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AFFECTIVE COMPUTING IN AUTOMOTIVE INDUSTRY

THE EVOLUTIONS OF THE G'S, 2G, 3G, 4G

-What Next ?

DISASTER RECOVERY FACILITIES IN THE MAIN OFFICE?

WOULD I EVER A USED MAC COMPUTER?

FACEBOOK HAS ATTRACTED OVER 750 MILLION ACTIVE USERS IN 2011

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Editor Foreword

Assalamualaikum and greetings to all.

We have here the third edition of BIT@FSKKP and you can see that we have changed the presentation aspect and the format of the magazine. No longer is it method of reporting past activities, it is now a platform for knowledge sharing among the readers. Beginning now, BIT@FSKKP would be an annual production where writers from FSKKP could share their academic writings, researchers, experiences, motivation as well as light-hearted articles.

On behalf of all editors, I would like to express a hearty welcome to all the readers and we hope that this edition; BIT@FSKKP 2011/2012 Edition would be the beginning of a wonderful tradition of knowledge and experience sharing among the FSKKP family.

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HIGHLIGHTS BIT@FSKKP 2011/2012

FOCUS

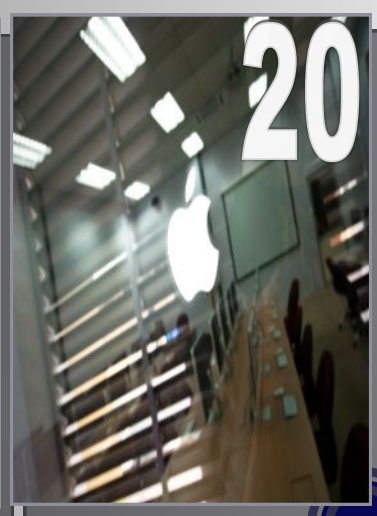
STAFF LOUNGE

TECHNOLOGY

ISSUES

EVENT

HOT NEWS



AFFECTIVE COMPUTING IN AUTOMOTIVE INDUSTRY

By Mohd. Hafiz bin Mohd. Hassin

Current state of the art in computer science is an attempt to build a system that understands us. Affective computing is one of the attempts made to build an information system that can detect, classify, and respond to human emotion. Affective computing is a combination of artificial intelligence and cognitive science that inspired researcher to build a computer system or robot that similar to "Commander Data" in Star Trek fiction movie. This article discusses the general architecture and applications of affective computing.

Computer history begins from 3000 B.C where the first computer, abacus was invented. Abacus was used as a calculating device. In 1800 first punch cards for storing data were invented by Joseph-Marie Jacquard. Punch cards were used by the first electronic computers in the 1940's and onward until the development of more reliable data storage.

In 1936, in 1936, John Dvorak introduce keyboard as an easy to use input device with the least used keys on the outside corners, and the most often used keys within easy reach of the user's fingers. This is followed by the computer mouse, invented by Douglas Englebart in 1963. In 1969, AT&T Bell Laboratories develop UNIX which used command prompt to operate computer. In 1981, Microsoft and IBM also develop operating system using command prompt, named MS-DOS. The new era of human computer interaction (HCI) was paved by Apple Computer, Inc., using Macintosh operating system using graphical user interface (GUI) and followed by Microsoft in 1995 with Window 95. Now with the increasing of the technology, HCI is moving from the GUI operating system to computer that can understand to the user emotion, called Affective Computing.

Rosalind Picard founder of Affective Computing defined it as "computing that relate to, arises from or deliberately influence of emotion". Affective computing is a new way to communicate between human and computer. The affective computing computer will be able to recognize human emotion and computer will responds to it. With the increasing capability of computer, now day computer can be able to recognize human emotion via various devices as camera, microphone or sensor.

The first technology talk about affective computing was discussed in the MIT's Media Laboratory Perceptual Computing Section Technical Report in 1995 by Rosalind Picard. From that day it sparks great interest to build such system that capable to understand how we feel. Affective computing converts personal emotion into bits (Picard, 1995). Before converting the emotion into bits or into the computer, individual affective state must be captured. feel. Affective computing converts personal emotion into bits (Picard, 1995). Before converting the emotion into bits or into the computer, individual affective state must be captured.

There is two ways to capture the individual emotion, either using contact-less devices or contact devices to the human body. For example, the contacts less devices are camera and microphone. As for the physical contact, sensors like galvanic skin respond sensors, pulse, electrocardiogram, blood volume pressure and respiration sensors are used to detect emotion state, all this devices are fully connected to human body. Such devices can gather continuous data without interrupting users.

THERE IS TWO WAYS TO CAPTURE THE INDIVIDUAL EMOTION, EITHER USING CONTACT-LESS DEVICES OR CONTACT DEVICES TO THE HUMAN BODY

Computers cannot recognize human thought but computers can recognize human physiological characteristics such as our behavior, heart rate and even words selection when talking. Before a computer can recognize our emotion, there are several important steps are follow. The first step is to capture human affective state, primarily from facial expression, body temperature, body gesture or heart rate pulse. All this affective state will be going to feature extraction module, in this module this input will be filter to get only the important feature.

Consider emotion detection through facial expression system, the salient feature in of this system is the formation of lips and eyebrow. The detected features will be extracted using image processing. Once the emotional data is captured and put into context, it must be analyzed and interpreted using learning algorithm. Figure 5.0 below shows the general affective pattern recognition module.

Perhaps the most fundamental application of affective computing will be to inform next -generation human interfaces that are able to recognize, and respond to, the emotional states of their users. Users who are becoming frustrated or annoyed with using a product would "send out signals" to the computer, at which point the application might respond in a variety of ways -- ideally in ways that the user would see as "intuitive". Beyond this quantum leap in the ability of software applications to respond with greater sensitivity to the user, the advent of affective computing will immediately lend itself to a host of applications, a number of which are described.

Affective Learning: Learning process might begin with curiosity and fascination. Education has emphasized conveying a great deal of information and facts, and has not modeled the learning process. When teachers present material to the class, it is usually in a polished form that omits the natural steps of making mistakes (feeling confused), recovering from them (overcoming frustration), deconstructing what went wrong (not becoming dispirited),

and starting over again (with hope and maybe even enthusiasm). Learning naturally involves failure and a host of associated affective responses. Learning may stun because or this negative feeling, so learning might be fail. Let say, if the learner can avoid or proceed beyond this negative feeling then or learner are accompany with tutor, teacher or friend that can give support when the learner seem to get into negative feeling.

For sure learning process more delight and joyful. In e-learning process, student learned by him/herself without tutor or teacher to accompany them. So the student might get into negative feeling. In this situation affective computing can be used to interact with the student. Interactive agent might be the medium between student and the system.
If student seem to be confused or frustrated, agent (recognize via facial expression or force of key stroke) might intuitively hint or motivate, so student become more eager to study more. Another example to detect student mood is from finger pressure in touch pad at laptop. The goal of the affective learning is to help keep the student's exploration going, by occasionally prompting with questions or feedback, and by watching and responding to the affective state of the student watching especially for signs of frustration and boredom that may precede quitting, for signs of curiosity or interest that tend to indicate active exploration, and for signs of enjoyment and mastery,, which might indicate a successful learning experience. The system is not a tutor that knows all the answers, but a player on the side of the student, there to help him or her learn, and in so doing, learn how to learn better.
Affective Car: Another interesting potential application is the development of smart car. Developed in collaboration with Sony Corporation, the POD is an IT-centered vehicle that proposes new relationships between cars and their drivers. The POD (the name of which is based on the concept of gently enveloping and protecting the car's occupants) is personified to help it detect the feelings of the driver and to express itself. Using various sensors that detect and store information on the drivers' preferences at home and at work, driving conditions the car can gauge the driver's level of skill and hurriedness. The sensors offer information on the smoothness of steering wheel, accelerator, brake operation, difference with regular driving conditions, as well as the driver's pulse and degree of perspiration. If the user drives too fast or get to close to other vehicles, the computer system will issue an alert from the display or playing calming music. The car called POD can also convey the driver's mood to other drivers or pedestrians, using light attached to the front and rear. The sensors built into the car's steering mechanism provides rich input of driver's affective state – through driver's pulse and sweat level.

The signal can be used to indicate the signs of agitation and tiredness. The most profound feedback the car has is an array of lights which change color according to the emotion of the driver and car itself. These lights change to one of four colors which reflect the mood of the car both inside, to the driver and passenger, and outside, to fellow motorists. During regular operation, the car turns orange to reflect that is happy to both be with the driver and running with no anomalies. In the event that gas runs out, or the driver leaves the car alone for a long time, the POD turns blue to represent sadness. The POD also proposes a new driving operation method, by packaging the steering, accelerating and braking controls on a single "drive controller" for easy hands-only drive-by-wire operation. Toyota have taken the POD and proven the car can be more than just a tool. The POD turns the driver into a partner. As the car user relationship deepens, both the POD and the people using it can grow.

