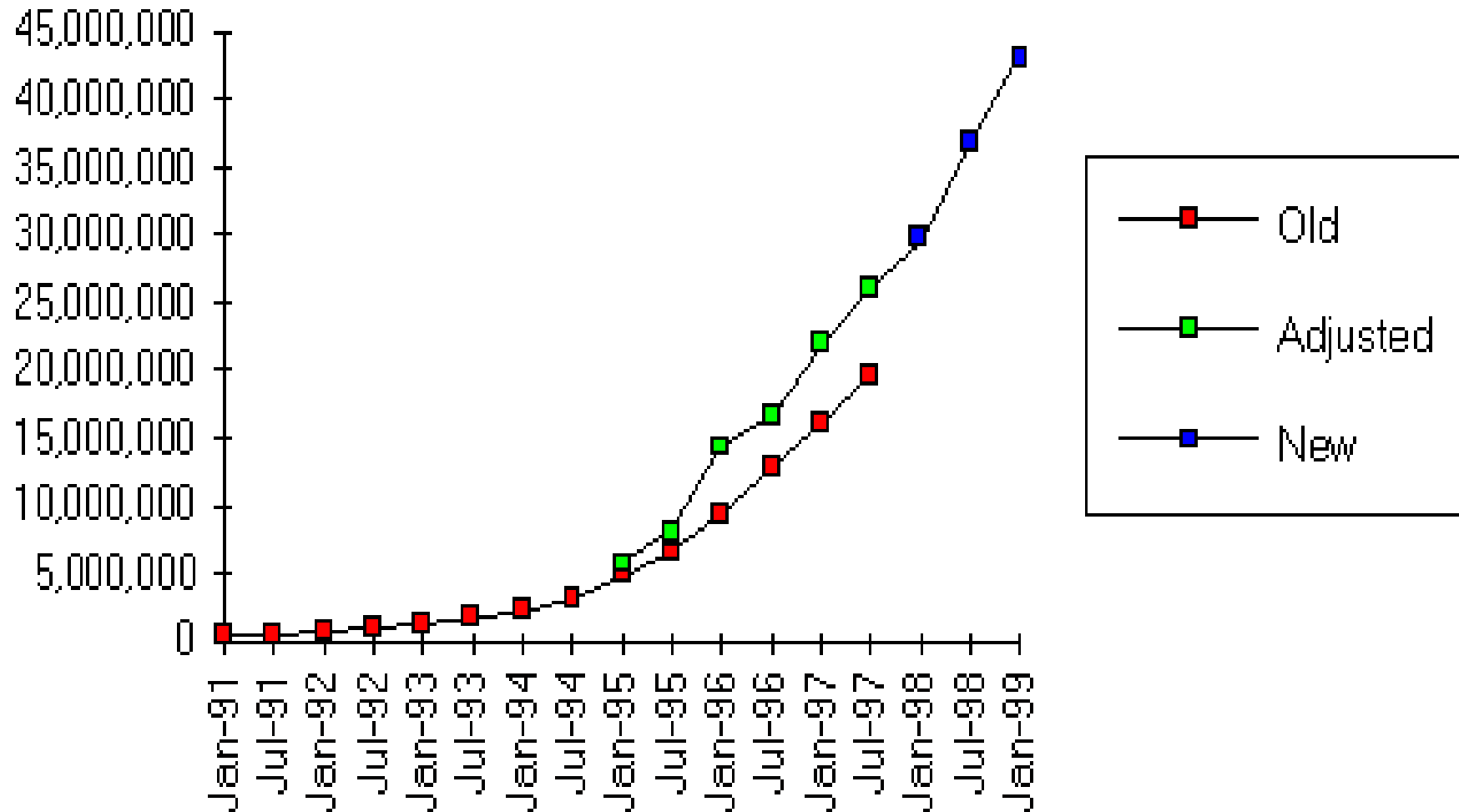


- ✦ Open network:

- + Industry term for communications technologies that implement a set of network protocols (TCP/IP) that work at upper layers in an Internet (e.g., the Internet)

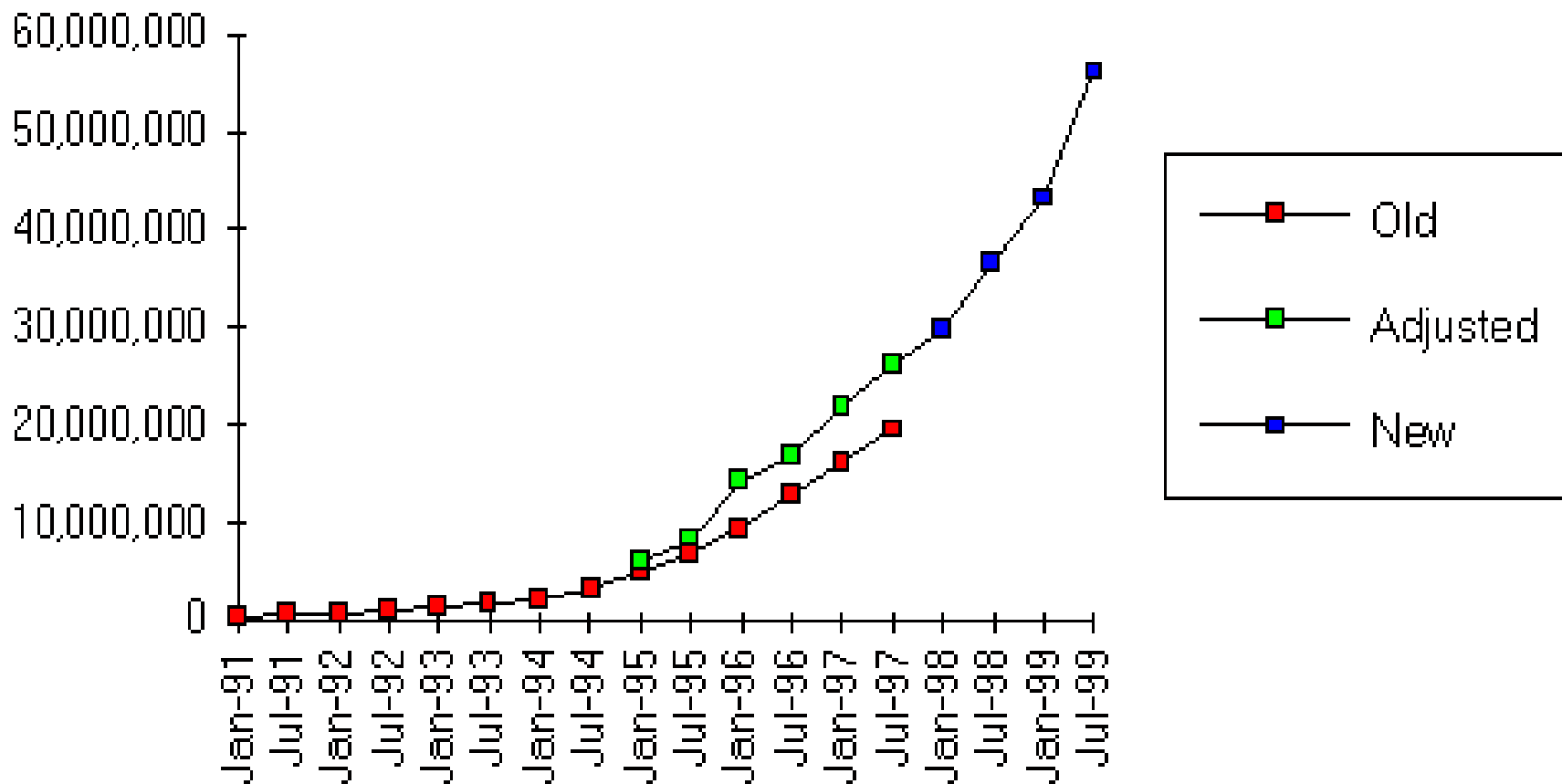


Internet Domain Survey Host Count



Based on Data from Network Wizards (www.nw.com)

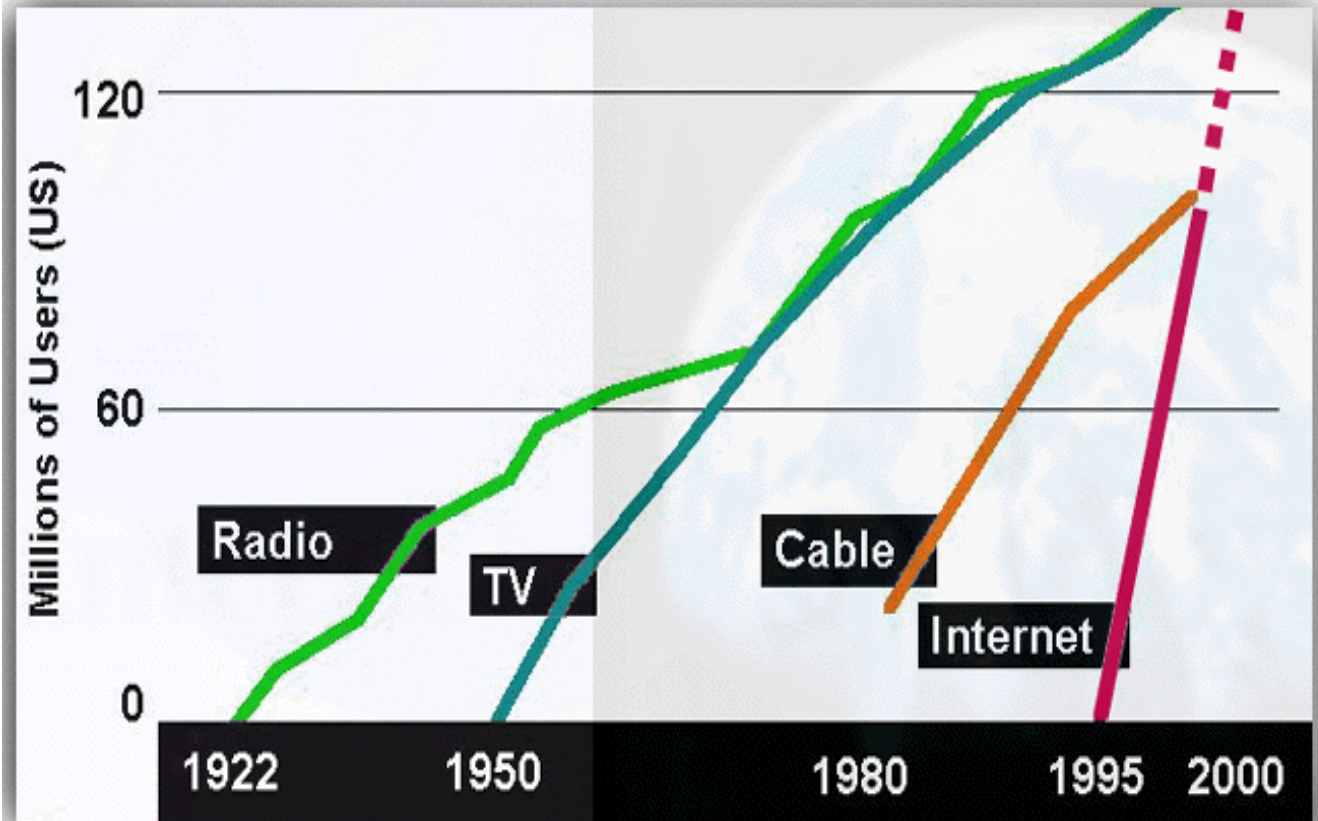
Internet Domain Survey Host Count



Source: Internet Software Consortium (<http://www.isc.org/>)

Internet Adoption

- ✦ The Internet has the fastest adoption rate of any other medium that has come before it
 - ✦ It has taken less than 5 years to connect 50 million people
 - ✦ The value of a network increases proportionally to the number of users
- Metcalfe's Law*



Source: Morgan Stanley Research



What is Unique about the Internet

- ✦ Global reach
- ✦ Target market of 1
- ✦ Dynamic in nature
- ✦ Real time, interactive
- ✦ Open for business 24 x 7
- ✦ Customer self-sufficiency
- ✦ Customer-generated value
- ✦ Many revenue models
- ✦ Transactions and relationships
- ✦ Marketing channel
- ✦ Digital delivery channel
- ✦ Information intensive
- ✦ First mover advantages
- ✦ Fully integrated
- ✦ Value to consumer
- ✦ Profit to the vendor



