# Decifrar o fluxo RTP para análise de perda de pacotes no Wireshark para chamadas de voz e vídeo

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## Introduction

Este documento descreve o processo de como decifrar o fluxo RTP (Real-Time Streaming) para análise de perda de pacotes no Wireshark para chamadas de voz e vídeo. Você pode usar os filtros do Wireshark para analisar capturas simultâneas de pacotes feitas na origem e no destino de uma chamada ou perto dela. Isso é útil quando você precisa solucionar problemas de qualidade de áudio e vídeo quando houver suspeita de perda de rede.

### Problema

Este exemplo usa este fluxo de chamada:

Telefone IP A (site centralA) > switch 2960 > Roteador > Roteador WAN (site central) > IPWAN > Roteador WAN (site B) > Roteador > 2960 > Telefone IP B

Neste cenário, o problema encontrado é que as chamadas de vídeo do telefone IP A para o telefone IP B resultam em má qualidade de vídeo do site central A para a filial B, onde a central tem boa qualidade, mas a filial tem problemas.

Veja o receptor perdeu pacotes nas estatísticas de transmissão do telefone IP da filial:

cisco	Streaming Statistics Cisco IP Phone CP-8941(SEP00077ddfbe65)							
Device Information	Remote Address	192.168.10.146/20568						
Network Setup	Local Address	192.168.207.231/20808						
Network Statistics	Start Time	00:00:00						
Ethernet Information	Stream Status	Not Ready						
Network	Host Name	SEP00077ddfbe65						
Device Logs	Sender Packets	4745						
Console Logs	Sender Octets	3144928						
Core Dumps	Sender Codec	H264						
Status Messages	Sender Reports Sent	16						
Debug Display	Sender Report Time Sent	11:19:34						
Streaming Statistics 🧃	Revr Lost Packets	199						
Stream 1	Avg Juner	40						
Stream 2	Revr Codec	H264						
	Revr Reports Sent	1						
	Revr Report Time Sent	11:18:14						
	Revr Packets	4675						
	Revr Octets	3113320						
	MOS LQK	0.0000						
	Avg MOS LQK	0.0000						
	Min MOS LQK	0.0000						
	Max MOS LQK	0.0000						
	MOS LQK Version	0.9500						
	Cumulative Conceal Ratio	0.0000						
	Interval Conceal Ratio	0.0000						
	Max Conreal Ratio	0.0000						
	Conceal Sees	0						
	Severely Conceal Secs	σ						
	Latency	389						
	Max Jitter	50						
	Sender Size	0 ms						

#### Solução

de 2

A má qualidade é vista apenas na filial e como o site central vê uma boa imagem, parece que o fluxo da central para a filial parece estar perdendo pacotes pela rede.

IP addressing scheme Central IP phone: 192.168.10.146 Central Gateway: 192.168.10.253 Central WAN router: 192.168.10.254 Branch WAN router: 192.168.206.210 Branch Gateway: 192.168.206.253 Branch IP phone: 192.168.207.231

As capturas de pacotes são feitas no roteador da WAN Central e da Filial e a WAN descarta esses pacotes. Foco no fluxo de RTP do telefone IP central (192.168.10.146) para o telefone IP da filial (192.168.207.231). Esse fluxo perde pacotes no roteador da WAN da filial se a WAN descartar os pacotes no fluxo do roteador da WAN central para o roteador da WAN da filial. Use as opções de filtro no wireshark para isolar o problema:

- 1. Abra a captura no wireshark.
- 2. Use o filtro ip.src==192.168.10.146 && ip.dst==192.168.207.231. Isso filtra todos os fluxos UDP do telefone IP central para o telefone IP da filial.
- 3. Execute a análise somente na captura do lado da filial, mas observe que você deve executar essas etapas para a captura central também.
- 4. Nesta captura de tela, o fluxo UDP é filtrado entre os endereços IP origem e destino e contém dois fluxos UDP (diferenciados pelos números de porta UDP). Esta é uma chamada de vídeo, portanto há dois fluxos: áudio e vídeo. Neste exemplo, os dois fluxos são:

Fluxo 1: Porta de origem UDP: 20560, porta de destino : 20800

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324 4/ ROEADE 100.148.10.110	110.168.324.245	100	to beince port: about	Destination part: azer-				
2210 15 004041000 112.168.10.146	142.168.207.253	100	214 Survey party 2056	festivation parts 2350				
2302 33.821654900 192.168.13.145	190.108.207.200	2.4	214 source pert: 2050	partimeter part: 2000				
30H 64 01421300 100.148.53.510	100.148.324.245		214 boards port: 2006	Destination part: 32dc				
2306 33 854212800 192 168 13 145	190, 168, 207, 200	2.8	214 yearce pert: 2056	partiration part: 2000				
2410 44 1042 ADM 140.148.10.190	110.168.324.245	100	214 Boards port; 28066	Destination part: adda				
2312 35 104242300 102.168.10.145	110.168.207.255	100	214 Summer James - 2056	feed that has part = 2350				
1314 35 L44L15000 L90.108.13.145	190.108.107.200	2.4	214 yource pert: 20504	partmation part: 2000				
2010 01 101000000 100.108.00.000	100.148.207.200		214 Source port, June	Designation parts 3280				
2320 30. 204245900 190, 108, 13, 145	190.108.307.200	2.9	214 304 044 0 0000 0000	CALCULATION OF TAXABLE PARTY.				
24/4 44.201144200 100.188.52.515	110.168.324.245	100	214 Boards port: state	Destination part. and:				
2314 35 251204300 142.168.13.165	110.168.207.255	- 10 <b>1</b>	TON SIMPLY (MINTY 2006)	field build in party 2350	_			
1326 33.294221900 190.108.13.145	190.108.107.200	2.4	ZIA STORE AND A STORE	Carry Court of State				
2511 51 201242000 102.168.10.165	102,148,207,253		214 Super carries 2055	Devi tratitus parts 2350				
2301 30. 304206900 192, 108, 13, 145	190.108.307.200	2.7	214 yource pert: 20504	partiration part: 20000				
260/ 66 60800200 100.188.52.570	110.168.324.245	100	214 Boards port: about	Destination part: abate				
2010/01/02/12/000/1107.128.10.126	140.148.207.255	100	214 Galeria Jairia 2060	feed builting parts 23325				
1340 35 35181300 LWL 108.13.145	190.108.107.200	1.4	oe source port: 2000e	Destination part: 2000				
2342 35 39832200 102 108 10 108	102,148,207,253		1104 Sector period 2054	Devi tratitos parte 2350				
2346 30.362826300 192.168.13.145	190.108.307.200	2.7	JEFS you now point : 20554	partiration part: 2000				
3019 dr. dia 6/93/8 1/0.148.13.119	110.168.224.245	100	sie beinge port; store	Destination part: 2244				
2350 35 362351000 102,168,10,165	142.148.237.231	100	214 Games James 2064	first balling parts 2250				
1351 33 3662,0000 130,108,10,149	190.308.231.200	1.00	Los source pert: About	Destination part: 2000				
2353 35 352774000 142, 168, 10, 145	102,168,207,253	100	AD SHITLE LEFT 12550	Device and the party 2350				
2356 30.306811000 192.168.13.145	190.108.307.200	2.9	1121 source port: 20504	pastimation part: 19966				
36./ 64.641503.0.0 140.148.53.5%	110.148.314.245	108	12/6 Boards port: 20068	Destination part: 2240				
2352 35 901801000 102,168,10,125	110.148.237.255	100	214 Service (mining 2056)	Designation parts 2350				
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	30 10 45 50	5. 1 						
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	10 0 0 0 0	100		Martin Plugade	1100		(Dates)	1000

