Status of Anti-Spam Measures

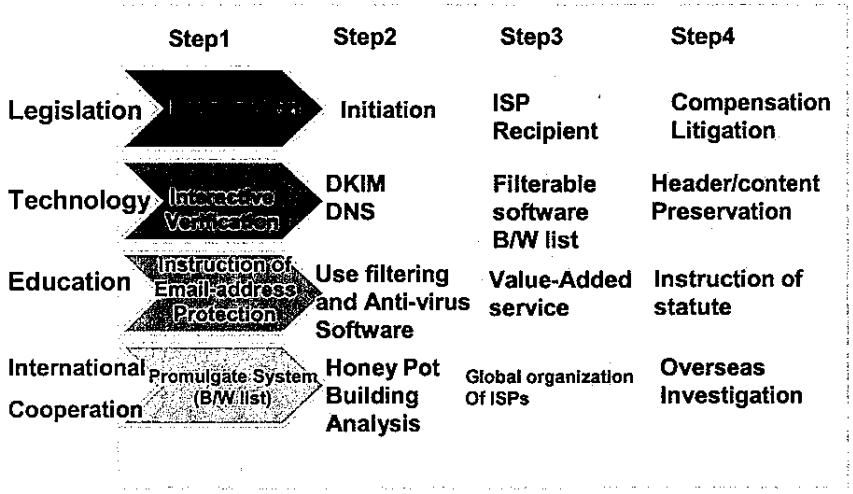
Vincent Huang

National Communications Commission

Current Status

- Economic influence
  - 30hrs per person per year
  - NT$44 billion lost in GDP per year (estimate)
- Recipients Impression (2008 survey)
  - Wastes Time (78.1%)
  - Infects with Virus and Trojans (80.5%)
  - Infringes Privacy (36.1%)
  - Suffering index: 63.98 (100 based)

Solution in Phase



Ranking of Spam Origin

2008 APJ Rank	2007 APJ Rank	2008 Global Rank	Country/Region	2008 APJ Percentage	2007 APJ Percentage
1	1	4	China	22%	24%
2	4	12	South Korea	13%	18%
3	5	13	India	12%	4%
4	7	15	Thailand	11%	2%
5	2	17	Taiwan	10%	19%
6	3	18	Japan	9%	21%
7	8	32	Vietnam	3%	2%
8	9	35	Australia	3%	2%
9	6	41	Malaysia	2%	3%
10	31	43	Papua New Guinea	2%	<1%

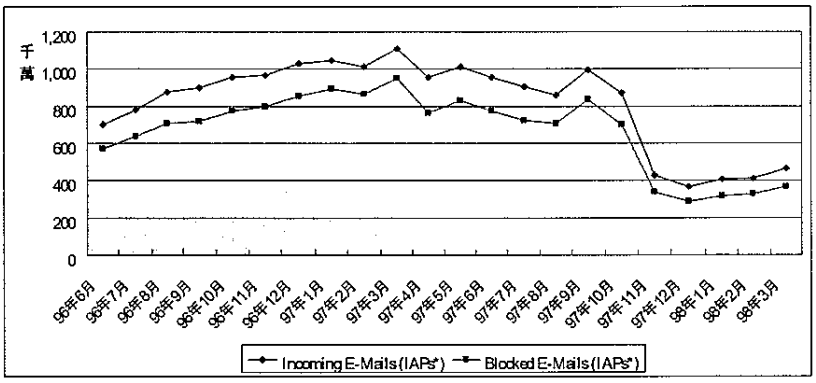
Table 12. Top countries/regions of spam origin, APJ
Source: Symantec

Ranking of Internet Security Threat

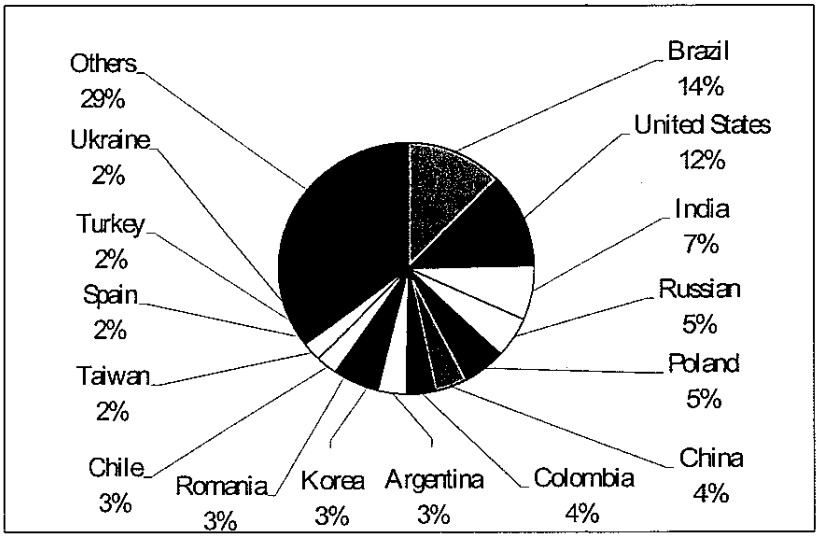
2008 Rank	2007 Rank	Country/Region	2008 Percentage	2007 Percentage	Malicious Code Rank	Spam Zombies Rank	Phishing Websites Host Rank	Bot Rank	Attack Origin Rank
1	1	China	41%	42%	1	1	2	1	1
2	2	South Korea	11%	11%	6	4	1	3	2
3	3	India	10%	9%	2	2	7	4	6
4	5	Taiwan	8%	9%	4	6	4	2	5
5	4	Japan	7%	9%	3	7	3	5	3
6	6	Australia	5%	5%	5	11	5	7	4
7	7	Thailand	4%	4%	12	3	6	8	8
8	10	Vietnam	3%	2%	11	5	11	11	7
9	11	Singapore	2%	2%	10	9	10	6	9
10	9	Philippines	2%	2%	7	8	12	10	11

Table 1. Malicious activity by country/region, APJ
Source: Symantec Corporation

Statistics of Top 20 IAP



Spam Origin Analysis



Legislation Progress

- Feb. 3, 2005, Executive Yuan reviewed Anti-Spam Act (1st draft)
- Feb. 26, 2009, Executive Yuan reviewed Anti-Spam Act (2nd draft)
- Mar. 9, 2009, Executive Yuan Submitted the Act to Legislative Yuan
- April 2 and April 6, 2009, debated at transport committee (first reading).
- Ongoing Legislation

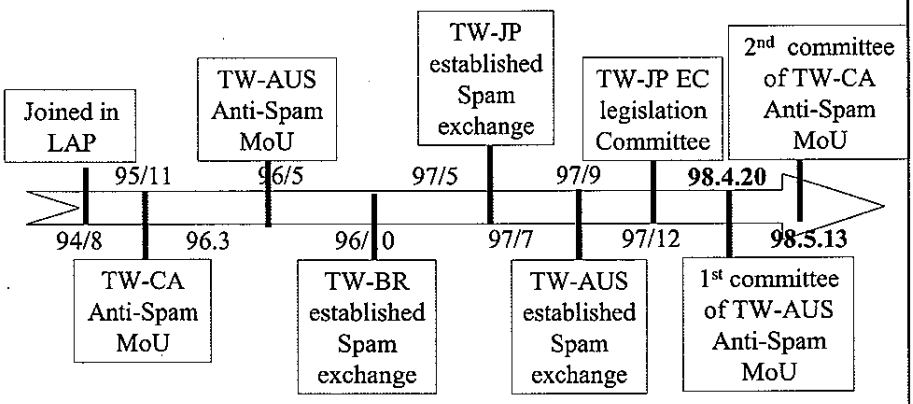
International Cooperation

- London Action Plan (LAP)
- MoU
  - Bilateral : Australia、Canada
  - Multilateral : Seoul-Melbourne
- Data exchange
  - Australia 、Japan、Brazil

International Cooperation

- London Action Plan (LAP) (2005)
- MoU
  - Bilateral : Canada(2006)、
    Australia(2007)、
    Brazil(2008) (TWIA)
  - Multilateral : Seoul-Melbourne (TWCERT)
- Spam exchange
  - Australia 、Japan、Brazil

Progress of international Cooperation



Data Exchange

Nation	Quantity received	Frequency	Quantity given	Frequency
Japan	778	25	627	8
Australia	203,993	2	102	2
Brazil	1,977,309	16		

Thank You for Your Attention

Email: Vincent @ ncc. gov. tw

Industry Canada Industrie Canada

Status of Anti-Spam Measures

Bill C-27, the Electronic Commerce Protection Act (ECPA)

Richard Simpson, Director General
Electronic Commerce Branch
Spectrum, Information Technologies and Telecommunications Sector (SITT)
May 13, 2009

