

Cisco VTS day-zero 設定の例

以降のセクションでは、VTS のさまざまな導入シナリオとそれぞれのシナリオでの day-zero 設定の詳細について説明します。

注:各役割でサポートされるプラットフォームの詳細については、『Cisco VTS インストレーションガイド』[英語] の「サポートされるプラットフォーム」セクションを参照してください。

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- [データセンター トポロジ内のすべてのデバイスにアダプタイズするための VTF および IOSXRv n/w 用のアンダーレイ day-zero ルーティング](#)
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さまざまな役割やプラットフォーム用の VTS day-zero 設定

ここでは、さまざまなプラットフォームについて、その役割ごとに必要な day-zero 設定の例を示します。

注:これらの例を使用する場合は、例の変数 (IP アドレス、パスワードなど) をお使いのシステムの値に置き換える必要があります。

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- day-zero 設定 — ToR としての Cisco Nexus 5600
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- day-zero 設定 — DCI としての Cisco ASR 9000 — VRF ピアリング モード
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- day-zero 設定 — 統合型 DCI (DCI と DC ゲートウェイ) としての Cisco ASR 9000
- day-zero 設定 — 統合型 DCI (DCI と DC ゲートウェイ) としての Cisco Nexus 7000

day-zero 設定 — IOS XRv

```
hostname xrvr01
logging buffered 5242880
logging buffered critical
logging facility syslog
service timestamps log datetime
telnet vrf default ipv4 server max-servers 10
line console
```

```

exec-timeout 0 0
!
line default
exec-timeout 0 0
!
control-plane
management-plane
  inband

interface GigabitEthernet0/0/0/0
  allow all
  allow all peer
  address ipv4 88.88.88.2
  !
  !
  !
  out-of-band
  interface MgmtEth0/0/CPU0/0
    allow all peer
    address ipv4 10.1.1.0/24
    !
    !
    !
  !
  !
interface Loopback0
ipv4 address 20.1.0.4 255.255.255.255
!
interface MgmtEth0/0/CPU0/0
ipv4 address 10.1.1.2 255.255.255.0
!
interface GigabitEthernet0/0/0/0
ipv4 address 88.88.88.4 255.255.255.0
!
interface GigabitEthernet0/0/0/1
shutdown
!
interface GigabitEthernet0/0/0/2
shutdown
!

router static
maximum path ipv4 30000
address-family ipv4 unicast
  0.0.0.0/0 88.88.88.1
  !
  !
router ospf 100
area 0.0.0.0
  default-cost 10
  interface Loopback0
  !
  interface GigabitEthernet0/0/0/0
  !
  !
!

```

```
!  
platform mode production accept-eula  
end
```

day-zero 設定 — ToR としての Cisco Nexus 9300 または Cisco Nexus 9500

```
hostname ToR1  
  
vdc ToR1 id 1  
feature telnet  
feature nxapi  
feature bash-shell  
cfs eth distribute  
nv overlay evpn  
feature ospf  
feature bgp  
feature pim  
  
feature isis  
feature interface-vlan  
feature vn-segment-vlan-based  
feature lacp  
feature dhcp  
feature vpc  
feature lldp  
feature vtp  
feature scp  
feature nv overlay  
username admin password cisco123 role network-admin  
  
ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4  
ip pim ssm range 232.0.0.0/8  
route-map vts-subnet-policy permit  
vrf context management  
    ip route 0.0.0.0/0 172.29.128.1  
vpc domain 50  
    peer-keepalive destination 172.29.128.8  
    peer-gateway  
    ip arp synchronize  
interface Ethernet1/1  
    Description ***Interface connected to Computel eth1***  
    switchport mode trunk  
    spanning-tree port type edge trunk  
    spanning-tree bpduguard enable  
    spanning-tree bpdufilter enable  
interface Ethernet1/2  
    Description ***Interface connected to Controller1 eth1 for dhcp***  
    switchport mode trunk  
    spanning-tree port type edge trunk  
    spanning-tree bpduguard enable  
    spanning-tree bpdufilter enable  
interface Ethernet1/3  
    Description ***Interface connected to Computel eth2 for vPC link***  
    switchport mode trunk  
    speed 1000  
    channel-group 100
```

```
no shutdown
interface Ethernet1/4
  Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
  switchport mode trunk
  channel-group 20
  no shutdown

interface Ethernet1/47
  Description ***Interface connected to ios-XRV1***
  switchport mode access
  switchport access vlan 800
  no shutdown

interface Ethernet1/48
  Description ***Interface connected to ios-XRV2***
  switchport mode access
  switchport access vlan 800
  no shutdown

interface Vlan800
  no shutdown
  ip address 88.88.88.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

interface port-channel20
  Description ***Port channel link connected to ToR2 vPC peer link***
  switchport mode trunk
  spanning-tree port type network
  speed 1000
  vpc peer-link

interface port-channel100
  Description ***Port channel link connected to compute1 link***
  switchport mode trunk
  spanning-tree port type edge trunk
  spanning-tree bpduguard enable
  spanning-tree bpdufilter enable
  vpc 50

interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 11.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown

interface mgmt0
  vrf member management
  ip address 172.29.128.7/26

interface loopback0
  ip address 2.2.2.2/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
```

```
router-id 2.2.2.2
  area 0.0.0.0 default-cost 10
```

