日期：2016/12/20
私有云网络规划涂鸦：中小企业（SMB）的需求

一、中小企业（SMB）部署到IDC的业务，初始阶段
1、最简模式
2、网络规划
192.168.1.0/24 搞定一切
交换机：
内网x1
外网x1

二、改进1
1、网络逻辑图
（后附，参考右侧）

2、机柜规划图
（后附）

3、网络实验图
IP地址划分

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对于 172.30.0.0/18(255.255.192.0) 主机数量hosts=16382

网络	主机数□		广播地址
	从	到	
172.30.0.0	172.30.0.1	172.30.63.254	172.30.63.255
172.30.64.0	172.30.64.1	172.30.127.254	172.30.127.255
172.30.128.0	172.30.128.1	172.30.191.254	172.30.191.255
172.30.192.0	172.30.192.1	172.30.255.254	172.30.255.255

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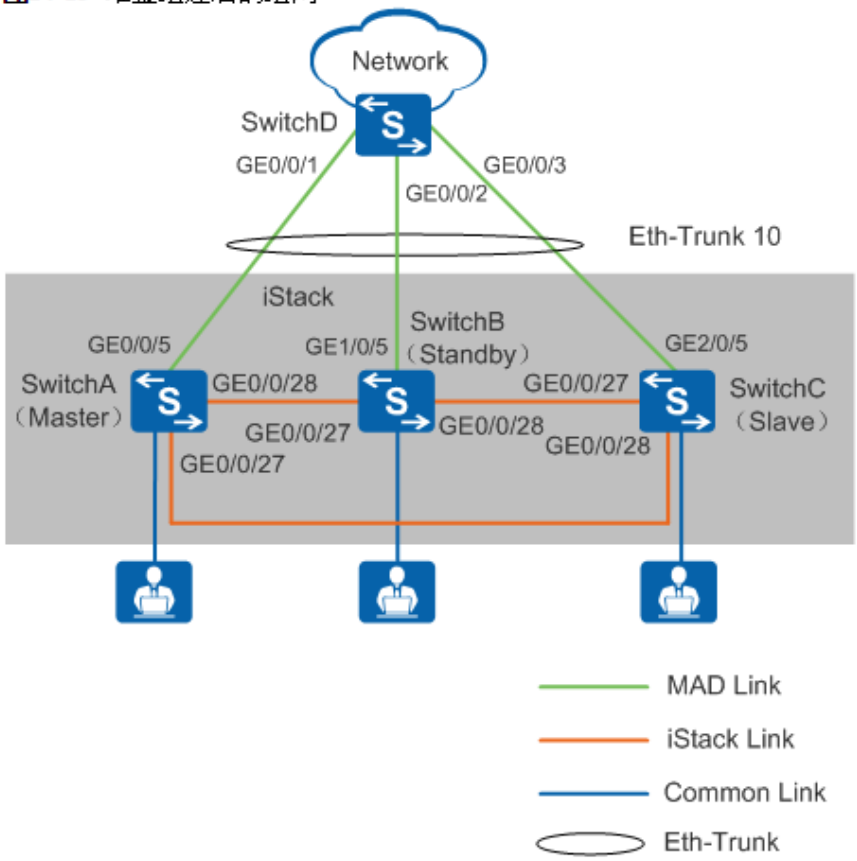
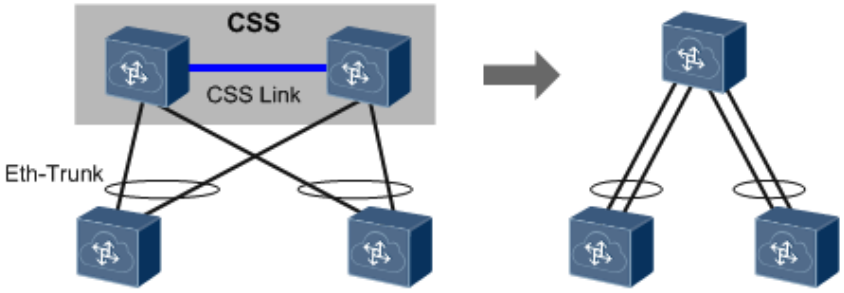
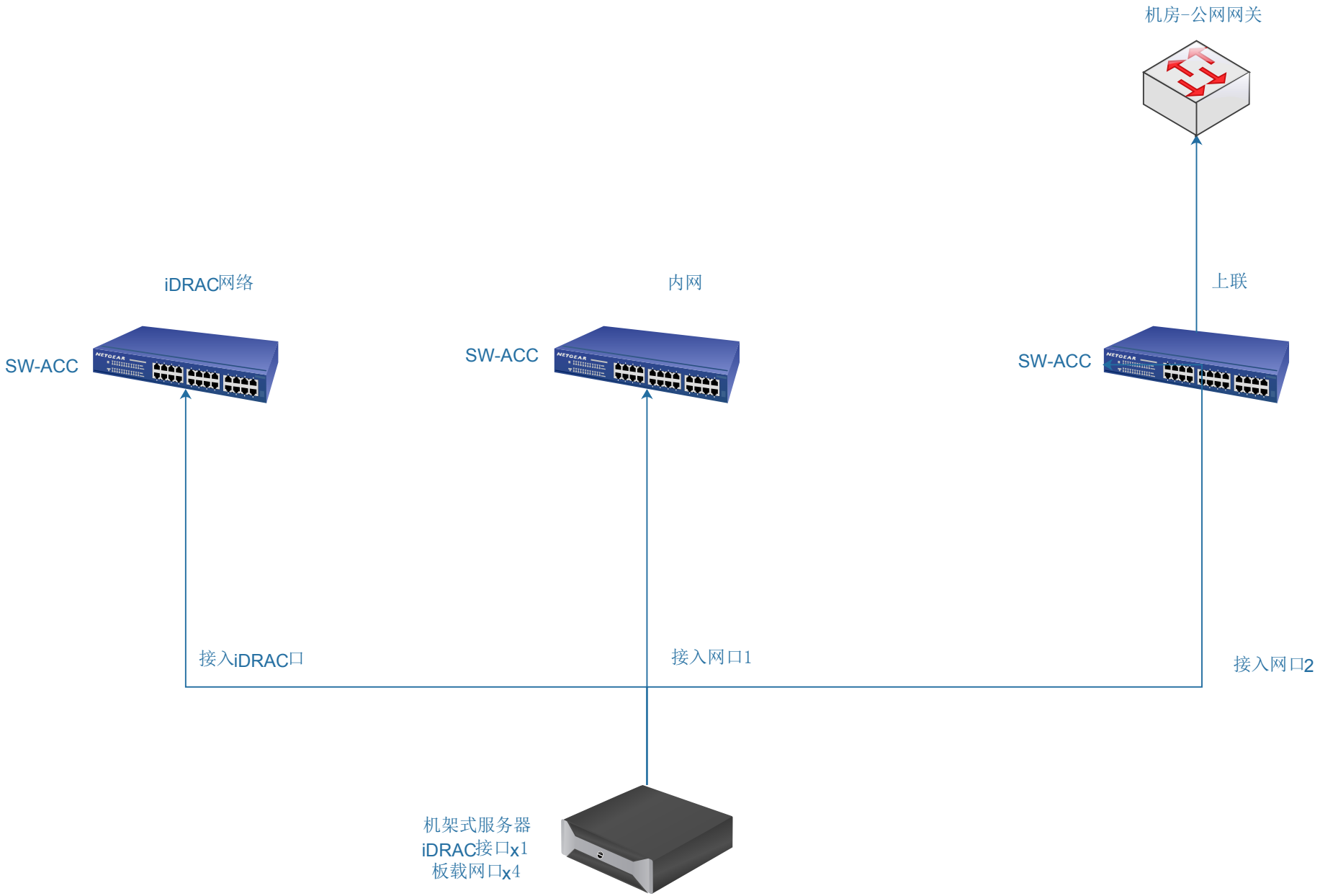
三、改进2
1、流量分离
2、内外网边界分割

