Implementation of A Dissector for ForCES Protocol in Ethereal

Fenggen Jia, jfg@mail.zjgsu.edu.cn
Chuanhuang Li, chuanhuang_li@pop.zjgsu.edu.cn
Ming Gao, gmyyqno1@pop.zjgsu.edu.cn
Ligang Dong, donglg@mail.zjgsu.edu.cn
Bin Zhuge, zhugebin@mail.zjgsu.edu.cn

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What We Have Implemented

- Analyzing the ForCES protocol encapsulated in TCP/IP, SCTP TML;
- Decode all the fields of ForCES Main Header;
- Decode and show all the fields of LFBselect-TLV included in Main TLV;
  - Oper-TLV included in LFBselect-TLV as well.
- Decode and show all the fields of REDIRECT-TLV included in Main TLV;
- Decode and show all the fields of ASResult-TLV and ASTreason-TLV included in Main TLV;
- All the above are displayed as a tree in Ethereal;
Function Blocks in Ethereal

Ethereal

GTK 1/2

Core

Capture

Wiretap

Epan

Protocol-Tree
Dissectors
Plugins
Display-Filters

Win-/libcap

Capture Filter

Disk

Network
Insert A “ForCES” Dissector into Ethereal

- Parent-node of ForCES sub-tree is TCP/UDP /SCTP;
- Implement the routine which is used for decoding the message head in the ForCES protocol and shows its protocol tree;
- Register all the fields and parameters in the ForCES protocol to ethereal;
- Implement routine which is used for registering decoding function of the ForCES protocol.
How to Analyze ForCES Protocol

- ForCES sub-tree is inserted under TCP or UDP\SCTP parent-node;
- Create MainHead sub-tree under ForCES sub-tree;
- Analyze the content of MainHead, and show the meaning of special values;
- Create multiple Main TLV sub-trees under ForCES sub-tree according to the number and type of Main TLV. The type of Main TLV is LFBselect-TLV, REDIRECT-TLV, ASResult-TLV, or ASTreason-TLV;
- If the type of Main TLV is LFBselect-TLV, then
  - Analyze LFBCLASSID and LFBInstance in this TLV;
  - Create multiple OPER-TLV sub-tree under LFBselect-TLV sub-tree;
  - Analyze the type of OPER-TLV, and show its type name and length.
- If the type of Main TLV is REDIRECT-TLV, ASResult-TLV, or ASTreason-TLV, then the content in the TLV is shown.
The Flow Chart of Analyzing ForCES Protocol

START

Insert ForCES sub-tree into Ethereal GUI

Insert MainHead sub-tree into ForCES sub-tree

Analyze Main Head and shows its content under MainHead sub-tree

Is there Main TLV?

NO

YES

Type in Main TLV?

LFBSel ect-TLV

REDIRECT-TLV

ASResult-TLV

ASTreason-TLV

Analyze LFBSel ect-TLV

Analyze REDIRECT-TLV

Analyze ASResult-TLV

Analyze ASTreason-TLV

The analysis of Main TLV is finished

END
Interface of Ethereal with ForCES Plugin
Ethereal with ForCES Plugin Download

- **Download web:**
  - [http://netcom.zjgsu.edu.cn/netcom_download_eng.html](http://netcom.zjgsu.edu.cn/netcom_download_eng.html)

- **File:**
  - ethereal-0.99.0_forces.tar.gz
Thanks!