ネットワークでルート リフレクタを設定しない場合、BGP ASN を手動で追加する必要があります。

```
router bgp 1
  router-id 1.0.0.1
  address-family ipv4 unicast
  address-family l2vpn evpn
  neighbor 1.0.0.2 remote-as 1
  update-source loopback0
  address-family ipv4 unicast
  address-family l2vpn evpn
  send-community both
```

DHCP 要求を中央の DHCP サーバにリレーする場合:

```
feature dhcp
service dhcp
ip dhcp relay
ip dhcp relay information option
ip dhcp relay sub-option type cisco
ip dhcp relay information option vpn
```

FEX 設定:

```
install feature-set fex
feature-set fex

fex 101
  pinning max-links 1
  description "FEX101"

interface port-channel100
  switchport mode fex-fabric
  fex associate 101

interface Ethernet1/1-4
  channel-group 100
```

vPC モードのサーバを FEX ポートで接続する場合、サーバ vPC モードがサポートされます。

サーバ vPC 設定:

TOR1

```
vpc domain 50
  role priority 100
  system-priority 100
  peer-keepalive destination 172.29.128.57 source 172.29.128.56
  peer-gateway
```

```
interface port-channel50
  switchport mode trunk
  spanning-tree port type network
  vpc peer-link

interface port-channel21
  switchport mode trunk
  vpc 21

interface Ethernet101/1/48
  switchport mode trunk
  channel-group 21 mode active
```

TOR2

```
vpc domain 50
  role priority 100
  system-priority 100
  peer-keepalive destination 172.29.128.56 source 172.29.128.57
  peer-gateway

interface port-channel50
  switchport mode trunk
  spanning-tree port type network
  vpc peer-link

interface port-channel21
  switchport mode trunk
  vpc 21

interface Ethernet101/1/48
  switchport mode trunk
  channel-group 21 mode active
```

day-zero 設定 — ToR としての Cisco Nexus 5600

```
hostname ToR2

install feature-set fabric
feature-set fabric
cfs eth distribute
feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature interface-vlan
feature lacp
feature vpc
feature lldp
```

```

feature nv overlay
feature nxapi
feature vn-segment-vlan-based

hardware ethernet store-and-fwd-switching
configure profile vrf-tenant-profile
configure terminal
fabric forwarding switch-role leaf

username admin password cisco123 role network-admin

ip pim rp-address 1.1.1.1 group-list 239.0.0.0/24 bidir
ip pim ssm range 232.0.0.0/8
vrf context management
    ip route 0.0.0.0/0 172.29.128.1

vpc domain 50
    peer-keepalive destination 172.29.128.7
    peer-gateway
    ip arp synchronize

interface Vlan10
no shutdown
    ip address 1.0.1.1/24
    ip router ospf 1 area 0.0.0.0
    ip pim sparse-mode
vpc nve peer-link-vlan 10

interface Ethernet1/1
Description ***Interface connected to Compute2 eth1***
    switchport mode trunk
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/3
Description ***Interface connected to Compute1 eth3 for vPC link***
    switchport mode trunk
    speed 1000
    channel-group 100
    no shutdown
    spanning-tree port type edge trunk
    switchport trunk allowed vlan except 10

interface Ethernet1/4
Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
    switchport mode trunk
    channel-group 20
    no shutdown
interface port-channel20
Description ***Port channel link connected to ToR1 vPC peer link***
    switchport mode trunk
    spanning-tree port type network
    speed 1000
    vpc peer-link
interface port-channel100
Description ***Port channel link connected to compute2 link***

