Measuring the Internet (User) Growth in Thailand

Chalermpol Charnsripinyo

National Electronics and Computer Technology Center (NECTEC), Thailand

NECTEC
a member of NSTDA

AINTEC2008, 18 November 2008, Pullman Bangkok King Power, Bangkok, Thailand

Outline

- Introduction
- The Development of Internet in Thailand
- Internet Services in Thailand
- Measuring The Internet Growth
- Conclusions

About Thailand

- ## Population: 65.4 Million
  - ### Bangkok 6.87 M (10.5%)
  - ### Central 15.86 M (24.3%) [not included Bangkok]
  - ### North 11.71 M (17.9%)
  - ### North East 22.02 M (33.7%)
  - ### South 8.89 M (13.6%)

Thailand Facts & Figures

Total area: 514,000 sq km
- water 2,230 sq km
- land 511,770 sq km

Land boundaries: total: 4,86:
Borders:
- Burma 1,800 km
- Cambodia 803 km
- Laos 1,754 km
- Malaysia 506 km

Coastline: 3,219 km
Land use:
- arable land: 29.36%
- permanent crops: 6.46%
- other: 64.18% (2001 est)

Irrigated land:
47,490 sq km (1998 est)
Waterways: 4,000 km
Ports and harbours:
Bangkok, Laem Chabang, Pattani, Phuket, Sattahip, Si Racha, Songkhla
Airports: 109
Hospitals: 1,392
(Bangkok 171, provinces 1,221)
- Government hospitals: 919 (93,493 beds)
- Private hospitals: 473 (40,523 beds)

GDP US$ 524.8 billion
(based on purchasing power parity)
- GDP per capita US$ 8,100
GDP by sector
- Agriculture: 9%
- Industry: 44.3%
- Services: 46.7%

Labour force by occupation:
Services 40.4%
Industry 17%
Agriculture 42.6%
- Total labour force: 36.3 million
- Unemployment rate: 1.3%

Notes:
Population data as of 2005 estimates
GDP, employment and income data as of Nov 2005

Source:
National Statistical Office, Bank of Thailand, NESDB, Office of the Education Commission, CIA World Factbook

Population: 65,444,371
65 years and over 4,895,045 — 7.5%
0-14 years: 15,621,934 — 23.9%
15-64 years: 44,927,392 — 68.6%

Median age: 30.88 years
Population growth rate: 0.87%
Birth rate: 15.7 births/1,000 population
Death rate: 7.02/1,000
Infant mortality rate: 20.48/1,000 live births
Life expectancy at birth: 71.57 years
Male: 69.39
Female: 73.88

Pay scales
Average monthly wages — Unit: baht/month

Industry	Q1. 05
Agricultural	**3,019**
• Agriculture, hunting and forestry	2,968
• Fishing	4,248
Non-Agricultural	**7,948**
• Mining and quarrying	7,646
• Manufacturing	6,420
• Electricity, gas and water supply	17,841
• Construction	4,706
• Wholesale and retail trade, repair business	6,760
• Hotels and restaurants	5,680
• Transport, storage and communication	11,752
• Financial intermediation	19,326
• Real estate, renting and business activities	9,571
• Public administration and defence	11,375
• Education	14,883
• Health and social work	10,804
• Other community and social work	6,311
• Private households with employed persons	4,068
• Extra-territorial organisations and bodies	5,753
• Unknown	12,341

Source: National Statistical Office

Economic growth
Unit: percent

	2004 Q1	Q2	Q3	Q4	2004	2005 Q1	Q2	Q3
Agriculture	-3.3	-9.9	-5.5	-2.1	-4.8	-8.7	-4.2	4.4
Agriculture, hunting and forestry	-6.7	-10.4	-4.7	-4.4	-0.4	-11.2	-6.0	4.9
Fishing	15.1	-6.9	-9.0	12.0	4.0	2.9	5.6	1.8
Non-agriculture	7.9	8.1	7.4	6.4	7.4	4.5	5.4	5.4
Mining	5.4	5.3	3.4	5.0	4.7	5.9	7.7	13.5
Manufacturing	10.3	7.2	8.2	7.1	8.2	3.2	6.5	6.2
Electricity, gas and water	4.5	6.9	8.6	5.4	6.4	8.2	5.2	4.3
Construction	12.0	6.6	5.5	18.1	9.9	12.7	9.6	2.9
Wholesale and retail trade	5.4	5.3	5.7	5.5	5.5	4.0	3.0	2.8
Hotel and restaurants	1.6	28.2	16.2	6.0	12.0	-1.8	3.1	2.8
Transport, storage and communication	5.8	10.4	8.6	6.1	7.6	4.6	5.3	5.2
Financial intermediation	12.2	15.7	10.4	14.5	13.1	17.7	8.6	10.1
Real estate, renting and business activity	6.3	7.9	8.1	5.9	7.0	6.3	4.1	3.3
Public administration and defence	3.7	3.7	-0.6	-0.5	1.6	4.1	0.6	2.4
Education	1.4	5.8	1.6	-1.6	1.8	3.0	2.2	3.8
Health and social work	3.8	5.1	-3.5	-0.2	1.1	7.2	3.7	11.6
Other community, social and personal services	23.2	14.5	8.5	4.7	12.2	3.8	6.6	9.2
Private household	3.1	4.1	3.7	3.7	3.3	2.6	-1.9	1.0
GDP	6.7	6.4	6.3	5.3	6.2	3.2	4.6	5.3

