

🗩 某局点使用iMC-PLAT进行ICC备份提示TFTP传输失败问题排查





PLAT iCC **罗孝晨** 2021-10-14 发表

组网及说明

PLAT:7.3E0705P12 DB:SQL Server 2012 OS:Windows Server 2016

问题描述

某局点使用iMC-PLAT的ICC功能进行设备配置备份,现场存在部分网络设备iCC备份失败提示"TFTP回传文件失败",其余网络设备备份可以传输成功。

过程分析

- 一、首先分别在iMC服务器侧对正常备份的网络设备和异常备份的网络设备进行抓包分析,分析如下:
- (1) 正常备份的网络设备中,抓包中可以看到设备发送TFTP的WRQ报文之后,iMC侧会用ACK报文
- ,然后设备开始进行Data传输

Fiber: tftp	- Communication	Clear Apply		
	- Expression			
Io. Time	Source	Destination	Protocol	Length Info
3387 2021-09-19 14:34:45.561114	10.59.0.20	10.59.6.56	TETP	96 write Request, File: startup.cfq, Transfer type: oct t, tsize\000=12197\000, blksize\000=512\000
3388 2021-09-19 14:34:45.563788	10.59.6.56	10.59.0.20	TETP	78 Option Acknowledgement, tsize\000=12197\000, blksize\000=512\000, timeout\000=5\000
3392 2021-09-19 14:34:45.594238	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 1
3393 2021-09-19 14:34:45.595086	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 1
3398 2021-09-19 14:34:45.617058	10.59.0.20	10.59.6.56	TETP	558 Data Macket, Block: 2
3399 2021-09-19 14:34:45.617864	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 2
3403 2021-09-19 14:34:45.638785	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 3
3404 2021-09-19 14:34:45.639595	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 3
3406 2021-09-19 14:34:45.660462	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 4
3407 2021-09-19 14:34:45.661206	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 4
3411 2021-09-19 14:34:45.682331	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 5
3412 2021-09-19 14:34:45.683110	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 5
3415 2021-09-19 14:34:45.703979	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 6
3416 2021-09-19 14:34:45.704730	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 6
3421 2021-09-19 14:34:45.725656	10.59.0.20	10.59.6.56	TETP	558 Data Packet, Block: 7
3422 2021-09-19 14:34:45.726430	10.59.6.56	10.59.0.20	TETP	46 Acknowledgement, Block: 7

(2) 异常备份的网络设备中,抓包中可以看到,设备发送TFTP的WRQ报文之后,iMC侧并没有回应ACK报文,导致TFTP连接建立失败。

tftp	▼ Expression.	. Clear Apply	
Time	Source	Destination	Protocol Length Info
761 2021-09-19 17:04:21.912419	10.60.164.225	10, 59, 6, 56	TFTP 96 write Request, File: startup.cfg, Transfer type: octet, tsize\000=18427\000, blksi:
3005 2021-09-19 17:04:31.919096	10.60.164.225	10.59.6.56	TFTP 96 write Request, File: startup.cfq, Transfer type: octet, tsize\000-18427\000, b1ksiz
4040 2021-09-19 17:04:36.920286	10.60.164.225	10.59.6.56	TFTP 96 Write Request, File: startup.cfq, Transfer type: octet, tsize\000-18427\000, blksiz
4907 2021-09-19 17:04:41.921474	10.60.164.225	10.59.6.56	TFTP 96 write Request, File: startup.cfg, Transfer type: octet, tsize\000=18427\000, blksiz
6301 2021-09-19 17:04:46.922670	10.60.164.225	10.59.6.56	TFTP 96 write Request, File: startup.cfg, Transfer type: octet, tsize\000=18427\000, blksiz
7114 2021-09-19 17:04:51.923879	10.60.164.225	10.59.6.56	TFTP 96 write Request, File: startup.cfq, Transfer type: octet, tsize\000=18427\000, blksiz
8157 2021-09-19 17:04:56 925084	10.60.164.225	10.59.6.56	TETP 96 Write Request File: startup ofg Transfer type: octet tsize\000=18427\000 blksiz

二、通过RFC 1350文档对TFTP协议了解:

设备使用目的端口UDP 69号端口发送WRQ报文,而后在ACK报文中Server端会使用一个TID作为源TID,由于现场部分网络设备可以TFTP传输成功,证明Server端的TFTP功能正常,因此可以判断原因为网络原因导致的ACK连接建立失败

| Local Medium | Internet | Datagram | TFTP |

Figure 3-1: Order of Headers

4. Initial Connection Protocol

A transfer is established by sending a request (WRQ to write onto a foreign file system, or RRQ to read from it), and receiving a positive reply, an acknowledgment packet for write, or the first data packet for read. In general an acknowledgment packet will contain the block number of the data packet being acknowledged. Each data packet has associated with it a block number; block numbers are consecutive and begin with one. Since the positive response to a write request is an acknowledgment packet, in this special case the block number will be zero. (Normally, since an acknowledgment packet is acknowledging a data packet, the acknowledgment packet will contain the block number of the data packet being acknowledged.) If the reply is an error packet, then the request has been denied.

In order to create a connection, each end of the connection chooses a TID for itself, to be used for the duration of that connection. The TID's chosen for a connection should be randomly chosen, so that the probability that the same number is chosen twice in immediate succession is very low. Every packet has associated with it the two TID's of the ends of the connection, the source TID and the destination TID. These TID's are handed to the supporting UDP (or other datagram protocol) as the source and destination ports. A requesting host chooses its source TID as described above, and sends its initial request to the known TID 69 decimal (105 octal) on the serving host. The response to the request, under normal operation, uses a TID chosen by the server as its source TID and the TID chosen for the previous message by the requestor as its destination TID.

As an example, the following shows the steps used to establish a connection to write a file. Note that WRQ, ACK, and DATA are the names of the write request, acknowledgment, and data types of packets respectively. The appendix contains a similar example for reading a file.

解决方法

关闭Server端防火墙并对网络中放通Server端至备份设备端的网络端口后解决