图14-13 堆叠组建后的组网





一、初始阶段

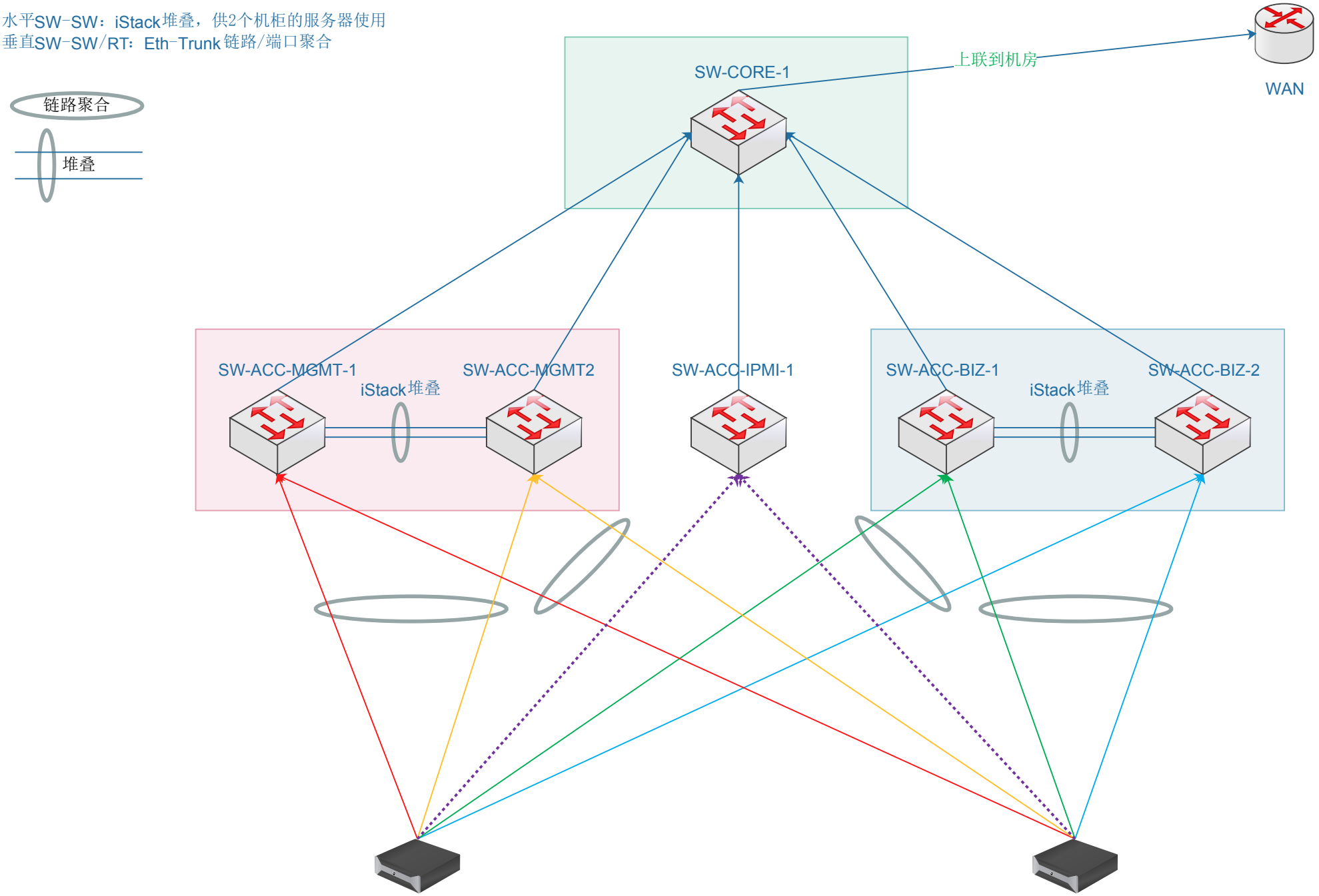

机房-公网网关
iDRAC网络
内网
上联
SW-ACC
SW-ACC
SW-ACC
接入iDRAC口
接入网口1
接入网口2
机架式服务器
iDRAC接口x1
板载网口x4

