

Layer 2 Switch Integration Lab



"Empowering Boundless Digital Transformation"
School of Information Technology
King Mongkut's University of Technology Thonburi

Learning

OUTCOME



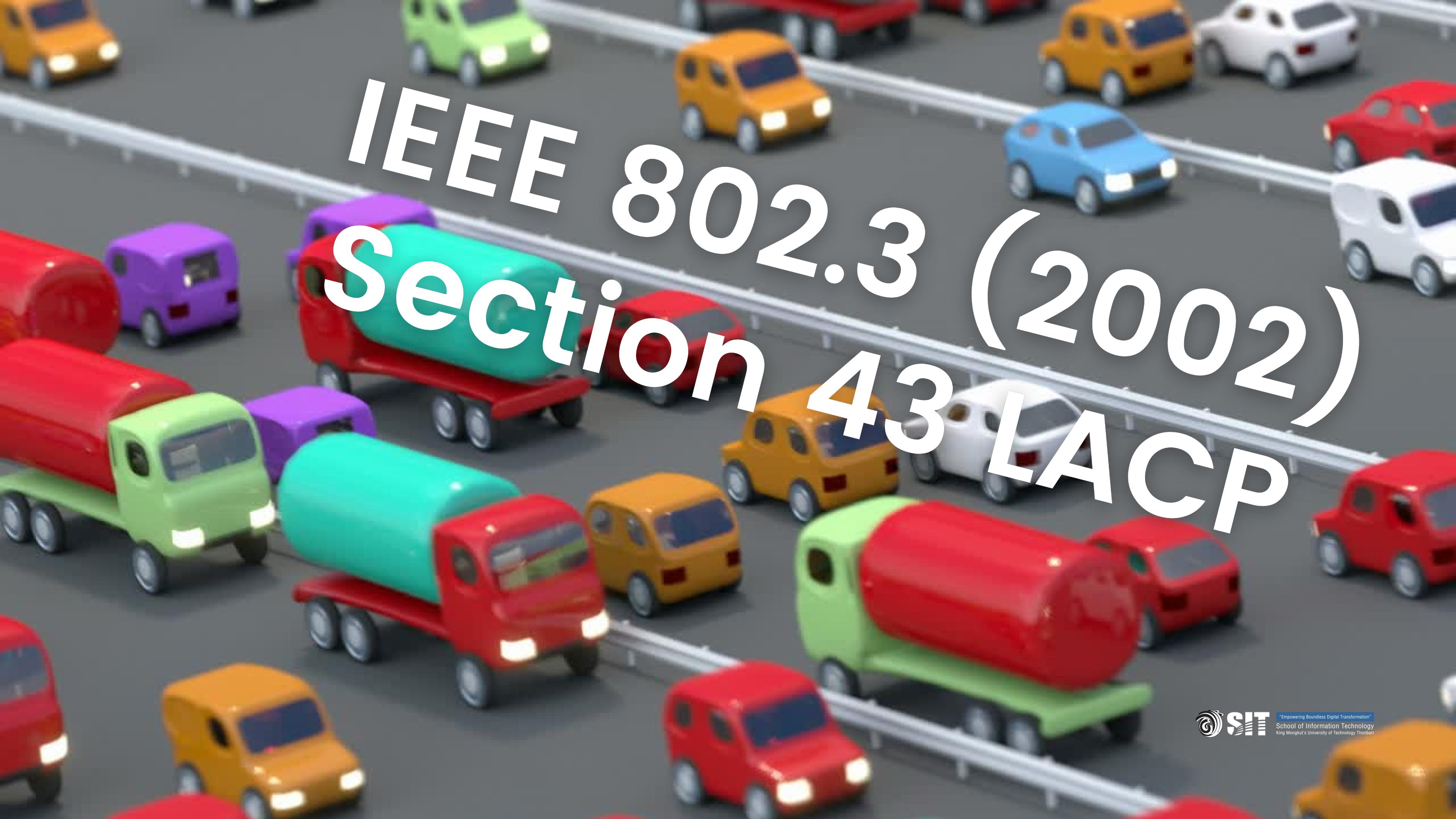
Integration Laboratory

LACP Configuration

STP Configuration

VLAN Configuration

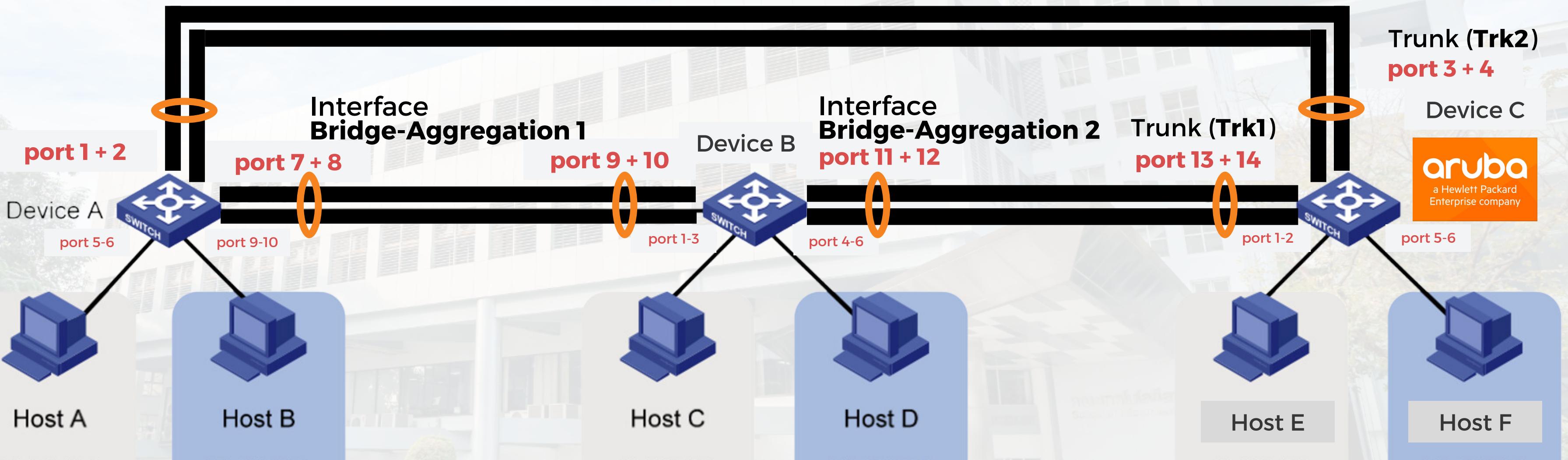
LACP + STP + VLAN



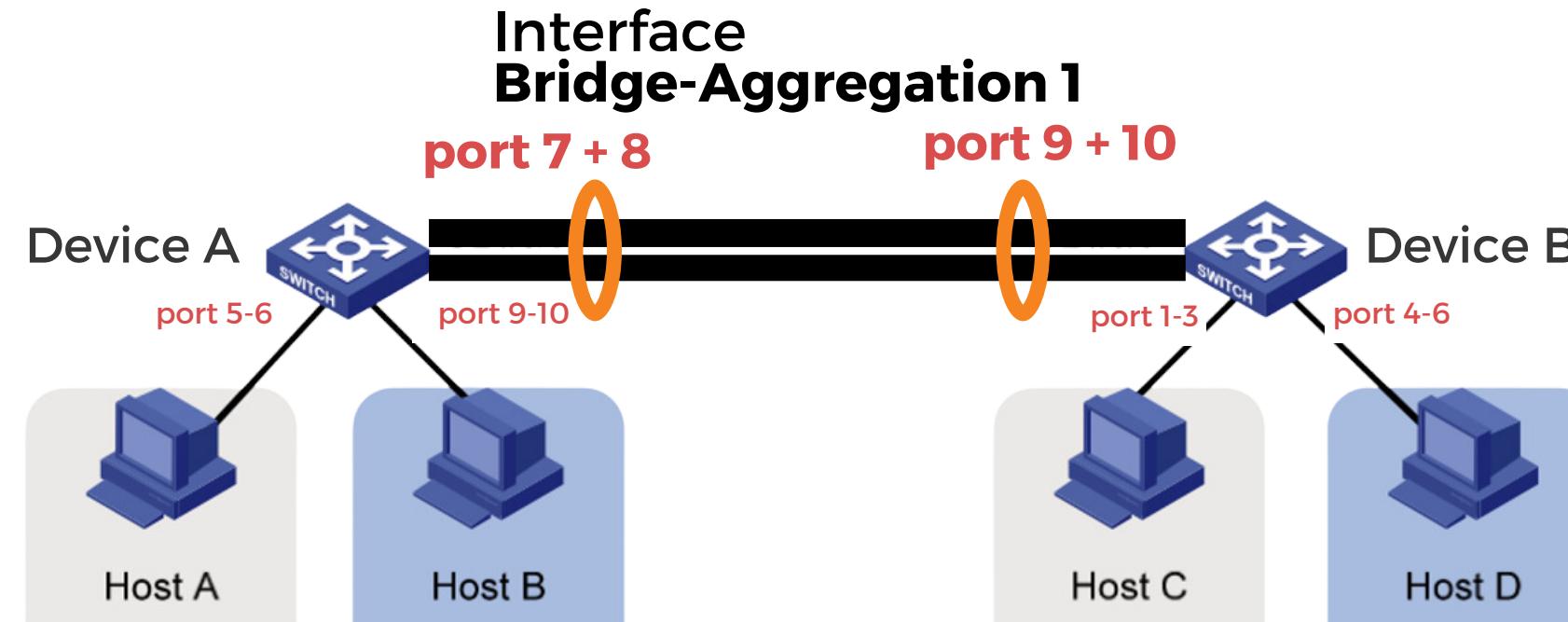
IEEE 802.3 (2002)

Section 43 LACP

Interface Bridge-Aggregation 2



HPE | H3C Dynamic mode: LACP



Create link aggregation group

```
[SWA] interface bridge-aggregation 1  
[SWA-Bridge-Aggregation 1] link-aggregation mode dynamic  
[SWA-Bridge-Aggregation 1] description connect SW-B
```

Add port to LAG

```
[SWA] interface GigabitEthernet 1/0/7  
[SWA-intG1/0/7] port link-aggregation group 1  
[SWA] interface GigabitEthernet 1/0/8  
[SWA-intG1/0/8] port link-aggregation group 1
```

