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RSET
RAJAGIRI SCHOOL OF
ENGINEERING & TECHNOLOGY

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From HDD's Desk

Security Aspects Of Cloud Computing

Technology is growing continuously day by day. The more we learn about technological advancements, we get more benefit out of it. Rapid changes in our world demand more from us every day and we are under pressure to be faster, smarter, more powerful and also more secure.

The IT infrastructure consists of three major elements – Clients, Server and Web. The IT users are increasingly becoming mobile and many servers and back-end IT infrastructure (Software as a Service-SAAS, Platform as a Service-PAAS, Infrastructure as a Service-IAAS) are moving to cloud computing.

Let us look into the security aspects of cloud computing.

Cloud computing is a well-accepted technology today and it has made tremendous change in IT architecture. We are getting data, information and even process power from Internet and the cost of infrastructure is reduced considerably.

Security is a critical challenge for many when they consider cloud infrastructure. When we are using cloud we have to understand the major security threats and take steps to face it or avoid it.

There are many cloud providers and we have to identify the right provider and also the providers risk profile. Get as much information as you can about the people who manage your data.

Another fear on using cloud is about the data control - whether we loss our control over the data. To check this risk try cloud support with less critical data first and then go with critical data.

Another threat is whether outsiders may attack our data centers or networks. For that deploy firewalls, VPNs and/or physical security solutions to prevent external intruders from getting access. Be careful of cyber criminals and care should be taken and more investment on security is needed for a public cloud.

Regulatory compliance is another aspect. The user is ultimately responsible for the security and integrity of their own data, even when it is held by a service provider. Service providers are subjected to external audits and security certifications.

Another aspect is about the Data location. When we use the cloud, we don't know exactly where our data is hosted, we might not even know what country it will be stored in. Ask providers if they will commit to storing and processing data in specific jurisdictions, and whether they will make a contractual commitment to obey local privacy requirements on behalf of their customers.



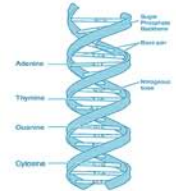


Similarity study and Characterization of DNA sequences

Deoxyribo Nucleic Acid (DNA) is a long fiber, like a hair, only thinner and longer (except for Crystal Gayle's hair). It is made from two strands that stick together with a slight twist. It is the Genetic database which carries genetic information. It is the hereditary material in a species located in cell nucleus and having a Double helix structure.

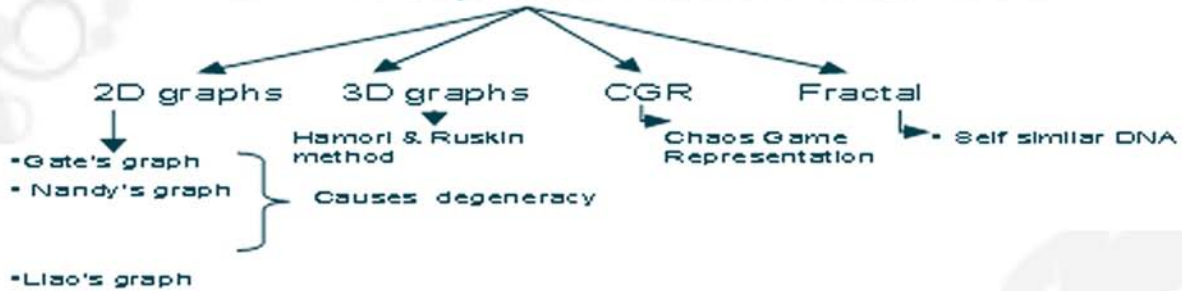
Information is stored as Bases

- Adenine (A)
- Guanine (G)
- Thymine (T)
- Cytosine (C)



A pairs with T & C pairs with G

DNA Representation Methods



Among this different DNA representation methods Liao's graph is proved most advantageous since there is no crossing and overlapping of graphs, no degeneracy, avoid loss of position information and is easy to compare sequences with different length.



Coordinates of each nucleotide:

$$X_i = ax_i + gx_i + cx_i + tx_i$$

$$Y_i = -ay_i - gy_i - cy_i + ty_i$$

- Where m & n are the Unit vectors representing nucleotides.
- ax_i, gx_i, cx_i, tx_i are the cumulative occurrence of A, C, G & T respectively.
- ay_i, gy_i, cy_i, ty_i are the sum of positions of A, G, C & T respectively.

