The Internet

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Circuit Switching
Packet Switching
Routing

From: Alice
To: Bob

From: Charlie
To: Alice
Routing

From: Alice
To: Bob

From: Charlie
To: Alice

From: Charlie
To: Alice
Routing

From: Alice
To: Bob

From: Charlie
To: Alice
Routing

From: Alice
To: Bob

From: Alice
To: Bob

From: Charlie
To: Alice

From: Charlie
To: Alice

Alice
Routing

From: Charlie
To: Alice

Alice
Internet Protocol
Name Conflict

From: Alice  
To: Bob

From: Alice  
To: Ron

???
Unique IP Numbers!
129.252.189.62
Oops, I dropped it!
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets
Dealing with Dropped Packets

Internet

Resend 2
Dealing with Dropped Packets

Internet

1/5
2/5
3/5
4/5
5/5

resend 2

1/5
3/5
Dealing with Dropped Packets

Diagram:

1/5
2/5
3/5
4/5
5/5

Internet
Transmission Control Protocol
TCP/IP
Socket Abstraction
telnet
Telneting
Telneting

Internet
telnet dæmon
Telneting

- Internet
- telnet daemon
- 23 (port number)
Telneting
SSH

Internet

ssh

sshd

22
File Transfer Protocol

ftp

Internet

ftpd

21
Simple Mail Transfer Protocol
Hyper Text Transfer Protocol

http   ->   Internet   <-   httpd
          80
Application Layer Protocols

ftp

telnet

smtp
dns

dhcp

http 1.0

ssh

HTTP

>telnet www.cse.sc.edu 80
Trying 129.252.138.9...
Connected to www.cse.sc.edu.
Escape character is '^]'.
GET / HTTP/1.0
HTTP/1.1 200 OK
Date: Tue, 06 Nov 2007 14:19:18 GMT
Server: Apache/2.0.52 (Red Hat)
Accept-Ranges: bytes
Connection: close
Content-Type: text/html; charset=ISO-8859-1
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
<html xmlns="http://www.w3.org/1999/xhtml"
<head>
<meta name="Keywords" content="...
<title>University of South Carolina</title>
<body>
<div id="boxcase">
<h3>Table of Contents</h3>
....
</body>
</html>
Webolution

1. Stateless and Static
2. State
3. Dynamic
4. Programming Platform
Stateless Static Web

GET /index.html

faq.html
index.html
about.html
Stateless Static Web

GET /index.html
Yahoo! Deutschland

Yellow Pages - People Search - City Maps -- News Headlines - Stock Quotes - Sports Scores

- Arts - Humanities, Photography, Architecture, ...
- Business and Economy [Xtra!] - Directory, Investments, Classifieds, ...
- Computers and Internet [Xtra!] - Internet, WWW, Software, Multimedia, ...
- Education - Universities, K-12, Courses, ...
- Entertainment [Xtra!] - TV, Movies, Music, Magazines, ...
- Government - Politics [Xtra!], Agencies, Law, Military, ...
- Health [Xtra!] - Medicine, Drugs, Diseases, Fitness, ...
- News [Xtra!] - World [Xtra!], Daily, Current Events, ...
- Recreation and Sports [Xtra!] - Sports, Games, Travel, Autos, Outdoors, ...
- Reference - Libraries, Dictionaries, Phone Numbers, ...
- Regional - Countries, Regions, U.S. States, ...
Web with State

[Diagram showing a flow of web pages through the internet with paths to index.html, faq.html, and about.html.]