Fluxo 2: Porta de origem UDP: 20561, porta de destino : 20801

- 5. Selecione um pacote de um dos fluxos e clique com o botão direito do mouse no pacote.
- 6. Selecionar Decodificar como... e digite RTP.
- 7. Clique em Aceitar e Ok para decodificar o fluxo como RTP.

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bar ip.arct=102.168.10.146 6/5/ip.doi:=102.168.207.251		line of of the law		211		
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2299 33.004041000 192.168.10.146	192.168.207.	ignore Packet (toggle)	burce	port: 20560	Destination port: 20800	
2302 33.023654000 192.168.10.146	192.168.207. 🔾	Set Time Reference Itogolei	burce	port: 20560	Destination port: 20800	
2304 33.044242000 192.168.10.146	192.168.207.	Time Chile	burce	part: 20560	Destination port: 20800	
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2318 33.184099000 192.168.10.146	192.168.207.	Concerning Liber	purce	port: 20580	Destination port: 20800	
2320 33.204249000 192.168.10.146	192.168.207.	Conversion Prices	parce	port; 20580	Destination port: 20800	
2323 33.224133000 192.168.10.146	192.168.207.	Coloniae Conversation	purce	port: 20580	Destination port: 20800	
2325 33.233709000 192.168.10.146	192.168.207.	SCIP .	* purce	port; 20581	Destination port: 20801	
2328 33.244223000 192.168.10.146	192.168.207.	Follow TCP Stream	purce	port: 20560	Destination port: 20800	
2330 33.264295000 192.168.10.146	192.168.207.	Follow UDP Stream	purce	port; 20560	Destination port: 20800	
2333 33.284258000 192.168.10.146	192.168.207.	-discussi Generation	purce	port: 20560	Destination port: 20800	
2335 33.304239000 192.168.10.146	192.168.207.	STATE ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	purce	port: 20560	Destination port: 20800	
2337 33.323855000 192.108.10.146	192.168.207.	Copy	purce	port: 20560	Destination port: 20800	
2339 33.344144000 192.168.10.146	192.168.207.		punce	port: 20560	Destination port: 20800	
2340 33.351615000 192.168.10.146	192.168.207.	Decode As	purce	port: 20568	Destination port: 20808	
2341 33.352561000 192.168.10.146	192.168.207.	inch	purce	port: 20568	Destination port: 20808	
2342 33.358522000 192.168.10.146	192.168.207.	Charter Darchak as Manu Minuterus	purce	port: 20568	Destination port: 20808	
2348 33.362826000 192.168.10.146	192.168.207.	THE PARTY INTERVIEW	burce	port: 20568	Destination port: 20808	
2349 33.366378000 102.168.10.146	192.168.207.231	000	858 source	port: 20568	Destination port: 20808	
2350 33.367331000 102.168.10.146	192.168.207.231	900	214 source	port: 20560	pestination port: 20800	
2351 33.368236000 192.168.10.146	192.168.207.231	000	L65 source	port: 20568	pestination port: 20808	
2354 33.381821000 192.168.10.146	192.168.207.231	UDP	68 source	port: 20568	pestination port: 20808	
2355 33.382774000 192.168.10.146	192.168.207.231	UDP	60 source	port: 20568	pestination port: 20808	
2356 33.388611000 192.168.10.146	192.168.207.231	UDP 11	125 source	port: 20568	pestination port: 20808	
2357 33.393001000 192.168.10.146	192.168.207.231	UDP 10	079 source	port: 20568	pestination port: 20808	
2358 33.393893000 192.168.10.146	192.168.207.231	UDP	214 source	port: 20560	pestination port: 20800	
2359 33.397038000 192.168.10.146	192.168.207.231	UDP	796 source	port: 20568	pestination port: 20808	
2360 33.397988000 192.168.10.146	192.168.207.231	UDP 1	165 source	port: 20568	Destination port: 20808	
					"	

# Fthernet TT, Src: Cisco\_ae:60:06 (e8:40:40:ae:60:06), Dst: Cisco\_df:he:65 (00:07:7d:df:he:65)
# Toternet Protocol Version 4, Src: 192.168.10.146 (192.168.30.146), Dst: 192.168.202.211 (192.168.207.211)
# User Datagram Protocol, Src Port: 20500 (20500), Dst Port: 20800 (20800)
# Data (172 bytes)

Você é deixado com um fluxo decodificado como RTP e o outro como UDP não decodificado.