Geometrical center of the sequence:





Similarity study and Characterization of DNA sequences

Coordinates of each nucleotide:

$$X_i = ax_{im} + gx_{in} + cx_{in} + tx_{im}$$

$$Y_i = -ay_{in} - gy_{im} - cy_{im} + ty_{in}$$

- Where m & n are the Unit vectors representing nucleotides.
- axi, gxi, cxi, txi are the cumulative occurrence of A, C, G & T respectively.
- ayi, gyi, cyi, tyi are the sum of positions of A, G, C & T respectively.

Geometrical center of the sequence:

$$x_0 = 1/N \sum_{i=1}^N X_i$$

$$y_0 = 1/N \sum_{i=1}^N Y_i$$

Euclidean distance between species I & j :

$$d_{ij} = \sqrt{(X_{0i} - X_{0j})^2 + (Y_{0i} - Y_{0j})^2}$$

$i, j = 1, 2, \dots, M$

Angular distance

$$\theta_{ij} = \arccos (EV_{ki} \cdot EV_{kj}) / (|EV_{ki}| \cdot |EV_{kj}|)$$

EV is the Eigen vector of the covariance matrix

Smaller value of angular distance indicates higher similarity

Evolutionary distance between species i & j :

$$D_{ij} = d_{ij} * \theta_{ij}$$

d_{ij} : Euclidean distance between species i & j

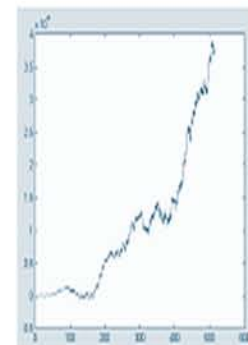
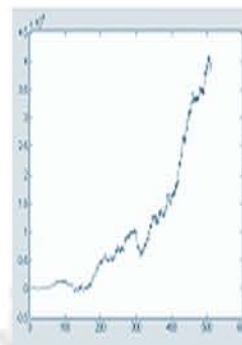
θ_{ij} : Angular distance between species i & j

Smallest evolutionary distance indicates the presence of a recent common ancestor.

Similarity matrix of COX-3 gene based on Euclidean distance

Similar COX-3 genes

	Bovine	Dog	Goat	Human	Moose	Pig	Rat	Chimp	Galus	Goats	Lemur	Opposum	Rabbit	Snake
Bovine	0	1.08	1.139	1.51	2.41	4.57	2.71	140.7	5.37	915.1	1.40	1.293	942.8	9.542
Dog		0	1.1913	2.29	5.49	5.65	3.8	1.82	6.45	1.99	525.17	2.37	2.14	1.622
Goat			0	2.71	5.61	5.77	3.92	1.94	6.57	2.11	304.84	2.49	2.36	1.87
Human				0	805.1	1.084	1.21	761.3	3.86	294.3	2.91	216.3	546.8	8.81
Moose					0	2.15	305.7	3.69	3.96	1.49	5.82	1.77	1.45	7.13
Pig						0	1.85	3.83	791.9	3.6	5.98	3.28	3.61	4.87
Rat							0	1.98	2.65	1.81	4.12	1.43	1.36	6.12
Chimp								0	4.63	174.32	2.14	552.6	222.1	8.8
Galus									0	4.45	6.78	4.01	4.41	4.17
Goats										0	2.12	178.36	47.7	8.81
Lemur											0	2.69	2.57	1.89
Opposum												0	190.4	8.25
Rabbit													0	8.4
Snake														0



Goat COX-3 gene: NC 005044

Goat COX-3 gene: NC 004025

From the graph itself it is clear that COX-3 gene of Goat is most similar to COX-3 gene of Lemur.





How do touch screen monitors know where you're touching?

We all have a tendency to use gadgets without knowing what is happening behind it. Same happens when we use a touch screen. That's why here we are looking at exactly how this touch screen technology works. As you know, a touch screen is a computer display screen that is sensitive to pressure; a user interacts with the computer by touching pictures or words on the screen. There are three basic systems that are used to recognize a person's touch: Resistive, Capacitive and Surface acoustic wave.

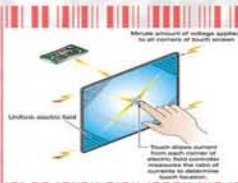
The resistive system consists of a normal glass panel that is covered with a conductive and a resistive metallic layer. These two layers are held apart by spacers, and a scratch-resistant layer is placed on top of the whole setup. An electrical current runs through the two layers while the monitor is operational. When a user touches the screen, the two layers make contact in that exact spot. The change in the electrical field is noted and the coordinates of the point of contact are calculated by the computer. Once the coordinates are known, a special driver translates the touch into something that the operating system can understand, much as a computer mouse driver translates a mouse's movements into a click or a drag.

