

Inspired Innovation

Spirent TestCenter

两端口使用自定义方式建立互发的带 VLAN 的二层数据流



1 运行 STC applicaton 软件,占用端口后,在端口1上增加 Raw Stream Block,

File View Tools Actions	Help
🗋 🐸 🗶 🖏 🕹 🚨	🕺 Chassis 👻 🚵 Apply 🛛 🚓 🚓 🛤 🛤 🐘 🛼 🥵 🌾 🐐 🏢 Technologies 📔
Test Configuration	× .
🔤 All Ports 🖉	Delete 📝 Edit
All Routers	Add Bound Stream Block(s) Auto
All Hosts	Raw Stream Block
All Traffic Generators	
	Port based Burst size:
All Traffic Analyzers	🔵 Load per streamblock 🛛 📉 Inter frame gap (byte
Ports	Duration mode:
Routers	
Hosts	
2 Traffic General	State Active Name Index Controlled By Traffic Pattern
Traffic Analyze	
🧹 🏹 Capture	
🖃 – 🕘 Port //1/2	
Routers	
Hosts	
Results	
Analyzer on Port //1/2 is stopped	

🔽 Active 📿	Name: StreemBl	ock 1		
Frame size (Bytes)(With (CRC and signature fi	eld)	Streamblock load option	
Fixed	Size: 128		Load mode:	Fixed 💌
O Increment	Step: 1			
O Decrement	Min: 128 😂		Percent (%)	10
🔘 Random	Max: 256 🔹		 Frames/sec (fps) 	84459
🔿 Auto	Avg: 192		🔵 Inter-Burst Gap (bytes)	1344
() iMIX	Default 🗸	Edit	🔵 Inter-Burst Gap (msec)	1344
Ŭ			🔵 Inter-Burst Gap (nsec)	1344
) bps	10000000
			◯ Kbps	100000
			O Mbps	100
			L2 Rate (bps)	10000000
Settings			Packet	
Scheduling priority	0	÷ 4	Payload fill constant (hex) :	0000
Burst size:	1	÷ 5	Payload fill type:	Constant 🗸 🗸
Start delay (bytes):	0	<u>^</u>	Insert Ethernet FCS error	
Inter-frame gap(byte:	s): 12	÷ 6	Include Signature Field	

2a 在数据编辑窗口的 General 页上定义所要发送的数据的参数

2b 在数据编辑窗口的 Frame 页上定义所要发送的数据的参数

2b1 增加 VLAN 字段



General Frame Groups Rx Port Preview Preview: Show All Fields Allow Invalid Packets IPv4 EthernetII Name Value Frames 🖃 - Frame Create new Frame > 🖨 EthernetII Save Frame as Destination MAC 00:00:02:00:00:02 Template... Source MAC 00.00.01.00.00.01

2b2 修改 MAC 地址和 VLAN 字段后点击 OK 按钮。

· · - · · - · · · · · · · · · · · · · · · · · · ·		
Templates	📮 Vlans	-
	📥 Vlan	
Actions	- Type (hex)	8100
Add Header(s)	···· Priority (bits)	3000
Link Modifiers/VFDs	CFI (bit)	0
Delete IPv4 Header	ID (int)	5 100
	EtherType (hex)	<auto> Internet IP</auto>
Others	🖨 IPv4 Header	
Expand All	ToS/DiffServ	5 tos (0x00)
Collapse All	Total length (int)	<auto> 20</auto>
	Time to live (int)	255
	Protocol (int)	<auto> Experimental</auto>
	Source	192.85.1.1
	Destination	8 192.85.1.2
	Header Options	
	L Gateway	192.85.1.2
Less Editors		
Hex Editor		· · · · · · · · · · · · · · · · · · ·
0000: 55 55 55 55 55 5)5 55 D5 00 00 02 00 00 02 00 00 U U U 10 00 64 08 00 45 00 00 14 00 00	
010 01 00 00 01 91 0		
0010:01000001810 0020:0000FFF <u>D383</u>	F C0 55 01 01 C0 55 01 02	987AU AU
0010: 01 00 00 01 81 0 0020: 00 00 FF FD 38 3	F C0 55 01 01 C0 55 01 02	1987AUAU

