Announcements

- April 2
  - Deadline for by-elections nomination submission
  - Marketing and Administrator positions available
  - Also seeking web developer
- April 6
  - Commerce Connects
  - meet and network with commerce alumni
  - dinner included!
  - begins 6pm, Spiegel Hall, $10
  - sign up at the UCS office
- More info?
  - www.ucsonline.ca
- High-speed ISPs do NOT have to divulge their customers
  - Court ruling today

MGT 415H5 S
Electronic Commerce

Lu Lahodynskyj

Week#13 - Review

Agenda

- This Week
  - Group Assignments
  - Review
  - Individual Assignments
- Next Time We Meet
  - Tuesday April 27th
    - Exam

Group Assignments

Depth of Knowledge for the Exam

- Understand
  - What is it?
  - What impact does it have?
  - Any competition?

eg: Spam

- What is it?
  - Unsolicited e-mail, Text msgs, etc.....
    - Accounts for 50% of e-mails as of 2003
- What impact does it have?
  - Decreases network bandwidth
  - Decreases office productivity due to reading Spam
  - Creates an opportunity for anti-Spam vendors
    - they provide the hardware and/or software to combat spam
      - eg: Brightmail
    - Client-side
      - eg: Eudora, SpamBully
  - Nothing is perfect
- Competition
  - None

eg: HTML

- What is it?
  - Standard for displaying web pages
  - Uses <TAGS> to identify sections of a document, and data within the doc
- What impact does it have?
  - Makes the web possible
    - Publish papers
    - Companies can sell items without sales staff
- Competition
  - None

eg: Java

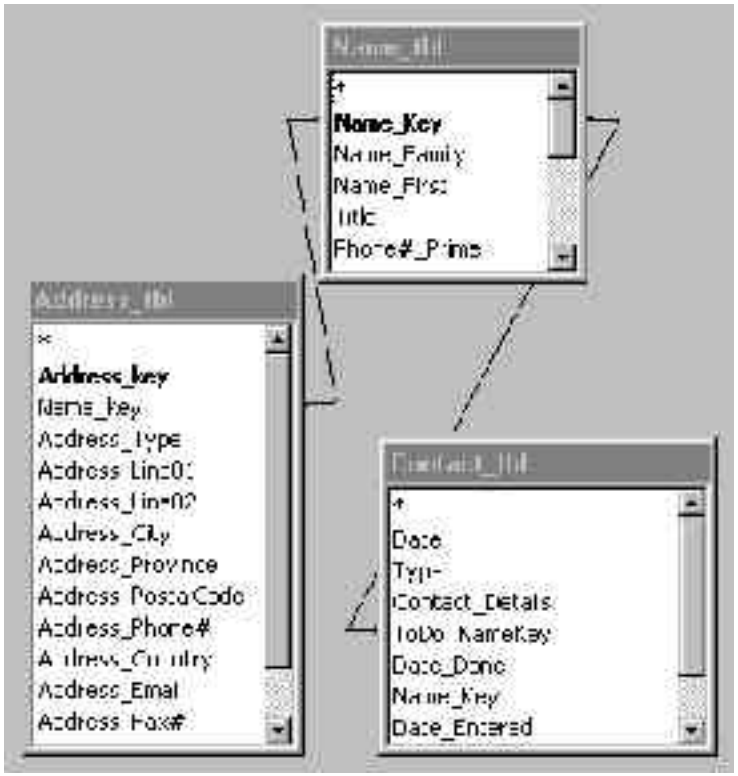
- What is it?
  - Programming language for building programs
- What impact does it have?
  - The same program can run on any system
    - Runs in a Java Virtual Machine (JVM)
      - Each operating system has a JVM
    - eg: do not have to re-build the application when moving from a Linux to a Novell box.
  - Enables every vendor to build an application once
    - Lowers their costs
  - Customer can run the application
    - No longer bound by the operating system they use
- Competition
    - C++ is available on many platforms
      - But, needs to be recompiled for each platform
    - C# for Microsoft

eg: UML

- What is it?
  - Way of modelling the world
    - then creating the application designs
- What impact does it have?
  - Can define what a business wants to do (the requirements)
    - eg: take customer orders on-line
  - Then defines how the application should be structured
    - to ensure robust programs are built, that meet requirements
- Competition
  - None
    - Rolled into products such as RUP and Rational Rose
    - Used to be
      - Process modelling, but relies on sequences
      - Data modelling, still used for RDBMS

eg: MySQL

- What is it?
  - Open-source Database (RDBMS)
- What impact does it have?
  - It's FREE
    - Everyone can have a database
  - Can store business transactions
    - eg: purchase order
    - eg: sales transaction
  - Stored transactions can be viewed
    - To better manage Customer relationships
      - eg: Track order status
    - To perform analysis
      - eg: Predict next order
  - Can be used over the Internet
- Competition
  - Oracle
    - Fully featured, fast and reliable commercial RDBMS
    - Integrated into ERP
      - But, expensive



eg: XML

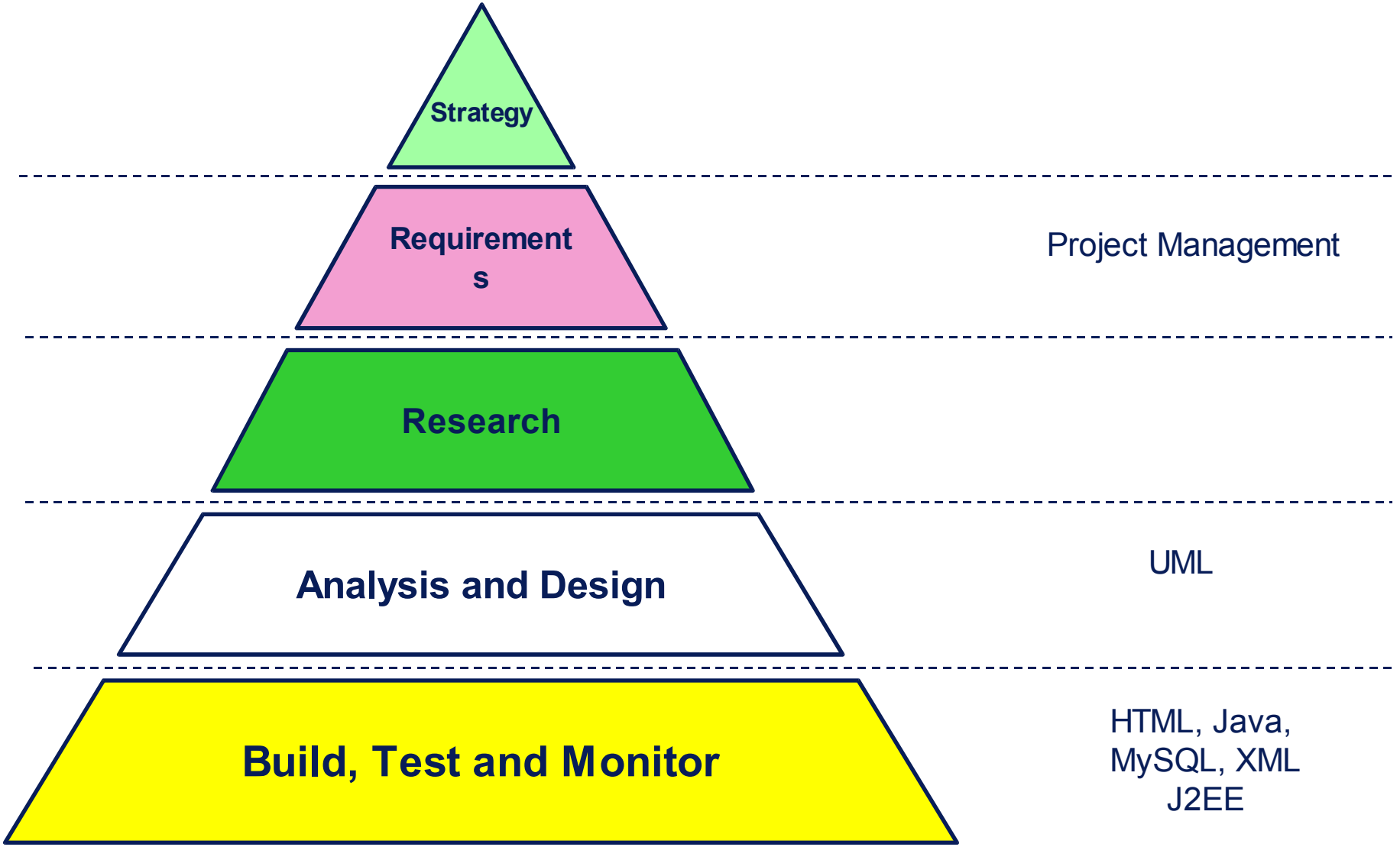
- What is it?
  - Standard defining how data can be exchanged between computers
  - Uses <TAGS> to identify documents and data within the doc
- What impact does it have?
  - Enables B2B
    - eg: purchase order to a supplier
  - Integration of technologies from many diverse vendors
    - they provide the XML interface
    - all XML compliant applications can use the interface
  - Requires consensus within the industry, or group
    - Many XML layouts, DTDs
      - by industry, by group, by vendor
- Competition
  - EDI
    - Already in use for 30yrs
      - Not direct, but through 3rd-party mailbox

eg: J2EE

- What is it?
  - Framework for building applications
- What impact does it have?
  - Defines standards for each area
    - eg: database query and transaction
    - eg: communications protocol
  - Enables integration of technologies from many diverse vendors
    - they provide the J2EE interface
    - all J2EE compliant applications can use the interface
- Competition
  - .NET from Microsoft

