K.S.Rangasamy College of Arts and Science

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INFORMATIX

DEPARTMENT OF COMPUTER APPLICATIONS

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informatIx

Editorial Board

Editorial

We would like to wholeheartedly thank our honorable Chairman, Vice Chairman, Executive Director and Principal for their continuous encouragement and constant support for bringing out the magazine. We profoundly thank our Head of the Department for encouraging and motivating us to lead the magazine a successful one right from the beginning. Informat*I*x serves as a platform for updating and enhancing upcoming technologies in Information and Communication. We are grateful to all the contributors to this magazine so far. The magazine will be sent to almost 60 Institutions in and around Tamil Nadu.

We would be very pleased to receive your feedbacks. Please send your feedbacks to informatix@ksrcas.edu

By,

Editorial Board

ABOUT KSRCAS

K.S. Rangasamy College of Arts and Science strives to provide quality education by imparting discipline, value, knowledge and skills. It provide a vast array of courses in Information Technology, Life Sciences, Humanities and Management Studies with Co-curricular activities to enhance the soft skills of the students and created an excellent learning environment with positive support and direction for the growth of our students. The College is known for its academic excellence and character building, providing learner-centric education with high integrity, ethics, professional and societal commitments.

About the Department

The Department of Computer Applications was established in 1998. The department profile is strengthened by the students' strength of around 600 from different nations and 25 highly qualified faculty members and it has 10 well equipped laboratories with 800 workstations connected to Internet with a speed of 40Mbps. The department organized various Intercollegiate Meets, Guest Lectures, Seminars, Workshops, Symposium etc. in order to meet the parameters of the IT sector through the support of various funding agencies. The department also brings out a Bi-monthly magazine named "informatIx" to share knowledge and to get updated with the current innovations.

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Modern Technology

Modern technology is simply an advancement of old technology. The impact of technology in modern life is unmeasurable, we use technology in different ways and sometimes the way we implement various technologies do more damage than good. What we call modern technology is technically not so new in most cases. For example, mobile phone technology has evolved from what it was in the year 2000 and continued to do so today; nowadays we use smartphones which is merely an advanced version of an older mobile phone.

We use technology on a daily basis to accomplish specific tasks or interests. Modern technology or evolved technology at times may replace previously used technology due to its increased benefits or newfound popularity. Take for example transportation technology; at one time steam-powered trains were widely used, now they have been replaced by electric powered trains which move significantly faster, allowing for more efficient use of time and better use of natural resources.

ADVANTAGES OF MODERN TECHNOLOGY

- Easy Access To Information

It has become pretty easy to get access to relevant information at any time and anywhere. This has been possible because of modern

technologies like broadband internet. Lots of data is being published and indexed online, sites like Wikipedia and Youtube have great original content that is regularly used for research or entertainment. With smart gadgets like the iPad, iPhone, Galaxy tablets, etc., users can easily have access to a vast amount of information wherever they are through the use of the internet on these devices. So a user on a train can easily read breaking news while traveling, they can also buy and sell stocks while in the bedroom or access their smart home temperature on the go. These smart gadgets make it easy to access the internet anywhere, and this simplifies the way we get information.

- Encourages Innovation And Creativity

Since technology seems infinite, it sparks the brain to work to its full potential. In the past, it used to be very difficult to start a business, one had to have lots of capital, and they even had limited access to business information. Today, it is simple to start a business while at home. Let's look at companies like Etsy.com which enable creative people to sell their works online; this encourages creativity. Another good example is kickstarter.com which helps creative people get funds for their projects through crowdfunding. On this platform, creative developers post projects to seek funding from the community; this helps them generate capital for their ideas which later leads to the creation of new jobs and further innovation of technology. The other creative

works which have been facilitated by modern technology include Google, Apple, Facebook, Microsoft, Amazon, etc

- Improved Communication

Communication is like water to life; it is essential to growth, We can not progress without communication. Modern technology has blessed us with advanced communication technology tools. These include e-fax, electronic mail, mobile phones, video conferencing, instant text messaging applications, social networking, etc.. All these modern communication technology tools have simplified the way humans and businesses communicate. I can quickly talk to my relative overseas using a mobile phone or video chatting services like Skype.

- The Convenience Of Traveling/ Ease Of Mobility

Modern transportation technology makes it very easy to travel long distances. Transport is a very important both in our lives and in the business world. Transportation technology has evolved with years. In the past, it used to be slow and expensive to move long distances. Nowadays, we can cover a 10 miles distance within a few minutes using electric trains, airplanes or cars.