GET /index.html
GET /index.html
stinky GET /about.html
stinky GET /about.html
Web with State

GET /index.html

about.html
faq.html
index.html
Web with State

GET /index.html

Internet

GET /index.html

HTML, Cookie: stinky

stinky GET /about.html

stinky GET /about.html

about.html

faq.html

index.html

GET /index.html
Web with State

HTML, Cookie: stinky
Web with State

stinky GET /about.html
Web with State

stinky GET /about.html
Dynamic Web

Internet

index.html
Dynamic Web

javascript

Internet

scripts.js

index.html
**Dynamic Web**

Internet

- `javascript`
- `scripts.js`
- `data.xml`
- `index.html`

XmlHttpRequest /data.xml
Dynamic Web

javascript

XmlHttpRequest /data.xml

Internet

data.xml

scripts.js

index.html

XmlHttpRequest /data.xml
AJAX
Web as a Programming Platform

javascript

XHR /data.xml
Web as a Programming Platform

javascript

XHR /data.xml

XHR /data.xml

XHR /data.xml
Mashup
Results for 'bars' in Columbia, SC

1. Willy's Bar & Grill
   Not Rated
   new review | photos | events | new event | map
   1200 Lincoln St # B
   Columbia, SC
   (803) 799-3111

2. Jake's Bar & Grill
   Not Rated
   new review | photos | events | new event | map
   2112 Devine St
   Columbia, SC
   (803) 252-5253

3. Rust Whisky Bar Gill
   Not Rated
   new review | photos | events | new event | map
   918 Gervais St
   Columbia, SC
   (803) 933-9383

4. Bar None
   Not Rated
   new review | photos | events | new event | map
   620 Harden St
   Columbia, SC
   (803) 254-3354

5. The Hunter Gatherer Brewery &
   new review | photos | events | new event | map
   900 Main St
   Columbia, SC
   (803) 799-3111

Restaurant
Find listings & reviews for top restaurants in Columbia.
Columbia.YellowPages.com/Dining

New York Restaurants
Complete New York restaurant guide. Menus, Coupons, Reviews
Columbia.YellowPages.com/Dining

Map
Data © Navteq, Telatlas
©2006 Yahoo! Inc.
Web as a Programming Platform

javascript

XHR /data.xml

XHR /data.xml

XHR /data.xml

XHR /data.xml
Web Services
The Future
The future is already here, it is just unevenly distributed.

William Gibson
Growth
Web as a Platform
Toys

Add your comment

Tags
- fair [x]
- toys [x]

Additional Information
- Place this photo on a map
Do more with your photos!

Thanks to our fabulous partners, you can put your photos on all sorts of things... Books, cards, framed prints and beyond! See?

Collage your photos, add text, and then transform them into beautiful posters, books, or personal Photo Cubes. HP's print services help you better express yourself. Looking for inspiration? Check out this group to learn and share.

Make bookstore-quality books with Blurb. Add your photos and text to hundreds of professionally designed layouts. You've got creative control.

MOO Loves to print beautifully designed products with the photos in your Flickr stream. Share your ideas or see what other people are doing in the MOO Flickr group, then make professional quality StickerBooks, Note Cards and MiniCards of your own.

Done
Flickr Services
API Documentation  Feeds  Your API Keys

The Flickr API is available for non-commercial use by outside developers. Commercial use is possible by prior arrangement.

Read these first:

- Overview
- Encoding
- User Authentication
- Dates
- Tags
- URLs
- Buddyicons
- Flickr APIs Terms of Use
- API Keys
- Developers' mailing list

Photo Upload API

- Uploading Photos
- Replacing Photos
- Example Request
- Asynchronous Uploading

Request Formats

- REST
- XML-RPC
- SOAP

API Methods

activity

- flickr.activity.userComments
- flickr.activity.userPhotos

auth

- flickr.auth.checkToken
- flickr.auth.getFrob
- flickr.auth.getFullToken
- flickr.auth getToken

blogs

- flickr.blogs.getList
- flickr.blogs.postPhoto

contacts

- flickr.contacts.getList
- flickr.contacts.getPublicList

favorites

- flickr.favorites.add
- flickr.favorites.getList
- flickr.favorites.getPublicList
- flickr.favorites.remove

http://www.flickr.com/groups/api/
Expressive Commerce

Expressive Commerce: A New Approach to Sourcing

Advanced sourcing strategies require advanced technologies. CombineNet’s optimization-driven Advanced Sourcing Application Platform (ASAP) enables a new, strategic approach to sourcing, Expressive Commerce™.

