

Backbone Visibility & You

Danial Ebling



UTAH EDUCATION NETWORK



Agenda

Who is this for?

Weathermap

Telly (District Dashboards)

Perf (Performance Monitoring)

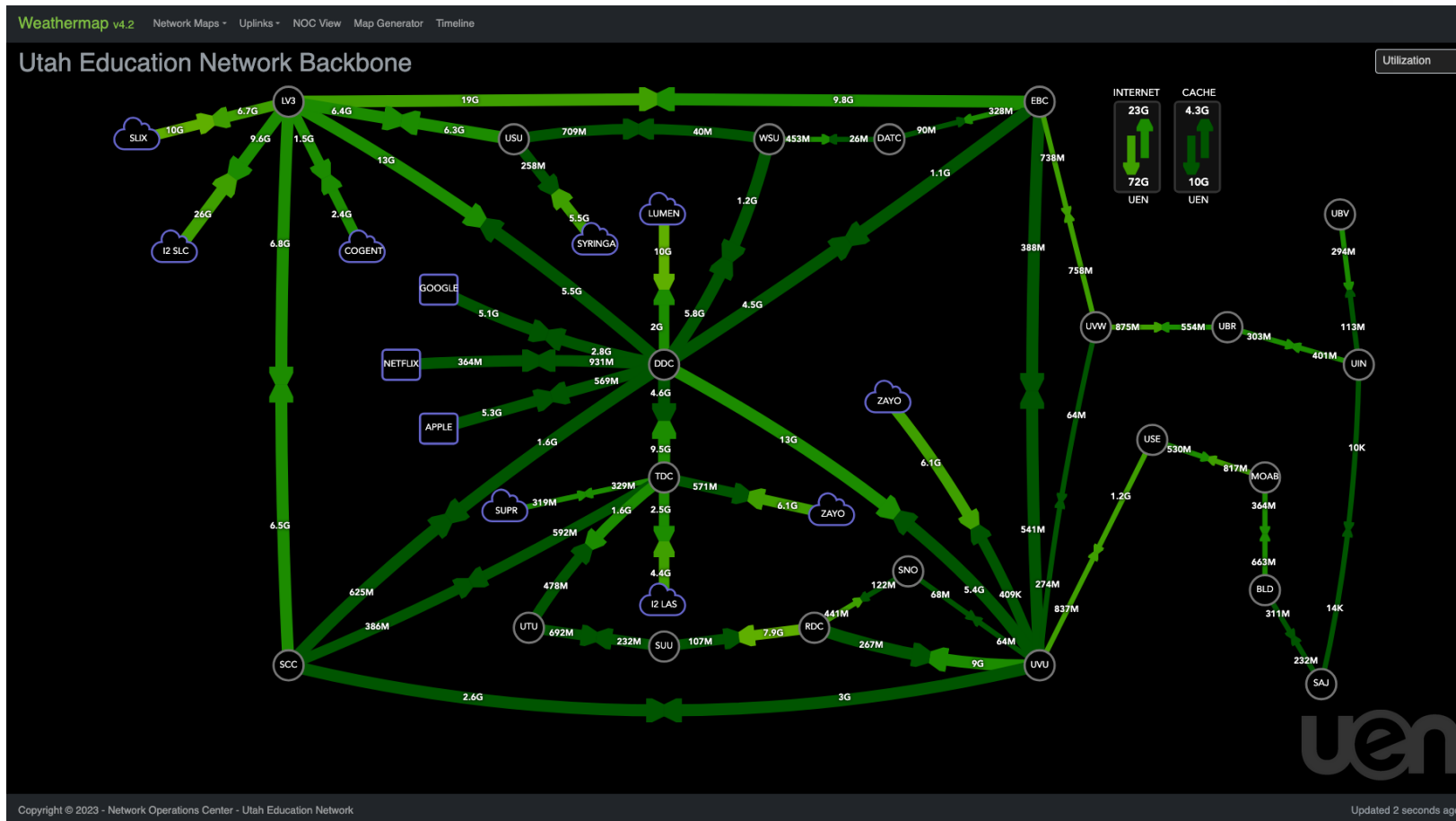
Looking Glass ([new!](#))