Review

Establishing a Web Presence



Setting Strategy

Definition - Electronic Commerce

- "Commercial activity over a network, involving data exchange."
  - Commercial Activity
    - "Service or product for payment, directly or indirectly."
  - Network
    - Typically the Internet
  - Data Exchange
    - Sharing of information

e-Commerce Strengths

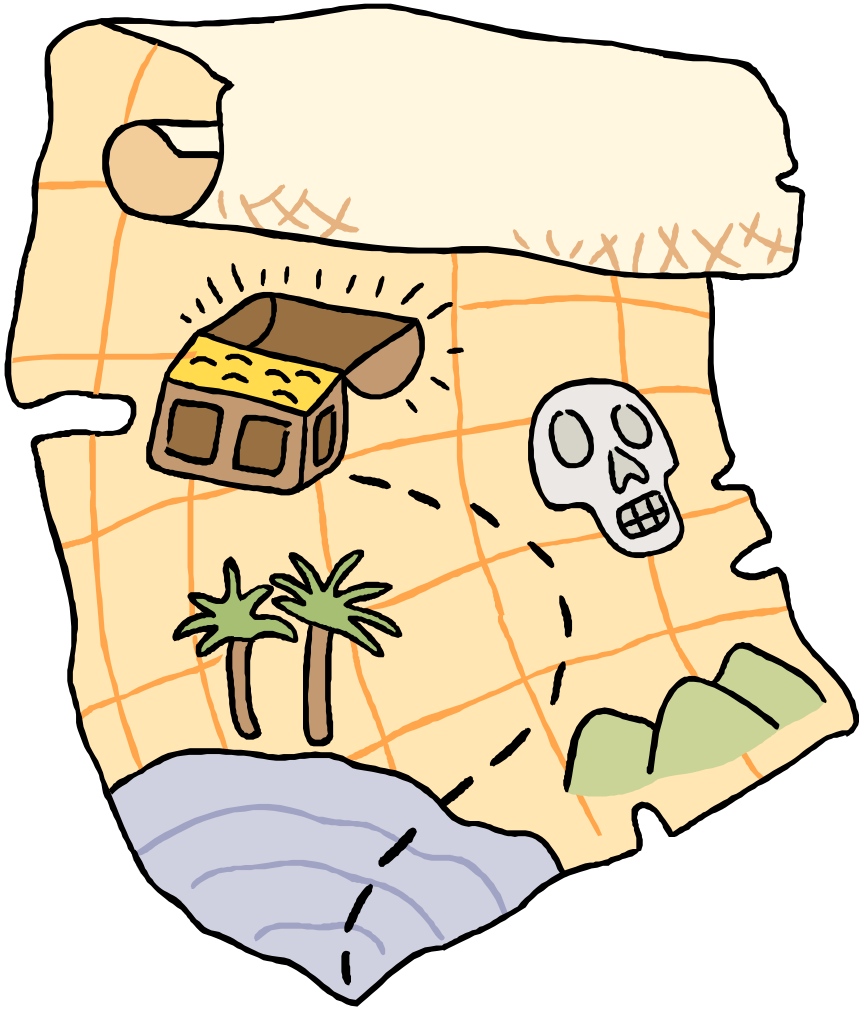
- Communications
- Global Access
- Integration

What's the Competition/Others Doing?

- Interactive
  - Survey
    - Web
    - Cell
  - Special Events
    - Conferences
    - Trade Shows
- Money
  - Saturate
  - "Hit & Run"

What Do you Want to Do?

- People expect AT LEAST
  - a "Business Card" site
    - e-mail traffic may increase
- Are you going to
  - B2B? (or B2G)
  - B2C?



Business Drivers

- JIT
  - Toyota's KanBan system
- VIM (Vendor Managed Inventory)
  - Collaboration or Coercion? Finance
- "Beer Game"
  - MIT simulation that shows how consumer demand can be distorted within a supply chain with poor communications
    - Computer to computer

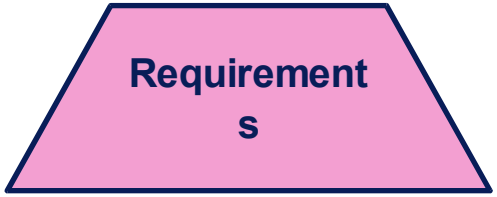
Business Model

- Product
  - Life-cycle
- Service
  - Reputation
- Product & Service

So What Does e-Commerce Cost?

- From
  - $5,000 and up, up, up
- Upgrades to
  - $100million
- Once Connected
  - Spam
    - Medium sized business
      - $150,000 - $250,000

Requirements

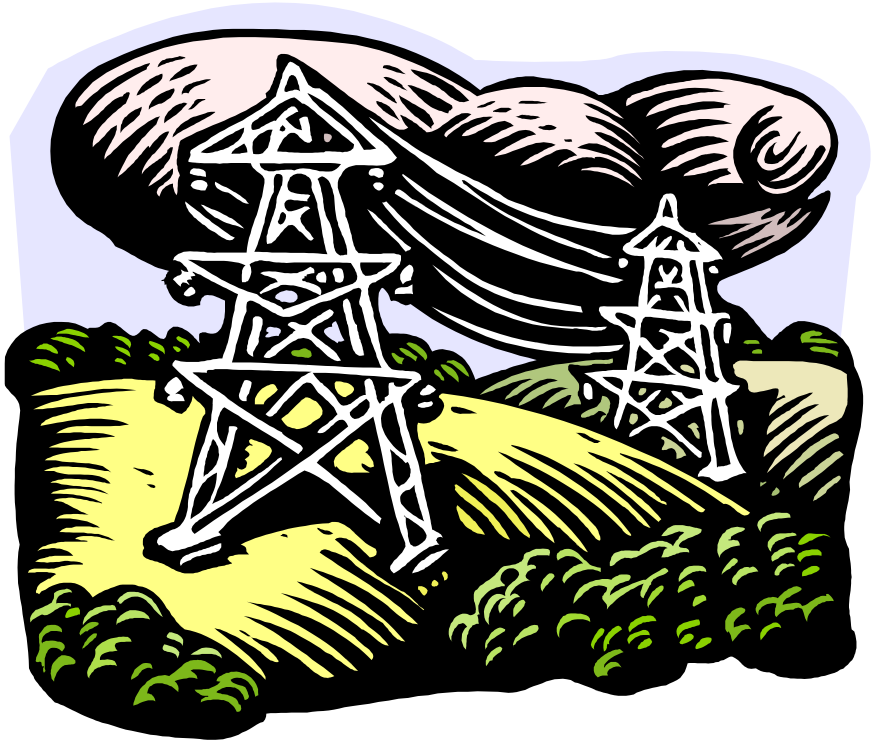


Project Management

Rubric (Scoring Model)

		Weight			Score	
%	Measure	5	3	1	A	B
40%	Improve Responsiveness	Cycle-time 30% less	Cycle-time 20% less	Cycle-time as before	2	1.2
40%	Improve Quality	Complaint levels down 100 to 81%	80% less than before	40% less than before	1.2	1.2
20%	Reduce Costs	Save > $10,000 per year	Break-even (+/- 10%)	Spend more than save	0.6	1.0
	TOTAL SCORE				**3.8**	**3.4**

Management - Power & Control



- Project Environments
  - Direct Report
  - Matrix Environment
  - Out-Sourced

Why Project Management?

- Failures
  - 70% fail on one or more of the following
    - Cost
    - Delivery Date
      - 63% in 2002
      - 82% in 2003
    - Functionality
  - >40% are CANCELLED
- Success by Industry
  - Retail = 59%
  - HealthCare = 36%
  - .....
  - Government = 18%
- So Why Do IT?

Project Management Requires.....

- Best Companies
  - What they Do
    - Inventory & Ownership
    - Measure & Benchmark: Time & Cost
    - Project Management & Tracking
    - Version Control/Configuration Management
    - Systematic Testing