Traditional EDI Versus B-to-B Internet

✦ Category

- + Participants
- + Buyer-Seller relationship
- + Focus
- + Logic
- + Benefits
- + Examples

✦ Traditional EDI

- + Larger businesses
- + Partnership, long-term, interdependent
- + Support production business processes
- + Partnership, very close customized coordination
- + Efficiency, reduced inventory
- + Wal-Mart and key suppliers

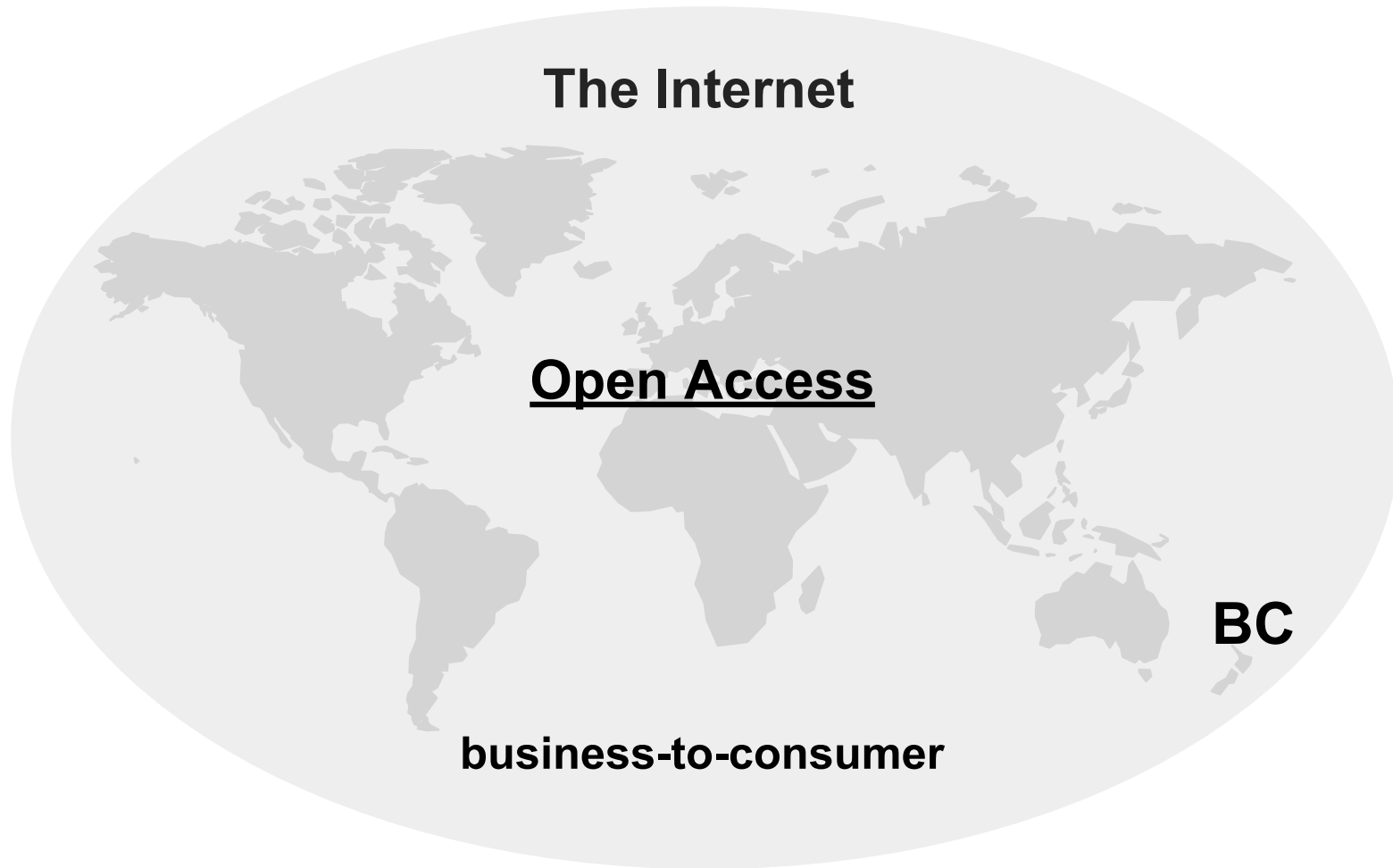
✦ B-to-B Internet commerce

- + Every business
- + Arms length, short-term, needs-based
- + Also includes routine MRO purchases, simplification
- + Open market competition, plug and play integration
- + Competitive bids, broader perspective, more value
- + GE Trading Process Network

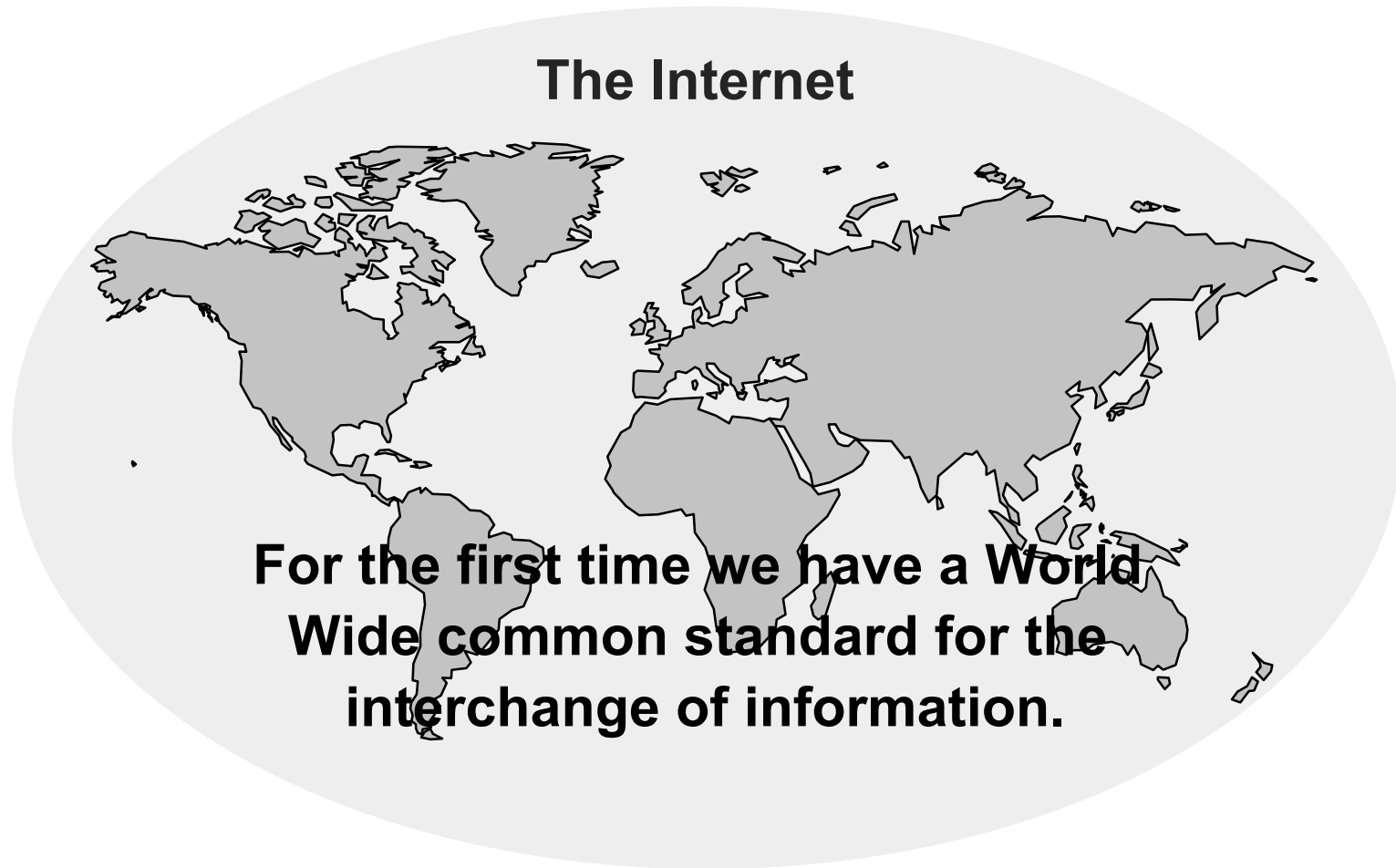


The Internet is the foundation for e-business. It can enable anyone with a computer to interact with on-line business applications.