Weathermap



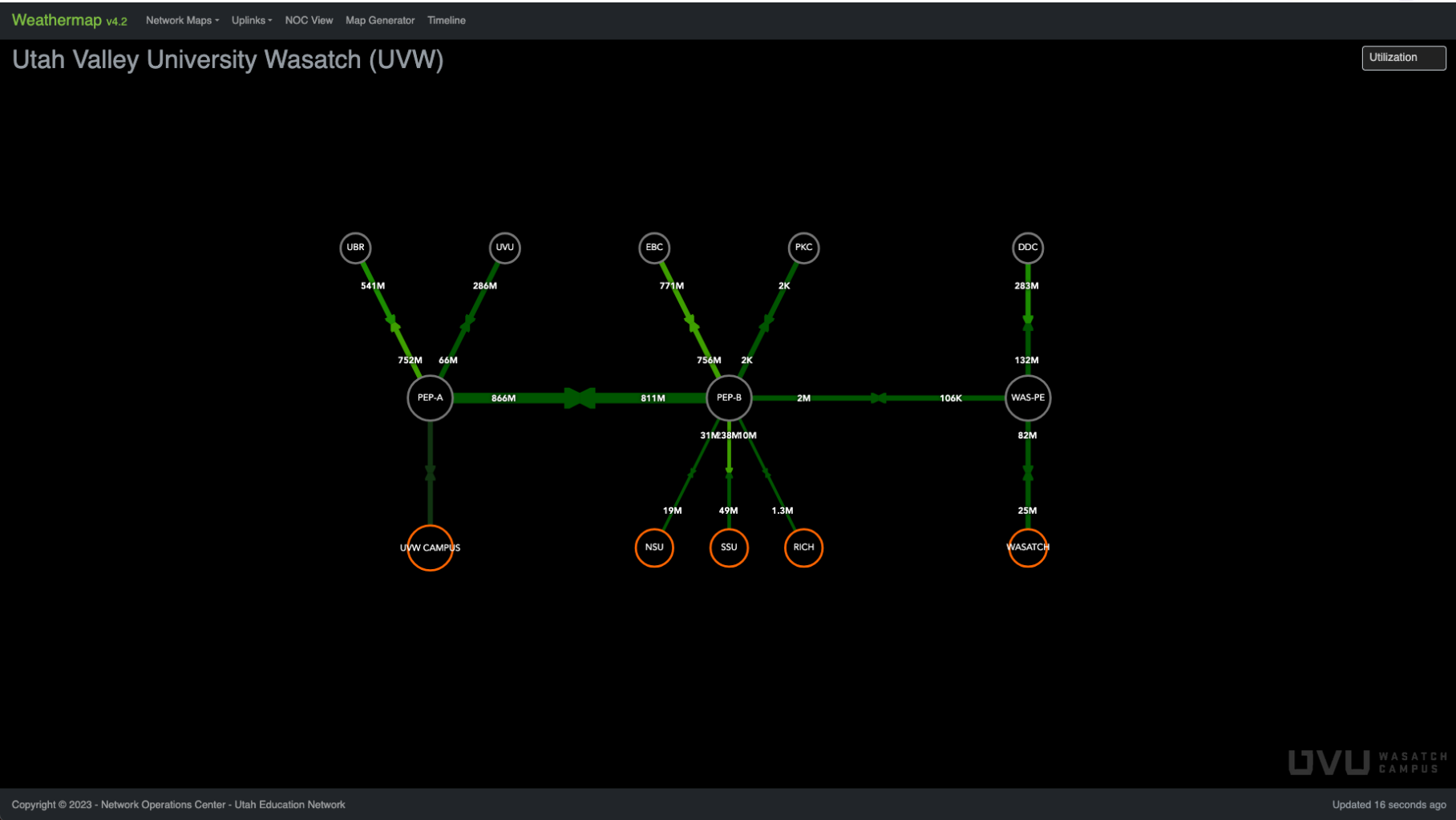
- UEN Backbone Overview and live traffic
- <https://weathermap.uen.net>



