last time we were talking about security and other aspects of information systems and i am very quickly revise last transparency which we had on the on the system

now we talking about primarily requirement for recovering from disasters now one way of recovering from disasters i said was to have a backup that is backup everyday incremental that is whatever change that day and backup every week and so in a given day is there any failure you can go up to the previous day and take the whatever happened in the particular day and get back to were you where

these alright if you can afford to have say a few hours of disruption service but there are certain situations where you cannot afford to have any disruption at all

let me take an example many of the airline reservation systems and railway reservation systems and so on work twenty four hours a day seven days a week and they can cannot really tolerate any kind of a disruption in service

because disruption particularly in airlines reservation systems could mean that they lose a lot of customers because there are many competing airlines if one airline system does not work the customer will automatically go to another airlines and may be book there so you have lost an opportunity

and there are certain banking transactions which are always online particularly if you are transferring large amounts of money from one bank branch to another bank branch this is currently also available in a in India for since state bank of India has something called anywhere banking

so they have a unified numbering systems for all accounts in all banks almost all banks excluding some of the rural banks that is all the metros and also including place like Bangalore Hyderabad trivadrum and cochin and so on all the computerized branches they have many of them have been identified fairly large number have been identified as anywhere banking

that means you can en cash your cheque giving the cheque in any branch of state bank of India anywhere else in India which is into going to a branch which has got anywhere ban banking

similarly they have also if you want to transfer a certain amount of money to another account of a friend in living in a different city you just have to go to the bank and give the account number of that friend and give details about the transactions you made and this
branch when it enters that transaction in there computer and automatically it will update
the accounts of your friend in a bank elsewhere

in other words its almost at a touch of a button money is being transferred while money
is being transferred and so on you have to be careful that if there is a break down
somewhere and there is a possibility of duplicate transfer or mistransfer

so these things require particularly some kind of a mirroring in other words the same
transactions are carried out in another site which is called a mirror site that is every
transaction which is carried out in a major bank or major airlines reservation system is
duplicated in another com centralized system else where

so that even if there is a disaster in one place then the mirrored system will automatically
take over in other words every transaction having been mirrored that means repeated else
where there is no disruption at all in service because it smoothly transfer from one
computer which may have failed or may have been affected by a disaster like say a
flooding system and so on and bank take it over to the another place ok

in fact some of the banks for instance who have such systems you know they may have
one site in Mumbai and another mirror mirroring site in a place which is may be even far
away it could be even in Chennai because communication speeds are now fairly high and
communication speeds are going up every nine months it is doubling ok

so where is a doesn’t really matter where the actual computer is situated because the
speed at which data travels over fiber optic lines is at the speed of light and so there is no
real time lack between any transaction happening in any given branch and that
transaction being mirrored in a so called mirror site elsewhere ok

so this is what is done in highly in a while say a system which should not never be
interrupted in such a system these mirroring is always done

so mirroring is a an expensive affair because you have to have a duplicate system you
have to run that also twenty four hours a day and you have to keep it up to data and any
transactions being duplicate that means double the cost plus the communication cost and
plus the man power cost and so on

so you don’t do it likely you do it only for situations where you just cannot tolerate any
disruption at all only in such cases such mirroring of transactions are done

but you have to be you have to ask your customer if you are actually developing a system
for a customer you have to ask a customer how critical is it can your business survive
if there is a say few hours delay can your system survive if say how long can it
survive suppose were disrupted for few days many many business cannot survive at all if
it some business survive if they disrupted for a a few hours or even a day but some others
just cannot afford to have any disruption what so ever [noise]
so that is where you go the mirroring otherwise you can do a backup and use a backup and return back to the system with a backup copy and restore it because restoring with the backup may take a few hours ok

apart from that there are many places where there is a physical security physical loss in other words the locks are actually not electronic locks but physical locks with a key and so on and they also have a surveillance system that means the video camera which captures every person who enters that particular secure area and does any kind a transaction on a computer

so physical locks along with a system to record whoever entered and so on is put but since in Bangalore there is a big data center which is run by reliance communications and they are they let out areas in that data center for banks should put there machines

because they guarantee twenty four by seven service is uninterrupted power supply air conditioning security and so on its called a centralized data ce data centered where you know you hire out space to various organizations primarily banks like to have this because banks cannot afford to have a complete set up in their own prem premises because of various reasons including the reasons of security about power supply and things of that type