Canada

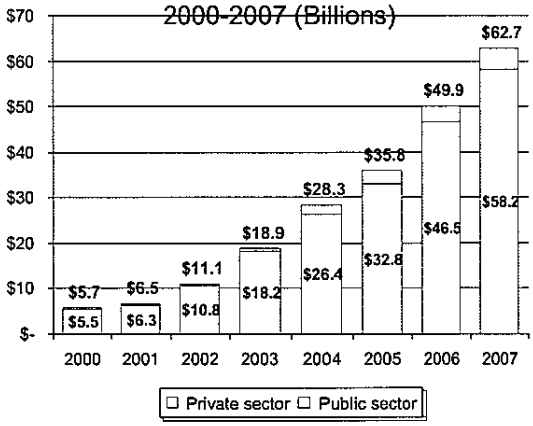
The Online Economy

- The Internet has become the primary platform for conducting commerce and general communications.
- Internet sales in Canada continued to grow in 2007 to $62.7 billion, up from $49.9 billion in 2006

  (Statistics Canada, April 20, 2008)
- Worldwide e-commerce spending projected to grow at CAGR of 23%, exceeding $8.75 trillion in 2009

  (IDC, Worldwide Internet Usage and Commerce 2005-2009 Forecast update, April 2007)

Value of Canada's Total Internet Sales
2000-2007 (Billions)



Source: Survey of Electronic Commerce and Technology 2007, The Daily, April 24 2008, Statistics Canada

2

Threats to the Online Economy

Spam has become the vehicle for a wide range of threats to online commerce

Individuals:

- Unsolicited commercial electronic messages *(spam)*
- Theft of personal data to rob bank and credit card accounts *(identity theft)*
- Conduct of online fraud by luring individuals to counterfeit websites *(phishing)*
- Deceiving consumers through false or misleading representations in the online marketplace
- Collecting personal information through illicit access to computer systems *(spyware)*

Businesses:

- Electronic theft of corporate information holdings and transaction records *(data breach)*
- Counterfeiting of business websites to defraud individuals and businesses (*spoofing*)

Network Providers:

- High volumes of spam (75% to 90% of all email traffic) clog and slow networks and force providers to invest ever increasing resources to prevent spam from entering their networks
- Spam-borne viruses and other malicious software (*malware*) that are used to control networks of *('zombie')* computers *(botnets)* without their owner's knowledge lead to network attacks and threaten the stability of the Internet and online services

3

Online Threats are Growing

- Although the United States was the single largest source of outgoing spam messages, accounting for 17.2 per cent of all global spam. Canada was the fourth biggest source, with 4.7 per cent of all global spam, behind the U.S., Turkey (9.2 per cent) and Russia (8.0 per cent). (Cisco Systems, Dec. 2008)
- Canada has the highest percentage of spam on a per-capita basis of the 16 top nations. (Cisco Systems Dec. 2008)
- New forms of spam continue to appear and are increasingly the source of network damage and fraud
- 6,000 new infected webpages everyday (worldwide); that's one every 14 seconds *(Sophos Security Threat Report, Jan. 2008)*
- Canada is 5th on *List of Top 10 Countries Hosting Phishing Websites (IBM Internet Security Systems, July 2008)*

4

The Costs are Significant

- With costs to both business and consumers estimated at $100 billion per year globally (Ferris Research, February 2007), the alarming growth of spam and related threats has become a major drag on productivity and business competitiveness.
- Cost of phishing per incident estimated at $850, while total damage to US economy is $630 million (Consumer Reports, State of the Net 2006)
- Cost of spyware per incident estimated at $100, while total damage to US economy is $2.6 billion. Spyware infections prompted nearly a million U.S. households to replace their computer (Consumer Reports, State of the Net 2006)
- Estimates of the financial effects of malware differ widely. Figures for overall effects range from US$ 13.2 billion of direct damages for the global economy (in 2006) to US$ 67.2 billion in direct and indirect effects on U.S. businesses alone (in 2005)

(ITU Study on the Finacial Aspects of Network Security, July 2008)

5

Canada's Task Force on Spam

- Comprising representatives from industry, academia, consumer associations and government, the Task Force issued its final report (May 2005) with 22 recommendations, including:
  - the introduction of new spam/spyware legislation
  - effective enforcement
  - policy leadership and coordination
  - public education and awareness
  - strengthened international cooperation
- Task Force accomplishments:
  - Analysis of gaps in legal ground rules and enforcement
  - Development of Best Practices for Internet Service Providers and Other Network Operators
  - Development of Best Practices for Email Marketing
  - Established public awareness « Stop Spam Here » campaign (Icon, website and messages to consumers)
  - Active participation in international efforts, e.g., OECD, London Action Plan (LAP)

6

Prime Minister's Announcement

- Prime Minister Harper announced on September 25, 2008 intentions to table anti-spam legislation as part of the larger Protecting Consumers platform

- The Prime Minister said that with a new mandate, the Conservative Government will introduce a consumer protection plan including:
  - Increased civil penalties for false and misleading advertising, and upon criminal conviction, tougher fines and prison terms.
  - Legislation to reduce Internet spam and to prohibit practices such as identity theft, the spreading of viruses, "phishing" and other forms of fraud.
  - Increased fines for dangerous, deceptive and destructive email, and for attempts to steal personal information.
  - Establishing a coordinating body to ensure the legislation is effectively enforced and to respond to consumers complaints.

7

Legislative Progress - Bills C-27 & S-220

- On May 7, 2008, and again on November 20, 2008 Liberal Senator Yoine Goldstein introduced his Private Member's Bill. In both cases, it was at second reading when Parliament was dissolved

- On February 3, 2009, Senator Goldstein re-introduced his legislation as Bill S-220, An act respecting commercial electronic messages. *(It is currently at Senate Committee)*

- Bill C-27, The Electronic Commerce Protection Act (ECPA) was tabled in Parliament on April 24, 2009 and is designed to reduce the most damaging and deceptive forms of spam and other conduct that discourage electronic commerce *(It is currently at House of Commons Committee)*

8

Main Elements of ECPA

ECPA addresses the recommendations of the Task Force on Spam with a comprehensive regulatory regime that uses economic disincentives instead of criminal sanctions to protect electronic commerce and is modelled on international best practices. The regime includes:

- A Private Right of Action (PRA)
- Extended Liability (follow the money)
- Administrative Monetary Penalties (AMPs)
- International Cooperation

Support mechanisms such as:

- A National Coordinating Body
- A Spam Reporting Centre

9

Addresses a Wide Range of Concerns

ECPA prohibits:

- The sending of unsolicited commercial electronic messages
- False and misleading representations online (including websites and addresses)
- The use of computer systems to collect electronic addresses without consent
- The unauthorized altering of transmission data
- The installation of computer programs without consent
- The unauthorized access to a computer system to collect personal information without consent

10


Canada

Enforcement Provisions

Vincent Huang
National Communications Commission

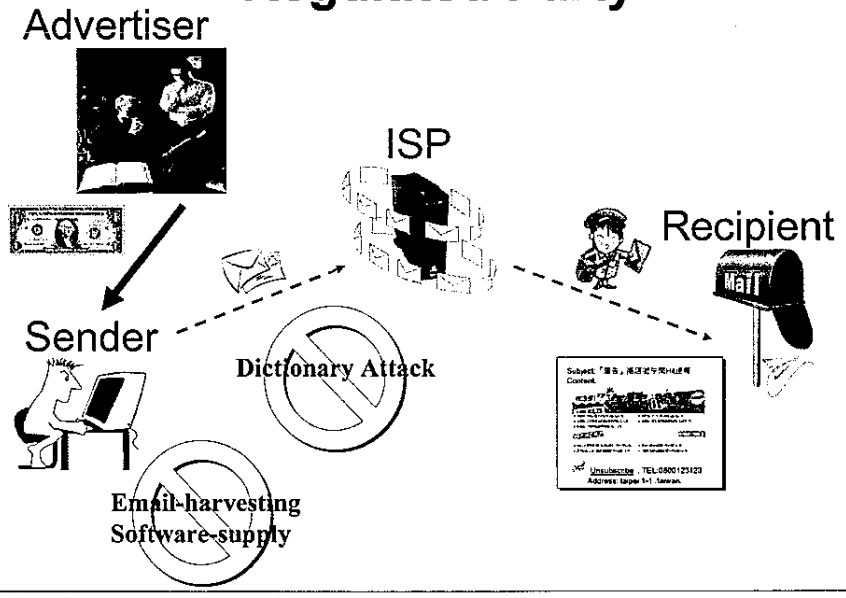
Summary Of Taiwan Anti-spam Law

- Objectives:
  - Protect recipients' rights
  - Enhance the security and efficiency of the Internet environment
- Regulate UCE (unsolicited commercial email)
- Status feature
  - Law of Civil liability for special tort