二、改进1

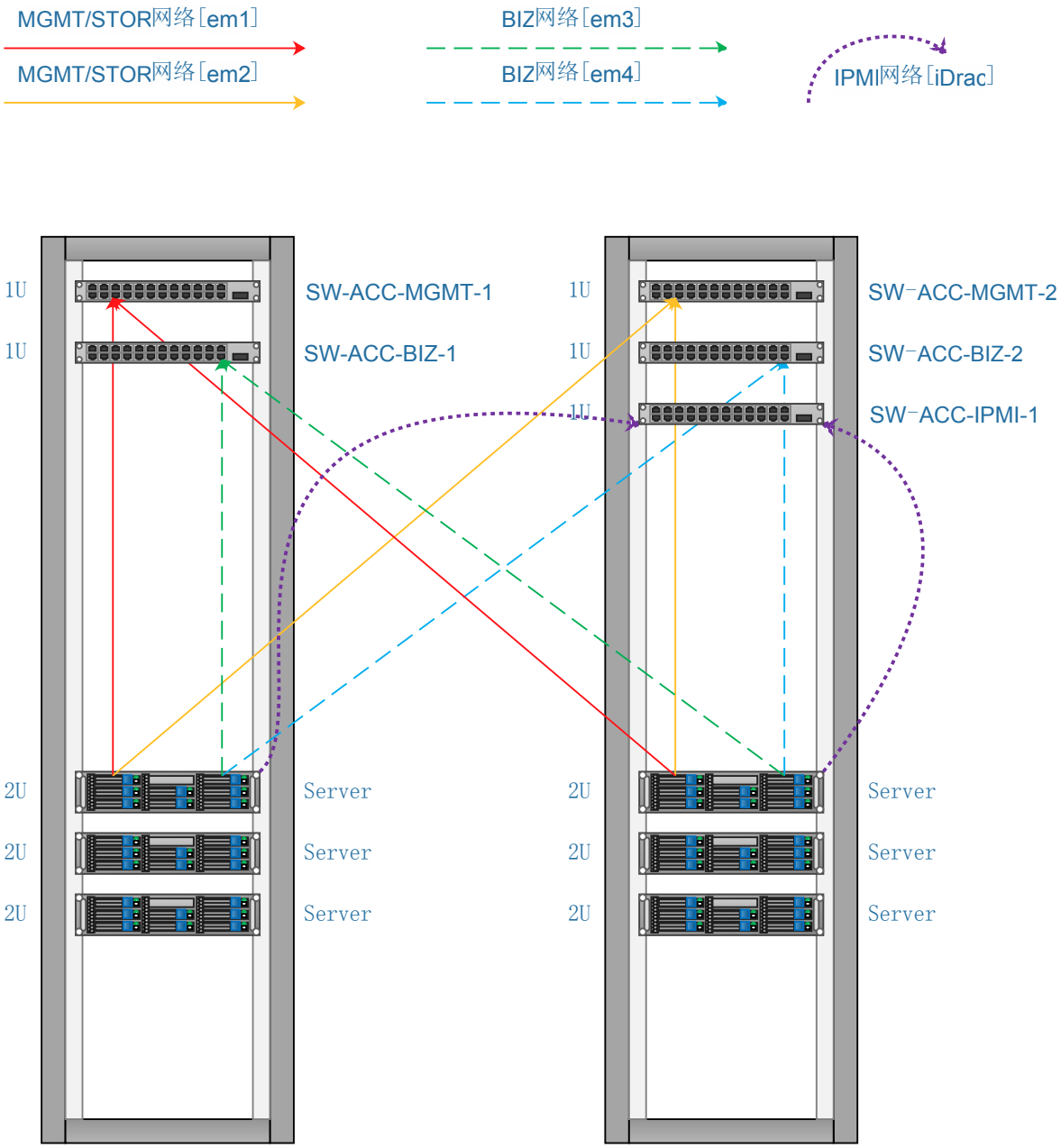
1、网络逻辑图

水平SW-SW：iStack堆叠，供2个机柜的服务器使用

垂直SW-SW/RT：Eth-Trunk链路/端口聚合



二、改进1
2、机柜规划图



交换机的端口规划（以24口交换机为例，若使用48口交换机可以考虑划分2个VLAN）：

S5710-28C-EI，24T口+4S口

业务	堆叠
1..23	25..27
2..24	26..28