show the LAG interface

```
[SWA] display link-aggregation verbose
```

Create link aggregation group

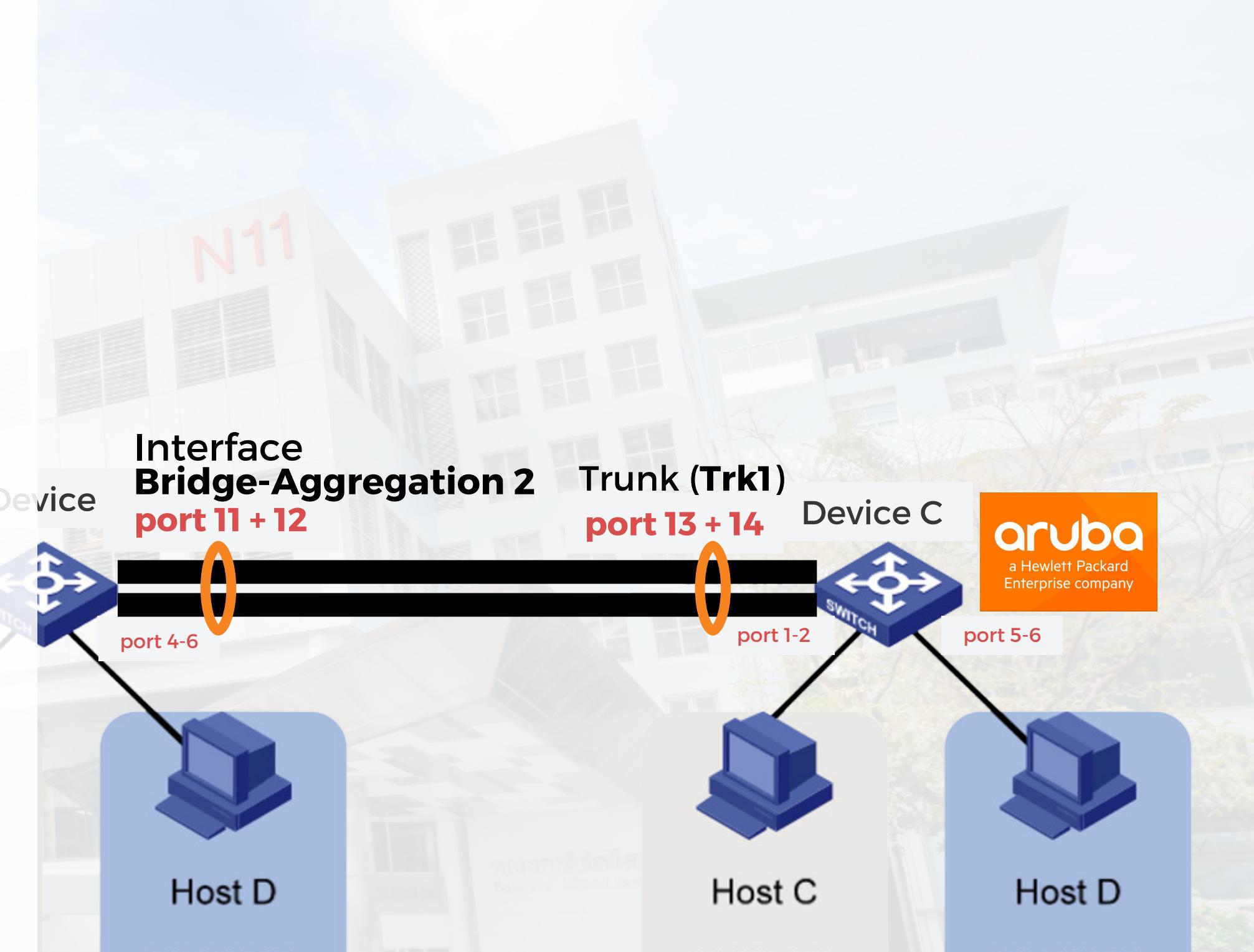
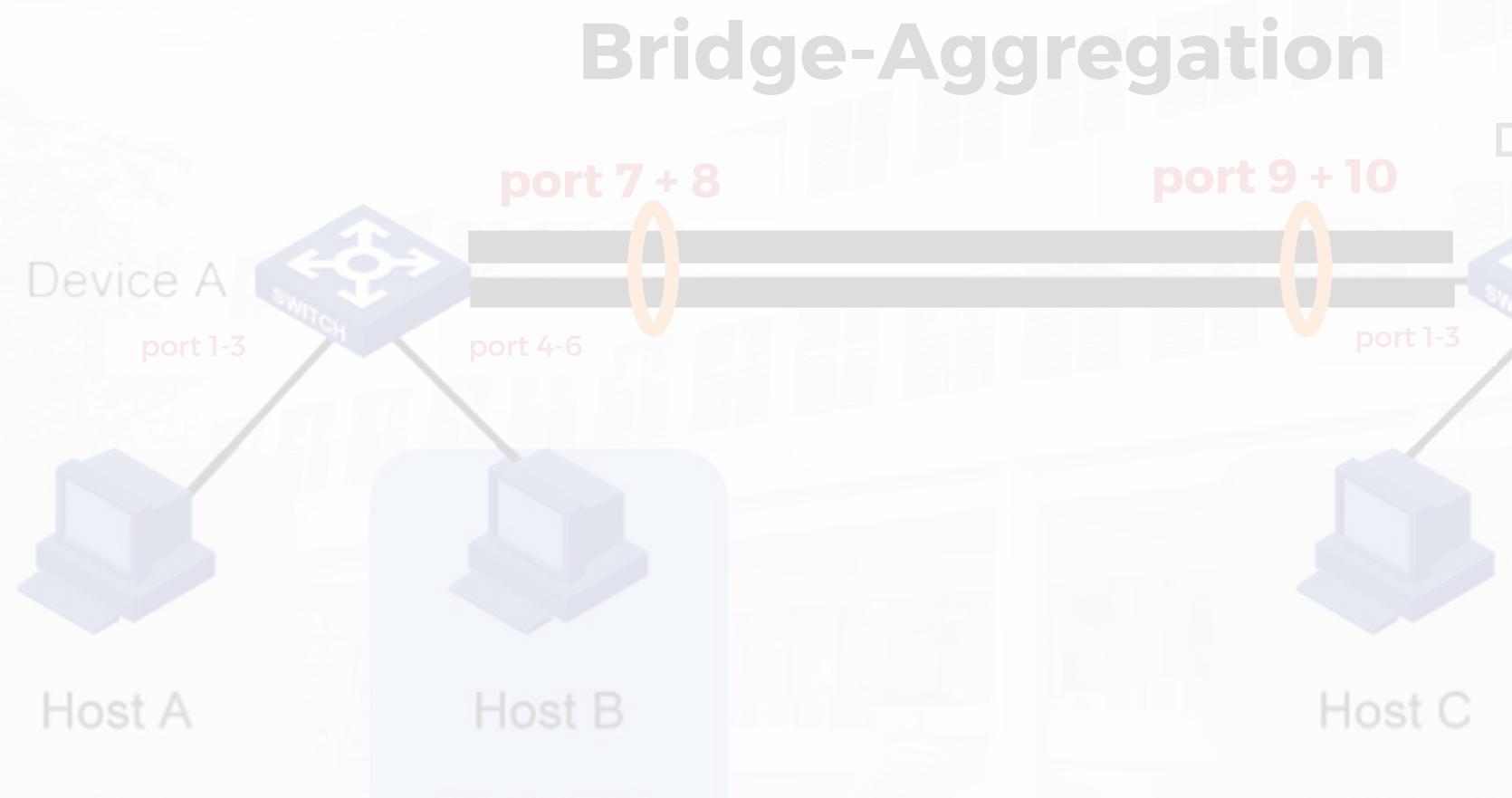
```
[SWB] interface bridge-aggregation 1  
[SWB-Bridge-Aggregation 1] link-aggregation mode dynamic  
[SWB-Bridge-Aggregation 1] description connect SW-A
```

