



APERÇU DE L'ÉVÉNEMENT

# Communauté Cisco – Community Live avec nos experts

Data Center - Datacenter NX-OS EVPN & ACI  
Automatisation grâce aux APIs NX-OS et Terraform  
Mardi 5 mai 2020

avec Francesco Molino  
et Xavier Crèveœur

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Community Live | Data Center

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Automatisation Data Center  
ACI et NXOS EVPN  
*Animé par : Francesco Molino et Xavier Crèveœur*

Mardi 5 Mai  
9:30 hrs Montréal  
15:30 hrs Paris


S'inscrire ici

# APIs

- API = Application Programming Interface
- C'est une interface qui permet d'exposer des données à d'autres systèmes de manière structurée.
- Cette interface permet d'obtenir des données sans connaître la complexité du système en arrière plan
- 2 « modèles » de API = SOAP et REST
- REST API (Plus rapide et plus léger)

Difference	SOAP	REST
Style	Protocol	Architectural style
Function	Function-driven: transfer structured information	Data-driven: access a resource for data
Data format	Only uses XML	Permits many data formats, including plain text, HTML, XML, and JSON
Security	Supports WS-Security and SSL	Supports SSL and HTTPS
Bandwidth	Requires more resources and bandwidth	Requires fewer resources and is lightweight
Data cache	Can not be cached	Can be cached
Payload handling	Has a strict communication contract and needs knowledge of everything before any interaction	Needs no knowledge of the API
ACID compliance	Has built-in ACID compliance to reduce anomalies	Lacks ACID compliance

# Exemple : NX-API Sandbox

 **NX-API Developer Sandbox** Quick Start [Logout](#)

```
sh ip int bri vrf management
```

Message format: json-rpc xml json nx-api rest

nx yang

Command type: cli\_show cli\_show\_array

cli\_show\_ascii cli\_conf bash

POST Reset

REQUEST:

```
{
  "ins_api": {
    "version": "1.0",
    "type": "cli_show",
    "chunk": "0",
    "sid": "1",
    "input": "sh ip int bri vrf management",
    "output_format": "json"
  }
}
```

Copy  
Python

RESPONSE:

```
{
  "ins_api": {
    "type": "cli_show",
    "version": "1.0",
    "sid": "eoc",
    "outputs": {
      "output": {
        "input": "sh ip int bri vrf management",
        "msg": "Success",
        "code": "200",
        "body": {
          "TABLE_intf": {
            "ROW_intf": {
              "intf-name": "mgmt0",
              "prefix": "172.16.2.100",
              "ip-disabled": "FALSE",
              "iod": 2,
              "proto-state": "up",
              "link-state": "up",
              "admin-state": "up"
            }
          },
          "TABLE_vrf": {
            "ROW_vrf": {
              "vrf-name-out": "management"
            }
          }
        }
      }
    }
  }
}
```

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# NX-API CLI retourne également des infos en bash (Linux)

- Activation du mode bash (équivalence du mode interpréteur Linux)
- feature bash-shell
- Depuis le Nexus, en mode enable: run bash

The screenshot displays the NX-API CLI interface. At the top, a text input field contains the command `ip link show`. Below the input are two buttons: `POST` (blue) and `Reset` (orange). A `Message format:` dropdown menu is visible to the right of the input field.

Below the input field, there are two panels: **REQUEST:** and **RESPONSE:**.

**REQUEST:**

```
{
  "ins_api": {
    "version": "1.0",
    "type": "bash",
    "chunk": "0",
    "sid": "1",
    "input": "ip link show",
    "output_format": "json"
  }
}
```

**RESPONSE:**

```
{
  "ins_api": {
    "sid": "e0c",
    "type": "bash",
    "version": "1.0",
    "outputs": {
      "output": {
        "body": "1: lo: LOOPBACK,UP,LOWER_UP mtu 16436 qdisc noqueue state UNKNOWN mode DEFAULT\n\n    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00\n2: dummy0: <BROADCAST,NOARP> mtu 1500 qdisc noop state DOWN mode DEFAULT\n    link/ether c2:bf:e1:9e:20:27 brd ff:ff:ff:ff:ff:ff\n4: eth2: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000\n    link/ether 0c:14:66:01:c3:01 brd ff:ff:ff:ff:ff:ff\n5: eth3: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000\n    link/ether 0c:14:66:01:c3:02 brd ff:ff:ff:ff:ff:ff\n6: eth4: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000\n    link/ether 0c:14:66:01:c3:03 brd ff:ff:ff:ff:ff:ff\n7: eth5: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000\n    link/ether 0c:14:66:01:c3:04 brd ff:ff:ff:ff:ff:ff\n8: eth6: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000\n    link/ether 0c:14:66:01:c3:05 brd ff:ff:ff:ff:ff:ff\n9: eth7: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000",
        "code": "200",
        "msg": "Success"
      }
    }
  }
}
```

