

Mayur Yadav

Software Developer

I am always open to learn new things and find new ways to solve a problem. Currently working as a Software Developer with a total work experience of about 2 years.

Work Experience

Software Developer Clear-Trail Technology

July 2018 - Present

As a Software Developer I understand and solve business problems and map them into a technical solution. I maintain the code sanity by solving any bugs/issues. I optimize or upgrade currently implemented solutions by research and analysis.

Product Work

As a part of the core product development team, I have actively contributed to the development of one of the core components and several other business services.

Projects:

Meta-Extraction-Engine:

It is a component which is used for Lawful interception and extraction of information from captured network traffic. It reconstructs information from unencrypted network traffic, also extracts meta information from encrypted network traffic which is further sent to backend services for analysis.

Main Contributions in this solution:

Modules:

Call Reconstruction Module:

- Responsibility for this module is to reconstruct call that is being transferred on SIP, RTP, H323 and IAX protocol.
- Identification of SIP Protocol and corresponding RTP Packets.
- Identification of H323 Protocol and corresponding RTP Packets.
- Identification of IAX control and data session.
- Mapping expectation of control session of these protocols with respective data sessions.
- Reconstruction of calls based on meta media information from control packets.
- Testing of the developed logic.
- VM leak testing using CRT and Intel Inspector.

Contact Details

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Skill Set

C++

STL

Multithreading

Algorithms

Data Structure

Object Oriented Design
Pattern

MS Windows

Linux (Beginner Level Exp.)

Deep Packet Inspection
(DPI)

CAP/PCAP analysis

Tool Set

Visual Studio 2010
Visual Studio 2019
(Beginner Level Exp.)
Tortoise Git, SVN
Microsoft Excel
WireShark

Education:

Bachelor of Engineering
(Computer Science &
Engineering)
Oriental College of Technology,
Bhopal
2014 - 2018
7.33/10 CGPA

XMPP Protocol Chat and Media Reconstruction Module:

- This module is responsible for Identification of XMPP Protocol session and then processing the identified session.
- Processing includes parsing the XML and identification of XMPP Client and also XMPP Server used.
- Processing the Session if encrypted with TLS.
- Reconstruction of Chat and Media that is flowing in the session between two users or in a group.
- Testing of the developed logic.
- VM leak testing using CRT , Intel Inspector and Intel V Tune.

HSC (10+2)
Mathematics, Chemistry,
Physics
2012 - 2014
74 %
CBSE

SSC (10)
Science
2010 - 2012
77.9 %
CBSE

Protocols Identification:

DNS Based Application Identification:

- Parsed DNS request and response packets.
- Extraction of Server IP/Domain information and send it to RabbitMQ for further use in Application identification.

HTTP Protocol Meta Extraction:

- Extraction of detail meta (Username, Passwords, Name, Emails and other user information) from HTTP MIME fields.
- Parsing and processing http "cookies" for user identification.
- Parsing of User Agent for much detailed user information.

SSL Protocol Identification:

Key responsibilities:

- Identification of SSL Protocol sessions by parsing the SSL Records.
- Parsing and Processing of client and server handshakes to extract meta from them.
- Identification of SSL from One Sided (TX) client traffic.
- Identification of certain events based on client and server packets.
- Events from Facebook, Twitter and other social networking platforms.

Zero Protocol Identification:

- Identify Zero protocol from TX only Traffic.
- Testing on different network captures.

VOIP Identification:

Key responsibilities:

- Gathering the list of applications to be supported.
- Capture and Analysis of VOIP and Video call applications to identify the underlying protocol being used to extract useful information.
- Identifying applications such as Whatsapp, Skype , FB Messenger ,etc flowing over STUN on the basis of STUN attributes.
- Testing the application identification logic by capturing from various networks like 3G,4G and Wifi/Lan,also testing on different platform like Android and iOS.

Linux Development:

- Wrote Pcap Dumper utility for Linux solution using PcapPlusPlus library.

Other Skills/Responsibilities:

- Understanding of Sockets and IP, TCP, TCP/IP stack, UDP, SSL, QUIC, FBZero, SIP, RTP, FTP,STUN and other protocols.
- Application identification by using DPI, like domain name or port ,etc.
- Optimize the module performance with the help of Visual Studio Profiler and check for VM leaks and High CPU usage.
- Maintenance of the code by fixing any bugs if reported by the QA Team.

College Projects/Visits:

GeoAlarm Android Application:

Android application which can trigger a notification whenever the user reaches a location that is in the vicinity which is set by them.

Telecom Base office visit-

BSNL Exchange Visit and understanding how the exchange handles data from optic fiber and copper lines and how the placement of towers and base stations is done.