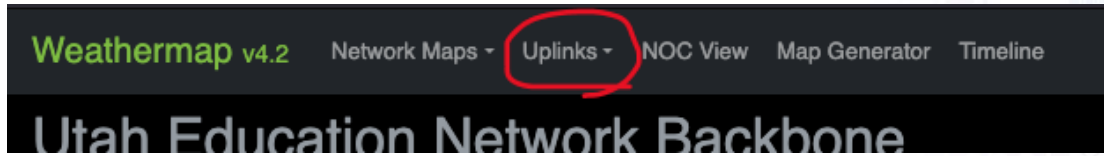
Weathermap



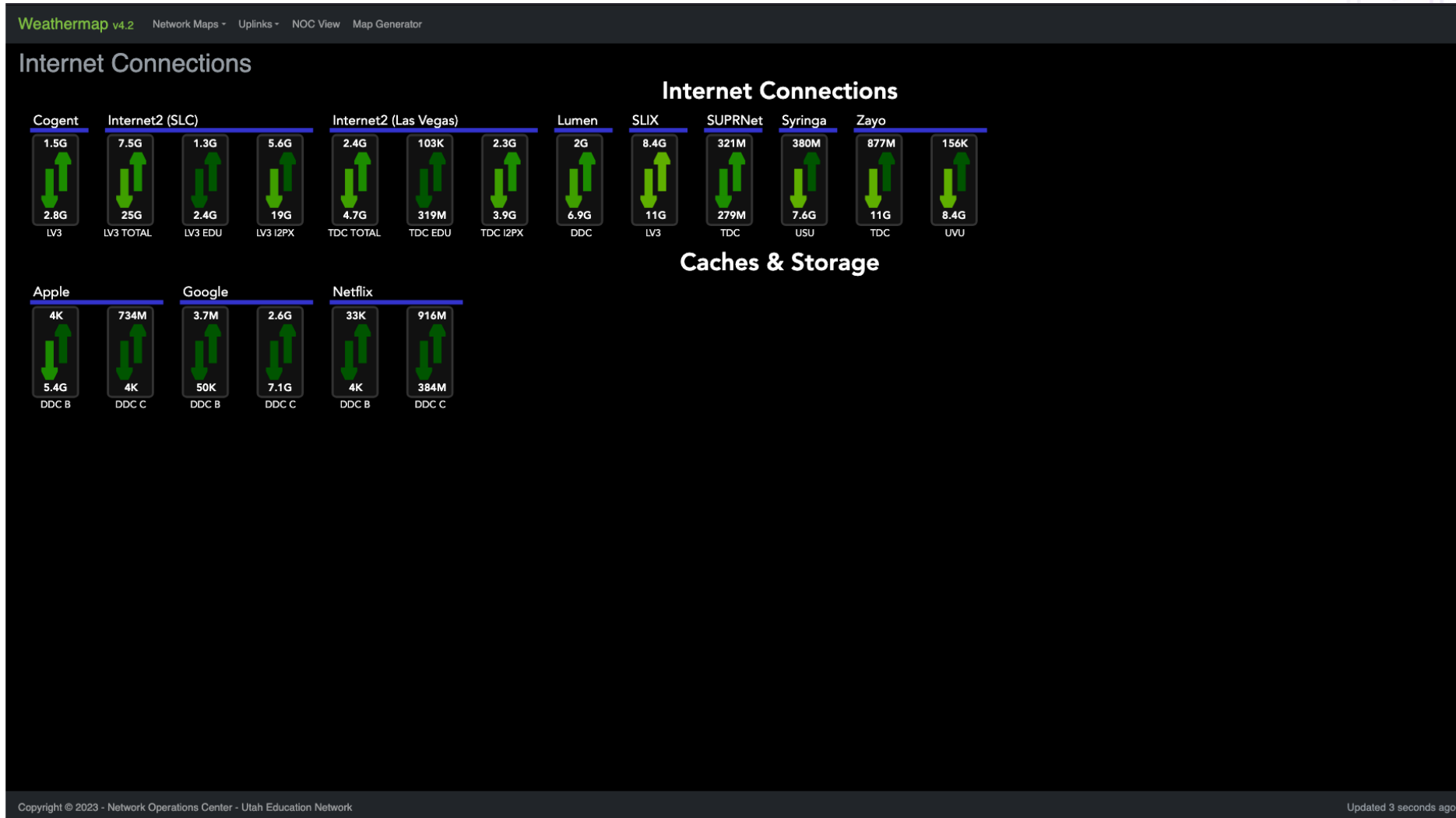
- Pages for each POP



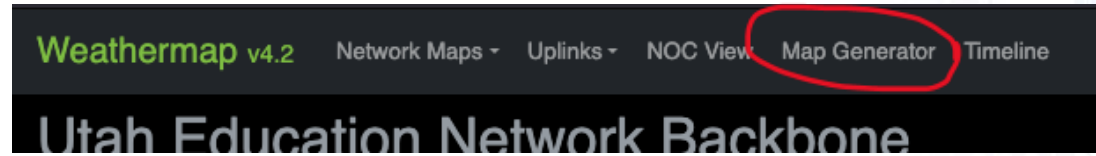
Weathermap



- Uplink dashboards



Weathermap



- Map Generator - custom dashboards

Map name
tech summit

Devices
ebc-pep-b Add device

Or specify a device manually
uvu Add device

Remote interface description
UofU--ebc Add remote

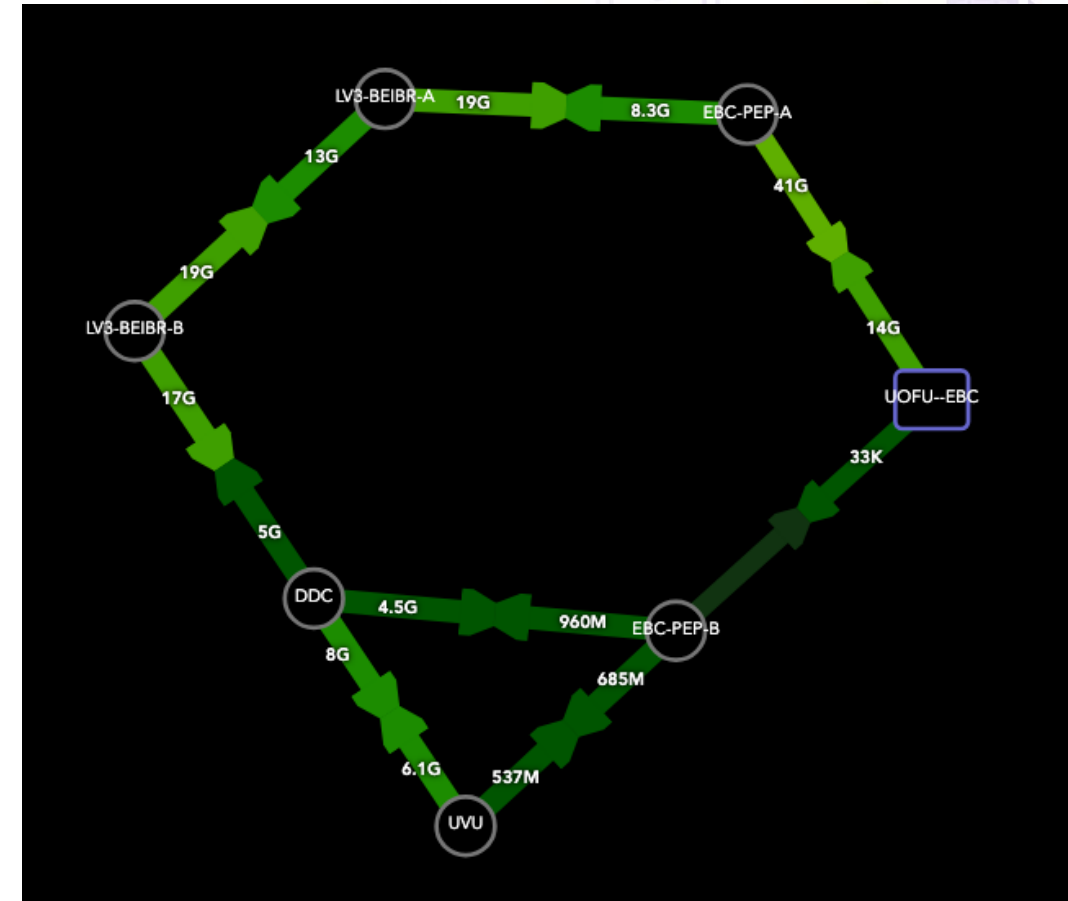
Configured devices
lv3-beibr-a lv3-beibr-b ddc ebc-pep-a ebc-pep-b uvu Clear

Configured remotes
UofU--ebc Clear

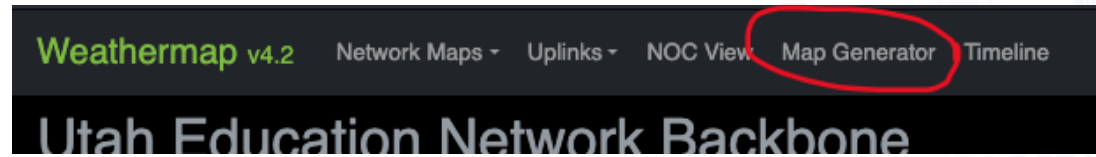
Node Sizing
Normal Large Huge