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so they provide you might say kg’s or say cubical for many banks to put their machines obviously banks do not want somebody else to enter there computer area and do anything with that machine
so they have physical lab and electronic surveillance system that is a little camera run looking at the anybody who enters and when somebody enters the time at which he entered and what he did internally they all logged

so once you pass a physical lock you have a password system that is electronic lock for getting into the machine that is on the terminal you have to have password and also biometric authentication other words i said finger print for instance finger print recognition is there so you put your finger print on little scanner that reads that and then check that against authorized finger prints and allows you in provide your finger print matches so that way they can have an audit trail they can trace who changed some data at what time and they can prove with a quote of law because there is a picture that is all diametric auth authentication

so these are precautions you always really take in fact nowadays biometrics have gone much further they even have something called eye rays recognition systems that is when you look at your eyes every persons eye has got a very special set of red lines emanating from the pupil and so these set of lines are distinct and so you don’t have to really even put your thumb you just sit in front of the machine there is a camera which looks at your and says whether you are authenticated or not authenticated ok

so biometrics systems are also continuously advance because some people don’t like to put there thumb thumb impression but the point really i am trying to make is that when you run such common facilities like a data center you have to really take care of the issues of security with all possible methods including physical lock electronic lock or password system and also biometric so that you say as is said prevention is better than cure

so this will essentially put a certain kind of fear in a person before he does anything because he knows he is being watched and whatever he is being done whatever he is being particularly with a critical database is being trailed and a record is being kept so an audit trail is there
(Refer slide time: 13:39) now apart from that encryption of sensitive data particularly things like credit card numbers and lots of other critical data are normally encrypted and stored so even if somebody, a particularly hacker or somebody gets hold of it, he will not be able to interpret because of the fact that is encrypted. Unless you have the key for the encryption, you cannot decrypt it, so so the again identifying all persons who read and modify data

and you have to while keeping all these prevention measures you also have to train employees on data care handling and security in other words don’t allow your employees to carelessly reveal some data such as password and things of that type

and also the employees when they enter such secure areas and particularly deal with things like credit card numbers and other critical data, they are not allowed to take an even a scrap of paper or even a mobile phone because they can note down some numbers there if it is unencrypted and then they can come out and use it or they are not allowed to take any floppy disk out of the room or pen drives anything of that type
so they actually searched in doing this of course any how the camera is there is always looking at you ok and so the the kind of frauds which occurred in bank where where a where a new employee was able to get hold the credit card numbers and of de fraud up to extent of half million dollars just shows shear carelessness on the part of the bank in having proper security measures in place as a responsible systems designer you should really make sure that when critical data is there they are encrypted or you don’t allow any any method of kind of taking that data out without a supervisors consent

i mean in other words you have a supervisor cannot take the data out the data has got to be in the machine ok and that that is got to be done with great amount of care and also i said that if any machine which is connected to the internet virus is always a problem so you always put antivirus software but antivirus software is got to be continuously updated because new viruses come all the time

hence you unless you have updated antivirus software which is almost sometimes you have to update almost every second day it may turn out that some new virus comes and attacks it of course nor normally the antivirus software people try to catch whether it is early and then they to kind of update their antivirus software and its always available online on the internet

so you can download it and in fact have a continuous check ok and this also called a fire wall protection to prevent un authorized access to your computer of people who don’t have any authority and also certain amount of certain methods where by the presence of various types of computers in organization is not even is shielded by the firewall
i will talk about the firewall in slightly greater detail when we talk about electronic commerce in the next set of lectures so i think i will not get into great detail about firewall but there is effectively another computer which of a which make sure that un authorized people don’t enter the your local area network or your intranet and do you have anything which is legitimate there