3 在端口 2 上增加 Raw Stream Block,

File Edit View Tools Acti	ons Help					
🗋 🐸 🛃 🎇 🕹 🛍 🧏	🗟 Chassis 🗸 🚵 Apply 🚯 🔮 📑 🛤 🖺 🥵 🐝	🌾 🏭 Technologies 📔 💂				
Test Configuration All Ports All Routers All Hosts 3	Add • X Delete Redit Add Bound Stream Block(s) 1,00000 %	× ×				
All Traffic Generators All Stream Blocks All Traffic Analyzers	Port based Load per streamblock	Burst size: Inter frame gap (byte				
Port //1/1	Duration mode: Continuous	×				
Traffic General	State Active Name Index Contra	olled By Traffic Pattern				
er Port //1/2						
Traffic General Traffic Analyze						
Results	Results					
Analyzer on Port //1/2 is stopped						

4a 在 2 端口的数据编辑窗口的 General 页上定义所要发送的数据的参数

	Active 2	Name: StreamBlock 2		
Fr	ame size (Bytes)(With (CRC and signature field)	Streamblock load option	
3	• Fixed	Size: 128	Load mode:	Fixed 💉
	O Increment	Step: 1		
	O Decrement	Min: 128 📚	Percent (%)	10
	🔘 Random	Max: 256 😂	◯ Frames/sec (fps)	84459
	🔿 Auto	Avg: 192	🔵 Inter-Burst Gap (bytes)	1344
	🔿 iMIX	Default V Edit	O Inter-Burst Gap (msec)	1344
	-		Inter-Burst Gap (nsec)	1344
			Obps	10000000
			◯ Kbps	100000
			◯ Mbps	100
			L2 Rate (bps)	10000000
Se	ettings		Packet	
	Scheduling priority	0	4 Pavload fill constant (hex) :	0000
	Burst size:	1	5 Payload fill type:	Constant
	Start delay (bytes):	0	Insert Ethernet FCS error	
	Inter-frame gap(bytes	;): 12	Include Signature Field	

4b 在 2 端口的数据编辑窗口的 Frame 页上定义所要发送的数据的参数 4b1 增加 VLAN 字段

General Frame Groups	Rx Port Preview			
Preview: EthernetII IPv4		C	Show All Fields	Allow Invalid Packets
Frames	Name Right Click		Value	
Create new Frame >	2= Ethernet ^{II}]	
Save Frame as	- Destin	Add Header(s)	00:01:00:00:0)1
Manage Frame	···· Source	Link Modifiers/VFDs	10:94:00:00:0	12
Templates	Etheri	Delete BovernetII	uto> Internet	IP
Actions	🗄 IPv4 Heau	er		

4b2 修改 MAC 地址和 VLAN 字段后点击 OK 按钮。

Preview: EthernetII IPv4		Show All Fields 📄 Allow Invalid Packets
F	Name	Value
Frames	🖃 - Frame	
Create new Frame >	🕂 EthernetII	
Save Frame as	Destination MAC	1 00:00:01:00:00:01
Manage Frame	Source MAC	2 00:00:02:00:00:02
Templates	📮 Vlans	
	📥 Vlan	
Actions	Type (hex)	8100
Add Header(s)	Priority (bits)	3 000
Link Modifiers/VFDs	CFI (bit)	40
Delete IPv4 Header	ID (int)	5 100
	EtherType (hex)	<auto> Internet IP</auto>
Others	🖃 IPv4 Header	
Expand All	ToS/DiffServ	6 tos (0x00)
Collapse All	Total length (int)	<auto> 20</auto>
	Time to live (int)	255
	Protocol (int)	<auto> Experimental</auto>
	Source	7 192.85.1.2
	Destination	8192.85.1.1
	Header Options	-
	Gateway	192.85.1.1
	· · · · · · · · · · · · · · · · · · ·	
Hex Editor		
0000: 55 55 55 55 55 0010: 02 00 00 02 81 0020: 00 00 FF FD 38	i5 55 D5 00 00 01 00 01 00 00 U U i0 00 64 08 00 45 00 00 14 00 00 . . i7 C0 55 01 02 C0 55 01 01 . . .	UUUUUÕ . d <mark>E</mark> ÿý8?ÀUÀU
		N