- Improved Housing And Lifestyle

Another excellent way how modern technology has simplified our lives. If you compare the type of housing we used in 1900 and the architecture of houses today, the difference is enormous. New

architectural technology has improved the kinds of home we build. People with money can afford floating homes, and glass homes or people with smaller means can make tiny houses or mobile homes. Most of the items in our houses are now automated, for example, doors use fingerprints, key cards, or Bluetooth on our mobile. Security has also increased at home with the evolution of more robust integrated security system.

- Improved Entertainment

Modern technology has played a significant role in changing the entertainment industry. Home entertainment has improved with the invention of video games, advance music systems and visual systems like smart televisions, which can connect live to the internet so that a user can share what they're watching with friends. Easy access and storage of music are ever present, services like iTunes allow users to purchase and download music on their players at a small cost, this is a win-win situation for both musicians and the users. Additionally, bars, clubs, and amusement parks have all benefited from advancements in technology. We can see things in 3D, ride the highest roller coaster or be served by a robot at the bar, all possible through modern technology.

- Efficiency And Productivity

Modern technology has helped businesses increase production. Humans are slow, and sometimes they fail to deliver on time and

quality. Many companies have integrated modern technology in their production line, increasing output and allowing for more consistent quality.

- Convenience In Education

Learning is a process, and it is part of our daily lives. Modern technology has made it simple for students to learn from anywhere through online education and mobile education. Also, students now use modern technology in classrooms to learn more effectively. For example, students use tablets to share visual lessons and examples with peers in the classroom; this has made learning more convenient and fun. Also, new modern educational technologies support individual learning which gives students a chance to learn on their own with no need for tutors.

- Social Networking

Modern technology has made it simple to discover our old friends and also discover new people to network with; this is a benefit to both individuals and businesses. Many businesses have embraced social networking technology to interact with their customers. Users of social networks can share information with friends, live chat with them and interact in all sorts of ways.

- Benefits To The Health Industry

Today most hospitals have implemented modern technology in

surgical rooms, and this has reduced mistakes made by doctors. Humans can easily make mistakes because of work overload and stress factors. Additionally, the development community has developed health apps that enable us to monitor our health, weight or fitness. These applications are used on mobile phones, so users have access anytime.

DISADVANTAGES OF MODERN TECHNOLOGY

- Increased Loneliness

Social Isolation is on the increase, people are spending more time playing video games, learning how to use new modern technologies, using social networks and they neglect their real life. Technology has replaced our old way of interacting. If a user can easily interact with 100 friends online, they will feel no need to go out to make new friends which at a later stage can lead to loneliness.

- Job Loss

Modern technology has replaced many human jobs; robots are doing the jobs which used to be done by humans. Many packing firms have employed robots on production lines to increase production and efficiency, this is good news for businesses because it helps them make more money and serve customers, but it is bad news for employees because they may become redundant.

- Competency

Increased dependency on modern tools like calculators and spell checkers has reduced our creativity and intelligence. Many today struggle with spelling even basic words without an editor to confirm every word. Others find it impossible to do basic math without a calculator. Though these tools assist to make us more efficient, we may become excessively reliant on them.

- Security

Thankfully advances in technology have aided security, however, due to these advances, everything is connected to the internet in some way. Our financial accounts, our photos, our cars, mobile phone, everything touches the internet at some time. Due to the network of worldwide devices and systems, many have fallen prey to an identity thief, hacked accounts by some mischievous hacker. The road to recovery from these types of attacks can be extremely long and painstaking.

- World Destruction/Advanced Weapons

Modern technology has been the main aid in the increasing of endless wars. It aids the manufacturing of modern war weapons. So when these weapons get into the hands of criminals, they will use them for their selfish reasons. To add, these weapons often severely damage the natural earth, making some areas uninhabitable.

EXAMPLES OF MODERN TECHNOLOGIES THAT SIMPLIFY YOUR LIFE

Ultra-Thin Quad-Band Watch Mobile Phone

This is a modern watch which comes with basic functions of a mobile phone, it will simplify the way you communicate, you no longer have to worry about losing or misplacing your cell phone, now this new technology puts all basic features of a cell phone in a watch, it has a high-definition display, MP3 ringtones, audio tone, it supports multimedia messaging, and so much more. This advancement in communication technology makes me wonder if cell phones will be replaced by watch phones. For those who hate carrying cell phones all the time, this is a great option, you can easily set this watch phone in vibration and connect it to your blue tooth, I guarantee you will not miss any business or important call.