1个机柜(<=12服务器)，其中，SW的业务口分配规则如下：

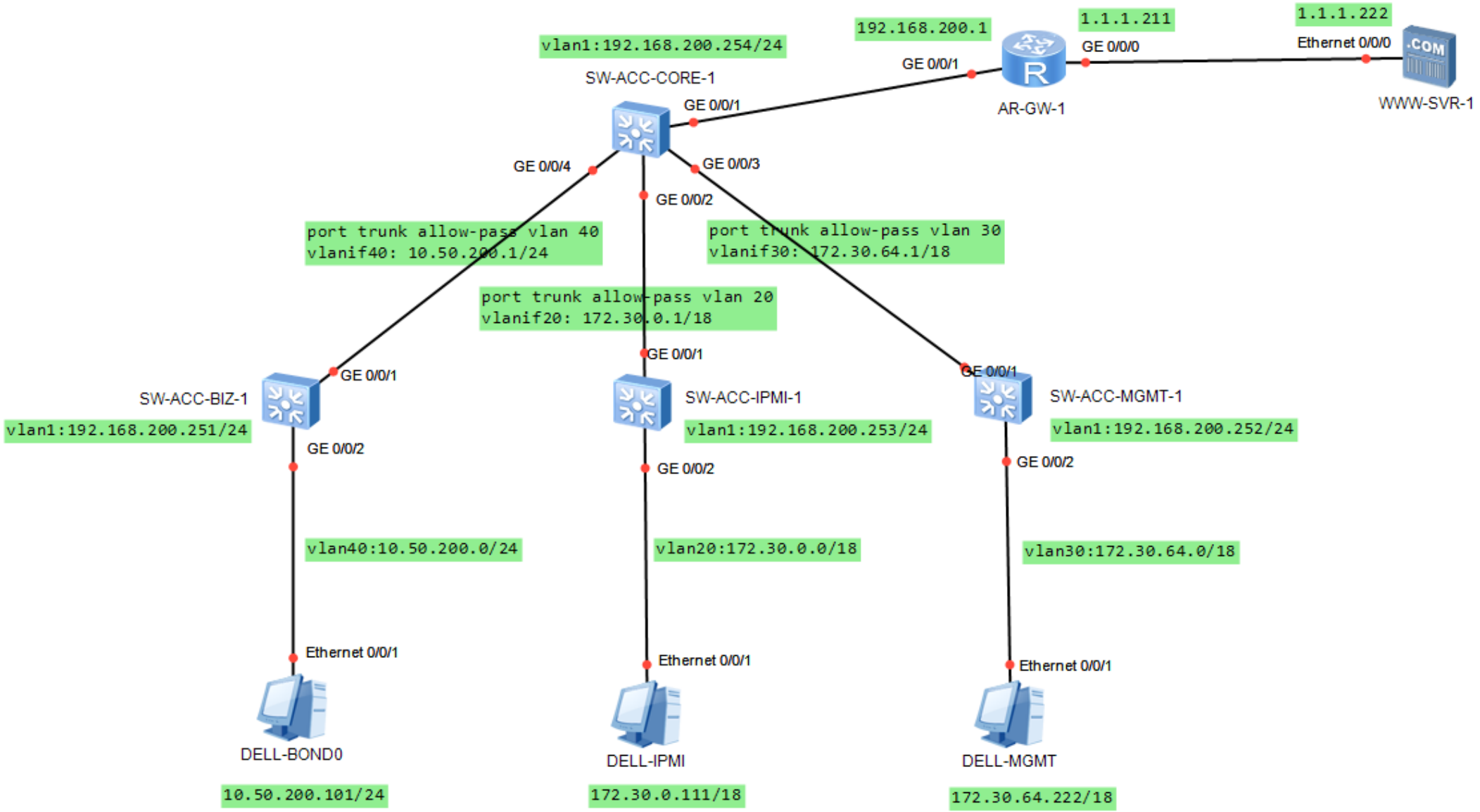
iDrac(专用口)		-> 上联 SW-ACC-IPMI-1
MGMT/STOR(网口1)	-> bond0 ->	-> 上联 SW-ACC-MGMT-1
MGMT/STOR(网口2)		-> 上联 SW-ACC-MGMT-2
BIZ(网口3)	-> bond1 ->	-> 上联SW-ACC-BIZ-1
BIZ(网口4)		-> 上联SW-ACC-BIZ-2