5 点击 Apply 将配置下发到 STC 机箱上。

5a 在配置下发前或下发没有完成时,^{State2}为灰色,表示在数据流没有准备好。

File Edit View Tools Actio	ns Help				
🗋 🐸 🗶 👫 🕹 🏝 🎘	Chass 6	Apply 🗟 🖧 🛱 I	H 🖡 🖪 📢 🧐	📔 Technologi	es 📮
Test Configuration					×
All Ports 🔥	🎼 Add 🗙	Delete Apply F9 t			est r
- 🤁 All Routers			10 00000 %		185
🚋 All Hosts			10.0000078		
All Traffic Generators	State 2	Active 3 Name 4	Type Tx Port	- Rx Port	Traffi 🛛 🖗
📑 🚔 🗚 Stream Blocks				5	Grout
		V StreamB	Port Port //1	1 Απγ	
📮 🛄 Ports		🗹 StreamB	Port Port //1	l2 Any	
🖨 🕘 Port //1/1					
- 🔀 Routers					
			1		+I

5b 在下发完成后, ^{State}2 为绿色, 表示在数据流准备好, 可以发送。

File Edit View Tools Ac	tions	Help						
🗋 💕 🗶 📲 🎇 🕹 🛍	🎉 Cha	assis 👻 🗎	Apply 🔤 🍯) 🔒 🛱 I	1 6 6	K 🐔 🛙	🔢 Technolo	gies
Test Configuration								×
📰 All Ports	<u>^ (8</u>)	Add 🗙	Delete 🛛 🖥	Edit				
- 🤁 All Routers		<u> </u>			10.0000	12		
🔤 All Hosts		<u> </u>			10.00000			
All Traffic Generators		State 2	Active 3	Name 4	Туре	Tx Port 5	Rx Port	Traffi
All Stream Blocks								Group
		0		StreamB	Port	Port //1/1	Αηγ	
📮 🛄 Ports			Image: A start of the start	StreamB	Port	Port //1/2	Any	
🖻 🕘 Port //1/1								

6 通过点击 2 选择全部的数据流	瓦,在数据流处,	点击右键》		据,也可	·以选择
5 • 直接使所有端口开始发送数据	括。				
File Edit View Tools Actions Help		_			
🗋 💕 🛃 🎇 👗 🗈 🎘 🌺 Chassis 🗸 🚵	Apply 🚓 🚓 👆 i	📥 🖪 🕯	ζ 🔏	🏭 Technolog	jies 📃 🚽
Test Configuration					×
🌐 All Ports 🛛 💁 🎼 Add 🗙 I	Delete 🛛 🔛 Edit 📔				est A
All Routers		10.00000 %			sist
		1 1		1	Traffi
State	Active Name	Type T	× Port	Rx Port	Grout
All Traffic Analyzers 3	Add Bound Stream Blo	nck(s)	rt //1/1	Any	
Ports	Delete		t //1/2	Алу	
□ ● Port //1/1			<u> </u>		
Routers	Cut StreamBlock	Ctrl+X	L		
Traffic General	Copy StreamBlock	Ctrl+C	L		
Traffic Analyze	Paste StreamBlock	Ctrl+V			<u>+</u>
Capture	Duplicate				
i⊒ ● Port //1/2	ARPIND	•			
Hosts	12Learning				
Traffic General	Copy Down Traffic Gr	OUD	L		
Traffic Analyze	Copy Down iMIX	oapin	<u> </u>		
Capture	Edit				>
Besults A	Start				
Applied 3 object change(s) to the hardware	Stop				
7 确认数据演正在发送 此时数据流的组	*太指示笔 会 发生	:			
File Edit View Tools Actions Help	心泪小寸云次工	<u> </u>			
🗋 🎯 🗔 🕅 👗 📭 🅦 🏹 Chassis 🗸 🚵 A	Apply 🚓 🚓 🛃 🗄	3 R. P. <		🗄 Technologi	es
Test Configuration					×
All Ports	elete 📝 Edit				
- 😯 All Routers		10 00000 %			
All Hosts	1	10,0000 %			
All Traffic Generators	active Name	Type Tx	Port	Rx Port	Traffi Grout
	StreamB	Port <u>Po</u>	vrt //1/1	Any	
Ports	StreamB	Port Po	vrt //1/2	Αηγ	
- Port //1/1					