Generate link

[https://weathermap.uen.net/page?name=tech summit&nodes=lv3-beibr-a,lv3-beibr-b,ddc,ebc-pep-a,ebc-pep-b,uvu](https://weathermap.uen.net/page?name=tech%20summit&nodes=lv3-beibr-a,lv3-beibr-b,ddc,ebc-pep-a,ebc-pep-b,uvu) Copy Download Edit

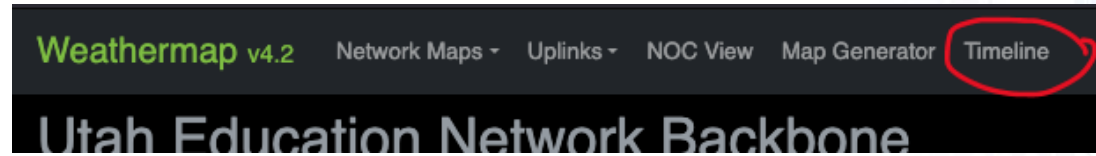


Weathermap



- Tips & Tricks
 - Show each device in a POP – choose devices from the dropdown
 - `ebc-pep-a, ebc-pep-b`
 - Consolidate POPs into one node – specify devices manually
 - `ddc, uvu`
 - Remote devices – usually your firewall or border router description
 - Limit links by using two dashes then the POP name
 - `--ebc`