Typical Setup

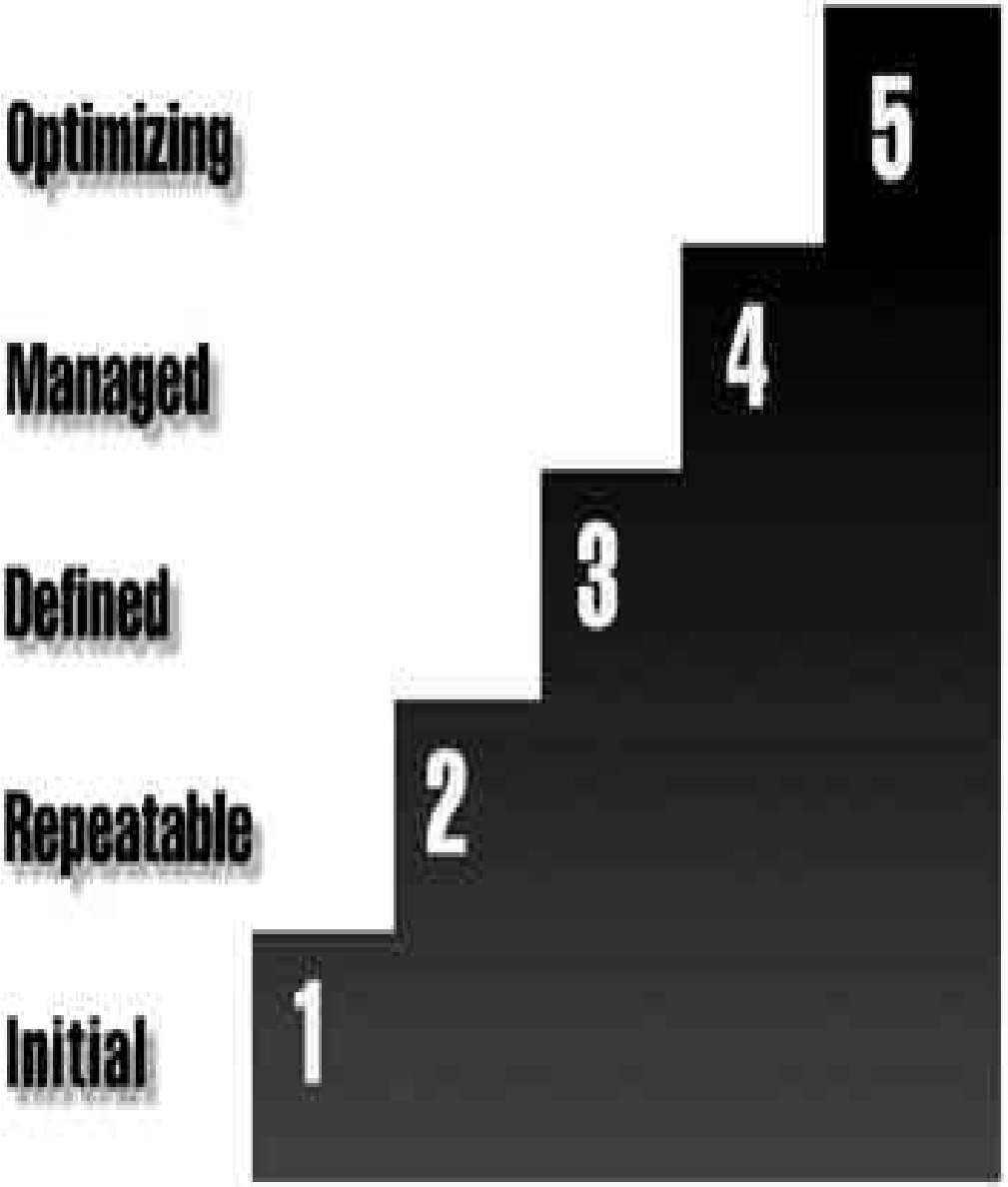
- Steering Committee
  - Project Director
- Business Sponsor
- Project Manager
  - Business
  - IT
    - Development
    - Support
- Business Analyst
  - SME
  - IT
- System Architect
- Technical Teams

Methodology- Why?

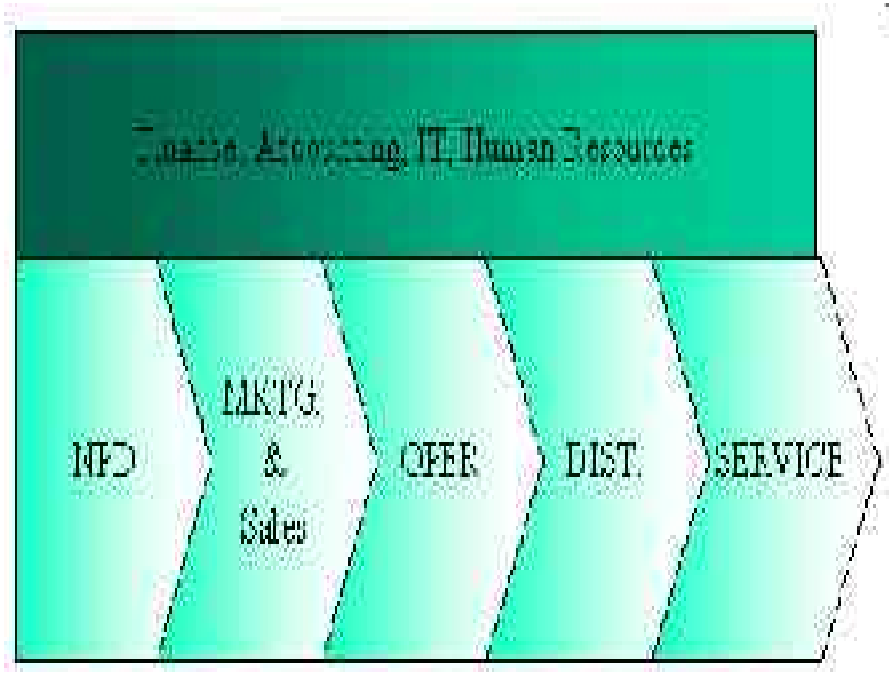
- Cost of fixing
  - Magnitude of 10 per phase
  - so a $1 saved at Analysis will cost
    - $10 after Design
    - $100 after Build
    - $1,000 after Test
    - $10,000 after Implementation
      - NOTE:
      - If you get it wrong at Project Definition, it will cost $100,000 to fix!!
      - High numbers?
        - Not if consider the MILLIONS spent to implement ERP systems such as SAP or PeopleSoft
        - Or a brokerage firm can loose MILLIONS of dollars for EVERY HOUR the system is down
      - So get the requirements right (during Analysis)

CMM

- Capability Maturity Model for Software
- 2001/2002
  - Newer model
    - CMMI
  - Carnegie Mellon
  - SEI



How are you Going to Deliver?



- Dell
  - Fully integrated
    - Orders to Delivery
      - UofT
- Optimized
  - 10min build
  - 5hr inventory
- Out-sourcing?

When Does Out-sourcing Work?

- Best
  - All In-house, or Some Outsourced
  - Snr Mgmt & IT Mgmt joint decision
  - Solicit In-house and Out-Sourcing bids
  - Short-term Contracts
  - Detailed Fee-for-Service
  - 1999-2000 contracts
- Worst
  - All Outsourced
  - Snr Mgmt or IT Mgmt act alone
  - Solicit Out-sourcing bids only
  - Long-term Contracts
  - Other types of contracts eg:flat fee
  - Pre 1999 contracts

Copyright

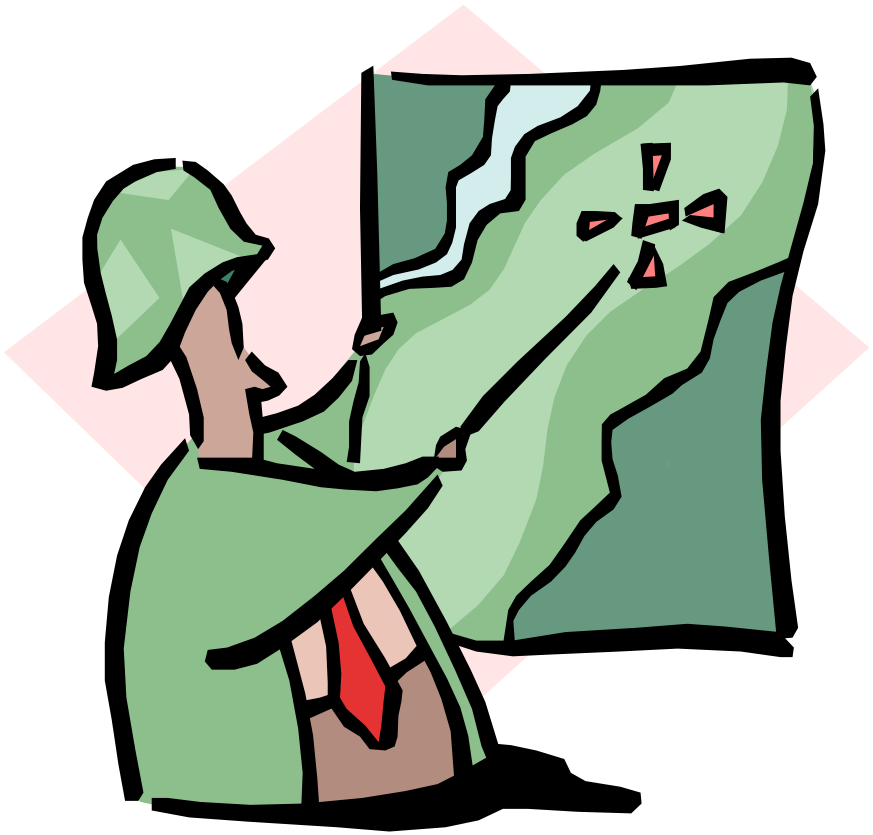
- Copyright
  - Enshrined?
  - Sue?

Legislation – Considerations

- No-one knows
  - e-Bay & PayPal
  - Chinese furniture
- Terms&Conditions
- Customer Location?
  - Canada?
  - USA?
  - UK?
  - Europe?
  - Far East?

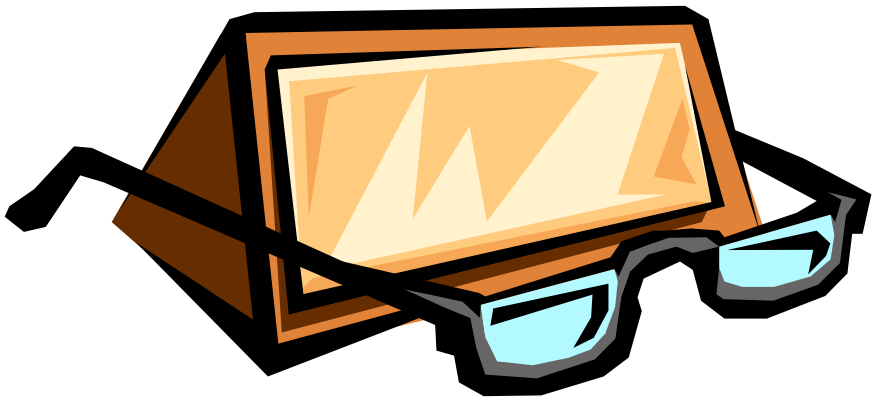
Research

Standard Approaches



- Grow
  - In-house
  - Out-source
- Buy
  - Add-on
  - Complete business

Claiming Your Name



- Need a name
  - Search
    - minimum hits
    - maximum relevance
  - Example
    - Just looking in the Heading
      - Google
    - "e-Commerce"
      - 668,000 Results
    - "super e-Commerce"
      - 2 Results
- Registrars
  - Many of them
    - TA
    - Sympatico has a partner
  - Annual fees

Environment

- Applications run on
  - Client
    - PC, Apple, 3270
  - Server
    - Apache, Microsoft, Apple, IBM, HP, Novell
- Look at
  - Something to run across these environments
  - Creating one environment

Data & Databases

- Information
  - Growing
    - in size
    - in speed
    - in use
  - What is needed?
    - Do we have it?
    - But is it any good?
      - Data entry?