```

```

switchport mode trunk
spanning-tree port type edge trunk
spanning-tree bpduguard enable
spanning-tree bpdufilter enable
vpc 50
interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 12.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.29.128.8/26
interface loopback0
  ip address 3.3.3.3/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
  router-id 3.3.3.3
  area 0.0.0.0 default-cost 10

```

ネットワークでルート リフレクタを設定しない場合、BGP ASN を手動で追加する必要があります。

```

router bgp 1
  router-id 1.0.0.1
  address-family ipv4 unicast
  address-family l2vpn evpn
  neighbor 1.0.0.2 remote-as 1
  update-source loopback0
  address-family ipv4 unicast
  address-family l2vpn evpn
  send-community both

```

2 つの 5600 を vPC ペアで設定するには、前提条件として、vPC が設定されている必要があります。

```

interface Vlan1001
  no shutdown
  ip address 1.0.1.1/24
  ip router ospf 1 area 0.0.0.0
  ip pim sparse-mode
  vpc nve peer-link-vlan 1001

```

NVE 設定:

```

interface nve1
  no shutdown
  source-interface loopback0
  host-reachability protocol bgp

```


dot1q 自動設定:

```
platform fabric database dot1q disable
```

DHCP 要求を中央の DHCP サーバにリレーする場合:

```
feature dhcp
ip dhcp relay
ip dhcp relay information option
ip dhcp relay sub-option type cisco
ip dhcp relay information option vpn
```

FEX 設定:

```
feature fex
fex 101
  pinning max-links 1
  description "FEX0101"

fex 102
  pinning max-links 1
  description "FEX0102"

interface port-channel101
  fex associate 101

interface port-channel102
  fex associate 102

interface Ethernet1/1-2
  channel-group 102

interface Ethernet2/1
  channel-group 101
```

VPC モード:

FEX vPC :

```
feature vpc

vpc domain 100
  role priority 2000
  system-priority 4000
  peer-keepalive destination 172.29.128.55 source 172.29.128.54
  delay restore 150

interface port-channel30
  switchport mode trunk
  spanning-tree port type network
  flowcontrol send on
  vpc peer-link

interface port-channel101
  switchport mode fex-fabric
```

```
fex associate 101
vpc 100

interface port-channel102
switchport mode fex-fabric
fex associate 102
vpc 102

interface Ethernet101/1/1
switchport mode trunk

interface Ethernet101/1/2
switchport mode trunk

interface Ethernet101/1/3
switchport mode trunk
```

拡張 vPC:

```
interface port-channel20
switchport mode trunk

interface Ethernet102/1/23
switchport mode trunk
speed 1000
channel-group 20 mode active

interface Ethernet101/1/48
switchport mode trunk
channel-group 20 mode active
```

day-zero 設定 — DC ゲートウェイとしての Cisco Nexus 9300 または Cisco Nexus 9500

```
hostname ToR3
vdc ToR1 id 1

feature telnet
feature nxapi
feature bash-shell
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature isis
feature interface-vlan

feature vn-segment-vlan-based
feature lacp
feature dhcp
feature vpc

feature lldp
feature vtp
```

```
feature scp
feature nv overlay
username admin password cisco123 role network-admin
no password strength-check
ip domain-lookup
spanning-tree mode mst
snmp-server user admin network-admin auth md5 cisco123 priv cisco123
localizedkey

ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8

vrf context management
    ip route 0.0.0.0/0 172.29.128.1
interface Ethernet1/1
    Description ***Interface connected to Compute3 eth1***
    switchport mode trunk
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/2
    Description ***Interface connected to DCI G0/0/1/19***
    no switchport
    ip address 10.5.55.1/24
    no shutdown
interface Ethernet2/1
    Description ***Interface connected to Spine eth2/1***
    no switchport
    ip address 13.1.1.2/24
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
    no shutdown
interface mgmt0
    vrf member management
    ip address 172.29.128.9/26
interface loopback0
    ip address 4.4.4.4/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
    router-id 4.4.4.4
    area 0.0.0.0 default-cost 10
```