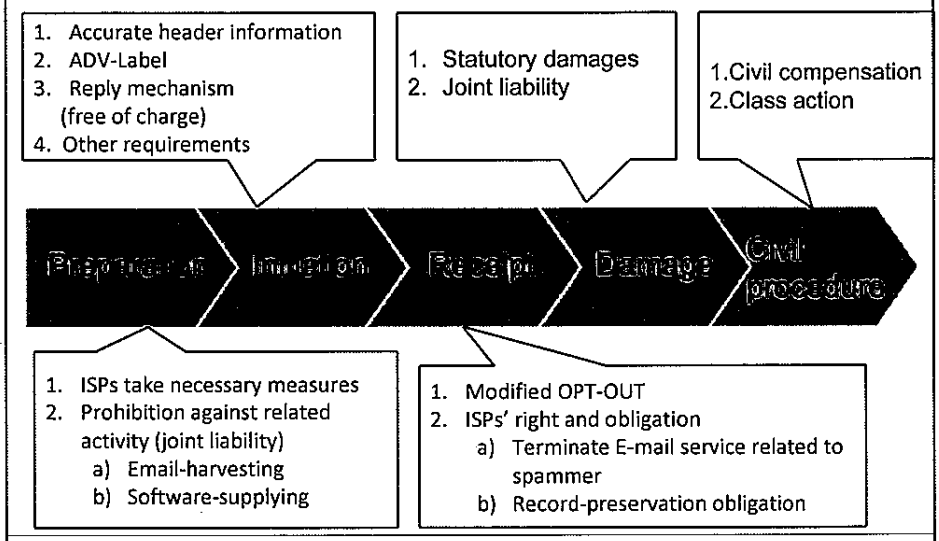
Civil liability for special tort

- **The reason Taiwan Anti-spam has mainly adopted civil legislation rather than administrative management:**
  1. Disputes among people (recipient and sender)
  2. Limited resources of the authority
  3. Avoids intruding on the fundamental rights of the people disproportionally

Regulated Party



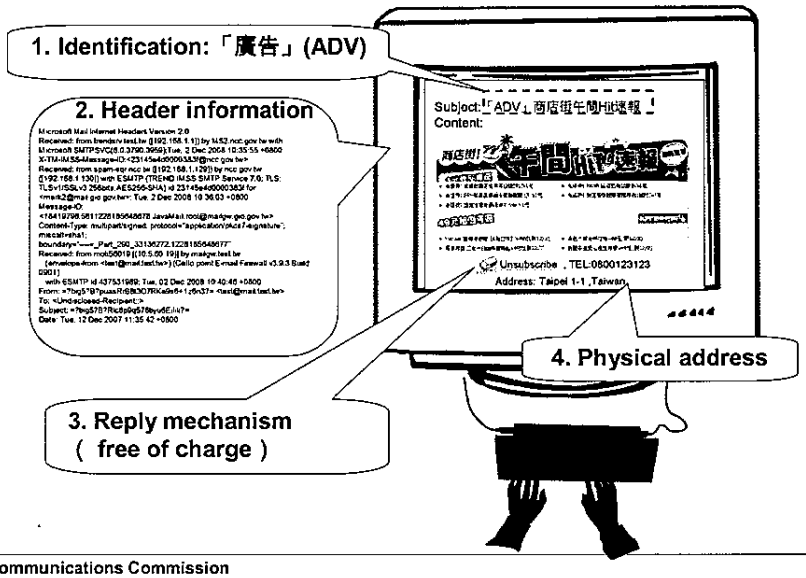
Regulatory Phase



Consent Mechanism

- **Modified OPT-OUT**
  - Initiating first commercial email is allowed.
  - Without expressing consent to receive further commercial email, the initiation of similar commercial email is prohibited.
  - Reply mechanism - free of charge.

Qualify E-mail Example



National Communications Commission

Administrative Measures

- Administrative guidance
  - instruct ISP and recipient in proper-addressing
- Administrative sanctions
  - Order ISP and advertisers to take necessary measures
- Administrative penalty
  - Violation of orders

National Communications Commission

Civil Compensation (1/3)

- **Principal Liability:**
  1. Violation of consent mechanism
  2. The subject was false or misleading
  3. The email was without accurate header information
  4. User practices dictionary attacks
  5. Any other violations of initiation requirement

Civil Compensation (2/3)

- **Compensation: Article 4 or Article 5**
  1. Statutory damages of NT$500 - NT$2,000 per email
  2. Total amount is limited to NT$20 million or to the extent actually profited (single case)

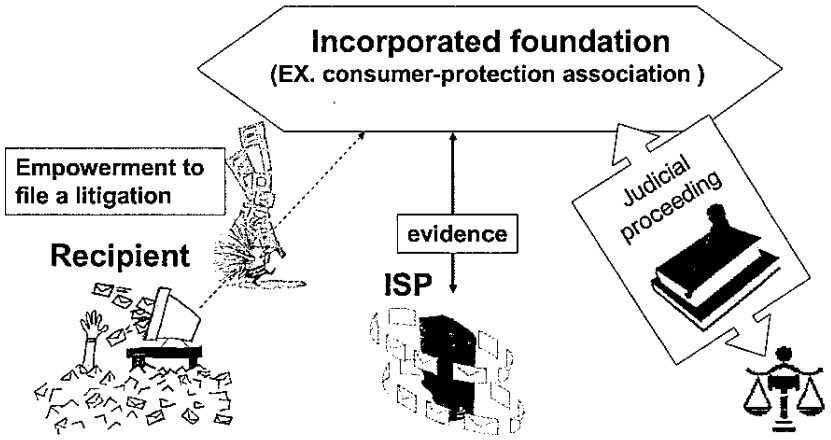
Civil Compensation (3/3)

- **Joint Liability:**
  1. **Advertiser or advertisement agent knows or might know the violations**
  2. **Provides software for the purpose of spam**
  3. **Users who practice email-harvesting for the purpose of spam**

Civil action

- **The foundation may bring litigation or compensation claims with respect to violations of Article 4 or Article 5, after having been empowered by not less than 20 persons.**
- **A party may withdraw the empowerment to bring litigation prior to termination of oral-arguments and shall provide notice to the court (Article 9).**
  1. **Above 20 persons**
  2. **Act of authorization**
  3. **The qualified foundation**

Class Action



National Communications Commission

Qualification of Institution

- the foundation shall be qualified and act in accordance to the following conditions; its bylaws and execution plans of class action shall be verified and announced by the competent authority:

1. The foundation, established as a juridical person, has total registered assets of NT$10,000,000.
2. The foundation has been established for more than 3 years after its approval.
3. The foundation shall appoint lawyers to litigate on its behalf.

National Communications Commission

Right of Institution

- Request ISP/advertiser to provide information of spammer
- Administrative sanctions
  - 1. Order ISP to provide information
  - 2. Order advertiser to provide information
- Violation of regulation

☞Administrative Penalty!

Administrative Penalty (1)

- The competent authority may order ESPs or IAPs to take necessary measures in order to prevent the abuse of commercial email.
- ESPs or IAPs that fail to take necessary measures of Article 6, Paragraph 1, as ordered by the competent authority, shall be imposed with a fine of not less than NT$30,000 but no more than NT$300,000.

  If the party fails to remedy the situation after an order, within a prescribed period of time, consecutive fines shall be given until full compliance

Information Requests

- The foundation may request ESPs, IAPs, advertisers or advertising agents for the following information regarding spammers; the requested party may not reject without justifiable grounds:
  1. Name or title of sender
  2. Valid office, business place, domicile or contact method of sender
  3. Email address of sender
  4. Internet Protocol of Email sent
  5. Time Email sent
  6. The condition or technology type of conveying
  7. Other information for the identification of the sender designated by the competent authority

Administrative Penalty(2)

- ESP, IAP, advertiser or advertising agent is requested by the foundation to provide personal information of the spammer - in accordance with Article 9, Paragraph 4
- Parties that refuse without justifiable grounds, or that provide false information, shall be imposed with a fine of not less than NT$30,000 but no more than NT$300,000
- If the party fails to remedy the situation after an order, within a prescribed period of time, consecutive fines shall be given until full compliance

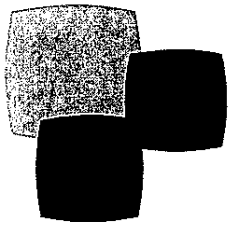
Thank You for your Attention

Email: Vincent @ncc . gov. tw

Industry Canada Industrie Canada

Enforcement Provisions

Bill C-27, the Electronic Commerce Protection Act (ECPA)



Andre Leduc, Senior Policy Advisor
Electronic Commerce Branch
Spectrum, Information Technologies and Telecommunications Sector (SITT)
May 13, 2009

Canada

Comprehensive Enforcement Regime

Regulatory enforcement would be undertaken based on expanding the mandates and using existing expertise of three agencies:

- **Canadian Radio-television and Telecommunications Commission (CRTC)**
  - Mandate to ensure the reliability, safety, and effective operation of telecommunications networks in Canada, including the Internet, C-27 will enable the CRTC to prohibit; the sending of unsolicited commercial electronic messages; altering transmission data without authorization; and installing programs on computer systems and networks without authorization
- **Competition Bureau**
  - Further to their mandate to ensure fair marketplace practices for businesses and consumers, C-27 will enable the Competition Bureau to effectively address false and misleading representations online and deceptive marketplace practices including false headers and website content
- **Office of the Privacy Commissioner (OPC)**
  - Responsibilities to protect personal information in Canada, C-27 will enable the Commissioner to effectively address the collection of personal information via access to computer systems without consent, and the unauthorized compiling or supplying of lists of electronic addresses

2

Legislative Remedies

Administration	Violation	Addressing
CRTC	ECPA includes violations respecting: • The sending of unsolicited commercial electronic messages • The use of telecommunications to alter transmission data and download programs to computer systems and networks without authorization	• Spam • Malware & Botnets • Network re-routing • Phishing (emails)
Competition Bureau	Amends the Competition Act to include violations respecting: • Misleading and deceptive practices/ representations, including false headers, subject lines, etc...	• False or misleading representations online (incl. websites and addresses)
OPC	Amends *PIPEDA* to include contraventions involving: • The collection and use of personal address information without consent by electronic or any other means • The collection of personal information by accessing, using, or interfering with computer systems	• Address harvesting • Dictionary attacks • Spyware (Personal Information)

3

Strong Penalties & Due Process

- The CRTC will use AMPs to ensure compliance with ECPA
- Amendments to the Competition Act allow the imposition of AMPs and other penalties
- S. 20(4) notes that the maximum penalty per violation is $1 M in the case of individuals and $10 M in the case of any other person
- Prior to administering penalties, the CRTC must consider factors as described in s. 20(3), most of those factors are also to be considered in assessing the statutory damages under the Private Right of Action
- The Act is a regulatory regime designed to encourage compliance but also carries stiff penalties for

4

The ECPA "Opt-in" Regime

ECPA is based on an "opt-in" consent regime, which stipulates that no electronic message can be sent without:

- Express Consent
  - can be determined when the organization presents an opportunity for the individual to express positive agreement to a stated purpose. Unless the individual takes action to "opt in" to the purpose — in other words, says "yes" to it — the organization does not assume consent.
- Implied Consent
  - arises where consent may reasonably be inferred from the action or inaction of the individual and is also further determined in s.10 of ECPA regarding "existing business relationships" and "existing non-business relationships". Implied consent covers situations where intended use or disclosure is obvious from the context, and the organization can assume, with little or no risk, that the individual is aware of and consents to its intended use or disclosure.

5

The Private Right of Action (PRA)

- ECPA provides for a PRA for any violation
- The PRA would allow businesses, network providers and consumers to take civil action against anyone who violates ECPA
- Experience from other countries, such as the U.S., demonstrate that PRAs can be an effective tool in deterring detrimental conduct to online commerce and complements regulatory enforcement measures in the public domain
- This PRA is expanded compared to the U.S. (which only allowed Internet Service Providers (ISPs) to pursue spammers) by allowing any person or enterprise to take action

6

International Cooperation

ECPA provides for:

- Coordination and consultation between the three enforcement agencies responsible for compliance
- Information sharing and consultation between the three agencies and their international equivalents
- A broadly defined Canadian link which stipulates that ECPA would apply to electronic messages sent to, through or from Canada
- Disclosure of information from organizations to the enforcement agencies with regards to any of the violations

7

Canada

Role of the Private Sector - Working with ISPs

Vincent Huang
National Communications Commission

Administrative Measures

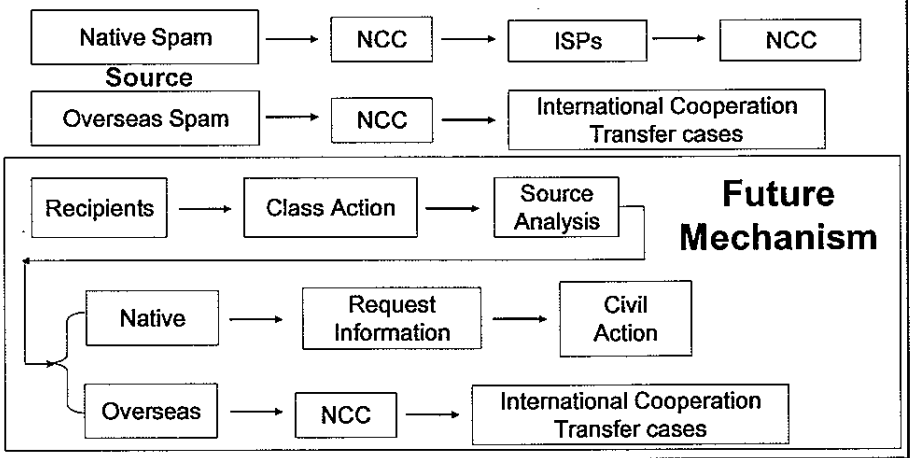
- Self-disciplinary measures
- Anti-spam awareness education
- Spam database

Self-disciplinary Measures (cont.)

- **Establish anti-spam self-discipline mechanism:**
  - **Anti-Spam steering committee of TWIA.**
  - **The committee advocated the rejection of email from dynamic IP server by ISPs.**
  - **Contract between users and service providers.**
  - **With spam-identifier.**
- **Establish case-handling procedure:**

Self-disciplinary Measures

- **Establish case-handling process:**



Case Study: Hinet Anti-spam Mechanism

- Self-developed SpamWall system
  1. Limits the amount sent
  2. Reduces HiNet mail servers being black-listed
- Spam complaints
  1. Notify customer who sends spam
  2. Suspend spammer
     - First time: 14 days
     - Second time: 90 days
     - Third time and subsequent: 180 days

Case Study: Hinet Anti-spam Mechanism

- Deny messages from non-existent sender domain.
- Deny messages directly sent from dynamic IP
  - Dynamic IP reverse resolution rule designed by Anti-Spam Steering Committee of Taiwan Internet Association.
  - 125-225-8-68.dynamic.hinet.net
  - Since May 2004, deny emails directly from dynamic IP covered by Taiwan ISP.
  - Since June 2006, emails from foreign countries are judged by the same rule.

Anti-Spam Awareness Education

- 2006.05 TWIA promoted 「1st anti-spam advocate education plan」
- 2007.05 NCC requested top 20 IAPs to set up spam trace back processing.
- 2008.12 TWIA promoted 「2nd anti-spam advocate education plan」
- http://www.ncc.gov.tw/antispam/

Spam Database

- Information collection
  - Spam traps
  - ISPs
  - International data exchange
  - Report spam
- Future work
  - Information analysis
  - Classify and research

Future Working with ISPs

- Store spam logs
- Revise and augment contract
- Send warnings to spammers or terminate contracts
- Provide spam filtering service and other necessary services
- Establish spam data transferring system

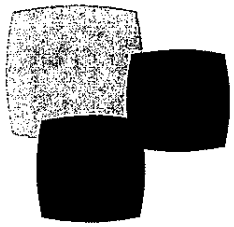
Thank You for Your Attention

Email: Vincent @ ncc. gov. tw

Industry Canada Industrie Canada

Working with ISPs

Bill C-27, the Electronic Commerce Protection Act (ECPA)



Richard Simpson, Director General
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Spectrum, Information Technologies and Telecommunications Sector (SITT)
May 13, 2009

Canada

Role of Industry

- Industry (ISPs and other network operators, electronic marketers, software/hardware developers, large enterprise users - i.e., universities, etc.) is very active in combating spam/spyware.
- Coordinate:
  - Network management practices (closing of port 25, contractual waivers, etc...)
  - Anti-spam private sector forums (ex. Messaging Anti-Abuse Working Group, etc.)
  - International multilateral public forums (OECD Task Force on Spam, London Action Plan, etc.)

ISP Role in Combating Spam

- ISPs provide a first line of defence against fraud, online crime, malware and spam, by establishing self-regulatory models (best practices; industry guidelines with sanctions for non-compliance) and providing consumers with technical solutions.
- Managing Networks
  - Effective anti-spam technologies and network management best practices for ISPs and other network operators
  - Improved communications among industry and between industry and government
  - Zero tolerance for spamming activity on Canadian networks
- Most ISPs already have, as part of their user agreements, provisions that allow them to monitor use and discontinue service if it is threatening to their networks or in violation of any law of Canada
- The National Coordinating Body will effectively support the ISP community to include this type of provision in all Internet usage agreements
- Under ECPA, the CRTC can also seek court issued injunctions (similar to cease and desist orders) to address violations of ECPA

3

Spam Reporting Centre

In support of ECPA, the government would establish and operate a Spam Reporting Centre to:

- Allow harmful Internet messages to be sent to a central facility by individuals and businesses
- Analyze and refer major threats to relevant authorities for action
- Store and analyze spam and related computer threats for evidentiary and enforcement purposes
- Support cooperative work with partner agencies such as the Competition Bureau, the CRTC and the OPC and assist the three enforcement agencies with investigations and prosecutions

The Spam Reporting Centre will ensure full and effective access to the database for all enforcement agencies.