Firewall

A firewall is a system that provides network security by filtering incoming and outgoing network traffic based on a set of user-defined rules. In general, the purpose of a firewall is to reduce or eliminate the occurrence of unwanted network communications while allowing all legitimate communication to flow freely. In most server infrastructures, firewalls provide an essential layer of security that, combined with other measures, prevent attackers from accessing your servers in malicious ways.

This guide will discuss how firewalls work, with a focus on stateful software firewalls, such as iptables and FirewallD, as they relate to cloud servers. We'll start with a brief explanation of TCP packets and the different types of firewalls. Then we'll discuss a variety of topics that a relevant to stateful firewalls. Lastly, we will provide links to other tutorials that will help you set up a firewall on your own server.

TCP Network Packets

Before discussing the different types of firewalls, let's take a quick look at what Transport Control Protocol (TCP) network traffic looks like.

TCP network traffic moves around a network in packets, which are containers that consist of a packet header—this contains control information such as source and destination addresses, and packet

sequence information—and the data (also known as a payload). While the control information in each packet helps to ensure that its associated data gets delivered properly, the elements it contains also provides firewalls a variety of ways to match packets against firewall rules.

It is important to note that successfully receiving incoming TCP packets requires the receiver to send outgoing acknowledgment packets back to the sender. The combination of the control information in the incoming and outgoing packets can be used to determine the connection state (e.g. new, established, related) of between the sender and receiver.

Types of Firewalls

Let's quickly discuss the three basic types of network firewalls: packet filtering (stateless), stateful, and application layer.

Packet filtering, or stateless, firewalls work by inspecting individual packets in isolation. As such, they are unaware of connection state and can only allow or deny packets based on individual packet headers.

Stateful firewalls are able to determine the connection state of packets, which makes them much more flexible than stateless firewalls. They work by collecting related packets until the connection state can be determined before any firewall rules are applied to the traffic.

Application firewalls go one step further by analyzing the data being transmitted, which allows network traffic to be matched against firewall rules that are specific to individual services or applications.

These are also known as proxy-based firewalls.

In addition to firewall software, which is available on all modern operating systems, firewall functionality can also be provided by hardware devices, such as routers or firewall appliances. Again, our discussion will be focused on stateful software firewalls that run on the servers that they are intended to protect.

Firewall Rules

As mentioned above, network traffic that traverses a firewall is matched against rules to determine if it should be allowed through or not. An easy way to explain what firewall rules looks like is to show a few examples, so we'll do that now.

Suppose you have a server with this list of firewall rules that apply to incoming traffic:

Accept new and established incoming traffic to the public network interface on port 80 and 443 (HTTP and HTTPS web traffic)

Drop incoming traffic from IP addresses of the non-technical employees in your office to port 22 (SSH)

Accept new and established incoming traffic from your office IP range to the private network interface on port 22 (SSH)

Note that the first word in each of these examples is either "accept", "reject", or "drop". This specifies the action that the firewall should do in the event that a piece of network traffic matches a rule. Accept means to allow the traffic through, reject means to block the

traffic but reply with an “unreachable” error, and drop means to block the traffic and send no reply. The rest of each rule consists of the condition that each packet is matched against.

As it turns out, network traffic is matched against a list of firewall rules in a sequence, or chain, from first to last. More specifically, once a rule is matched, the associated action is applied to the network traffic in question. In our example, if an accounting employee attempted to establish an SSH connection to the server they would be rejected based on rule 2, before rule 3 is even checked. A system administrator, however, would be accepted because they would match only rule 3.

Default Policy

It is typical for a chain of firewall rules to not explicitly cover every possible condition. For this reason, firewall chains must always have a default policy specified, which consists only of an action (accept, reject, or drop).

Suppose the default policy for the example chain above was set to drop. If any computer outside of your office attempted to establish an SSH connection to the server, the traffic would be dropped because it does not match the conditions of any rules.

If the default policy were set to accept, anyone, except your own non-technical employees, would be able to establish a connection to any open service on your server. This would be an example of a very poorly configured firewall because it only keeps a subset of your employees

out.

Incoming and Outgoing Traffic

As network traffic, from the perspective of a server, can be either incoming or outgoing, a firewall maintains a distinct set of rules for either case. Traffic that originates elsewhere, incoming traffic, is treated differently than outgoing traffic that the server sends. It is typical for a server to allow most outgoing traffic because the server is usually, to itself, trustworthy. Still, the outgoing rule set can be used to prevent unwanted communication in the case that a server is compromised by an attacker or a malicious executable.