On the right side of the interface, a terminal window shows the output of the command in bash mode:

```
bash-4.2$ ip link show | more
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN mode DEFAULT

    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: dummy0: <BROADCAST,NOARP> mtu 1500 qdisc noop state DOWN mode DEFAULT
    link/ether c2:bf:e1:9e:20:27 brd ff:ff:ff:ff:ff:ff
4: eth2: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000
    link/ether 0c:14:66:01:c3:01 brd ff:ff:ff:ff:ff:ff
5: eth3: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000
    link/ether 0c:14:66:01:c3:02 brd ff:ff:ff:ff:ff:ff
6: eth4: <BROADCAST,MULTICAST,PROMISC,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT qlen 1000
    link/ether 0c:14:66:01:c3:03 brd ff:ff:ff:ff:ff:ff
7: eth5: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000
    link/ether 0c:14:66:01:c3:04 brd ff:ff:ff:ff:ff:ff
8: eth6: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000
    link/ether 0c:14:66:01:c3:05 brd ff:ff:ff:ff:ff:ff
9: eth7: <NO-CARRIER,BROADCAST,MULTICAST,PROMISC,UP> mtu 1500 qdisc pfifo_fast state DOWN mode DEFAULT qlen 1000
```

# Cisco APIC

- APIC est le contrôleur de la « Fabric ACI »

The screenshot displays the Cisco APIC dashboard interface. At the top, the Cisco logo and 'APIC' are visible. The navigation menu includes System, Tenants, Fabric, Virtual Networking, L4-L7 Services, Admin, Operations, Apps, and Integrations. The main content area is divided into several sections:

- System Health:** A line graph showing the system health score over time. The current score is 81. The x-axis represents time from 18:50 to 19:45. The y-axis represents the score from 0 to 50. Below the graph is a timeline for 25. Apr, with markers for 06:00, 12:00, and 18:00.
- Nodes With Health ≤ 99:** A table listing nodes with their health scores. All nodes have a score of 99.
- Tenants With Health ≤ 99:** A section indicating that no tenants have been found.
- Fault Counts By Domain:** A table showing fault counts across various domains. The total system-wide count is 72.
- Fault Counts By Type:** A table showing fault counts categorized by type. The total count is 17.
- Controller Status:** A table showing the status of the APIC controller. The controller 'apic1' is in 'In Service' state and is 'Fully Fit'.

Domain	Access	External	Framework	Infra	Management	Security	Tenant
<b>SYSTEM WIDE</b>	<b>2</b>	<b>16</b>	<b>1</b>	<b>72</b>			
Access	0	0	0	3			
External	0	0	0	1			
Framework	0	0	0	0			
Infra	2	16	0	68			
Management	0	0	0	0			
Security	0	0	0	0			
Tenant	0	0	1	0			

Name	Pod ID	Node Type	Health Score
L1001	1	leaf	99
L1002	1	leaf	99
S101	1	spine	99

ID	Name	IP	Admin State	Operational State	Health State
1	apic1	10.0.0.1	In Service	Available	Fully Fit

# Cisco APIC API (Terraform init)

```
terraform terraform init
Initializing modules...
- fabricpool in modules/fabric
- interfacecfg in modules/interfacecfg
- interfaceprofile in modules/interfaceprofile
- restapiifce in modules/restapiifce
- tenant in modules/tenantcfg
Initializing the backend...
Initializing provider plugins...
- Checking for available provider plugins...
- Downloading plugin for provider "aci" (terraform-providers/aci) 0.2.1...

The following providers do not have any version constraints in configuration,
so the latest version was installed.

To prevent automatic upgrades to new major versions that may contain breaking
changes, it is recommended to add version = "..." constraints to the
corresponding provider blocks in configuration, with the constraint strings
suggested below.

* provider.aci: version = "~> 0.2"

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
```

# Plus d'informations sur Data Center rendez vous dans la Communauté Cisco ou sur [Cisco.com](https://www.cisco.com) - [Cisco.fr](https://www.cisco.fr)

Participez à la foire aux questions sur VxLAN de Data Center jusqu'au 8 mai | [Savoir plus](#)

Vous avez l'opportunité de regarder encore une fois notre dernière [séance Data Center](#) en vidéo, grâce à l'enregistrement que nous avons publié sur la plateforme de la Communauté Cisco. En plus un forum de discussion reste ouvert, si jamais vous voulez [poser des questions](#) à notre expert jusqu'au vendredi 8 mai.

**Vidéo Tips : les solutions de base aux problèmes récurrents avec nos experts** | [Proposer un sujet](#)

Nous voulons impulser la construction d'un catalogue de Vidéo-Tips, qui puisse vous aider à résoudre les questions simples des membres de la communauté. Proposez-nous des nouveaux contenus et découvrez comment vous pouvez collaborer à enrichir nos contenus.

Si vous n'êtes pas encore un utilisateur enregistré [Cliquez ici](#) pour vous inscrire et devenir un membre de la Communauté Cisco.





# Souhaitant que cette avance du Community Live vous ait plu.

Rappelez-vous que ce n'est qu'un aperçu. Le 5 mai, vous aurez l'occasion de voir l'intégralité de cette présentation.



Inscrivez-vous maintenant : <https://bit.ly/WEBsp-may20>

Pendant la diffusion du webcast, vous aurez l'occasion d'apprendre beaucoup plus et vous pourrez également poser des questions aux experts qui vous répondront en direct.

À bientôt !