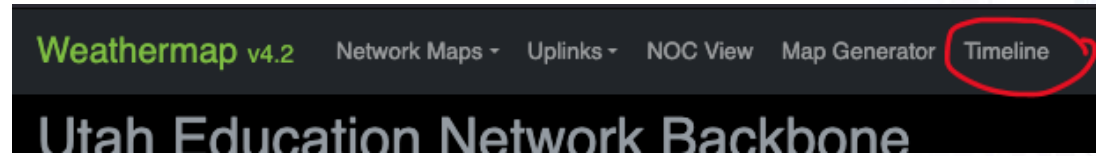
Weathermap



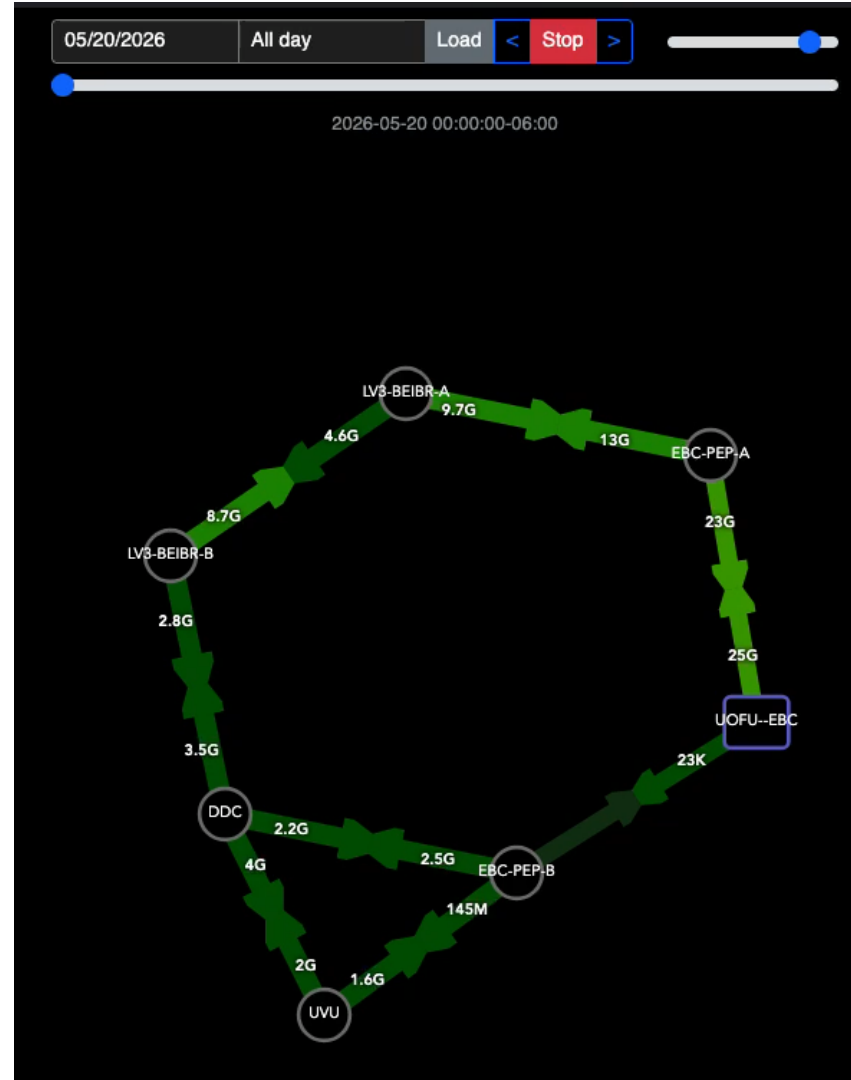
- Timeline – view traffic from the past ~3 months