In order to maximize the security benefits of a firewall, you should identify all of the ways you want other systems to interact with your server, create rules that explicitly allow them, then drop all other traffic. Keep in mind that the appropriate outgoing rules must be in place so that a server will allow itself to send outgoing acknowledgements to any appropriate incoming connections. Also, as a server typically needs to initiate its own outgoing traffic for various reasons—for example, downloading updates or connecting to a database—it is important to include those cases in your outgoing rule set as well.

Writing Outgoing Rules

Suppose our example firewall is set to drop outgoing traffic by default. This means our incoming accept rules would be useless without

complementary outgoing rules.

To complement the example incoming firewall rules (1 and 3), from the Firewall Rules section, and allow proper communication on those addresses and ports to occur, we could use these outgoing firewall rules:

Accept established outgoing traffic to the public network interface on port 80 and 443 (HTTP and HTTPS)

Accept established outgoing traffic to the private network interface on port 22 (SSH)

Note that we don't need to explicitly write a rule for incoming traffic that is dropped (incoming rule 2) because the server doesn't need to establish or acknowledge that connection.

Firewall Software and Tools

Now that we've gone over how firewalls work, let's take a look at common software packages that can help us set up an effective firewall. While there are many other firewall-related packages, these are effective and are the ones you will encounter the most.

Iptables

Iptables is a standard firewall included in most Linux distributions by default (a modern variant called nftables will begin to replace it). It is actually a front end to the kernel-level netfilter hooks that can manipulate the Linux network stack. It works by matching each packet

that crosses the networking interface against a set of rules to decide what to do.

Google Drive

Get all the storage capacity you need

G Suite's Business and Enterprise editions provide flexible storage options so you will always have enough space for your files. With centralized administration, data loss prevention, and Vault for Drive, you can easily manage users and file sharing to help meet data compliance needs. Drive is also available as a standalone offering, with Drive Enterprise.

Drive Storage

Find what's important before you've even searched

Drive uses Google AI to predict and surface what's important for you in real-time. Drive recognizes important content, collaborators and events, using features like Quick Access and ML-based search enhancements to connect each user with files that may require attention.

Drive Unlock

Organize team files in a shared space

Use shared drives to store your team's work in secure, easy-to-manage shared spaces. Any files added to shared drives are owned

collectively by the team, so everyone stays up to date.

Drive Built

Use less of your PC/Mac disk space & stream directly from the cloud

Drive File Stream gives you access to files directly from your computer, without impacting all of your disk space. Spend less time waiting for files to sync and more time being productive.

Drive Seamlessly

Extend the power of Drive with 3rd-party apps.

Use hundreds of integrated apps, including DocuSign for e-signatures, CloudLock for additional security layers, and LucidCharts for mockups, to get things done directly from Drive.Work seamlessly with Drive on the tools you're used to.

Plugins for Microsoft Office and Outlook make fitting Drive into your workflow as simple as possible. You can also open 40+ different file types with Drive, including PDFs and MPEG4s, and work on Microsoft Word files straight from Drive.

Control how your files are shared.

Keep files private until you decide to share them. Avoid multiple versions and file merging by granting others permission to download, edit, comment, or view. You can also give shared files an expiration date.

Top questions about Drive

1. Can I migrate files from my current file storage solution to Drive?

Yes, you can use our migration tools and services to move your organization's important data to G Suite from your current storage solutions.

2. How much storage do I get with Drive?

G Suite's Basic edition has 30GB of storage per user shared across Drive and Gmail. G Suite's Business and Enterprise editions have unlimited storage (accounts with fewer than 5 users get 1TB per user). You can upload any type of file to Drive and convert certain file types to a Google Docs, Sheets, or Slides format.

3. How is this different from the standalone Drive Enterprise product?

Drive Enterprise is a standalone, "pay as you use" offering, priced at $8/active user per month + $0.04/GB. It includes sharing controls, Vault, DLP, BigQuery data access, AppScript and Cloud Identity Free edition.

Front end vs Back end

What's the Difference Between the Front-End and Back-End?

Briefly, front-end refers to the client side or the web design in the web industry. Back-end refers to the server side.

Less briefly, two terms thrown around a lot in the web industry are “front-end” and “back-end”. It can be a little frustrating since the difference between the front-end and back-end isn't always perfectly clear. While they're both terms often used to describe aspects of the web industry, the front-end is also referred to as the client-side and is sometimes considered "web design" and the back-end of the web industry is often called the server-side.

While that explanation seems simple, the line between the two is often blurry. Here are some basic guidelines to help tell the difference between the front-end and back-end, or at least be able to begin to understand what someone does when they say they're a "front-end developer."