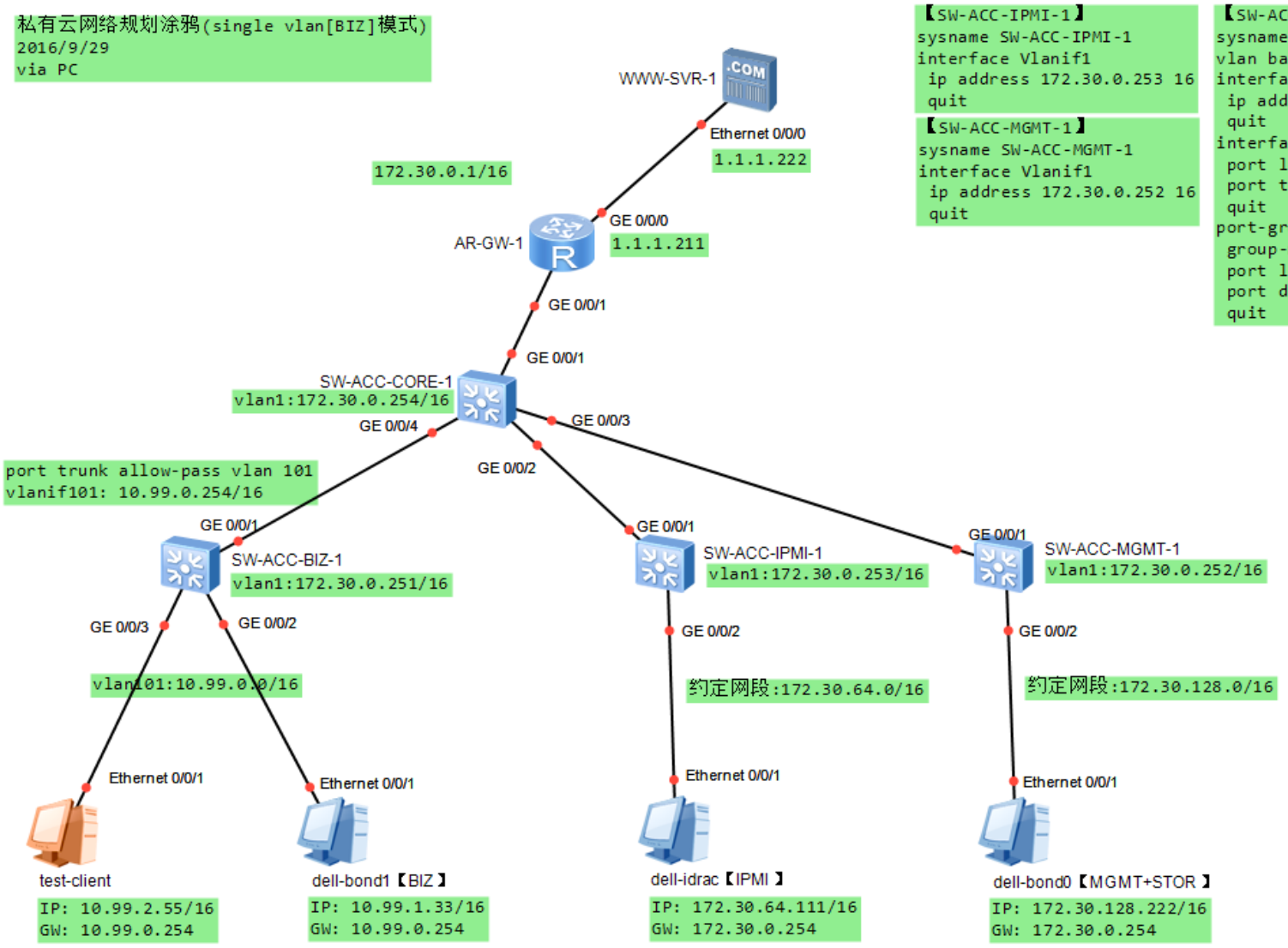
二、改进1

3、网络实验图(full vlan模式)

私有云网络规划涂鸦(full vlan模式)
2016/9/29
via PC

```
[traffice-policy] on [SW-ACC-CORE-1] GE 0/0/2 inbound:
rule deny ip source 10.50.200.0 0.0.0.255 destination 172.30.0.0 0.0.63.255
rule deny ip source 10.50.200.0 0.0.0.255 destination 172.30.64.0 0.0.63.255
```





【SW-ACC-IPMI-1】
```
sysname SW-ACC-IPMI-1
interface Vlanif1
 ip address 172.30.0.253 16
 quit
```

【SW-ACC-MGMT-1】
```
sysname SW-ACC-MGMT-1
interface Vlanif1
 ip address 172.30.0.252 16
 quit
```

【SW-ACC-BIZ-1】
```
sysname SW-ACC-BIZ-1
vlan batch 101
interface Vlanif1
 ip address 172.30.0.251 255.255.0.0
 quit
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 101
 quit
port-group 1
 group-member GigabitEthernet0/0/2 to GigabitEthernet0/0/24
 port link-type access
 port default vlan 101
 quit
```

【SW-ACC-CORE-1】
```
sysname SW-ACC-CORE-1
vlan batch 101
interface Vlanif1
 ip address 172.30.0.254 16
 quit
interface Vlanif101
 ip address 10.99.0.254 16
 quit
interface GigabitEthernet0/0/4
 port link-type trunk
 port trunk allow-pass vlan 101
 quit
ip route-static 0.0.0.0 0.0.0.0 172.30.0.1
```

【AR-GW-1】
```
sysname AR-GW-1
acl number 2000
 rule permit source 10.99.0.0 0.0.255.255
 rule permit source 172.30.0.0 0.0.255.255
 quit
interface GigabitEthernet0/0/0
 ip address 1.1.1.211 24
 nat outbound 2000
 quit
interface GigabitEthernet0/0/1
 ip address 172.30.0.1 16
 quit
ip route-static 0.0.0.0 0.0.0.0 1.1.1.222
ip route-static 10.99.0.0 255.255.0.0 172.30.0.254
ip route-static 172.30.0.0 255.255.0.0 172.30.0.254
```

