



Network information in CRIC

Edoardo Martelli

LHCONE meeting #48

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recap

The community has expressed the need for an authoritative database to store network information, as:

- LHCONE and LHCOPN prefixes
- Autonomous System Numbers (ASN)
- Bandwidth
- LHCONE AUP ack
- perfSONAR references
- Monitoring links

CRIC

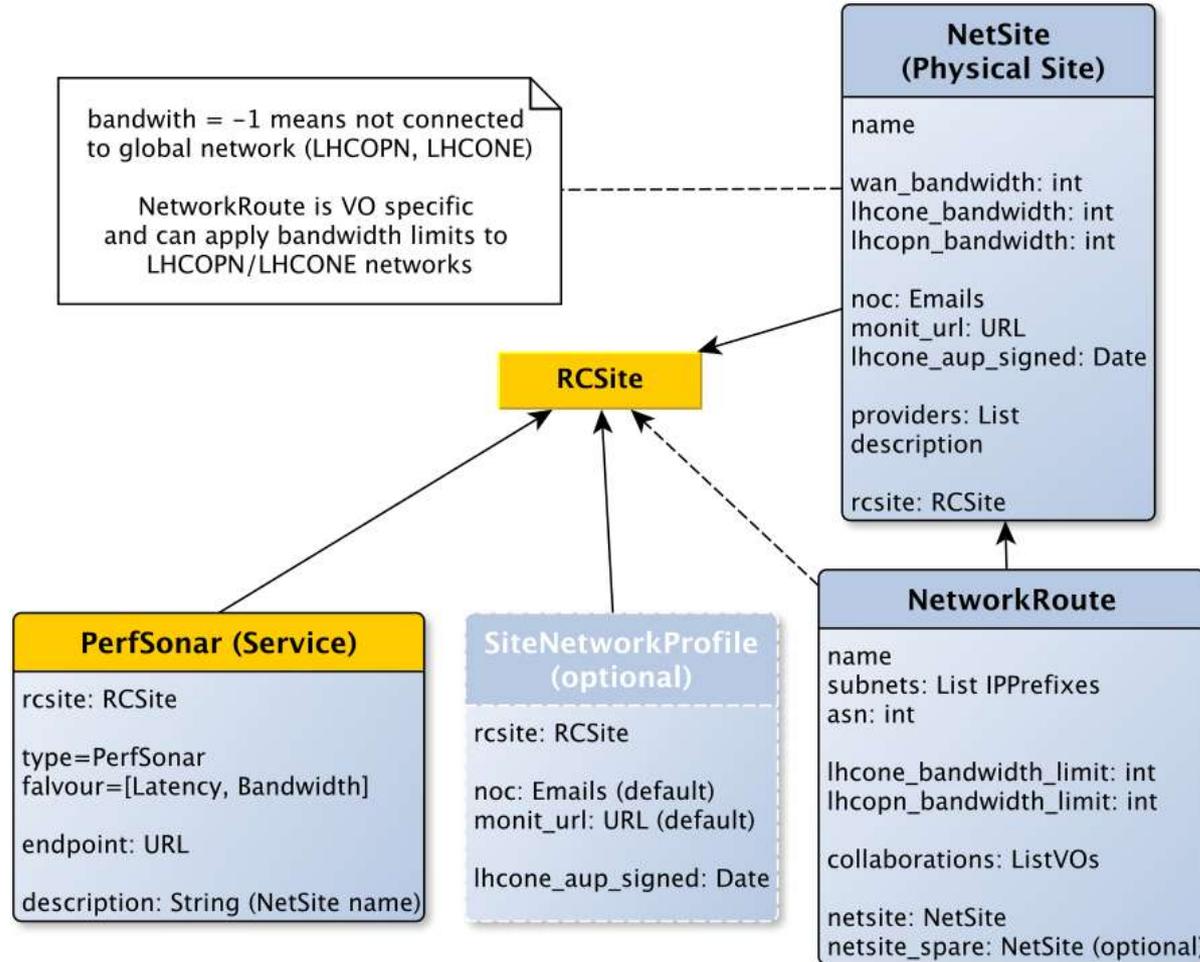
The CRIC (Computing Resources Information Catalogue) database has been chosen to store this information.

CRIC is the on-line database for WLCG Computing Resources:

<http://wlcg-cric.cern.ch/>

- Used by ATLAS and CMS, other experiments may follow
- not-WLCG sites can also be added as Virtual Organizations

Database tables for network information



Access and Data

Easily accessible

- Netsite: <https://wlcg-cric.cern.ch/core/netsite/list/> (login required)
- NetworkRoute: <https://wlcg-cric.cern.ch/core/networkroute/list/> (login required)
- Json view: <https://wlcg-cric.cern.ch/api/core/rcsite/query/?json> (no login)

Data

- Database pre-loaded with data from LHCONE Twiki and LHCONE routing tables
 - Being verified by site administrators
- REN prefixes also added
- Sites can update their own data. Edoardo, Marian and Shawn have full RW access

NetSite table

<https://wlcg-cric.cern.ch/core/netsite/list/>

- NOC contact email
- URLs to monitoring and other info pages
- LHCONE AUP acknowledgment
- LHCONE and LHCOPN participation
- Network bandwidth: WAN, LHCOPN, LHCONE (-1 = not connected)
- LHCONE providers