Source: National Economic and Social Development Board

The labour force

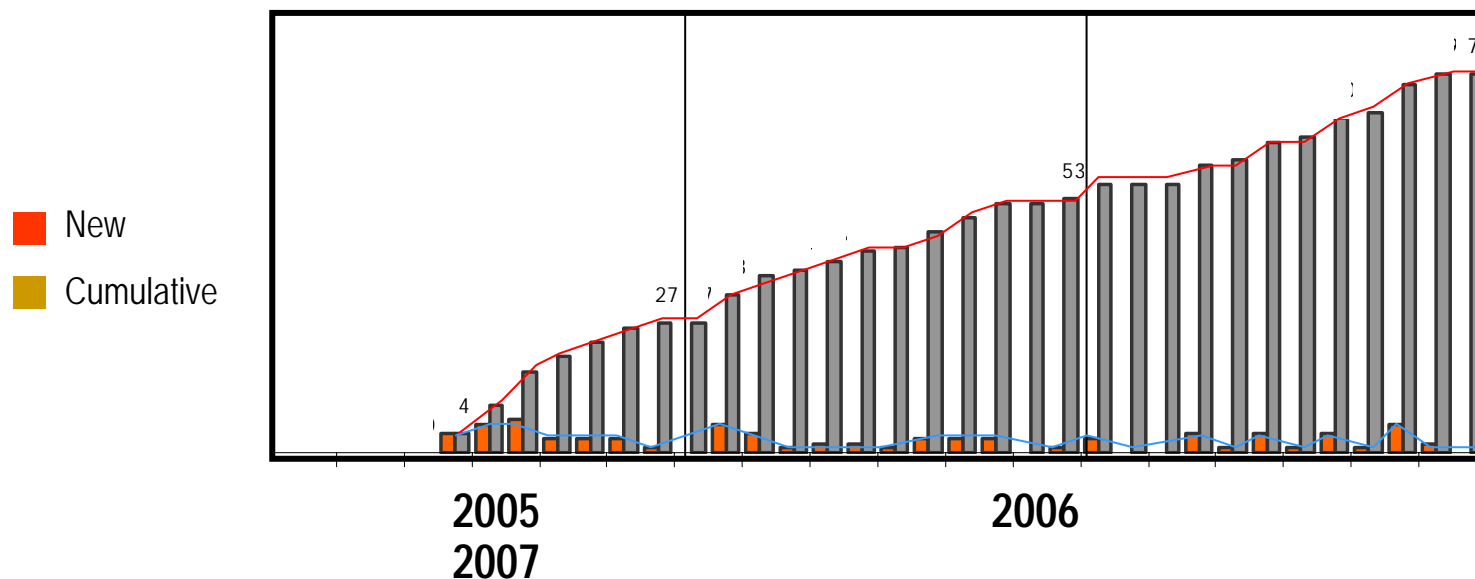|	2003	2004	3Q05
Population	64,006.2	65,082.5	64,884.0
under 15 years old	15,692.8	15,749.8	14,879.8
over 15 years old	48,313.4	49,332.6	50,004.3
Labour force	34,901.7	35,717.8	36,842.7
Employment	33,841.0	34,728.8	36,302.4
Agriculture	13,880.1	13,633.9	15,448.6
Non-agriculture	19,960.9	21,094.9	20,853.8
Unemployed	754.2	739.2	495.8
rate	2.2	2.1	1.3

Source: Bank of Thailand — Unit: '000

Introduction

◆ The Internet has been growing rapidly. Measuring the Internet growth is a subject of interest.

◆ The International Telecommunication Union (ITU) has defined a number of Internet indicators such as Internet users, International Bandwidth, etc.

◆ Internet indicators are essential for quantifying the state of the Internet.

➢ They are often used to compare and infer the digital divide, ICT development, and competitiveness for each economy.

➢ Some Internet indicators can be used for network planning and making business decision.

➢ However, data and statistics are not easily accessible.

◆ Indicators and approaches for measuring Internet growth in Thailand with collected data and statistics are presented here in different aspects.

The Development of Internet in Thailand

- Before the Internet Liberalization, all Internet Service Providers (ISPs) must be a joint venture with CAT.
  - Every ISP bought international leased circuits to the Internet through CAT.
  - CAT also set up guideline pricing for ISPs
  - There were totally 18 ISPs receiving CAT's operating licenses.
- Telecommunications services were liberalized after the Broadcasting and Telecommunication Services B.E. 2543 (2000) and the Telecommunications Business Act B.E. 2544 (2001) entered into force
  - This Act is now implemented by the National Telecommunications Commission (NTC) formally established on October 1, 2004.

The Development of Internet in Thailand

◆ As of May 2008, there are totally 167 Telecommunications business licenses issued by the National Telecommunication Commission.

➢ there are 79 Type-One Licenses for Internet Service Providers, 11 Type-Two Licenses for operating International Internet Gateway (IIG) and National Internet Exchange (IX), and 18 Type-Three Licenses for Network Providers

■ New
■ Cumulative

2005
2007

2006

Internet Connectivity Map

Internet Services in Thailand

◆ Internet access services in Thailand are normally classified into

  ➢ Corporate access services are typically provided to organizations or enterprise for business use

  ➢ Home access services are provided to any individual for personal use.