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2296 32,992826000 192,165,10,146	192,165,207,231	RTF	62 PT-Reserved for RTCP conflict avoidance, SSEC-0x81CA0002, Sec-1, Time-91284	
2299 33.004041000 192.168.10.146	192.168.207.231	RTP	214 PT-TTU-T 6-722, SSRC-0x53796751, Seg-29571, Time-2249459633	
2302 33.023654000 192.168.10.146	192.168.207.231	RTP	214 PT-ETU T G.722, SSRC-0x53796751, Seq-29572, Time-2249459793	
2304 33.044242000 192.165.10.146	192.165.207.231	RTP	214 PT-ITU-T G. /22, SSRC-0x13/36/51, Seq-295/3, Time-2249459953 Audio s	tream
2306 33.064238000 192.168.10.146	192,168,207,211	RTP	214 PT-TTU-T 6, 722, SSRC-0x53796751, Seq-29576, Time-2249660111	sciedii
2308 33.084212000 192.168.10.146	192, 168, 207, 231	RIP	214 PT=ITU T G.722, SSRC=0K53796751, Scq=29575, T1nc=2249460273	
2310 33.104256000 192.165.10.146	192.168.207.231	RTP	214 PT-ITU-T G./22, SSRC-Ux53/96/51, Seq-295/6, Time=2249660433	
2312 31.124247000 192.165.10.146	192.165.207.211	RTP	214 PT-TTU-T 6.722, SSRC-0x51796751, Seq-29577, Time-2249460591	
2314 33.144119000 192.168.10.146	192,168,207,231	N De	214 PT=110-1 G.722, SSRC=0x53796751, Seq=29578, T1nc=2249460753	
2316 33.164338000 102.165.10.146	192.168.207.231	RTP	214 PT-ITU-T G. /22, SSRC=0x33/06/31, Seq=295/9, Time=2240466913	
2118 11.184099000 192.165.10.146	192.166.207.211	RTF	214 PT-TT0-T 6.722, SSR: 0251790/51, SPG 2550, TTM- 2249181071	
2320 53,204249000 192,108,10,146	192,108,207,231	R IP	214 P1=110-1 G.722, SSR=0033790/31, SEq=2081, 118e=2249401233	
2323 53.224135000 102.105.10.140	102.105.207.231	K IP	14 PT-10-1 C.722, 550-063570-31, 50-2552, TH0-2245401393	
2226 22 24/2222000 102 108 10 146	102 160 207 221	P.TH	The source part, some pertinented part, some	
2228 23 26426223000 192,108,10,140	180 168 207 221	1170	214 PT-FTU-T 0.722, SSR-0613(30/31, SOU-2055), THERE 245501233	
2111 11 284258000 102 166 10 146	102 166 207 211	PTP	214 FILTET C. 122 SEPTEMASTREAM Services Time-24661321	
2335 33, 304239000 192, 168, 10, 146	192,168,207,231	RTR	214 BT-TTU-T 6, 722, SEM-0x53796751, Sec-29586, Time-249467033	
2337 33, 323855000 192, 168, 10, 146	192, 168, 207, 231	RTP	214 PT=ITU T G 722, SERC=0x53796751, Seg=29587, Tinc=2249462193	
2359 51, 544144000 192, 165, 10, 146	192,168,207,231	RTP	214 PT-ITU-T G /22, SSPC-0x13/90/11, Sec-29583, Time-2249652351	
2340 33, 351615000 192, 168, 10, 146	192,168,207,231	RTP	68 PT-DynamicRTP-Type-97, SSR -0x189889(0, Sep-45514, Time-93510574	
1241 231 244 251 00 100 100 101 142	101 108 107 21	RIE	60 PT-EVANTCEIP TVDE 01, SEC-041508500, Sec-4dd15, PTRE-05310374 Video	o Stre
2342 33.358522000 192.165.10.146	192.168.207.231	RTP	1106 PT-DynamicRTP-Type-9/, SSRC=0x150569C0, Seg=45516, Time=955105/4	
2348 31.362826000 192.168.10.146	192,168,207,211	RTP	1075 PT-OynamicRTP-Type-97, SSRC-0x189889C0, Seq-45517, Time-93510574	
2349 33.366378000 192.168.10.146	192.168.207.231	Rib	858 PT-OynamickTP Type 97, SSRC=0x18968900, Seq=45518, Time=93510574	
2350 33.36/331000 102.165.10.146	192.168.207.231	RTP	214 PT=ITU-T G. /22, SSRC=0x53/96/51, Seq=29589, Time=2249462513	
2151 11.168216000 192.165.10.146	192.165.207.211	RTP	165 PT OynamicRTP-Type-97, SSRC-0x189089C0, Seq-15519, Time-91510574, Mark	
2354 33.381821000 192.168.10.146	192.168.207.231	N.IP	G8 PT=Oynam1cRTP=Type=97, SSRL=0x1B9sB9c0, Seq=45520, Tfme=93522274	
2355 33.382774000 192.168.10.146	192.168.207.231	RTP	60 PT=DynamicRTP=Type=97, SSRC=0x189889C0, Seq=45521, Time=93522274	
2156 31.388811000 192.165.10.146	192.165.207.211	RTP	1125 PT OynamicRTP-Type-97, SSRC-0x159059C0, Seq 45522, Time-93522274	
2357 33.393001000 192.168.10.146	192,168,207,231	N IP	1079 PT-0ynam1ckTP-Type-97, S5kt=0x1696884.0, Seq=45523, T1me=93522274	
2358 33.393893000 192.168.10.146	192.168.207.231	RTP	214 PT=ITU-T G. 722, SSRC=0x53796/31, SEQ=29500, T100=2240462673	
2159 51.397018300 192.165.10.146	192.165.207.211	RTP	/W6 PT-DynamickTP-Type-97, SSK-Olibebbeco, Seq 45524, Time-93522274	
2300 34.39/988300 192.108.10.140	192-108-207-231	R IN	165 PT-DVRAB1CKTP-TVDE-97, SS& =0x189869C0, SED=455225, T186=95522274, Marc	

8. Selecione um pacote do fluxo não decodificado e decodifice-o como RTP. Isso decodifica os fluxos de áudio e vídeo no RTP.