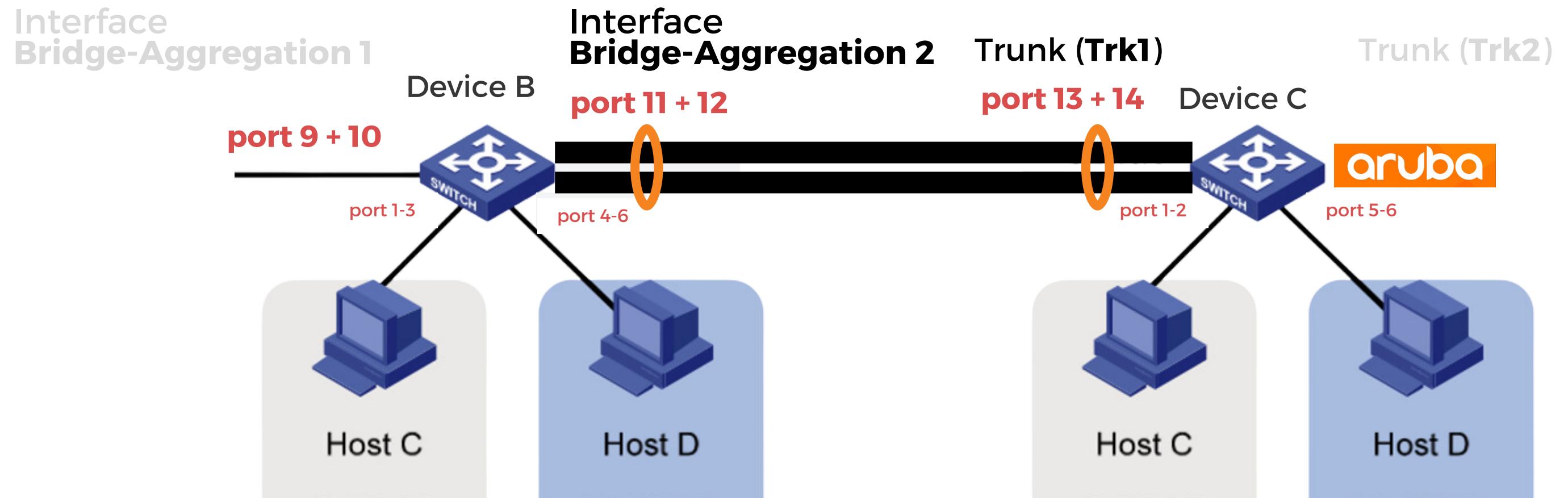
Add port to LAG

```
[SWB] interface GigabitEthernet 1/0/9  
[SWB-intG1/0/9] port link-aggregation group 1  
[SWB] interface GigabitEthernet 1/0/10  
[SWB-intG1/0/10] port link-aggregation group 1
```

show the LAG interface

```
[SWB] display link-aggregation verbose
```





aruba
a Hewlett Packard
Enterprise company

Create link aggregation group

```
[SWB] interface bridge-aggregation 2
[SWB-Bridge-Aggregation 2] link-aggregation mode dynamic
[SWB-Bridge-Aggregation 2] description connect SW-C
```

Add port to LAG

```
[SWB] interface GigabitEthernet 1/0/11
[SWB-intG1/0/11] port link-aggregation group 2
[SWB] interface GigabitEthernet 1/0/12
[SWB-intG1/0/12] port link-aggregation group 2
```

Show the LAG interface

```
[SWB] display link-aggregation verbose
```

aruba# configure terminal
aruba(config)# trunk 13-14 trk1 lacp

Port number

Interface

Bridge-Aggregation
number

aruba# show lacp
aruba# show lacp peer

Dynamic
mode

Display the Interface Bridge-aggregation

Aggregate Interface: Bridge-Aggregation12

Aggregation Mode: Dynamic

Loadsharing Type: Shar

Management VLAN : None

System ID: 0x8000, bcea-fa00-0484

Local:

Port	Status	Priority	Oper-Key	Flag
XGE1/0/2	U	32768	2	{ACG}
XGE2/0/2	S	32768	19	{ACDEF}

Remote:

Actor	Partner	Priority	Oper-Key	SystemID	Flag
XGE1/0/2	0	32768	0	0x8000, 0000-0000-0000	{EF}
XGE2/0/2	50	32768	1	0x8000, b8af-675c-ddca	{ACDEF}

Aggregate Interface: Bridge-Aggregation13

Aggregation Mode: Dynamic

Loadsharing Type: Shar

Management VLAN : None

System ID: 0x8000, bcea-fa00-0484

Local:

Port	Status	Priority	Oper-Key	Flag
XGE1/0/3	U	32768	3	{ACG}
XGE2/0/3	U	32768	3	{ACG}

Remote:

Actor	Partner	Priority	Oper-Key	SystemID	Flag
XGE1/0/3	0	32768	0	0x8000, 0000-0000-0000	{EF}
XGE2/0/3	0	32768	0	0x8000, 0000-0000-0000	{EF}

Aggregate Interface: Bridge-Aggregation1001

Aggregation Mode: Dynamic

Loadsharing Type: Shar

Management VLAN : None

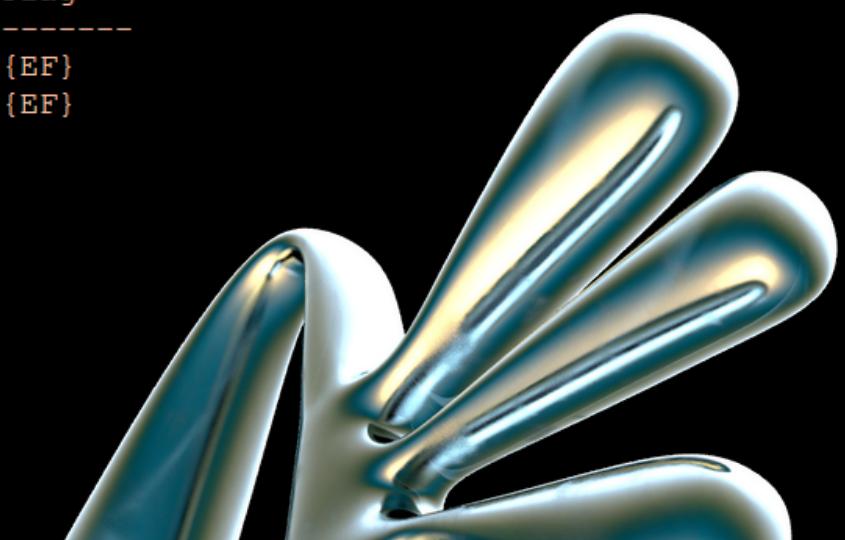
System ID: 0x8000, bcea-fa00-0484

Local:

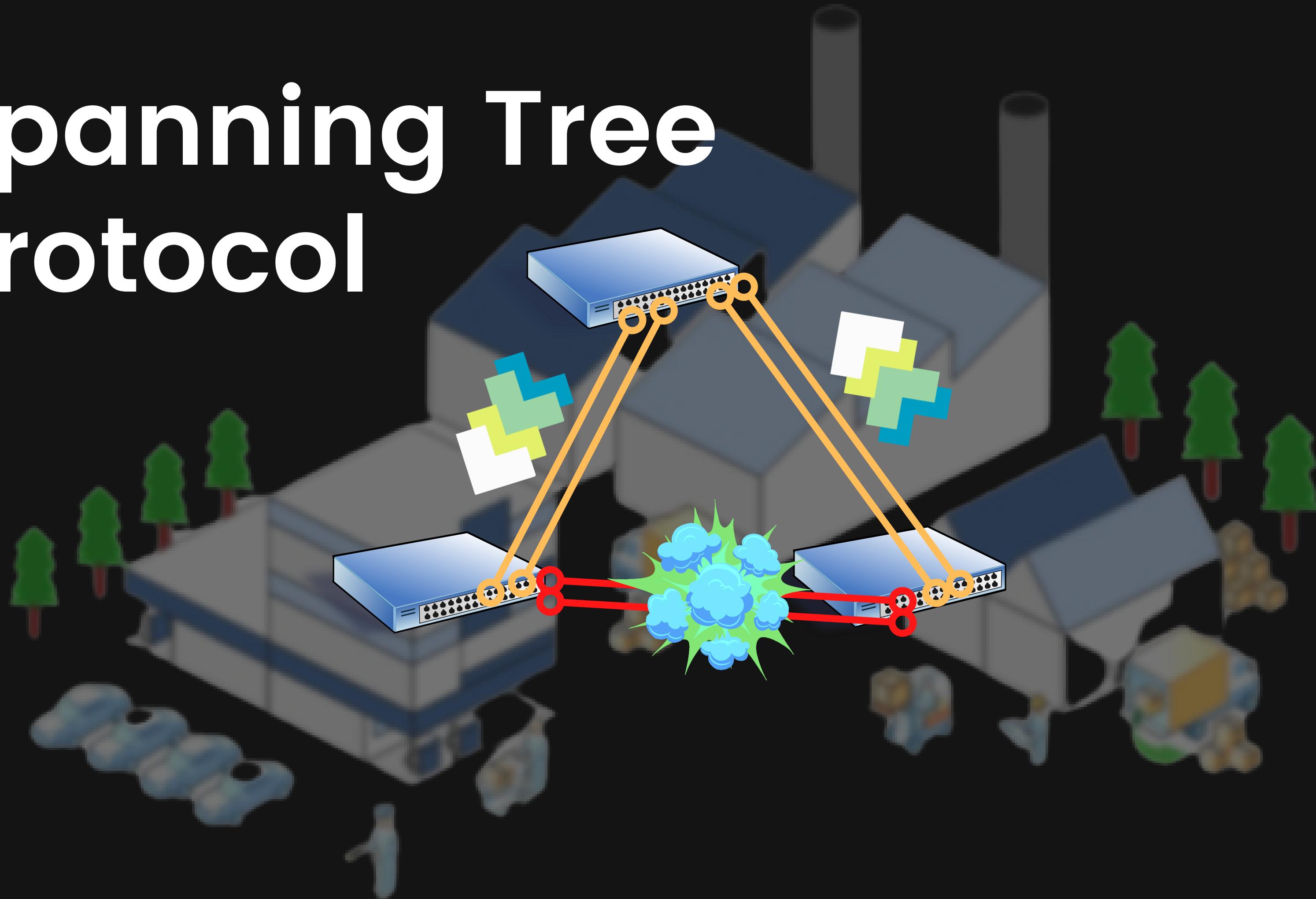
Port	Status	Priority	Oper-Key	Flag
XGE1/0/24	S	32768	11	{ACDEF}
XGE2/0/24	S	32768	11	{ACDEF}

Remote:

Actor	Partner	Priority	Oper-Key	SystemID	Flag
XGE1/0/24	2	32768	577	0x8000, 642c-accc-15b0	{ACDEF}
XGE2/0/24	1	32768	577	0x8000, 642c-accc-15b0	{ACDEF}



Spanning Tree Protocol



How to show the STP?

1

Root Bridge

the best of Bridge ID

display stp

2

Root Port

the best of Root Path Cost

display stp

display stp brief

3

Block Port

disable the port is/are not used

display stp brief



Configuration Command



`stp enable / spanning-tree enable`
start STP on the device



`stp mode [stp / rstp / mstp]`
select the spanning tree mode



`stp priority [xxxxx] /`
`spanning-tree priority [xxxx]`
change the bridge priority



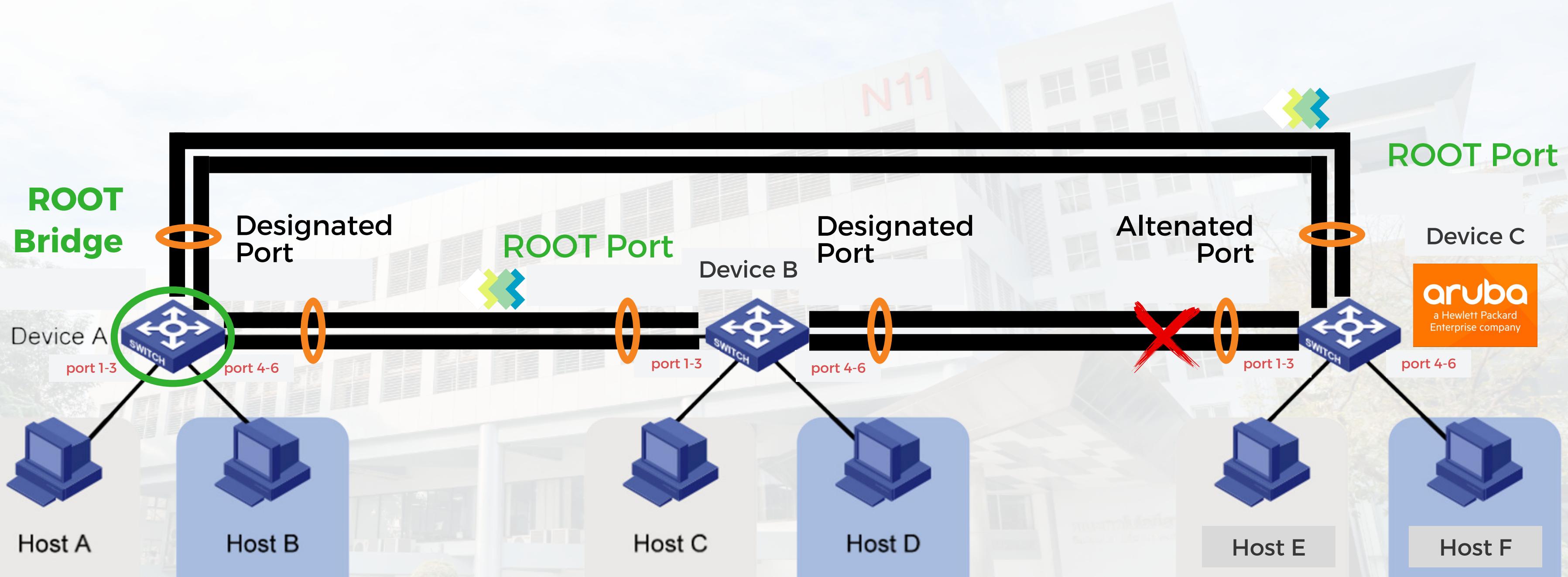
`stp cost [xxxxx]`
modify the stp cost on the port

```
<RE-21 (Core5900)>display stp
-----[CIST Global Info] [Mode RSTP]-----
Bridge ID : 0.bcea-fa00-0484
Bridge times : Hello 2s MaxAge 20s FwdDelay 15s MaxHops 20
Root ID/ERPC : 0.bcea-fa00-0484, 0
RegRoot ID/IRPC : 0.bcea-fa00-0484, 0
RootPort ID : 0.0
BPDU-Protection : Disabled
Bridge Config-
Digest-Snooping : Disabled
Root type : Primary root
TC or TCN received : 52437
Time since last TC : 0 days 0h:0m:25s
```