◆ The Internet access technology is varied from low-speed dial-up to high-speed dedicated connection.

  ➢ The service charges mostly depend on the access speed and usage time.

Market shares of Internet Services between Year 2005 -2007
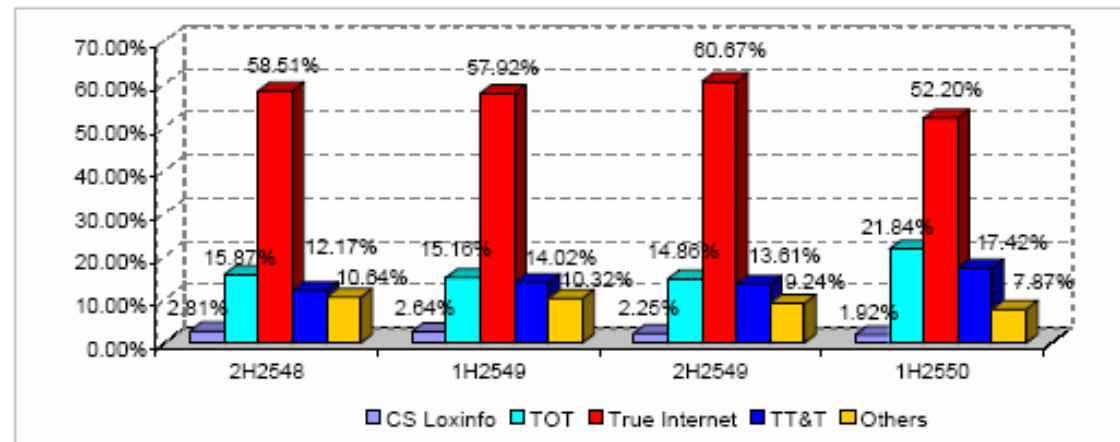
Internet Services in Thailand

◈ Internet subscribers/users continue to migrate from narrowband to broadband Internet access.
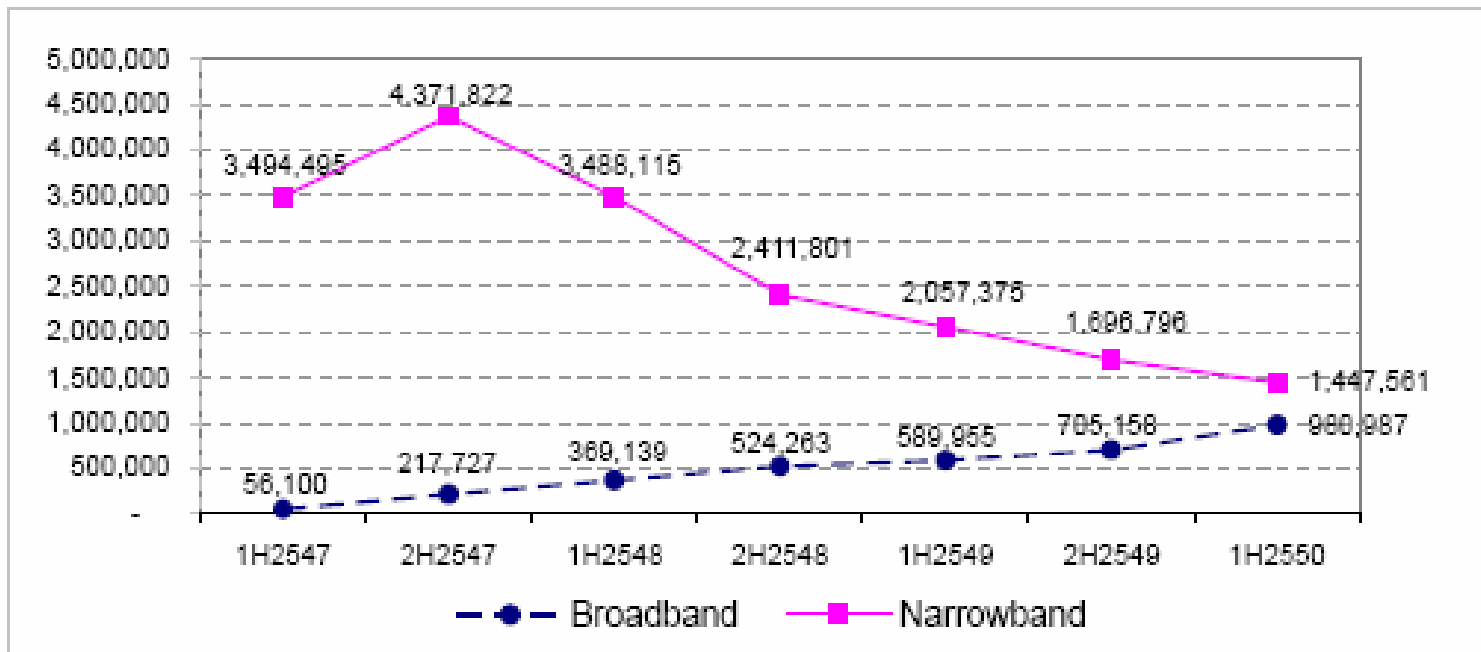
Number of Subscribers for Broadband and Narrowband Internet Services

Measuring The Internet Growth

◆ Internet Address

  ➢ The amount of IP address numbers allocated is observed to monitor the growth of the Internet

