



## Cyber Security Challenges and Opportunities in the Context of Pakistan

### Post Event Report

NUST has taken an initiative to organize the event “Cyber Security Challenges and Opportunities in the Context of Pakistan” which was a brief 2-hour session with the primary goal to highlight the increasing threats of Cyber Crimes and Cyber Terrorism in Pakistan on March 04, 2015. The aim of the event was to gather the major stakeholders from across the country to help enforce the 7 Action Cyber Secure Pakistan Plan and to exchange information regarding cyber security.

Advances in science and technology over the past century have created many unresolved global security challenges for policy makers and the governments. Today, cyberspace touches nearly every part of our daily lives — from the broadband beneath us to the wireless signals around us to the networks that power our hospitals, schools, and our organizations. But this extensive use of Internet has exposed nations, corporations and individuals to cyber-criminality and cyber-terrorism that could paralyze countries entire global economy. Crux is that, it is not possible for us to control cyberspace, neither can we accurately calculate the diversity and capabilities of cyber attackers. It is perhaps a sign of times that cyber warfare is now recognized as an existential threat to nations. According to the Snowden revelations of 2013, Pakistan is the second most spied country in the world. The severity of issue becomes more obvious by the fact that Pakistan has not yet been able to pass a cyber-security law and its implementation still remains a challenge. The only area that has merited attention so far has been cybercrime. Pakistan, therefore, is in dire need of coordinating, implementing and enforcing cyber security strategies among government and private sectors.

As formal start of the session, **Dr. Shahid A. Hashmat (Principal NIPCONS)** in his opening remarks thanked all the distinguished guests for their participation and briefed them about the purpose of the event. The main aim of the event was to bring together academia, industry and think tanks of legal & technical community to deliberate on the security issues and dynamics of cybersecurity as a whole. The event had been jointly organized by Centre for International Peace and Stability (CIPS) and School of Electrical Engineering & Computer Science (SEECs). Dr. Hashmat further elaborated that the event focuses on the technical issues, policy issues, security & strategy issues and the legal issues in the domain of Cyber security.

**Dr. Arshad Ali (Principal SEECs)** highlighted the central role, which universities play in the national development. He shared that academia bridges the gap between young generation and the industry. Universities provide students with the platform to polish themselves into flourishing entrepreneurs & innovators who target early, successful start-ups. Most of the radical innovations happen by joint collaboration of industry and universities. He appreciated the presence of diverse expertise represented in the Cyber Security event held at CIPS-NUST. He was of the view that academia & industry both having expertise together can solve problems faced by our country. Dr. Arshad briefed the audience of the



agenda, with various speakers presenting on topics related to cybersecurity followed by an open discussion.

The first speaker of the event was **Dr. Tughral Yamin**, Associate Dean CIPS. He spoke on the issue of "Cybersecurity Challenges faced by Pakistan." He underscored the urgent need for formulation of a national cybersecurity strategy for Pakistan. He raised major concerns regarding cybersecurity which need to be addressed in letter and spirit. He pointed out the complete lack of cybersecurity awareness at all levels, particularly within the policymaking circles. According to him cybersecurity has not yet blipped on the national radar. He raised important points regarding cyber awareness such as that none of the political parties had cyber security awareness on its manifesto. Police department, judiciary and lawyers did not have adequate knowledge to investigate and prosecute digital crimes. There wasn't any import policy to prevent hardware with embedded technologies entering the country. In the absence of any indigenous production of computer hardware, it was an existential threat. In his view, lack of Cyber Security Policy was a major concern that needed to be addressed on war footing. There was also the need to define rules and policies to define cyber censorship. In addition to this, universities need to group together to promote cyber security education under the umbrella of HEC. The proliferation and operation of cyber cafes needs to be controlled and parental guidance were of salience. Cyber harassment and cyber recruitment for terrorist causes were issues that needed to be dealt with sternly by law enforcement agencies. Websites of proscribed organizations need to be removed. He said that there was an absence of regional cooperation on this issue. In this regard, there was a scope for bilateral, as well as regional cooperation in South Asia. The South Asian Association for Regional Cooperation (SAARC) can provide an important forum for cybersecurity. Regional cyber scape was rife with unchecked 'hacktivisim' that was escalating tensions among neighboring countries. This needs to be controlled by setting regional cyber norms.

**Dr. Shahzad Saleem**, Assistant Professor SEecs, briefed the audience about Digital Forensics Practices and its importance in the context of Pakistan. He informed the assembled gathering that digital forensic science dealt with the recovery and investigation of incriminating evidence found in digital devices. He discussed in detail the existing digital forensics models. The core components of digital forensics abstract model mainly include preparation and planning, data collection, examination, analysis, reporting, presentation and finally archiving phases. Furthermore, he highlighted the importance of digital forensics with respect to legal context, managerial context and technical context. Mobile subscriptions, personal behavioral digital archives act as gold mines for investigators. He raised important points regarding legal context of digital forensics and suggested that in context of Pakistan we need to focus on laws & regulations such as Computer Fraud and Abuse Act, Electronic Transactions Act, Electronic Communications Privacy Act, Cyber Security Enhancement Act, Digital Millennium Copyright Act, Economic Espionage Act, Computer Software Privacy and Control Act and implementation of such laws which ensure cyber security. He added that there is a need of indigenous tool for testing & validation in the field of Forensics. He shared that initiatives like National Response Centre for Cyber Crime by FIA, Cyber Investigation Unit (CIU) and Computer Forensics Lab (FIA), National Forensic Science Agency, Punjab Forensic Science Agency are worth mentioning in this regard.