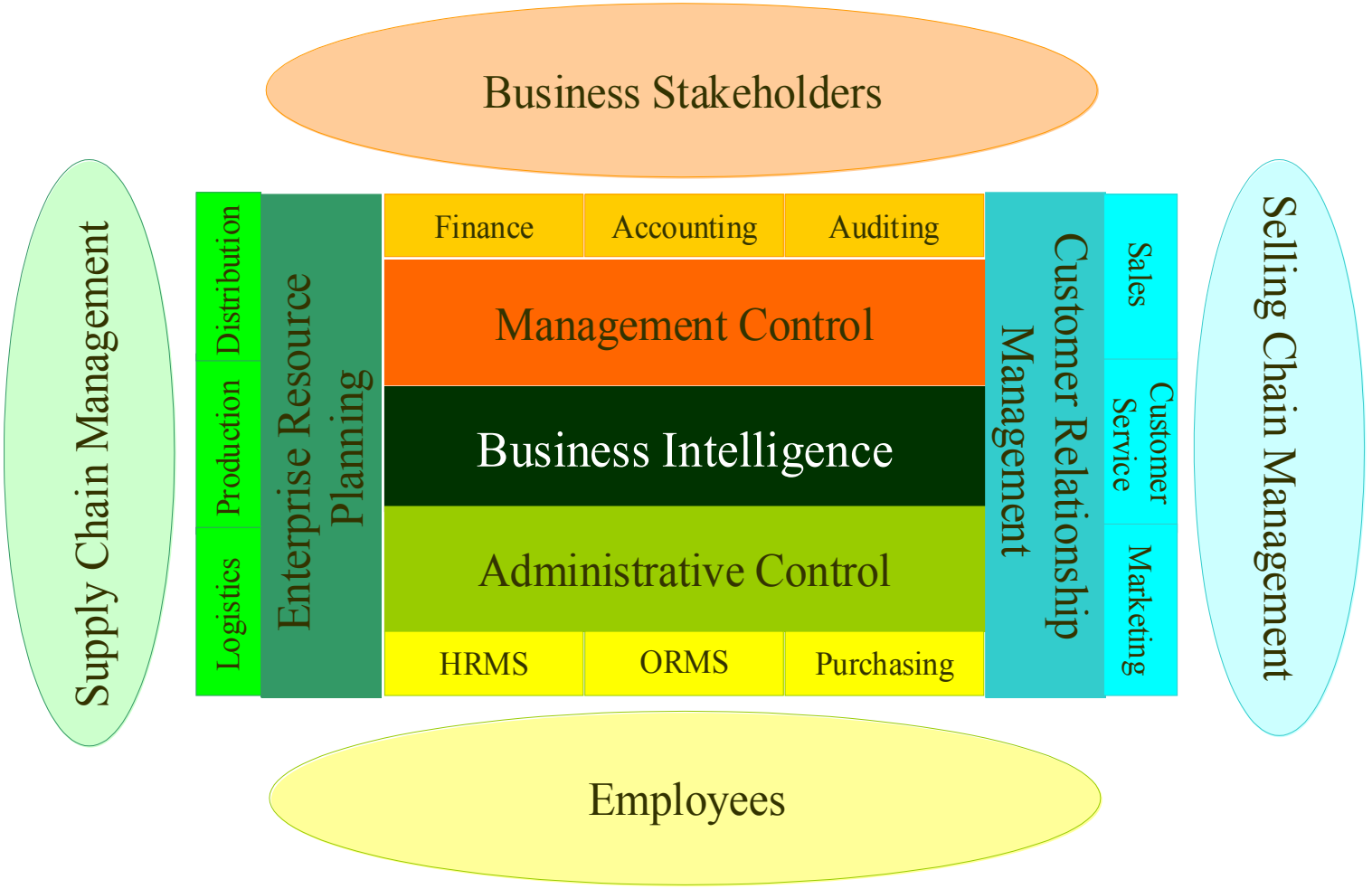
Network Principles

- Same
- Wireless vs. Wireline
  - Speed – ish
  - Blind-spots
    - But, no cabling
  - "Bleeding Edge"
  - Health
    - Hearsay
    - Instructions

Customer Perspective

- Research
  - Each Phase
- Identify
  - Environments
  - Browsers
    - More than IE
      - Netscape
      - Mozilla
      - Opera
  - Resolutions (800x600 +)

Enterprise Applications

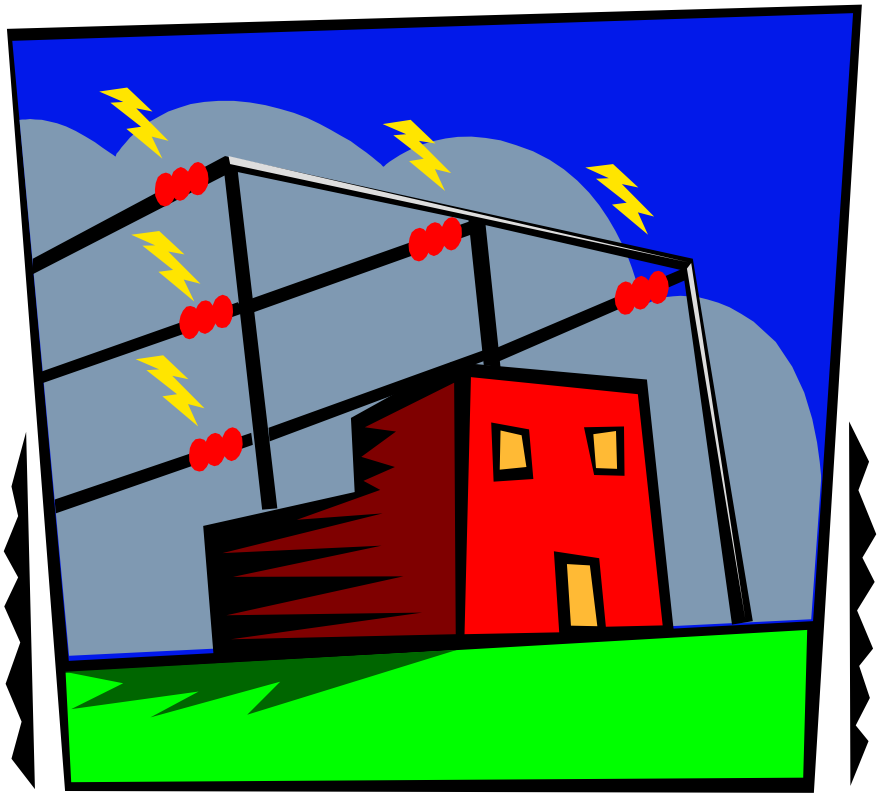


Based on Ravi Kalakota and Marcia Robinson, 2001, *e-Business 2.0 Roadmap for Success,* Addison-Wesley, fig. 5.11.

Outsourcing

- Trends
  - Help Desk
  - Support
  - Development
  - Processes
- Application Service Providers (ASP)
  - Affordable
- Contracts
  - Partnership
  - Specifics
  - Management

Utility Computing



- Utility Computing
  - Networks
  - Pay-for-use
    - Not that easy……
- Autonomic
  - IBM

Analysis and Design

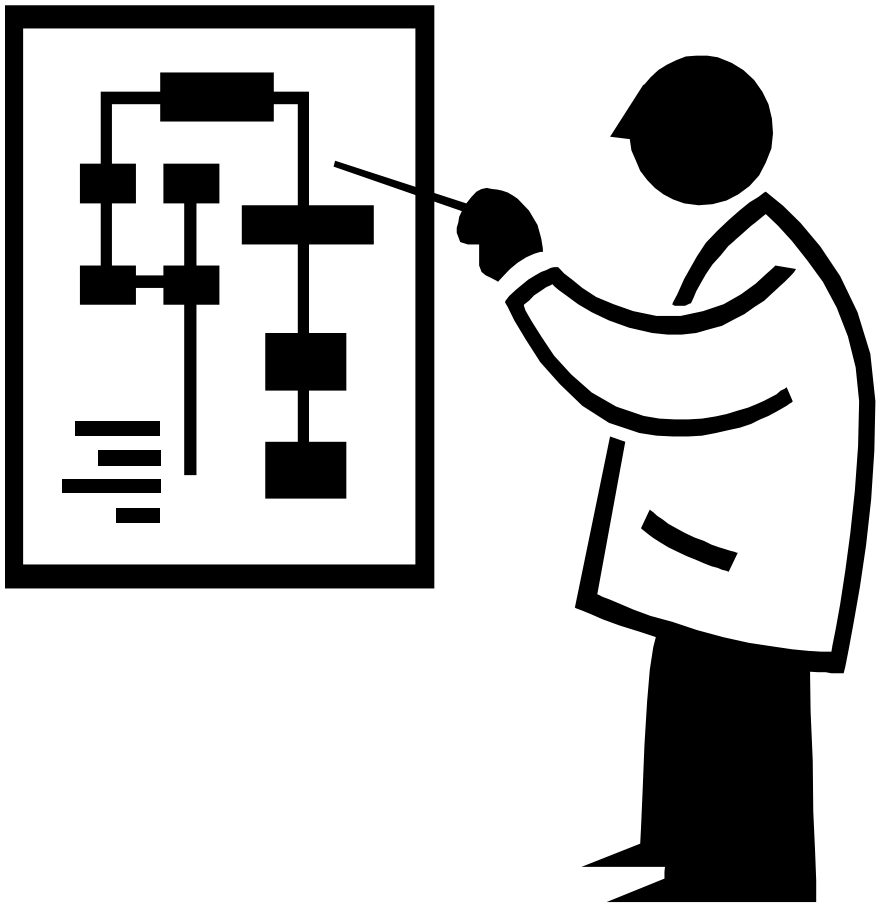
UML

Need for Action

- Plan
  - Work the Plan
    - Review the Plan
      - Work the New Plan
        - Review.....