Front-End

What is front-end development? The front-end is everything involved with what the user sees, including design and some languages like HTML and CSS.

There are a lot of different jobs associated with the front-end. Keep in mind that a lot of these titles are subjective, so while front-end developer may mean something at one company, it can mean something completely different at another company.

Here are a few examples of front-end job titles:

A web designer, you guessed it, designs websites. The job title of web designer is pretty broad, though. A web designer could just be someone who designs the sites in a program like Photoshop or Fireworks and will never touch the code. But in another location, a web designer could do all the design comps in Photoshop, and then be responsible for creating all the HTML and CSS (and sometimes even JavaScript) to go along with it.

A User Interface (UI) Designer is basically a visual designer and is generally focused on design. They're not usually involved in the implementation of the design, but they might know light HTML and CSS so they can communicate their ideas more effectively to the front-end developers.

User Experience (UX) designers work in the front-end, studying and researching how people use the sites. Then they make changes through a lot of testing.

A Front-End Developer or Designer can create a site without any

back-end development. The site they would create without a web developer, or using the back-end, is a static site. A static site is something like a site for a restaurant or hair salon. It doesn't require any information to be stored in a database. The pages will almost always stay the same, unless it's time for a redesign. A front-end developer may be required to have a grasp on testing, as well as be well versed in HTML, CSS and JavaScript. This person may or may not have experience with creating the design in a design program. A different version of this title is front-end engineer. People who work with specific front-end languages like JavaScript Developer are also considered front-end developers.

Impacts of Computer Society

Everyone knows that this is the age of computer and vast majority of people are using computer. Development of science and technology has direct effect on our daily life as well as in our social life. Computer technology has made communication possible from one part of the world to the other in seconds. They can see the transactions in one part of the world while staying in the other part. Computer development is one of the greatest scientific achievements of the 20 th century. Computers are used in various fields as well as in teaching and learning. Some of the major computer application fields are listed below.

An aid to management: The computer can also be used as a management tool to assist in solving business problems.

Banking: Branches are equipped with terminals giving them an online accounting facility and enabling them to information as such things as current balances, deposits, overdrafts and interest charges.

Industrial Application: In industry, production may be planned, coordinated and controlled with the aid of a computer.

Engineering Design: Computer help in calculating that all the parts of a proposed design are satisfactory and also assist in the designing.

Meteorology: Data is recorded at different levels of atmosphere at different places, using remote sensors carried on a satellite.

Air Travel: Small computers are installed as a part of the plane's equipment.

Road Traffic Control: Computers assist with the control of traffic lights.

Telephones: Computerized telephone exchanges handle an ever increasing volume of calls very efficiently.

Medicine: Computers are widely used in hospitals for such task as maintaining drugs, surgical equipments and linen, for payroll and also for checkup and treatment of diseases.

In addition computers are also used for recording and film studios, research, military, etc.

Computers have both positive and negative impact in our daily life

as well as in our social life. But the gross development of the nation is faster with the application of computers in industries and education. The both positive and negative impacts of computers are listed below.

Positive Impact of Computer

- The work can be done in very less time.
- More information can be stored in small space.
- Multitasking and multiprocessing capabilities of data.
- Easy to access data.
- Impartiality.
- Documents can be kept secret.
- Error free result.
- It can be used for various purposes. i.e. It can be used in any type of work.

Negative Impact of Computer

- Highly expensive.
- Accidents.
- Data piracy.
- Increased Unemployment.

- Huge data and information can be lost sometimes.
- Fast changing computer technology.
- Service distribution.
- Illiteracy of computing and computers.

As mentioned on the above list, computers have both positive and negative impact in our society. But the use of computer is increasing day-by-day.

Windows XP

What is Windows XP end of support?

Microsoft provided support for Windows XP for the past 12 years. But the time came for us, along with our hardware and software partners, to invest our resources toward supporting more recent technologies so that we can continue to deliver great new experiences. As a result, technical assistance for Windows XP is no longer available, including automatic updates that help protect your PC.

Microsoft has also stopped providing Microsoft Security Essentials for download on Windows XP. If you already have Microsoft Security Essentials installed, you'll continue to receive antimalware signature updates for a limited time. However, please note that Microsoft Security

Essentials (or any other antivirus software) will have limited effectiveness on PCs that do not have the latest security updates. This means that PCs running Windows XP will not be secure and will still be at risk for infection.

What happens if I continue to use Windows XP?

