

Border Management of Cyberspace, First Step of Cyber Defense

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Abstract

Ability to alter according to progress in political, social, technological in society and world is the secret of survival of government. This rule coordinates with "gradual" rule or principle (evolution) of live phenomenon. In the meantime, forming development and progress of information technology and communication transformed human life in different communities and has been made environment as "cyberspace". With forming this space, capacity and high positive and negative potential has been available for users. Here, negative potentials that make challenge, damage and insecurity in society is important. This negative potential is such vandalism and damage through this space that can include worldwide instantly and abuse of computer technologies and internet can endanger national security, public peace and existence of society and impose a lot of negative effects on individual and social life and even existence of country. So, governments react in different way to reaction and defense cyber to challenges and insecurities of cyber space in security and inside space. In this way border management of cyber space is the first step in cyber defense and prominent and important role in controlling and preventing the challenges that come from cyberspace to real space of country. So, this article tries to investigate the position of cyberspace border on cyber defense for the first time according political geography approach and theoretical and analytical studies.

Keywords: cyberspace, border, cyber defense

1- Introduction

In today's world everything is changing with high speed and all governments and countries try to modernize and evolve the structure and organization to adapt to this new situation. This changes and transformations have influenced government in different ways and they make challenges in some areas and in some other areas that provide many opportunities for them. This trend is like a human that has not been political in present era in contrast to any period. May be we can say one important reason for being political is forming of new communication between persons. This new field develops news and information related to events, social issues, opinions and ... between people extensively provides communication between them. So, governments, groups and even individuals use cyberspace for advertisement, pursue goals, mobilize public opinion etc. In fact, cyberspace put equipments and capacities to its audience that help audience to become powerful for controlling, effecting, role, create anxiety and chaos, distribution and insecurity at the community level. The audience is not passive when watching just media program by internet but has gained strength to show feedback to the content and to be effective in production of content and even to produce the content. So, groups and movements that previously could not represent and communicate themselves in production of media content in one way and by existence of power relations were marginalized have been able to audible their sound and presence in this space in the other way virtual social groups that have formed through relationships and interactions in this space have obtained opportunities for self expression in various areas with different goals and in different dimensions and effect order and security of country to achieve their goals. Accordingly, high capacities, potentials of cyberspace that has been for individuals, groups and ethnicity give them power for reaching their goals in various ways. So, governments for controlling these new challenges that created by forming cyberspace and reduces them that they try to control and manage this space. Some of these cyber defenses are forming cyber police, army, right and...but thing that is so important and can be first step for management of cyberspace that less studied is border management of this space. In should be noted and cleared for user that cyberspace is not a smooth and without obstacle space. This space has different borders, law and rules that apply by government in varying degree and even the freest countries that seem freedom is common like united state of American apply these borders in different way. In this regards, political borders between countries in real space are first and turning point for defense of country and society against other country insecurity of beyond border of country. Recognition and management of cyber border in cyberspace can be a first step of cyber defense for defense

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against transnational insecurity, challenges and attacks and even within country.

2- Research methodology

The main method of investigation according its theatrical nature is descriptive-analytic. In this study tried to use true picture of cyberspace and expression relationship between real spaces and also explain and clarify the border in this space and express the purpose of this borders on cyber defense. In this way, for defining the mean of cyberspace relying on the arguments and opinions of different experts in this field, analyze the data and conclude according this data. It should be noted in this study for collecting and receipting we use library and internet information.

