ABOUT SPEAKER

- Saroj Lamichhane – Co-founder/COO Rigo Technology
- The University of Northampton, UK
- Member –
    - OWASP – Nepal chapter
    - ISACA
- VA/PT, IS Audit, MSSP, SoC

PRESENTATION AGENDA

- Overview
- How Vulnerable is our Cyberspace
- Countermeasures
- Questions and Answers

OVERVIEW

Online devices in Nepal Cyberspace

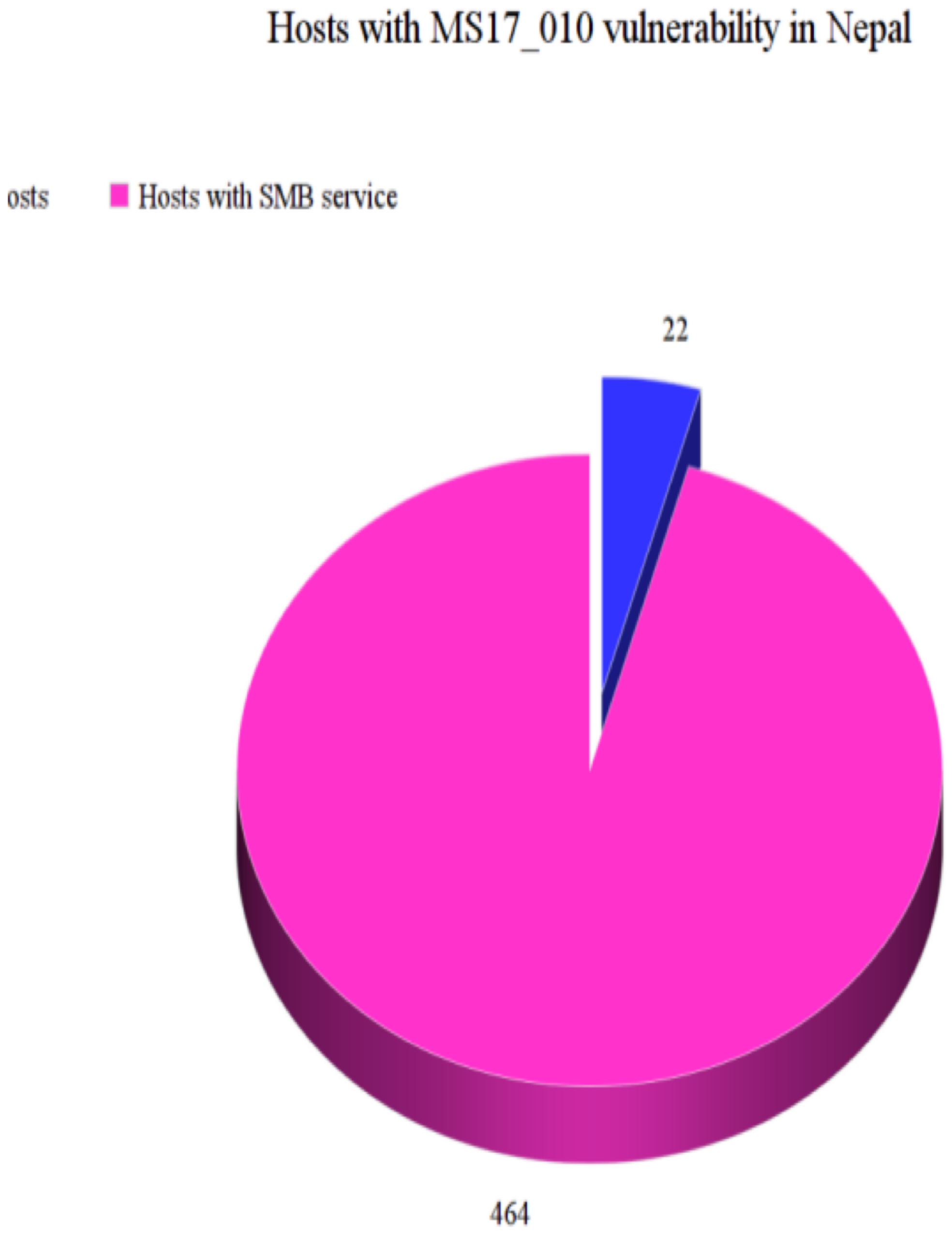
- 163,604 – At night (11 PM)
- 163,838 – At Morning (7 AM)

Top Services

- Modem Web Interface - 50,794
- HTTP - 12,144
- Automated Tank Gauge - 6,473 (Ubiquiti?)
- SSH - 6,376 (22) and 763 (2222)
- DNS - 6,100

How vulnerable is our Cyberspace?

- MS17_010 vulnerabilities
  - ✓ 483 SMB services online
  - ✓ 22 is exploitable
- Double Pulsar Backdoor
  - ✓ 17 was vulnerable
  - ✓ 3 hosts are vulnerable



HOW VULNERABLE IS OUR CYBERSPACE (CONTD.)

