

Proposed Plan for Workshops 2017

[1] TITLE OF THE PROPOSAL: Campus Network Security Workshop

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[3] INTRODUCTION:

Bangladesh Research and Education Network (BdREN) is the NREN of Bangladesh. BdREN has already connected 36 universities in different locations of the country, triggering information sharing amongst the universities and setting up a launching pad for collaborative research. The goal is to take the number of universities over 100 and bring them under the umbrella of a single standard connectivity. As a result, better and faster information sharing will be possible and state of the art research will be conducted. Already, a large number of research papers are shared in BdREN which has significantly contributed to the development of research standards in Bangladesh.

However, the huge volume of data sharing using this network has made it an ideal target for malicious attackers. In this regard, there is an urgent need to increase security of BdREN. State of the art security protocols and security best practices needs to be implemented for this network which aims to serve over 100 million students in Bangladesh. Recent experiences of NREN in other countries have shown that workshops for security awareness, security practices and security frameworks have played an important role for achieving high quality security of BdREN. Case studies of India, Bhutan, Maldives and Sri Lanka have shown significant improvement of quality in security practices after holding workshops and obtaining security ideas from the discussions during this workshops. Taking from that experience, this is a project of Ministry of Education funded by World Bank. Implementing agency of this project is University Grants Commission of Bangladesh. UGC/BdREN is a member of TEIN since 2012. BdREN has a good Technical Team of professionally skilled network engineers which makes it very much competent for hosting such workshop events with the collaboration of TEIN*CC and in association with Network Startup Resource Center (NSRC).

Security experts from both Bangladesh and abroad will be invited and their presence will trigger discussions on the latest security and technology trends for a large and dynamic network of BdREN. Members from all connected universities will be invited

which will ensure proper coverage and sharing of the learnings of this workshop to all stakeholders. At the same time, participation of all the connected universities will ensure effective coverage of the event. Invitation and participation of internationally renowned security experts will assure that this workshop obtains visibility at the international stage as well.

With the mentioned plan, effective security practices for BdREN will be determined and the outcome of the workshop will produce a report on the security standards and practices which needs to be followed as surfaced during the workshop. As a result, this report will become the standard for Bangladesh REN which will ensure effective security practices for Bangladesh. It will also open up a new gateway for building a secure wide area network connecting all universities of Bangladesh.

[4] OBJECTIVES:

- The objective of this workshop is to examine the elements involved in establishing and maintaining security for a Campus network, and building an understanding and familiarity with their operation.
- Device and network infrastructure security is examined with a focus on establishing a robust, stable, and secure Campus Network while protecting the data and processes that occur in the network.
- Document and publish report identifying the security vulnerabilities of BdREN network as an outcome of this workshop and identify mitigation procedures for them.
- Analyze and prioritize security requirements for the BdREN
- Identify important tools and security software for BdREN network.
- Implement the best security practices for BdREN.
- Devise a mechanism to regularly update the security procedures for BdREN.

[5] TARGET PARTICIPANTS:

The workshop is designed for the network professionals and campus network engineers from different universities who are interested in network security and gaining an understanding of the threats they face and how to mitigate such threats.

[6] NUMBER OF PARTICIPANTS:

- Total Participants: 36

[7] WORKSHOP DATES: 26 - 30 NOVEMBER 2017

[8] WORKSHOP DURATION: 5 DAYS

[9] SYNOPSIS PROGRAM

- Network security is a critical part in protecting an organization's data, assets and resources. This workshop will focus on the fundamental aspects of Network

security. It will discuss key concepts, protocols and the policies involved in establishing a secure network.

- Feasibility study of network to identify the vulnerabilities is also an important criteria of this workshop. Additionally the identification of strength and weaknesses of BdREN's network in terms of security will be conducted through this workshop.
- This workshop will further examine network device and infrastructure security in different layers, as well as take a closer look at common network attacks with tools and tips to mitigate them.

TARGET AUDIENCE

Network Engineers, System administrators and IT personals those who are maintaining campus network of public and private universities in Bangladesh who are interested in network security and want to gain an understanding of the threats they face and how to mitigate such threats.

TIME SCHEDULE

Session 1	08:30 - 10:30
Break	10:30 - 11:00
Session 2	11:00 - 13:00
Lunch	13:00 - 14:00
Session 3	14:00 - 15:30
Break	15:30 - 16:00
Session 4	16:00 - 18:00

INSTRUCTORS

MR	Mohd. Zulfiqar Hafiz	Professor, IIT, University Of Dhaka	Bangladesh
MR	Dr. Md. Mustafizur	Professor, CSE, University	Bangladesh

	Rahman	Of Dhaka	
MR	Dr. Md. Mamun-or-Rashid	Professor, CSE, University Of Dhaka	Bangladesh
MR	Dr. Md. Shariful Islam	Professor, IIT, University Of Dhaka	Bangladesh
MR	Dr. Syed Faisal Hasan	Associate Professor, CSE, University Of Dhaka	Bangladesh
MR	Asif Imran	Lecturer, IIT, University Of Dhaka	Bangladesh
MR	GZ Kabir	BDCOM Online Limited	Bangladesh
MR	Sumon Ahmed Sabir	Fiber@Home Ltd	Bangladesh

The training program will be followed by an Evaluation program to choose the successful candidates who will be awarded with the certificate. The course in brief will be as follows:

PROGRAM SCHEDULE

Day 1	Topic	Exercises
Session 1	Welcome, Introduction (key security concepts, Threats and vulnerabilities, security policy, Risk analysis, Incident response, Security Auditing, human factors in security)	
Session 2	Crypto Fundamentals (classical cyphers, Modern ciphers, PKI, RSA, Diffi-Hellman, MD5, SHA, MD5 length extension attack, hash collisions)	Crypto Lab