ANOTHER INTERESTING POTENTIAL APPLICATION IS THE DEVELOPMENT OF SMART CAR.

This article highlight some basic introduction about affective computing, principal, correlation between emotion and computers and application. It is anticipated that in the next future, affective computing will be a standard features for computer user or to HCI technology. The current research in affective computing is on the medical area such as to detect and overcome human stress, on the wearable computing is affective glasses that can detect user affective state from eyes and on e-Learning, where the interface agent can respond to student understanding level. Affective computing will answer the old question about the capability of computer to understand us. The answer is “Yes”, with the advancement in artificial intelligence technology and with the current technology like affective computing, we can build a system that can understand our emotion, in near future.

DISASTER RECOVERY FACILITIES IN THE MAIN OFFICE?

By Mohd Idaham bin Omar Ong

The main purposes of this article to come with discuss on internal disaster recovery strategy, where by a company have two facilities, the main data centre and their disaster recovery centre. What if we switch the two locations where your main office will house the DR facilities and your data centre is off-site. Most company applied off-site disaster recovery facilities strategy where the off-site location will function as a secondary data centre to replicate their most critical data to a secure and safe location and their main data centre will be at their main office building.

This article will cover for company's who applied certain of strategy for their DR plan, where they have an alternate site to house their DR facilities.

Why this strategy is being implemented because of few factors such:

- Renting small space for their DR facility to minimize cost.
- Only very critical application and data will be planning to have DR.

Most DR's application/s is idle and only does data replication from the main server. Where by all of these are done by building or renting a facility to become their DR facility. But there are some down side of applying this strategy in term of preparing to pay the cost of:

- Purchase software for data replication through backup tapes and real-time data replication, such as using MIMIX by IBM
- If real-time replication, bandwidth cost is also a concern

By using backup tapes, cost for transportation those tape to your DR facility must also included

Other than building and preparing all the necessary equipment for DR, companies are also have the option of selecting third party DR services that are provided whether it is offshore or otherwise. The services that are usually provided by the third party DR vendors are:

COOL SITE

A cold site is the most inexpensive type of backup/DR site for an organization to operate. It does not include backed up copies of data and information from the original location of the organization and does it include hardware already set up. The lack of hardware contributes to the minimal start-up costs of the cold site, but requires additional time following the disaster to have the operation running at a capacity close to that prior to the disaster.

HOT SITE

A hot site is a duplicate of the original site of the organization, with full computer systems as well as near-complete backups of user data. Real time synchronization between the two sites may be used to completely mirror the data environment of the original site using wide area network links and specialized software. Following a disruption to the original site, the hot site exists so that the organization can relocate with minimal losses to normal operations. Ideally, a hot site will be up and running within a matter of hours or even less. Personnel may still have to be moved to the hot site so it is possible that the hot site may be operational from a data processing perspective before staffs have relocated.

The capacity of the hot site may or may not match the capacity of the original site depending on the organization's requirements. This type of backup site is the most expensive to operate. Hot sites are popular with organizations that operate real time processes such as financial institutions, government agencies and ecommerce providers.

WARM SITE

A warm site is a compromise between hot and cold. These sites will have hardware and connectivity already established, though on a smaller scale than the original production site or even a hot site. Warm sites will have backups on hand, but they may not be complete and may be between several days and a week old. An example would be backup tapes sent to the warm site by courier. Currently most company are using off-site disaster recovery centre is to minimize the cost

THE CAPACITY OF THE HOT SITE MAY OR MAY NOT MATCH THE CAPACITY OF THE ORIGINAL SITE DEPENDING ON THE ORGANIZATION'S REQUIREMENTS

of implementing that will not show any return of investment in short period of time. There are no guarantees that you will not use your DR in 10 or 50 years' time. The main purpose of this facility is to prepare for the worst and for some companies the worst has yet to come. Disaster happens during the unexpected time and can cause the company to go out of business. So company usually done extensive homework to make sure they invest a proper amount of money for their DR. And the result, renting a space for their very critical application and data, less investment than a whole data centre to be DR enabled.

During my research through journals and articles, I have yet to come out with an example of companies that have done internal DR, where by knowledge regarding a company's DR strategies are usually being kept as a high profile secret from outsiders.

Nowadays a company doesn't have to build a large size building to house their data centre, nor preparing lots of machines for deploying multiple applications. For example, the introduction of virtualization technology, companies can deploy multiple applications on a single machine that will also reduce the cost of power consumptions, cooling power, floor space etc.

Other than the advancement of technology, the other factor that plays an important role of this article is the evolution of risk. As we see, the coming years has store for us lots of surprise where disaster occurs everywhere in the world. With the incident of Fukushima nuclear reactor, storm in New York, earthquake in Sumatra, we cannot predict what going to happen to business tomorrow.

Will the new toys available in the IT world, the DR strategies that was formulated from the past year need to be reviewed, new and unorthodox strategies can be determine and being executed.

STICKY NOTES

ONLINE LEARNING

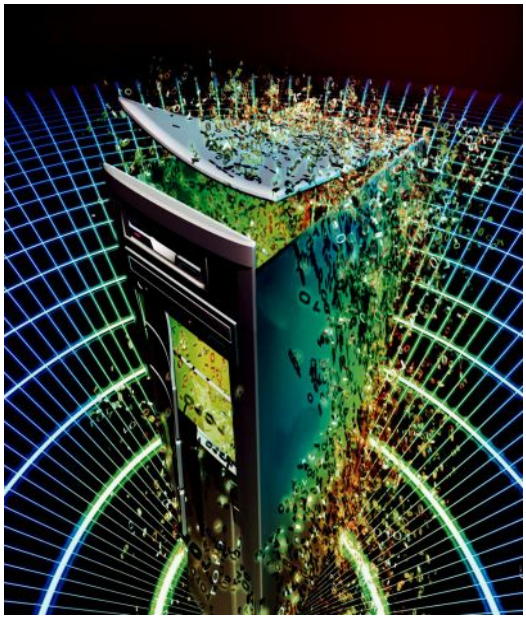
Online learning is increasingly popular because of its flexibility and convenience. The widely used tools are WebCT, Blackboard, and Moodle. Each tool has a different business model to show strengths in different areas. Some issues have to be addressed by educators in using the tools such as how to enhance the learners' motivation and how to avoid the impersonal, irrelevant and boring course designs.

Another important issue is that Online learning lacks the advantages of face-to face communication. Video conferencing can be adopted in Online learning but it cannot be substituted for traditional training. Integrating together the advantages of e-learning and traditional training seems to be a blended learning solution.

Main frame in our midst

Try to imagine tens-of–thousands users trying to connect to your local machine at one time – what will happen?

BY MOHAMED ARIFF AMEEDEEN



There is a certain mis conception on everyone's mind about mainframe: it's obsolete. However, this could not be further that the truth. Mainframe of today plays a central role in the daily operation of the world's largest companies including many of the Fortune 1000 companies. In fact even in Malaysia, the majority of banks and central government agencies use mainframes in their daily operations. As such, the mainframes are not obsolete – they are just hidden from the public eyes.

What are mainframes?

Mainframes are computing systems that enable businesses to host databases, servers and applications in a central capacity; offering a great degree of security, speed and capacity. Today the term mainframe is being used less and less. This is because the concept of centralized computing has become synonymous with '*servers*'. Even IBM is calling the latest generation of mainframes 'The System-z Servers'. Does this mean that any server could be classified as a mainframe? Certainly not!

The most obvious physical difference between a mainframe and a server is the size. While a server could be the size of a common CPU, the mainframes of yesteryears used to be the size of a room! However, modern mainframes have shrunk in size – it is now ONLY the size of a big refrigerator. There are various other differences between a server and a mainframe

– however since other differences are more technicalin nature, it is omitted from this short article.

Who uses mainframes?

To answer this question in one word: EVERYONE! If you have ever used an Automated Teller Machine (ATM), then you have used a mainframe. This is because almost all the banking institutions in the world use a mainframe.
Not only banks, most transaction oriented businesses uses mainframes as well. Various large-scale institutions such as financing houses, insurance, health care agencies, government agencies and a multitude of other public and private sector organizations use mainframe in their daily operations.