Amount of IPv4 address numbers allocated to TH : 15326 Class-C blocks
                                                    or   :   3,892,804 usable IP numbers

Internet Address Allocation

Number of Class-C IP Allocation

	HK
	ID
	JP
	KR
	SG
	TH
	TW
	VN

100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0

2003/11 2004/04 2004/09 2005/02 2005/07 2005/12 2006/05 2006/10 2007/03 2007/08 2008/01

Pie chart:
TH 1.58%
Others 7.16%
SG 2.29%
TW 7.05%
JP 7.87%
HK 9.94%
AU 13.52%
KR 14.94%
CN 35.66%
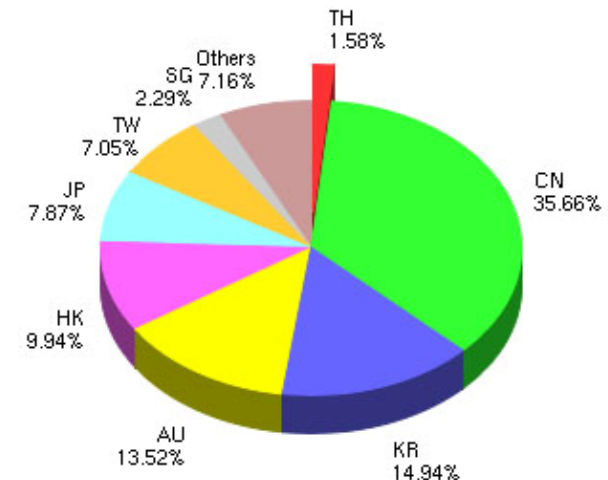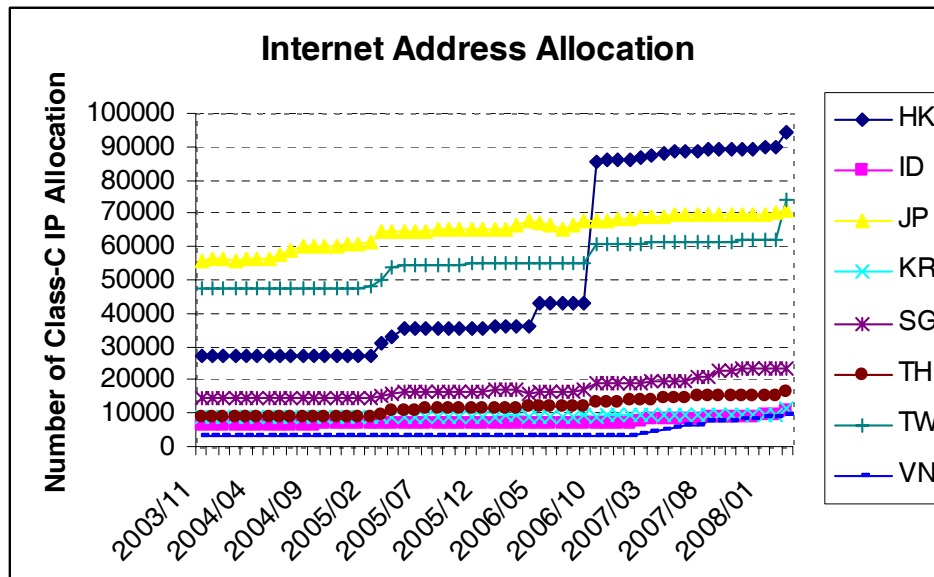
IP address allocations from APNIC