Weathermap



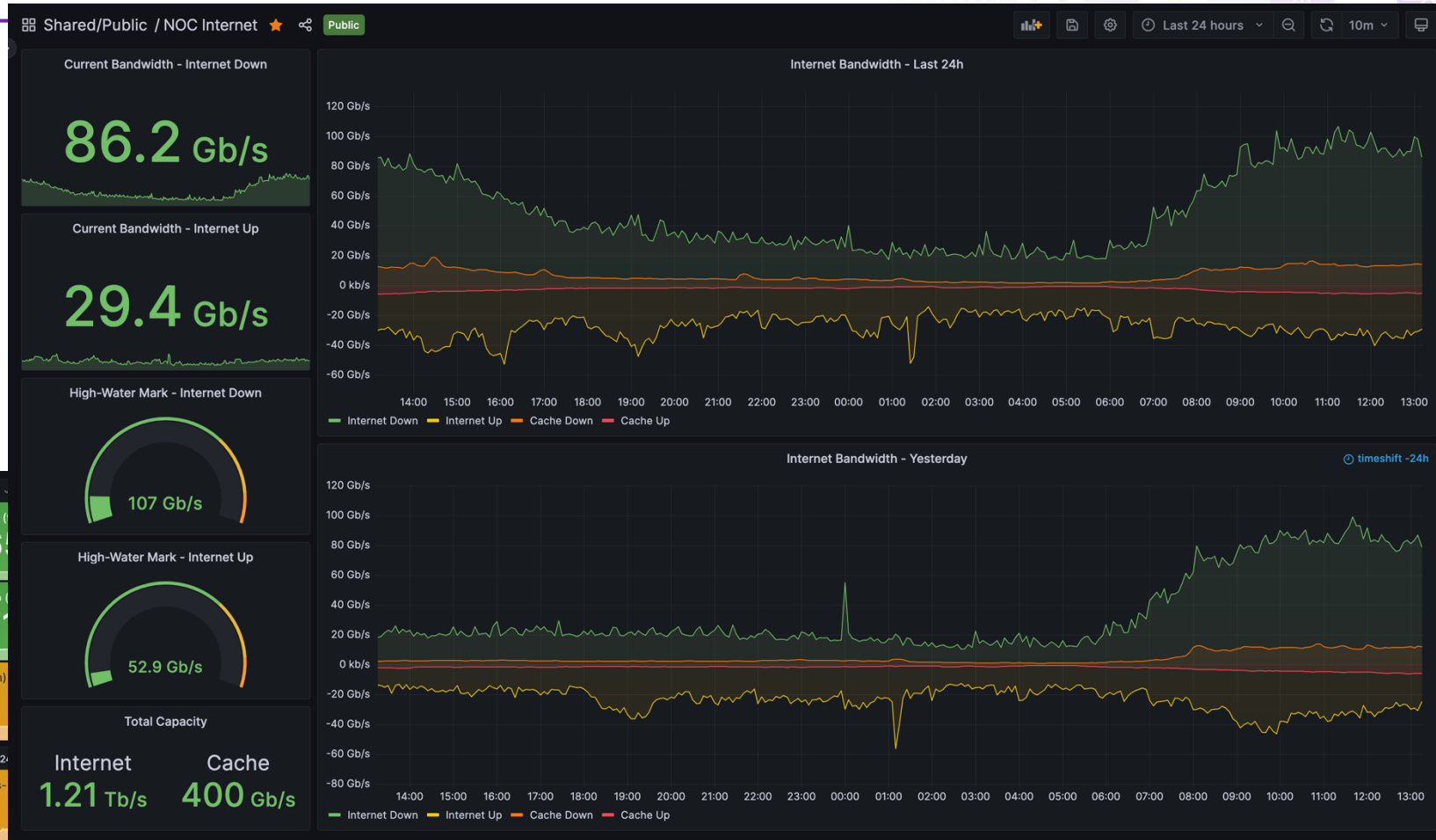
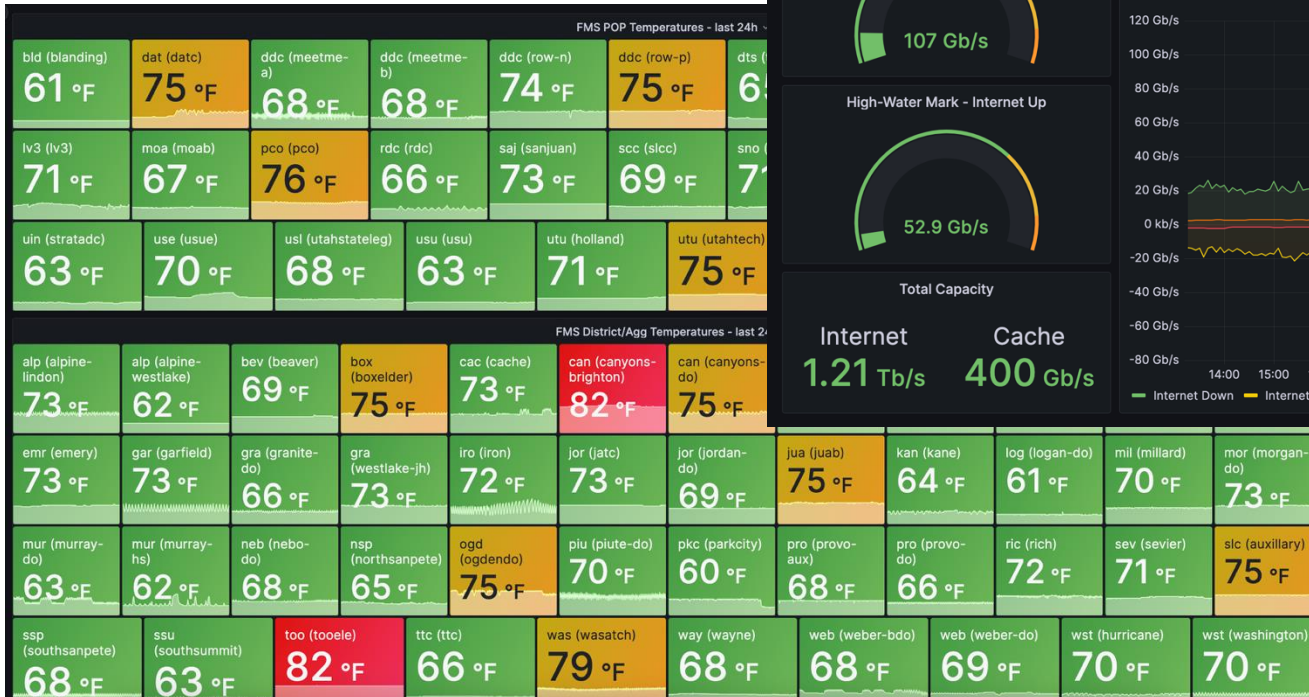
- Timeline – works on custom maps too!