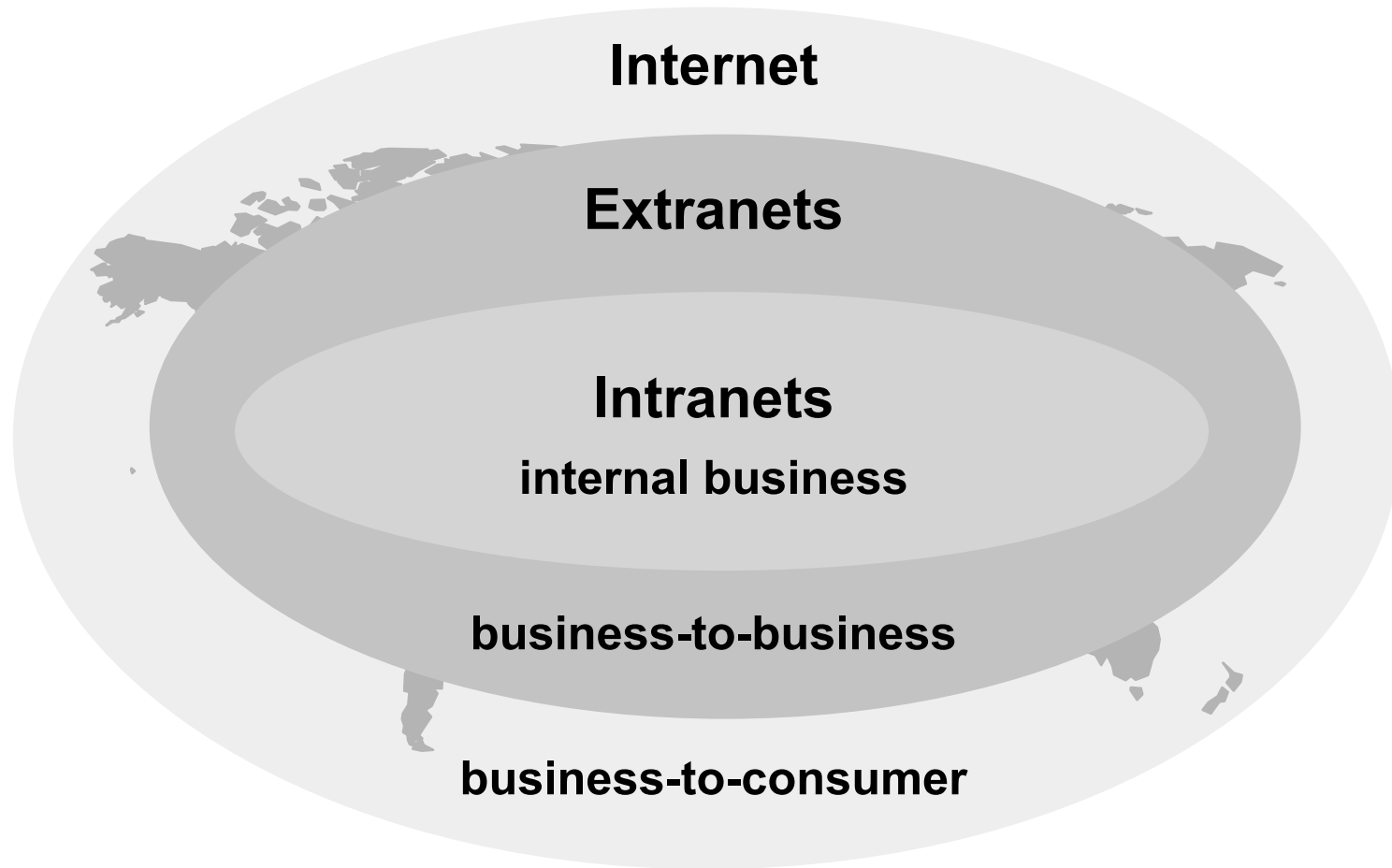
Internet



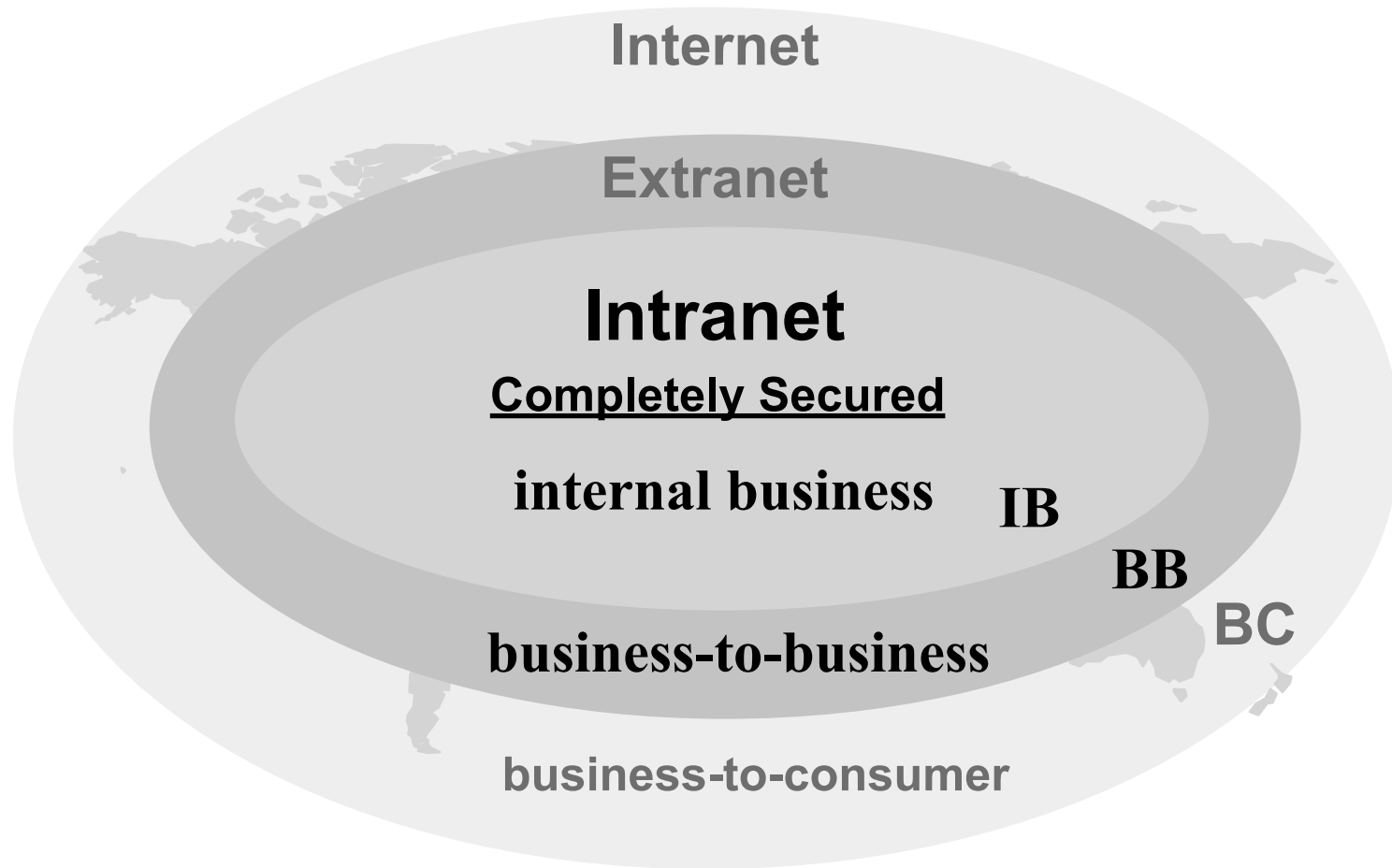
Internet technologies enable the transfer of information to and from anywhere in the world.



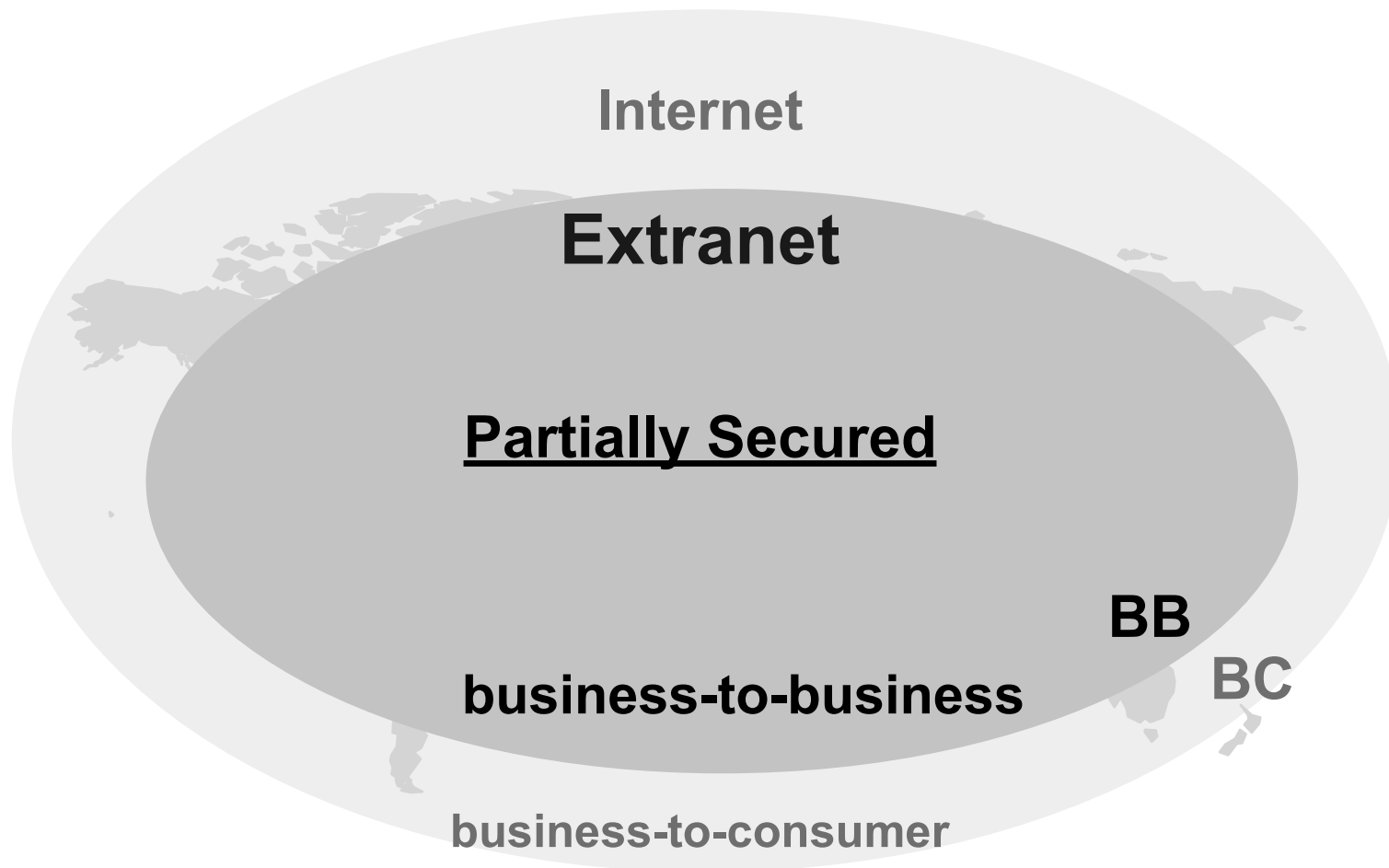
Internet technologies can be classified in three distinct categories: Intranets, Extranets and Internet



An Intranet is a secure environment, within a single organization, that enables communication using internet technologies.



Extranets are an extension of Intranets that enable business partners to interact electronically.



A summary of the characteristics for each of internet technologies show that the Internet is best suited for e-business requiring a mass market focus.

✦ Internet

- + Public access
- + Use public network
- + Mass market
- + Marketing/Promotions
- + Mass market customer service
- + Consumer sales transactions
- + Payments made typically with credit cards

✦ Extranet

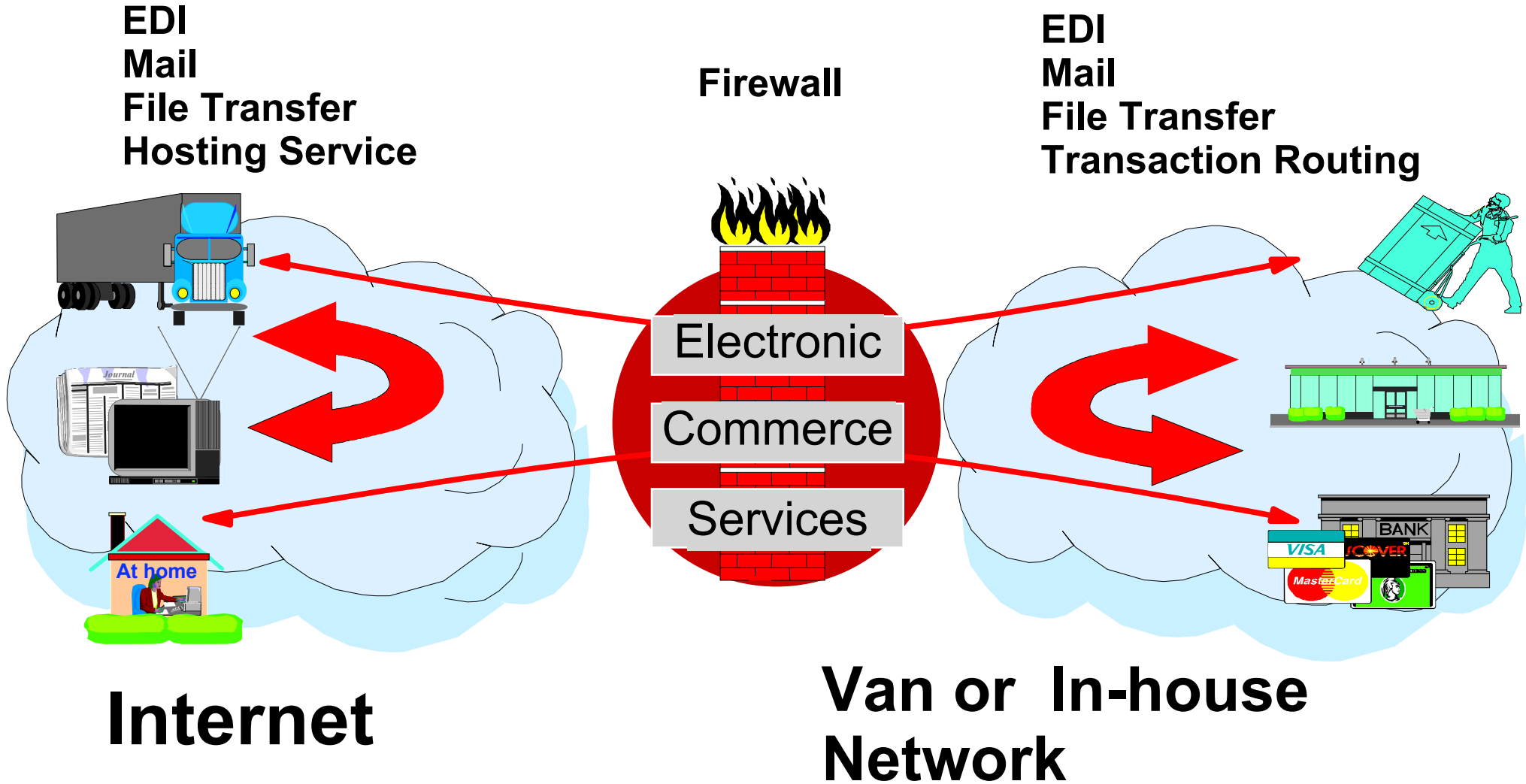
- + Controlled access/Users pre-defined
- + Public or private network
- + Inter-corporate
- + Improves supply chain
- + Improves customer service
- + Electronic Data Interchange (EDI)
- + Use purchase requisitions, purchase orders, and purchasing agents