Wannacry

- 2 “A” class bank effected partly
- 10 plus host were infected (Reported Privately)

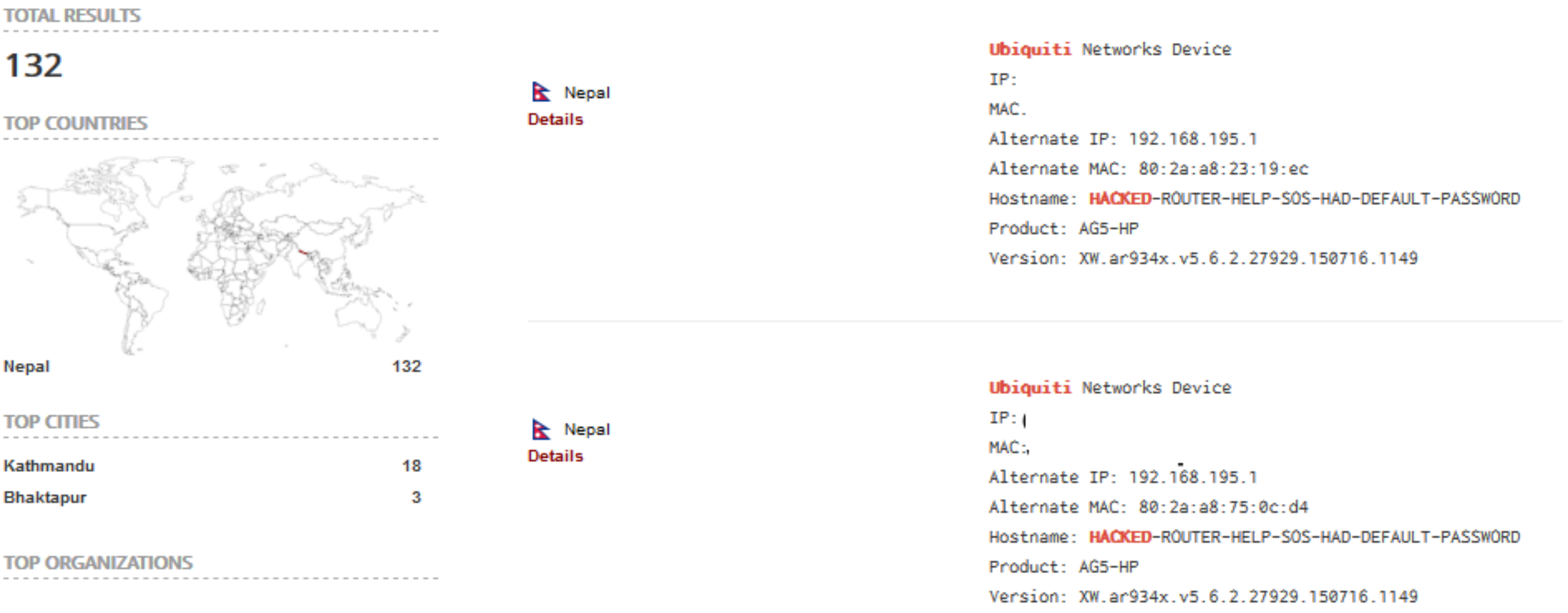
Heartbleed

- 37 exploitable host

Telnet

- 4,288 (23)
- 106 (2323)

HOW VULNERABLE IS OUR CYBERSPACE (CONTD.)



TOTAL RESULTS

132

TOP COUNTRIES

Nepal	132

TOP CITIES

Kathmandu	18
Bhaktapur	3

TOP ORGANIZATIONS

Nepal
Details

```
Ubiquiti Networks Device
IP:
MAC.
Alternate IP: 192.168.195.1
Alternate MAC: 80:2a:a8:23:19:ec
Hostname: HACKED-ROUTER-HELP-SOS-HAD-DEFAULT-PASSWORD
Product: AG5-HP
Version: XW.ar934x.v5.6.2.27929.150716.1149
```