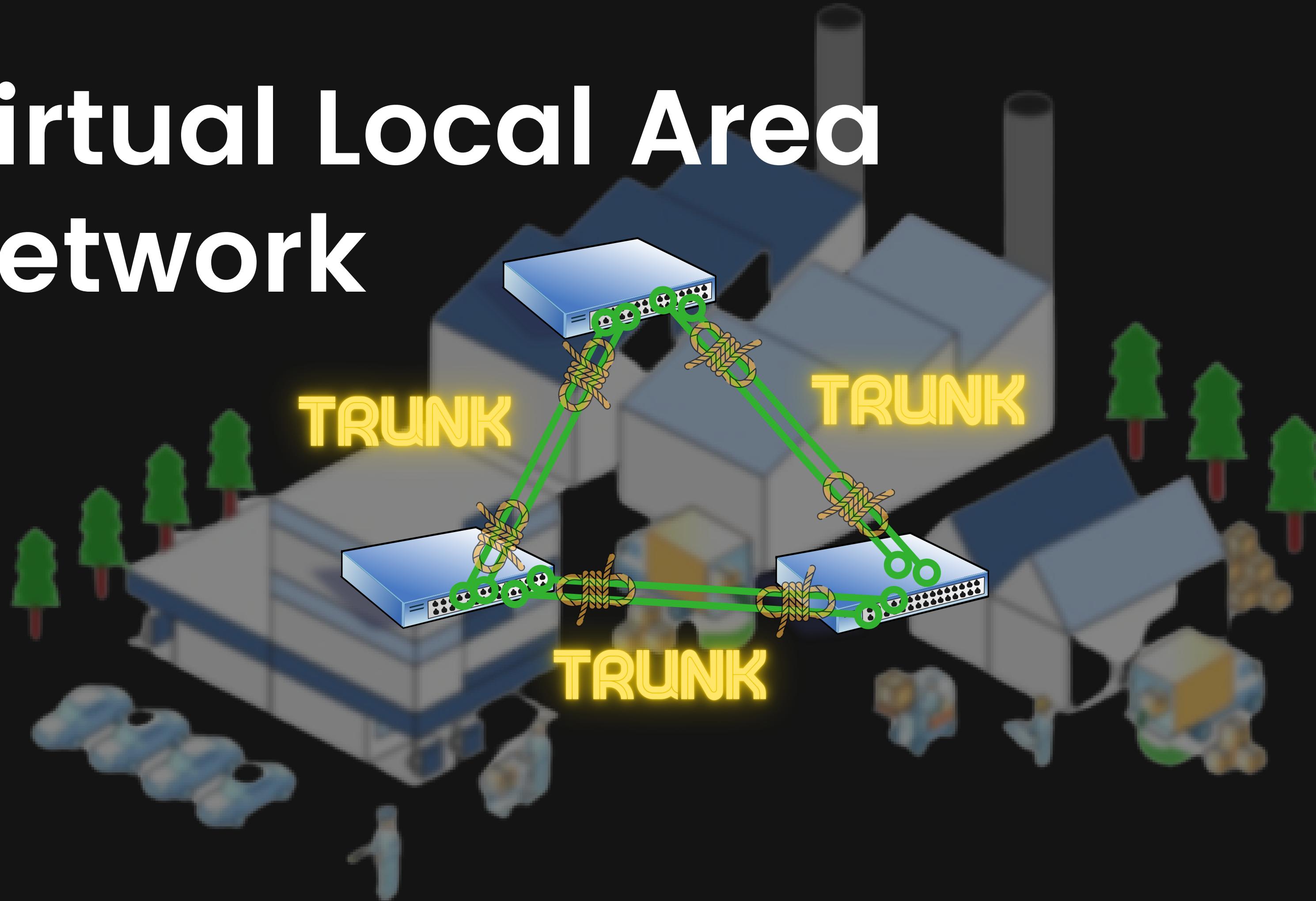
display stp show spanning-tree

```
<DE-21 (5800)>display stp
-----[CIST Global Info] [Mode RSTP]-----
CIST Bridge : 32768.b8af-673c-db92
Bridge Times : Hello 2s MaxAge 20s FwDly 15s MaxHop 20
CIST Root/ERPC : 0.bcea-fa00-0484 / 1
CIST RegRoot/IRPC : 32768.b8af-673c-db92 / 0
CIST RootPortId : 128.902
BPDU-Protection : disabled
Bridge Config-
Digest-Snooping : disabled
TC or TCN received : 49673
Time since last TC : 0 days 0h:0m:19s
```