Telly – District Dashboards



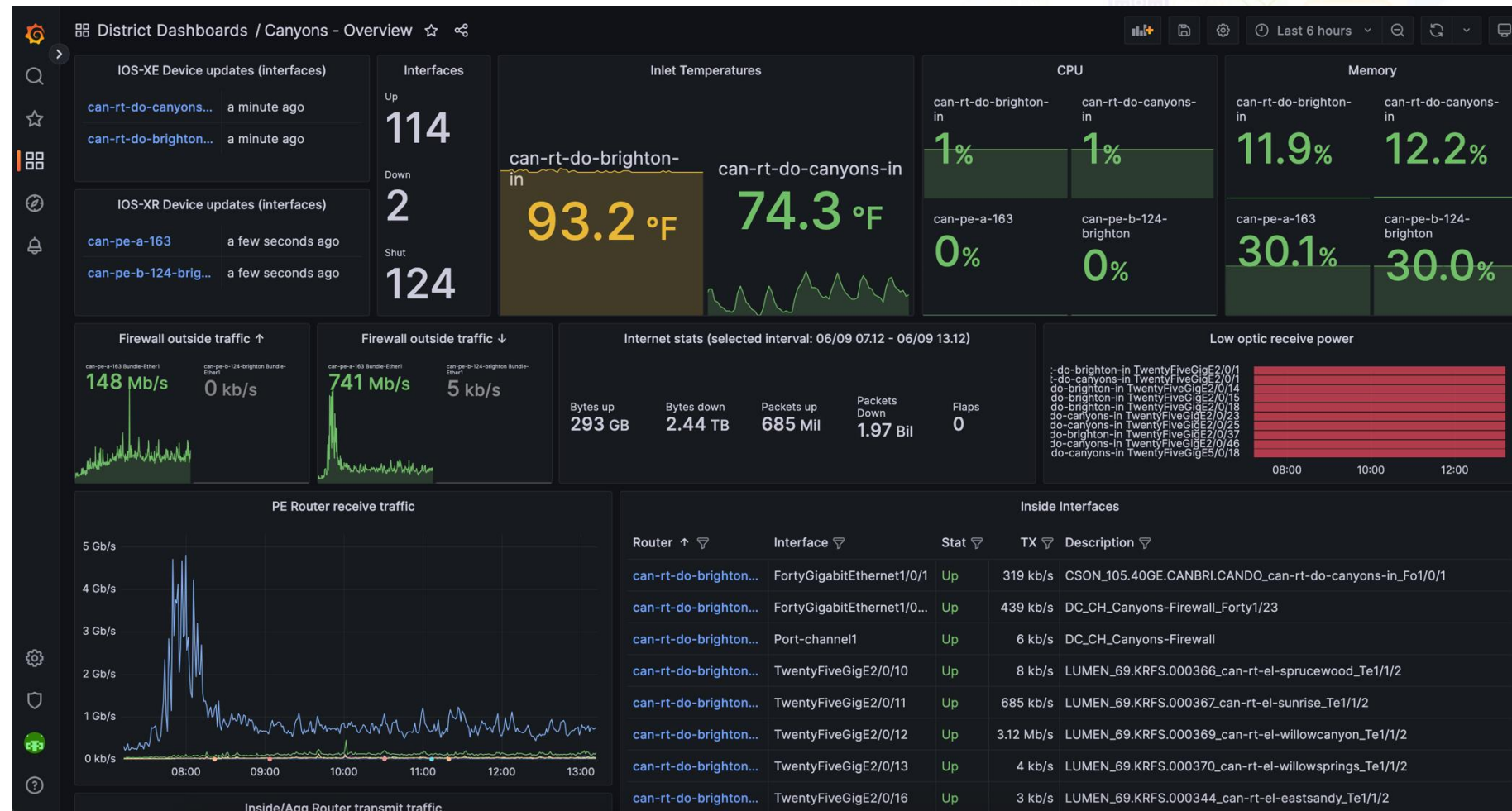
- <https://telly.uen.net>
 - 2FA UEN login
 - Public Dashboards
 - District Dashboards
 - Time travel