These corporations and agencies rely heavily on mainframes to provide the ability to perform large-scale processing i.e. thousands of transactions per second, as well as support for thousands of concurrent users and applications running at a time.

A simple example of this scenario is in the banking sector where a bank in Malaysia may have thousands of ATMs in operation 24 hours a day. The banks may also have an Internet Banking portal where the customers may access their accounts online from anywhere in the world. As such, at any given time, there may be tens-of-thousands of users trying to access their accounts in the banks! This is made possible by using a mainframe.

Why else should I use mainframes?

There is a buzzword used in explaining the factors that contributes to mainframe usage: RAS – *reliability, availability and serviceability*. These are important factors in data processing. When RAS characteristics are mentioned, we can be sure that a high priority has been placed on the system being 'up' all the time – in other words, no down-time. This is ideal for businesses who cannot afford to have its system malfunctioning for a long period of time – causing a lot of transactions to be cancelled. Imagine a banking institution (again!) that has its system down for 2 to 3 hours a day at unpredictable hours – not only would that bank lose time and money trying to rectify the problems, it loses something more valuable than that; credibility with its customers.

Mainframes are also well known for its security. The mainframe architecture prevents any type of buffer overflow, viruses, worms, Trojan horses, and any other types of malwares. In fact, when was the last time we heard that a mainframe was hacked? From my knowledge – never! Mainframes also vow to protect the most sensitive resources in a corporation – data. The data security embedded inside mainframes protects data against unauthorized access, transfer, modification, or destruction – accidentally or intentionally.

So, I guess mainframes are not obsolete?

You guessed right! Mainframes are very much part of our daily lives. Just because we never see them, doesn't mean we don't use them.

Reference: Introduction to the New Mainframe: z/OS Basics, IBM Redbooks.

COUNTDOWN TO TRUE WIRELESS BROADBAND

By: Imran Edzereiq bin Kamarudin

What does Maxis, DiGi, Celcom, U Mobile have in common? All four offer always-on mobile internet connection, be it on broadband USB dongle that you plug to your PC or simply online from your smartphone.

Mobile internet has become common in Malaysia, but the current generation of 2G and 2.5G hardly classify as broadband. While 3G and 3.5G technologies do mark as beginning, the upcoming 4G technologies – namely 802.16m WIMAX (Worldwide Interoperability for Microwave Access) and LTE (3GPP Long Term Evolution) release 10 – are truly broadband wireless access (BWA). BWA is the evolution of 20 years plus of mobile technology, starting from first generation communication or 1G which purely on voice without broadband data then comes 2G with Global Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE) as the basic of data service offering. At current trend, every telco company in

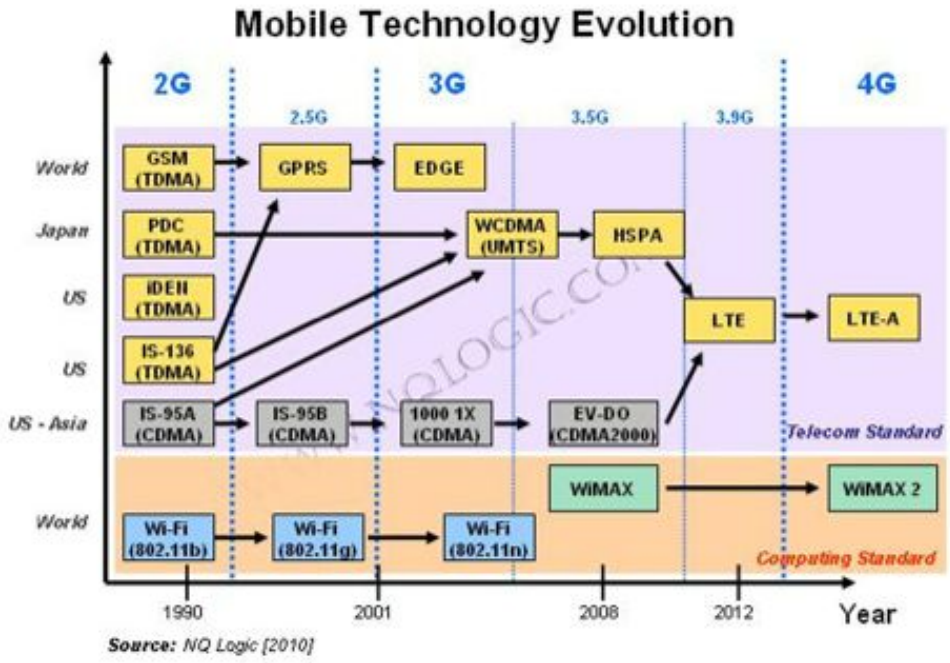
Malaysia is shouting loud on how superior their 3rd generation (3G) network is. Jargons such as High Speed Packet Access (HSPA) and High-Speed Downlink Packet Access (HSDPA) is used to clearly state how different 3G from 2G. Lastly, due in few month times, we will soon be able to taste the latest generation of 4G mobile technology.

With the aggressive marketing campaign by mobile broadband providers, inexperience users will find it hard to differentiate the technologies behind each provider. Questions such as "Is WiMAX technology similar to LTE?", "What is the different between P-ONE and YES technology compare to Maxis, DiGi, Celcom and Umobile?" are the common questions lingering around these users. If we look at the graph above by NQ Logic, it clearly shows that LTE is the current standard for telco company, in Malaysia context that will be Maxis ,Celcom, Digi and Umobile while WIMAX is the evolution from WiFi technology, which in this case the technology uses by P-One and Yes technology. In summary, Both LTE and WIMAX are 4th generation BWA but uses different underlying technology.

THE EVOLUTIONS OF THE G'S, 2G, 3G, 4G... WHAT NEXT?

Telecom standard

Telecom standard is governed by GSM World; a body consists that represents the interests of mobile operators worldwide. Spanning 219 countries, the GSMA unites nearly 800 of the world's mobile operators, as well as more than 200 companies in the broader mobile ecosystem, including handset makers, software companies,



Mobile technology evolution timeline

equipment providers, Internet companies, and media and entertainment.

1st Generation (1G)

As early as 1980's, 1G, which stands for "first generation," refers to the first generation of wireless telecommunication technology, more popularly known as cellphones was available in Malaysia.

A set of wireless standards developed in the 1980's, 1G technology replaced 0G technology, which featured mobile radio telephones and such technologies as Mobile Telephone System (MTS), Advanced Mobile Telephone System (AMTS), Improved Mobile Telephone Service (IMTS), and Push to Talk (PTT). During this time, the phone itself was bulky. The only telco provide for Malaysia at that time was TM ATUR and Mobikom 800.

Unlike its successor, 2G, which made use of digital signals, 1G wireless networks used analog radio signals. Through 1G, a voice call gets modulated to a higher frequency of about 150MHz and up as it is transmitted between radio towers. This is done using a technique called Frequency-Division Multiple Access (FDMA).

In terms of overall connection quality, 1G compares unfavorably to its successors. It has low capacity, unreliable handoff, poor voice links, and no security at all since voice calls were played back in radio towers, making these calls susceptible to unwanted eavesdropping by third parties.

However, 1G did maintain a few advantages over 2G. In comparison to 1G's analog signals, 2G's digital signals are very reliant on location and proximity. If a 2G handset made a call far away from a cell tower, the digital signal may not be strong enough to reach it. While a call made from a 1G handset had generally poorer quality than that of a 2G handset, it survived longer distances. This is due to the analog signal having a smooth curve compared to the digital signal, which had a jagged, angular curve. As conditions worsen, the quality of a call made from a 1G handset would gradually worsen, but a call made from a 2G handset would fail completely.

2nd Generation (2G)

The 2nd generation standard totally changes the way GSM network communication with the introduction of digital signal. Second generation technologies are either time division multiple access (TDMA) or code division multiple access (CDMA). TDMA allows for the division of signal into time slots. CDMA allocates each user a special code to communicate over a multiplex physical channel. Although this technology originates from the Europe, but now it is used in more than 212 countries in the world. GSM technology was the first one to help establish international roaming. This enabled the mobile subscribers to use their mobile phone connections in many different countries of the world's is based on digital signals ,unlike 1G technologies which were used to transfer analogue signals. GSM has enabled the users to make use of the short message services (SMS) to any mobile network at any time. SMS is a cheap and easy way to send a message to anyone, other than the voice call or conference. This technology is beneficial to both the network operators and the ultimate users at the same time.