Analyze & Design the Business

- Look at current processes
  - Model
- Then look at what you want them to be
  - The Same
  - Different
  - Out-sourced



Appropriate Action

- Vaughan-Bassett
  - US furniture maker
  - Competition = China
- EDI?
  - Manufacturing
  - Inventory
  - Technology
    - "We have no programmers, because they can only talk to other programmers"
    - "They're like rabbits; they multiply."

On the Business Side

- Locate Customers
  - Lists
  - Advertise
    - Portals
    - Zines
    - Search
    - Site
  - Stealth
    - Blogs
    - Pay for search placement
    - Sponsor
- Web-Site
  - Visual
  - Speed
  - Content

Willing to Pay for Regular Media?

- X-ref
  - Product
    - Packaging
  - Channels
- Advertise
  - Media
    - Print
    - Radio
    - TV
- Stealth
  - Comment on Articles

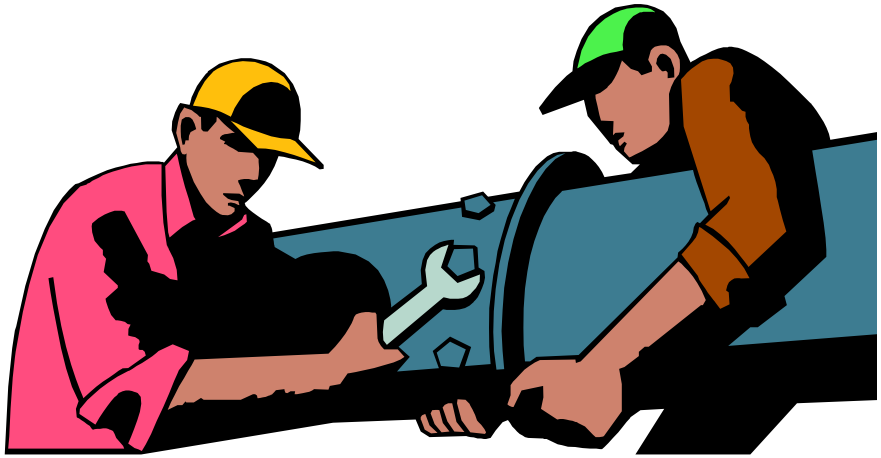
No Money?

- X-ref
  - Product
    - Packaging
  - Channels
    - Partner
    - Links
- Advertise
  - Media
    - Give them a story
  - Associations/Conferences
    - Lecture & Promo
- Stealth
  - Word of Mouth
  - Blogs
  - Chat
  - Comment on Articles

Rules to Live By - Prototype

- Use
  - Paper
  - CASE
  - Partial system
    - Risk
      - 80/20
      - Next 10% = 80% of the time
      - Last 10% NEVER gets done

Constraints



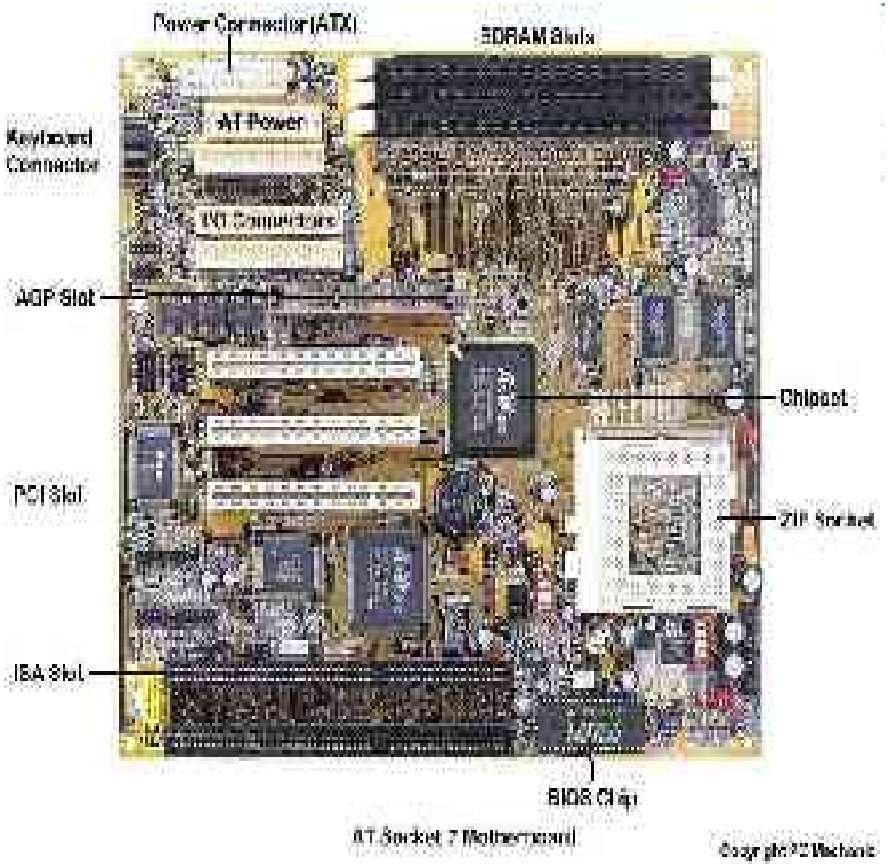
- Not everyone has access
- Pipeline
  - Network speed
- Delivery Process
  - Server side
  - Client Side

Inventory

- The first step
  - Record
    - Hardware
    - Software
- Implications
  - Asset management
  - Patches
  - Upgrades
  - Licenses