4

Moving Forward – A Coordinating Body

- In its May 2005 report, the Task Force on Spam recommended the creation of a focal point or coordination centre, within government, to coordinate Canada's anti-spam work (recommendations #21 and #22).
- The Prime Minister's announcement of the government's plans to introduce legislation to protect consumers against Internet spam referred to the establishment of "a coordinating body to ensure the legislation is effectively enforced and to respond to consumers complaints."
- A coordinating body would be provide:
  - Effective policy oversight
  - Monitoring and reporting on the efficacy of the legislation
  - Supporting international cooperation (LAP, OECD, MAAWG)
  - Working with the private sector on joint anti-spam efforts
  - Overseeing operation of the Spam Reporting Centre
  - Management of the Stop Spam Here website
  - Directing research and measurement efforts (NCFTA, GCCR, UOIT)
  - Analysis and reporting on emerging threats and trends (metrics)

5

Canada

Broadband Universal Telecommunication Services

Der Wei Wang
National Communications Commission

Outline

- Establishment of Universal Services
- Data Communications Access Universal Services
- Promotion of "Broadband in Villages" Project
- Promotion of "Broadband in Tribes" Project
- Achievements of "Broadband in Villages/Tribes" project
- Application of Wireless Technology
- Conclusion

Establishment of Universal Services(1/3)

- ◆Before 1996, voice communication developed by cross subsidization
- ◆Liberalization facilitates competition without cross subsidization
- ◆To provide telecommunication services to all civilians, Universal Telecommunication Services were established in 2001
- ◆NCC designates type 1 telecommunication operators to provide universal telecommunications services in remote areas

Establishment of Universal Services(2/3)

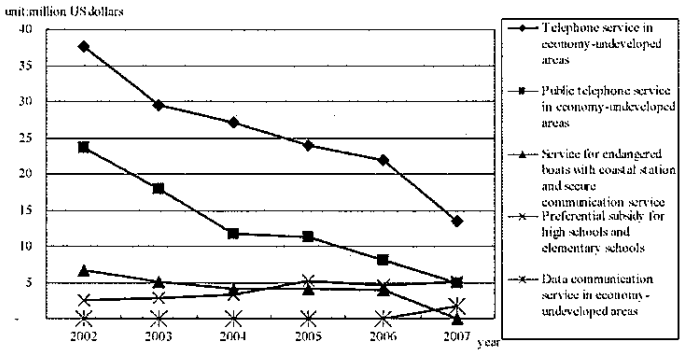
- ◆ According to regulations, the telecommunication operators* share the deficit of the universal service providers by a ratio of annual turnover

* mobile operators, fixed-network operators, ISR, and VoIP whose annual turnover is more than U$2.857 million (NT$100 million)

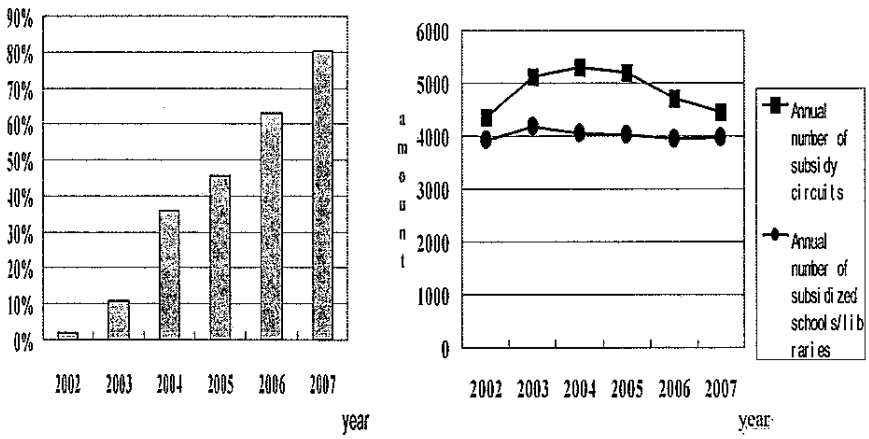
- ◆ The range of Implementation
  - ⇨ Universal Voice Telephone Services:
    - ➢ Telephone services in undeveloped areas
    - ➢ Uneconomic public telephone services
  - ⇨ Universal Data Services:
    - ➢ Service of data communication access in undeveloped areas
    - ➢ To provide preferential leased circuit rentals for high schools, elementary schools, and public libraries

Establishment of Universal Services(3/3)

Annual Subsidy of Universal Services



Annual Promotion Rate of FTTB usage / Annual number of subsidized schools/libraries and circuits



Data Communications Access Universal Services (1/2)

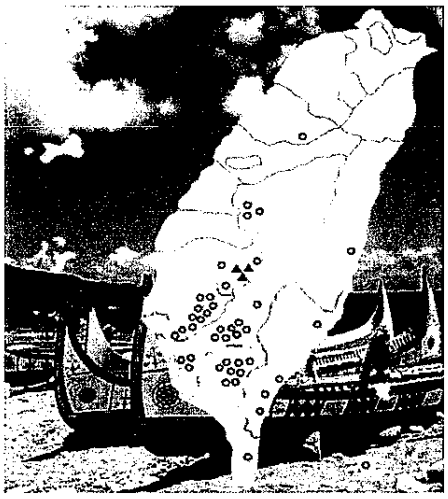
- Data Communication Access: remote areas cannot have equal access to broadband data communication services - exchange centers are far away
- Basic Telephone Services: in 2002 the EU integrated data communication access into Universal Services
- Broadband data communications access has become a basic communication right of civilians
- Promoting Universal Services of communications is in accordance with the Fundamental Communications Act

Data Communications Access Universal Services (2/2)

- NCC implemented universal service of data communication access in 2006
- Key measures:
  - ⇨ Revised certain articles of Regulations on Telecommunications Universal Services and integrated data communication access into Universal Services
  - ⇨ Designated type 1 telecommunication operators to provide universal service of data communication access to certain villages according to the requirement of the economy-undeveloped areas in 2007
  - ⇨ Implementing universal services policies of "Broadband in Villages, Telephone in all Households, and Public Telephones in Tribes"

Promotion of "Broadband in Villages" Project

- **Distribution of broadband network construction in 46 villages - 2007**
  - ⇨ **Chunghwa Telecom : 43 designated villages (○)**
  - ⇨ **Taiwan Fixed Network: 3 designated villages (△)**



Achievements of "Broadband in Villages" Project (1/3)

- **Broadband network construction in 46 designated villages was completed in February, 2008**
  - ⇨ **Total budget: U$2.76 million (NT$96.5 million)**
  - ⇨ **Optical fiber cable: 123 kilometers**
  - ⇨ **Speed: higher than 2Mbps**
  - ⇨ **The ratio of households with broadband network - 8.94%**
- **Broadband coverage in villages reaches 100%**
  - ⇨ **The expected broadband coverage 99.60 % is achieved one year ahead of schedule**
  - ⇨ **Chinese Taipei becomes one of the leading economies in the world with "broadband everywhere"**

Achievements of "Broadband in Villages" Project (2/3)

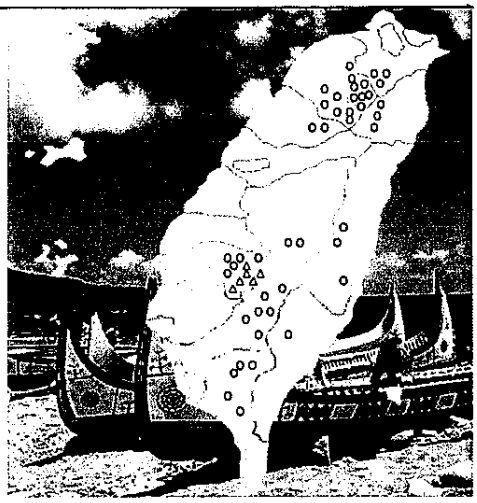
- **The construction of broadband network in 46 remote villages brings the following benefits:**
  - **Increase the speed of broadband network service in remote areas by twelve-fold within a year**
  - **Connect with government websites to enhance administrative efficiency in tribes**
  - **E-learning: Promote indigenous language learning, distant learning, and distant tutoring on the Internet**
  - **Introduces the culture, language, food, cultural landscape, handmade crafts, guesthouses, and agricultural products of tribes via internet marketing**

Achievements of "Broadband in Villages" Project (3/3)

- **Develops ecological tourism, increases job opportunities, encourages young villagers to return to their hometowns, and connects with the world**
- **Quadruple Play or Multiple Play – provides local telephone, public telephone, broadband network, MOD service and mobile phone service simultaneously**

Promotion of "Broadband in Tribes" Project

- Expand participation of industries in universal services and encourage them to take corporate social responsibilities
- Distribution of broadband network construction in 50 tribes - 2008
  - ⇨ Chunghwa Telecom: 42 designated villages (○)
  - ⇨ Taiwan Fixed Network: 6 designated villages (△)
  - ⇨ CTTV : 2 designated villages (◯)



Achievements of "Broadband in Tribes" Project(1/2)

- Designate 50 tribes for broadband construction with completion in 2008
  - ⇨Total budget: U$2.22 million
  - ⇨Optical fiber cable: 86.718 kilometers
  - ⇨Speed: higher than 2Mbps
  - ⇨Broadband coverage in Tribes reaches 21.60%

Achievements of "Broadband in Tribes" Project(2/2)

- Introduces broadband network to every village and tribe in our economy
- Decreases the digital divide between urban and rural areas; allows for equality in services of broadband network
- Stimulates tribal economies; maintains human resources of three generations
- At the same time, satisfies the requirements of civilians without cable TV
- Caters for local requirements through government policy and leadership

Status of data Communications Access

- The total number of National Villages is 7832, remote area is 715, the total number of Tribes is 730 in 2008 . The total number of services that has not reached is 110 before December 2008.