(Refer slide time: 18:07) data security as we said there are three different terminologies which is used in relation to the the care of data one is security which we have been talking about there is there are two other issues one is called privacy and the third is called integrity

data security data privacy and data integrity are related but they are kind of independent security is necessary condition for privacy but it is not sufficient for privacy will see what see why ok

data con security is concerned with protecting data from erasure theft unauthorized access unauthorized modification and so on that’s what we have been talking about and also of course security is concerned with preventing disasters and even if disaster occur try to kind of recover from disasters by various means ok

privacy is concerned with protecting data regarding individuals from being accessed and used without permission or knowledge of concerned individuals
some other data like credit card data of course is a something which is financial implications and that is got to be kept secure apart from that of course privacy is more important in certain areas where you might not say that it makes much of a difference like for instance medical records of individuals

medical records of individuals is should should be protected from others in other words it’s a private matter about once health and once what kind of medicines the person is taking it should not be common knowledge ok and so this is a a privacy concerned

privacy concerned is things like your medical information your bank balances and your financial transactions all these are had to be kept private to you and not reveal to any anybody and everybody ok

this privacy is something which is conceptually you know it it is some what different from security in the sense that this separate loss are actually implemented in many countries to provide protect the privacy because privacy the privacy is loosed essentially your your somebody’s kind of peeping in to your life and that is something which is not allowed and privacy is highly valued particularly in the western cultures and they are very very worry about others knowing about their private affairs ok

and so the the issues are in terms of in fact enacting lose many coun many countries have enacted privacy loss to make sure that companies do not reveal information about you without your knowledge [noise]
take a simple example when you subscribe to a magazine ok you give your name and your address and sometimes they ask for your phone number you give all that and when you give that if they use that use that the information to sell that information say for instance to others for instance for sending adds to your house by mail or phoning your all at times saying that open an account with or bank or start this insurance and things of that type that means your privacy has been loosed and that is been loosed because somebody who has a data about you is selling that data without your consent ok

so very often nowadays they have a little column which says do you have any objection to revealing your data to other people whomever interested in sending you some valuable information and very often you have tick you tick no because if you tick yes you’re you are essentially opening your self to the flood of un call for junk mail whole lot of junk mail will come that is that is useless mail will come which will waste your time just like whole lot of junk or spam will come on email if you reveal your email address and all types of useless [22:30] will come to your email address ok

so it is it is very important the privacy lost there then that that the that is a compulsion on the part of the company not to reveal your the information such an telephone number email id your actual postal addresses and stuff like that ok so privacy is concerned with that

integrity is concerned with the quality and reliability of raw as well as processed data so integrity is at higher level in other words security something where you let me take a very very simple example see you if you have very good lock and lock up lot of material inside a box you can say that the material is is secure but the material inside the box is useless from the point of that means its literally related or something like that and it cannot really be used it it is not [noise] there is no integrity in that in other words the quality of that material even if if provides a you know of kind of break the lock and get it its not much use ok

so the integrity is concerned with quality and reliability of whatever is a process information ok so security is something else ok does not imply privacy or integrity integrity is one level higher in terms of quality control reliability and so on

privacy controls as i said requires loss which is that to [noise] extreme people from from revealing your personnel data ultimately system security and integrity are very important ok

so this is essentially the end of this particular discussion about security about audit and about gen generally i i talked about audit information systems security information systems trailing transactions and so on these are important in terms of designing any information system so whenever you design a system you got to keep this that in your mind while designing
now we will go to another topic and the other topic is electronic commerce and one might wonder why would i talk about electronic commerce in this course on systems analysis and design

the primary reason why i have included electronic commerce in this systems analysis and design course is because more and more of systems are now based on the internet and the world wide web

the days of an isolated computer where you design the system implemented for a company are gone now within a company computer are connected so that’s an intranet intranets are connected to other intranet the extranets and there are there is an internet already we talked about in these the earlier module ok

but the point is that because of the fact that electronic communications is become so fast and in expensive and computers are all connected together on the network the nowadays information systems cannot be designed for systems on isolation you are design it for systems which are essentially internet connected or internet enabled or intranet enabled so what is a reason why i am going to be talking about this topic i will again come back to this question of why why we should learn about electronic commerce in great detail later on