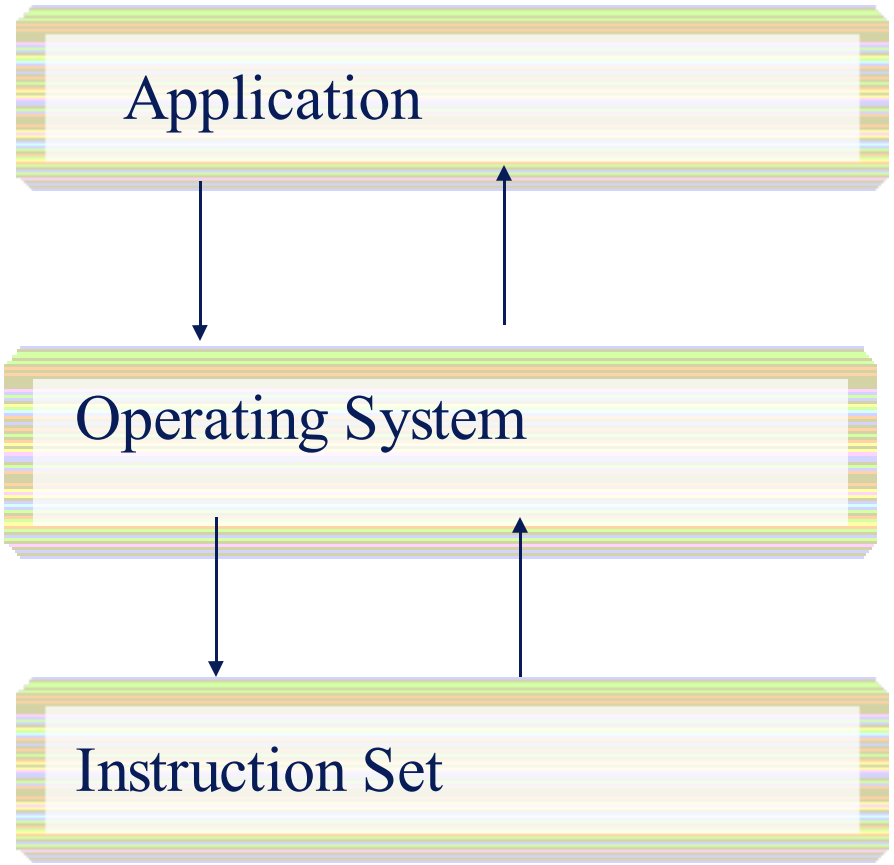
Speed

Connecting the Bits & Bytes - Implications



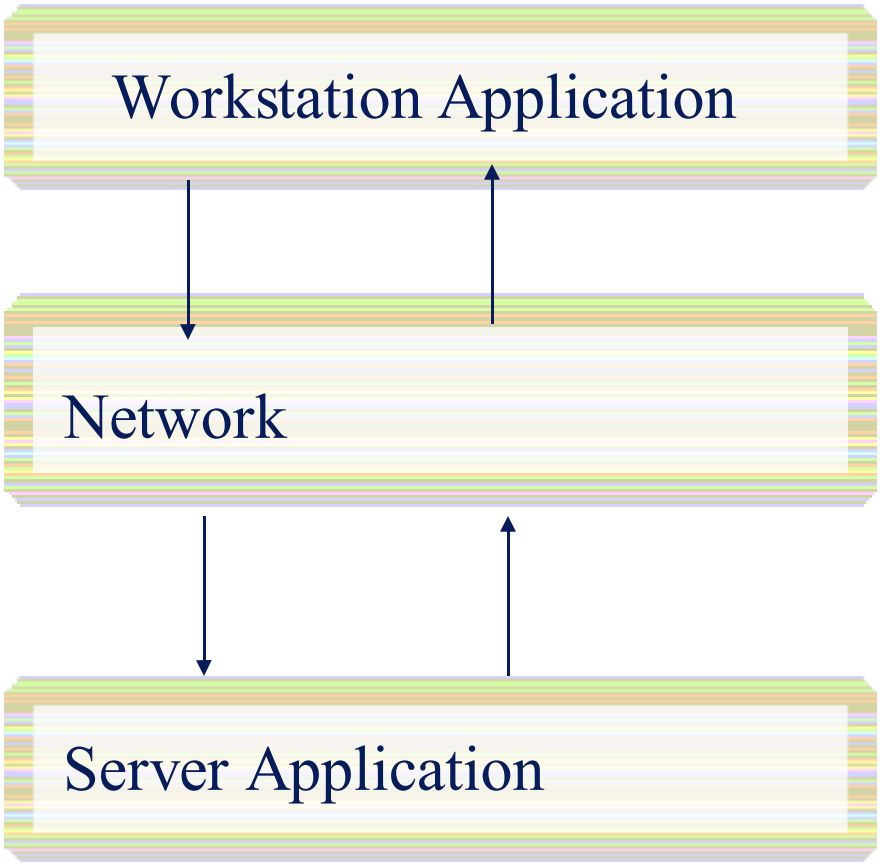
- Speed of the computer depends upon more than just the CPU
  - RAM
  - Graphics
  - BUS

Layers



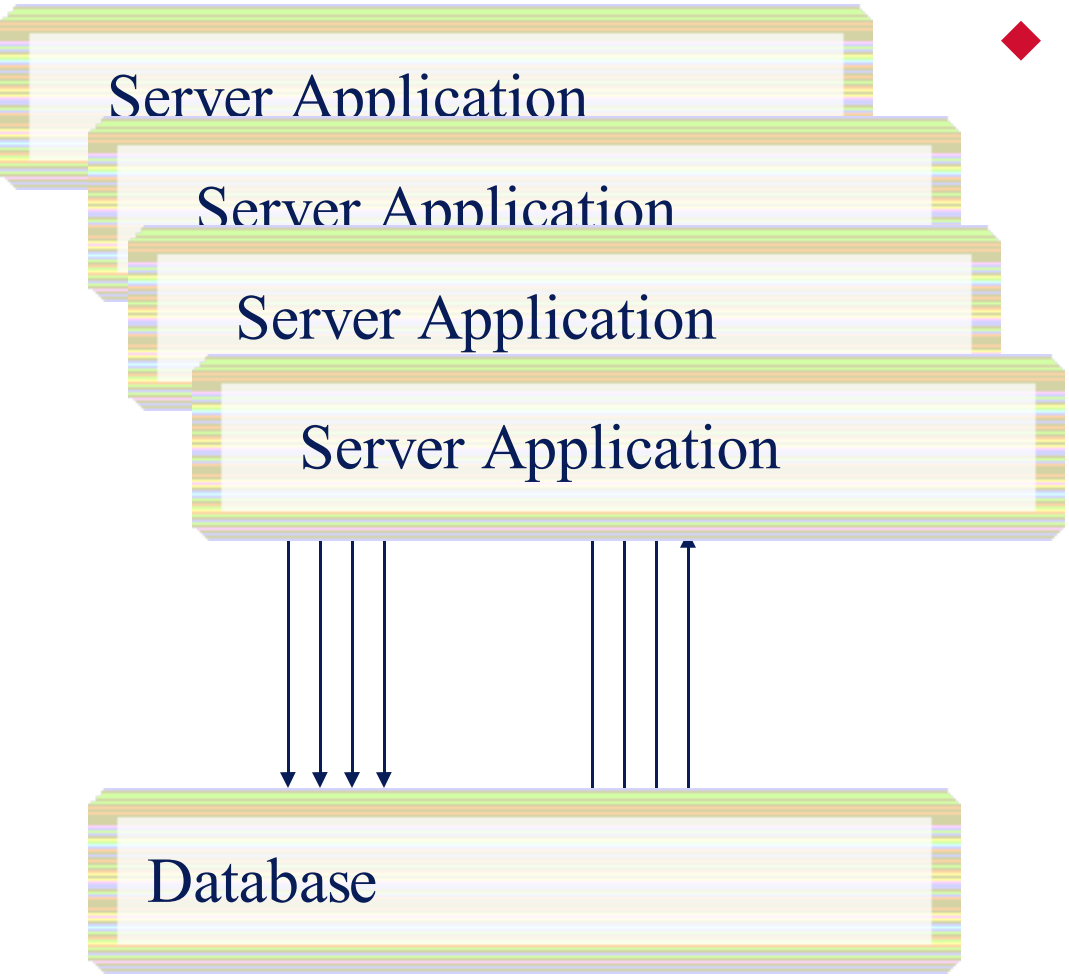
- Application depend upon the Operation System
  - Operating Systems depend upon the Instruction Set
    - Instruction Set built into the CPU

Application Layers



- Constraints
  - Network
    - Spam etc
  - Servers
    - Other applications?
    - Traffic
- Balance Complexity
  - Business
  - Workstation updates
  - Server updates

And the Data Layer

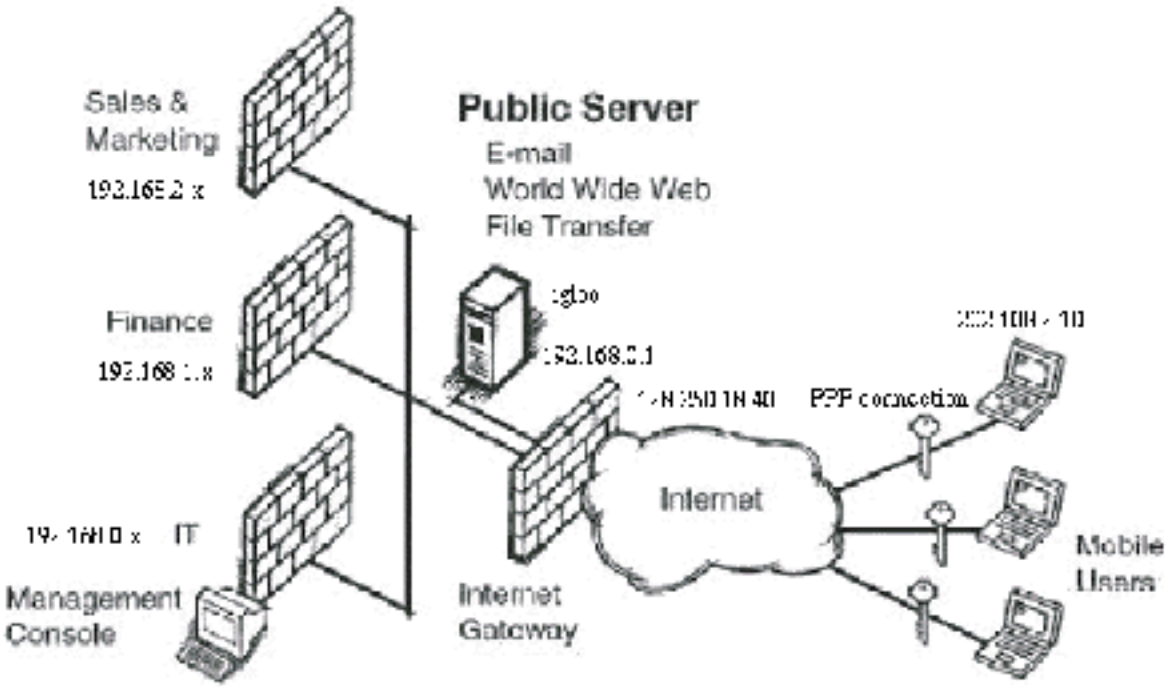


- Database
  - Repository
    - Usually accessed by multiple servers
    - Knowledge Base

Network Speeds

- Network
  - 1kbps = 1,000bps
    - One Kilo-bit per second
- Data Storage
  - 1KB = 2^{10} = 1,024Bytes
- Difference
  - 1Byte = 8bits