✦ Intranet

- + Controlled access/Users pre-defined
- + Use private network
- + Intra-corporate
- + Proprietary information
- + Enhances employee productivity



Emerging e-business strategy

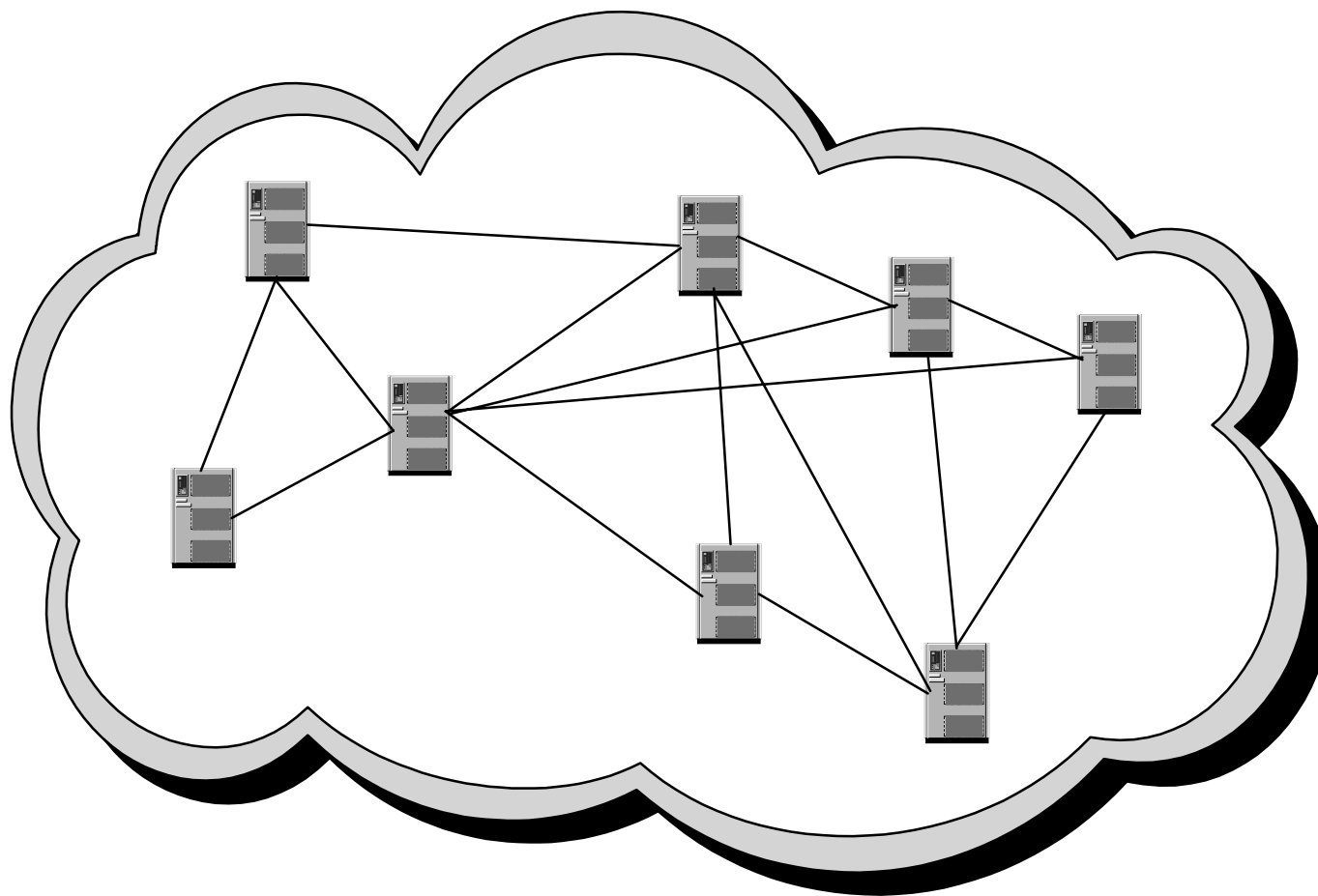


The best of both worlds

Web Evolution



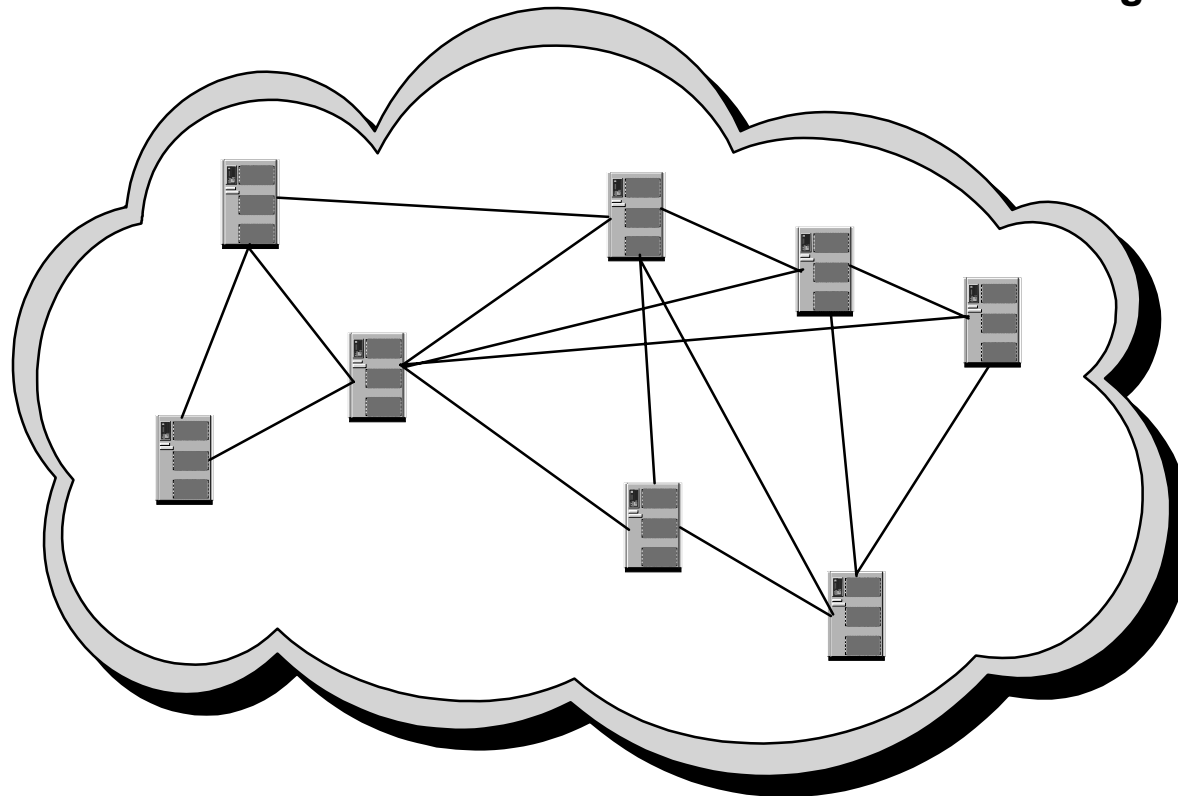
Servers use TCP/IP to interconnect with each other in a World Wide Web.



Servers may offer common open protocols to each other, such as SMTP, FTP, and HTTP.

SMTP, or simple mail transfer protocol, supports sending and receiving of mail messages.

FTP, or file transfer protocol, supports sending and receiving of files

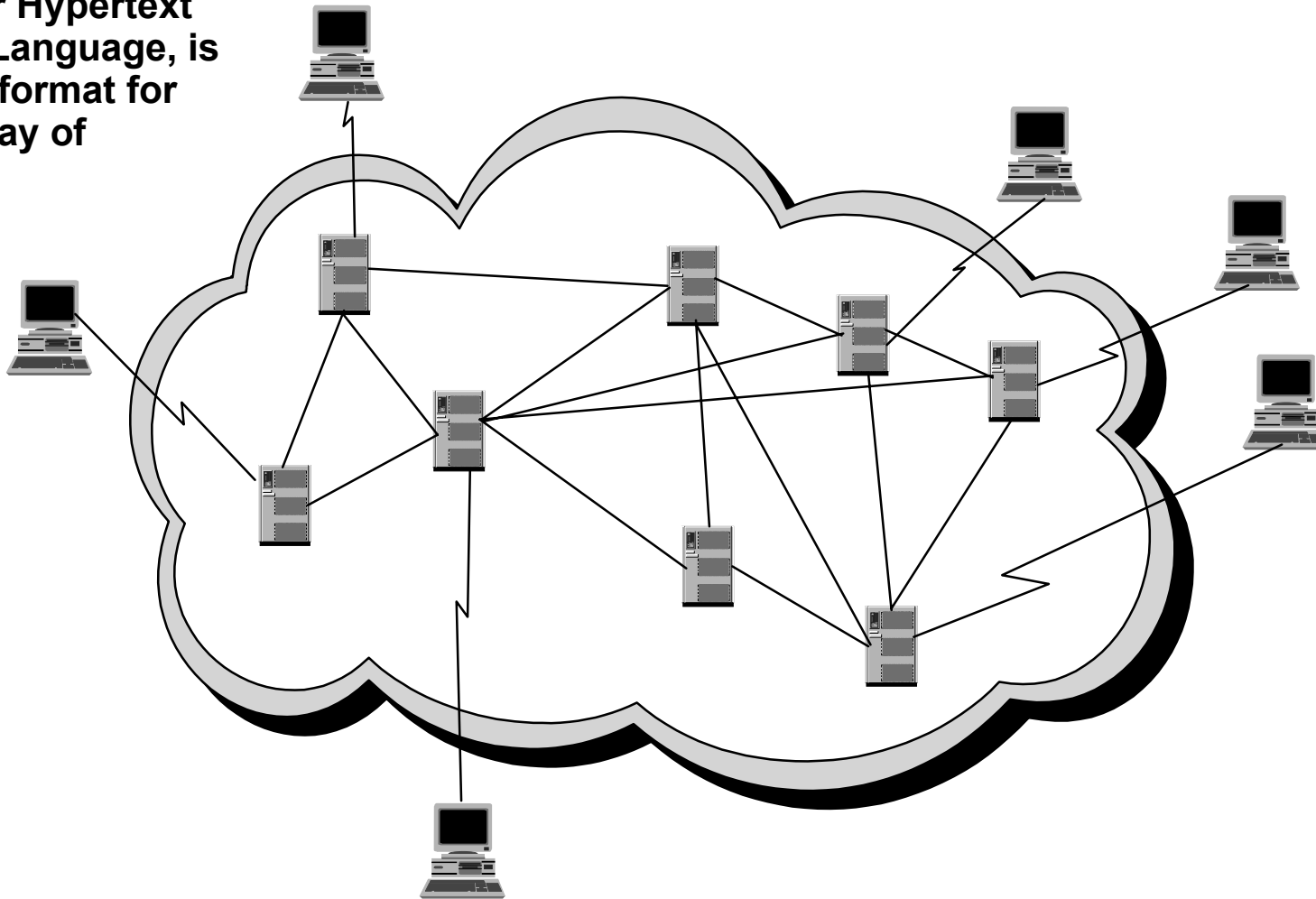


HTTP, or hypertext transmission protocol, listens for "browsers" and supports the formatted display of server content