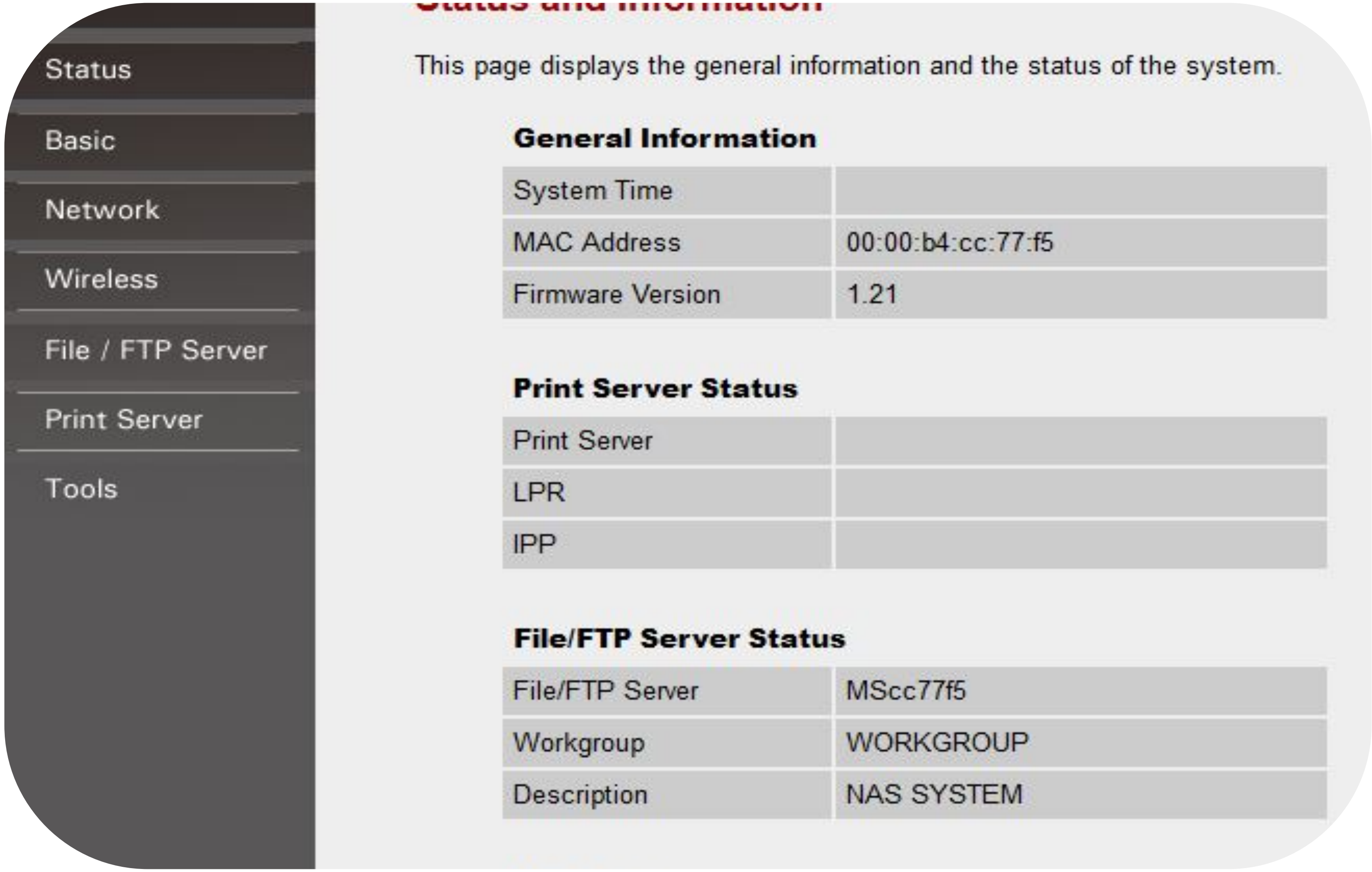
Nepal
Details

```
Ubiquiti Networks Device
IP:
MAC:
Alternate IP: 192.168.195.1
Alternate MAC: 80:2a:a8:75:0c:d4
Hostname: HACKED-ROUTER-HELP-SOS-HAD-DEFAULT-PASSWORD
Product: AG5-HP
Version: XW.ar934x.v5.6.2.27929.150716.1149
```

132 hacked ubiquiti devices due to older vulnerable firmware

DEFAULT PASSWORD

- HTTP (80) - 5
- HTTP (8080) – 86
- HTTP (8081) - 7
- HTTP (8880) - 1
- HTTP Automated Tank Gauge – 71 (Ubiquity)
- Telnet – 20 (Cisco – All Banks)



Status and Information

This page displays the general information and the status of the system.