3- Literature review on research

3-1.Cyberspace

Most people when trying to find the meaning of words start their words by a glossary. This approach is certainly reasonable, but has its own limitation. Glossary gives information about how to use words (or at least about how the process work, because glossary can provide up the old words). But the common use of words is vaguer than in the dictionary (Midooz, 2004:9). In this way cyberspace is the same. In Persian, cyber word translated virtual. This translation does not indicate the exact words. Virtual is against true; in English is equivalent to virtual. In the other hand, cyber environment is a real and true environment not false and unreal. Indeed cyber world cannot feel tangibly. As a matter of fact we cannot tell something is virtually, so we cannot tell cyber world is virtually. Because, in Persian there is not a word similar to virtual so, use of cyberspace is developed. It should be noted that virtual space is often used as cyberspace but do not have the ability to induct it. Accordingly, in this study the concept of cyberspace is used. The term "cyberspace" for the first time is used by William Gibson's novel "Newremser" in 1984. This author describes this space as a home of data and information in dark future. Then this term enter widely in world dictionary. Gibson's cyberspace was an environment that activity is done on it electronically. In this space what is experience is real like talking with someone face to face or library search or shopping. People can married or get graduate degree in cyber space or even order to deliver goods in their home (Technology low newsletter, 2003:3). In the other hand, describe "space that various activities in it are done in dimension and information, communication and service management and control mechanism through it". David Bell (2001) one of the expert in communication, said: cyberspace is World Wide Web that connect different network computer in multiple size and even personal computer with the use of hardware and various software and related contracts. Telecommunications technology is formed base of cyberspace. Although some of these technologies like telegraph and telephone has been invented in the early 19th century but becoming common and cheap of this technology and high ability of them are the main reason for emergence of cyberspace (Sharifi Holaso, 2008: 52). Thus, cyberspace is an electronically place that a group of people meet and debate to each other and technically cyberspace is an informational space that by digital web of computer system connects to all web that mean internet. So, each non physical that created by "on line" internet system can be as a cyberspace (Newsletter of low technology, 2003:3).

3-2. Borders

Borders are lines that determine outer territory of sovereignty of a nation state. Border is a factor for detection and separation a single political organization of one country or a neighbor country (Hafeznia, 2006:69). In the other hands, border is an imaginary line in space that separate two nation, two country and two states. Border place at the end of low and legal of government (Mojtahedzadeh, 2006: unpublished study). To understand better the concept of border some total definition of border are:

3-3. Border management

Border management is a mechanism to ensure the security of national borders and legal regulation of entry and exit for supplying divers needs of nation by cultural-social-economic communication that established by borders. In the other words, the term of border management is wide words that define border management include guarantee of situation. The most important player of border management is people who live in border area. This people will benefit from proper management. At the same time, it is impossible for any organization involve in border management without regards to border inhabitants potentially. Today, border management has gained special importance. The process of globalization, global opportunities are created with global challenges together. For adapting to proper technique of borders for global activities, economic, social and cultural benefits various threat should know and keep the nation. This would require certain types of mechanism for regulation of border and this aim situated behind the general idea of border management (Border Management of India, 2008: 29). In this way, border management often help people, government and nation to point the inhibition of insecurity of cyberspace that exist in nation space and... according rule of country. Also, this includes different organized agency and other physical basement, facility and designed security and management. Border

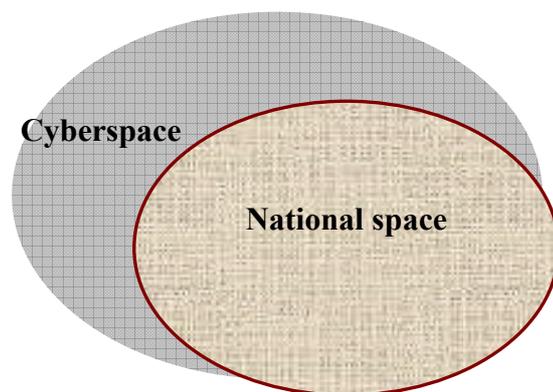
management more than a border control seem handle the cross over people, goods, resources, border material and... linked with national security. For border management, optimal and effective management is automatically beneficial to world's security and country (www.kghborderservices.com).

4. Research finding

4-1. Relationship between real space and cyberspace

With the development of information and communication technologies, forming of cyberspace of human life changes in various ways. The formation of this space that has high capacity and ability in various ways, presence of activities and human in cyberspace widely so, cyberspace has various effects on society in real space that will be manifested advantage and disadvantage in the community. Therefore, we can admit that these technologies are not just a tool, but can affect the methods of human communication and thought processes and creativity and overshadowed it (Soltani et al., 2004: 8). So, in the relationship between cyberspace and real space can be said Cyber space is not neutral space. This space is composed of numerous opportunities and damages that individuals, groups, society, government and states have. In this regard, it must acquire accurate and realistic knowledge from space and its different aspects to arise the opportunities and to the extent possible, reduce cyber defense that caused by threat and pathology of cyberspace to country, government, states, society and even individual that prepare itself for competition, cyber warfare, cyber challenges and.... In one way and in the other hand and future development caused by cyber space. In this context it should be noted that cyberspace is not something apart from real space, cyberspace, is a space that has been created by the real space and effect on it and take effect. Generally we can say cyberspace is like a real space shadow that every changes that happen in real space cause changes in cyberspace. But in difference that cyberspace is not like a shadow without effete in real space. This space affects real space by various ways and forming new world that give different solution for problems (Janparvar, 2007:56).