While, in the capacitive system a layer that stores electrical charge is placed on the glass panel of the monitor. When a user touches the monitor with his or her finger, some of the charge is transferred to the user, so the charge on the capacitive layer decreases. This decrease is measured in circuits located at each corner of the monitor. The computer calculates, from the relative differences in charge at each corner, exactly where the touch event took place and then relays that information to the touch-screen driver software.

But what that's happening in a surface acoustic wave system is that two transducers are placed along the x and y axes of the monitor's glass plate. Also placed on the glass are reflectors -- they reflect an electrical signal sent from one transducer to the other. The receiving transducer is able to tell if the wave has been disturbed by a touch event at any instant, and can locate it accordingly. The wave setup has no metallic layers on the screen, allowing for 100-percent light throughput and perfect image clarity. This makes the surface acoustic wave system best for displaying detailed graphics.

But if you are looking into the price concern, the resistive system is the cheapest; its clarity is the lowest of the three, and its layers can be damaged by sharp objects. The surface acoustic wave setup is usually the most expensive.

So people, now when you know how your touch pad basically works, it would be more fun using them





Search Engine Optimization

What is SEO?

Search engine optimization means ensuring that web pages are accessible to search engines and are focused in ways that help improve the chances they will be found in the top results of a search query. Search engines are one of the primary ways that Internet users find Web sites. That's why a Web site with good search engine listings may see a dramatic increase in traffic.

The majority of web traffic is driven by the major commercial search engines like Google, Yahoo and Bing. If your site cannot be found by search engines or your content cannot be put into their databases, you miss out on the incredible opportunities available to websites provided via search - people who want what you have visiting your site. Higher the listing in search results, more traffic which in turn means more business.

SEO is a vast subject with immense commercial opportunities. It's an alternate way of marketing a website when compared to other forms of internet marketing methods like Ad words, Banner links and E-mail marketing. Because the sites with higher listing in the "organic" search results receive the lion's share of searcher eyeballs and clicks (60-70%), than "inorganic" (Ads in search engines) results. There are many companies which perform commercial search engine optimization. Also there are large number of software's and online tools which can analyze a website and suggest steps and methods to optimize a website to make its search engine friendly.

How to do SEO?

Google uses an algorithm called 'Page rank' (developed by Google founders Larry page and Sergey Brin) to determine the ranking of web pages in their database. This algorithm considers nearly 200 factors to determine the ranking of a page. The factors range from basic html source code, number of occurrence of a keyword in the site to how old website's domain name is. Most of the parameters followed to rank a webpage are kept secret by search engine companies.

Black hat and White hat SEO's

Because of the huge increase in the commercial interest of the SEO, there are Black hat SEO's who attempts to improve rankings in ways that are disapproved of by the search engines, or involve deception. They use methods links spamdexing, cloaking etc to improve Search engine listing. Search engines continuously upgrade this search algorithms to counter the threats raised by Black hat SEO's. Search engines may penalize sites they discover using black hat methods, either by reducing their rankings or eliminating their listings from their databases altogether. One infamous example was in February 2006 Google removed listing of German car manufacturer BMW, for use of deceptive practices.

On the other hand white hat SEO's use legal and genuine methods for SEO. That is following the search engine guide lines for optimization. Rankings obtained by performing white hat SEO are lasting. There are guide lines issued by Google (70-80% of search engine market is held by Google) which should be followed for better indexing and ranking of pages on your website. If you have a website you can start basic SEO by following these guide lines and get a better ranking in search engine's search results.





