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## The history of rise of e-commerce from B2C to B2B

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### Abstract

Developing countries can be industrialized and modernized if they can widely apply information technology to increase productivity and international competitiveness and develop e-commerce and e-government applications. An information-based society or a knowledge-based society consists entirely of IT products, socio-economic and IT applications. Many countries in Asia use electronic commerce through economic opening, which is essential to open competition and spread Internet technology. The Internet is improving the efficiency of developing countries and improving market integration. Developed countries have long been leaders in developing countries in telecommunications infrastructure.

**Keywords:** E-business, telecom infrastructure, e-commerce, innovations

### Introduction

The electronic implementation is really delivering the real order in the virtual world. Electronic retailer means a service that offers a variety of products ordered by locations defined by the customer through the Internet (fax or telephone). In this context, e-procurement is a form of virtual sales suitable for a typical fixed business <sup>[1]</sup>. Electronic commerce is one of the greatest opportunities and challenges in the retail industry. Technological changes, the rise of the Internet, people, education and retention of talent are among the toughest jobs in the current retail industry. The nature of the retail business is changing. To be successful in the street competition, retailers must investigate all aspects of their business to ensure profitable return on investment. The new battlefield is electronic retail. New technology means that the integrated online supply chain is becoming the standard for home purchases through the Internet or digital TV. To compete effectively, retailers must actively and aggressively invest in the enormous growth potential of these new channels, and the path to profitability is not clear. Success in the electronic retail market requires effective strategies for B2C and B2B operations, and must be able to seamlessly integrate existing channels in the market with new complementary channels <sup>[2]</sup>.

The cost-effective and well-managed integration of existing systems with new systems and new technologies is one of the main challenges retailers face as they move into the future. Retailers have taken retail e-commerce as a strategic priority and are following the B2C initiative more than ever. Retailers use the website to provide information to current customers and make inquiries online <sup>[3]</sup>. Channel convergence allows retailers to implement integrated store systems. The efforts of System integration will be a priority for retailers in the next two years. Customers who buy multiple channels, such as catalogs, kiosks, stores and websites, expect consistent levels of service and a more consistent experience. Retailers that can provide the highest level of integration and access to information can leverage their investments to improve their shopping experience. They become more valuable to long-term customers <sup>[4]</sup>.

### E-commerce in India

Today's business is at the forefront of electronic commerce. Most people think that electronic commerce means buying online. But online shopping is only part of the image. This term also means buying and downloading software without online purchase, bonus transaction or store. In addition, electronic commerce includes B2B connections that facilitate the purchase of large companies. Electronic commerce is generally described as the purchase and sale of electronic products and services <sup>[5]</sup>. The main means of e-commerce is the Internet and the World Wide Web, but the use of orders by email, fax and telephone is becoming more frequent.

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Electronic commerce is an application exchange and communication technology between partners seeking commercial purposes. E-commerce can be defined as a modern business methodology that improves the quality of goods and services, while reducing costs, streamlining the provision of services and satisfying the needs of organizations, traders and consumers <sup>[6]</sup>.

Electronic commerce involves buying and selling information, products and services through computer networks. A key element of electronic commerce is the processing of information. The impact of electronic commerce is already evident in all areas of the business, from customer service to the design of new products. Promote new types of business processes based on information that customers can reach and interact with, including online advertising and marketing, online ordering, and online customer service. In addition, order management and interactions with a variety of suppliers, businesses and business partners (generally those in which the costs of products and services add significant additional costs) <sup>[7]</sup>. The Gartner Group predicts that by April 2001, B2B e-commerce in the Asia-Pacific region will reach \$ 22 billion this year. In 2000, this figure was \$ 96.8 billion, representing 22% of the world total. In 2005, Asia-Pacific will account for 28% of B2B e-commerce and electronic transactions will increase to \$ 2,400 million <sup>[8]</sup>. According to a recent remarketer report published in May 2001, the number of Internet users in the Asia Pacific region will increase from 48.7 million in 2000 to 173 million in 2004. According to the report, the number of Internet users in the India is 5.8% (e Marketer, May 10, 2001) throughout the Asia-Pacific region. The evolution of India, especially the Asia-Pacific region, should be revised. The Government of India has long recognized the need for the information industry and the development of the information infrastructure to be the driving force of economic growth. The diffusion of IT applications throughout the economy and society will help economic growth <sup>[9]</sup>. E-commerce applications facilitate the integration of countries with electronic e-market markets. In recent years, the government has established a liberal policy for the development and growth of the IT industry. The IT sector as a whole has grown at a compound annual growth rate of approximately 30 per year in recent years. Total production in 2001-2002 was US \$ 809 billion (US \$ 17.3 billion), of which software exports amounted to Rs.3655 billion (US \$ 7.8 billion). The National Association of Software and Services Companies (NASSCOM) recently published a survey to evaluate e-commerce scenarios in India. According to a preliminary survey, the volume of e-commerce transactions in India was approximately 45 billion KRW (Rs) in 2015 <sup>[10]</sup>.