day-zero 設定 — DC ゲートウェイとしての Cisco Nexus 5600

```
hostname ToR2

install feature-set fabric
feature-set fabric
cfs eth distribute
feature fabric forwarding
nv overlay evpn
```

```
feature ospf
feature bgp
feature pim
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature nv overlay
feature nxapi
feature vn-segment-vlan-based

hardware ethernet store-and-fwd-switching
configure profile vrf-tenant-profile
configure terminal
fabric forwarding switch-role leaf

username admin password cisco123 role network-admin

ip pim rp-address 10.10.10.250 group-list 239.0.0.0/24 bidir
ip pim ssm range 232.0.0.0/8
vrf context management
    ip route 0.0.0.0/0 172.29.128.1

vpc domain 50
    peer-keepalive destination 172.29.128.7
    peer-gateway
    ip arp synchronize

interface Vlan10
    no shutdown
    ip address 1.0.1.1/24
    ip router ospf 1 area 0.0.0.0
    ip pim sparse-mode
vpc nve peer-link-vlan 10

interface Ethernet1/1
    Description ***Interface connected to Compute2 eth1***
    switchport mode trunk
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/3
    Description ***Interface connected to Compute1 eth3 for vPC link***
    switchport mode trunk
    speed 1000
    channel-group 100
    no shutdown
interface Ethernet1/4
    Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
    switchport mode trunk
    channel-group 20
    no shutdown
interface port-channel20
    Description ***port channel link connected to ToR1 vPC peer link***
    switchport mode trunk
    spanning-tree port type network
```

```

    speed 1000
    vpc peer-link
interface Ethernet1/5
  Description ***Interface connected to DCI G0/0/1/19***
  no switchport
  ip address 10.5.55.1/24
  no shutdown
interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 12.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.29.128.8/26
interface loopback0
  ip address 3.3.3.3/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
  router-id 3.3.3.3
  area 0.0.0.0 default-cost 10

BGP :
router bgp 65000
router-id 10.10.10.211
address-family ipv4 unicast
neighbor 10.10.10.1 remote-as 65000
update-source loopback0
address-family l2vpn evpn
send-community both
neighbor 10.10.10.2 remote-as 65000
update-source loopback0
address-family l2vpn evpn
send-community both
neighbor 10.10.254.72 remote-as 100 <-- vrf peering to Edge Router
update-source loopback0
disable-connected-check
address-family ipv4 unicast
evpn

NVE インターフェイス:
interface nve1
no shutdown
source-interface loopback0
host-reachability protocol bgp

```

day-zero 設定 — スパインとしての Cisco Nexus 9300、Cisco Nexus 9500、Cisco Nexus 5600、または Cisco Nexus 7000

```
hostname SolTB1-Spine1

vdc SolTB1-Spine1 id 1
  allocate interface Ethernet1/1-48
  allocate interface Ethernet2/1-12
  limit-resource vlan minimum 16 maximum 4094
  limit-resource vrf minimum 2 maximum 4096
  limit-resource port-channel minimum 0 maximum 512
  limit-resource u4route-mem minimum 248 maximum 248
  limit-resource u6route-mem minimum 96 maximum 96
  limit-resource m4route-mem minimum 58 maximum 58
  limit-resource m6route-mem minimum 8 maximum 8

feature telnet
feature nxapi
feature bash-shell
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature isis
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature vtp
feature lldp
feature nv overlay
username admin password cisco123 role network-admin
no password strength-check
ip domain-lookup
snmp-server user admin network-admin auth md5 cisco123 priv cisco123
localizedkey
rmon event 1 log trap public description FATAL(1) owner PMON@FATAL
rmon event 2 log trap public description CRITICAL(2) owner PMON@CRITICAL
rmon event 3 log trap public description ERROR(3) owner PMON@ERROR
rmon event 4 log trap public description WARNING(4) owner PMON@WARNING
rmon event 5 log trap public description INFORMATION(5) owner PMON@INFO
ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
vlan 1
vrf context management
  ip route 0.0.0.0/0 172.20.98.193
interface Ethernet1/1
  Description ***Interface connected to XRVR1 G0/0/0/0***
  no switchport
  ip address 10.6.45.1/24
  no shutdown
interface Ethernet1/2
  Description ***Interface connected to XRVR2 G0/0/0/0***
  no switchport
  ip address 10.6.46.1/24
  no shutdown
```

```

interface Ethernet2/1
  Description ***Interface connected to ToR1 eth2/1***
  no switchport
  ip address 11.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface Ethernet2/2
  Description ***Interface connected to ToR2 eth2/1***

  no switchport
  ip address 12.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface Ethernet2/3
  Description ***Interface connected to ToR3 DC GW eth2/1***
  no switchport
  ip address 13.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.20.98.206/26
interface loopback0
  ip address 5.5.5.5/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.6.1.2.I3.1.bin
router ospf 100
  router-id 5.5.5.5
  area 0.0.0.0 default-cost 10