Expressive Commerce is an innovative, technology-enabled business practice which combines the interaction and expressiveness of traditional, face-to-face negotiations with an advanced online capability to collect and analyze expressive proposals alongside an organization’s business goals and operational constraints.

The result: ASAP delivers the absolute best total cost of goods and services based on the purchasing organization’s unique business needs; at the same time significantly increasing the speed and efficiency of the sourcing cycle. This is done not by squeezing the margins of suppliers or by simply automating the bid collection process but by creating a richer, more expressive marketplace between buyers and suppliers.

Buyers express their requirements, constraints, and preferences.
Suppliers express their strengths and capabilities to best meet the buyer’s needs.
The web is better when it's social

The web is more interesting when you can build apps that easily interact with your friends and colleagues. But with the trend towards more social applications also comes a growing list of site-specific APIs that developers must learn.

OpenSocial provides a common set of APIs for social applications across multiple websites. With standard JavaScript and HTML, developers can create apps that access a social network's friends and update feeds.

Many sites, one API

Common APIs mean you have less to learn to build for multiple websites. OpenSocial is currently being developed by Google in conjunction with members of the web community. The ultimate goal is for any social website to be able to implement the APIs and host 3rd party social applications. There are many websites implementing OpenSocial, including Engage.com, Friendster, hi5, Hyves, imeem, LinkedIn, MySpace, Ning, Oracle, orkut, Plaxo, Salesforce.com, Six Apart, Tianji, Viadeo, and XING.

In order for developers to get started immediately, Orkut has opened a limited sandbox that you can use to build and test your applications.

How do I start?

1. Review the OpenSocial API docs.
2. Write your first social gadget for Orkut.

Featured Videos

more videos >>
Applications on your Browser
This is running on my browser.
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public class SettingsServlet extends HttpServlet {
    private File users;
    static final long serialVersionUID = 1;

    public SettingsServlet() {
        users = Activator.bundleContext.getDataFile("users");
        users.mkdir();
    }

    protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException {
        String pathInfo = req.getRathInfo();
    }
}

3 problem(s) found in src/org/eclipse/e4/bespin/server /SettingsServlet.java.

x line 23: The method getRathInfo() is undefined for the type HttpServletRequest
! line 88: The declared exception ServletException is not actually thrown by the method doDelete(HttpServletRequest, HttpServletResponse) from type SettingsServlet
! line 88: The declared exception IOException is not actually thrown by the method doDelete(HttpServletRequest, HttpServletResponse) from type SettingsServlet
**About Me**

My Homepage

**Featured Graphs**

**Closing Price vs. Number of Internet Hosts**

The .com bubble had no effect on the growth of the Internet which continues to grow exponentially.

**Nasdaq vs. Number of Internet Hosts vs. Number of Websites**

The .com bubble and subsequent crash has had no effect on the growth of the Internet or the web which continue to grow exponentially.

**Featured Data Sets**

**Number of Internet Hosts**

Number of Internet hosts over time.

stop featuring
Gears is an open source project that enables more powerful web applications, by adding new features to your web browser:

- Let web applications interact naturally with your desktop
- Store data locally in a fully-searchable database
- Run JavaScript in the background to improve performance

System requirements

- Linux (details)
- Firefox 1.5+
- 32-bit OS (64-bit not supported)

Gears is available for Windows, Windows Mobile, Mac (Firefox, Safari), Linux and Android.

©2008 Google - Gears Home - Privacy Policy
Semantic Web
Semantic Web
RDF
Introducing Twine.
A revolutionary new way to share, organize, and find information.
Use Twine to better leverage and contribute to the collective intelligence of your friends, colleagues, groups and teams. Twine ties it all together.

Learn More

Register for Beta!
Want to be part of the Twine revolution? Register for the invite Beta.