### Initiatives for E-Commerce Capacity

In this book, Rs 50 Crores contributed to Internet or B2C retail transactions, and Rs 400 Crores contributed to B2B transactions. With the adoption of the IT regulatory framework (IT Law and digital signature) and the improved Telecom infrastructure, PC adoption rates will be able to create critical e-commerce in the next two years. According to global standards, inter-company workflows are expected to form ongoing e-commerce transactions in India. So, electronic commerce is not just a western version. The most prominent and recognized feature of electronic commerce is the taste of the world. Obviously, electronic commerce has

begun to show real potential in India. On the one hand, e-commerce in India is becoming a popular product around the world, but e-commerce companies leave a unique mark on the competitiveness of technology, viable business models and entrepreneurship <sup>[11]</sup>. E-commerce is in fact India allows you to adjust e-commerce in your local business and quickly participate in e-commerce to export your software to other countries. The twin assets of India (software industry and rapid restructuring industry) have been taken into account.

- As of September 2002, there was a PC base of 7.5 million PCs.
- More than 80 per cent of standalone PCs sold during last two years were driven by the need to access the Internet.
- Ninety one per cent of India's corporate web sites are located overseas.
- Internet access continues to be most widespread amongst the 18-24 year age group. However, all age groups have seen vast increases in access over the last 18 months. A significant development is that almost 11 per cent of people over the age of 40 now access the Internet.
- Males continue to outnumber females in accessing the Internet at 77 per cent compared to 23 per cent. This has however increased from the ratio of 82:18 in June 1999.
- The Internet and e-commerce industry employs approximately 82,000 people. These include web developers, web designers, system analysts, ISP infrastructure providers, marketing staff, e-software professionals, etc. It is projected that by March 2003, the Internet and e-commerce industry would employ over 300,000 people <sup>[12]</sup>.
- India has about 1.6 million households connected to the Internet.
- Internet users on an average are estimated to be accessing the Internet for 6 hours a week.
- The profile of Internet users in India is dominated by:
- The professional/corporate segment, which accounts for around 43 per cent of Internet usage.
- Inching close behind is the student community represented by school and college goers. This segment contributes close to 38 per cent of Internet surfers.
- Over half (59.2 per cent) use the Internet as an information resource, 11.3 per cent use it as an educational tool and just under 8.2 per cent use it for entertainment.
- When asked what are the most frequently used services online, 73.4 per cent answered e-mail, 77 per cent answered search engines and 23 per cent said they use it for downloading/ uploading software <sup>[13]</sup>.
- Of the total Internet users, around 20 per cent own credit cards and around 14 per cent own mobile phones. According to the NASSCOM survey, considering the interest the Government is taking in the growth of the market, e-commerce in India will witness a significant jump over the next three years.
- Based on these preliminary findings, experts have concluded that penetration of Internet and e-commerce transactions in India will increase by leaps and bounds. It is being stated that in the case of business-to-business transactions, the Indian industry will reach online penetration of 5 per cent by 2003.

YEAR	Total E Commerce Transaction	B2C	B2B
	RS IN CR.	RS IN CR.	RS IN CR.
1998-1999	131	12	119
1999-2000	450	50	400
2000-2001	1200	100	1100

It is expected that revenue streams will increasingly coincide with emerging global models. This means that most of the revenue comes from the transaction, and advertising revenue will generate fewer transactions and the small amount will be obtained in advertising revenue. By the year 2003, it is expected that more than 75% of the revenues of the B2C Internet business will be generated by the transactions. Advertising revenue represents approximately 8% of the total additional expense incurred by your company. Analysts also believe that one of four non-resident Indians (NRI) will buy on Indian-based websites for 2003 <sup>[14]</sup>.