General Information

System Time	
MAC Address	00:00:b4:cc:77:f5
Firmware Version	1.21

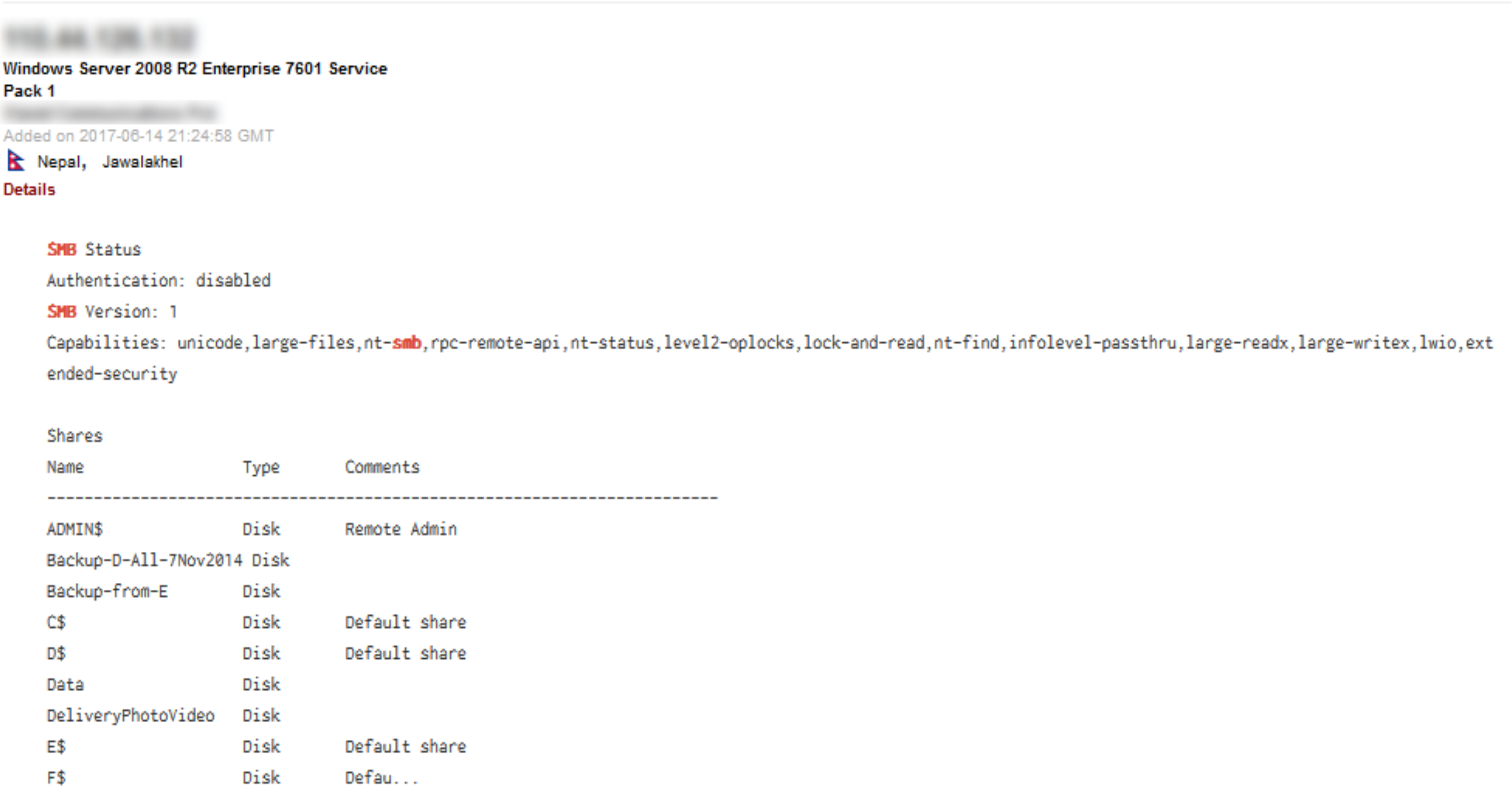
Print Server Status

Print Server	
LPR	
IPP	

File/FTP Server Status

File/FTP Server	MScc77f5
Workgroup	WORKGROUP
Description	NAS SYSTEM

NAS DEVICES



[redacted]

Windows Server 2008 R2 Enterprise 7601 Service Pack 1

[redacted]