142 entries

RC Site	NetSite	NOC	monit URL	info URL	AUP	LHCONE active	LHCOPN active	WAN	LHCONE	LHCOPN	providers
AGLT2	US-AGLT2 Michigan State University	aglt2-noc@umich.edu			✓	✓	✗	100	100	-1	ESnet
AGLT2	US-AGLT2 University of Michigan	aglt2-noc@umich.edu			✓	✓	✗	80	80	-1	ESnet
ANLASC	US-ANL	noc@anl.gov			✓	✓	✗	0	100	-1	ESnet
ARNES	SL-ARNES-NREN				✓	✓	✗	0	9	-1	ARNES
ARNES	SL-IJS-Ljubljana				✓	✓	✗	0	9	-1	ARNES
ARNES	SL-IZUM-Maribor				✓	✓	✗	0	9	-1	ARNES
Australia-ATLAS	AU-Australia-ATLAS				✓	✓	✗	20	10	-1	AARNET
BEgrid-ULB-VUB	BE-ULB-VUB				✗	✗	✗	20	-1	-1	

NetworkRoute table

<https://wlcg-cric.cern.ch/core/networkroute/list/>

One entry per set of prefixes sharing common routing policies

- set of v4 and v6 prefixes
- “More specific” flag (in case of disaggregated prefixes)
- Autonomous System number (ASN)
- collaborations using these prefixes
- LHCOPN and LHCONE bandwidth specific to the prefixes of the record
- monitoring URL specifics to the prefixes of the record

157 entries

RC Site	NetworkRoute	NetSite	ASN	monit URL	MS	Subnets	LHCONE limit	LHCOPN limit	collaborations
AGLT2	AGLT2_LHCONE_RT	US-AGLT2 Michigan State University	229		✘	2001:48a8:68f7::/48, 2001:48a8:68f7::/50, 2001:48a8:68f7:4000::/50, 2001:48a8:68f7:8000::/50, 2001:48a8:68f7:c000::/50	100	-1	US-ATLAS, WLCG
AGLT2	AGLT2_MSU	US-AGLT2 Michigan State University	229		✘	192.41.236.0/23, 192.41.238.0/28	100	-1	US-ATLAS, WLCG
AGLT2	AGLT2_MSU IPv6	US-AGLT2 Michigan State University	237		✘	2001:48a8:68f7:8001::/64	100	-1	US-ATLAS, WLCG

CRIC vs LHCONE TWIKI

CRIC is now the authoritative database for the list of LHCONE connected sites and LHCONE prefixes

List on [LHCONE Twiki page](#) will be removed soon

LHCOPN data has also been added

- CRIC can also become authoritative for LHCOPN

RS-LHCONE route-set

RS-LHCONE: RIPE database route-set object with the list of all the LHCONE prefixes declared in CRIC

The route-set object is stored in the RIPE whois database:

<https://apps.db.ripe.net/db-web-ui/query?searchtext=rs-lhcone>

```
>whois -h whois.ripe.net RS-LHCONE
```

A script that generate the route-set runs every day:

- Manual update of the route-set
- Upon updates, emails can be sent to interested NOCs using the “notify:” attribute. Tell Edoardo Martelli if interested

RS-LHCONE route-set

```
whois -h whois.ripe.net rs-lhcone
```

```
% Information related to 'RS-LHCONE'
```

```
route-set:      RS-LHCONE
descr:          List of prefixes available in LHCONE
tech-c:         LHC1
admin-c:        LHC1
mnt-by:         LHCONE-MNT
mnt-by:         CERN-MNT
created:        2020-07-07T12:35:15Z
last-modified: 2022-02-22T13:27:38Z
source:        RIPE
members:        109.105.124.0/22 # AS39590 - NDGF-T1-LHCOPNE
members:        117.103.96.0/20 # AS24167 - Taiwan-LCG2-LHCOPNE
members:        128.104.227.0/24 # AS59 - GLOW-LHCONE
members:        128.111.120.96/28 # AS131 - US-Univ-California-Santa-Barbara-UCSB-LHCONE
members:        128.142.0.0/16 # AS513 - CERN-PROD-LHCOPNE
members:        128.211.128.0/19 # AS397511 - Purdue-LHCONE
members:        128.211.160.0/22 # AS397511 - Purdue-LHCONE
members:        128.227.10.0/24 # AS6536 - UFlorida-HPC-LHCONE
...
mp-members:     2a05:81c5:302:224::/64 # AS2875 - JINR-LCG2-LHCONE
mp-members:     2a05:81c5:302:37::/64 # AS2875 - JINR-LCG2-LHCONE
mp-members:     2a07:8504:120:e060::/64 # AS1104 - NLT1-NIKHEF-LHCOPNE
mp-members:     2a07:8504:120:e068::/64 # AS1104 - NLT1-NIKHEF-LHCOPNE
mp-members:     2a07:a6c0:b:192::/64 # AS52146 - RU-SARFTI-LHCONE
mp-members:     2a0c:5bc0:c8:2::/64 # AS786 - UKI-LT2-IC-HEP-LHCONE
mp-members:     2a0e:e140::/64 # AS58255 - Ru-Troitsk-INR-LCG2-LHCONE
```

RS-LHCONE to build BGP filters

All prefixes in the LHCONE routing table matches an entry in CRIC

- several checks in January and February 2022
- excluded prefixes have been fixed with site admins

BGP filters generated from RS-LHCONE can be safely applied

- is anyone planning to do it?

Conclusions and next steps

- LHCONE data fully imported into CRIC
- CRIC now authoritative for LHCONE sites and prefixes
- Daily LHCONE route-set build (manual update, if necessary)

Upcoming:

- Addition of perfSONAR table
- Should CRIC become authoritative also for LHCOPN?

Resources:

Documentation and example scripts:

https://twiki.cern.ch/twiki/bin/view/LHCONE/LhcOneVRF#Connected_Sites

Questions?

edoardo.martelli@cern.ch