In 2G, GPRS were introduce for to enable mobile

user to carry data IP on convenience of being able to connect from almost anywhere. Further extension to 2.5G and enhancements to GSM networks are provided by Enhanced Data rates for GSM Evolution (EDGE) technology, which provides up to three times the data capacity of GPRS. Using EDGE, operators can handle three times more subscribers than GPRS, triple their data rate per subscriber, or add extra capacity to their voice communications. EDGE allows the delivery of advanced mobile services such as the downloading of video and music clips, multimedia messaging, high-speed Internet access and e-mail on the move. 2G network allows for much greater penetration intensity, that is why it is still the popular network globally.

2G technologies enabled the various mobile phone networks to provide the services such as text messages, picture messages and MMS (multi media messages). 2G technology is more efficient. 2G technology holds sufficient security for both the sender and the receiver. All text messages are digitally encrypted. This digital encryption allows for the transfer of data in such a way that only the intended receiver can receive and read it.

3rd Generation (3G)

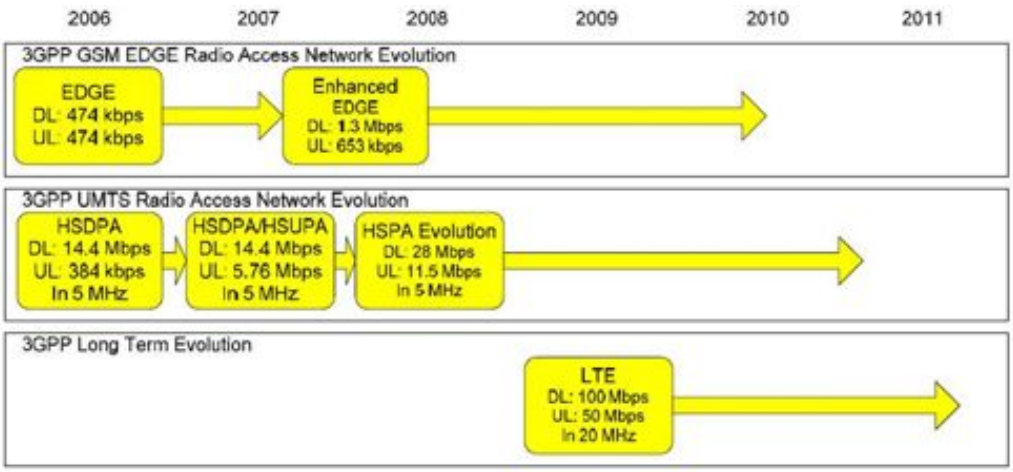
Third Generation mobile telephone networks are the latest stage in the development of wireless communications technology. Significant features of 3G systems are that they support much higher data transmission rates and offer increased capacity, which makes them suitable for high-speed data applications as well as for the traditional voice calls. In fact, 3G systems are designed to process data, and since voice signals are converted to digital data, this result in speech being dealt with in much the same way as any other form of data. Third Generation systems use packet-switching technology, which is more efficient and faster than the traditional circuit-switched systems, but they do require a somewhat different infrastructure to the 2G systems.

Compared to earlier mobile phones a 3G handset provides many new features, and the possibilities for new services are almost limitless, including many popular applications such as TV streaming, multimedia, videoconferencing, Web browsing, e-mail, paging, fax, and navigational maps.Japan was the first country to introduce a 3G system, which was largely because the Japanese PDC networks were under severe pressure from the vast appetite in Japan for digital mobile phones.
Unlike the GSM systems, which developed various ways to deal with demand for improved services, Japan had no 2.5G enhancement stage to bridge the gap between 2G and 3G, and so the move into the new standard was seen as a solution to their capacity problems.

It is generally accepted that CDMA is a superior transmission technology, when it is compared to the old techniques used in GSM/TDMA. WCDMA systems make more efficient use of the available spectrum, because the CDMA technique enables all base stations to use the same frequency. In the WCDMA system, the data is split into separate packets, which are then transmitted using packet switching technology, and the packets are reassembled in the correct sequence at the receiver end by using the code that is sent with each packet. The operating frequencies of many 3G systems will typically use parts of the radio spectrum in the region of approximately 2GHz (the IMT-2000 core band), which were not available to operators of 2G systems, and so are away from the crowded frequency bands currently being used for 2G and 2.5G networks.

UMTS systems are designed to provide a range of data rates, depending on the user's circumstances, providing up to 144 kbps for moving vehicles (macrocellular environments), up to 384 kbps for pedestrians (microcellular environments) and up to 2 Mbps for indoor or stationary users

Bandwidth allocation



(picocellular environments). In contrast, the data rates supported by the basic 2G networks were only 9.6 kbps, such as in GSM, which was inadequate to provide any sophisticated digital services.

To further enhanced 3G technology, HSPA was introduced as a set of technologies that defines the migration path for 3G/WCDMA operators worldwide. HSPA, which uses the FDD transmission scheme, includes HSDPA (High Speed Downlink Packet Access), HSUPA (High Speed Uplink Packet Access) and HSPA Evolved. These are also known as 3GPP Releases 5 through to 8. Unlike many other mobile broadband technologies, HSPA provides very efficient voice services in combination with mobile broadband data. In most HSPA networks, the end-user can expect to enjoy speeds of at least 1Mbps upwards, depending upon the peak speed of the network (anywhere from 1.8Mbps to 14.4 Mbps) with peak uplink speeds of up to 5.7Mbps.

4th Generation (4G)

Set to be the next evolution of communications, 4G has been available via WIMAX and soon LTE. Many carrier and vendor across the world has been running trial run on this latest technology.

"In Malaysia context, an estimate of 20% from over 16 million internet users is on mobile Broadband."

Soon to be release in few months' time, LTE has set a new standard especially on the bandwidth compare to 3G.LTE is the next step from 3G/WCDMA & HSPA for many already on the GSM technology curve but also for others too, such as CDMA operators. This new radio access technology will be optimized to deliver very fast data speeds of up to 100Mb/s downlink and 50Mb/s uplink (peak rates). Designed to be backwards-compatible with GSM and HSPA, LTE incorporates Multiple In Multiple Out (MIMO) in combination with Orthogonal Frequency Division Multiple Access (OFDMA) in the downlink and Single Carrier FDMA in the uplink to provide high levels of spectral efficiency and end user data rates exceeding 100 Mbps, coupled with major improvements in capacity and reductions in latency. LTE will support channel bandwidths from 1.4 MHz to 20 MHz and both FDD and TDD operation. Although both LTE and WiMAX use the OFDMA air interface, LTE has the advantage of being backwards compatible with existing GSM and HSPA networks, enabling mobile operators deploying LTE to continue to provide a seamless service across LTE and existing deployed networks.

In summary, each evolution brings tons of benefits especially in term of bandwith capacity. As technology evolved from 2G to 2.5G to 3g and finally to 4G, we saw a move from voice only mobile telephony to mobile telephony that encompassed both voice and data services. Data services transmission rates have increased substantially since the early circuit switched data services.

In Malaysia context, an estimate of 20% from over 16 million internet users is on mobile broadband. The pickup rate is consider low due to few factors; limitation of 3G/4G coverage especially outside Klang Valley, price per speed (kbps) which is higher than fixed broadband and lastly the implementation of usage quota per month. Weather you chose Maxis, Celcom, Digi, Umobile, P-One or YES technology as the internet service provider, all 3 factors need to be taken into account before making the final selection. BIT@FSKKP

INTERNATIONAL SEMINAR ON SOFTWARE ENGINEERING COMPUTER SYSTEMS 2011

Faculty of Computer Systems & Soft ware Engineering (FSKKP) Universiti Malaysia Pahang (UMP) in collaboration with the Information Society Digital and Wireless Communications (SDIWC) had organized the International Seminar on Software Engineering Computer Systems 2011 (ICSECS'11) at UMP Gambang. This is the second seminar, themed "Fostering the rapid innovation in ICT" is the best platform for researchers to present research findings and share experiences on the application, discovery and new technology involves the field of software engineering and computer science".

In conjunction with this conference, also held dinner executed by the Pahang State Executive Councillor, Hon. Dato 'Haji Mohd. Sharkar Shamsudin representing the Chief Minister of Pahang.

According to Dato 'Haji Mohd. Sharkar in his speech said, the conference managed to raise a leading and innovative researchers, developers and IT practitioners to discuss how ICT can promote the development of rapid innovation for the benefit of mankind through the innovation of new ideas and practical solutions in the form of ICT products and services. He said Prime Minister Datuk Seri Najib Razak recently in the 2011 budget proposal also stressed the role of ICT in helping countries reach high income status.

"In support of Vision 2020, the state government has also launched an Action Plan in Pahang, Malaysia MSC to provide knowledge-based economic transformation process which is now in its second phase. For the first phase, the various initiatives of the essential development programs, he said when spoke representing the Chief Minister of Pahang in Bukit Gambang Resort.