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but this module will first define what is e commerce and in e commerce they got to be able to interchange data between organizations so what is electronic data interchange and particularly the internet the issue of security becomes very very important because internet is something which is accessible to a lot of people hackers even your home home computers connected with the internet
so anybody and everybody can get into the internet so security takes on lot more importance and there is a question of payment in fact many of the e-commerce application today require payment like if you want to book a ticket for trains you can book it from your home using the internet are that is one of the e-commerce applications and you have to pay for the tickets which you bought and how do you pay for it ok these are issues and payment itself has got various different aspects like there are as you know your cheque payments your credit card payments your cash payments

so you have to [27:50] all the three cheque payments credit card payments cash payments all three has to somehow [] in the electronic commerce world and i will give you a glimpse of this because if i go into the details of every one every one of them it will take a whole course in fact in the curriculum normally electronic commerce is given as a elective course may be in the third or fourth year of your BE course or you are doing MCA may be in the second or third year of your MCA course ok

so this will only again give you birds eye view or overview of what electronic commerce is all about

(Refer slide time: 28:56) so what we learnt is the what are the basics of electronic commerce the advantages and disadvantages of electronic commerce what is the architecture of electronic commerce system that means how were the how was the how was the electronic commerce system organized and put together as what i mean by architecture particularly ease of use and things like that

and electronic data interchange the need for security and how electronic payment systems work these are the points which will which we are talked about
with the emergence of the internet and world wide web new methods of carrying out business transactions using the world wide web has had began to explored as i said nowadays no computer is in isolation and ecommerce electronic commerce

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you know its very important application of the world wide web in fact without world wide web e commerce cannot be there and e commerce is the very very important part of the web ok

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and today as i said it is very difficult to find a an isolated computer computer are all connected and intranet internets are are there an extranets between cooperating organizations
it is cheaper in carry see this is very important it is cheaper and faster to carry out business transactions within an organization and among among organizations electronically using the network connections because the electronic connection makes communication extremely fast see earlier on we use to depend on the postal service courier service and so on and written documents which flow from place to place

when written documents is come very often they got to be reentered and of courses there is a delay in transit in the in the post for instance there is lot of difference between for instance email email communication to America today is is goes instantly see you you send email within about couple of minutes the recipient has it whereas you post post a mail to him by postal system even it may be air mail it will take at least eight to ten days and if it is go through a very expensive courier it may take at least forty eight hours because physically the plane has to go there and your document has to be delivered

so electronic speeds are so fast that and also so cheap electronic mail is almost no cost compare to air aerogram which costs you fifteen rupees to mail ok or courier which costs you hundreds of rupees to mail

so the point really is electronics electronic mailing system and commerce system is so fast and so cheap that the cost of being business and the productivity of the business goes up when you adopt this electronic means and go away from the earlier means which dependent upon the postal system or the courier system and so on

so its that’s important to understand how business transactions are carried out electronically reliably and securely because these are two two keywords say because when you go to electronic world you had to be worry about security and also reliability

because reliability in any case is important for any system and when designing information system is essential to understand the emerging web based transactions

in other words transactions today between companies or on the internet and so they are using the world wide web and there also certain things which emerging called web services certain services like even for instance the word processor or a spreadsheet or an accounting package may be available as a web service

so you effectively go and use that service and as of now some of those services are free of cost but as times times go by those services will also be costed and you may end up paying for that service at some some cost depending up on how much you used it ok what facilities you used and so on

so there is a certain gradu there is certain kind of a difference which is taking place or transformations which is taking place the way business is being done
also some transformations being taking is taking place in the way in which computers are also being used ok

and so there is a whole lot of new systems were coming up which are based on so called web services and many of the companies in India today which do outsourcing work and so on effectively use the web services model and for many of the applications primarily because of fact that once you get to the web and so on distance does not matter the customer may be in America or south America or anywhere in the world but electronically the distance is almost zero

because the information travels at the speed of light so business is going on as big hits put it puts at at the speed of light ok very very fast ok and so that is a reason why one has to be aware of this of these things

and number of organizations are exploring how to carry out all day to day operations electronically using there intranet and so called paperless systems