Measuring The Internet Growth

◆ Domain name under .TH

➢ The number of domain name registered under the Top-level domain name ".TH" is also observed as an indicator for the Internet growth.
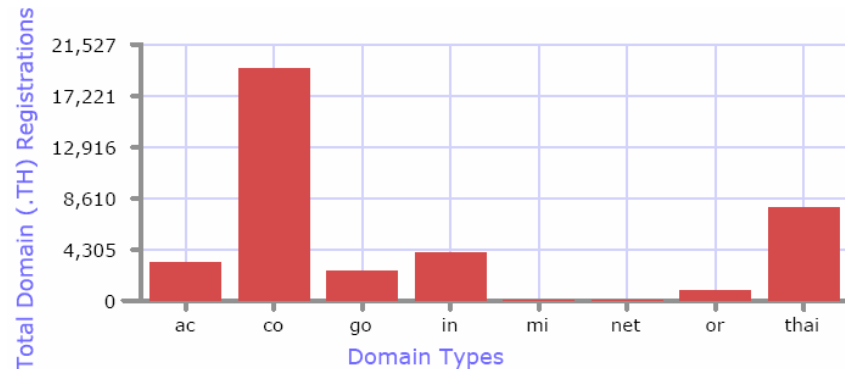
Total registered domain name under .TH : 37,850
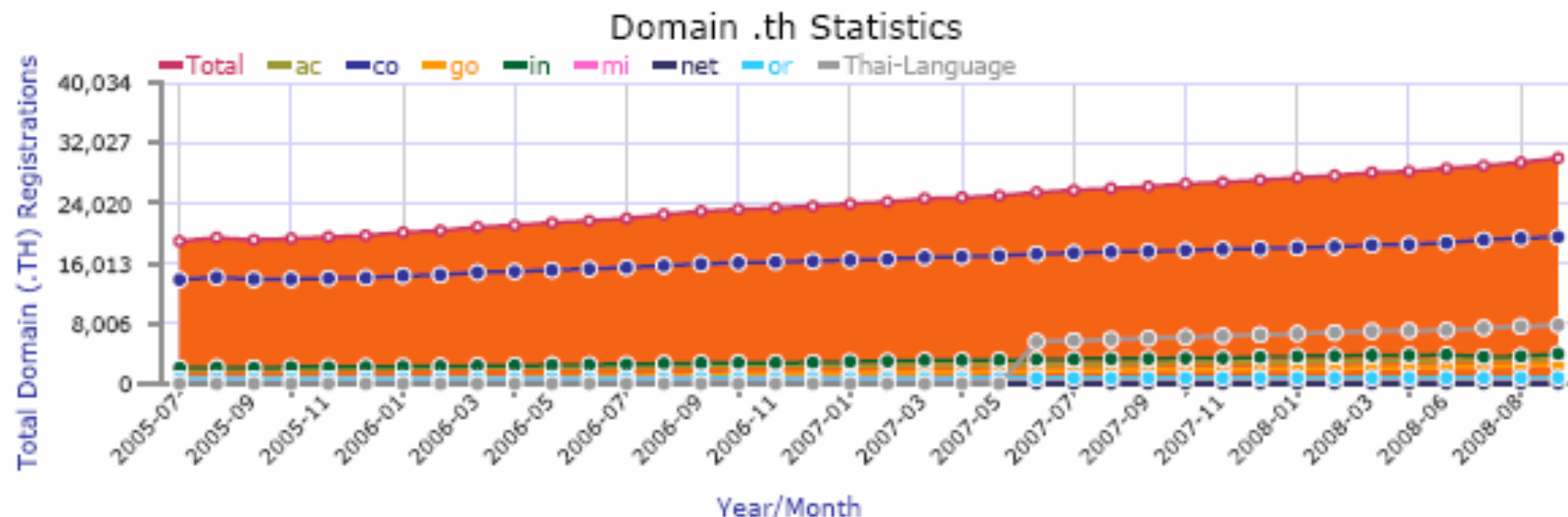
Measuring The Internet Growth

◆ **Internet Traffic**

➢ The international Internet traffic refers to traffic going into and out of IIG and the domestic Internet traffic refers to traffic going to and leaving from NIX

➢ Internet traffic measurement has been a subject of interest. Internet traffic might be used to measure the Internet growth and usage.

International Internet Traffic: 17-11-2008
— Traffic In (Integer) — Traffic Out (Integer)
24 Hours : Max(0.66 Gbps)

Domestic Internet Traffic 17-11-2008
— Traffic In (Integer) — Traffic Out (Integer)
24 Hours

International Internet Traffic

Domestic Internet Traffic
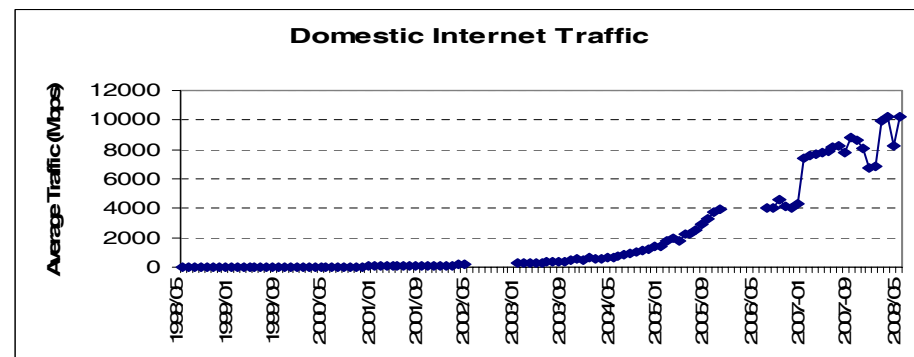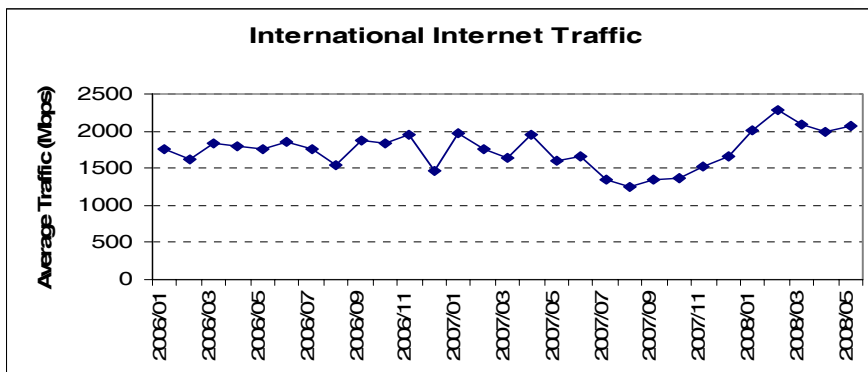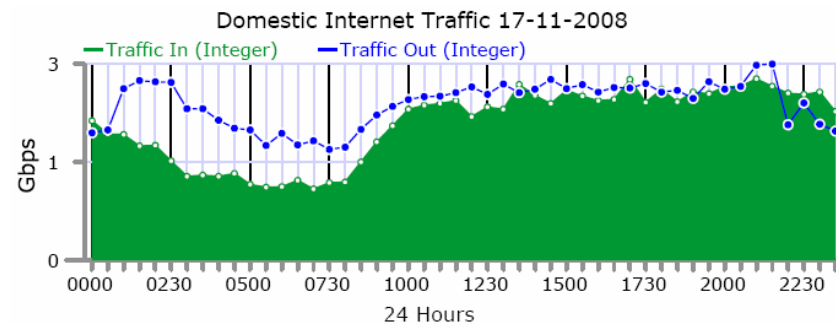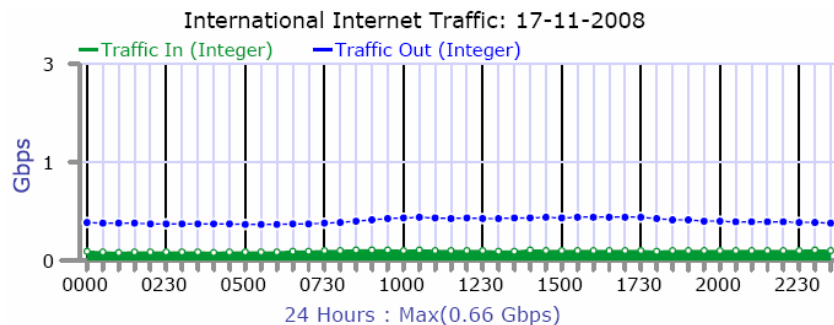
Measuring The Internet Growth