Meanwhile, Professor Dato 'Dr. Daing Nasir said the ICT innovation could help to solve problems and improve quality of life, including global warming, disease and poverty align with the vision of UMP as a university world-class technology, it has taken advantage of technological innovation in control engineering, information and communications since its inception in 2002.

UMP also was awarded the first public university in Malaysia to acquire Information Technology Prime Award (APTM) in the Public Sector Management via e-university developed for students, employees and stakeholders.

Among those who delivered the keynote address was Assoc. Dr. Ezendu Ariwa from London Metropolitan University, UK and Dr. David Taniar from Monash University, Australia to discuss the topic of green computing and information process and information technology. Meanwhile, Assoc. Dr. Muhammad Abdul Awal Kompter Department of Science and Engineering North South University, Bangladesh share experiences on the challenges of information technology for economic development in rural areas in the country.

Also present SDIWC Advisory Board, Assoc. Eyas El-Qawasmeh and FSKKP Dean, Assoc. Jasni Mohamed Zain. A total of 224 speakers present involving between participants from Malaysia, Algeria, Austria, Bangladesh, Belgium, Brazil, France and Finland.

WELCOME TO FSKKP....

By: Jamaluddin bin Sallim

FSKKP (*or Fakulti Sistem Komputer & Kejuruteraan Perisian*) has received *'new staff'* , *'new return of study-leave staff'* and *'new student'* prior and during *'new semester'* in the *'new academic-system -calendar'* that historically happen in 2011. Coincidently, the editorial of FSKKP Bulletin has decided to publish it *'new'* first edition, also in 2011. In whatever situation, the *'new'* are going to face with the *'old'* FSKKPians.

The humming question is that, how to get these two cooperated and united?
Thus... the jingle "***1Faculty, 1Heart***" has been introduced... However, what does the jingle meant?

FIRST... RESPECT OTHERS

- Respect and appreciate the values, beliefs, cultures, and history of others. Use this understanding to counteract prejudice and stereotypes.
- Create an environment where others feel welcome, are included, and thrive
- Encourage and carefully consider a wide range of opinion and beliefs
- Educate yourself about other cultures
- Challenge the beliefs that a person's inherent capacity is limited by background or group membership

SECOND... COOPERATE WITH OTHERS

- Interact with others in ways that are friend ly, courteous, and tactful and that demon strate respect for others' ideas, opinions, and contributions.
- Seek input from others in order to under stand their actions and reactions.
- Offer clear input on own interests and atti tudes so others can understand one's ac tions and reactions.
- Try to adjust one's actions to take into account the needs of others and/or the task to be accomplished.

THIRD... EXERCISE RIGHTS AND RESPONSIBILITIES

- Act and advocate on behalf of yourself and others, taking into account laws, social standards, and cultural traditions.
- Recognize and assume your share of family, civic, and work responsibilities
- Monitor and keep up to date on federal, state, and local laws and regulations
- Make sure your own behavior is just and responsible
- Take personal responsibility to bring about change or resolve problems to achieve a common good.

FOURTH... SEEK GUIDANCE FROM OTHERS

- Help yourself succeed by asking for information, advice, and assistance.
- Recognize when you need help and know where to go for it
- Seek out relationships with people whose judgment is trusted
- Create and make use of networks of personal and professional contacts
- Be responsive to new ideas and accept and use constructive criticism and feedback

FIFTH... GUIDE AND SUPPORT OTHERS

- Help others succeed by setting an example, providing opportunities for learning, or giving other kinds of
- assistance.
- Acknowledge and reward others' strengths and accomplishments
- Contribute to creating supportive, learning environments and experiences
- Empower others through mentoring, coaching, and being a role model .

MOTIVATION

UNDERGRADUATE SKILL PROGRAMME (USK)

UMP established a Strategic Collaboration with Universitas Sumatera Utara (USU) and AMIK Tunas Bangsa, the two ways communication for Malaysia and Indonesia.

FSKKP PROGRAMME

On 4th July 2011 - 29th July 2011 Pre-Graduate Skills Programme (Undergraduate Skills Programme - (USP)) 2011 Faculty of Computer Systems & Software Engineering (FSKKP) Universiti Malaysia Pahang.

Pre-Graduate Skills Program (Undergraduate Skills Programme, USP) is a program developed by the Multimedia Development Corporation (MDEC) for students pre-graduates to develop skills in programming, databases, operating system, networking and others. The courses offered are based on technical and soft skills are in line with current needs in the industry of Information and Communication Technology (ICT) can enhance the marketability of graduates of higher education. The existence of such programs can enhance a student's ability to be competitive in the job market.
Courses offered is Asynchronous Java Script and XML (AJAX) Programming with Java, the participants for each class size for courses offered are 25 people and will be conducted by trainers from Iverson Associates Sdn. Ltd.
UMP established a Strategic Collaboration with Universitas Sumatera Utara (USU) and AMIK Tunas Bangsa, the two ways communication for Malaysia and Indonesia.
Council held in conjunction with the National Seminar and Workshop on Curriculum Areas Computer 2011 with UMP Vice-Chancellor, Professor Dato 'Dr. Daing Nasir Ibrahim and Dean of the Faculty of Computer Systems & Software Engineering, Assoc. Prof Dr. Jasni Mohd. Zain represent the UMP.

We welcome any USU faculty or AMIK Tunas Nations to pursue post-graduate programs offered by UMP. Aligned to context of UMP Strategic Plan 2011-2015, the international cooperation of this kind allows UMP to explore new opportunities in various fields with the partners approached potential. ■

STUDENT EXCHANGE PROGRAM

A Visit by Prof Madya Dr Jasni and Dr Mazlina Abdul Majid to Dubai & Sarjah on Student Exchange Program, UAE on 11 -17 October to promote study in UMP. This is to introduce a study opportunity and promote a pre- postgraduate and postgraduate program at UMP for international students. As well as Dual degree programs such as UMP-HsKA German model, masters by coursework in the Faculty of Computer Systems & Software Engineering (Master of Science in Information Technology & Communication, Master of Science in Software Engineering, Master of Science in Computer Networking) and graduate course work at the Chemical Engineering & Resources natural (Master of Science in Chemistry and Entrepreneurship) was also promoted.. Promotion programs overseas in Dubai and Sarjah been successfully implemented and that it was to introduce the study opportunities available at Universiti Malaysia Pahang to the people of the UAE. There are about 93 peoples showed interest in studying at UMP.

SINGLE MOTHER AND ORPHANAGE

On 31 Oct 2011, the Faculty of Computer Systems & Software Engineering (FSKKP), Association of Women UMP (the Sun) in collaboration with Yayasan Salam Malaysia and Pahang MSC involves participants from Bentong, Bera, Cameron Highlands, Depok, Kuantan, Lipis, Maran, Mentakab, town, Raub , Rompin and Temerloh had organized a Workshop on Introduction to Social and ICT awareness site today to among a total of 311 single mothers and orphans around the state of Pahang joined the workshop.

6 THINGS ABOUT AUGMENTED REALITY

1 Augmented reality is to add information and meaning to a real object or place. Unlike virtual reality, augmented reality does not create a simulation of reality. Instead, it takes a real object or space as the foundation and incorporates technologies that add contextual data to deepen a person's understanding of the subject.

2 Augmented reality has been put to use in a number of fields, such as medical imaging, where doctors can access data about patients; in museums, where artifacts can be tagged with information such as the artifact's historical context or where it was discovered; Within the academy, educators are beginning to provide students with deeper, more meaningful experiences by linking educational content with specific places and objects.

3 Many augmented reality projects use headgear or a similar device that projects data into the user's field of vision, corresponding with a real object or space the user is observing. PDAs or other portable devices can use GPS data to provide users with context—including visual, audio, or text-based data—about real objects or places. Augmented reality is not merely a companion text or multimedia file but a technology designed to "see" a real object or place and provide the user with appropriate information at the right time.

4 Today's augmented reality projects typically focus on individual users and may not lend themselves to team activities or group learning. In addition, augmented reality projects may resemble entertainment, raising questions about their pedagogical value.

5 Augmented reality is one way to bring experiential and location based learning to students by supplementing existing worlds rather than creating new ones. Augmented reality installations can be built to take advantage of existing or low-cost infrastructure. The use of nearly ubiquitous devices such as cell phones may permit rapid experimentation and evolution of augmented reality applications.