```

day-zero 設定 — DCI としての Cisco ASR 9000 — VRF ピアリング モード

```

service unsupported-transceiver
hostname asr9k1
telnet ipv4 server max-servers 5
username admin
  password cisco123
  group root-system
  group cisco-support
interface MgmtEth0/0/CPU0/0
  ipv4 address 172.29.128.10 255.255.255.0
interface GigabitEthernet0/0/1/19
  description to peer node DC GW ToR3 eth1/2
  ipv4 address 10.5.55.2 255.255.255.0
interface loopback0
  ipv4 address 6.6.6.6/32
router static
  address-family ipv4 unicast
  0.0.0.0/0 172.29.128.1

```

```
rd-set auto
end-set
route-policy vts-route-policy
    pass
end-policy
lldp
```

day-zero 設定 — DCI としての Cisco Nexus 7000 — VRF ピアリング モード

```
hostname dci-tb19
no system admin-vdc
install feature-set fabricpath
install feature-set fabric
vdc dci-tb19 id 1
    limit-resource module-type f3
    allow feature-set fabricpath
    allow feature-set fabric
    cpu-share 5
    allocate interface Ethernet3/1-12
feature-set fabricpath
feature-set fabric
feature telnet
feature scp-server
cfs eth distribute

feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric multicast
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature nv overlay
feature nxapi
feature vni
ip pim rp-address 11.1.1.1 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
    bridge-domain 1001-2000
vrf context management
    ip route 0.0.0.0/0 172.20.100.1
hardware forwarding unicast trace
encapsulation vni dynamic dot1q 2-3967

interface mgmt0
    vrf member management
    ip address 172.20.100.199/24

interface Vlan1

interface Ethernet3/3
    description to peer node DC GW ToR3 eth1/2
    no switchport
```



```
ip address 10.5.55.2 255.255.255.0
no shutdown
interface loopback0
ip address 12.1.1.1/32
ip router ospf 100 area 0.0.0.0
ip pim sparse-mode

line console
line vty
boot kickstart bootflash:/n7000-s2-kickstart.7.3.0.D1.0.64.gbin sup-1
boot system bootflash:/n7000-s2-dk9.7.3.0.D1.0.64.gbin sup-1
router ospf 100
router-id 12.1.1.1
area 0.0.0.0 default-cost 10
fabricpath domain default
no system default switchport shutdown
no system auto-upgrade epld
```

day-zero 設定 — インテグレートド DCI (DCI と DC ゲートウェイ) としての Cisco ASR 9000

```
service unsupported-transceiver
hostname asr9k1
telnet ipv4 server max-servers 5
username admin
password cisco123
group root-system
group cisco-support
interface MgmtEth0/0/CPU0/0
ipv4 address 172.29.128.10 255.255.255.0
interface GigabitEthernet0/0/1/19
description Interface connected to Spine
ipv4 address 20.0.1.3/24
no shutdown
interface loopback0
ipv4 address 6.6.6.6/32
router ospf 100
router-id 6.6.6.6
address-family ipv4 unicast
area 0
interface loopback0
interface GigabitEthernet0/0/1/19
router static
address-family ipv4 unicast
0.0.0.0/0 172.29.128.1
rd-set auto
end-set
lldp
```