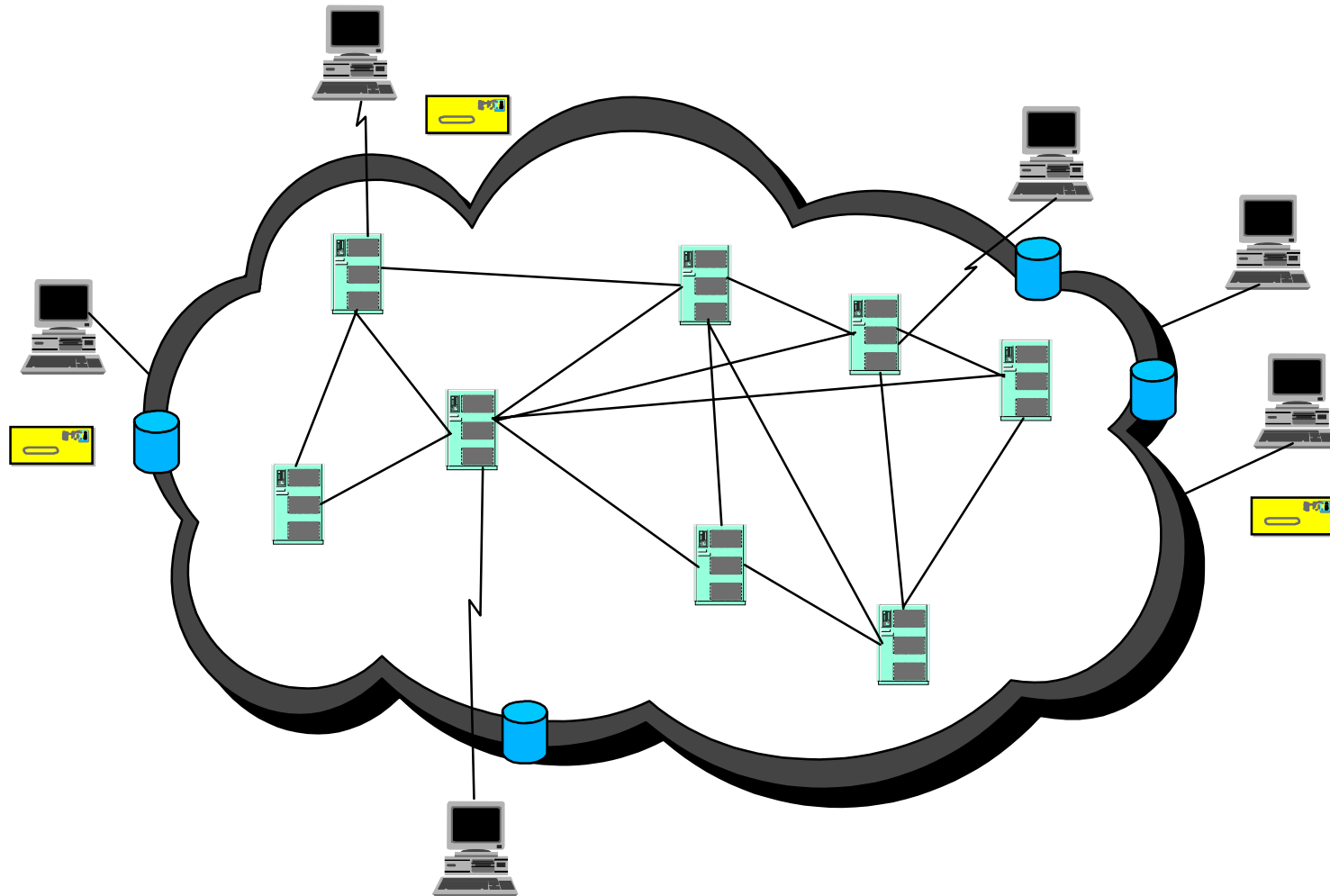


Browsers can display HTML that has been transmitted by HTTP servers.

HTML, or Hypertext Markup Language, is an open format for the display of content.

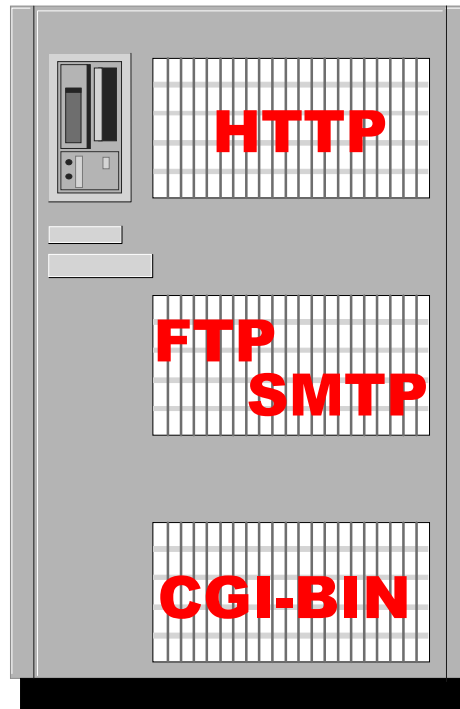


Within a short period of time, browsers integrated service requests for existing server functions, including the exchange of mail and files using SMTP and FTTP.



So, Internet Servers offer several standard services. Browsers provide client side function.

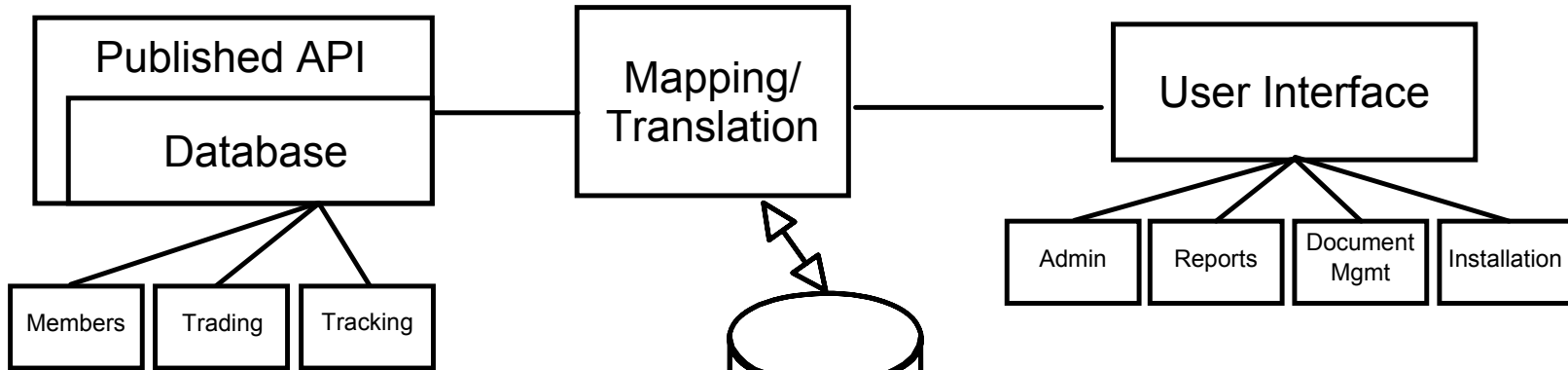
CGI-BIN or Common Gateway Interface, provided browser access to other server "applications".