Network Setup

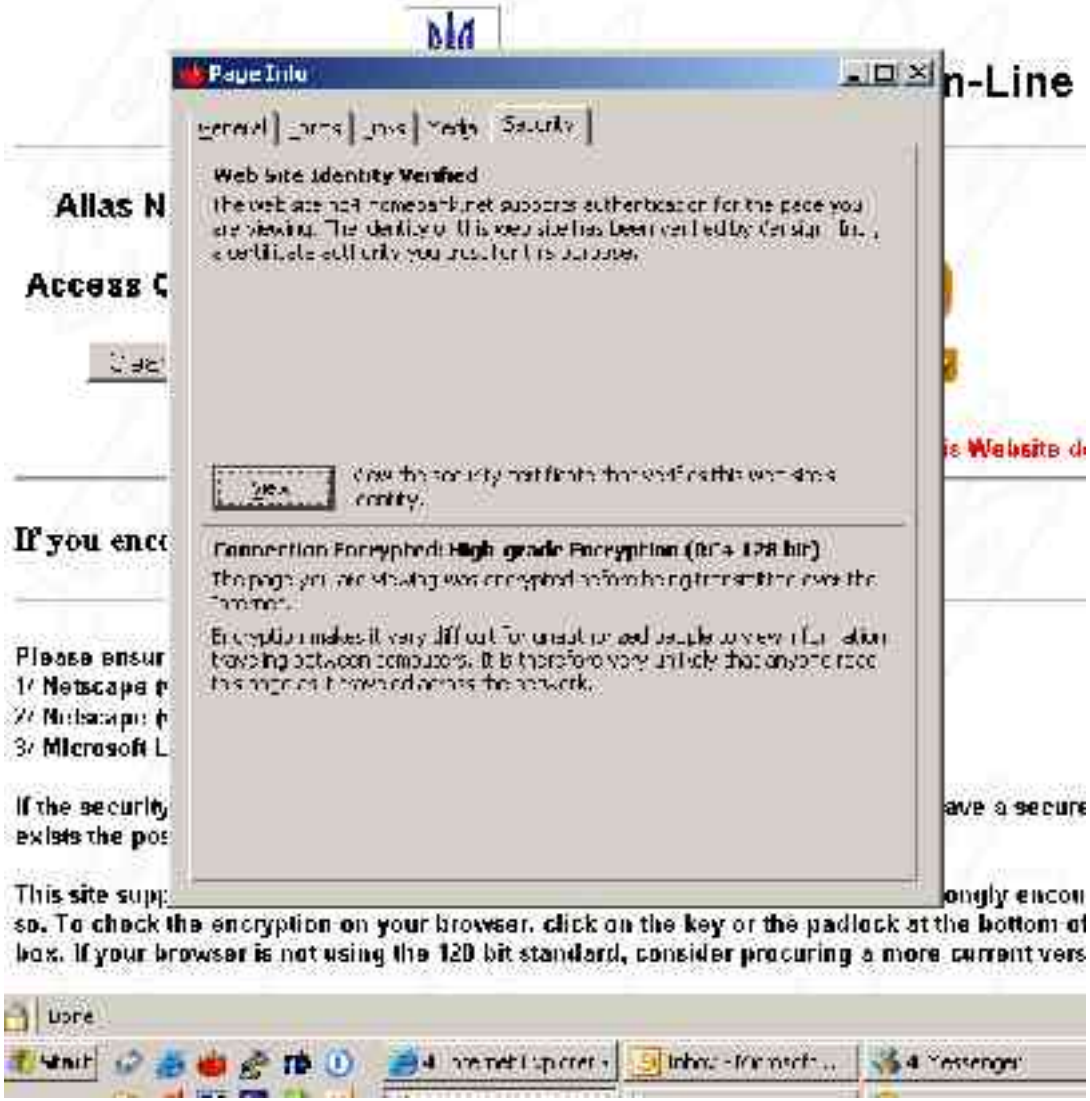


- Application
- Network
  - Internet
    - Peer-to-Peer
  - VPN/VAN
- Servers

So what is secure?

- Not e-mail or IM
- Better off
  - Canada Post
  - Courier

Is it Safe?

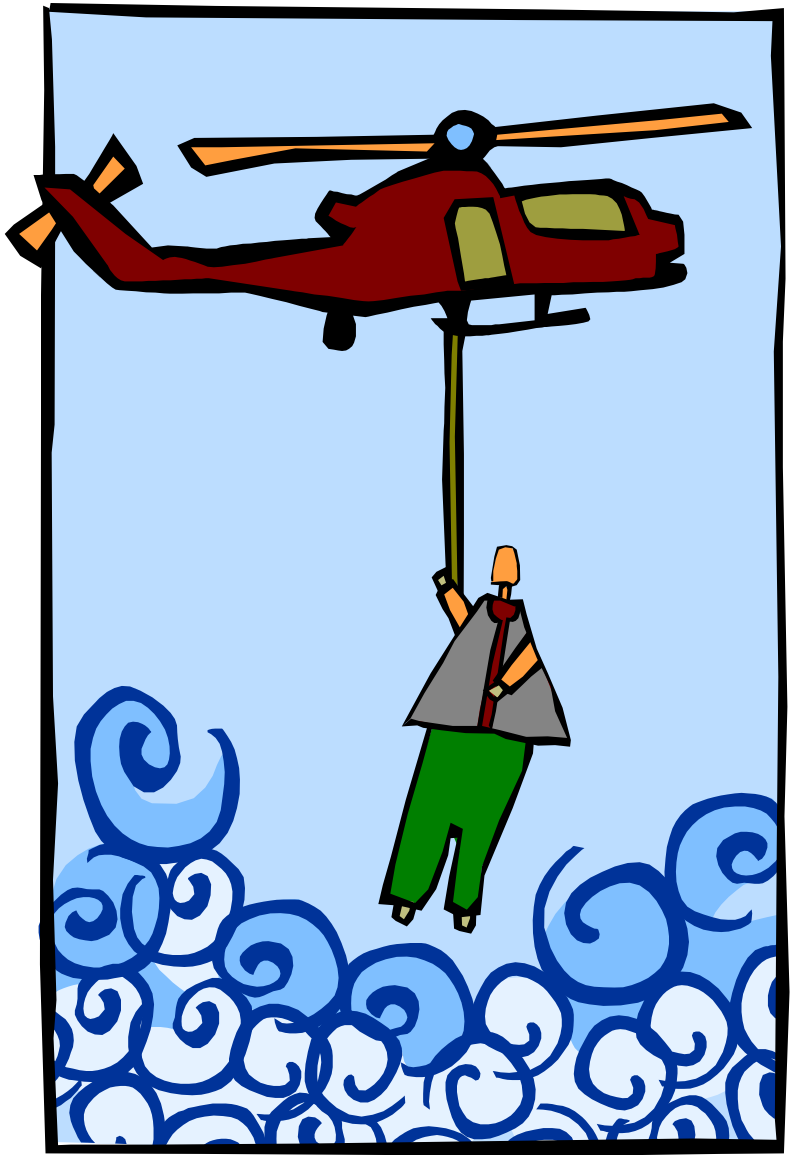


- Web Sites?
  - Checking the certificate
    - VeriSign
    - Thawte
  - Encryption?
    - Public/Private Key
    - 128 bit security
    - https
- Your Data?
- Your Software?
  - SpyBot & Ad-Aware

Remember!

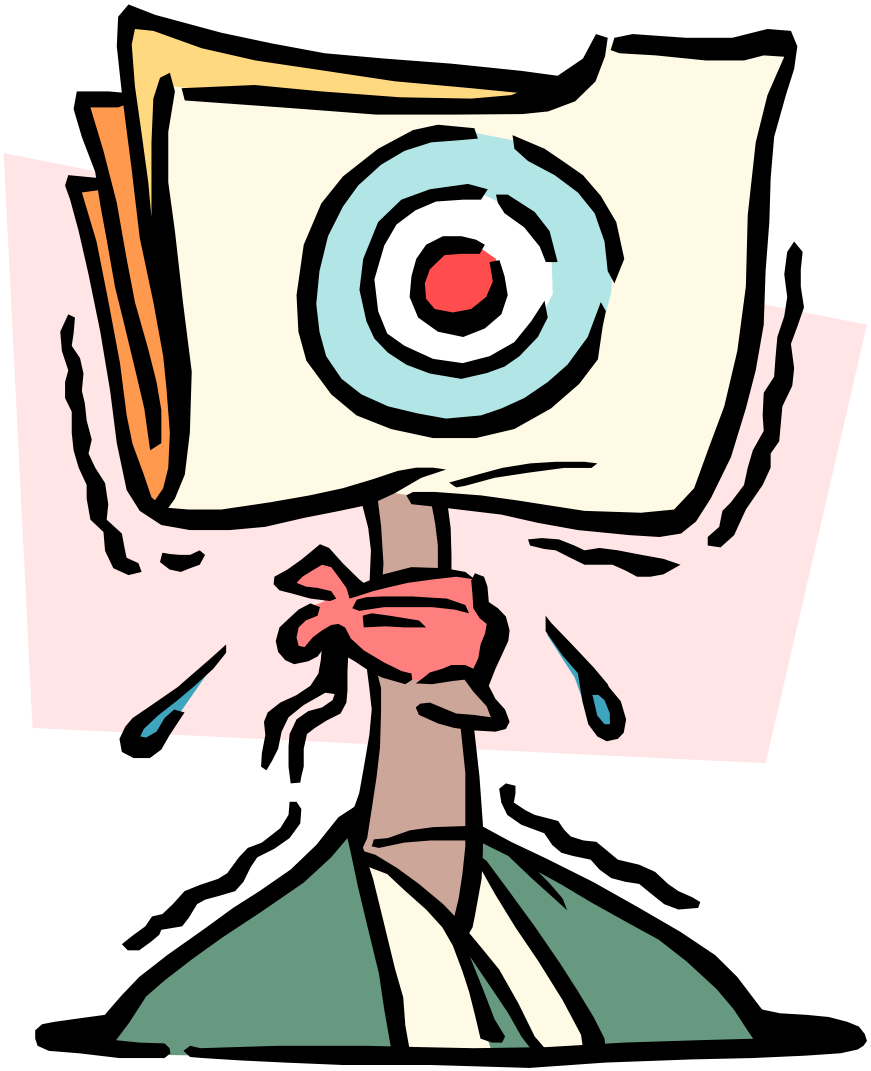
- Find out if you have anything worth protecting!!!
- If you have
  - Research
  - Account Information
  - Credit Cards
- Bureaucracy vs Flexibility & Speed

Business Continuation Management (BCM)



- Data
  - Type of site
    - "Business Card"
    - Catalog
      - Key products/services
    - Sales
      - 20 per day
      - 10,000 per day
- More than data
  - Legal
  - People
    - Phones
    - Desks
    - Food & Drink
  - Paperwork
  - Computer

Do I have to think about BCM?