day-zero 設定 — インテグレートド DCI (DCI と DC ゲートウェイ) としての Cisco Nexus 7000

```
hostname dci-tb19
no system admin-vdc
install feature-set fabricpath
install feature-set fabric
vdc dci-tb19 id 1
```

```

    limit-resource module-type f3
    allow feature-set fabricpath
    allow feature-set fabric
    cpu-share 5
    allocate interface Ethernet3/1-12
feature-set fabricpath
feature-set fabric
feature telnet
feature scp-server
cfs eth distribute
feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric multicast
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature nv overlay
feature nxapi
feature vni
ip pim rp-address 11.1.1.1 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
    bridge-domain 1001-2000
vrf context management
    ip route 0.0.0.0/0 172.20.100.1
hardware forwarding unicast trace
encapsulation vni dynamic dot1q 2-3967

interface mgmt0
    vrf member management
    ip address 172.20.100.199/24

interface Vlan1

interface Ethernet3/3
    Description ***Interface connected to Spine***
    no switchport
    ip address 20.0.1.3/24
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
    no shutdown
interface loopback0
    ip address 12.1.1.1/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode

line console
line vty
boot kickstart bootflash:/n7000-s2-kickstart.7.3.0.D1.0.64.gbin sup-1
boot system bootflash:/n7000-s2-dk9.7.3.0.D1.0.64.gbin sup-1
router ospf 100
    router-id 12.1.1.1

```

```
    area 0.0.0.0 default-cost 10
fabricpath domain default
no system default switchport shutdown
no system auto-upgrade epld
```

IOS XRv で必要な day-zero 設定の変更

VTC から IOS XRv へのアクセスに対する CoPP ルール

```
control-plane
management-plane
    inband
        interface GigabitEthernet0/0/0/0
            allow all peer
            address ipv4 10.29.128.12
            address ipv4 172.29.128.12
        !
    !
out-of-band
    interface MgmtEth0/0/CPU0/0
        allow all peer
        address ipv4 10.1.1.0/24
    !
    !
interface GigabitEthernet0/0/0/0
    !
!
!
```

BGP EVPN アドバタイズメントに対する基本的な IGP ネイバーシップ

```
interface GigabitEthernet0/0/0/1
ipv4 address 5.1.1.10 255.255.255.0
!
interface Loopback0
ipv4 address 8.8.8.8 255.255.255.255
!
router ospf 100
router-id 8.8.8.8
address-family ipv4 unicast
area 0.0.0.0
    default-cost 10
    interface Loopback0
    !
    interface GigabitEthernet0/0/0/1
    !
!
!
router bgp 23
bgp router-id 8.8.8.8
address-family ipv4 unicast
!
```

```
address-family l2vpn evpn
    retain route-target all
!
neighbor 4.4.4.4
    remote-as 23
    update-source Loopback0
    address-family ipv4 unicast
    !
    address-family l2vpn evpn
    !
!
```

リーフ/スイッチでの関連する day-zero 設定

```
router ospf 100
    router-id 4.4.4.4
    area 0.0.0.0 default-cost 10
interface loopback0
    ip address 4.4.4.4/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
vlan 800
no shutdown
interface Vlan800
    no shutdown
    ip address 10.29.128.1/24
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
interface ethernet 1/1 This is the interface where the IOS XRv connects to leaf or spine
no shutdown
switchport mode access
switchport access vlan800
```

データセンタートポロジ内のすべてのデバイスにアドバタイズするための VTF および IOSXRv n/w 用のアンダーレイ day-zero ルーティング

VTF エンドポイントがデータセンター ネットワークのすべての物理リーフおよびスパインにアドバタイズされるように、VTF の IP アドレスはアンダーレイ ネットワーク経由でルートされる必要があります。

表 1) アンダーレイルーティング プロトコルとしての OSPF

Leaf 1 での OSPF 設定の例	
VTF n/w 用の SVI	interface Vlan800 no shutdown ip address 10.29.128.1/24 ip router ospf 100 area 0.0.0.0
OSPF の設定	router ospf 100 router-id 4.4.4.4 area 0.0.0.0 default-cost 10 interface Vlan800 ip router ospf 100 area 0.0.0.0
インターフェイス コンフィギュレーション	interface ethernet 1/1 switchport access vlan 800
Leaf 2 での OSPF 設定の例	
VTF n/w 用の SVI	vlan 800 interface Vlan800 no shutdown ip address 20.29.128.1/24 ip router ospf 100 area 0.0.0.0
OSPF の設定	router ospf 100 router-id 5.5.5.5 area 0.0.0.0 default-cost 10 interface Vlan800 ip router ospf 100 area 0.0.0.0
インターフェイス コンフィギュレーション	interface ethernet 1/1 switchport access vlan 800
ルートの検証	OSPF Process ID 100 VRF default, Routing Table (D) denotes route is directly attached (R) denotes route is in RIB 4.4.4.4/32 (intra) (D) area 0.0.0.0 via 4.4.4.4/Lo0* , cost 1 distance 110 7.7.7.7/32 (intra) (R) area 0.0.0.0 via 21.0.0.3/Eth1/13 , cost 5 distance 110 8.8.8.8/32 (intra) (R) area 0.0.0.0 via 5.1.1.10/Eth1/7 , cost 41 distance 110 9.9.9.9/32 (intra) (R) area 0.0.0.0 via 21.0.0.3/Eth1/13 , cost 9 distance 110 10.6.45.0/24 (intra) (D) area 0.0.0.0 via 10.6.45.0/Eth1/15* , cost 40 distance 110 10.29.128.0/24 (intra) (D) area 0.0.0.0 via 10.29.128.0/Vlan800* , cost 40 distance 110 OSPF Process ID 200 VRF default, Routing Table (D) denotes route is directly attached