二、改进2

1、网络逻辑图

忽略SW冗余：iStack 和 Eth-Trunk。

网段划分：

【交换机VLAN:1】

SW-管理口: 10.1.0.0/20

【物理机VLAN: 30】

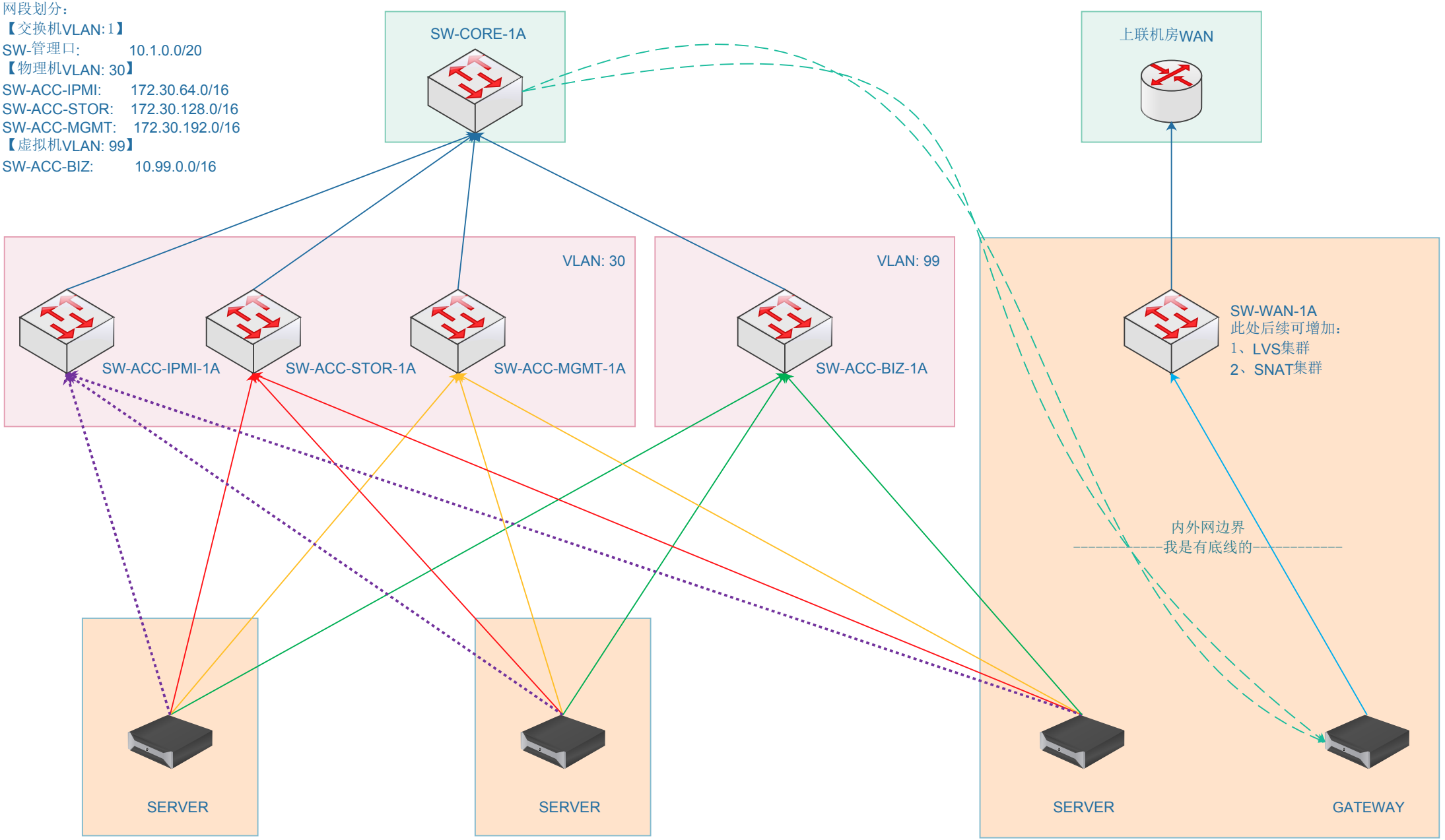
SW-ACC-IPMI: 172.30.64.0/16

SW-ACC-STOR: 172.30.128.0/16

SW-ACC-MGMT: 172.30.192.0/16

【虚拟机VLAN: 99】

SW-ACC-BIZ: 10.99.0.0/16



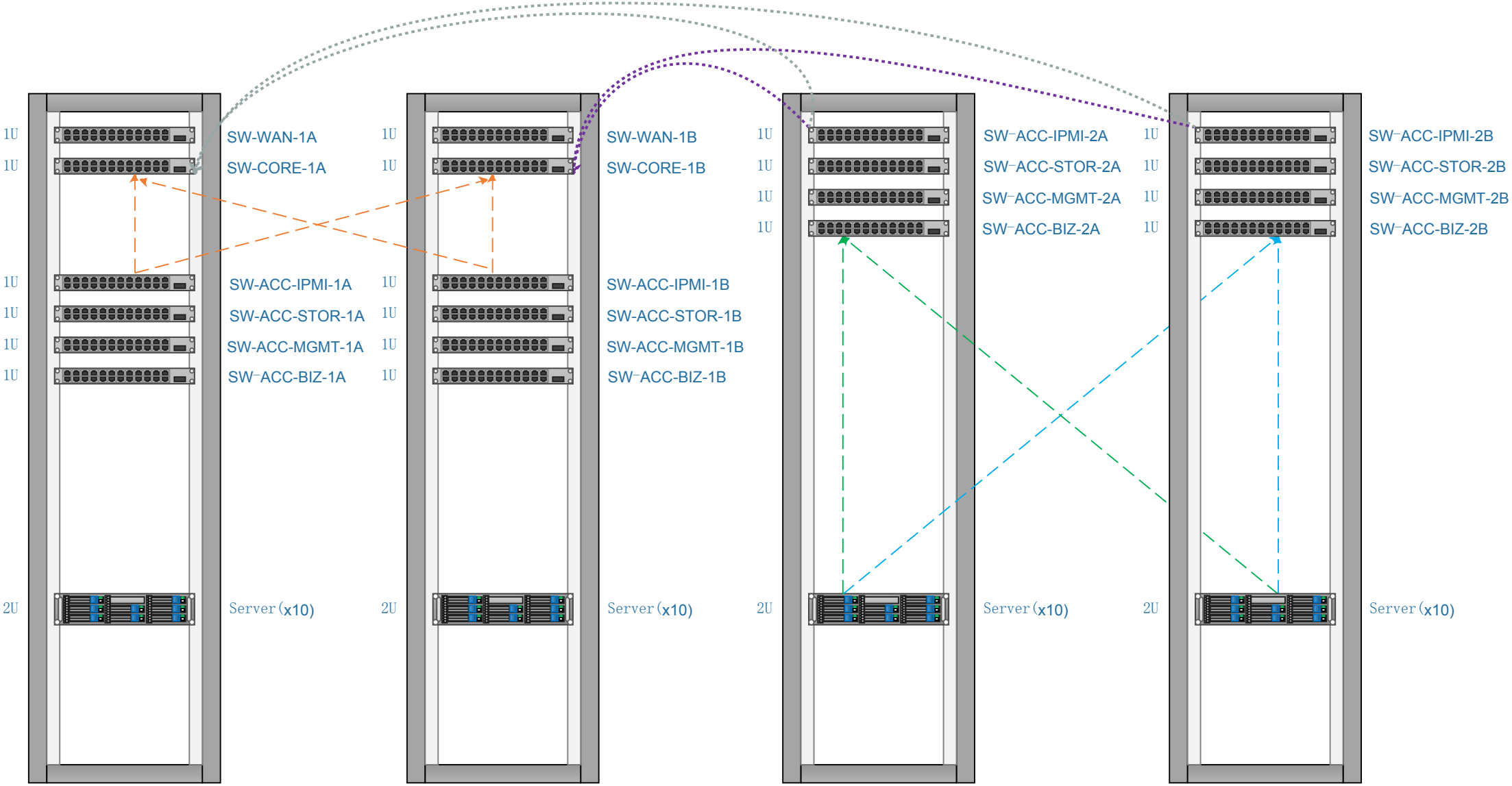
三、改进2

2、机柜规划图

链路汇聚示例（以IPMI为例，其他类似）

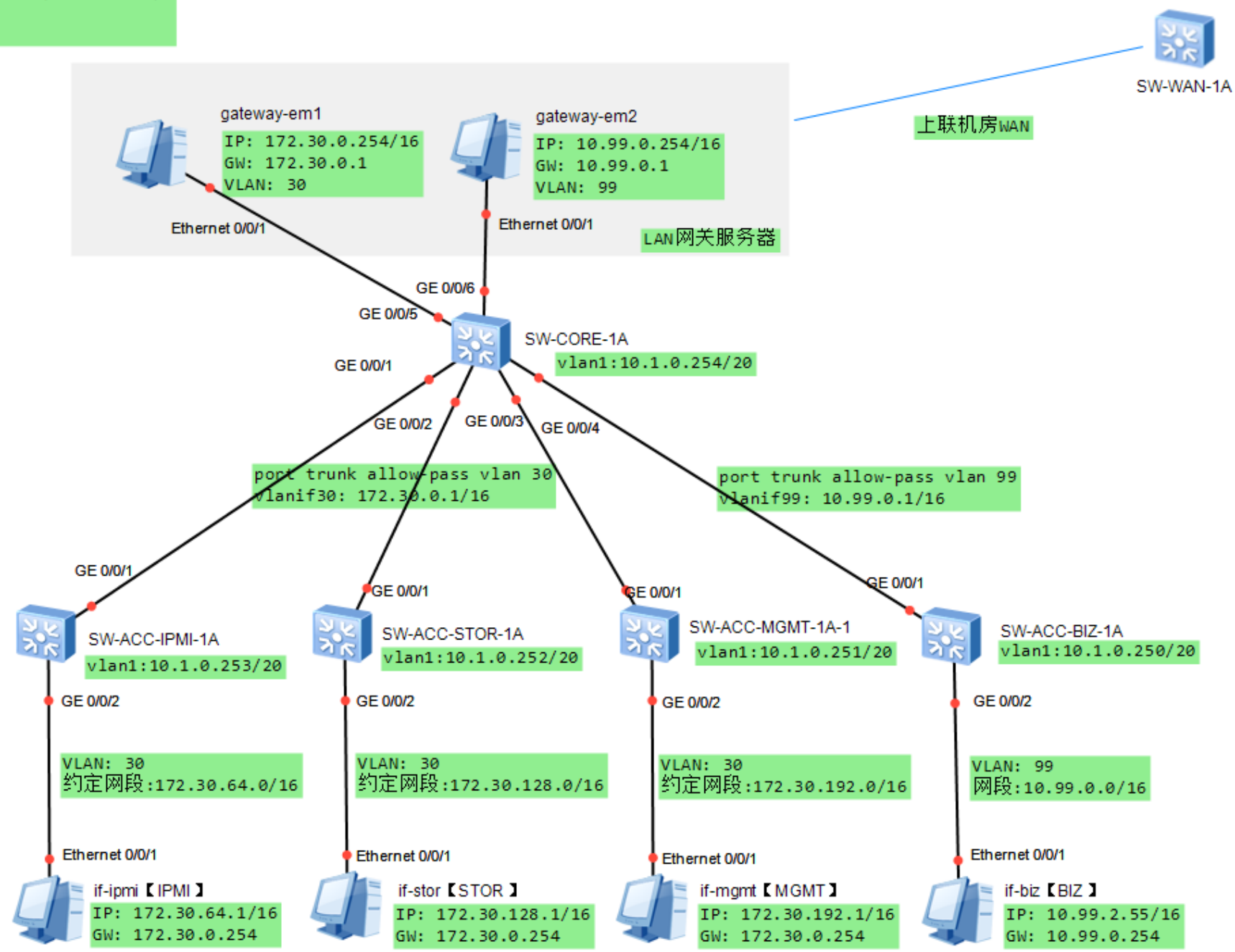
如果使用2个48口的交换机，则这样规划端口：

	1-24	25-48
[SW-48-A]	SW-ACC-IPMI	SW-ACC-STOR
[SW-48-B]	SW-ACC-MGMT	SW-ACC-BIZ



二、改进2
3、网络实验图

eNSP-私有云网络规划涂鸦(内外网边界)
2016/12/20
via PC



【SW-ACC-IPMI-1A】
```
sys
sysname SW-ACC-IPMI-1A
interface Vlanif1
 ip address 10.1.0.253 20
 quit
vlan batch 30
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
port-group 1
 group-member GigabitEthernet0/0/2 to GigabitEthernet0/0/24
 port link-type access
 port default vlan 30
 quit
ip route-static 0.0.0.0 0.0.0.0 10.1.0.254
quit
save
```

【SW-ACC-MGMT-1A】
```
sys
sysname SW-ACC-MGMT-1A
interface Vlanif1
 ip address 10.1.0.251 20
 quit
vlan batch 30
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