If you continue to use Windows XP now that support has ended, your computer will still work but it might become more vulnerable to security risks and viruses. Internet Explorer 8 is also no longer supported, so if your Windows XP PC is connected to the Internet and you use Internet Explorer 8 to surf the web, you might be exposing your PC to additional threats. Also, as more software and hardware manufacturers continue to optimize for more recent versions of Windows, you can expect to encounter more apps and devices that do not work with Windows XP.

What does it mean if my version of Windows is no longer supported?

Which version of Windows am I running?

How do I stay protected?

To stay protected now that support has ended, you have two options:

Upgrade your current PC

Very few older computers are able to run Windows 10, which is the latest version of Windows. We recommend that you check out the Windows 10 specifications page to find out if your PC meets the system requirements for Windows 10.

Get a new PC

If your current PC can't run Windows 10, it might be time to consider shopping for a new one. Be sure to explore our great selection of new PCs. They're more powerful, lightweight, and stylish than ever before—and with an average price that's considerably less expensive than the average PC was 14 years ago.

IT Enabled Services

IT enabled Services (ITeS), also called web enabled services or remote services or Tele-working, covers the entire gamut of operations which exploit information technology for improving efficiency of an organization. These services provide a wide range of career options that include opportunities in call Centre, medical transcription, medical billing and coding, back office operations, revenue claims processing, legal databases, content development, payrolls, logistics management, GIS (Geographical Information System), HR services, web services etc.

Information Technology that enables the business by improving the quality of service is IT enabled services. The most important aspect is the Value addition of IT enabled service. The value addition could be in the form of - Customer relationship management ,improved database, improved look and feel, etc. The outcome of an IT enabled service is in

the two forms:

- **Direct Improved Service**
- **Indirect Benefits**

Whereas direct benefits can be realized immediately, indirect benefits can accrue over a period of time, and can be harnessed very effectively, if planned well upfront.

Information Technology Enabled Services (ITeS)

Information Technology Enabled Services (ITeS) Processes and Services. ITeS provide a range of IT-intensive processes and services, which includes business process outsourcing (BPO) and knowledge process outsourcing (KPO), provided from a distant location and delivered over telecom networks. ITeS focus on verticals such as content management, finance and accounts, research and analytics segment. ITeS includes:

Customer Interaction services -including call center facilities with adequate telecom infrastructure, trained consultants, access to requisite databases, Internet and other online information infrastructure to provide information and support to customers

Back office operations -data entry, data conversion including finance and accounting and HR services.

Transcription/Translation services

Content development/animation/engineering/design and GIS

Other services including remote education, data search, market research, network consultancy and management

The favoured application areas are areas where there is huge amount of data that needs to be processed and utilised for delivering the results, or the data is the outcome of the service. In all cases, without use of IT the task would otherwise be unmanageable. Some of the most important areas where IT enabled services can be deployed are:

- Telemarketing
- Helpdesk
- Customer Support Centres
- Data Ware House
- Transcription Centres
- GIS Mapping for Transport tracking
- Electronic Distribution.

Opportunities and Challenges of Information Technology Enabled Services (ITES)

The changing economic and business conditions, rapid technological innovation, proliferation of the internet and globalization are creating an increasingly competitive environment. The role of technology has evolved from supporting corporations to transforming

them. Global companies are increasingly turning to offshore technology service providers in order to meet their need for high quality and cost competitive technology solutions. As such a company can encounter a wide variety of risks and challenges in their endeavor to create and maintain a seamless, successful, sustainable and scalable business. Some of the challenges faced include:

Ability to create and maintain a truly world class proven global delivery model which would allow your organization to provide services to customers on a best shore basis. This would require round the clock execution capabilities across multiple time zones, access to a large pool of highly skilled technology professionals and a knowledge management system to reuse solutions where appropriate.

Develop and expand a strong, comprehensive, best in class end to end solutions and service offerings in order help your clients gain market differentiation or competitive advantage and thus capture a greater share of your client's technology budgets.

Ability to scale when the opportunity arises. This would require constant investment in infrastructure and rapidly recruit, train and deploy new professionals.

Manage revenue and expenses during economic downturn, enhance your organization's capacity to withstand pricing pressures, commoditization of services and decreased utilization rates.

Manage exchange rate volatility and counter party risk in treasury

operations.

Expand your client list across business verticals to reduce over dependency and risk of losing substantial market share.

Maintain superior and sophisticated project management methodology in line with global quality standards and ensure timely, consistent and accurate execution to achieve highest client satisfaction.

Ensuring successful integration of inorganic growth opportunities that your organization may undertake from time to time across geographies.