Shape1. Relationship between real space and cyberspace

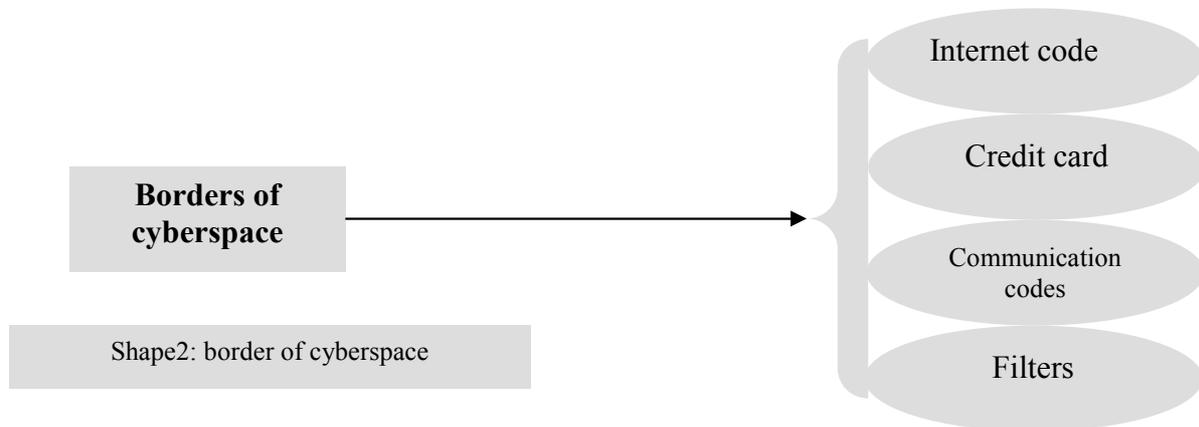


Source : Janparvar, 2007, 57

4-2. Borders in cyberspace

In recent world, the world has overlapped by the internet network and far distance, become near and adjacent to each other. The global network has provided many opportunities and possibilities for nations and governments; but growing concerns have created for vital values and national security. Effects of cyberspace are concerned not just developing countries but also, developed countries. For example Jacques Chirac in 1996 said: "proficiency in English on the internet has lead French culture and language and other languages are endangered (Araghchi, 1998:358). Also, in this era can point the hackers that attack secret and security information of other country in different aspects of policy and... That used by government and various group to reach their goals. In this regard, by development of technology of governments for cyber defense against electronic communication that passes through their land and border and answering the information (Johnson& post, 2003: 4). However, control of information as a preoccupation and primary concern in political and military conflicts has always regarded. For example, during the cold war, West try to send radio program from West Germany to East Germany and also, from Hong Kong to China. Element of old technology also, radio and TV concentrate and depend to frequencies. So, governments can continue their control by paying sending noise (Islami, 2002: 130). However this is not surprising that with the development of cyberspace, network connected to the real world and legal reality goes inside cyberspace where various aspects of issues like cyber warfare, cyber attacks, cyber army, forming cyber police, tax, intellectual property rights, electronic commerce and etc, force government to regulate rule of

cyberspace, development in cyberspace, capacity of cyberspace and try to govern the insecurity and challenges (Wilske, 2004: 3). In this regards, as in real space the step is defending of territorial integrity, nation and citizen identity and security within country is management of borders. In cyberspace first step of defending government for preventing of negative effects and insecurity of cyberspace on the real space inside country is management of border in this space. So, knowing the border inside this space and management of this border has an important role for defending cyber. Border of cyber space exist below and their character express (shape2)