Technical corner

Krishnadar Naduvath, Programmer, Rset

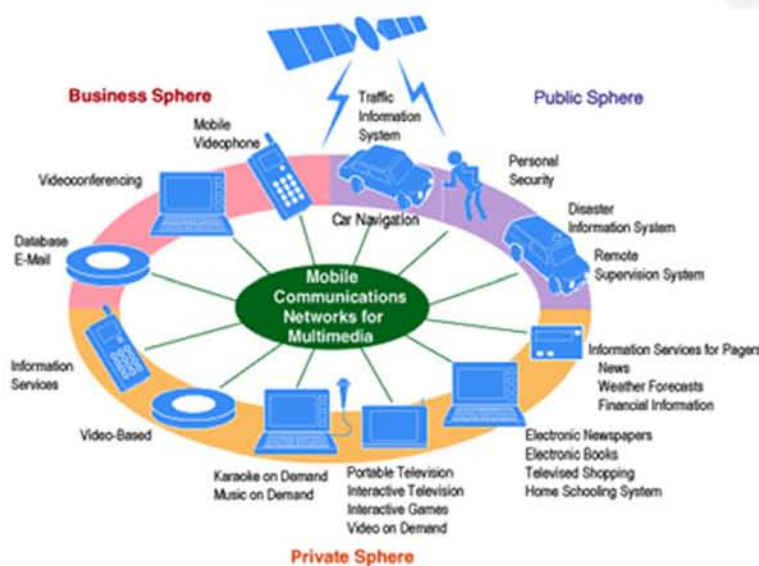
Virtual Collaboration Using Networked Media

The glue of any IT system is its routing and connectivity network. The faster and wider the interconnectivity, the more access any node has to another node. The term network is limited to a system of digital interconnections that communicate, move, or transfer information. This primarily includes traditional IT-based LAN (Ethernet in all forms), WAN, and Fiber Channel network technologies.

The term "Networked Media" implies that all kinds of media including text, image, 3D graphics, audio and video are produced, distributed, shared, managed and consumed through various networks like the Internet, WiFi, GPRS, 3G and so on, in a convergent manner. As network and device technologies grow and are improved more with the advent of computing environments, Networked Media have become important not only to daily life but also other fields such as entertainment, business, and production processes.

Virtual collaboration technologies, such as video conferencing, virtual office, etc., can play a great role in harnessing team working. As a related application of virtual collaboration, health-oriented services can be provided for the elderly, people suffering from chronic disease and people with disabilities. When combined with sensors placed on the patient, and around his/her premises, they can deliver better services for the most vulnerable people in society, reduce the work load on medical staff and ensure more convenience and dignity the patients.

Virtual technologies can also be exploited for education and entertainment purposes. As people are more eager to self-improve, and have less time allocated for formal educations, the distinction between education and entertainment will become more blurred (edutainment). These technologies will provide a richer learning environment where learners and teachers are engaged in the same virtual space, and have access to material and simulations in support of the courses. Furthermore, virtual technologies can be used for training, assessment and leisure activities.





Technical corner

Krishnadar Raduvath, Programmer, RSET

Virtual Collaboration Using Networked Media

The future Networked Media should be designed developed and released with the following considerations:

- 1.) New form of the Networked Media, which includes large amount of meta-data and user generated tags so that a system can easily analyze content in a semantic way
- 2.) Easy way to access the Networked Media, which will be distributed in different geographic repositories and connected to the users with their heterogeneous (mobile or stationary) devices in various underlying network conditions.
- 3.) Protection of the Networked Media from any illegal and malicious usage, since all content can be accessed anywhere and at any time, it is essential to provide secure and safe access to private and secret information, lest it should be susceptible to illegal use.

The Networked Media of the Future is built upon three axes that will be available in the future, i.e. true broadband, personalized media, and distributed control. If these axes are fully develop the Networked Media of the Future will provide new models of rich media interactions at the community level with distributed control infrastructure. The rise of YouTube in particular highlights the desire by users to be both consumers and creators. YouTube also highlights that new media is a powerful force and that news journalism cannot rely on the written word to reach the new, and even older, generations. MySpace may typically be thought of as a friend's network but it shows the power of music to bring people together. Flickr demonstrates the appeal of static images while Wikipedia and blogs tell us that the written word is still important when coupled with subjects that people are passionate about.

The new trends is Enabling home away from home. people are able to get lots of information from outside their home, actually from all over the world. As the network bandwidth has been ever growing, both the quality and quantity of information and services which users can access also have been improved from simple texts and pictures to voice, video, and 3D contents. People can also use these services even outside the home with the help of various mobile devices such as mobile phones, PDA, multimedia players, portable game devices, etc. However, the challenging problem is that the required bandwidth is always over the provided bandwidth in current network environments, which incurs delayed, less scalable, and poor quality of services. That is the reason why researchers have devised many approaches that could reduce the bandwidth requirement without degrading the quality of service in various fields such as multimedia streaming, P2P file sharing, scalable transport protocols, and so on.