- These components
  - Web-site
  - Transactions
  - History
- Databases
- Why SLA?
  - Uptimes
    - 99% = 88hrs downtime
    - 99.9% = 9hrs downtime
    - 99.99% = 1hr downtime
    - 99.999% = 5mins downtime

Build, Test and Monitor

HTML, Java,
MySQL, XML
J2EE

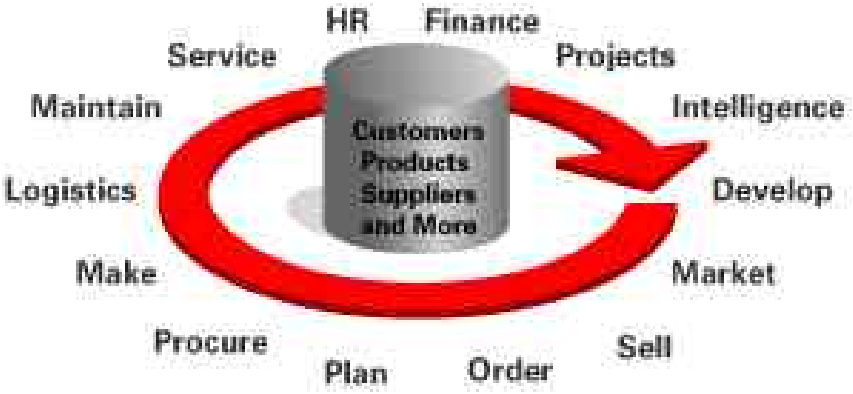
Usability

- Objective
  - Why
- Task
  - What
- Context
  - Who
  - When
  - Where

Options to Build a Site?

- Build your Own
  - eg: Korax
    - $200 for hosting – you need to build everything
      - +$200 for secure transactions via https
- Full Service
  - Microsoft's bCentral
    - US $250 per year +++
    - Gets you e- commerce services, such as shopping cart, product management and interactive catalog
    - $++ for payment services through PayPal (or Card Service International)
    - Uses MSN MarketPlace or US$450 for own site
  - Similar
    - net10 – own site, processes payments through net10, US$400++
    - Yahoo! Small Business – US$240++

e-Commerce and ERP?



- Oracle
  - Full service or modules
    - US$4,000+++
      - Includes ERP

Building a Portal?

- Open Source code from www.slashcode.com
  - eg: SlashDot.org
- Generate traffic
  - Establish a BRAND

Select a Host?

- References
  - Who's using what, and is happy
    - Need: (SLA) Up-time, real support and BCM
- Hosting types
  - Shared – many on one box
    - Issues due to traffic slowing/crashing your site
  - Collocated – many boxes, each have a different site
    - Expense
- Blacklists
  - Check
    - May be on a list due to Open Relays
    - Could be hosting porn or spammers
- Size not a Predictor for Future Performance
    - But remember "Get what you Pay For"

Test Your Security

- Friendly Hackers
  - Alberta university
    - Course in hacking
  - Corporate Hackers
    - Testing your system

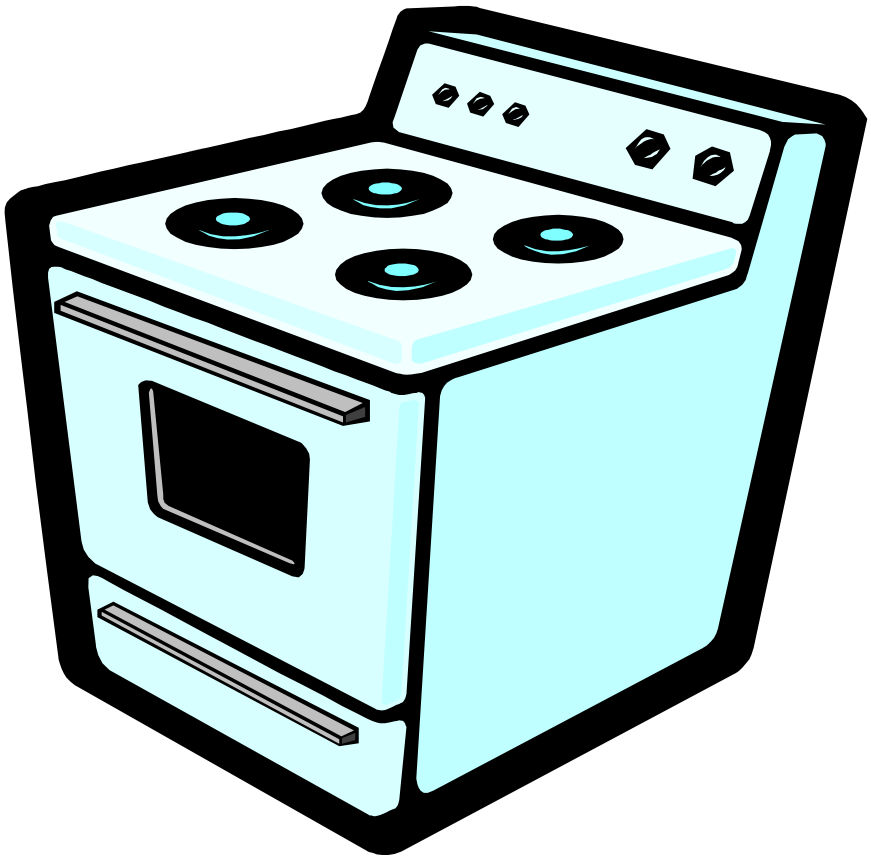
Watch the "People-Aspect"

- Setup a policy?
  - Monitored
    - Surf/Email
- What do you throw into the garbage?
  - Dumpster divers
- Just another Hacker/Cracker?
  - Ersatz Employee
  - People will answer any question on the phone

Asset Management - Client

- Client Computing Devices
  - eg:
    - PCAnywhere
    - Client Mgmt Suite
    - PC Pinpoint PRO
- Browser
- Java

Asset Management - Network



- Servers
  - Patches
    - Microsoft
      - Monthly Schedule
  - e-mail
  - Firewall
- Consolidation
  - Pro
    - Fewer boxes to manage
      - Cheaper
  - Con
    - More apps could fail at same time
    - Licence complexity

Example of Testing & Monitoring

- www.aircanada.ca
- 2003Q3 revenue
  - $517 million
- New Web-site
  - $5million
  - Interim
    - Mercury Interactive
      - $500,000
  - 25% of bookings

Individual Assignments

TurnItIn.com

- The plan is
  - Mark the assignments in TurnItIn.com
    - Enable each of you to view your assignment
    - So keep checking the Class Page for Individual Assignments
      - Will be a notice
  - Caveat
    - Wait until AFTER Easter
      - April 12th+++
    - Need to check with the school on a couple of points

Adieu

- Best of luck with the Exam
- "Alumni"
  - lu@resultsoriented.ca

Addendum

NOT for the final exam

Ports

- A port is a doorway, through which information goes in or out of a computer.
  - eg: parallel port, often used for printers
- Originally a physical socket on a computer, where a cable was attached.
- Now replaced by "logical" ports, used to manage information flows.
  - Network cards use a single socket with many "logical" ports.
  - A single socket network card with only one IP address, can have 10's of thousands of ports open.
- A server can host many services on a single IP, but each must have its own port.
  - Some familiar services and their ports are
    - web pages are on port 80
    - sending e-mail via port 110
    - receiving e-mail via port 25
  - The number after the colon in an IP or URL is the port number.
    - eg: www.utoronto.ca:80

Webcrawler

- AKA:
  - Spider, Bot, Robot, Agent, Indexing Agent
  - See www.webopedia.com/TERM/s/spider.html
- A program which searches the Internet, surfing through links and recording the results in a database.
  - Typically runs indefinitely and without user input.
  - Simulates a user who browses a website.
    - Never types anything into the address bar.
    - Uses hyperlinks to get to the next site or page.
  - Runs on a desktop
    - Self-managing programs are being developed to "walk" the 'net and send the information "home", or return at specified intervals.
- The purpose is to
  - create an index of the Internet for use in a search engine
  - find potentially useful information
  - check for dead links on a site.

Invisible 'net

- See
  - http://www.freepint.com/issues/080600.htm#feature
    - NOTE:
      - Also applies to sites that require a password
      - Webcrawlers cannot access these pages.

Blacklists

- List of IP addresses not to be trusted
  - Can be External
    - eg: http://www.dnsbl.org/faq.php3
    - eg: Mail can be relayed
      - see www.webopedia.com/TERM/M/mail_relay.html
      - if ports are left open, anyone can relay mail
      - organization that tracks open relays
        - http://www.ordb.dk/faq/#why_a_problem
  - Can be Internal
    - Companies create their own lists
    - Parental control software checks with an external list, and builds it's own list based on content, for sites not on the external list.
- Whitelist
  - List of IP addresses that are always to be trusted
    - eg: Sympatico found itself on ordb's list, so all Sympatico e-mail was rejected. Other ISPs put Sympatico e-mail IP address onto their Whitelist, until Sympatico resolved the open-relay issue.