12 Factors Which Have Propelled the Growth of the Indian ITES Sector

India is regarded as the back office of the world owing mainly to its IT and ITES industry. The sector in India grew at a Compound Annual Growth rate (CAGR) of 15 per cent over 2010-15, which is 3-4 times higher than the global IT-ITES spend, and is estimated to expand at a CAGR of 9.5 per cent to US$ 300 bn by 2020. India is also the world's largest sourcing destination for the information technology (IT) industry, accounting for approximately 67 per cent of the US$ 124-130 bn market. With the rising influence of online shopping, social media and cloud computing, this trend will only further increase. Some of the most important factors behind India's rise as an IT information technology services giant include Newly emerging verticals, such as

retail, healthcare, utilities, etc.

A revival in the demand for IT services from both US and Europe

Focused government initiatives leading to an increased adoption of technology and telecom, eventually leading to increased ICT adoption

Growth in the number of high-value clients (> $1million)

A spurt in the SMAC market (social, mobility, analytics, cloud) to support ITES services.Growing R&D expenditure across the globe

Rising costs to train new workforce ($1.6 billion in 2016)

Plan of the Indian government to lay down a large-scale optical fiber network connecting the whole country

Partial privatization of telecommunication

Low operating costs as compared to most other developed and developing nations

Tax breaks and SOPs offered by the government

Development of multiple SEZs in tier-2 cities across the country

Benefits and Threats of ITeS

BENEFITS: Increases company's flexibility: Through Business Process Outsourcing (BPO) which is a part of ITeS the companies will increase their flexibility. Most services provided by ITeS vendors are offered on a feefor-service basis. This helps the company to change their structure of cost from Fixed to Variable cost. A variable cost helps a company to respond to changes very quickly and make the firm more flexible through outsourcing. One more way in which ITeS contributes

to a company's flexibility is that a company focuses on its core competencies, without any burdens from bureaucratic restraints. With this main employees are released from performing non-core operations or administrative processes and can spend more time and energy in building the firm's main businesses. Another way in which ITeS increases organizational flexibility is by increasing the speed of business processes. Using techniques such as linear programming we can decrease the production time and inventory levels, which can increase effectiveness and controls or decreases cost. Supply chain management (SCM) with the effective use of chain partners and business process outsourcing increases the speed of several business processes. Lastly, flexibility is one of the stages of organizational life cycle. ITeS helped to convert Nortel from a bureaucratic organization to a very reliable competitor. ITeS therefore helps the firms to retain their speed and ability, which they have to otherwise sacrifice in order to become efficient. A company grows at a faster rate as it will be less constrained by large capital expenditures for people or equipment which may take years together to gradually write-off the cost. Though the above-mentioned arguments are in favor of ITeS and increases the flexibility of organizations, management needs to be very careful with the implementation of it. The company has to look into the challenges before it decides to engage in business process outsourcing. Another issue is that in many cases there is less scope to differentiate BPO from

other with size. They provide same services, have same geographic footprints, same technology stacks, and have same Quality Improvement approaches.

THREATS: Risk is the major threat with ITeS. Outsourcing an Information system, can cause security risks both from part of communication and from privacy. The Security of North American or European company data is very difficult when accessed or controlled in the Sub-Continent. From the perspective of knowledge, a change in attitude in employees, underestimation of present costs and the major risk of losing independence, outsourcing leads to a different relationship between organizations. Risks and threats of outsourcing can be managed, to achieve any benefits. If we are able to manage outsourcing in a structured way, maximizing positive outcome, minimizing risks and avoiding any threats, a Business Continuity Management (BCM) model arises.

Aluma Matters

1.)

NAME: A.Ajithkumar

BATCH: 2016-2019

WORKING IN: Virtusa Consulting Service

DESINATION: Associate Technology

2.)

NAME: L.Sabhareeswaran

BATCH:16-2019

WORKING IN: wipro ltd.,

DESIGNATION: IOT developer

Placement Questions

Logical Problems

1. A software engineer has the capability of thinking 100 lines of code in five minutes and can type 100 lines of code in 10 minutes. He takes a break for five minutes after every ten minutes. How many lines of codes will he complete typing after an hour?

a)250

b)220

c)150

d)200

Ans: a

Explanation: First, 5 five minutes he thinks, next five minutess he write code then takes a break. So for the first 15 mins he writes 50 lines of code. Next 5 minutes he write, then 5 min. think & 5 minutes rest. Next 10 minutes write, then 5 minutes rest. Next 5 minutes think, 5 minutes write and 5 minutes he takes rest. 25 minutes he write. In 10 min he writes 100 lines. So in 25 min. 250 lines.