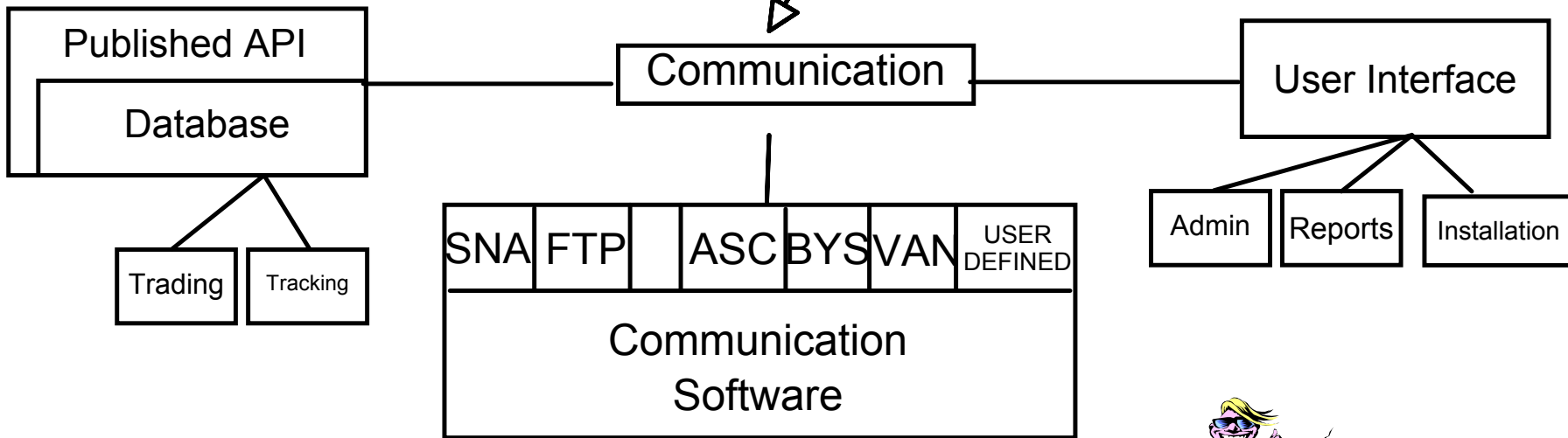
Web Enabled EDI Architectures



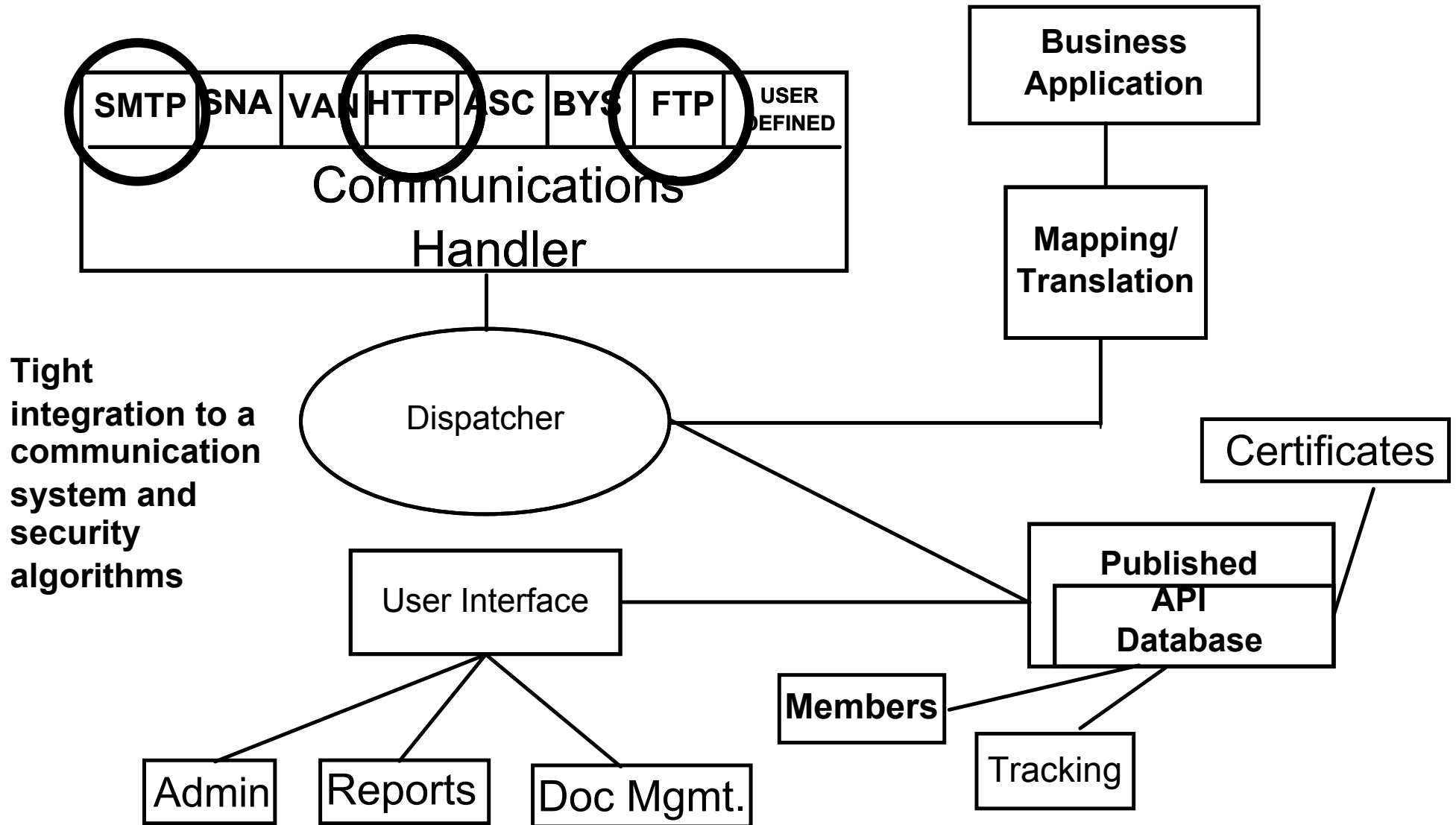
Older EDI Architectures



Loose integration to a communication system



New WEB Enabled EDI Architectures

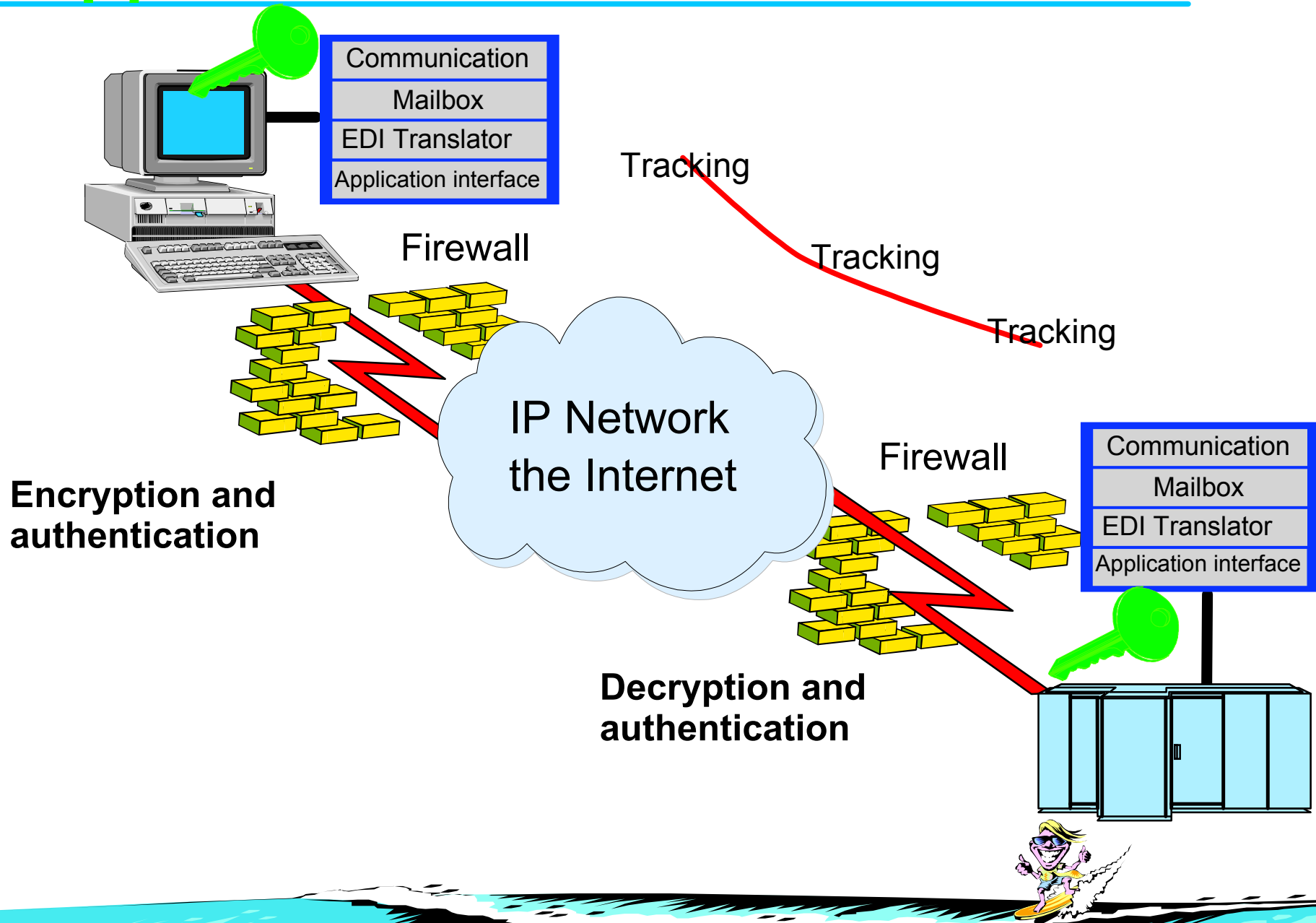


Typical EDI Over the Net Alternatives

- ✦ File Transfer (w/standard EDI file)
 - + FTP
 - + FTP with a Security Layer
- ✦ Web EDI
 - + Forms EDI (HTTP) with a proprietary file out/in
 - + Forms EDI (HTTP) with standard EDI file out/in
- ✦ Mail Transfer (w/standard EDI file)
 - + SMTP
 - + SMTP with a Security Layer



The File Transfer (FTP) Internet EDI Approach



FTP Benefits

✦ Van User or Internal Network User

- + Embrace the reach of the Internet to communicate with Trading Partners around the world.
- + Access to 40+ million potential Trading Partners on the Internet.
- + Use the Internet to communicate but conduct business behind the firewall.
- + Existing infrastructure can be used
- + High security through file encryption and authentication
- + Small or no additional investment

✦ Internet Users

- + Simple infrastructure, a secure client
- + A connection to the Internet

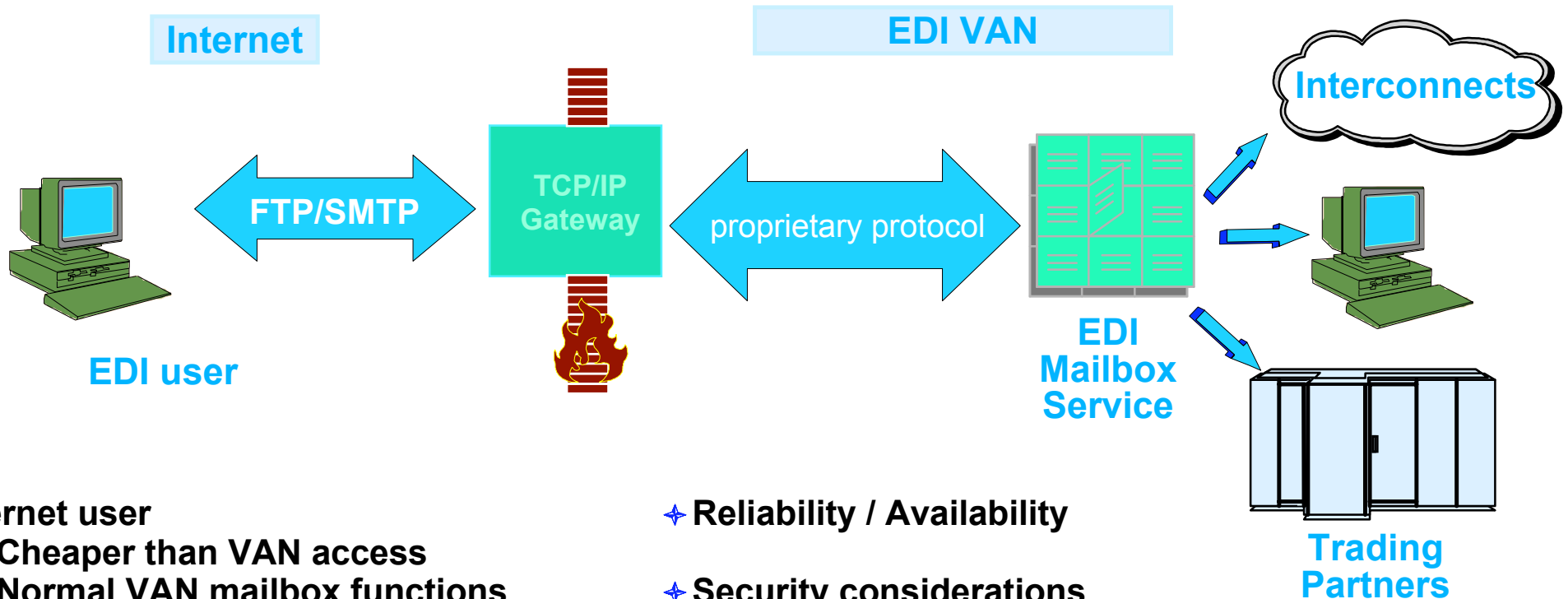


Internet FTP "ISSUES"

- ✦ When using FTP you need to agree on:
 - + Logon procedures
 - + How large the file might be
 - + What to do if you can't access the disk or if it's full when you write to it
- ✦ Need to have the same discussion with all current and future trading partners
- ✦ No VAN costs, or VAN benefits
 - + Tracking/tracing is up to you
 - ★ Unable to connect procedure/log
 - + Reliability/availability is based on new players
 - ★ Your ISP
 - ★ The "Internet" itself
 - ★ Your Trading Partner's ISP



"Out-Sourced" Internet Access to EDI Mailbox

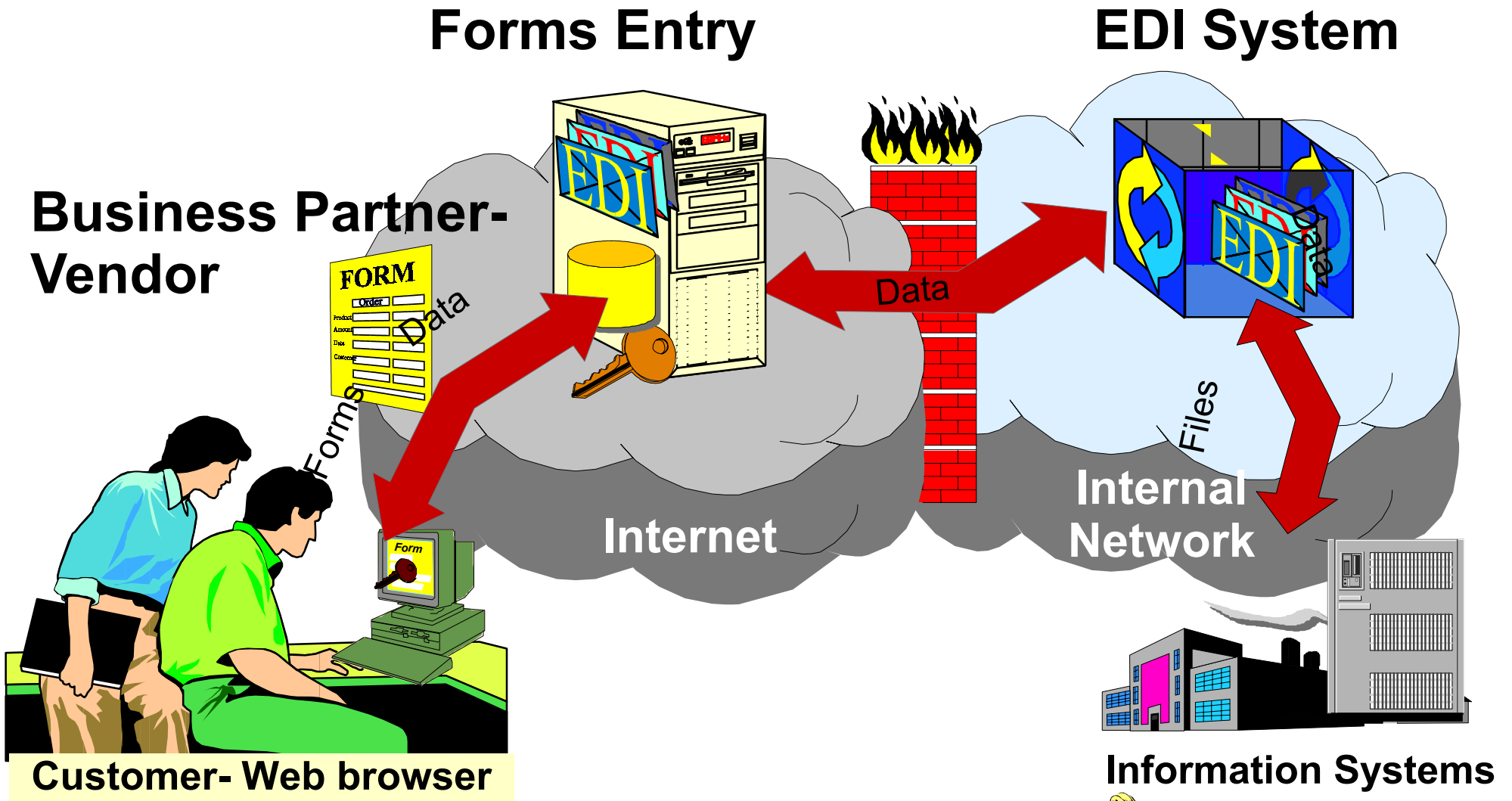


- ✦ Internet user
 - + Cheaper than VAN access
 - + Normal VAN mailbox functions
 - + Extended reach
 - + Alternative route to mailbox
- ✦ Business as usual for trading partner
- ✦ Trading partner may be
 - + Another Internet user
 - + VAN user
 - + Interconnected VAN user