Source: janparvar 2007: 151

a. Filters

Today, sovereignty of government cannot allow the harmful effects of one on line activity in atom world spread to country and citizen as a government cannot allow bombs and missiles from other land attack them (Thornton, 1997:8). In some country, Internet has become a public media. This led to inverse pressure enter to diplomatic that make a rule for media like radio, TV or the other media (supreme Council of Information, 2005:179). Government with filtering technology or the other public media control the user content. Emergence of World Wide Web filters is one of this ways. These filters are software that their aim is to prevent to scatter the undesirable content that attack identity, security and ... of country, nation and government and produce challenges and problems for it. In this way software engineer has produce" system for selection of internet content" and pioneer of internet support it. This system is as filtering criteria that protect various systems in cyberspace. Under this system, web page is marked by special label and users, web browser and internet service provider can prevent all pages that have special value or just provide all pages that have special value (Alberts and S Pop, 2006: 190). Filtering system is not just an instrument for creating cultural limitation also is for suppression of democratic organization supply instrument; like wolf in sheep dress (Alberts and S Pop, 2006: 190). Like Chinese government believe that answer to govern internet and cyberspace is like "emit every bad thing and conserve good thing". China government believe, internet is an instrument for helping commercial and just this sections have prominent important and other information have special support. China wants to close all information except other commercial. Therefore, access to external content and for access this content need government permission. In this way free access of internet inside china boundary limit to some selected people and most of them related to use of scientific and industrial use of computer (Gordon, 2006:10). Accordingly to this view, all idea about filter is against to human ideology so, audience cannot hear anything else except what is ordered (Hendi, 2009:188). So, we can say that: filters from governments, nations, groups and... like boundary act for preventing the confidential information and go out of secret and important information. So, government and... use them for their aims for preventing of itrance of harmful and dangerous information for security of country and other contents that are against national and governmental interest in cyberspace. At first view border making prevent filtration in cyberspace by user and should be declare that filters in cyberspace are like real space and all country in the world like USA, west Europe country and the other country of worlds by different way and different degree prevent insecurity, cyberspace attack and...so, countries can prevent from entering unwanted information, challenges and cyber attack by suitable management this boundary inside the cyberspace. As an example we see that USA claim inside its country is freedom and expressing words is free, government of this country according challenges that induce by its cyberspace have a lot of problem and start to make rule for preventing threat of internet in its country.

b- Communication code

All of us related to communication every day, but in new communication space there is a world space that is not

the same to flow the message without contact (Jonson et al, 2004: 45). As we know, after radio and TV the most knowing communication in the world is telephone. With the development of various communication devices, new subject from national and global policy issue appear. International telecommunication union work is standardizing the communication in the world by international advisory of the telegraph and telephone and dialing plan in the world that every country, for differentiation use one or three code (Ecvoool, 1997: 51). International communication unity by using this special number for each country make border for them and each communicate between them can be recognize by them. So, we can say that despite the formation of communication systems that have the ability to communicate at international level, boundary between countries in the new form of communication codes are created. Since telecommunication system is formed the base of cyberspace and now in most country it is a communication device, so we can tell this is a communication code.

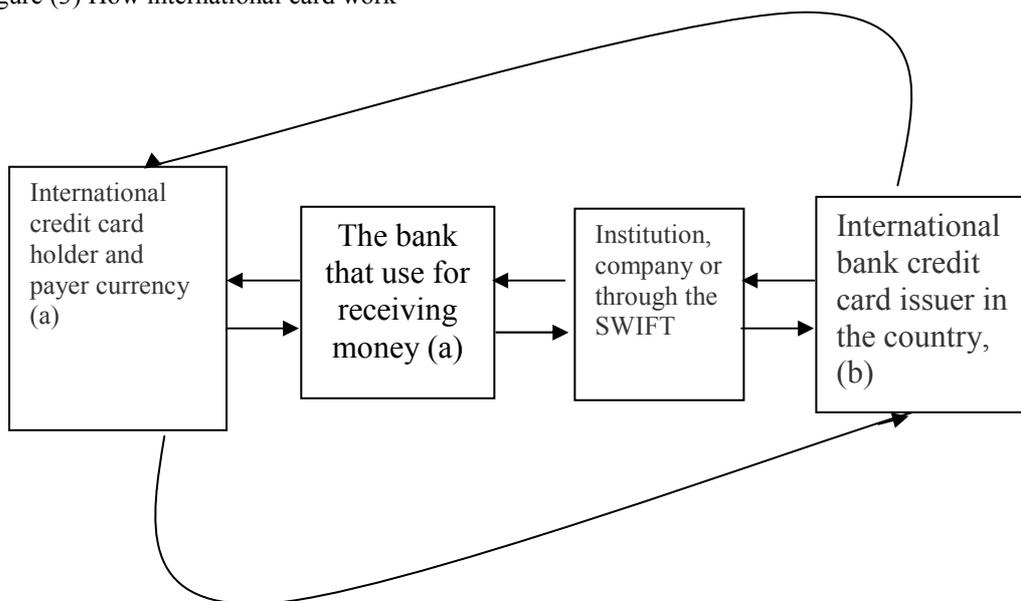
c- Credit cards

In the early of 1960s another type of service (credit card) becomes common between people, (Davodifar, 2003: 86) international card is a card that is use more than one country, so is dealing with more than one currency. Owner of these cards can purchase or receive money in different countries. According the problem that induce by conservation and exchange money between card acceptor and giver for international services, the need to create common system of banking at international level will be felt. For this purpose, the bank and financial institutions that are willing to issue international card be a member of Visa and Master card organization (Ministry of Commerce and Economic Affairs- Ministry of commerce, 2005: 109-110). For clearing the work of credit card note the following story:

"I am in Paris; it is late at night and I need money badly. I go to the bank, is closed...but there is ATM outside. Put my ATM card in device that issued from Washington, enter my identification number and 500 francs, equivalent to 300 dollar and I get the desire amount. Computer of French bank with tracking recognizes my card that not belongs to them. So, my request is sent to the center of switching Europe in Syris Belgium. They recognize that my card is not a European card. This electronic message sends to switching center of world in Detroit. This center diagnoses my account in Washington is over 300 dollar and then deducted from my account 300 dollar plus 1.5 dollar. Then this message will be sent to Detroit and then to Belgium and then to Paris bank and ATM, finally French franc equivalent to 300 dollar come out of the device. Total time is 16 second "(Johnson et al., 2004: 45). Shape (3)

As it clear from the above story, credit card based on specific type of special code in the code of states transport currency from one country to another and financial boundaries of countries, to keep the currency inside it and give ability to government for preventing the excessive exchange, money laundering and... from country by credit cards get restriction for transforming currency that represent a new type of boundary in electronic and cyber space.

Figure (3) How international card work

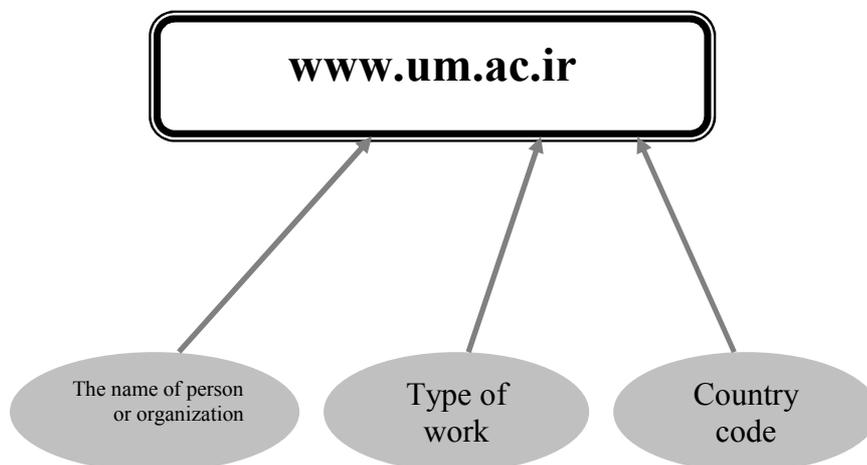


d- Web codes

With development of information and communication technology and being easy and affordable access to the internet, this device becomes the world electronic system. This process has connected many of the people to each other. Evolution of the internet and cyberspace formation created this idea between users that electronic system

of internet space has no boundaries, no rules and no sovereign. But the truth show something else and that is inside cyberspace allow each country for separating give one name to show their separation in electronic system. So, we must say in cyberspace for each country there is special code. In order to clarify this issue a formal address in Iran is investigated below. Shape (4)

Shape (4) Internet code



In the official electronic address like above there is different section that each represent special code. This section is like www that show the World Wide Web. The area after it is the name of zone. The name of zone is exclusive collection of computers that connected through internet. This zone has another area that separate by dots. The part that away from right part of address is the higher area and the left part are for describing the name of web, section, and even special computer. The high part of web maybe the name of country and act of it. Like Com is for commercial organization and Gov for government agencies. The end of all internet address and email except USA will lead to the country name. In above electronic address it is Iran special internet code that has brought at the end of each electronic address of scientific, national and email (C. lavern and P. Lavern, 2006: 142). Accordingly, the country with having its own website and codes separated from the other in cyberspace and with using this codes new boundary form between them.