### IT companies

Some of the preliminary findings on e-commerce/e-business software exports potential are as follows:

- In the year 1999-2000, Internet and e-commerce related software and services export from India brought in US\$ 500 million out of an estimated US\$ 4 billion software and services exports.
- Supply Chain Management optimization is one of the strongest drivers of the global e-commerce solutions market, as it spurs business-to-business transactions. More than 68 per cent of Indian software houses have informed of strong expertise in supply chain and distribution management solutions.
- Almost 32 per cent of IT company respondents have identified web based consumer business as a major opportunity area, with expected paybacks beginning in three to four years <sup>[15]</sup>.

### Some of the emerging hot areas of e-commerce services are

- Legacy application integration;
- Internet application integration;
- Customer relationship management (crm),
- customer service management (csm),
- Enterprise resource planning (erp)
- And electronic data interchange (edi)
- Migration to web based models;
- New it frameworks and
- Integration with business strategy (strategic it consulting);
- E-commerce training services,
- Business web site development and maintenance.

The user side, e-commerce means business. Some of the highlights of the domestic e-commerce scenario based on the findings of NASSCOM's survey include the following <sup>[12]</sup>:

- Among user organizations, more than 90 per cent expressed keen awareness about the increasing adoption of e-commerce and its potential benefits.
- More than 55 per cent of corporate respondents said that e-commerce transitions were integral of their corporate plans. Of these nearly 85 per cent were industries which did not have direct or frequent contact with end consumption.

- About 23 per cent of top 500 companies in India already have started some form of e-commerce.

These have been facilitated through the upgradation of existing IT systems or fresh installations configured or e-commerce transactions <sup>[11]</sup>.

### SMEs segment In India

There are around 3.4 million SMEs, 42% of manufacturing income and 35% of national exports. There are more than 17 million SMEs. The Indian SME sector is changing rapidly due to the large corporations that limit with new market routes. With a healthy clientele of large corporations, Computer Associates has a tremendous plan to enter the security market with a sector of SMEs of 10 million rupees in India that offers end-to-end security solutions for small businesses. There is a large untapped market in India, and existing security products are scarce and fragmented <sup>[8]</sup>. The SME market is the right time to participate, as it is the largest investor in IT, and SMEs in India are pushing more and more customers to build a secure e-biz infrastructure. Small businesses see the benefits of electronic commerce as an extension of their geographic reach, providing a larger potential market for the sale of products and services. Early adoption of electronic commerce some of the key industries that are probably financial (stock exchanges and banks), automotive, retail, travel, computing and manufacturing. In the SME sector, some of the concerns about e-commerce are frightening or undermine the existing customer base and the technical problems caused by the lack of computer experience and the hardware and software costs required. These are some of the highlights of the survey conducted by NASSCOM to determine the state of Internet proliferation and e-commerce in India <sup>[5]</sup>.

### E-commerce growth during the year 2000-2001

Two major Industry Associations produced separate reports one-commerce in India. Both the reports came out around the same time, namely June-July 2001. One was prepared by the National Committee on E-Commerce set up the Confederation of Indian Industry (CII), while the other was commissioned by the NASSCOM and prepared by the Boston Consulting Group. Both the reports are optimistic about the growth of e-commerce in India. The Confederation of Indian Industry (CII) report estimates the volume of e-commerce to grow to Rs 500 billion (US\$ 10.6 billion) in the year 2003, out of which B2B will be Rs 420 billion (US\$ 9 billion) and B2C will be Rs 80 billion (US\$ 1.7 billion) (CII, 2001). The NASSCOM-BCG Report, on the other hand, estimates for the same year that the total volume of e-commerce will be Rs 1,950 billion (US\$ 41.5 billion), out of which Rs 1,920 billion (US\$ 41 billion) will be on account of B2B and Rs 3 billion (US\$ 64 million) will be on account of B2C (NASSCOM and BCG, 2001). E-commerce volume for the year is estimated to be Rs 150-200 billion (US\$ 3.2-4.2 billion) (NASSCOM and BCG, 2001) <sup>[4]</sup>.