8 观察统计结果。

8a选择按数据流详细结果方式观察统计。

File Edit View Tools Actions	Help	
🗋 💕 🛃 🎇 🐰 🗈 🎘 🎇 Cha	assis 🗸 🚵 Apply 🛛 🚓 🚓 🛤 🐘 🃭 🧯	🌾 ५ 🔚 Technologies 📔 💂
Test Configuration	🔼 🎼 Add 🗕 🗙 Delete 📝 Edit	×
All Ports		10,00000 %
Results		Ф ×
Port Traffic > Basic Traffic Results	Change 🖓 🗤 🗸 👔 🛛 🗤 🔹 1 of 1	
Basic Counters Errors Triggers F	Create Table View	
Port Name Total Tx Count Tot- (Frames) (Fra	Create Chart View	ate (bps) Generator Count
Port //1/1 62,121,237 47,.	Castolinize view	0 62,121,237
Port //1/2 62,159,244 47,	Save View Lavout	8 62,159,244
	Enable Charts	
	Organize Views	
	Port Traffic 🔶 🕨	
	Stream Results 3 🔶 🕨	Traffic Group Results
	Port Protocols	Filtered Stream Results
	Router Protocols	Interesting Stream Results
Validation Errors Log - 36 m	essages 4 I	Petailed Stream Results
Generator on Port //1/1 is running		Stream Block Results

9观察时延统计结果。

File Edit View Tools A	Actions Help						
🗋 💕 🔒 🗱 🗛 🖻 🛍	🏂 Chassis 👻 🚵 Ap	ply 🖧 🖧 🛱 開	🖪 🖪 🍕 📢 I	🔢 Technologies			
Test Configuration				×			
🖃 🗁 Spirent TestCenter	🔼 🎒 Ad	d 👻 🗙 Delete 🛛 📝 B	Edit	est A			
All Ports		(
Besults			统计结本很多				
Character Describe > Debeiled Ch		n Dandh Kann - 1 2	1 of 1				
Stream Results > Detailed St	L Calact Du Davi	ge Result view 👻 🛃					
Deric II v Ports: All Ports		all Ports		er mode:			
Basic Mode	- Convencing Advance	ad Convension Histor					
Casic Counters Errors Basic	c Sequencing Advanc	ea Sequencing Histog	Irams				
Name/ID 3	Short Term Avg 4 atency (us)	Avg Latency (us) 5	Min Latency (u ญ	Max Latency (us)			
▶ StreamBlock 1/65536 7	7.09	7.09	6.49	7.86			
5treamBlock 2/1310 6	5.82	6.82	6.48	7.56			
			Click and I	Drag			
<			2-				
Results Validation Errors Lo	og - 46 messages		Y	7			
Applied 4 object change(s) to the ha	ardware	Applied 4 object change(s) to the hardware					