Observação: o fluxo de áudio está no formato de codec G.722 e o tipo de payload Dynamic-

#### RTP-97 indica o fluxo de vídeo RTP.

	Example	a apression	(Wirehelt	184 (5)	N Rev 46	250 from	Acres 18	a -	_	-	-	_	_	_	_	_				-		_	_			_	
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	234	2 33.3	55522000	192.1	65.10.3	146		192.1	188.20	7.231		RTP	1100	S PT-D	ynani cRi	ГР-Тура-	97, 5	SRC-0x18	958900,	Seq-45	516,	Time-935105	674				
	234	8 33, 3	62826000	192.1	68.10.	146		192.1	168,20	7,231		RTP	1073	PT-D	ynawi cRt	гт турс	97.5	5RC=0x18	968900.	50q=45	s177	TINC=935105	74				
	234	9 33.3	6637800	192.1	GR. 10.	146		192.1	68.20	7.231		RIP	850	R PT-D	VIANT CK	n-ibbs-	97, a	NK -0118	awaaco,	seq-15	518,	11me-935105	74				
_	235	1 33.3	65232000	192.1	65.10.	146		192.1	186.20	7.231		RTP	100	S PT-D	VIANI CRI	ге-тура-	97.5	SRC-0818	258900,	Seq-45	519,	Time-205105	74, P	MATE			
_	232	• 33.3	02224000	192.1	65.10.	146		192.1	100.20	7.231		RTP		S PT-D	VILLEI CRI	r type	97.50	SECONDALS	3563C0, Se0310	500-45	520,	T100-353222					
	215	6 11 1	35511000	192.1	45.10	146		192.1	85.20	7.211		PTP	1125	S 87-0	and a price of the	D-T-T-	97 5	SPC-0x18	ensern	Sec.45		Time-035222	24				
	2.45	1 44.4	ATTEND OF	192.1	6K.10.1	146		192.1	168.20	1.241		PTP	2075	1 PT-D	second opt	T. TYPE	97. 5	SDC all (12)	152101	Streats	28	TinessAZZ	14				
	235	9 33, 3	97038000	192.1	68.10.	146		192.1	68.20	7.231		RIP	796	FI-D	VITABLE CK	E-DVDE-	97. 31	NX -0x18	9499:0.	NED-45	54.	11ne-935222	74				
	238	0 33.3	97955000	192.1	65.10.	146		192.1	188.20	7.231		RTP	165	PT-D	VI ARTI CRI	P-Type-	97. 5	SRC-0x18	000000	Sep-45	525.	Time-905222	74. 1	Mark			
	237	4 55.4	35203000	192.1	65.10.1	146		192.1	168.20	7.231		RTP	11/3	PT-D	vitaní CRT	TT-TYPE-	97.5	SRC=0.18	958900.	500=45	26.	Tine+955252	44				
	237	6 33.4	45906000	192.1	GR. 10.	146		192.1	68.20	7.231		RTP	1074	FIED	ynant cer	re-type-	97, st	NO-018	Skasco,	seg-dS	127	11ne-935252	44				
	237	7 33.4	45655000	192.1	65.10.3	146		192.1	166.20	7.231		RTP	703	PT-D	ynami cRi	P-Type-	97, 5	SRC-0x18	esseco,	Seq-45	526,	Time-905252	M4, P	Mark			
	237	9 55.4	54545000	192.1	65.10.3	146		192.1	168.20	0.231		RTP	528	S PT+D;	ynami CR1	гр-туре-	97.5	SRC=0.418	9589CU,	Stq=453	29,	Time=055283	104, 1	Mark			
	238	\$ 33.4	98103000	192.1	GR. 10.	146		192.1	68.20	7.231		RUN	1171	FIED	ynaiet cen	ге-туре-	97, s	500-0418	968900.	seq-45	130,	rfne-935313	164				
	235	6 33,4	95595000	192.1	65.10.	146		192.1	166.20	7.231		RTP	241	S PT-D	VIANT CRI	ге-туре-	97, S	SRC-0x18	esaeco,	Seq-45	511,	Time-905313	164, 2	Mark			
	2.59	Z 53.5	30299000	192.1	65.10.3	146		192.1	168.20	0.231		RTP	41:	S PT+D	yriani CR1	гр-тура-	97.5	SRC=0.418	9589CU,	Seq=45:	sdZ,	Time=955544	24, 7	Mark			
	240	0.33.5	7390100	192.1	68.10.	146		192-1	68.20	7,231		11.16	431	S PT=D	ynawt cen	ге-туре-	97, 8	500+0418	9689CO.	seq=45	993 <sub>1</sub>	r1ne=935373	194., P	sark			
	2/10	0 00.5	95050000	192.1	ds.10.	146		192.1	166.20	7.231		RTP	116	PT-D	VIABLERI	re-type-	97, 5	SRC-0114	seasco,	Seq-15	534,	T1me-935404	54				
	240	4 53.5	95955000	192.1	65.10.	146		192.1	168.20	0.231		RTP	178	PT-D	ynani CR1	гр-туре-	97.5	SRC-0.18	958900,	Seq=45	335,	Time=955404	24, 1	Mark			
_	200	9 55.0	2823200	192.1	08.10.	140		192-1	108.20	7,251		1111	1140	PT-D	ynain cin	Type	97 8	SICHUG 8	968900.	Seq 45	1901	T100-953453	1.1.1	sark			
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	244	2 33.7	98776000	192,1	68.10.	146		197.1	66.70	7.231		RIP	1275	F1-D	VIDENT CRI	P-Type-	97. st	NO0114	Sulfico,	5eg-15	515	11me-935566	14				
	244	3 33.7	99675000	192.1	es.10.1	146		192.1	188.20	7.231		RTP	178	S PT-D	ynani sRi	P-Type-	97. 5	SRC-0.13	0008000	Seg-45	546	Time-935586	114, 1	Mark			
	245	0 33,8	30298000	192.1	68.10.1	146		192.1	168,20	6,231		RTP	1315	PT=D	ynawl cRt	гт турс	97.5	SRC=0x18	968900.	500=45	47.	TINC=935616	94				
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	246	3 33,8	07351000	192.1	68.10.	146		192.1	168,20	0.231		RTP	103.	PT-D	ynawi cRt	гт турс	97.5	580=0.18	968900.	500=45	»91.	TINC=935678	114				
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8	Ether	TWI II	, Srup (	Ciaco a	0:00:0	6 (eS:	40:40:4	AN: 60:	06), 1	Dat: Cia	cu dfat	be:65 (0	0:07:76	:df:br	a:65)												
199	Inter	net Pr	otoco1	version	4, 50	C: 192	.168.10	1.146	(192.)	168,10,1	46), D	SI: 192.	168.207	.231 (	(192.168	5.207.23	1)										
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O problema agora está apenas na qualidade do vídeo. Concentre-se no fluxo de RTP de vídeo e use os números de porta UDP para esse fluxo para filtrar outros fluxos.