4-3- Management of the boundaries of cyberspace by governments

Changes that took place in the world has led to border management that they try to expand and update management tools and techniques by new information and communication technology and new form of management and supervision on real space and cyberspace and identity space (conceptual) of country through proper management of these space and expand the data. For example in Europe to deal with various offenses, the use of camera has been developed. These technologies give high ability to government and able them to supervise the act of political group and in border area control traffic (Vilcon, 2002: 62). With using border management challenges and problem in cyberspace reduced and national security of citizen produce. In this way, forming cyberspace according world web internet connection, clearly indicate that the damage can devastate the world. Abuse of computer and internet technology can endanger national security, public peace and existence of society and impose negative effect for social communities. With the development of electronic media beside the traditional crimes that mentioned, new opportunities for creating insecurity such as virus attack, the entering unauthorized website and hacking them, theft and misuse of data are consider criminal behavior that are not capable of committing out of the computer environment. Advancement of computer technology has provided appropriate substrates software for data theft, unauthorized copy of software, misuse of the stock market, violating intellectual property rights and most important is cultural invasion (vaylding, 2000: 11). With the formation of cyberspace and entering information era and dependence of different that formed in individual and country level, many theorists claimed loss of border and boundary and the inability of control and border management between countries. These people, think border is lost and uncontrolled and try to make a new concept for world, border, global village and...the exact point of these people is forming cyberspace and freedom without border in this space for person and loss of control and government management in this space and ability to effect and transition from real space constrains in this space. But we should pay attention that government still govern their countries and their territory and bordering conserve them from injuries and problem that induce by advancing different technologies. All we can say, governments have secret information in various shape (for example print, audio, electronic or visual) that are a source of strategic for sovereignty,

national unity, national interest, country management and... this information in the life of any government effectively controlled and managed and have high position for conserve and security. With development in technology and high volume of information and interest for use of this technology in conservation, movement and... conserve of information and secret of national information depend on new information like internet and cyberspace. In addition to secret government information that can be attacked in different ways and make difficult for country also, false information and motivation of citizen and impress them to obtain your interest, undermine national security and political character, use of political and ethnic issue inside country and motivating of citizen against government. This problem in different way causes the government to explain special rules for cyberspace and manage this space in various ways.

5- Analysis and conclusion

According to the above can say generally, development of electronic and information cause entering person to the information era and forming cyber space. This cyberspace is not separate from real space and directly and indirectly affect from it and affect on it. This is thought that flow of information and capital, etc are free and without control. But should say, control of following information has been always noticed a primary preoccupation and first concern in political and military conflicts. Many governments in dealing with electronic communication that pass their borders answer by stopping and ruling. Accordingly, the formation of the cyberspace has produced various risks for governments, groups and even individuals and according its abilities and capacities expand day to day and have become a new arena of power and battle between governments, groups and even individuals. The administration and control of cyberspace in cyber defense is more attention. In studying the potential advantages and disadvantages, Policy and decision makers should increase their information about management, electronic security, cyber attack, viruses, ensure reliable transactions in cyberspace. In addition we can say that governments have secret national information in various ways (printing, audio, electronic or visual) as a strategic source for performing sovereignty, national unity, national interests, national objects, country management. This information in the life of any governments controls effectively and has high position for maintenance. With progressing in technology and increasing volume of information for using this technology in storage, movement and ... the protection of data, confidentially of government information has dependent to new technology like internet and cyber space. Also, secret government information can attack in various ways and produce problem for country and giving false information to the citizens and impress them to get their interest, undermine state security and diplomatic, using political and ethnic issue inside the country and excite citizen against government. Countries for preventing this problems and management of cyberspace border on their territory and land do in different ways. In this regards, government with ruling, filtering, coding, limiting and other works show reaction and do by preservation and filtering of data, invasive detection service, fire walls, and permeability test for testing vulnerability of software and hardware, service or coding of software, service or software to authenticate by password, symptoms, keys and or biological criteria and so. According to critical need of country to strengthen the cyber defense should do this in cyberspace and create less negative reaction in society. The following suggestion is offered:

- Put Persian synonym for cyberspace that describe detail and dimension of cyberspace completely
- Specific and clear definition of cyberspace
- Defining the border of cyberspace to be understandable for users
- Strengthening and updating of bordering of cyberspace in various ways for preventing of challenges ahead
- Border management of cyberspace that provide finding information and services in cyberspace and less challenges for national security and information in government, groups and individuals inside the countries
- Create necessary awareness for users by description of factors and challenges for national security, national interest and... through cyberspace to support internal user by national cyber defense policy
- Describing the situation of cyber defense in other countries and bordering of this countries in cyber space for reducing frustration and cynicism towards cyber defense policy
- And...

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