Edutainment is one product of a major shift - that is occurring in how we view leisure time in today's modern societies. Nowadays, more people work with their brains than their bodies. People are using their leisure time differently. They see leisure time as an opportunity to improve themselves and their children and do worthwhile things, rather than as purposeless relaxation and entertainment. With the emergence of a wireless communications environment mobile television and particularly interactive IPTV is seen as one of the key platforms for the development of Edutainment products and services. While the market has mainly been focused towards children learning through play future systems will be provided to all ages providing access to a broad range of services from music through travel to more traditional education content.

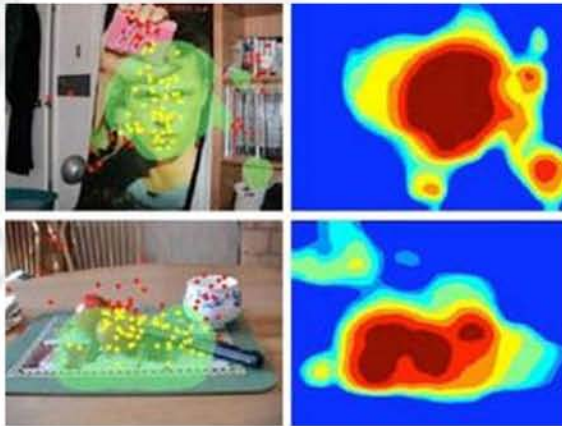




New @ IT

Computational Model Sheds Light on How the Brain Recognizes Objects

Researchers at MIT's McGovern Institute for Brain Research have developed a new mathematical model to describe how the human brain visually identifies objects. The model accurately predicts human performance on certain visual-perception tasks, which suggests that it's a good indication of what actually happens in the brain, and it could also help improve computer object-recognition systems.



Electrical Engineers Develop Pocket-Size Fingerprint Recognition

A new pocket device reads fingerprints and validates them by wireless access to a computer. With this biometrics system, users can avoid using passwords, and get simpler and more secure access to bank balances, credit cards, and even buildings.



TABLETS: A new media experience

Tablets are lightweight personal devices that deliver great Internet and media experiences. The Intel Atom processor in your tablet brings intelligence and performance that enables immersive entertainment like watching movies or streaming videos, reading e-books and online content, surfing the Internet, and playing games



IT Students Placed in 2010

SINo	Name	Offer1	Offer2
1	ANN MARY GEORGE	Infosys	
2	ANNU FRANCIS	Infosys	TCS
3	ARUN M.O.	Infosys	TCS
4	CHRISTINA JOY	MphasiS	
5	GABRIEL BENNY	MphasiS	
6	HAREESH A. V.	MphasiS	
7	JAMIE JACOB	Infosys	
8	JITHIN NAZEER P. C.	Infosys	
9	KHADEEJA RAHMAN	Infosys	
10	MANJUSHA T.V.	TCS	
11	MANU MOHANDAS	Mphasis	
12	MARIA CARMEL PAUL	Infosys	TCS
13	MEELU JOTHISH	Infosys	
14	MERIN PAUL P.	Infosys	TCS
15	MONISHA GEORGE	UST Global	
16	NEEBA JOSEPH	MphasiS	
17	NIMILA A. M.	Infosys	TCS
18	PARVATHI MOHAN	MphasiS	
19	RIA FREDY	UST Global	
20	RINA GEORGE	Wipro-BPO	
21	ROMIE ANTONY	Wipro-BPO	
22	ROSEMARY JUSTIN	Infosys	
23	SANJAY MENON	Infosys	TCS
24	SEETHAL S. KUMAR	Infosys	
25	SHARAT MENON	Infosys	TCS
26	SHILPA J. MENACHERRY	Infosys	
27	SHWETA MARIAM MATHEW	Infosys	
28	SINDHU SOMAN JOHN	Infosys	TCS
29	SUNU SUSAN SUNNY	Infosys	
30	SYAM SASI	UST Global	
31	JOSE JOSEPH	HUAWEI	



Strax Events 2009-10



Talk on "Computer Security"



Quiz Competition



Treasure Hunt



Flash Workshop



Career Orientation by Logistics



Photoshop Workshop

Social Benefit Programs

Department of Information Technology organized a one-day workshop on Computer Fundamentals for women (who passed X) in rural areas of Thrikkakara in association with Thrikkakara Grama panchayat.

RSSP (Rajagiri Students Service Program) arranged one day programme to make students self-reliant by teaching them to make umbrellas.



Editors Board

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