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in other words they don’t want to have papers going from place to place to place rather than that every body [noise] has a on his table a desktop system or whether the person is traveling he has a laptop system and even when they are traveling the laptop systems connected by wi fi or wirless a wireless high facility system to the internet and he can get to his particular company by by using the world wide web

so the point is that the machines being connected allows you to kind of look at data and transmit data without any interference from the without any paper transactions and so this is much so faster and cheaper in fact even governments now in so called e governance
initiatives they are trying to kind of minimize the flow of files from one table to the next table and so on

so whatever files are there they try to make a noting on the machine and then transmit that file to a database from which somebody else can access

so there are many systems which are emerging of course in government it is not yet come to some kind of maturity because it takes a little bit of changes in the mind set as well as changes in the many basic laws but with a emergency so called right information act which allows public to have the right to look at all government information it will be more or less all government office be forced in the near future to have electronically available so anybody can kind of go and look at what reasons particular certain what all the all the transactions which took place or all decision which took place in certain government offices are transferred that is is known to the public and once this right information act comes in and then people can have access to data hopefully when they computerize everything you can even have access to the data from your home using the government website

once you have that it is hope that this transparency will put a certain amount of responsibility in the in the responsibility for bureaucrats and others working in government to be more responsive and be more careful about what they do and one hopes that this will in some sense eliminate the delays eliminate corruption and stuff like that ok

so there is a definitely very very good opportunity of providing better transparency if we use a electronic methods like the like e commerce e governance is the other parallel thing that is commerce which regarding businesses governance is regarding government offices ok of course we public has to deal with both companies and with the government ok

and it is thus important for a student should really understand particularly for [38:14] information systems you should understand this this what it really means ok

so that is the reason why we are going to talk about electronic commerce at a certain length ok i am going to devote a few lectures to this ok

and as i said even though it is not an entire coverage of he whole discipline in a very broad sense it will essentially give you very quick and good over view so that you can be aware of where they fit in in to a real kind of information system which you design ok
(Refer slide time: 38:48) so i will define electronic commerce as sharing business information maintaining business relationships and conducting business transactions using computers connected to a telecommunication network that’s called e-commerce

the key terms here are you know the sharing business information that is certain kinds of for instance one business information which is shared is if you got say your price list what goods you available at what price and so on this information would can be accessed by anybody to find out if you want to kind of buying the item from you if we competing businesses have this kind of information on their website it will be easy for for customers to decide where to go

similarly very often electronic companies like companies which sell sell integrated circuit and so on put all that data sheets on the web so you can get hold of if you are designing anything you can go and look at the data sheet and use that for your design so that is business information you you kind of look at business information is relevant

maintaining business relationships what is meant by that is the two businesses want to transact business between one another one may be a vendor one may be a purchaser so the vendor and purchaser want to interact so the interaction is enabled by the electronic commerce system

so maintaining such relationship between say vendor and customer conducting business transaction that is the transaction in this case is that the purchaser sends a purchase order and the purchase order goes to the vendor

so the transaction is a purchase order and that goes electronically to the vendor and now electronically the vendor sends an acceptance if he accepts that order and also give some information regarding delivery time and stuff like that cost delivery time and so on and
the purchaser acknowledges saying that I have received it and now I confirmed the order then the person goes ahead and sends an item to you physically but along with it he will send electronic challan he might say by internet saying that I have sent it on this particular day and these all the there is a kind of data which it contains so transactions are again carried out with with this ok.

and computers are primarily used in both cases both the vendor and the purchaser use computers in the both of them are connected to a telecommunication network and this telecommunication network is of course the necessary network to interconnect machines and normally internet as I pointed out particularly there are two different companies situated far apart telecommunication network can be a private telecommunication network or it can be a public telecommunication network.

private network means you put your own leased line [noise] so that this leased line is not available to anybody to kind of intrude or you may decide to use the public switch telephone network provided by the telecom provider like in India bsnl or or reliance or tata um tata’s and so on ok.

this [noise] called e commerce that is sharing business information maintain maintaining business relationships and conducting business transactions using computers connected to the telecommunication network is called e commerce so this kind of encompasses all the all the points which are actually related to e commerce.

e commerce is normally classified into three types one is called business to business e commerce so people abbreviated as b to b and as usual computer people kind to have acronyms they use short short hand and tōi become two ok and one may like it or may not like it by the struck ok.
b to b is effectively business to business and business to customer business to business means two businesses are actually transacting some commerce or business between them using the telecommunication network.

Business to customer means there is a business and there is a customer and the customer is actually transacting some business with the company like you may be it may be retail retailer.

Retailer may kind of give you the customer he may sell retail items on the net like i will give examples of this and then customer to customer customer to customer is very interesting in the sense that if there are two customers that means i am not a really retailer in the sense that i don’t sell things every day i don’t have a shop selling things but i have something to kind of sell i have second hand radio i want to send a sell a second hand radio or second hand furniture to somebody whom i like to buy.