6 Today's augmented reality projects typically focus on individual users and may not lend themselves to team activities or group learning. In addition, augmented reality projects may resemble entertainment, raising questions about their pedagogical value. Educators must be careful to ensure that activities have educational merit and that students do not become infatuated with the technology alone.

WOULD I EVER USE A MAC COMPUTER ?

BY MUHAMMED RAMIZA BIN RAMLI

Know the Macintosh

Would I ever use a Mac Computer? Or would you? Absolutely! Every body should use Macintosh. As everybody who tries to use it will turn to love it. Maybe everybody has been using a computer for quite of time. And most of the time it is Microsoft Window based operating systems.

Know the Mac

Compare the Microsoft who sells Operating Systems (OS), Apple Computer turn out to be a computer maker and Operating systems developer. Their operating system is only capable to be run on Apple machines. So there is no issue of lack of support and hardware drivers.

1 Apple Machine

As a computer manufacturer, Apple computer have produce several lines of products [not taking in account mobile devices] from workstation into portable devices. Current line of product consist of: 1) iMac for all in one desktop processing and gaming station, 2) Mac Mini for a small budget with nothing short of amazing, 3) Mac Pro for a powerful graphic and processor that will satisfy your professional need, 4) MacBook for elegant portable computing machines.

Originally most of the Apple machines were using PowerPC processor to power up their CPU. In 2007 Apple start releasing their product with Intel processor. A transition with a completely different architecture.

2 Operating Systems (OS)

Every Apple Computer comes with operating system that being build from the same manufacturer; you will never encounter any incompatible or hardware issue with the OS. Their OS can be categories into Classic (up to Mac OS 9) and Mac OS X. Each category comes from different root or development branch. Mac OS 9 is considered as the last operating systems that based from Apple original system.

Starting with Mac OS X v10.0 every thing is based on Unix OS variant; BSD with their own version called Darwin. As a POSIX compliant OS, you may be able to port any [or most] of the POSIX compliant software [unix/linux based software] that freely available in the Internet.

Now Mac OS X had been receive several update and upgrade. Starting with version 10.0 (Code name Cheetah), current release is version 10.7.1 (Lion).

3 Compatibility

Most of the file format used by other OS is readable on OSX. There are a lot of Software manufacturer who keep creating if not the same application may be a better application that you used on your other operating system.

On top of all of the software compatibility, Apple machine now capable to run other operating system too as well as on virtual machines or in native mode with multiple boot. Not to worry since they were using Intel processor same with other computer or laptop.

Software

For a user who confortable with MS Windows OS environment (everything is on square-box window), they will find a lot of compatible software with a very small learning curve. But for others who appreciate unix command above all, will agree that Mac OSX have it all with a better user experiences.

Web browser:

Safari, Firefox, Camino, Opera, almost every browser on any previous OS.

Office

MS Office 2011, Neooffice, OpenOffice, LibreOffice, and most oft the open source office product. Not to forget apple owns iWorks series; Pages (word processing, KeyNotes (presentation), Number (spreadsheet) that come with a very interactive UI and experience.

Beside that every newly purchase apple machine come with a lots of software that needed by user such as PDF viewer (Preview), e-mail client (iMail), multimedia (DVD-Player, Quicktime, iTunes), messaging (iChat-with most of the protocols; YM, MSN, GTALK, jabber).

The best thing that I really love is TimeMachines. As an Incremental Backup System it enable you to recover any file from any particular time. Yes you may select which version do you want to recover back and keep anyone you like. As the backup media can come from the network storage, I don't have to initiate the backup but it is automatically. One more thing, if my computer is away from the backup media, it will do internal staging before move it into the real backup system when the media is available.

Above all, the best part is you name any software you want, it can be installed with a single click on your computer without using any installer. Here come Apple Apps Store; an application that enable you to purchase the software and manage it for you to install on your machines. For those who already use an iPhone you will know how easy is to install the application.

CURRENT ISSUES OF SOCIAL NETWORK SERVICES

By: Dr. Le Ho Cheong

INTRODUCTION

The development and the application of Social Network Services have a great impact on the communication and social life [1]. This chapter looks specifically at the popular Social Network Services development around the world and highlights the major issues on the ways to use the services. The impact of those issues on communication and social life are explored. In addition, two specific cases are reported to reflect the implications of the importance on the appropriate ways to use the services.

DEVELOPMENT OF SOCIAL NETWORK SERVICES

Nowadays, millions of users have integrated the Social Network Services into their daily practices. The most popular ones include Facebook, Twitter, Google+ and LinkedIn [2]. Facebook has attracted over 750 million active users in 2011. The majority of users use Facebook for connecting with friends. The users create status updates about what they are doing or thinking. For instance, the users may put hobby of gardening or share their interests in music and art on Facebook. Facebook includes many multimedia sharing features like sharing photos, videos, messages, and links. Other features of Facebook include games and applications (apps).

Twitter falls in second place of the market with over 175 million registered users in 2011. Twitter opens a huge door to networking by allowing users to connect new people or community. This strategy of development of Twitter is different from Facebook that focuses on reconnecting the users with community the users already know. The user interface of biography page of Twitter reveals the beauty of brevity which is simpler without any games to play or special groups to join as with other applications.

Google+ is the fastest growing social network service with over 20 million registered users in 2011. The advantage of the development of Google+ is the potential huge customers with nearly 200 million who use Gmail for email.

LinkedIn provides platform to engage professionals that is a different approach from Facebook, Twitter and Google+ which focus in the development of purely social networking sites. LinkedIn provides solutions for career postings and recruiting.
In LinkedIn, the profiles are formal and reflect professional attributes appropriately. Employers can find insightful information about candidate's background that facilitates the validation of professional credentials. Currently, the registered users of LinkedIn are over 100 million in 2011. LinkedIn becomes a powerful recruitment tool that tops the list as the best professional recruitment source for employers.

APPLICATION OF SOCIAL NETWORK SERVICES

Three major issues on the ways to use the Social Network Services are discussed, they are related to Business Issue, Public and Security Issues on Communication, and Social Life Issue.

3.1 Business Issues on Social Network Services
The key technological features provided by different Social Network Services are fairly consistent. However, the strategies in the development of the services are quite different due to the cultures that emerged around the services are varied. Apart from the major services introduced in the previous section, other services gather strangers based on shared interests, political views, or activities. Some services cater to

classify users into groups based on common language or shared racial, sexual, religious, or nationality-based identities, while others like to diverse audiences. Most services intend to incorporate new information and communication tools, such as mobile connectivity, blogging, and photo or video-sharing. In order to run business using the services, the understanding of the practices, implications, culture, and meaning of the services provided are necessary [3, 4 and 5].

3.2 Public and Security Issues on Communication in Social Network Services

With reference to the BBC news with the title "England riots: Two jailed for using Facebook to incite disorder", the rioters used Facebook to coordinate efforts to commit a violent crime [6]. This would rise up questions like "Should the services be regulated as public utilities?". However, this issue has been linked with "social network neutrality" since social networks are a critical layer of infrastructure for a wide variety of applications and content.

3.3 Social Life Issues on Social Network Services
According to CNN news on April 2011, it was reported that " a South Korean couple whose three -month-old daughter died of malnutrition while they were raising a virtual child in an online game pleaded guilty to negligent homicide…"[7]. As many online games are provided in Social Network Services, people can become addicted to the powerful experiences in the online game. Particularly, teenagers may spend much time living in the virtual social networking scene. Teenagers may be enmeshed in isolation from the real social life, rejecting everything else in their lives. Addiction prevention could be achieved by education of teenagers in the right ways in using the Social Network Services and their applications, as well as providing the good environment for social life [8].

CONCLUSION

The advantages and disadvantages of Social Network Services come from the ways to develop and apply in communication. Business opportunities can be found in the corporate social networking by forming work connections. When people move away, Social Network Services can be the medium to maintain contact. Besides, Social Network Services can get feedback from people and share multiple points of views effectively. Nowadays, mobile social networking is becoming increasingly popular.

The drawback in using Social Network Services includes mainly on the misuse of the services. This may turn out serious problems in the commission of an indictable offence. The addiction in immersion in the Internet online game may limit teenagers' possibility of maintaining a normal real social life. Perhaps the most effective ways in rectifying the situation rely on the education system to train the users in the appropriate use of the services and their applications. As a result, the users may learn to keep social networking under control.

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COMPARISON OF QUERY CACHING APPROACHES IN P2P NETWORKS

By: Rozlina bt Mohamed

This article is comparing query caching implementations on various researches that have been implemented on several peer-to-peer (P2P) routing strategies. Several routing strategies have been compared in the previous chapter. This comparison is aim to foresee the current trend of using caching for query routing in P2P.