9. Visualize o número da porta selecionando um dos pacotes que exibe as informações da porta UDP no painel inferior do utilitário Wireshark. Na captura de tela anterior, um dos pacotes do fluxo de vídeo é selecionado e você pode ver as informações da porta Src (20568) e da porta Dst (20808) no painel inferior.

**Tip**: Use este filtro: (ip.src==192.168.10.146 && ip.dst==192.168.207.231) && (udp.port eq 20568 e udp.port eq 20808). Você verá apenas o fluxo de RTP de vídeo mostrado nesta captura de tela.

Note: Anote o primeiro e o último número de sequência RTP para este fluxo.

Ele bit Yew Go Capture Analyse Statistics Telephony Joob Internals Help 월월월월월||16 월 x 28 금 | 《 수 수 중 소 | 同同 | Q Q Q D | 월 M

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No.	Time Source	Destination	Protocol	least Ma	
23	40 33, 351615000 192, 168, 10, 146	192.168.207.231	RTP.	68 PT=DwnawicRTP Tvpc 97, SSRC=0x183583900, Sc(=45514, Tinc=33510574	
- 23	41 33, 352561000 192, 168, 10, 146	192,168,207,231	RIP	60 FIL-DAMANTERIF-Type-97, SAX -0x189x89x0, Sep 14447, time-93510574	
23	42 33,355522000 192,165,10,146	192,188,207,231	RTP	1108 PT-DynamicRTP-Type-97, SSRC-0x18808800, Sep-45518, Time-03510574	
23	48 33,362826000 192,168,10,146	192.168.207.231	RTP	1075 PT=DynamicRTP Type 97, SSRC=0x18368300, Seg=45517, Tinc=35510574	
23	49 33, 366378000 192, 168, 10, 146	192,168,207,231	RIP	A58 FIL-DynamicKIF-Type-97, SNX-0x189x83x0, Seq-15518, Ifne-93510574	
23	51 33, 365238000 192, 165, 10, 146	192.188.207.231	RTP	165 PT-DynamicRTP-Type-97, SSRC-0x188088000, Sep-45519, Time-83510574, Mark	
23	54 53, 581821000 192, 168, 10, 146	192.168.207.231	RTP	68 PT=DynamicRTP Type 97, SSRC=0x189589C0, Seq=45520, Time=95522274	
- 23	55 33, 382774000 192, 168, 10, 146	192,168,207,231	RIP	60 FILESynamicKIFF-Type-97, SAX =0x18968360, SEq=15521, Ifme-93522224	
23	56 33, 385811000 192, 165, 10, 146	192.188.207.231	RTP	1125 PT-DynamitRTP-Type-97, SSRC-0x18808800, Seq-45522, Time-83522274	
Z :	57 53, 593001000 192, 165, 10, 146	192.168.207.231	RTP	10/9 PT=DynamicRTP-Type-97, SSRC=0x189589C0, Seq=45523, Tinc=95522274	
- 23	59 33, 397038000 (192, 168, 10, 146	192,168,207,231	RIP	766 FT=0ynastf7KTF=Type=97, SAX=0x185689;0, SEq=15524, Tfme=93522274	
23	80 33, 397985000 192, 165, 10, 146	192.188.207.231	RTP	185 PT-DynamicRTP-Type-97, SSRC-0x18808900, Seq-45525, Time-80522274, Mark	
Z :	74 53,438203000 192,168,10,146	192.168.207.231	RTP	11/1 PT=DyH2mi(RTP-Type-97, SSRC=0x188589C0, Seq=45526, Time=85525244	
23	76 33.445906000 192.168.10.146	192,168,207,231	RUN	1074 FT=0ynamfirMTF=Type=97, SNX=0x189e89c0, Seq=45527, Tfme=93525244	
- 23	77 33,445655000 192,165,10,146	192.155,207,231	RTP	703 PT-DynamicRTP-Type-97, SSRC-0x18808900, Seq-45528, Time-83525244, Mark	
2.	79 53,454545000 192,165,10,146	192,168,207,231	RTP	526 PT=DynamicRTP-Type-97. SSRC=0x188689C0, Seq=45529, Time=85528304, Mark	
- 23	RS 33,498103000 192,168,10,146	192.168.207.231	RUN	1171 eteoynauficktee-type-97, saxx=0x189e89c0, seq=15530, tfne=93531364	
- 23	56 33,495595000 192,165,10,146	192.168.207.231	RTP	245 PT-DynamicKTP-Type-97, SSRC-0x18608900, Seq-45531, Time-90531384, Mark	
2.5	92 53,530299000 192,165,10,146	192.168.207.231	RTP	415 PT=DynamicRTP=Type=97. SSRC=0x188888000, Seq=45532, Time=85534424, Mark	
- 24	00 33,573901000 192,168,10,146	192.168.207.231	10.06	438 PT=DynamfcHTP=Type=97, SSHC=0x189e89c0, Seq=45533, Tfne=93537394, Mark	
- 24	03 33,598050000 192,168,10,146	192.168.207.231	RTP	1101 PT-DynamicKTP-Type-97, SSRC-0x1000000, Seq-45534, Time-00540454	
24	04 53,595955000 192,165,10,146	192.168.207.231	RTP	176 PT=DynamicRTP=Type=97. SSRC=0x180680C0, Seq=45535, Time=05540454, Mark	
24	09 33.628252000 192.168.10.146	192.168.207.231	11.16	1185 PT=Dynamf CHTP=Type=97, S5HC=0x189689C0, Seq=45536, Tfne=93543514, Mark	
24	14 33,658015000 192,168,10,146	192.168.207.231	RTP	1137 FT-DynamicKTP-Type-97, SSKC-0x10900900, Seq-45537, Time-90546574	
24	21 33,695279000 192,165,10,146	192.188.207.231	RTP	1159 PT-DynamicRTP-Type-97. SSRC-0x18068000, Seq=45539, Time=05349344	
24	22 33,699234000 192,168,10,146	192.168,207,231	0.16	149 PT=DynamicRTP=Type=97, SSRC=0x189689C0, Seq=45540, Tine=95549544, Mark	
24	28 33,728895000 192,168,10,146	197,168,207,231	RTP	1217 FT-SynamickTP-Type-97, SSKC-Oc18688900, Seq-15511, Time-93552004	
- 24	29 33.729778000 192.165.10.146	192.188.207.231	RTP	130 PT-DynamicRTP-Type-97. SSRC-0x18058000, Seq=45542, Time=03552004, Mark	
24	36 33,768664000 192,168,10,146	192.168.207.231	n TP	1248 PT=DynamicRTP Type 97, 55RC=0x18988900, Seq=45545, Tinc=95555664	
24	42 13,798776000 192,168,10,146	197.168.207.231	RIP	1275 F1-bynamick1F-Type-97, Sakk-Ox18668900, Seq-15515, Time-93558034	
24	43 33.799875000 192.185.10.146	192.188.207.231	RTP	176 PT-DynamilRTP-Type-97, SSRC-0x189069C0, Seq=45546, Time-03556614, Mark	
24	10 55,859298009 192,168,10,146	192.168.207.231	0.16	1510 PTeophan (RTP Type 97, 5500-001898-800, 500-45047, T100-95950094	
24	51 44.841765002 192.168.10.146	197.108.207.241	RIP	ter Pi-synamickiP-type-Wr, ask-intramacu, arg-1518, 1108-9351694, Mark	
24	57 55.065979005 192.165.10.146	192.100.207.231	RIP	101 PT-0ymanitkTP-Type-97, 500-010000000, 500-0549, TTmP-0509/34	
- 24	05 55,807531007 192,108,19,140	192.108.207.251	10.10	1037 PT=0ynamickTP Type 07, 55kc=0x180680c0, 5cq=45331, TTHC=55367814	