10 观察丢包统计结果。

File Edit View Tools Action	ns Help					
🗋 💕 🔒 🗱 🖌 🖻 🛍 🎉	Chassis 👻 🊵 Apply 🛛 🚳 🌘	8 🖪 🖪 🖪 🖪	🖌 🌾 🌾 🛛 🎆 Techno	ologies		
Test Configuration				×		
 Spirent TestCenter All Ports All Routers 	Add × I	Delete 📝 Edit	10.00000 %			
Results 7 ×						
Stream Results > Detailed Stream	n Results Change Result Vi	ew 🕶 🎦 📢 🍕	1 of 1 🛛 📦 📦			
Select Tx Ports: All Ports - Select Rx Ports: All Ports - Change Counter Mode:						
Basic Mode						
Basic Counters Errors Basic Se	uencing Advanced Sequen	cing Histograms				
Name/ID ate Count Frames)		Dropped 4 Frame Perce	In-order Rate (fps)	Reorder		
▶ StreamBlock 1/65536	0	0	84,459	0		
StreamBlock 2/1310	0	0	84, 459	0		
		0				
Results Validation Errors Log - 46 messages						
Applied 4 object change(s) to the hardw	are			.;		

11 观察抖动统计结果。

11a 设置为 Ji	itter Mo	de。并点击	Apply 设备	STC 的结	吉果观察模式	. 0	
File Edit V	iew Too	ls Actions	Help				
🗋 💕 🔒 🛛	 X Q	🗈 🛍 🎉 Chase	sis 3 📥 Apply	B B	🛱 🛱 🖡 🖡	🖁 🍕 🌾 🏭 Tech	nologies
Test Configuration	า						×
Spirent T Spirent T All Po All Ro	'estCenter orts outers		▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	. 👻 🗙 Deli	ete 📝 Edit	10,00000 %	
Results							Т Х –
Stream Result	s > Detai	led Stream Res	sults Change	Result View	- 🎦 📢 🧹] 1 of 1 👂 [
Select Tx Ports:	All Ports	▼	Select Rx Ports:	All Ports	• C	Change Counter Mode	:
Basic Mode							
Basic Mode Histogram Mode	s	Basic Sequenc	ing Advanced	Sequencing	g Histograms		
Jitter Mar Inter-arrival Time	Hode	ate Count Frames)	Dropped Rai	e (fps):	Dropped Frame Perce	In-order Rate (fps)	Reorder
Forwarding Perfo	prmance		0		0	84,458	0
5treamBlock	2/1310		0		0	84,459	0
<u><</u>							>
Results Validation Errors Log - 46 messages							
Applied 4 object ch	nange(s) to	the hardware					

11b观察抖动统计结果

File Edit View Tools Actions H	Help						
🗋 🧉 🛃 🎇 👗 🗈 🏝 🎉 Chass	is 👻 🚵 Apply 🛛 付	1 8 5 6 1	b 🖪 🍕 <	🍾 🛛 🏭 Technologie	s 📃 🚽		
Test Configuration					×		
Spirent TestCenter	📥 🛐 Add 👻	🗙 Delete 🛛 📝 Ec	lit		st As		
			10.0	00000 %	sista		
Besults	<u> </u>				문 X 등		
Etroam Beculte > Detailed Etroam Beculte Change Becult View = 1971 101 1 of 1							
Select Tx Ports: All Ports							
		10105					
Basic Counters Errors Basic Sequencing Advanced Sequencing Histograms							
Name/ID 3 Latency (us)	Short Term Avg Jitter (us) 5	Avg Jitter (us)	Min Jitter (us) 7	Max Jitter (us)	Exp Col		
▶ StreamBlock 1/65536 3	0.31	0.31	0	1.23	86,		
StreamBlock 2/1310 4	0.28	0.28	0	3.35	86,		
		Click and	Dree				
		Click and	Drag				
Results Validation Errors Log - 55 messages							
Applied 3 object change(s) to the hardware							