port-group 1
 group-member GigabitEthernet0/0/2 to GigabitEthernet0/0/24
 port link-type access
 port default vlan 30
 quit
ip route-static 0.0.0.0 0.0.0.0 10.1.0.254
quit
save
```

【SW-CORE-1A】
```
sys
sysname SW-CORE-1A
interface Vlanif1
 ip address 10.1.0.254 20
 quit
vlan batch 30 99
interface Vlanif30
 ip address 172.30.0.1 16
 quit
interface Vlanif99
 ip address 10.99.0.1 16
 quit
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
interface GigabitEthernet0/0/2
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
interface GigabitEthernet0/0/3
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
interface GigabitEthernet0/0/4
 port link-type trunk
 port trunk allow-pass vlan 99
 quit
interface GigabitEthernet0/0/5
 port link-type access
 port default vlan 30
 quit
interface GigabitEthernet0/0/6
 port link-type access
 port default vlan 99
 quit
quit
save
```

【SW-ACC-STOR-1A】
```
sys
sysname SW-ACC-STOR-1A
interface Vlanif1
 ip address 10.1.0.252 20
 quit
vlan batch 30
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 30
 quit
port-group 1
 group-member GigabitEthernet0/0/2 to GigabitEthernet0/0/24
 port link-type access
 port default vlan 30
 quit
ip route-static 0.0.0.0 0.0.0.0 10.1.0.254
quit
save
```

【SW-ACC-BIZ-1A】
```
sys
sysname SW-ACC-BIZ-1A
interface Vlanif1
 ip address 10.1.0.250 20
 quit
vlan batch 99
interface GigabitEthernet0/0/1
 port link-type trunk
 port trunk allow-pass vlan 99
 quit
port-group 1
 group-member GigabitEthernet0/0/2 to GigabitEthernet0/0/24
 port link-type access
 port default vlan 99
 quit
ip route-static 0.0.0.0 0.0.0.0 10.1.0.254
quit
save
```

如果要在SW-CORE-1上限制VLAN间路由，请参考下述内容，配置ACL策略，然后在指定的接口应用策略：

```
acl 3001
 rule deny ip source 10.99.0.0 0.0.255.255 destination 172.30.0.0 0.0.255.255
 rule deny ip source 10.99.0.0 0.0.255.255 destination 10.1.0.0 0.0.255.255
 quit
traffic classifier tc1
 if-match acl 3001
 quit
traffic behavior tb1
 deny
 quit
traffic policy tp1
 classifier tc1 behavior tb1
 quit
```

```
int GigabitEthernet 0/0/4
 traffic-policy tp1 inbound
 quit
int GigabitEthernet 0/0/6
 traffic-policy tp1 inbound
 quit
```