So another another person may be looking for a low cost radio which is a second hand radio or even a second hand car or a second hand furniture.

And so the there is a other person also sees this and so now the two customers had to get together and decide on the price and decide on how to exchange the goods and money ok these of course any two random customers may find very difficult because i know where and which i could find out who has furniture to sell and so on.

So new companies are come up which i have call the middle man companies like the e bay and which essentially work as the as a go go between or a broker between two.
customers and they charge brokerage you might say for both of them from the buyer and the seller which are both customers

so customer to customer e commerce is also gaining a lot in terms of because it allows you you essentially have a world wide customer base you don’t have to worry about a customer who is your neighbor ok provide of course it it turns out that the items are easily send across ok it’s a very heavy furniture your customer is in America the cost of sending may be higher in the cost of furniture

so the point really is one one knows of course what is what is the right way to do doing things ok its be your common sense

so retail stores where you know retail stores like rediff dot com is there in India amazon dot com which is a book book book sale book sale as well as music sale which is a world wide presence actually it is a American company which is a pioneer the business e commerce selling primarily started with books later on they started selling music and stuff like that in India rediff dot com came and of course there is a site called India books dot com where you can go and buy books primarily Indian publications and you don’t have to go to because its good to go to the Indian publication because the time to get your book if it is published in India will be much shorter to go the getting for the Indian e commerce site rather than going to America similarly pentasol in India which published lot of books they have their own site phi dot com so you can go to phi dot com if you want to buy any pentasol book if you want to buy any pentasol India book you log onto that website and ask for the book and then they will give you the price and how much it will cost postage and so on and also they will say that if you buy so much the postage will be [47:45] and stuff like that of course that is what there web site will will tell you

the point is the it’s a question of business like a publisher or a book seller or a retailers in general trying to sell goods to customers and the advantage is that the customer can be anywhere particularly for instance the books books book stores are not found in small small places large book stores are only found in big places and book stores take a lot of space and we cannot display every book whereas a retail book seller on a web here electronic catalogue so you got a huge catalogue of books without having store having to store it physically

once you order it he will kind of go to that particular publisher and buy it and or you know ask him to send it send it you directly and then will do a transaction other words you effectively pay that person some money and there will be some agreement between that whole seller and the and the book seller who is the who is on the web

so the point i am trying to make is that the virtual book shop on the web can in theory has infinite number of books with that having to spend money on the physical space whereas a real book shop in a in a in a city is constrain by a space they cannot have all kinds of books and it will be too un economical for them to store them because its all dead dead stock as far as if it does not sell that means it is a it is a dead stock see
so the point really is that slowly books lot of books are being bought on the web of course book stores still exist for different reasons including we would like to go and kind of browse look at the feel of the book and kind of read the book and stuff like that and the read randomly and decide whether you want to buy it or not

so that is of course that is [49:59] exist co exist one will not vanish and the other will completely take over because but then they turn out that a fair amount of customers were primarily earlier force to go to book store book store and people in remote areas did not access to good book stores they also have a chance now to be able to get to a book store which is which is got a huge amount of data collection that is huge number of book collection and there catalogue and you can order from that catalogue

now auction sites are the one which kind of its for customer to customer e commerce in other words you kind of put your item suppose you have a second hand radio on sale you say i want two hundred rupees for that and the seller may not be willing to pay two hundred rupees

so he will say i will give hundred somebody else some other customer make hundred and fifty so there is a kind of an auction and whoever bids the highest ok gets that and the auction site is the broker you might say where a which e bay is a typical example of this kind of a broker who kind of works between the seller between two customers ok

and cooperating businesses placing orders and in paying invoices and so on which i talked about that is b to b this is b to b c to c this is c to b b to [noise] read from left to right i will say b to c c to c and b to b ok
Electronic banking is essentially something like a b to c; the bank is the business and customer is the actual account holder. There is one electronic banking can also be a b to b because there are two banks which we want to transact business between themselves. For instance, there is a so-called electronic transfer of money from one bank to another bank.

So these two banks should be connected and money transactions can take place. Inter-bank transactions can take place then it becomes a b to b ok.