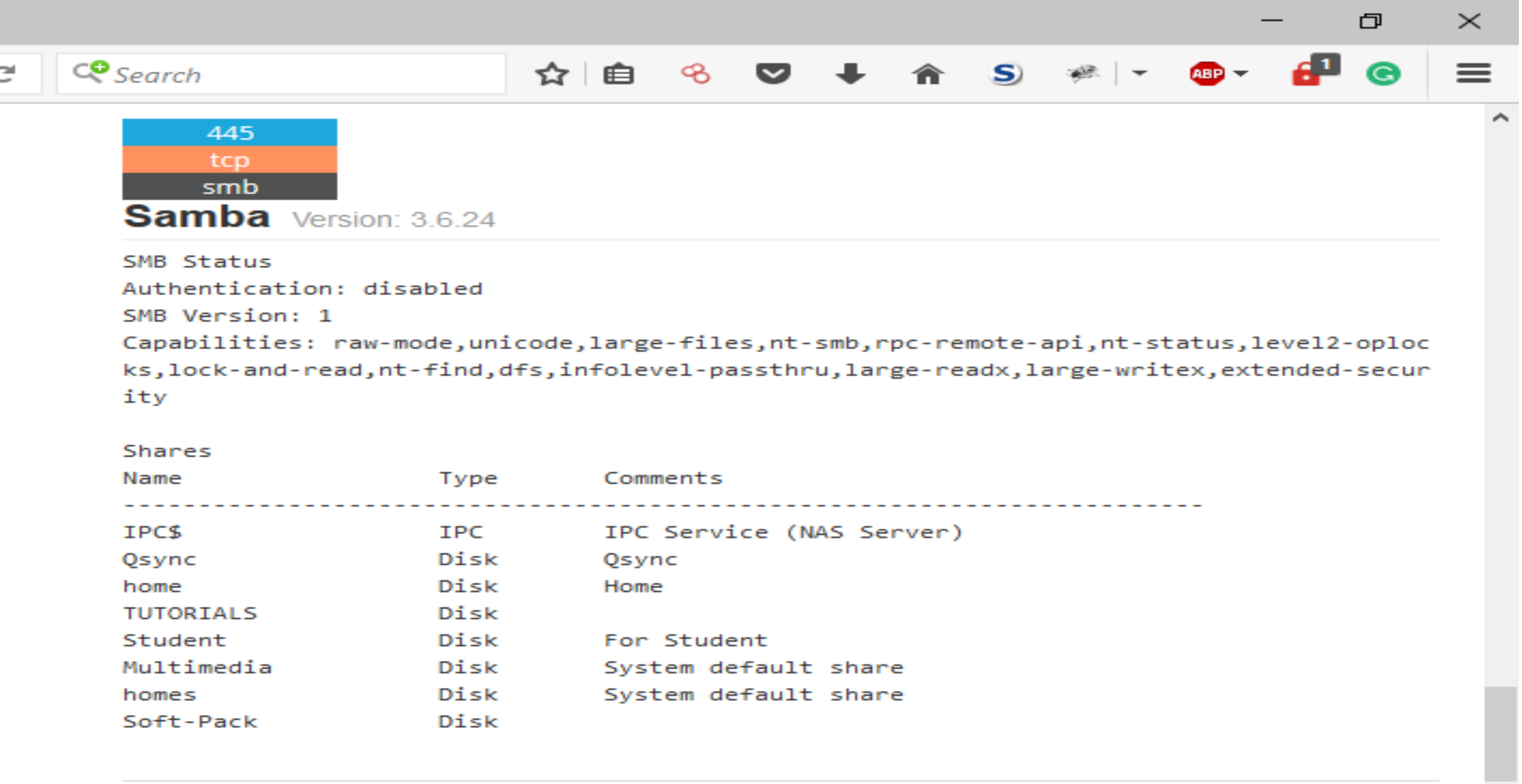
Added on 2017-06-14 21:24:58 GMT

Nepal, Jawalakhel

Details

```
SMB Status
Authentication: disabled
SMB Version: 1
Capabilities: unicode,large-files,nt-smb,rpc-remote-api,nt-status,level2-oplocks,lock-and-read,nt-find,infolevel-passthru,large-readx,large-writex,lwio,ext
ended-security

Shares
Name                 Type      Comments
----------------------------------------------------------------------
ADMIN$               Disk      Remote Admin
Backup-D-All-7Nov2014 Disk
Backup-from-E        Disk
C$                   Disk      Default share
D$                   Disk      Default share
Data                 Disk
DeliveryPhotoVideo   Disk
E$                   Disk      Default share
F$                   Disk      Defau...
```



Samba Version: 3.6.24

```
SMB Status
Authentication: disabled
SMB Version: 1
Capabilities: raw-mode,unicode,large-files,nt-smb,rpc-remote-api,nt-status,level2-oploc
ks,lock-and-read,nt-find,dfs,infolevel-passthru,large-readx,large-writex,extended-secur
ity

Shares
Name                 Type       Comments
------------------------------------------------------------------------
IPC$                 IPC        IPC Service (NAS Server)
Qsync                Disk       Qsync
home                 Disk       Home
TUTORIALS            Disk
Student              Disk       For Student
Multimedia           Disk       System default share
homes                Disk       System default share
Soft-Pack            Disk
```

DATA-CENTER/VPS VULNERABILITIES

Memcached RCE

- TALOS-2016-0219 - Memcached Server Append/Prepend Remote Code Execution
- TALOS-2016-0220 - Memcached Server Update Remote Code Execution
- TALOS-2016-0221 - Memcached Server SASL Authentication Remote Code