The earlier expectations of value creation through pure-play dot-com, large online market sizes, businesses reducing their procurement and inventory costs through B2B have been belied. The euphoria of Internet revolution is over. But there is a deeper realization that the opportunities and threats of the Internet are very real. Organizations that have understood the power of the Internet and have implemented

well thought out business strategies have leveraged B2B and B2C e-commerce to create significant gains in their business. LG Electronics India Ltd. is a case in point. It expects to realize margins up to 1.5-2 per cent through B2B supply chain initiatives on information sharing and procurement efficiencies<sup>[15]</sup>. Amul, a milk cooperative, is successfully using e-commerce to deepen its brand loyalty. Likewise, corporate in the automotive sector are improving their customer relations through this medium. Some of the new names that are rediscovering e-commerce through new portals at relatively low capital cost, without venture capital funding include:

- Key 2 crorepati,
- Music absolute,
- Gate2biz,
- Grih rachna,
- Shaadi online.

Business strategy on the Net is the key to these new portals. The new entrepreneurs are very clear in what they offer. Since they are not setting web sites with a view to sell them later, unlike the first wave of dot-coms, they put in their best efforts to check offerings and their processes before inviting customers in (Business Today [India], September 2001). It has been seen that while the web sites and e-commerce portals are setup by technically-oriented entrepreneurs, they have no experience of the logistics involved in delivering products to distant areas. B2C e-commerce is likely to remain small because of these constraints. In fact, when thee-tailing market grows in size, high delivery costs, logistical bottlenecks as well as regulatory requirements will act as major barriers<sup>[14]</sup>. Coupled with this are the cultural barriers where most shoppers are uncomfortable buying items they are unable to see or touch. Consumer protection is also not very effective. If goods are not delivered after electronic placement of orders, the consumers may have to follow long process for redressal of their grievances. These are some of the limiting factors for B2C e-commerce. Domain names can now be registered in Indian languages too. Vishwabharat.com offers domain names using the alphabet in Indian languages. These will be valid like other domain names and are expected to help non-English speaking people take advantage of the benefits of Internet. Currently, one can register in Hindi or Kannada scripts. Most of India's banks and financial institutions have set up web sites. Online stock trading has also taken off in India with the Securities and Exchange Board of India (SEBI) making efforts to standardize message formats and address issues pertaining to technology, connectivity, security, surveillance and monitoring<sup>[8]</sup>. Companies such as <indiabulls.com> and <5paisa.com> actively promote online trading on their web sites. A number of web sites cater exclusively to the expatriate Indians and offer valuable information on investment decisions, real estate, etc. Online portals have been set up for B2Be-commerce exchanges in the areas of automobiles, steel industry, construction, insurance, shipping and pharmaceuticals. A number of sites also deal in auctions. Most of the sites are in B2B segment, while there are some in the B2C segment as well. Vortals which cater to specific information needs and provide services across areas as diverse as cooking, women, online worship, specific sports (e.g. cricket), and matrimonial, jobs, travel and tourism in India have also appeared in large numbers. Entertainment and games too have moved online

and a number of portals catering to these areas are already in business. A number of e-payment gateways have sprung up for B2B and B2C e-commerce financial transactions<sup>[2]</sup>. There are four payment gateways operated by ICICI Bank, Citibank, HDFC Bank, and Global Trust Bank. But all these are closed user groups. There are no real time settlement systems available to let the users of one gateway settle their accounts with users of another group. No inter-bank settlement is possible as of now. This delays e-commerce transactions. The B2C transactions can, however, be enabled by the credit cards which are growing in number. The credit cards today number 5.1 million with total spending of Rs 81 billion (Business India, 14-27 May 2001)<sup>[16]</sup>.