2008 (year)	Total amount (A)	Services has reached (B)	coverage % (B/A)
Villages	715	715	100%
Tribes	730	620	85%

Construction of Universal Services: Application of Wireless Technology

- Construction of broadband to remote areas is challenging
  - ⇨ Chinese Taipei is mountainous
  - ⇨ Frequent landslides, earthquakes, etc
- NCC encourages industries to use wireless microwave links as the transmission backbone network. 2.4G or 5.7G ISM BAND spread spectrum microwave can be used as the local loop to end users in order to ensure quality
- To encourage the wireless microwave system in remote areas, NCC reduces frequency usage fees by 90%
- Ministry of Economic Affairs promotes M-Taiwan experimental network project, hoping to provide broadband network services by the application of WiMAX in remote areas

Conclusion

- Reducing the digital divide efficiently requires cooperation of the government, telecommunication operators, public welfare groups, and community development associations
- Follow-up projects: "Telephone in Every Household; Public Telephone in Tribes; Broadband in Tribes; FTTB in Every School; Cable TV in Every Village; Mobile Phone in Every Village
- "Broadband in Tribes" is scheduled to be completed in 2010

Thank you for Your Attention

Our Effort to Launch Broadband Universal Service

Huang, Tzu-Han

Chunghwa Telecom

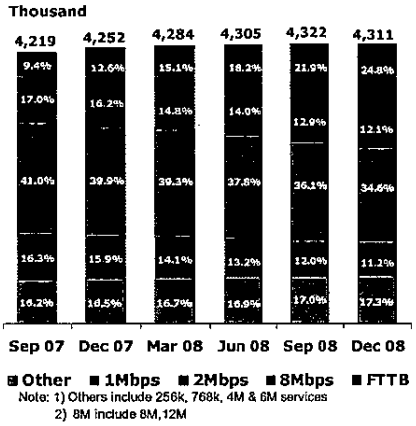
2009/05/13

Outlines

1. Taiwan's Leading Internet and Data Provider
2. Increasing Access Speeds and Fiber Deployment
3. FTTx Migration Plan of CHT
4. Broadband Coverage
5. Universal Service Obligations of CHT
6. A Challenge Example
7. Engineering and Ceremony Photos
8. A Story of abundant Harvest in Mt. Lala
9. Concluding Remarks

1. Taiwan's Leading Internet and Data Provider

Broadband Subscribers



Note: 1) Others include 256k, 768k, 4M & 6M services
2) 8M include 8M,12M

Strategies

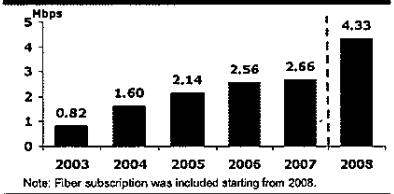
- Migrate ADSL subs to FTTx to offer quality network service and increase revenue
- Retain lower speed subs through competitive price
- Continue promoting Internet VAS
  - Fast growing VAS
    - Internet advertisements: exhibited 48.6% YoY growth for the last 3 quarters of 2008*
    - Internet pornography gatekeeper: 57.2% YoY growth for 2008
  - Enterprise Security Service

* Note: Service started from Apr. 07

2. Increasing Access Speeds and Fiber Deployment

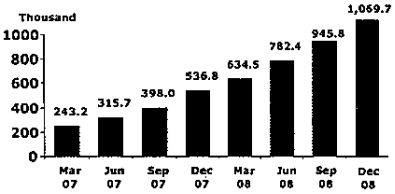
Expanding Offerings at the Speed of Light

Rising Average Bandwidth Per User



Note: Fiber subscription was included starting from 2008.

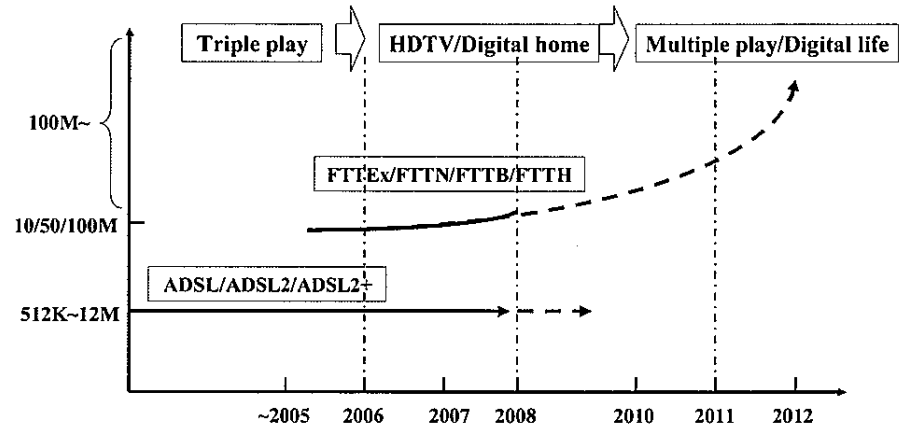
FTTx Subscriptions



Well-received Broadband Services

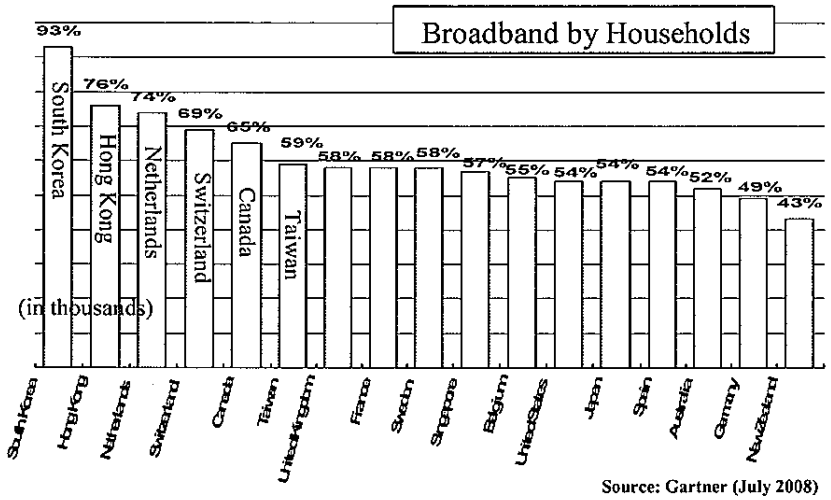
- Transitioning subscribers to higher access speeds and expanded bandwidth
  - As of Dec. 2008, subscribers with >8Mbps services reached 1,589k, representing 36.9% of total broadband subscribers
  - Enabling access to and adoption of greater variety of Internet VAS services
- Promoting >10Mbps FTTx projects in residential buildings and campuses to increase penetration rate of fiber networks
- Providing FTTx service in 16,600 buildings, representing 91.0% market share among all operators

3. FTTx Migration Plan of CHT



- ~2005: ADSL + Replace DSL feeder with optical fiber
- 2006~2012: Replace ADSL distribution with FTTx

4. Broadband Coverage



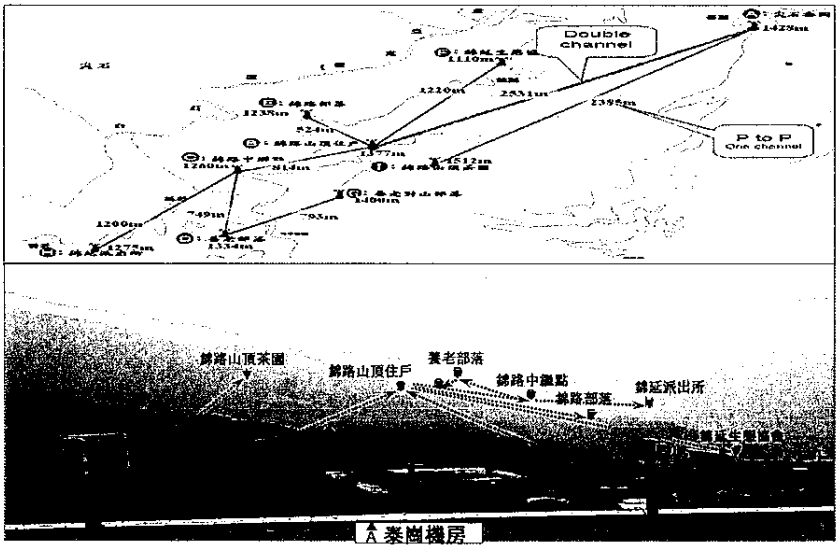
Source: Gartner (July 2008)