MALWARE INFECTION

The highest risk of local infection

- Nepal - 46.19 %

17th in the world

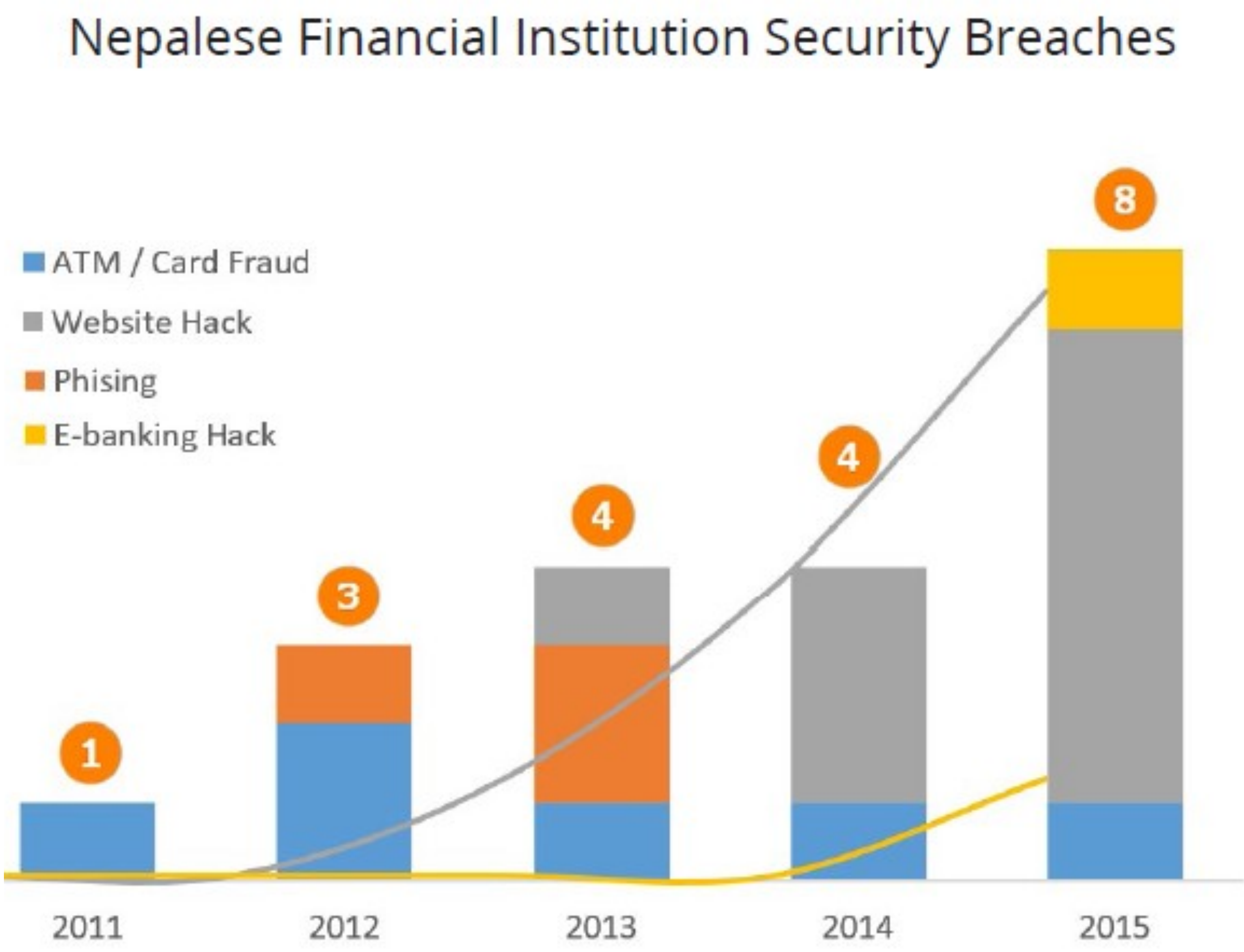
Mobile malware

- Nepal - 29.90 %

5th in the world

ATM FRAUD

- Hacking Tourism
- Inside Job



Nepalese Financial Institution Security Breaches

RigoTechnology
Audit, Compliance & Risk Management

SOCIAL NETWORKING RELATED CRIME