The industry is alive to the need of being active players in the Internet world. It has aggressively participated in the recent round of appointment of the Internet Corporation for Assigned Names and Numbers (ICANN) of new registrars in this region. Two companies have been accredited as registrars in the .com domain. While registration of web sites for .com, .org and .net could earlier only be done through Network Solutions Inc., a number of new web sites such as <123registry.com> and <planet4domains.com> are now offering this service in India. It may be added here that the software industry which is the greatest strength of India grew at a compound aggregated growth rate of nearly 50 per cent during the last decade. The Indian software and services industry has attained a reasonably robust growth of 30 per cent even during the last year which was a year of turbulence, tragedy, terrorism and slowdown in world economy. The software exports rose to US\$ 7.8 billion in the year 2001-2002 from US\$ 6.3 billion in 2000-2001<sup>[12]</sup>. Majority of the Fortune, 500 companies have outsourced their software requirements to India. The software solutions from India have been moving up the value chain and are engaging more and more electronic commerce and web based technologies. Internet and e-commerce related software and services export from India accounted for nearly US\$ 1200 million in the year 2000-2001. This figure is expected to rise to US\$ 3 billion by 2003-2004 (NASSCOM, 2001). Many of the software companies are specializing in supply chain and distribution management solutions which are the key drivers of the global e-commerce solutions market. The NASSCOM-BCG Report estimates that the e-solutions market, which worldwide is currently of the order of US\$ 180 billion, will grow to US\$ 640 billion in 2005. India should be able to tap up to US \$ 4 to 13 billion in the year 2005. This segment includes SCM, CRM, knowledge management (KM), Internet services and Application Services Provider (ASP)<sup>[1]</sup>.

Players, procedures and problems Private sector participation should be explored in e-developmental initiatives to ensure their sustainability over the long run. There are several B2B players. Satyam has developed an engine that can be used to develop platforms for any industry. The biggest currently in operation is the steel industry The Steel Exchange, auto companies, are coming together to form eax.com (auto exchange). Probably the biggest 'internal B2B' player is Maruti, which already does a large part of their supply-chain side purchasing and dealer-networking online. Some other successful cases are: Hindustan Lever Ltd., General Motors and Godrej<sup>[17]</sup>. The most well-known B2B e-commerce technology, such as i2 technology and Commerce One, are yet to be adopted by

Indian corporate. These technologies are presently too expensive and may not result in any return on investment due to lack of other infrastructure and services such as third party and fourth party logistics in the country. There is still a lot that the government can do, starting with resolving the inter-bank settlement standards to enable online payments. Next could be to strengthen the telecom infrastructure (especially in the last mile). Another important thing would be to recognize online contracts, which has now been done in India. Some of the barriers to e-commerce adoption in India include the following <sup>[17]</sup>:

- Limited Internet access among customers and SMEs (current level of internet usage is low among businesses and users)
- Poor telecom and infrastructure for reliable connectivity (Internet connectivity slow, access costs are high and connections are unreliable)
- Multiple gaps in the current legal and regulatory framework
- Multiple issues of trust and lack of payment gateways (privacy of personal and business data connected over the Internet not assured; security and confidentiality of data not in place)

#### **Telecom developments during the last five years**

The telecom sector has seen continued liberalization. Telecom services, which were the sole monopoly of the Government till 1994, were opened to the private sector. The National Telecom Policy announced in 1994 separated the policy making functions of the government from those of providing services, and allowed the private sector to provide telecom services. It also recognized the need for the establishment of an independent Telecom Regulator. As a result, a number of private companies were given licenses for providing mobile telephone services, and more recently for fixed-line telephone services. International gateways were permitted to be set up by private operators. The policy was further liberalized in 1999 <sup>[4]</sup>. The Department of Telecommunications which was providing telecom services as a sole monopoly was corporatized in the year 2000 and was made to compete with the private sector on a level playing field. The National Long Distance Services on the domestic routes, that were the sole monopoly of the government, were also opened to the private sector. Existing backbone networks of public and private companies like power grid, railways and gas authorities have been allowed to set up national long distance carriers for data transmission. A large data communication backbone with extremely high bandwidth is in the process of making. In January 2001, the government paved the way for unrestricted competition in basic phone services. The move will help consolidate the position for those telecom companies that can offer basket of services – basic, cellular, Internet, national long distance and broadband – to their customers with flexible tariff packages and single billing as the country moves towards convergence <sup>[6]</sup>. The basic telecom players will also be allowed to offer mobile wireless in local loop (WLL) services. The Telecom Policy also recognizes the convergence of different media, and has permitted direct inter-connectivity among service providers. Two-way communication through cable has been permitted for voice, data and information services. A cable service provider can also obtain a license as a fixed service provider. In fact, the country is moving towards full

convergence with the Convergence Bill having been introduced in Parliament. This takes care of increasing convergence between telecom, IT and broadcasting services. The Communications Convergence Bill, 2001 envisages the setting up of the Communications Commission of India (CCI) to promote the plurality of different media, forms and structure and provide access to a range of competing viewpoints and information resources, in addition to ensuring consistent approach to regulation of new activities in the era of convergence <sup>[12]</sup>.