5. Universal Service Obligations of CHT

- ◆ Non-Economic Area
  - 2001~,cover Residence phone,Public phone,Data service for Elementary/Junior high school and Public library
  - ~2008, Chunghwa Telecom provides 210,000 residence phone in 79 non-economic area, 23,000 public phone and 3,800 data communication for school and library in total
- ◆Broadband into Village and Tribe

	2007	2008	2009
NCC Plan	46	50	
CHT Share	43	42	
% Share	93%	84%	

6. A Challenge Example(1/2)



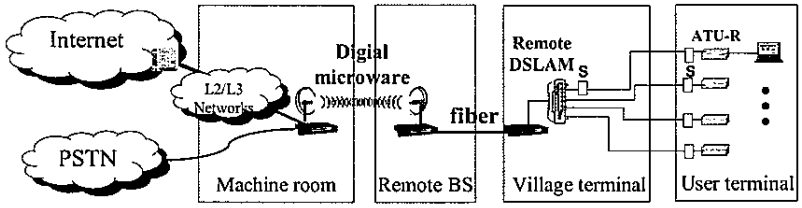
6. A Challenge Example(2/2)

◆ QoS Impact by earthquake, flood, typhoon,...frequently

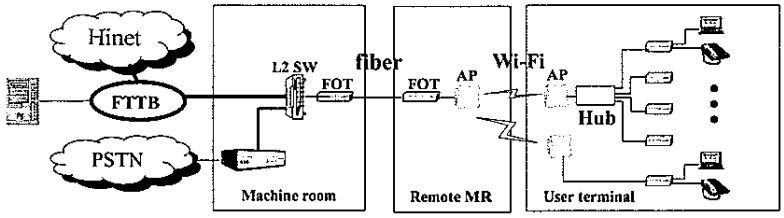
◆ Topography dependency Types

Digital Microwave	Optical Fiber	WiFi	E1-DLC	Remote DSLAM
✓		✓		
	✓	✓		
✓	✓			✓
✓		✓	✓	✓
✓	✓		✓	✓

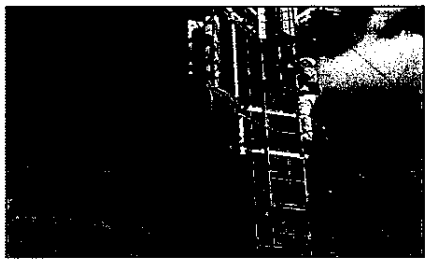
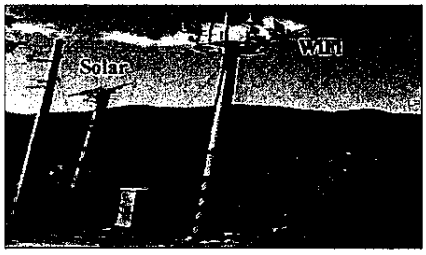
◆ Digital microwave + Fiber + Remote DSLAM

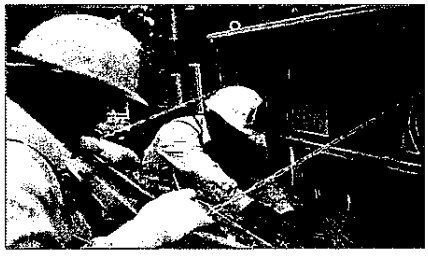


◆ Fiber + WiFi

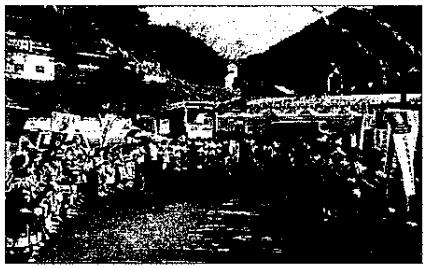
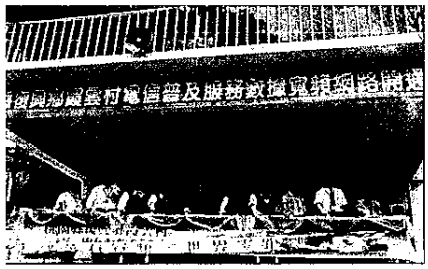
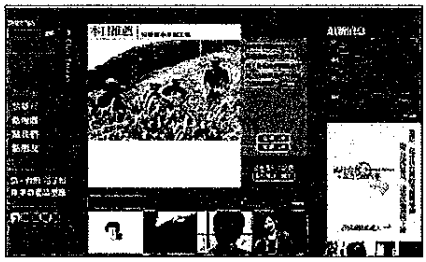


7. Engineering and Ceremony Photos(1/2)



7. Engineering and Ceremony Photos(2/2)


8. A Story of abundant Harvest in Mt. Lala(1/2)

◆ **Faced**

- **Peaches are main income source for local aboriginal farmers**
- **Mountainous terrain, difficult for logistics**
- **Lack of established Broadband and technological infrastructure**
- **Digital divided and Lower level of education**

As a result…up to 2/3 of the harvest of peaches go bad

◆ **After Broadband Access Established**

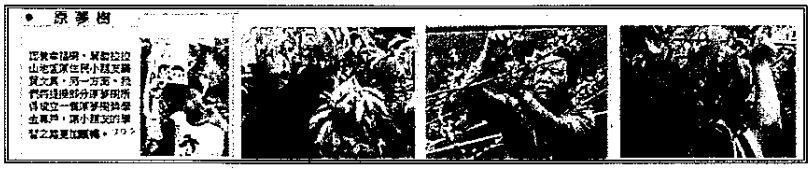
Taoyuan government and local NPOs helped villagers:

- **Set-up e-commerce**
- **Sell peaches online over internet**
- **Write online blogs**
- **Establish production resume**

8. A Story of abundant Harvest in Mt. Lala(2/2)

◆**Happiness of Villagers Now**

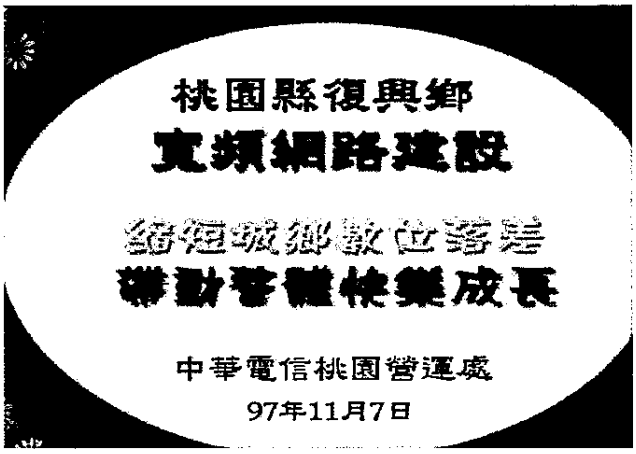
- **Most villagers have become knowledgeable in use of internet to sell peaches online through the Lala Peach portal**
- **Portal also provides a channel for online donations**
- **Effective marketing doubled farmers average annual profit**
- **The portal now sells broader range of agricultural goods, such as persimmons and bamboo shoots. The story and the portal also largely helped the flow of tourism into the villages.**



9. Concluding Remarks

- ◆Follow NCC strategy and guideline, Taiwan are leading country to provide broadband internet access for all village & tribe in the world
- ◆Our effort are not only provide infrastructure & training but also donate PC & discount package for villager
- ◆Expected countrywide FTTx Coverage:

	2011	2013
Residential	75%	83%
Corporate	85%	90%



Industry Canada Industrie Canada

Extending Broadband Coverage in Canada

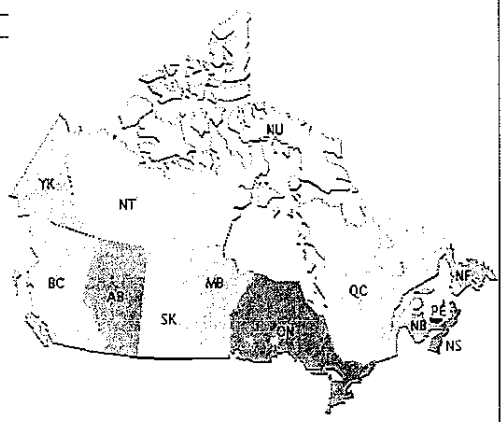
Presentation National Communications Commission of Taiwan