A booking cinema tickets, trains, and so on is another b to c commerce. In fact, in India today, the largest earner of e-commerce with the highest revenue is the irctc website maintained by the Indian Railways for railway train booking. They find that they are literally selling crores of worth of tickets on that website and payment is primarily by credit card ok.

And so the train booking effectively became a very large b to c kind of an operation. Apart from that, of course, even nowadays, even state transport or companies buses, companies have a booking, and of course, airlines companies, particularly cheap airlines in expensive airlines like deccan airways and they have only electronic ticketing. They don’t really provide any kind of physical ticket in the sense of your beautifully printed ticket which is provided by the poor expensive airlines ok.

You can in fact, there is no cost to them because you print your ticket on your own computer and take that to the airline office.

So in fact, many of the other airlines are also started doing electronic ticketing because it’s a very inexpensive of selling tickets and you don’t have to pay the intermediate agencies stuff like that.
electronic publishing that is a publishing is where you effectively write a suppose you want to write a book and make that book be available to lot of people instead of going to a print publication you can do create a word word document of a publication and put it on your website and people can just look at it ok because the question of payment is a different issue all together but you can effect in in effect if you have got a book which is of not great interest to lot of people you may like to put it and make it available in your web site of course there are now things like blogs and so on which are there that is primarily private blogs you know your daddy's more or less or your thoughts and so on and then of course not enabled by the internet but i wont really call it commerce in the sense of electronic commerce we are talking about

these filing tax returns government department like today you can file your income tax return using the world wide web and that is exactly an example of g to say customer to government customer being a tax payer and government being the tax collector we say customer to government government to government all these just like b to b there is also another set called g to g to c c to g g to g and things like that ok

and so when governments come into a picture ok but today in India of course we filing a tax returns are is possible using the internet

let us just take an example of business to business e commerce ok so there is two business sets each one has got a local computer network they are all intranet and the other business which wants to cooperate with this business also has a local intranet
we can call it business one and business two and they are interconnected by PSTN private public switched telephone network or a leased line ok depending upon you know how much transactions these people carry out if they are carrying out lot of transactions and they privacies very important there is security is very important more than privacy in fact security is very important they don’t want anybody to intrude and then they effectively put a private or leased line which is not accessible to everybody else ok and that is more expensive

so depends upon how many transactions you people carry out in between among themselves and that is the importance of security and stuff like that

but today of course a trend is more and more going towards public switch telephone network using some encryption for communication primarily because using the public switch telephone network is much much less expensive it is in inexpensive its inexpensive compare to having a leased line

so one goes towards essentially a you might say PSTN with some security embedded on to it ok

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so local LAN of businesses would normally follow TCP/IP protocol of the internet and of course i call it of course corporate intranet we discussed it earlier in another module so this is one intranet this is another intranet they connected and when they connected this is called extranet they have an extranet here that was connection between two intranets of two different companies
so giving an example of purchase of taking the purchase order suppose that there is a question of vendor and purchaser

purchase order entered by the purchaser in its PC and electronically dispatched to the vendor by email ok

so you say everything is electronic so you don’t have any paper document you send it electronically that is you enter it on your computer and send it as an email attachment you might say to the vendor and vendor acknowledges electronically the order

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so the order acknowledgement comes right away again as a in email transaction and vendor dispatches goods specifically and delivery note electronically to business one which i talked about earlier

and business one can compare delivery note against order both are in computer readable form because both are generated by the computer you can compare them by computer

so it cost it is very very fast there is no manual comparison and discrepancy note if any can be immediately sent to the vendor

in other words there are two different types of delivery notes one which comes electronically the other will come with the actual physical goods which will be normally normally a paper
but nowadays we are sending a lot of goods what you do is you go to a truck driver floppy containing the entire entire you might say the challan containing all the items we are being sent so in which case it is electronically coming and you can actually take on your computer and compare ok

and all business one can carry out all local transactions using their own LAN local transactions are inventory update by stores advice to accounts to pay for goods taken into stock accounts can make payment electronically to vendor

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so these are the major kind of advantages because each business can carry out their their businesses in their intranet and then they communicate through businesses they communicate very effectively and this will lead to lot of requirements and this these requirements are types of electronic data interchange payment systems and all those which really constitute the heart of e-commerce and i am going to talk about this in great detail in the succeeding lectures thank you

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