**Col (Retired) Rizwan**, VP PISA was of the view that there is a need to understand the threat first. After threat perception, there is a need to have a vision and a clear strategy. He shared that the data of our cell phones, smart phones, digital devices, ATMs is not in the geographical bounds of Pakistan which poses a serious threat to our county. In this regard, a need for a cyber disaster plan. He also talked about the research culture at our universities and the need of research in the field of Cyber security.

#### **Open House Discussion & Suggestions:**

An was open for discussion by the audience followed the formal presentations by the distinguished speakers, the house. The vast expertise represented by eminent persons from the private, public sector and academia generated a healthy debate. Experts shared their point of view on aspects such as cyber terrorism and security in the context of Pakistan. Representatives from organizations such as FIA, NESCOM, PTA, Ministry of Science & Technology (MoST), Ministry of IT, Ministry of Defence, Ministry of Foreign Affairs (MoFA), PMA, Ministry of Water & Power, NDU, GHQ, NIPCONS, NR3C, and many more were of the consensus opinion that the issue of cybersecurity needed national attention and they could join hands to address the emerging cyber challenges. They also shared their experiences about the steps taken so far by the government to prevent cyber-crimes in Pakistan. The initiatives were appreciated by the house but the need was felt to collaborate and enhance the scope of these initiatives. In this regard, various issues were highlighted and suggestions were given by the stakeholders present.



The suggestions included the need for a cyber-disaster plan which is required for Pakistan. Participants focused on the threat from embedded technologies in imported hardware. All cyber appliances such as smart phones, cell phones, laptops were manufactured outside the country and were a major source of leakage of sensitive resources. Therefore there was a dire need to produce indigenous hardware and use our own products. There was also a suggestion to work on an indigenous Operating System (OS) as well. It was important to develop a common criteria to examine all manufactured devices.

To a question related to the need to have a focused group with defined members & work for a common cyber security purpose, **Mr. Ammar Jafri**, a former member of the Federal Intelligence Agency (FIA) that the National Response Centre for Cyber Security (NR3C) established in 2003 consisted of a Cyber Security Taskforce that had the mandate for cyber-crime mitigation. It was essential to collaborate with this body to implement cyber laws and start up initiatives. He also informed the audience that a part of cyber awareness among school children a program of Cyber Scouts has been introduced in the schools of Islamabad. This initiative was meant to create awareness of responding to a situation developing from a cybercrime.



As to the point that most of our cyber research was funded by the West and authentications routed through the US, made our work subject to external agendas, there was a consensus that our country needed to become technologically self-sufficient and independent by using our own indigenous expertise and skills. A Search Engine of Pakistan should be developed which is able to secure our data. In addition to this a National Data Centre & Data Hosting Service should be made available in Pakistan to develop our cyber assets. Being a nuclear power, we should also focus on security to protect our strategic assets from external threats.

In addition to this, it was suggested to have cyber-drills arranged for university level students. In addition to this students should be given the opportunity to opt for MS theses to solve actual cyber problems faced by Pakistan. In this regard Ammar Jafri told the audience about the Cyber Secure 2015 to be held in April this year in which PISA was collaborating with SEECS . This event would benefit huge audience and give them a hands on experience related to cyber-attacks and their mitigation. Collaborative sessions should be arranged in future, where various private and public organizations should discuss the on-going work related to cyber security.



**Dr. Arshad Ali** in his closing remarks said that knowledge should be coupled with innovation. He said he was glad to witness that people were thinking in this way and the reflections today make it obvious. He mentioned that SEecs will extend full support in terms of collaborating and working to address the specific issues that have been highlighted in today's session.

**Dr Shahid Hashmat** extended his gratitude to all the participants and expressed his satisfaction that the initial objectives of the National Cyber Brainstorming Session had been achieved. It had brought together brilliant people together from diverse backgrounds and despite differences of opinion there was consensus on major issues. It was a healthy and active discussion by all participants and it created an environment for handshaking among various stakeholders. This shall prove useful in becoming a technologically and economically strong and vibrant nation, where we can practice and protect our own way of life. By all means we shall try to bridge the gap between academia and industry. **Our focal point of contact shall be Dr. Arshad Ali, Dr. Tughral Yamin and Mr. Ammar Jafri.** If anyone wants to participate in our combined efforts, he must get in contact with these focal persons by indicating their interest and area of specialization. General Hashmat shared that if any of the participating organizations wants to host activity related to Cyber security, they would be more than welcome.



The diverse expertise represented in the event included the following distinguished guests.

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