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L46 L14, 028534000192, 168, 10, 146	190,168,307,201	K1F	364 vr-cymartextv-type-97. Sect-0010606000. Seq-20444. (fm-100605524)
M/ 114.X3/085000100.188.50.505	190,168,317,271	110	ers et-synamicstre-type-w, setz-kasketsicv, markaria-soustaw, wark
H 2240: 66 bytes on wine C64 bits) miss its, and relation activity. General methods and the second second second second relation to the second second second second relation the second second second second second second second second second second second second seco	. 60 bytes captured (34) ediastatic(), bet: class w.in.iag (70, 144, 5, 5) (20160), bet wort: 20060 (21) Ultra commit: 2	bita) en im ditector ( a. Ostr 192 (2000)	serface 0 06.00.2014(fiberos) 1980-200-2014(fiberos)
manual calence 49014			
ynchronization tource identifier: but	tailbailetti (ittianssizik)		
00 34 64 63 60 60 35 11 94 91 50 80 67 67 53 56 51 48 53 22 85 87 80 53 65 67 18 55 81 48 53 22 85 87 80 53 18 24 45 45 10 27 42 55 14 95 40	0a 82 00 80 61 11 02 82 12 170096 5 00 50 80 10 . SH5	· • • •	
ter men andre die und Steine	The second second second second	and the state	

O primeiro número de sequência de RTP é 45514 e o último é 50449 para o fluxo de RTP de vídeo filtrado.

10. Certifique-se de que o primeiro e o último pacote de número de sequência RTP estejam presentes em ambas as capturas.por exemplo, capturas centrais e de ramificação) e observe que o SSRC para o fluxo seria o mesmo em ambas as capturas.

11. Refine o filtro para corresponder somente os pacotes entre o primeiro e o último fluxo de RTP.

Os números de sequência são usados para refinar o fluxo caso as capturas não tenham sido feitas simultaneamente, mas com um pequeno atraso entre elas.

Note: É possível que a filial inicie alguns números de sequência após 45514.

12. Selecione um número de sequência inicial e final. Esses pacotes estão presentes em ambas as capturas e refinam o filtro para exibir somente esses pacotes entre os números de sequência de RTP inicial e final. O filtro para isso é:

```
(ip.src==192.168.10.146 && ip.dst==192.168.207.231) && (udp.port eq 20568 and udp.port eq 20808) && ( rtp.seq>=44514 && rtp.seq<=50449 )
```

Quando as capturas são feitas simultaneamente, nenhum pacote é perdido no início ou no fim das duas capturas. Se você vir que uma das capturas não inclui alguns pacotes no início/fim, use o primeiro número de sequência ou o último número de sequência na captura perdida em ambos os pacotes para refinar o filtro para ambas as capturas. Observe os pacotes capturados em ambos os pontos entre os mesmos números de sequência (intervalo de número de sequência RTP).

Ao aplicar o filtro, você vê isso no site central e na filial:

102 168 207 221

14591 37.749752	192.185.10.145	192.168.207.231	RTP	413 PT-DynamicRTP-Type-97,	SSRC=0x189889C0,	Seq-45532, Tine-9	93534424, Mark			
14609 37.799790	192,155,10,145	192,168,207,231	RTP	4.18 PT-DynamicRTP-Type-97,	SSRC-0x189089C0,	Seq-45533, Tire-1	93537394, Mark			
14619 37.819902	192.168.10.146	192.168.207.231	RTP	1161 PT=DynamicRTP-Type-97.	SSRC=0x189689c0.	5eq=45534, Tire=	93540454			
14620 37,819927	192,168,10,146	192, 168, 207, 231	RTP	176 PT=DynamickTP_Type_97.	SSRC=0x189889c0.	sec-45535, 11nc-5	93540454, Mark			
14634 37.849993	192.168.10.146	192.168.207.231	RTP	1185 PT=DynamicRTP-Type-97.	SSRC=0x189889C0,	Seg-45536, Tine-5	93543514, Mark			
14646 37,850019	192.188.10.148	192.168.207.231	RTP	1117 PT-DynamicRTP-Type-97,	SSRC-0x189889C0,	Seq-45537, Tire-9	93546574			
14647 37,880061	192.168.10.146	192.168.207.231	RTP	133 PT-DynamicRTP-Type-97,	SSRC-0x189089C0,	Seq-45538, Tire-1	93546574, Mark			
14666 37.919887	192.168.10.146	192.168.207.231	RTP	1189 PT=DynamicRTP-Type-97.	SSRC=0x189689c0,	5eq=45539, Tine=5	93549544			
14667 37.919930	192.168.10.146	192.168.207.231	RTP	149 PT=Dynamick IP-Type-97.	SSRC=0x189889C0,	5eq=45540, 11nc=8	93549544, Mark			
14679 37.950212	192.155.10.145	192.168.207.231	RTP	1237 PT=DynamicRTP-Type-97,	SSRC=0x189889C0,	Seq-45541, Tine-5	93552604			
14680 17,950740	192,188,10,148	192, 168, 207, 231	RTP	1.10 PT Dynamic RTP-Type-97,	SSRC-0x189889C0,	Seq-45542, Tite-3	93552604, Mark			
14699 37.989939	192.168.10.146	192.168.207.231	RTP	1248 PT-DynamicRTP-Type-97,	SSRC=0x189689C0,	5eq-45543, Tire-1	93555664			
14700 37.989966	192.168.10.146	192.168.207.231	RTP	135 PT=Dynan1 CRTP-Type-97,	SSRC=0x189889c0,	5eq=45544, mine=5	93555664, Mark			
14711 38.020065	192.168.10.146	192.168.207.231	RTP	1275 PT=Dynant cRTP-Type-97,	SSRC=0x189889C0,	Seq=45545, Tine=8	93558634			
14712 38.020092	192.185.10.148	192.168.207.231	RTP	176 PT-DynamicRTP-Type-97,	SSRC=0x189889C0,	Seq-45548, Tire-9	93558634, Mark			
14724 38.050392	192,158,10,145	192,168,207,231	RTP	1.119 PT-DynamicRTP-Type-97,	SSRC-0x189089C0,	Seq-45547, Tire-1	93561699			
14725 38.050419	192.168.10.146	192.168.207.231	RTP	134 PT=DynamicRTP-Type-97,	SSRC=0x189689c0,	, seq=45548, time=1	93561694, Mark			
14744 38.089989	192.168.10.146	192.168.207.231	RTP	1301 PT-DynamickTP_Type_97.	SSRC=0x18968900.	. sec-45549. r1nc-5	93564754			
<ul> <li>Ethernet II, Src:</li> <li>Internet Protocol</li> <li>User Datagram Prot</li> <li>Real-Time Transpor</li> </ul>	B Ethernet II, Src: Cisco_67:13:70 (30:e4:db:67:13:70), Dst: Cisco_74:00:08 (D8:62:17:74:00:08) W Internet Protocol version 4, src: 192:168:10.146 (192:168:10.146), Dst: 192:168:207.231 (192:168:207.231) W User Datagram Protocol, Src Port: 20568 (20568), Dst Port: 20808 (20808) B Real-Time Transport Protocol									
0000 bs 62 1f fa d0 06 30 44 db 67 13 f0 08 00 45 88 bb0. 9.95. 0010 00 36 84 d1 00 00 37 f11 98 91 c0 a5 04 52 c0 8 bb0. 9.95. 0020 ct 67 50 58 51 48 00 22 95 44 80 61 bl c3 05 92										
-								-		

11ma\_02521264 Mr

Site central:

14572 37.720005

192.168.10.146

Local da filial:

2555 33,382774000 192,108,10,140	192,108,207,231	RTP	00 PT=0ymannickIP=Type=97, 5580=0x18988900, 56q=45521, 11	NC=95322274
2556 53.385611000 192.165.10.146	192,158,207,251	RTP	1125 PT-DynamicRTP-Type-W/, SSRC=Ox18W889CO, Seq=45522, Time	me-93522274
2357 33.393001000 192.168.10.146	192.168.207.231	ICT P	1079 PT=DymanfickTP=Type=97, SSRC=0x189s89c0, Seq=45523, 11	NC=93522274
2359 33, 397036000 192, 185, 10, 148	192,188,207,231	RTP	795 PT-DynamicRTP-Type-97, SSRC-0x18908900, Seq-45524, Tit	se-93522274
2360 33.397988000 192.168.10.146	192.168.207.231	RTP	165 PT-0ymanficRTP Type 97, SSRC=0x189s89c0, Seg=45525, 11	wc=93522274, Mark
2374 31,435203000 192,165,10,146	192,188,207,231	RTP	1171 PT-Dynamic RTP-Type-97, SSRC-Ox18908900, Seq-45528, Tit	se-93525244
2376 33,445906000 192,168,10,146	192,168,207,231	RTP	1074 PT=DVmanicRTP_TVD0_97, SSRC=0x189s89c0, Sc0=45527, T1	NC=93525244
2377 31,445655000 192,165,10,146	197,188,207,231	RTP	203 PT-Dynamic RTP-Type-97, SSRC-0x189389C0, Sep-45528, Tit	ne-93525244, Mark
2379 33,454348000 192,168,10,146	192.168.207.231	BTP	528 PT=OVDAMICRTP_TV00-97, SSRC=0x189889c0, Sec=45529, T1	wc=03528304, Mark
2385 33, 498103000 192, 168, 10, 146	197,155,207,231	RTP	1171 PT-Ovnamic RTP-Type-97, S58C-Ox189889CO, Sec-45530, Tit	ne-93531360
2386 33,498898000 192,168,10,146	192,168,207,231	RTP	248 PT=DynamicRTP_Type_07, SSRC=0x180s89c0, Sec=45531, T1	we=03531364, Mark
2392 33, 530299000 192, 168, 10, 146	192,168,207,231	STP	413 RT-DynamicRTP-Type-97, \$580-0x18988900, Sec-45532, Tit	ne-9353642d, Mark
2400 33 573901000 192 168 10 146	102, 168, 207, 231	BTP	438 PT=0vnawicPTP_Tvne_07_550c=0v180580c0_5ce=45533_T1	we=03537304 Mark
2403 33, 595050000, 192, 168, 10, 146	192, 168, 207, 231	RTP	1161 RT-0vmanicRTR-Tune-97, \$586-0v18988960, \$ec-45534, Tit	ne-93540454
2404 33 598955000 192 168 10 146	102 158 207 231	PTP	176 PT=0vitavi/PTP=Tvne=02 550c=0v180580c0 5cc=45535 Ti	New 93540454 Mark
2409 22, 628252000 192, 168, 10, 146	192, 168, 207, 221	RTR	1105 0T-00000100T0-T000-07, 5500-0010000000, 500-45536, T4	and States and American
1414 27 EXECUTE 101 101 101 140	201 200 201 102	0.77	1205 Presynanical Program (Control Science Sci	NUMBER OF STREET
2424 23.000020000 102.100.10.140	102 108 207 221		1100 supported to the type of a support of 00x00x0, see 45520, the	Ne_02540544
2421 55,0552/5000 192,105,10,140	192,108,207,251	0.00	1105 PT=DynamickTP=Type=57, SSRC=0410566500, SSQ=45335, TT	10-05340344
2422 53.699234000 192.166.10.146	192,108,207,231	RIP	199 PT-bynamick IP-Type-97, SSRL-OLLOPID-00, Seq-15540, Th	BE-SISTED OF MARK
2428 55.728895000 192.108.10.140	192,108,207,251	RUD.	1257 PT=0yhamickTP=Type=57, SSRC=0x18583600, Seq=45341, Th	10=05332004
2429 31.729776000 197.166.10.146	192,108,207,231	RIP	100 PT-0ymantick (P-Type-97, SSRL-Ottheursco, Seq-15542, Th	Be-Nabazouri, Mark
2436 55.765664000 192.165.10.146	192.168.207.251	RTP	1248 PT=bynamicRTP Type 97, SSRC=0x189889C0, Seq=45345, TT	10=95333964
2442 31.795/70000 197.105.10.145	192.188.207.231	RTP	1275 PT-0ymanickTP-Type-97, SSRC-0s189049C0, Seq-15565, Th	10- N1550014
2443 33.799678000 192.168.10.146	192.168.207.231	RTP	1/6 PT=DynamicRTP=Type=97, SSRC=0x189589C0, Seq=45346, Th	NC#95558654, Mark
2450 31.830298000 192.168.10.108	192.168.207.231	RTP	1119 PT-DynamicRTP-Type-97, SSRC-Ox189849CO, Seq-15307, Th	#F-93501090
2451 53.851265000 192.165.10.146	192.168.207.251	RTP	134 PT=DynamicRTP=Type=97, SSRC=0x189589C0, Seq=45348, Th	86#95561694, Mark
2437 33.808929500 192.108.10.140	192-108-207-231	RTP	1301 PT-0ynamickIP-Type-97, 5580-0x18988960, 560-15569, 11	00000000
2463 53.89/351000 192.165.10.146	192.168.207.251	RTP	1037 PT=DynamicRTP=Type=97, SSRC=0x18988900, Seq=45531, TH	86-9336/814
2404 53.898904000 192.108.10.140	192,108,207,231	RTP	449 PT=DynamickTP=Type=97, 5580=0x18988900, 56q=45552, 11	10-93507814, Mark
2470 53.927687000 192.165.10.146	192.155.207.251	RTP	1055 PT-bynamickTP-Type-97, 55RC+0x189689C0, 58Q-45555, TH	86-93570754 02570754
24/1 53,929328/00 192,108,10,140	192,108,207,251	RUP	477 PT=0yhamickTP=Type=97, 558C=0x189589C0, 569=43334, 11	10495370784, Mark
2478 23.907339000 192.105.10.146	102.108.207.201	RIP	202 PT-Dynamick TP-Type-97, SSRL-0110M009C0, SRQ-45555, TT	88-935/3044 xe_03573044 wash
24/5 55.508521000 152.108.10.140	192,108,207,251	NUP.	soz niebynaniekinnityperozy sokceokzobodow, soke+3330, in	10405373844, Mark
•				
E Frame 2340: 68 bytes on wire (544 bits)	, 68 bytes captured (544 b	oits) on in	terface 0	
<pre># Ethernet II, Src: Cisco_ae:60:06 (e8:40</pre>	(40:ae:60:06), Dst: Cisco	df:be:65 (	00:07:7d:df:be:65)	
E Internet Protocol Version 4, Src: 192.1	68.10.146 (192.168.10.146)	, Dst: 192	.168.207.231 (192.168.207.231)	
E User Datagram Protocol, Src Port: 20568	(20568), DST Port: 20808	(20608)		
E Real-Time Transport Protocol				
10 = Version: RFC 1889 Version	(2)			
= Padding: False				
0 Extension: False				
0000 = contributing source ident	iffers count: 0			
0 Harker: False				
Payload type: DynamickTP Type 97 (97)				
Sequence number: 45514				
T1mestamp: 93510574				
Synchronization Source identifier: 0x	1A9689c0 (412846528)			
0000 00 07 74 45 be 65 48 40 40 pe 60 0		· .		
0010 00 36 84 d3 00 00 3b 11 9c 91 c0 at	8 0a 92 c0 a8 .6			
0020 cf c7 50 58 51 48 00 22 96 c4 80 60	1 b1 ca 05 92PXOH." .	a		
0030 db ac 18 9b 89 c0 27 42 80 14 95 a	0 58 25 b0 10's .	XX		
0040 10 24 40 40				
😑 🐹 File 10:\User\shyvenka\Desktop\TechJone - Packet	te 22481 Displayer 4737 🚽 riset: Dign:	ored: 1 Load time	e 001314	Profile: Default
	· · · · · · · · · · · · · · · · · · ·			

Observe a contagem de pacotes filtrados no painel inferior do utilitário Wireshark em ambas as capturas. A contagem **exibida** indica o número de pacotes que correspondem aos critérios de filtro desejados.

O local central tem 4.936 pacotes que correspondem aos critérios de filtragem desejados entre os números de sequência RTP de início (45514) e fim (50449), enquanto no local da filial há apenas 4.737 pacotes. Isso indica uma perda de 199 pacotes. Observe que esses 199 pacotes correspondem à contagem de "Rcvr Lost Pkts" de 199, vista nas estatísticas de transmissão do telefone IP da filial mostrada no início deste documento.

Isso confirma que todos os pacotes perdidos de Rcvr foram na verdade perdas de rede descartadas na WAN. É assim que o ponto de perda de pacotes na rede é isolado, enquanto os problemas de qualidade de áudio/vídeo são tratados com a suspeita de quedas de rede.