◆ Internet Bandwidth

➢ The ITU defines the International Internet Bandwidth as "Total capacity of international Internet bandwidth is in Mega Bits Per Second (Mbps). If the capacity is asymmetric (i.e., more incoming that outgoing), provide larger capacity.
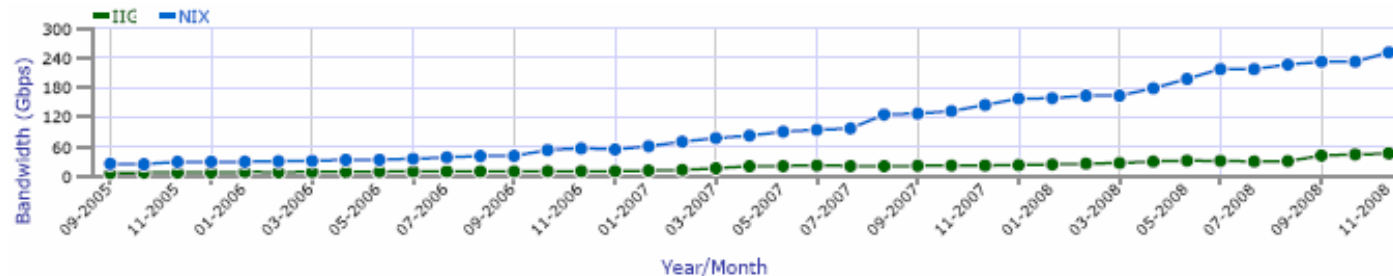
Current International Bandwidth: 45 Gbps,   **Domestic Bandwidth: 251 Gbps**

Measuring The Internet Growth

◈ **Internet User**

  ➢ A number of countries are measuring this through regular surveys. In situations where surveys are not available, ITU recommends to use an estimate which can be derived based on the number of subscribers and the methodology used should be supplied.

Thailand Internet User

Measuring The Internet Growth

◆ **Internet User**

➢ A number of countries are measuring this through regular surveys. In situations where surveys are not available, ITU recommends to use an estimate which can be derived based on the number of subscribers and the methodology used should be supplied.

Year (ปี)	Total (ข้อมูลทั้งหมด)	Source (แหล่งข้อมูล)
2007	13,416,000	NECTEC
2006	11,413,000	NECTEC
2005	9,909,000	NECTEC
2004	6,970,000	NECTEC
2003	6,000,000	NECTEC
2002	4,800,000	NECTEC
2001	3,500,000	NSO/NECTEC
2000	2,300,000	ISP Club/NECTEC
1999	1,500,000	ISP Club/NECTEC
1998	670,000	NECTEC/Internet Thailand
1997	220,000	NECTEC/Internet Thailand
1996	70,000	NECTEC
1995	45,000	NECTEC
1994	23,000	NECTEC
1993	8,000	NECTEC
1992	200	NECTEC
1991	30	NECTEC