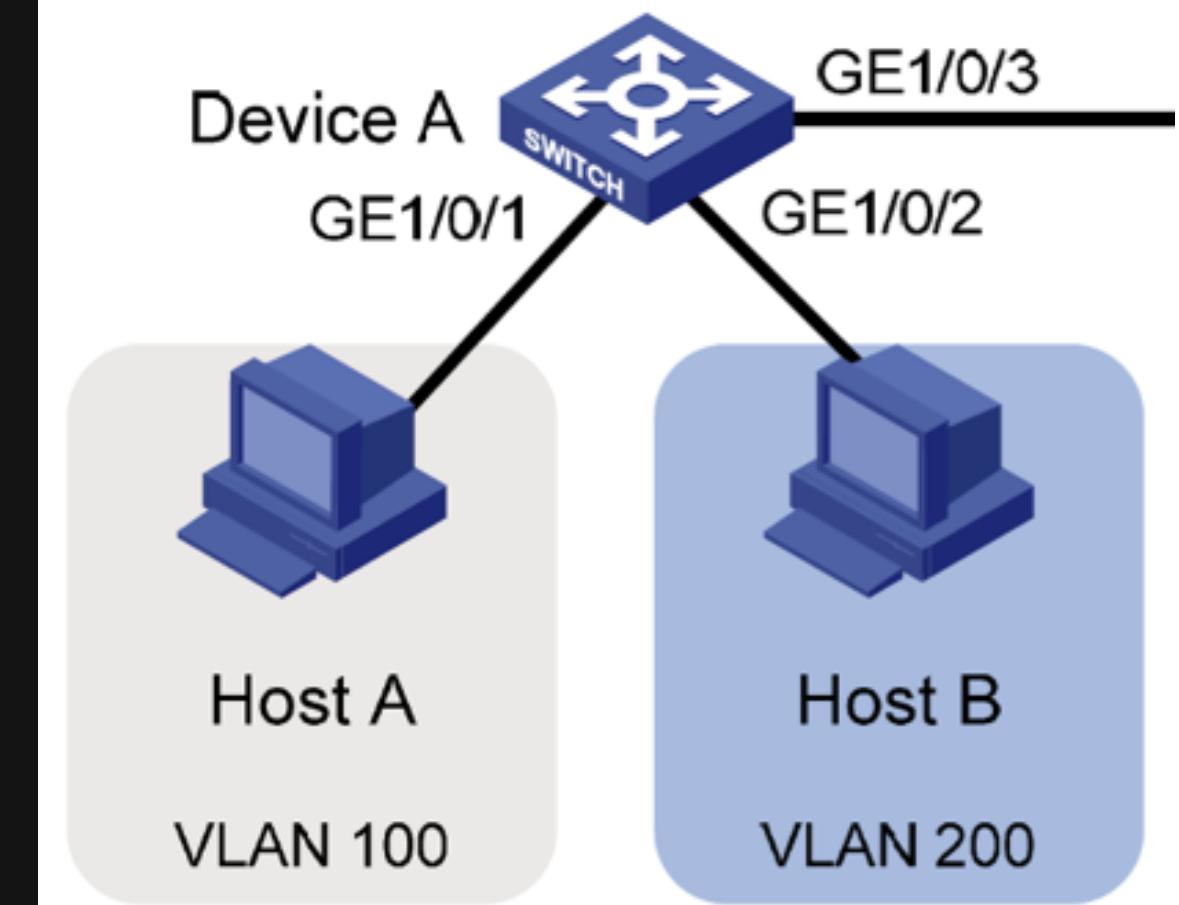


Virtual Local Area Network



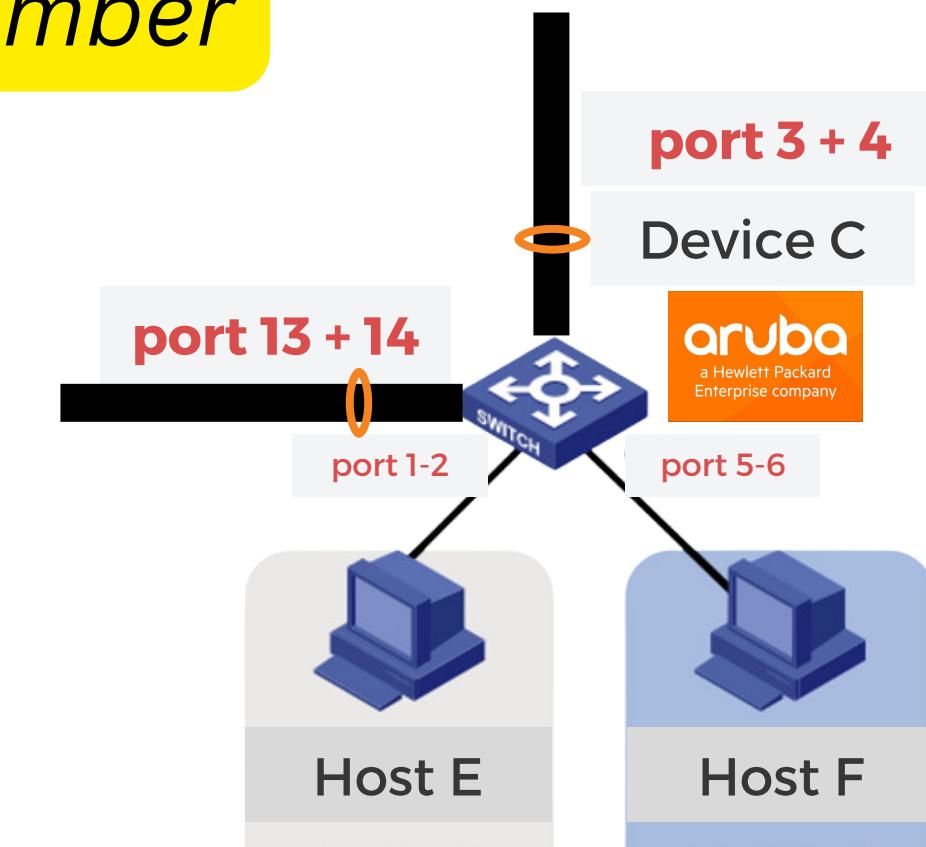
Port-based VLAN configuration

```
[DeviceA] vlan 100  
[DeviceA-vlan100] port gigabitethernet 1/0/X  
[DeviceA] vlan 200  
[DeviceA-vlan200] port gigabitethernet 1/0/X  
  
[DeviceA] interface gigabitethernet 1/0/X  
[DeviceA-GigabitEthernet1/0/X] port access vlan 100  
[DeviceA] interface gigabitethernet 1/0/X  
[DeviceA-GigabitEthernet1/0/X] port access vlan 200
```