Session 3	Network security (TLS/SSL, CAs, Browser security, Network Attacks, spoofing, poisoning, , reflection and amplification attacks, DDOS, Anatomy of Mirai botnet, Attack on DynDNS)	SSL/TLS Lab
	Securing Network Infrastructure (DNS security, DNS cache poisoning, DNS best practices, introduction to DNSSEC	
Session 4	Introduction to packet analysis using wireshark	Wireshark Lab
Day 2		
Session 1	Instrumenting network for monitoring Iptables, basic firewall concepts	
Session 2	Securing Routers/switches and routing protocols, RPKI and Secure BGP	RPKI Lab
Session 3	IPV6 deployment and security considerations	IPv6 Lab
Session 4	Software Defined Networks for campus networks.	Mininet lab
Day 3		
Session 1	DNS Refresher Intro to Lab Environment Minimal Unix	Lab: DNS "dig"
Session 2	DNS Operations, Delegation	
Session 3	Create a zone and delegate it	Lab: Create a zone and delegate it Lab: Logging Lab: Enabling your resolver
Session 4	DNS Software Overview	Lab: Working with NSD

Day 4		
Session 1	Resiliency, Anycast	
Session 2	DNSSEC Protocol Detail and Deployment	Lab: Sign a zone
Session 3	Enabling validation on your resolver	Lab: Manual Key (ZSK) Rollove Lab: Manual Key (KSK) Rollover Lab: Exercise - Bind in-line signing
Session 4	Implementation Considerations and Risk Analysis	DNSSEC Practice Statement (DPS) Sign-In Log
Day 5		
Session 1	Reconnaissance & Scanning	
Session 2	(Introduction to snort, RA tools, splunk, deploying NSM using security onion, Kali linux.)	SNORT and splunk Lab
Session 3	Introduction to computer and network forensics (forensics concepts, log analysis for incident response, file carving using wireshark, extracting malware from mail attachment, malware analysis)	Forensics Lab,
Session 4	Evaluations, Certificates and Closing	

[10] EXPECTED OUTCOME

On completion of the training program, the trainees:

- Will gain an advance level of knowledge on key concepts, protocols and the policies involved in establishing and maintaining security for a network.
- Will have knowledge about secure DNS design and implementation
- Will have knowledge about open source Intrusion Detection Systems (IDS) tools
- Will have knowledge about tools like network packet analyzer

[11] POST TRAINING DEVELOPMENT:

Network Engineers and Systems Administrator of the public and private universities in Bangladesh will be able to build skills required to design robust and secure ICT infrastructures that are able to counter network threats from the internet.

**BUDGET DETAILS
Workshop on Telemedicine**

Items of Expenditure	Unit Cost (Euro)	Qty	No. of People	Total Cost (Euro)	Remarks
1) Meals					
Lunch	8	5	36	1,440	@ €8/person/day. In total there are for 5 days and 36 persons in total
Social Network Dinner	25	1	50	1,250	@ €25/person for 50 persons in Hotel
Snacks with Tea and Water 2 times in a day	1	10	36	360	@ €1.0/person/day for 5 days in 2 times for 36 persons
Net Total for Meals				3,050	
2) Travel & Accommodation Support					
Overseas Participants					
(i) Round trip Economy Class air fare for overseas 5 participants	400	1	4	1,600	@ €400/person for 4 persons
(ii) Daily allowance for 5 overseas Participants	80	6	4	1,920	@ €80/person for 6 nights. 4 persons in total
Domestic Participants					
(i) Daily allowance for 32 local participants from Dhaka & other cities (including travel cost)	20	5	32	3,200	@ €20/person for 5 days for 32 persons
Net Total for Travel & Accommodation Support				6,720	
3) Venue Management					
a) Venue for 5 days	-	-	-	Free	Nawab Ali Chowdhury Senate Bhaban, University Of Dhaka
b) Banner, Backdrop and Publicity Materials	300	1	-	300	
Net Total for Venue Management				300	
4) Hardware/ Facilities					
a) Wireless Point	60	2	-	120	Buy. Two @ €60
b) Power Strip	15	6	-	90	Buy. Six @ €15
c) Transport Facilities	50	5	-	250	For transportation of overseas participants

					from/to Hotel to/from Training Venue, for transportation of event material, food etc to venue. Service will be outsourced.
Net Total for Hardware/Facilities				460	
5) Training Kits					
Bag, Note book, pen, Booklet, Hands outs etc	20	1	36	720	All will be with logo of TEIN/EU/DU . Printing/Making @ €20/person for 36 persons
Net Total for Training Kits				720	
6) Training Certificate					
Certificate with Cover for 36 participants	10	1	36	360	Making/printing of Certificates with Folder and Group Photograph @ €10/person for 36 persons
Net Total for Certificates				360	
7) Instructor Facilitation					
Honorarium to Instructors/Trainers per session	80	-	19*	1,520	* session
Net Total for Instructor Facilitation				1,520	
GRAND TOTAL EXPENDITURE				13,130	

Conclusion

This workshop will include some of the important security procedures for BdREN. The report as an outcome of this workshop will include the identification of the security threats currently faced by BdREN and at the same time identify the mitigation plans when the vulnerability is faced. Proper planning will be important for effective security management and threat mitigation for BdREN. As a result, this work shop is a demand of time for BdREN to ensure that all teachers, students and educational organizations connected to it are provided with a secured network.

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