Register

Twine News
Radar Networks Announces Twine.com, A Revolutionary Semantic Web Application, at Web 2.0 Summit

More Press
Zepheira provides solutions to integrate, navigate and manage information across personal, group and enterprise boundaries to save time and money. Our team are experts in applying Semantic Web standards and knowledge management technologies to address your specific data integration challenges.

Contact us to learn how Zepheira solutions help organize the patterns and relationships inherent in your data, clearing up complexity and increasing collaboration among your employees, partners and customers.
User-Generated Web
Beijing opera is a form of traditional Chinese theatre which combines music, vocal performance, mime, dance, and acrobatics. It arose in the late 18th century and became fully developed and recognized by the mid-19th century. The form was extremely popular in the Qing Dynasty court and has come to be regarded as one of the cultural treasures of China. Major performance troupes are based in Beijing and Tianjin in the north, and Shanghai in the south. The art form is also enjoyed in Taiwan, and has spread to other countries such as the United States and Japan. Beijing opera features four main types of performers. Performing troupes often have several of each variety, as well as numerous secondary and tertiary performers. With their elaborate and colorful costumes, performers are the only focal points on Beijing opera's characteristically sparse stage. They utilize the skills of speech, song.
Facebook helps you connect and stay in touch with the people in your life.

What is Twitter?

Twitter is a service for friends, family, and co-workers to communicate and stay connected through quick, frequent answers to one simple question: What are you doing?
Watch your favorites. Anytime. For free.
Mobile
1 billion computers
1 billion computers

3.6 billion mobile phones
Cloud Computing
Open-source Map Reduce
Welcome to the Cloud
Amazon Web Services makes cloud computing a reality for hundreds of thousands of customers looking for a cost-effective infrastructure to deploy highly scalable and dependable solutions.
> Learn how you can benefit from cloud computing

Explore Products

Infrastructure Services
- Amazon Elastic Compute Cloud
- Amazon SimpleDB
- Amazon Simple Storage Service
- Amazon Simple Queue Service
- AWS Premium Support

Payments & Billing
On-Demand Workforce
Web Search & Information
Amazon Fulfillment & Associates

News & Events

What's New
- Sep 25, 2008: Important changes to Amazon DevPay pricing and policy
- Sep 22, 2008: Oracle Products Licensed for Amazon Web Services
- Sep 18, 2008: New AWS Service Under Development for Content Delivery
- Sep 05, 2008: Amazon Web Services Security Whitepaper
- Sep 03, 2008: Announcing the AWS Start-Up Challenge - Win $100,000 in Prizes

Media Coverage
- Events

Business Managers
Learn how Amazon Web Services enables you to reach business goals faster:
- AWS Solutions for Enterprise Customers
- Security Whitepaper (pdf)
- Case Studies & Customer Testimonials
- AWS Blog
Animoto: Last Week’s EC2 Instance Usage
Web Science
Conclusion
The Internet is the platform.
CSCE 242: Client-Server Computing
Web applications for the 21st century.
Spring 2009 2010
www.csce242.com
791 Seminars

Industry Speakers

Fridays, 2:30pm in Swearingen 2A31

goole:csce791
This is the beginning!
Questions?
Opportunities

- Exploit data.
- Exploit services.
- Exploit pervasiveness.
- Exploit personalization.
- Generate new functionality.
How do I Prepare?

1. Use the Internet.
How do I Prepare?

1. Use the Internet.
2. Learn to program well.
How do I Prepare?

1. Use the Internet.
2. Learn to program well.
3. Algorithms and math.
How do I Prepare?

1. Use the Internet.
2. Learn to program well.
3. Algorithms and math.
How do I Prepare?

1. Use the Internet.
2. Learn to program well.
3. Algorithms and math.
5. Put in the hours.
Top 10 College Majors That Lead to High Salaries

- Chemical Engineering
- Computer Engineering
- Electrical Engineering
- Aerospace Engineering
- Economics
- Physics
- Computer Science
- Industrial Engineering
- Mechanical Engineering
- Math

© PayScale, Inc. @ www.payscale.com
careers.cse.sc.edu