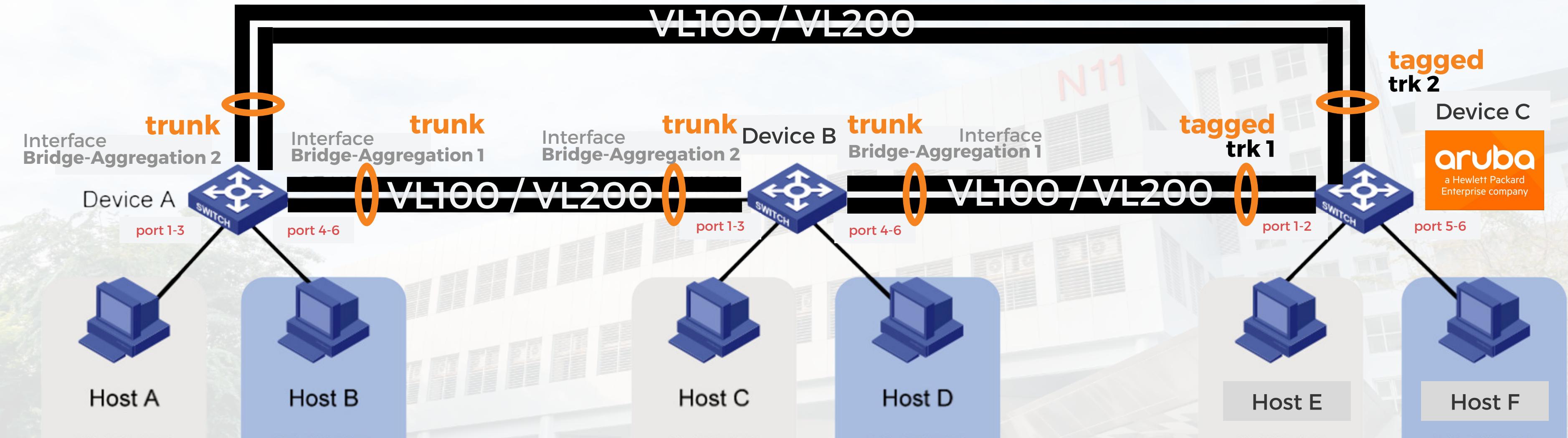
```
aruba# configure terminal
aruba(config)# vlan 100
aruba(config-vlan 100)# untagged 1-2
aruba(config)# vlan 200
aruba(config-vlan 200)# untagged 5-6
```

Port number



```
aruba# show vlan 100
aruba# show vlan 200
```

VLAN configuration for Users



[SWA] interface bridge-aggregation 1

[SWA-bridge-aggregation 1] port link-type trunk

[SWA-bridge-aggregation 1] port trunk permit vlan all

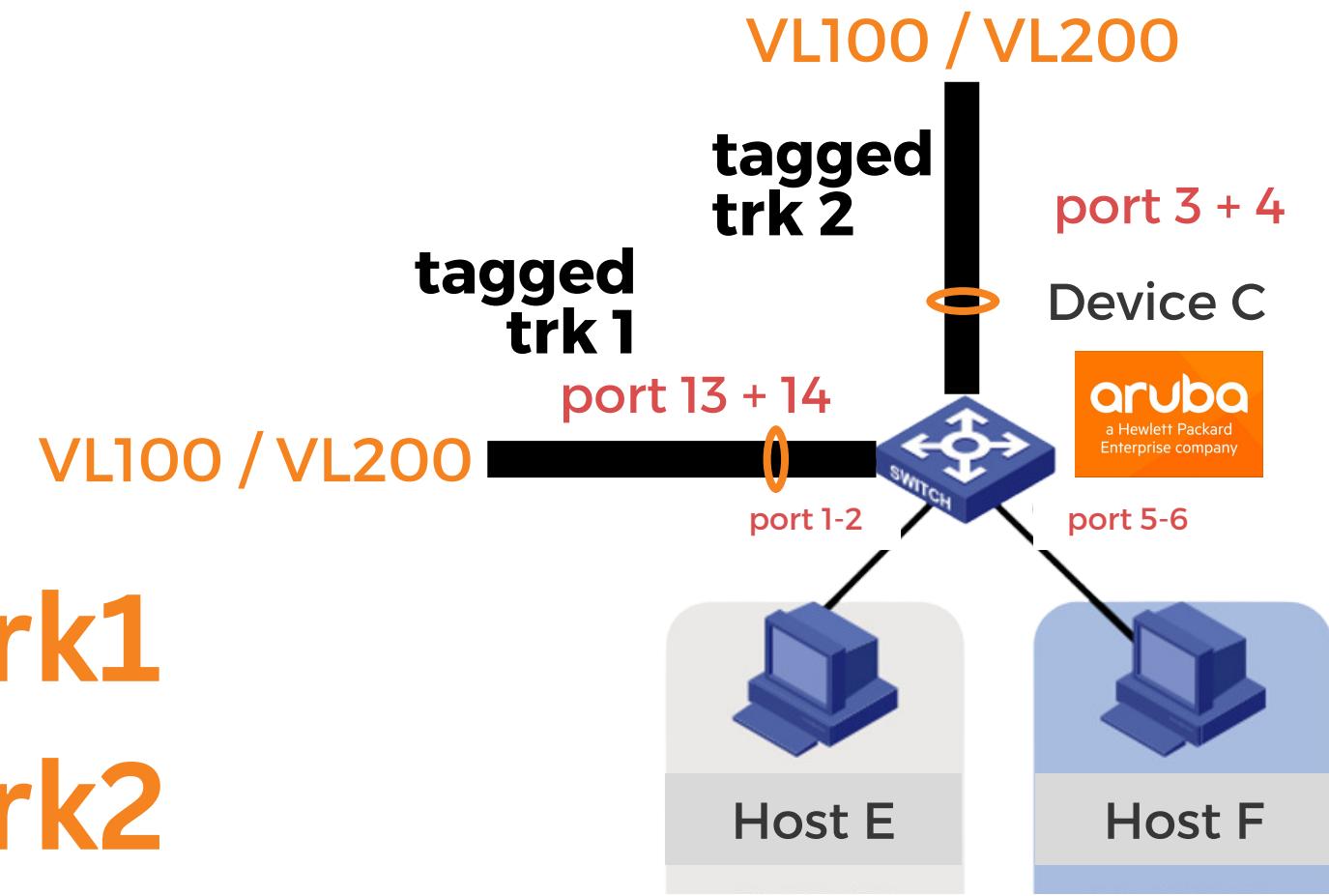
[SWA] interface bridge-aggregation 2

[SWA-bridge-aggregation 2] port link-type trunk

[SWA-bridge-aggregation 2] port trunk permit vlan all



```
aruba# configure terminal  
aruba(config)# vlan 100  
aruba(config-vlan 100)# tagged trunk1  
aruba(config-vlan 100)# tagged trunk2  
aruba(config)# vlan 200  
aruba(config-vlan 200)# tagged trunk1  
aruba(config-vlan 200)# tagged trunk2
```



*Interface
Bridge-Aggregation
number*

```
aruba# show vlan 100  
aruba# show vlan 200
```

VLAN configuration to Trunk

จำคลาส