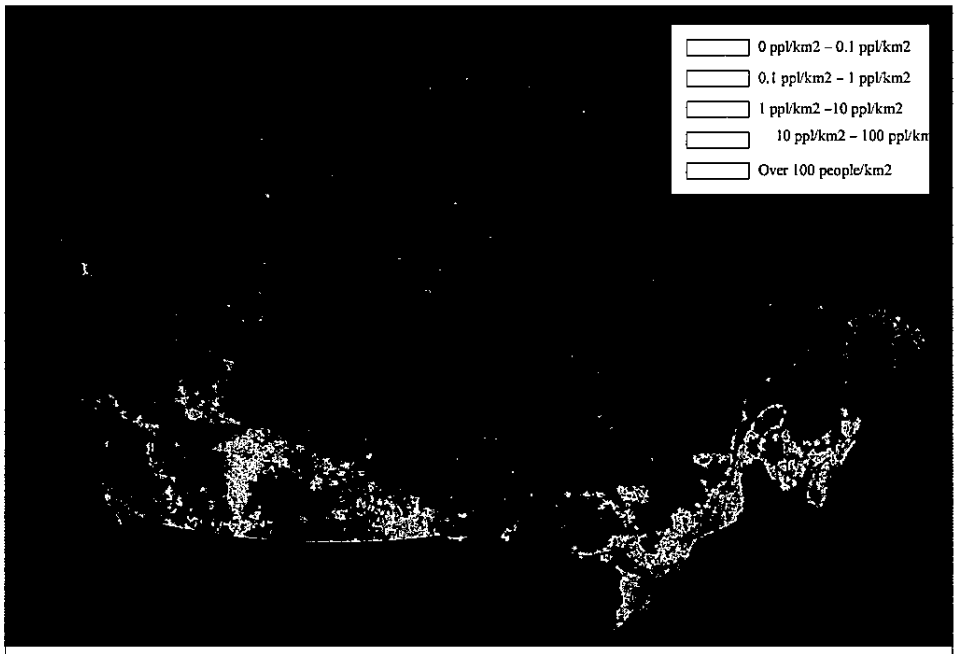
Canada

May 13, 2009

Canada's geography, an ICT challenge

- Second largest country in the world (9,976,140 km^2)
- 33 million - low density 3 per/km2
- Almost 90% of the population lives within 160 km of the Canada/US border
- Extreme temperature ranges
- Six time zones
- Strong North-South influence versus East-West



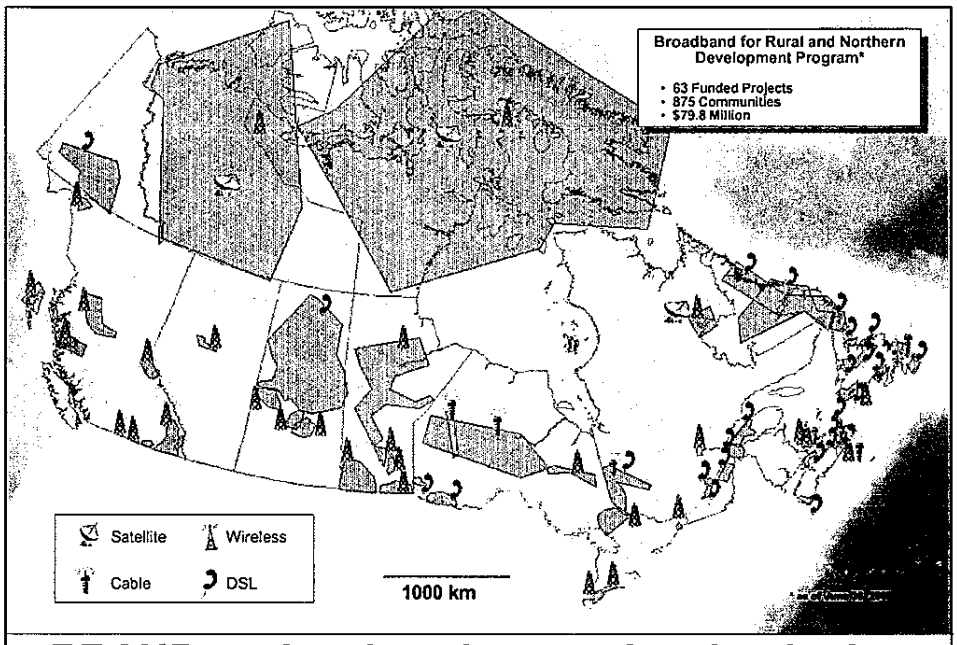


BRAND Pilot Program overview

- Broadband for Rural and Northern Development Pilot Program (BRAND) was the Government's response to the 2001 National Broadband Taskforce
- A $105-million program which used a commercially neutral competitive process to bring broadband to unserved Aboriginal, northern, rural and remote communities.
- Open to not-for-profit Community Champion organizations, to develop and implement business plans to make broadband connectivity available in unserved communities or districts; delivered in two independent phases:
- An independent National Selection Committee assessed all submissions with recommendations provided to the Minister of Industry for approval.
- Launched in 2002, BRAND targeted 400 rural, remote, northern and Aboriginal communities unlikely to be serviced by private sector.

Summary of BRAND Program results

- **Adaptability bolstered success:** projects responded to local conditions in terms of scope, timeline, service provider, technology and ownership models.
- **Aggregation worked:** local projects became regional in scope resulting in 875 communities being reached by BRAND; more than twice than expected.
- **Significant matching funds generated:** $79.8M IC funding leveraged $96.6M (ratio of $1: $1.21).
- **Cost/benefit ratio:** 1:2:57; 853 direct and 200 indirect jobs created (BearingPoint 2005 report).
- **Initial service uptake exceeded forecast:** BRAND revealed pent up demand for rural/remote broadband services.
- **Services lag but applications enabled:** initial prices, speeds of BRAND project broadband services lagged urban offerings, but is allowing use of key ICT applications.
- **Partnerships endure:** collaborations formed via BRAND projects are continuing beyond closure of program.



BRAND project locations and technologies

Budget 2009 announces Rural Broadband

"$225 million over three years for Industry Canada to develop and implement a strategy on extending broadband coverage to all currently unserved communities beginning in 2009–10"

- Objective is to extend broadband coverage to as many unserved and underserved households as possible in Canada
- Rural and remote focus – 93% of total households have access to broadband: virtually all urban households, versus 81% of rural households (CRTC).

Proposed service quality target: Basic broadband internet service

- Minimal service level: 1.5 Megabits per second (CRTC)
- Technology neutral – satellite, wireless, cable or telephone networks
- Encourages competition from lower cost wireless technologies and service providers
- Based on a competitive process for service providers to access funding (cost sharing 50%-50%)

Stage One:
Mapping who is unserved and cost to serve

- Thorough consultation, data collection, mapping and costing will be a critical first step before launch of competitive process
  - Requires detailed geographic mapping of served areas from multiple service providers
  - Mapping information would be made public
- Basis for setting geographic service areas for competitive process and applicants to further develop infrastructure
- Will also allow us to evaluate proposals and measure progress

Stage Two:
Competitive process

- Application process to encourage least cost to extend coverage to maximum number of households
  - Qualify applicants based on capacity, and sustainable solution
  - Applicants compete on households reached and least amount of federal contribution to defined geographical areas within timeframe
  - Size of geographical areas will be set so as to encourage competition among service providers and technologies while providing speed and economies of scope – competitive neutrality
  - Consortia and leverage of provincial and regional funding will be encouraged

Key program parameters

- Maximum federal contribution 50% of eligible costs
  - Level needed to incent capital investment in high cost areas
  - Provinces may not be willing to participate in cost-sharing
  - First Nations communities may lack capacity to invest; contribution from broadband program can be topped up by other federal sources
  - Competitive process will result in lowest necessary federal contribution
- Eligible costs are one-time capital costs
  - Longer term satellite capacity leases where cost-effective solution
- Monitoring and reporting on roll-out and jobs

Stakeholder consultations

- Program developed in consultation with major stakeholders for agreement on broad program parameters
- Roundtable discussion with large telcos and cablecos, new wireless entrants, associations of small telcos and cablecos
- Provincial & territorial consultations
- Other Federal Government Departments and Regional Development Agencies

Implementation timeline

Spring-Summer 2009	Consultation and Mapping
Summer 2009	Formal program announcement; application process launched
Fall – Early Winter 2009	Applicants prepare proposals
	Assessment of proposals
	Agreements signed
Jan 2010	Network planning and build out begins
Fall 2010	Earliest communities connected
Spring 2012	Final communities connected

From Last Mile to Next Generation

- Higher level of connectivity will be needed for Canadians in rural and remote communities to fully participate to the Internet Economy
- Need to support up-take by citizens and consumers to foster the usage & adoption of ICT
- Increased connectivity will be needed to keep supporting e-applications and participative web
- Current program aims at ensuring minimal level of access, but this should be the start of the next generation
- Need to develop renewed National Vision that will bring forward all stakeholders


Canada