	(R) denotes route is in RIB 5.5.5.5/32 (intra) (D) area 0.0.0.0 via 5.5.5.5/Lo1* , cost 1 distance 110
--	---

BGP を使用することにより、データセンター経由でルートを拡張できます。きわめて大規模なデータセンターでは、BGP を使用することにより、テナント VM ベースのトラフィックをルーティングするコントロールプレーンの拡張性が向上します。また、BGP プロトコルは、VTF アンダーレイ ネットワークを拡張およびルーティングするためにも使用できます。

表 2) VTF n/w アドバタイズメントをルーティングするためのプロトコルとしての BGP

BGP 設定例	
注意: ルートリフレクタがシステムに存在する場合は、day-zero BGP 設定として、総数。	<pre>interface Vlan800 no shutdown ip address 10.29.128.1/24 router bgp 23 router-id 4.4.4.4 address-family ipv4 unicast network 10.29.128.56/32 network 10.29.128.57/32 nexthop route-map vts-subnet-policy address-family l2vpn evpn retain route-target all</pre>

VTF - 非 VTEP デバイスでの day-zero 設定

<pre>vlan 1,800 interface Vlan800 no shutdown ip address 10.29.128.1/24 interface Ethernet1/10 This is the interface from the compute to VTF. switchport mode trunk switchport trunk allowed vlan 800</pre>

高可用性を実現するための IOS XRv day-zero 設定

1. VTC にログインし、IOS XRv に Telnet 接続します。デフォルトでは、IOS XRv にはコントロールプレーンがあり、パブリック VIP への Telnet アクセスのみが許可されます。VTS の Telnet 用に、次のものを各 VTS のプライベート インターフェイスの物理 IP に加える必要があります。

<pre>control-plane management-plane inband interface GigabitEthernet0/0/0/0 allow all peer address ipv4 11.1.1.20 address ipv4 11.1.1.4</pre>

```
        address ipv4 11.1.1.14
    !
!
!
```

VTC を別のサブネットに配置する場合のみ、追加の **day-zero** 設定が必要になります。それ以外の場合、このセクションの残りの部分は省略できます。

2. IOS XRv day-zero 設定を構成します。

- Hostname
- VRF Name
- Management IP (VRF 内部)
- VRF の下のデフォルトルート
- VRF 用の Telnet の有効化

XRv 1 の設定

```
hostname XRVR1
telnet vrf VTS_VIP ipv4 server max-servers 10
vrf VTS_VIP
    address-family ipv4 unicast
    !
!
interface GigabitEthernet0/0/0/0
    vrf VTS_VIP
    ipv4 address 11.1.1.5 255.255.255.0
!
router static
    vrf VTS_VIP
        address-family ipv4 unicast
            0.0.0.0/0 11.1.1.1
        !
    !
!
router bgp 100
```

XRv 2 の設定

```
hostname XRVR2
telnet vrf VTS_VIP ipv4 server max-servers 10
vrf VTS_VIP
    address-family ipv4 unicast
    !
!
interface GigabitEthernet0/0/0/0
    vrf VTS_VIP
    ipv4 address 11.1.1.15 255.255.255.0
!
```

```
router static
vrf VTS_VIP
  address-family ipv4 unicast
    0.0.0.0/0 11.1.1.1
  !
  !
  !
router bgp 100
```

注:

- ここで示した設定は、HA 部分に必要な day-zero 設定です。他の day-zero 設定が、EVPN RR 機能用に必要な場合もあります。
- VTS_VIP は、ユーザ指定の VRF 名です。
- ルータ bgp 100 - 100 はユーザ指定のローカル ASN です。