- Identity theft
- Personal Abuse
- Fraud and Data Mining

Zombie Host

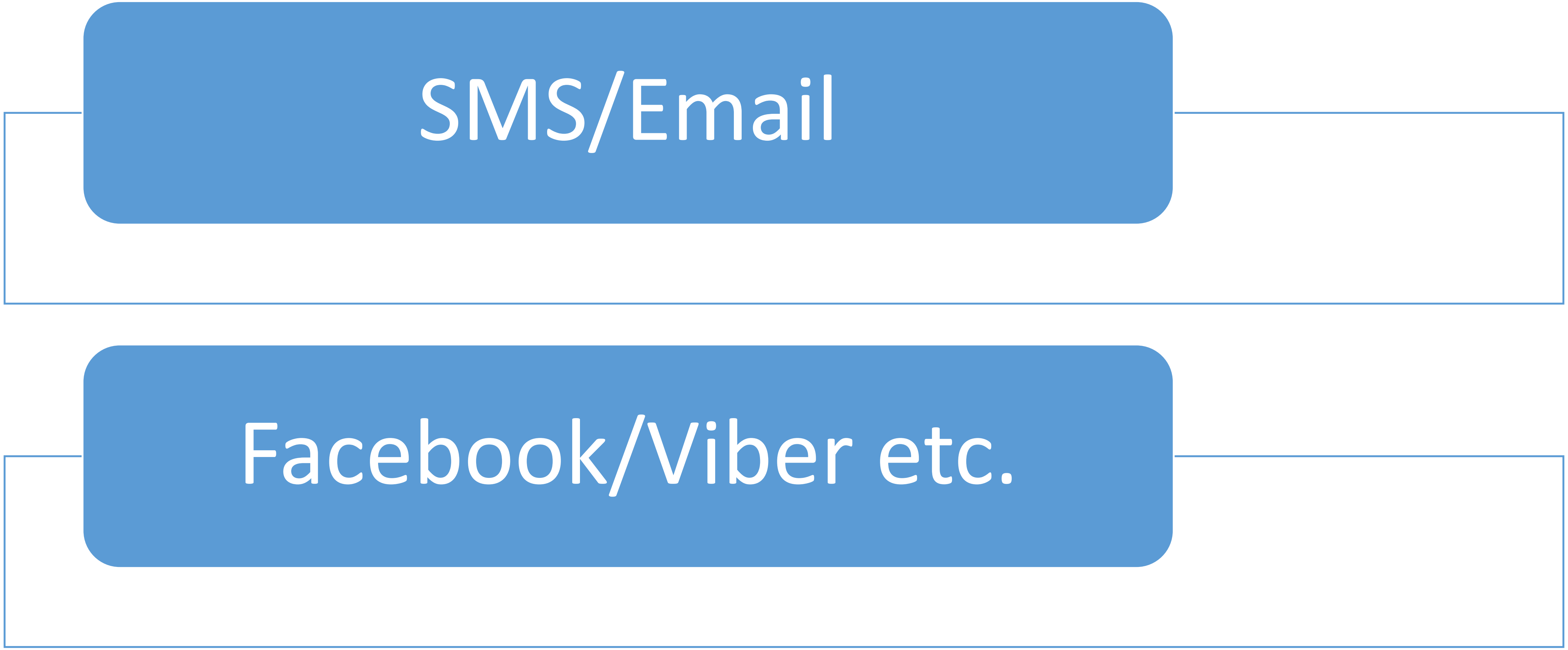
Used in DDoS

SYSTEM HACKING

WEBSITES DEFACEMENT

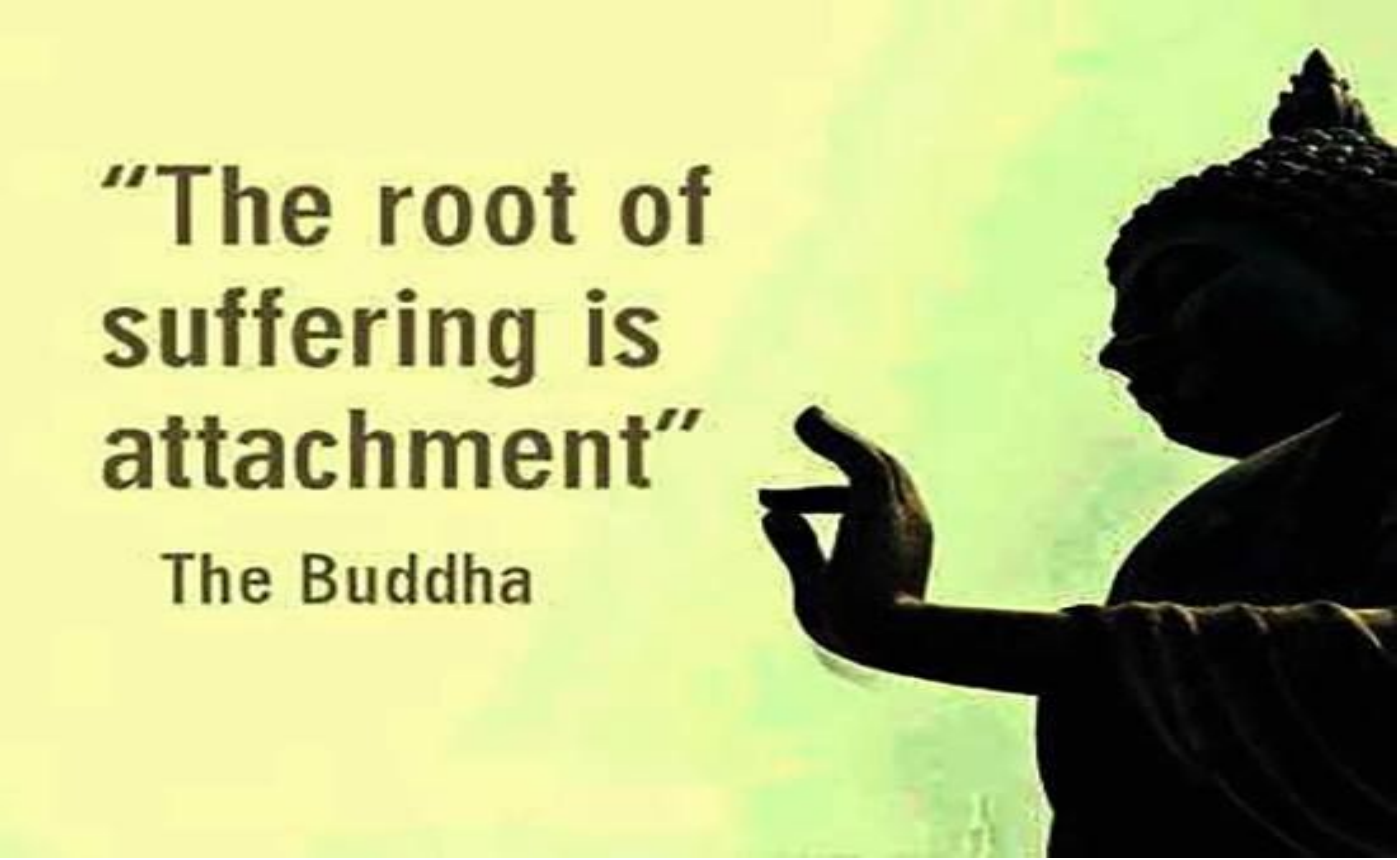
- Add hijacking
- Malware Farming
- Used in DDoS
- Personal/Political abuse

PHISHING/SOCIAL ENGINEERING



SMS/Email

Facebook/Viber etc.