Furthermore, the idea of caching and how the different approaches tackle efficiency and performance issues will be discussed. Table 1 presents a summary of the comparison of several caching approaches. Each column of the table represents different research work (based on cited literatures) while the row list the research characteristics that has been compared. Discussion on each approach will be in the subsequent paragraphs.

Doulkeridis, D. et al. [1] have proposed schema caching in the unstructured P2P network. Schema of the source data location in the remote peer is captured while retrieving the query result. Both items are returned together while returning the query result. This schema is then locally cached in the form of a tree-structure which is named as XSCache. XSCache is the

Research Criteria	Doulkerindis, C., et. al. [1]	Yin, Z, et. al. [2]	Patro, S., Hu, Y. C [3]	Skobeltsyn, G., Aberer, K. [4]	Kachimi, M., Yetongnon, K. [5]	Lilas, K., Pitoura, E. [6]	Qian, W., et. al. [8]	Battre, D. [9]
Network structure U: Unstructured S: Structured	U	U	U	U	S	S	S	S
Protocol	Not specified	Limewire of Gnutella	Gnutella	DCT	HON	Chord	CON	Pastry
Cached item	Schema of shared data location	Query replying message	Query string, neighboring & TTL	Document caching along the search path of a query	Query result	Query result	Query or sub-query	Subject, predicate & object of query result
Local cached? Y: Yes N: No	Y	Y	N (Cached at the gateway)	Y	N (Cached at the super-peer)	Y	Y	Y
Cached structure	Cached schema construct a tree structure	List	Integrate the cached item with HTTP data caching	Indexed the local cached in DHT	Cache the schema of peer in HON	Indexed the local cached in DHT	Tree	Indexed the local cached in DHT
Shared data format	XML	Not specified	Not specified	XML	Not specified	XML	XML	RDF
Cached replacement strategy	LRU	Move to other peer with longer uptime	Not specified	Top-k rating	LRU, NFU	LRU	Not specified	Not specified

Table 3 : Comparison of researches on query caching in P2P

cached schema of remote peers that will be used by the subsequent queries. If the subsequent queries match any of the portions of schema in XSCache, the query will be routed to the specified location without being broadcast over the whole network, as is practiced by flooding-based query routing in an unstructured network. The cached schema in XSCache is maintained based on the Least Recently Used (LRU) basis. Therefore, if the space in XSCache is fully occupied, the least recently used schema will be removed once the new cached schema need to be allocated. Since the schema is cached locally by the peer, the redundant schema caching will be over the entire network, which is one of the weakest points in this project.

THIS COMPARISON IS AIM TO FORESEE THE CURRENT TREND OF USING CACHING FOR QUERY ROUTING IN P2P

In contrast to XSCache, Yin, Z., et. al. [2] has designed query caching that will adaptively remove certain peers while routing the query. Besides the query results, peers' source data location and the uptime of the peer are cached locally. This information is returned as part of the query replying message; and it has been implemented as Limewire client over Gnutella network.

Limewire is a free peer-to-peer file sharing (P2P) client program. Therefore, the subsequent query would get the query result in two parts. The first part of the query results comes from the cache (if any), while the second part is from query routing. The list of peers that have been excluded during the query routing process is called the 'exclude list'. Interestingly, if a peer transfers its peer's cache before the peer continues to broadcast the query to its neighbors, it adds the peers with corresponding records in the cache into the exclude list. Thus, when the query is forwarded to the next peer, the peers in the exclude list will be excluded from the searching scope.

Data that has been captured in the local cache will remain even when the uptime of the respective peer is over. This local cache list can be transferred to another remote peer once the participating peer wants to leave the network or there is insufficient space to allocate the new cached data. However, the local peer has the authority to keep or trash the cached data. The disadvantage of this project is that cache duplication may arise in the entire network. This is due to the absence of central caching control. Moreover, routing the query to the peer that is not listed in the exclude list will not promise a successful hit. The third approach was proposed by Patro, S., and Hu, Y., C. [3]. As in the previous approaches, caching was simulated on the Gnutella unstructured network; but in contrast to the previous approaches, it was done at the gateway of the network organization. The cache is used to index query hits by the tuple that contains query string, forwarder peer, neighbouring peers, TTL values, and also the minimum speed of the network connection. Since the caching is done at the gateway level, it can exploit the aggregated locality among all queries forwarded and initiated by all Gnutella 'servents' in the network. Servent is the concatenation from the words 'server' and 'clients' in Gnutella network. This cached item is integrated into the HTTP data caching, and is widely deployed in the Internet. Even though the third approach seems efficient in terms of caching organization, but some additional efforts are needed to keep the gateway index in the unstructured network, besides maintaining the cache .

The last unstructured network approach for caching, where the cache is not locally maintained, have been proposed by Skobeltsyn, G. and Aberer, K. [4], and Patro and Hu [3]. In the case of Patro and Hu, they used the DHT-based table to keep the index of cached items, and this table is called a distributed cache table (DCT). The query result is cached locally but each local cache is indexed by DCT. The cached data is maintained based on the top-k rating. Top-k is calculated based on a statistical table that contains information on the most frequent queries from peers local query history. The query history consists of the query string, the number of result sets for the query result, and the number of absolute and intermediate results that have been accepted. A cache item with the least top-k rating will be replaced by the new cache item once the cache is overflowed. The experimental result is obtained using the DCT simulator, which is similar to the Freenet approach.

This approach has been proposed as an alternative way of indexing, instead of the routing indices proposed by Crespo and Garcia-Molina [59]. One drawback in having the index of cached query results is it could lead to a large number of index entries that are not being queried, and this situation would lead to unnecessary maintenance.

The fifth approach onwards is based on P2P structured network. Similar to proposal by Doulkerindis et al. [1], Kacimi, M. and Yetongnon [5] have proposed a caching strategy that will cache the peers' schema. The local peer will keep the actual query results while the peers' cache schema will be kept by the 'active peer', which plays a similar role to a super-peer. As a reminder, peer may join the P2P community for request and sharing their resources. The term active peer is used to refer to a peer that provides their resource to be shared by the community. The cached schema is obtained in DHT-based table called Hybrid Overlay Network (HON).

DATA THAT HAS BEEN CAPTURED IN THE LOCAL CACHE WILL REMAIN EVEN WHEN THE UPTIME OF THE RESPECTIVE PEER IS OVER

HON consists of participating peers and data in an n-dimensional space. Moreover, the index of cached schema is distributed. Cached data item is obtained based on LRU and Never Frequently Used (NFU) caching replacement policy. On the other hand, HON requires some additional efforts to classify similar queries in order to increase the success hit and avoid redundancy.

Meanwhile, Lillis, K. and Pitoura, E. [6] have proposed a similar concept to that proposed by Kacimi and Yetongnon [5] but it has been simulated on simulator of Chord with the XML data set. Self-organized XML schema, indexed on the DHT-based Chord, has been explicitly explained. The prefix-based XML is used for arranging the cached XML fragment.

Once again, caching the schema from the previous target peers would require immense space to store the cached schema.

The seventh approach has been proposed by Qian, W., et. al. [8]. There are some similarities with approaches discussed earlier [5, 6] except in the ability of caching the sub-query result. In the project, the coordinator overlay network (CON), used for maintaining the summary of the whole cached results, was introduced. The drawback in having the data stored in XML format is the possibility of having a complex and time-consuming data search. In general, the DHT-based table would be able to reduce the searching time compared to XML hierarchical-tree structure. The last approach has been proposed by Battre, D. [7]. This project is quite similar to the approach proposed by Qian, W., et.al [8], except in utilizing Resource Description Framework (RDF) as their shared data. Since the shared data item is a basic notation of information in the semantic web, the cache in this approach is the RDF triples, which consists of subject, predicate and object. The triples can be modeled as a directed graph that will be used to formulate model graph and query graph. In these graphs, subject and object represent labeled vertices while the predicates represent labeled edges. The weakness in having the cache mechanism in Pastry network is that the distributed hash table (DHT) based routing is already available in almost every peer in the network. Pastry is an overlay routing on P2P network for the implementation of a DHT. A DHT is a class of a decentralized distributed system that provides a lookup service similar to a hash table; (*key*, *value*) pairs are stored. Thus, any participating peer can efficiently retrieve the value associated with a given key.
Therefore, vulnerability of the routing direction is not going to be a major concern. Thus, this approach is suitable mainly for reducing the query processing time as a trade-off for maintaining the cache.
In conclusion, the use of query caching either for caching query result or peer content localization information has gain high attention by some researcher in the P2P environment either in unstructured or structured network. Inefficiency of routing is addressed by reducing the number of propagating messages that try to find where the data is. These efforts have been made to avoid large volumes of unnecessary routing messages in unstructured network, and to balance the tradeoff between the super-peer and client peer in structured network.