These telecom policies have had a positive effect in the last few years. The tele density rose to 5 per cent in September 2002 and is projected to grow to 7 per cent by the year 2005 and to 15 percent by 2010. The rural density is expected to grow from the current level of 0.8 per cent to 4 per cent by 2010. (The urban tele density is around 10 per cent). The number of mobile phones is multiplying at a very fast rate and is at present 8.5 million. The telecom sector saw an investment in the range of US\$ 4.5 to 5 billion by the government and its agencies alone during the last two years. By 2005, a total investment of US\$ 37 billion will be required, and this figure will rise to US\$ 69 billion in the year 2010 (Department of Telecommunication, India, 2001; and Indian Express [Bombay], 7 June 2001) <sup>[4]</sup>. Many of the private companies have set up national long distance backbone as also fiber optic networks to wire the major cities and the trunk routes for providing all kinds of services. A number of them have also set up international gateways for providing bandwidth to the ISPs.

Building of Small and Medium Enterprises companies like Reliance Telecom, Power Grid Corporation, Railways, Bharti Telecom, BPL and GAIL are creating cross-country optical fiber networks for broadband services. Even non-telecom players like Enron, Zee TV, and Spectra net are making huge investments in the broadband sector. It is estimated that investments of the order of Rs 318 billion (US\$ 6.8 billion) have been made by the year 2001. International connectivity too is attracting huge investment. Videsh Sanchar Nigam Ltd. (VSNL), which was owned by Government till recently, had a monopoly till recently. It invested Rs 109 billion for a bandwidth of 59 gigabits per second (Gbps) <sup>[11]</sup>. VSNL as well as Hindustan Tele printers has since been privatized in March-April, 2002. The private investment of about US\$ 1.4 billion by Bharti Telecom, Dish net DSL has created a bandwidth of 16.08 tera-bits per second (Tbps) connecting India with the world through Singapore, Jakarta, Guam, Portland, Los Angeles, Hawaii and Japan. Reliance Telecom and Tata Access are also likely to provide international connectivity in near future. A number of companies are providing broadband access over the cable. Set top boxes and cable modems can enable existing TVs to act as Internet devices. All major cities are being wired with optical fibers to provide cable TV services, and broadband Internet. The existing 98 million TV sets have the potential of accessing Internet. As a result of these policies a number of ISPs have come into being which have spearheaded the growth of Internet connectivity in a big way <sup>[1]</sup>. Over 170 ISPs are fully operational in the country which have taken the number of Internet connections from a mere half a million three years ago, to 3.5 million by September 2002. Each Internet connection is used by multiple users. The estimated number of Internet users is 17 million. By 2005, Internet connections are expected to go up to 25 million while the Internet users will rise to over 100 million.

The NASSCOM survey finds that there are over 400 cities that have at least 2000 Internet connections. This number will double in the next one year. This shows that Internet has penetrated well beyond the metros to smaller cities and towns across the country. The current level of Internet bandwidth available in India stands at 10 Gbps. By 2004, the bandwidth demand will be at the level of 100 Gbps. By the year 2005, data traffic which is 5 per cent today, will account for 50 per cent to 65 per cent. Wireless, broadband and convergence of media are emerging in response to the demands of the growing number of Internet users in the country.

### Conclusion

The world average of teledensity is 15 per cent compared to the developed world average of 55 to 60 percent. Same is true of PCs, Internet connections, and the number of Internet hosts. All these traditional indicators for India as seen above are still small. But the total number of Internet connections is large in absolute numbers. Large enough to have a critical mass of 10 to 20 million users to be able to make an impact on e-commerce and e-governance. In the next 3 to 5 years, India will have 30 to 70 million Internet users which will equal, if not surpass, many of the developed countries. Internet economy will then become more meaningful in India. The number of e-transactions will be large enough to sustain the Internet economy

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