"The root of suffering is attachment"

The Buddha

DEFACED WEBSITES (2016)

.org.np (109)

.com.np (501)

.gov.np (451)

.edu.np (164)

MALICIOUS WEBSITES (2017)

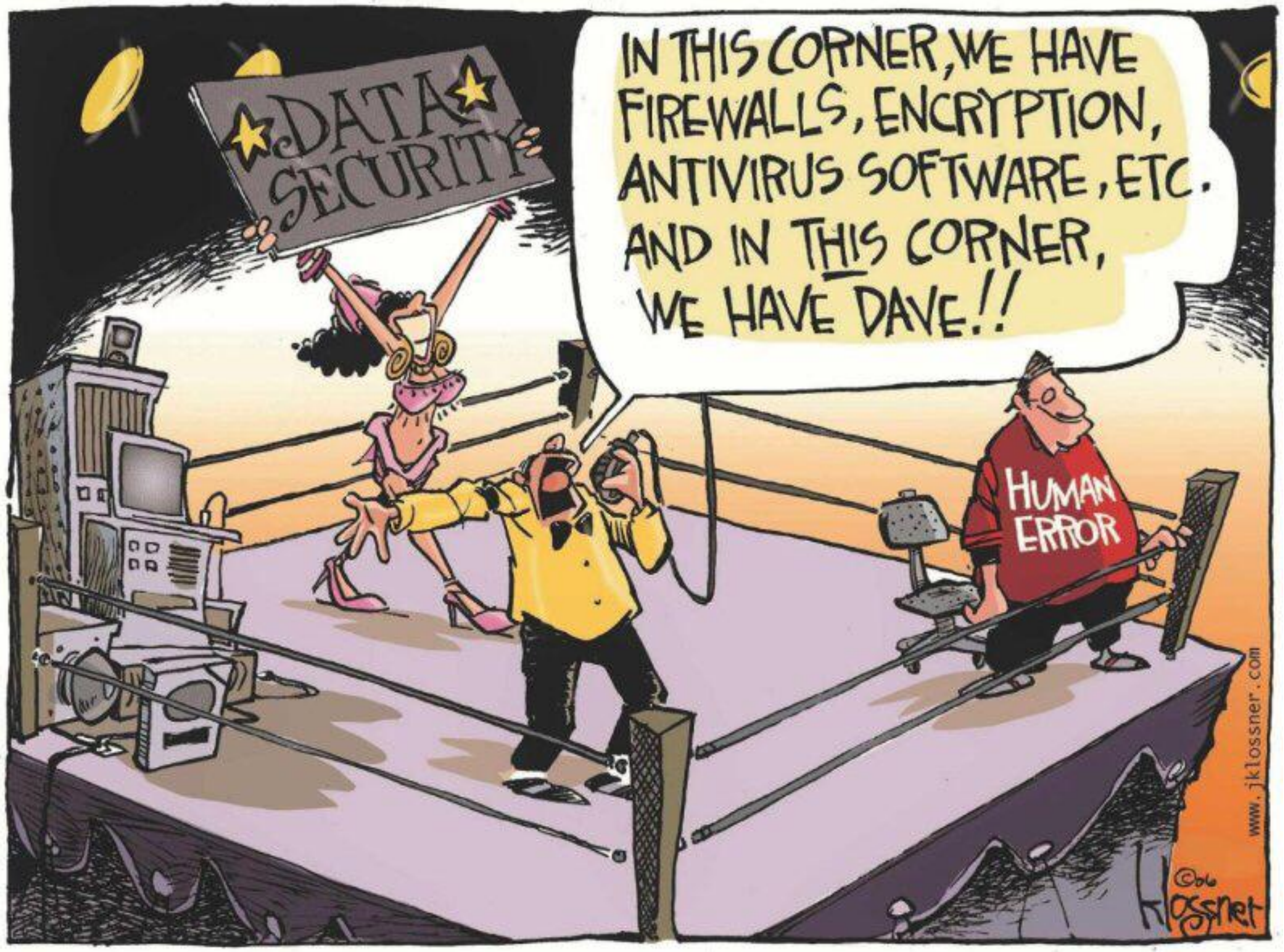
.org.np (29)

.edu.np (11)

.com.np (122)

COUNTERMEASURES

- Awareness
  - ✓ General – Non-technical
  - ✓ Specific - Technical


DATA SECURITY
IN THIS CORNER, WE HAVE FIREWALLS, ENCRYPTION, ANTIVIRUS SOFTWARE, ETC. AND IN THIS CORNER, WE HAVE DAVE!!
HUMAN ERROR
www.jklossner.com
©06 Klossner

COUNTERMEASURES

- Stakeholder
  - ✓ ISPs role
  - ✓ End user role
  - ✓ Organizations Role
  - ✓ Law enforcement
    - ➢ Digital forensic lab
    - ➢ Early threat warning system

COUNTERMEASURES

- Threat sharing platform
  - ✓ Inter-banks
  - ✓ Inter ISPs
  - ✓ Community – Open threat exchange platform

COUNTERMEASURES

- CSIRT Establishment
  - ✓ Government
    - ✓Army
    - ✓Police
    - ✓Government Critical infrastructure
      - ✓GIDC
  - ✓Government-Private
    - ✓ PPP model

COUNTERMEASURES

- National Cyber Security Policy
- Improvement in ETA-2063
- Others
  - Cyber-storm drill (CTF)

ALL

SEC_RITY is not complete without

U!