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DO YOU KNOW ??

SPAM related Internet traffic exists in many forms which include ad-ware, junk mail and pop up traffic. The most widely recognized form of spam is e-mail spam. Spamming is used by the advertisers to sell their products or gimmicks with low operating costs beyond the management of their mailing lists. The volume of unsolicited mails received by many organizations, as well as individuals has become high. Some organizations or individuals try to fight spam with a variety of techniques. While it is hard to prevent spam because the Internet is public, some online services try to institute policies to eliminate the junk mail from spamming their subscribers.

Data Ownership

According to Loshin (2002), ownership implies power as well as control. In addition to the ability to access, create, modify, package, derive benefit from, sell or remove data, the control of information also include the right to assign these access privileges to others. Therefore, data ownership refers to both the possession of and responsibility for information.

A company may have several levels of power over business data and the definitions. The company must address the issues in power over data like Control who sees data; Control who changes data; Change incidental attributes; Change foreign key data about instance; Create new instance of object; Name an instance; Create new business object; Change definition of object and Change definition of attribute. A social networking service company may push users to make more of their personal information public. The users should examine if the company has data ownership to pass their personal information to advertising companies.

The Professional Accreditation Programme (3P) coordinated by Prestariang System Sdn. Bhd. and FSKKP, started on 23th May 2011 until 30th June 2011, at Faculty of Laboratory Computer Systems & Software Engineering (FSKKP) Block X, Y and Block F Block. Subject offered are Ltd. Microsoft Certified IT Professional: Server Administrator, Microsoft Certified Professional Developer: ASP .NET Developer 3.5, IBM Certification: Web Services, Oracle Database: SQL Certified Expert, Cisco Certified Network Associate, Adobe Photoshop CS4 Professional, Adobe Certified Professional (FLASH & Dreamweaver), and EC-Council Network Security Certification (ENSA & ECSS). Total number of registered participants by students and staff in this program was about 258 people. Year 2011 is the fourth year UMP participation in this program.

The existence of such programs can enhance a student's ability to be competitive in the job market reliance in needs of universities, producing skilled workers to meet labor market needs in the industry. This program is an opportunity for students to learn technology skills software / hardware updates required by the industry, from experienced trainers. BIT@FSKKP

By Zarina Binti Dzolkipli

FSKKP HOT NEWS

WELCOME BACK

Dr. Mazlina Abdul Majid
Mohd Nizam Mohamad Kahar
Syahnizam Abdullah Sani
Roslina Abdul Hamid
Syahrulanuar Npah

MARRIED

Nurzety Aqtar Binti Ahmad Azuan
Darwina Binti Rastam Tan
Bohhaya Binti Adam
Rosmalissa Binti Jusoh
Mahmud Bin Abdul Samad
Syarifah Fazlin Binti Seyed Fadzir
Wan Muhammad Syahrir Bin Wan Hussin
Siti Normaziah Binti Ihsan

BORN

Wan Nurulsatawati Binti Wan Manan (baby girl)
Ruzainah Binti Abdullah (baby boy)
Roslina Binti Ngah (baby girl)
Norhafizah Binti Muda (baby girl)
Dr. Tutut Herawan (baby girl)
Zarina Binti Dzolkipli &
Mohd Hafiz Bin Mohd Hassin (baby boy)
Kirahman Bin Abd Razak (baby girl)
Mahmud Bin Abdul Samad (baby boy)
Syahrizal Azmir Bin Md. Sharif (twin girl)
Dr. Azzhar Bin
Kamaludin (baby girl)
Nurzety Aqtar Binti Ahmad Azuan

NEW MEMBERS

Abbas Saliimi Bin Lokman
Abdul Rahman Bin Abdul Karim
Azlina Binti Zainuddin
Dr. Balsam Abdul Jabbar Mustafa
Imran Edzereiq Bin Kamarudin
Liew Siau Chuin
Mohammad Daud Bin Abu Samah
Mohd Zulfahmi Toh Bin Abdullah @ Toh Chin Lai
Muhamad Idaham Bin Umar Ong
Rahmah Binti Mokhtar
Noraniza Binti Samat

STUDY LEAVE

Bariah Binti Yusob at UTM
Awanis Binti Romli at UK
Chu Kai Chuan at China.
Junaida Binti Sulaiman
Noorlin Binti Mohd Ali at Japan
Roslina Binti Mohd Sidek at UPM

KURSUS TEAM BUILDING

Fakulti Sistem Komputer & Kejuruteraan Perisian

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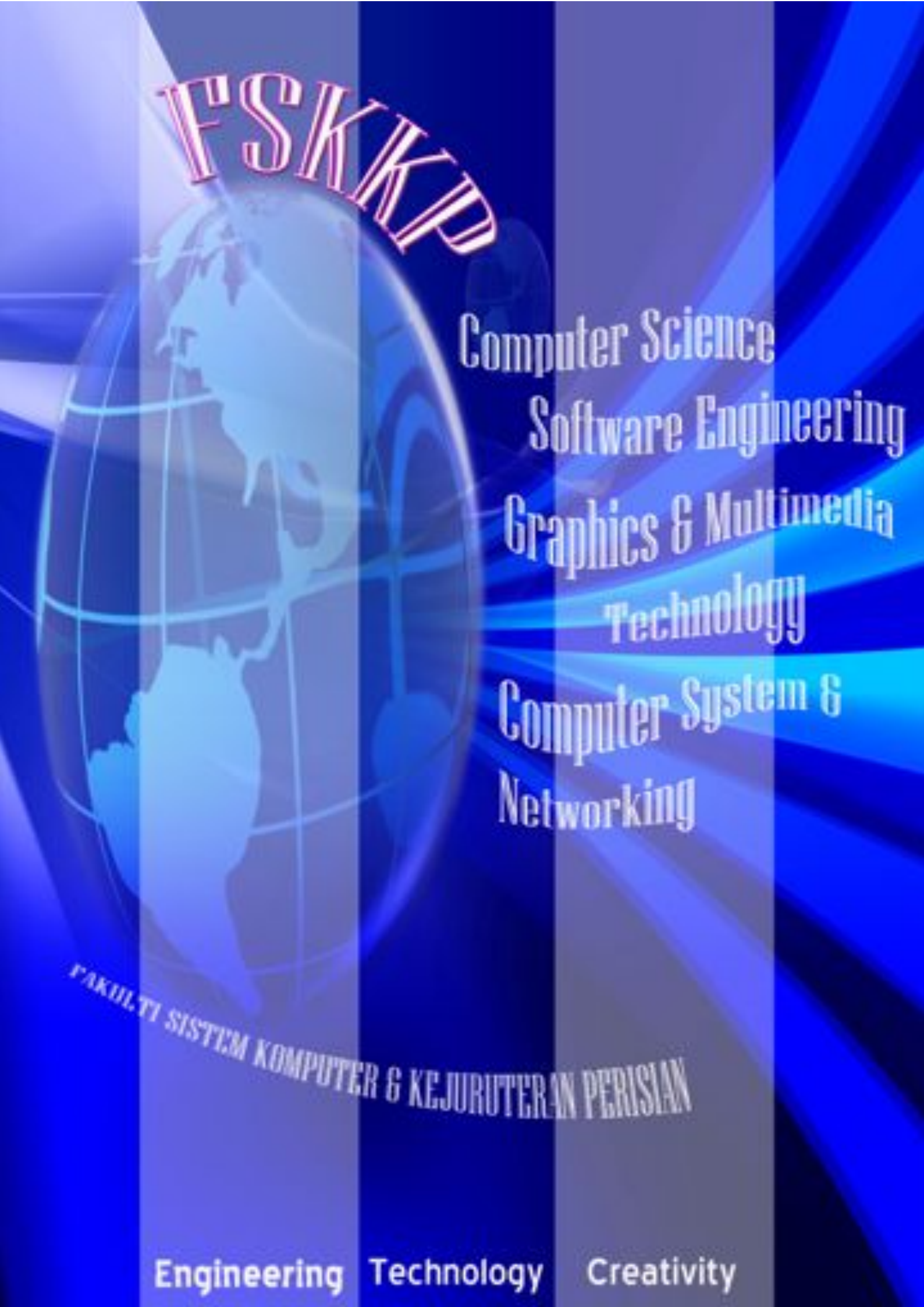
TELUK DALAM RESORT

(10 - 12 NOV 2011)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