Source: http://internet.nectec.or.th
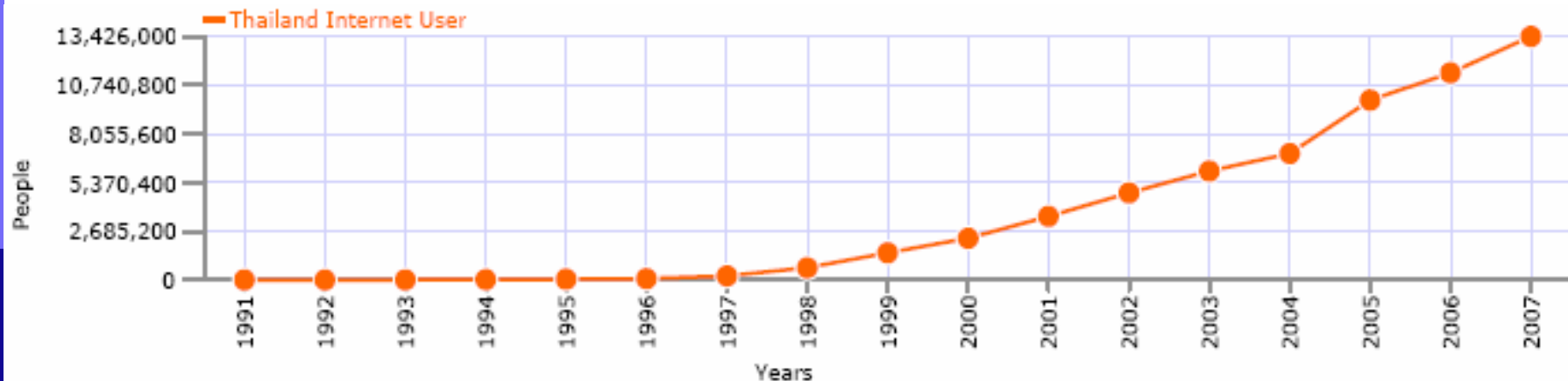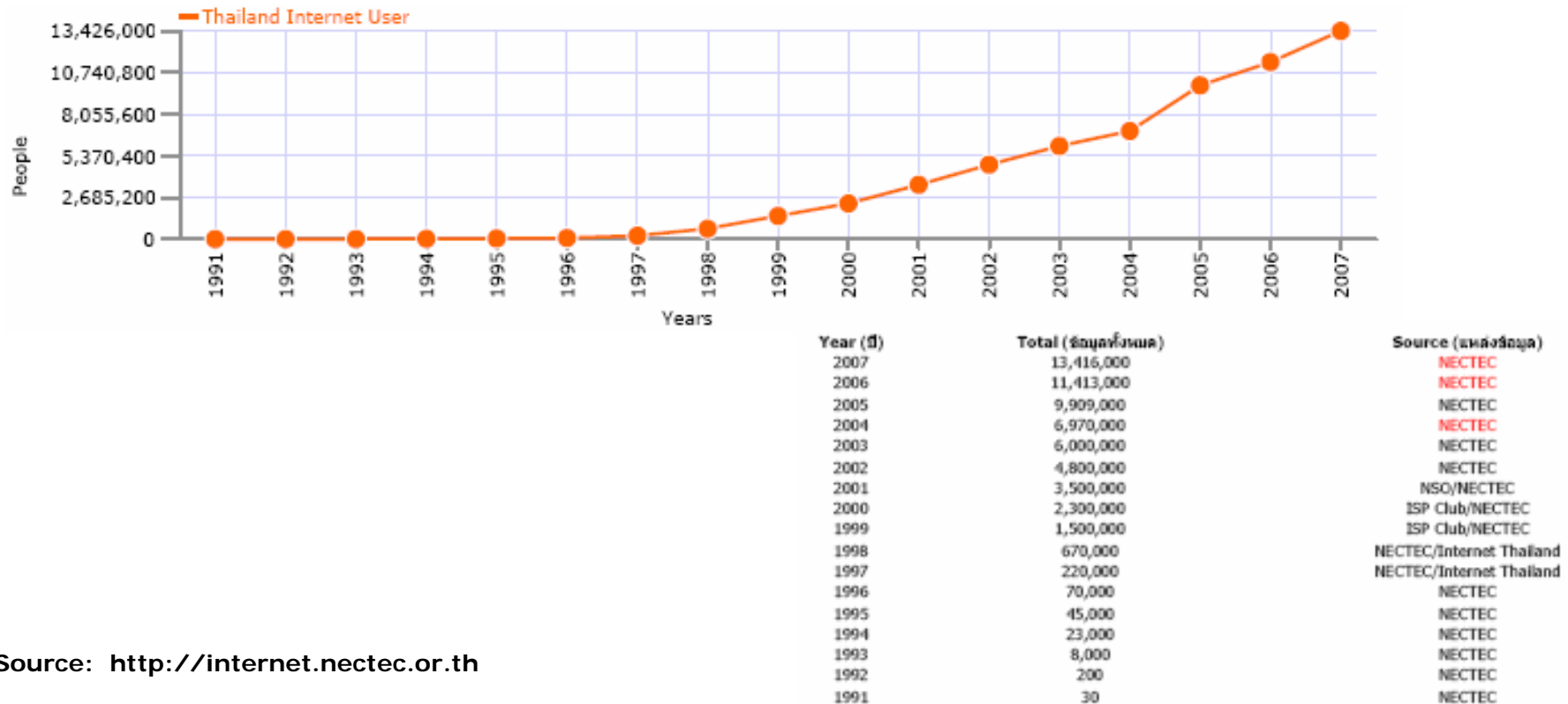
Internet Use Survey

- Internet Use Survey (2006)

  Total Number of surveys : 8.47 Million (14.2%)
  - Bangkok 1.77 M (28%)
  - Central 2.02 M (13.9%)   ; not included Bangkok
  - North 1.58 M (14.7%)
  - North East 2.10 M (10.6%)
  - South 0.97 M (12.3%)

- Source: ICT Household Survey 2006
  [http://service.nso.go.th/nso/g_service/s_survey_49/report_ict49.pdf]
  - Number of Samples: 79,560 Houses
  - Surveyed between July and September 2006