2. A monkey starts climbing up a tree 20ft. tall. Each hour, it hops 3ft. and slips back 2ft. How much time would it take the monkey to reach the top?

a) 21 hours

b) 12 hours

c) 18 hours

d) 15 hours

Ans:c

Explanation: Every hour, he gains 3 ft and loses 2 ft, for a total gain of 1 ft. So after the 17th hour, he's at 17 ft high. in the 18th hour, he climbs up 3 feet. Since 17 ft + 3 ft = 20 ft, he's at the top of the tree. So option c.

3. If a light flashes every 6 seconds, how many times will it flash in ¾ of an hour?

a) 450

b) 451

c) 350

d) 425

Ans:b

Explanation: There are 60 minutes in an hour. In ¾ of an hour there are (60 * ¾) minutes = 45 minutes. In ¾ of an hour there are (60 * 45) seconds = 2700 seconds. Light flashed for every 6 seconds. In 2700 seconds 2700/6 = 450 times. The count start after the first flash, the light will flashes 451 times in ¾ of an hour. So option b.

4. Who is the shortest?

a)Rohan

b)Sachin

c)Anuj

d)Kunal

Answer: a

Explanation:

Let us denote the five boys by the first letter of their names,namely S, K, M, A and R.

Then , R < S < K < M and S < A < K.

R < S < A < K < M

Rohan is shortest.

Quantitative Aptitude:

Number System

1. The binary equivalent of the decimal number 125 is

a.1100100 b.1111101 c.1101100 d.1111111

2. The hexa decimal equivalent of the decimal number 128 is

a.128 b.175 c.80 d.81

3. The decimal number 1356 expressed in octal system equals

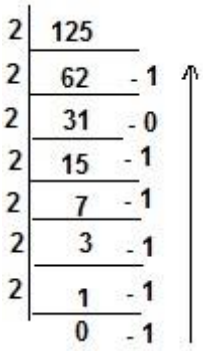
a.2514 b.125 c.353 d.235

4. The decimal conversion of the binary number $(1111)_2$ is…..

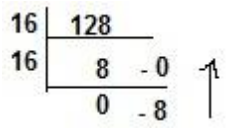
a.31 b.15 c.13 d.14

Answer & Exaplanations

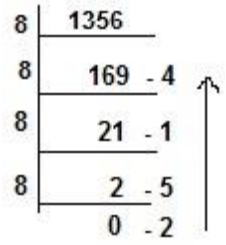
1. Ans: (b).



2.Ans: (c).



3.Ans: (a).



4.Ans: (b)

$(1111)_2 = 1*2^3 + 1*2^2 + 1*2^1 + 1*2^0 = 8+4+2+1 = 15$

Verbal Ability:

Idioms and Phrases

1. **Each of the loan** must be approved by the Branch Manager—

(A) Every loan

(B) Each one of the loan

(C) Any of the loans

(D) All of the loan

(E) No correction required

2. The issue was **taken before** the Municipal Corporation meeting last week—

(A) Taking place at

(B) Taken after

(C) Being taken in

(D) Taken up at

(E) No correction required

3. **He has asked** for the names of those employees involved in the project.

(A) had asked

(B) having asked about

(C) was asked that

(D) is asking

(E) no correction required

Answers

1. (A)

2. (D)

3. (E)

Faculty Achievements

S.NO	NAME OF THE FACULTY	NAME OF THE BOOK PUBLISHED
1.	Ms.S.Padma Mr.K.Murugesan Mr.M.Jayapal Ms.S.Latha	C++
2.	Ms.S.Padma Ms.S.Latha Mr.S. Krishnamoorthy	Operating system
3.	Ms.S.Padma	Contributed a chapter "**Design of Classifiers**" in the book "**Advances in Biometrics**" Published by Springer

Student Achievements

S.NO	NAME OF THE STUDENT	SECTION	NAME OF THE COMPANY
1.	S.Sasikumar	III-BCA-A	TATA CONSULTANCY SERVICE (TCS)
2.	S.Gokula Krishann	III-BCA-A	
3.	S.B.Parvesh Mushraff	III-BCA-A	
4.	E.Ajaysurya	III-BCA-C	
5.	R.Sadheeshkumar	III-BCA-D	
6.	T.Ranjth prabu	III-BCA-B	FUTURE GENERALI
7.	R.Krishna kumar	III-BCA-D	
8.	S.Vivek	III-BCA-D	
9.	T.Bhuvaneshwaran	III-BCA-D	
10.	M.Prathap	III-BCA-D	

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"My goal was never to just create a company. It was to build something that actually makes a really big change in the world." -Mark Zuckerberg