- ✦ Reliability / Availability
- ✦ Security considerations
 - + Secure the path to the gateway
 - + Secure the gateway
 - + Firewall provided by VAN
- ✦ Access to mailbox functions



HTTP (WEB) Based EDI



HTTP (Web) Based EDI Benefits

✦ Large Enterprises

- + Achieve 100% EDI Integration
- + Reach the small supplier and trading partners
- + Enhance the reach without redeveloping the in-house structure

✦ Small and Medium Enterprises

- + An inexpensive way to satisfy large trading partners
- + Little change to the current way of doing business
- + Openness for further EDI integration



Prerequisites for Web Based EDI

- ✦ The Trading partner

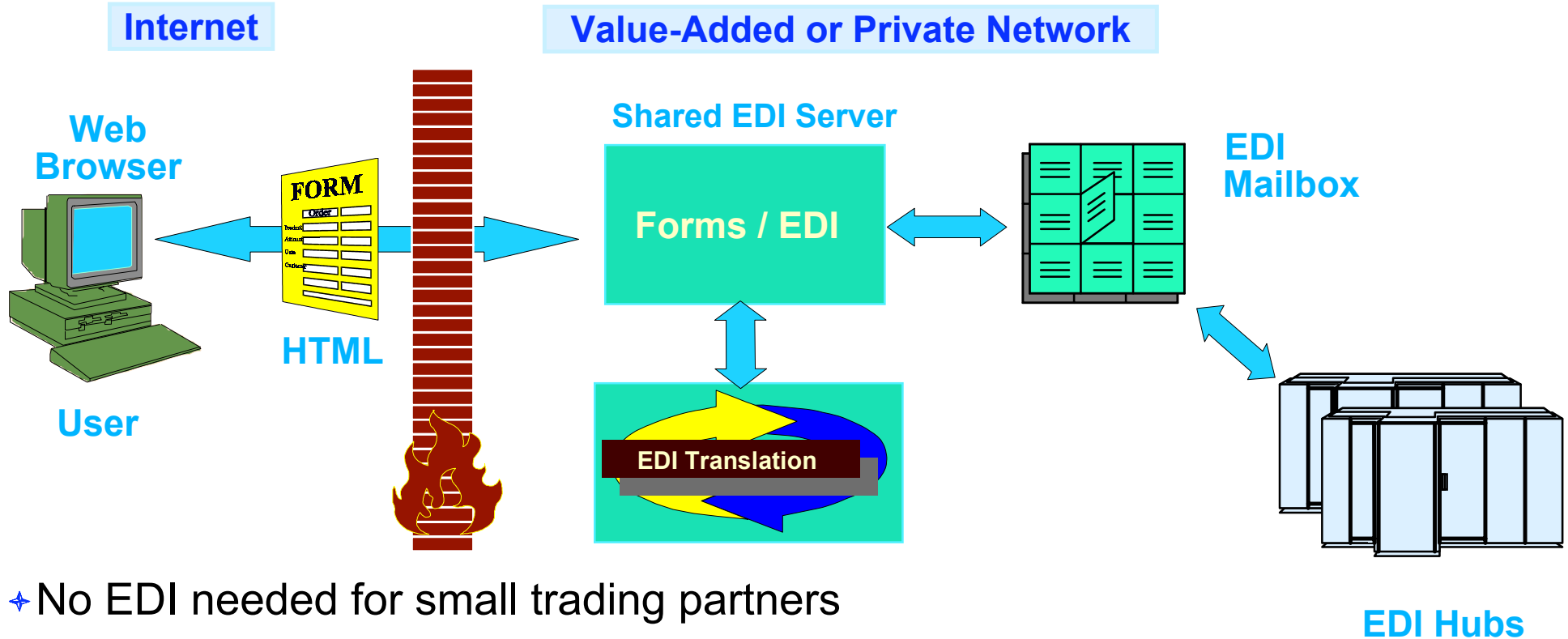
- + A Web browser and access to the Internet

- ✦ The EDI Hub

- + Use Outside Service
 - + In-house Front End Application
 - ★ Fat Client or Thin Client
 - ★ New Architecture



Out-Sourced Web-Based E-Forms



- ✦ No EDI needed for small trading partners
- ✦ Business as usual for Hubs
- ✦ Server can also be designed to support file transfer
- ✦ Normal Web Security choices
- ✦ No integration
- ✦ No standard form or process



Web Based EDI eliminates many traditional EDI project tasks

~~EDI Message development and agreement among the parties~~

~~Trading Partner selection according to equipment and skills~~

~~EDI Message and Communication tests among the parties~~

~~Trading Partner must select and buy EDI Software~~

~~Project Roll out~~

~~Trading Partner must gain EDI experience~~






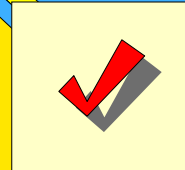

~~EDI Package development~~

~~Inflexible and expensive maintenance~~



Is Web Based EDI for You?

Web Based EDI versus traditional EDI

| Project description | Web EDI | Traditional EDI |
|---|---|---|
| EDI projects with large non-EDI enabled trading partner groups |  |  |
| EDI projects where an EDI package needs to be developed and installed |  |  |
| Projects where application integration on the T.P. side has a high priority | |  |
| Projects in an EDI enabled environment |  |  |



IETF/RFCs

✦ IETF

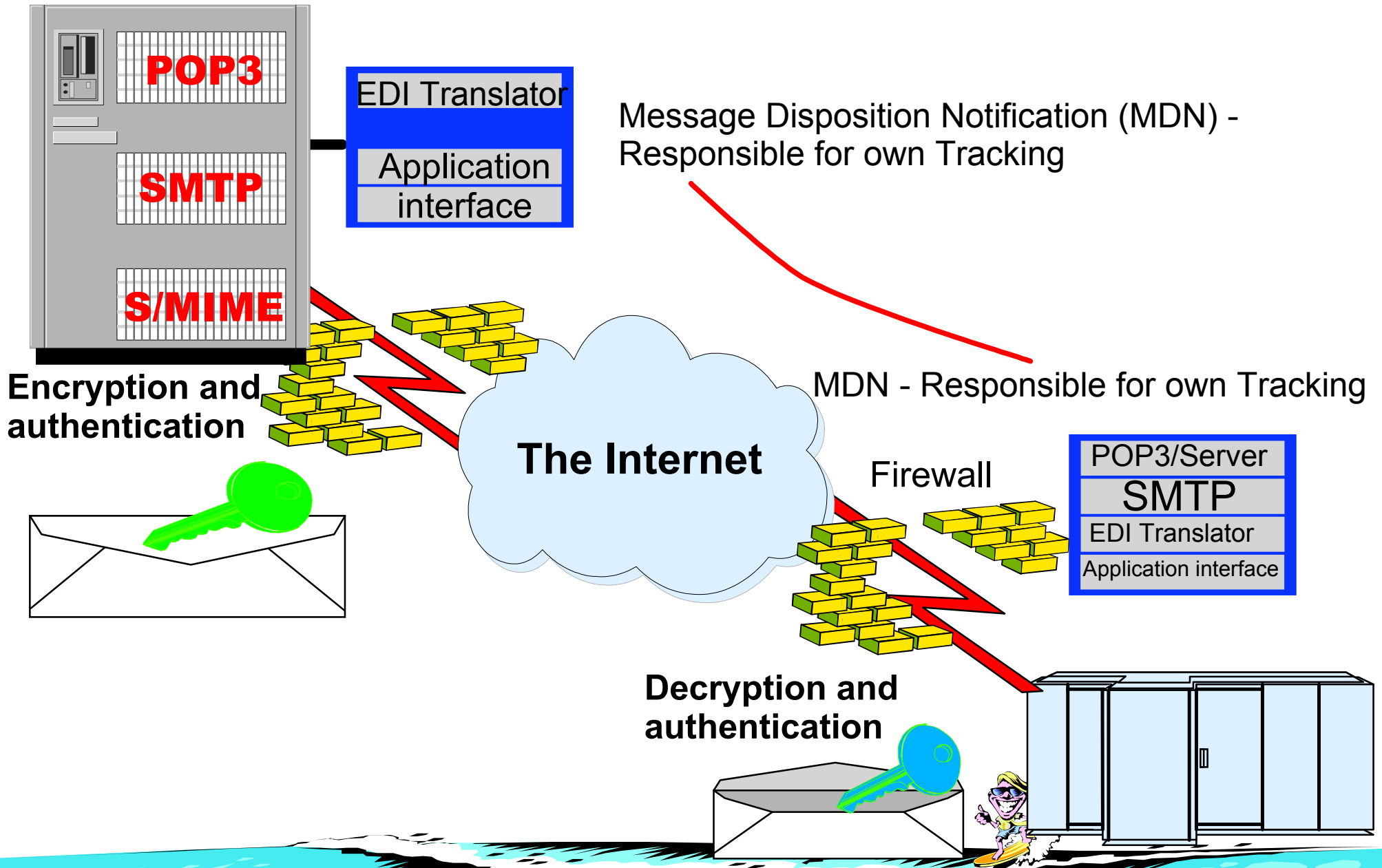
- + The Internet Engineering Task Force (IETF) is a large open community of network designers, operators, vendors, and researchers concerned with the Internet and the Internet Protocol Suite

✦ RFC

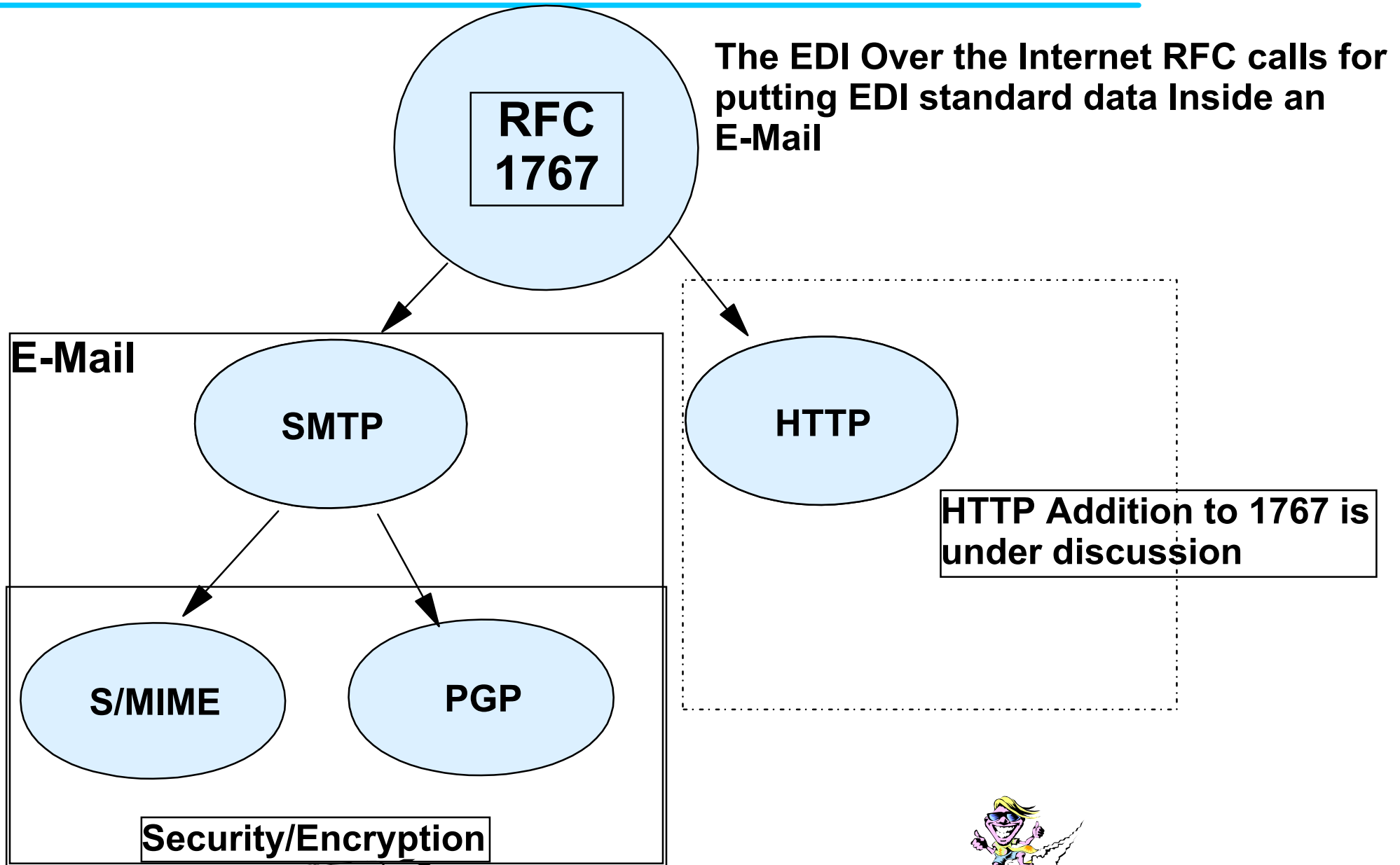
- + The Internal Workings of the Internet are defined by a set of documents called Request For Comments (RFC)