Computer Use & Internet Use Survey

ภาค	ประชากรทั้งสิ้น	ใช้คอมพิวเตอร์		ใช้อินเทอร์เน็ต
	Age > 6 yrs	จำนวน ('000)		
ทั่วราชอาณาจักร	59,508.6	15,392.5		8,465.8
กรุงเทพมหานคร	6,345.7	2,516.8		1,774.4
ภาคกลาง	14,587.2	3,827.0		2,028.6
ภาคเหนือ	10,789.7	2,804.8		1,581.4
ภาคตะวันออกเฉียงเหนือ	19,847.8	4,264.6		2,103.8
ภาคใต้	7,938.2	1,979.2		977.7
	อัตราร้อยละ			
ทั่วราชอาณาจักร	100.0	25.9		14.2
กรุงเทพมหานคร	100.0	39.7		28.0
ภาคกลาง	100.0	26.2		13.9
ภาคเหนือ	100.0	26.0		14.7
ภาคตะวันออกเฉียงเหนือ	100.0	21.5		10.6
ภาคใต้	100.0	24.9		12.3

Source: http://service.nso.go.th/nso/g_service/s_survey_49/report_ict49.pdf

Other Measures of The Internet User

♦ **Estimation based on Internet Bandwidth Growth and Historical data**
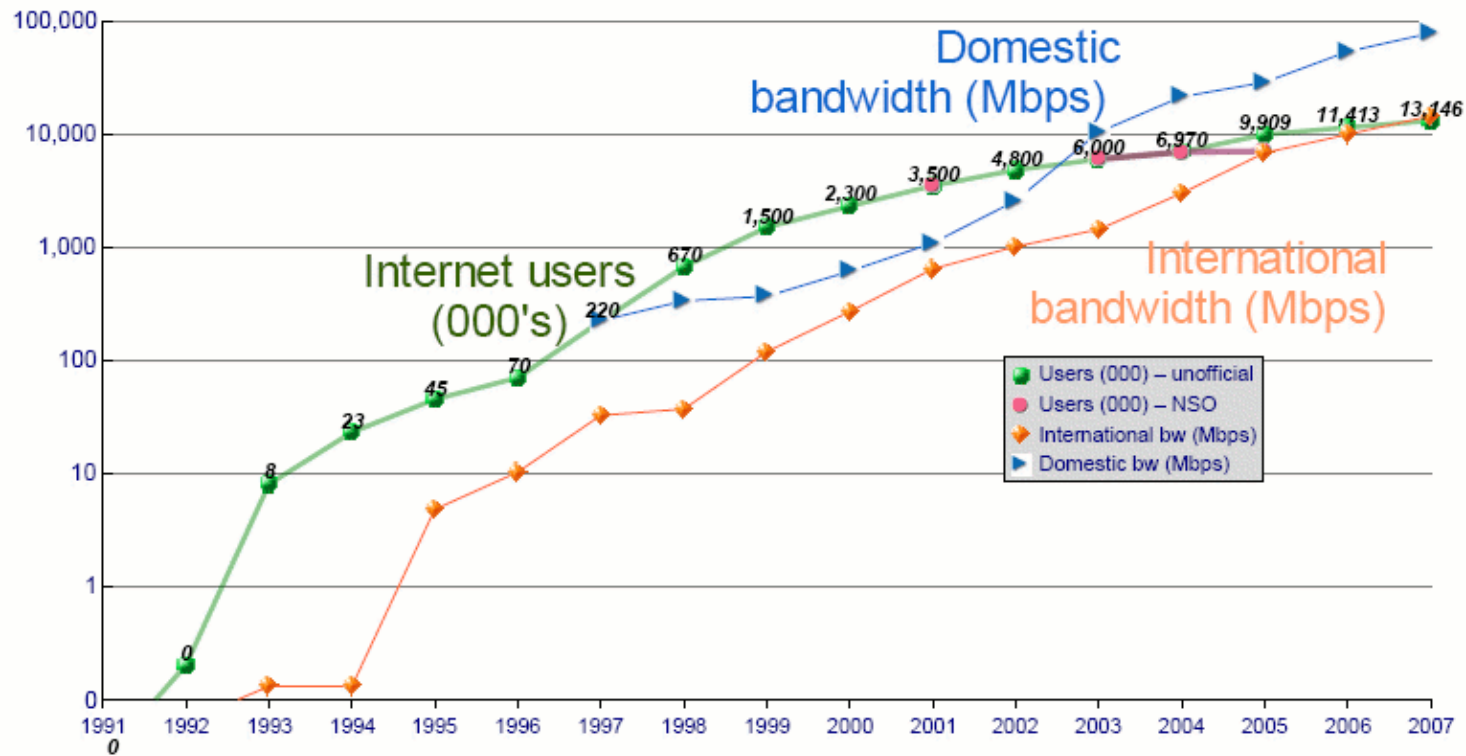
Other Measures of The Internet User

◆ **Web statistics**

From Truehits.net on 17 Nov. 2008

- ◆ Number of Members: 10,504
- ◆ Number of Visits: 110.89 Million
- ◆ Number of Unique IP: 1,178,138
- ◆ Number of Visitors: 3,865,579

Source: http://truehits.net

Conclusions

- Data and statistics on Internet growth can be used to infer ICT development and competitiveness of each country
- Some indicators also could be used for network planning and making business decision.
- The current methods for measuring the number of Internet users are still varied.
  - Further work should be considered
- It is essential to measure the Internet growth in various aspects and make use of reports on different indicators