EDI over the Internet (EDIINT) /RFC 1767



EDIINT: WWW.IMC.ORG



The IETF Internet/EDI Approach - *Pros and Cons*

- ✦ Missing VANs benefits

- + Tracking/tracing
- + Reliability/availability

- ✦ Security

- + Moves X12.58 and UN/EDIFACT 9735-5 and 9735-6 out of translator
- + Uses Communication subsystem to apply encryption to whole envelope
- + Is X.509 compliant (Allows Symmetric Key Cryptography)
- + S/MIME and PGP/MIME valid signature formats

- ✦ No VANs charges

- ✦ Store and Forward, not real time

- ✦ Not all e-mail systems implement MDN (Message Disposition Notification) - Part of RFC

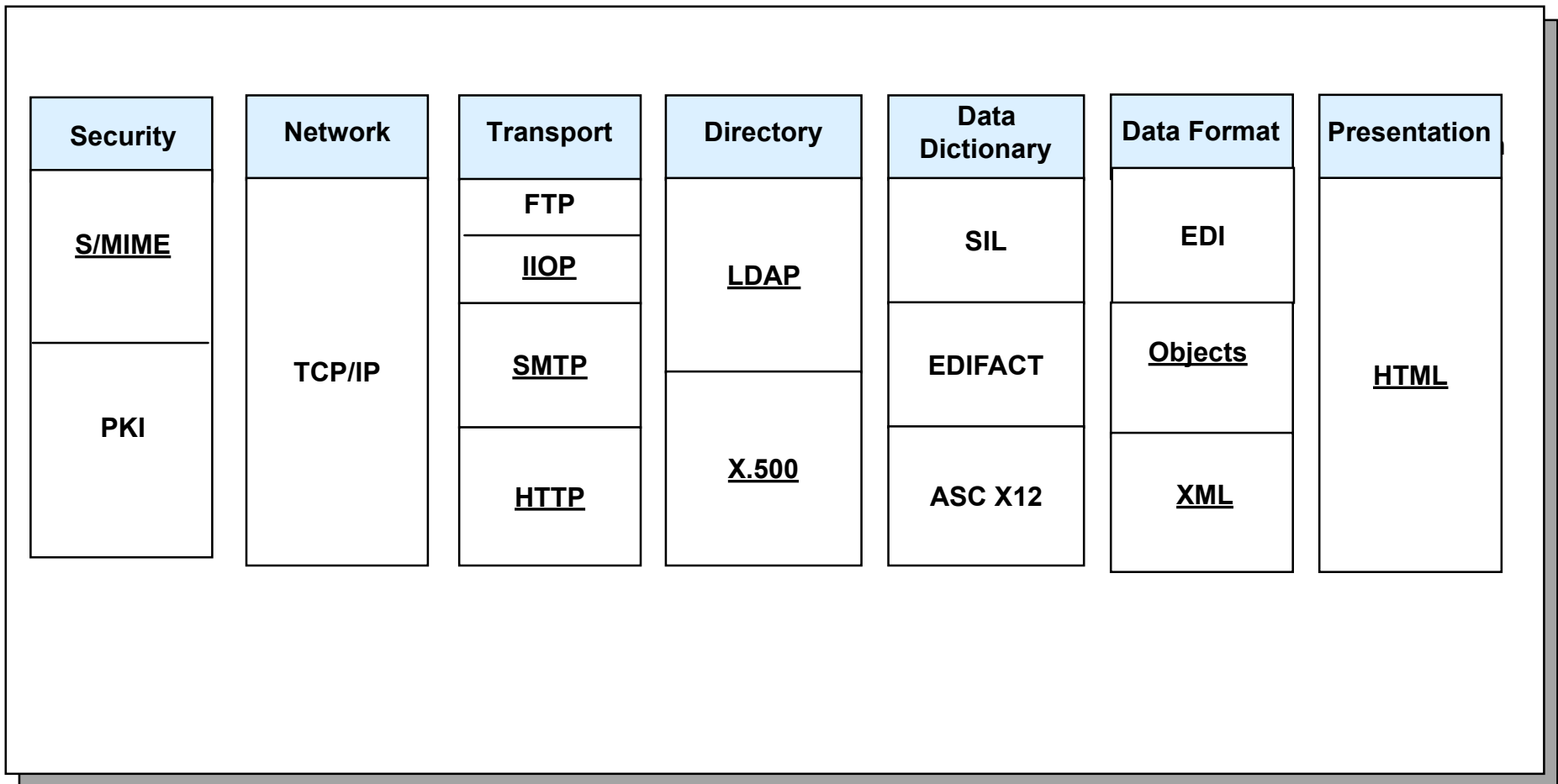


The IETF Internet/EDI Approach - Pros and Cons (cont.)

- ✦ Will be easier to provide integrated solutions
- ✦ Some e-mail system have difficulty with messages greater than 1MB in length
- ✦ Supported by
 - + EDI software companies
 - + Application providers
 - ★ Over a dozen companies have conducted interoperability tests
 - + CommerceNet



Internet/EDI Approaches - By Layers



Web/EDI Server vs Traditional EDI - Unique Issues

- ✦ Different network approaches - proprietary vs. public/open
- ✦ Third Party participation is increased - greater opportunity for exposure
- ✦ Transaction logging now extends to the Web Server and the Clients
- ✦ Archival needs/capabilities may be different for mainframe, server, and client
- ✦ Security Approach is different
- ✦ Digital signatures/authentication different from traditional EDI systems
- ✦ Non-repudiation and transaction reconciliation issues different from traditional EDI



Web/EDI Server vs Traditional EDI - Unique Issues (cont.)

- ✦ Trading partner registration and mgmt
- ✦ Rollout and enablement is different from traditional EDI
- ✦ No integration at client end
- ✦ Acceptance Testing/remote diagnostics through the Web
- ✦ Additional value-added applications needed on Web/EDI Server - connection to and concurrency with mainframe applications must be addressed
- ✦ Server-based edits - when, what, how synchronized with Corporate data



VPN: Other Connectivity Over Internet

✦ Virtual Private Network (VPN)

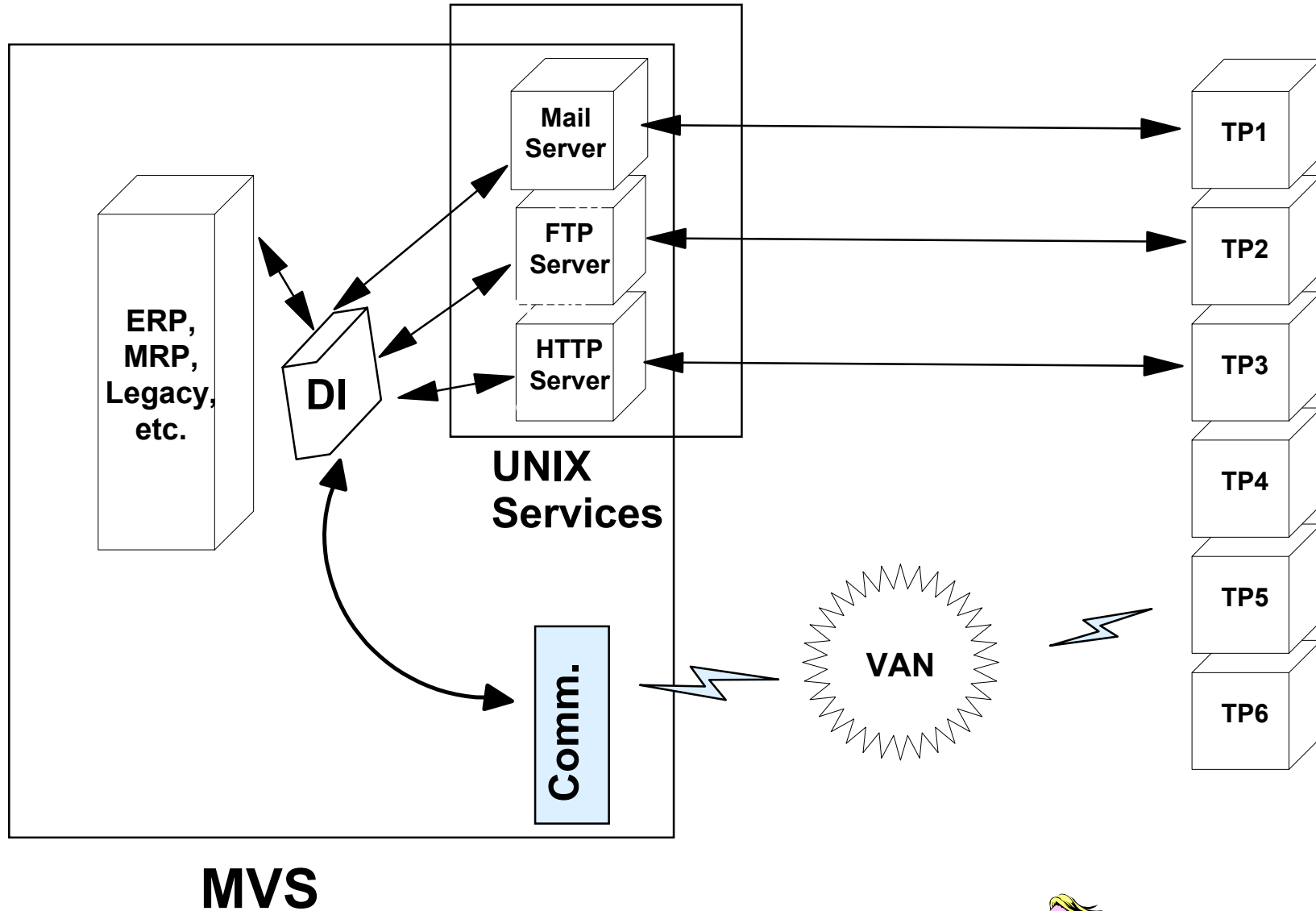
- + Similar to Private Network Offerings
- + Tends to be easier to deploy than direct point to point
- + Files transmitted like there was a direct connect
- + Most companies approach this like a managed router scenario

✦ Disadvantages

- + No guaranteed uptime
- + Lack of compatibilities of VPN tunneling protocols and associated hardware/software
- + The cost and performance overhead with encrypting/decrypting
- + No message traffic audit trail



DI Web Integration using MVS/OS



What EDI/Internet Approach Is Best?

| Approach | Audience | Benefit |
|--------------------|---|---|
| Forms/Http/Browser | "Small" Trading Partner "unsophisticated" TP | Fast implementations & changes. Reach many TPs Quickly |
| FTP/VPN | Larger Companies | Van "charges" gone |
| RFC - 1767 | E-mail / Small or Large (EDI Sophisticated) | Possible new use of mail infrastructure. Vans charges gone. . |



Any questions please ??

Timothy J. Szal
DI Consulting Opportunity Manager
Senior Consultant, e-business
(817) 314-6109