Telly – District Dashboards



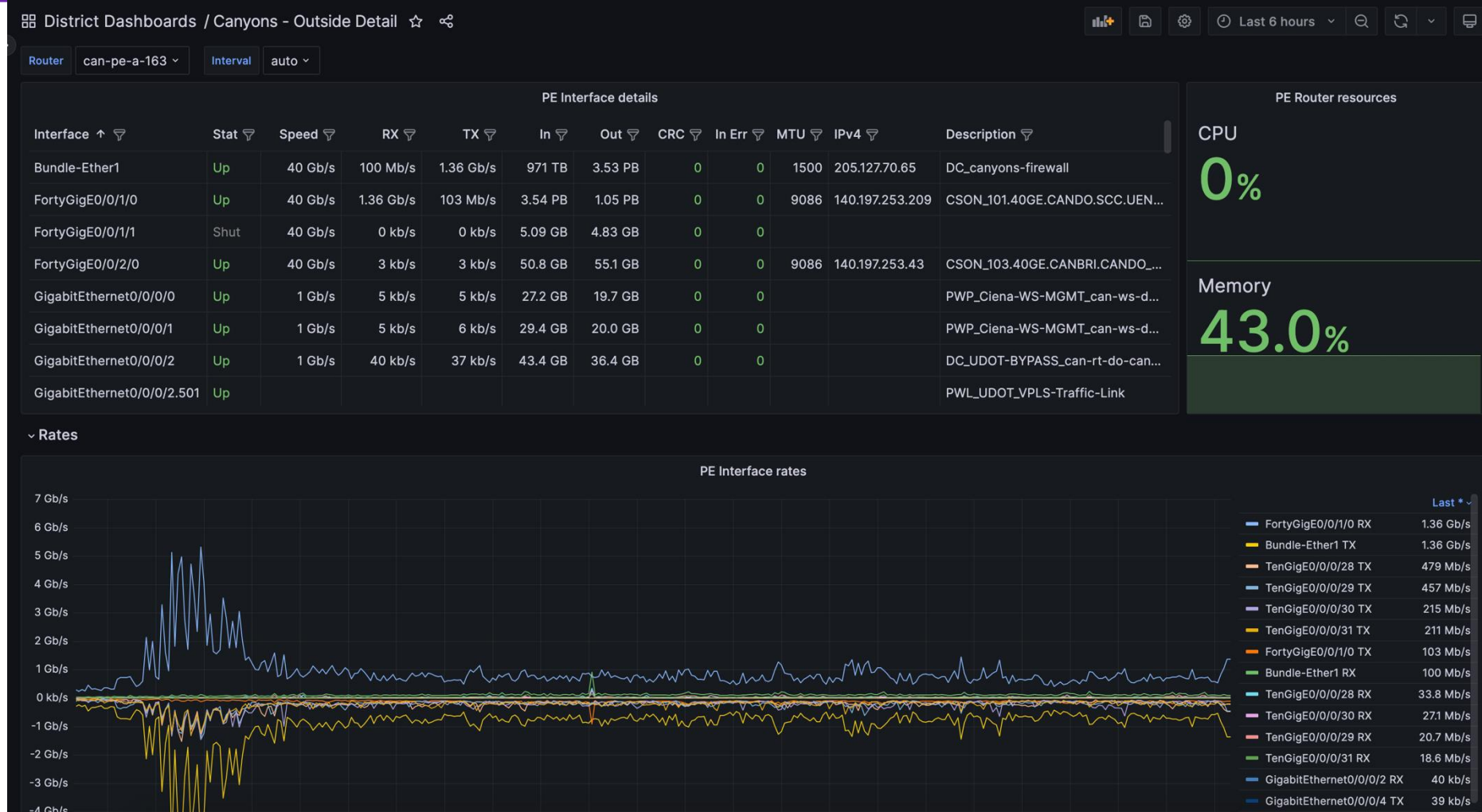
- Canyons
- CUES
- Granite
- Iron
- Jordan
- Juab
- Logan
- Murray
- Nebo
- North Sanpete
- NUES
- Sevier
- Salt Lake County Library
- SLC
- Wasatch



Telly – District Dashboards



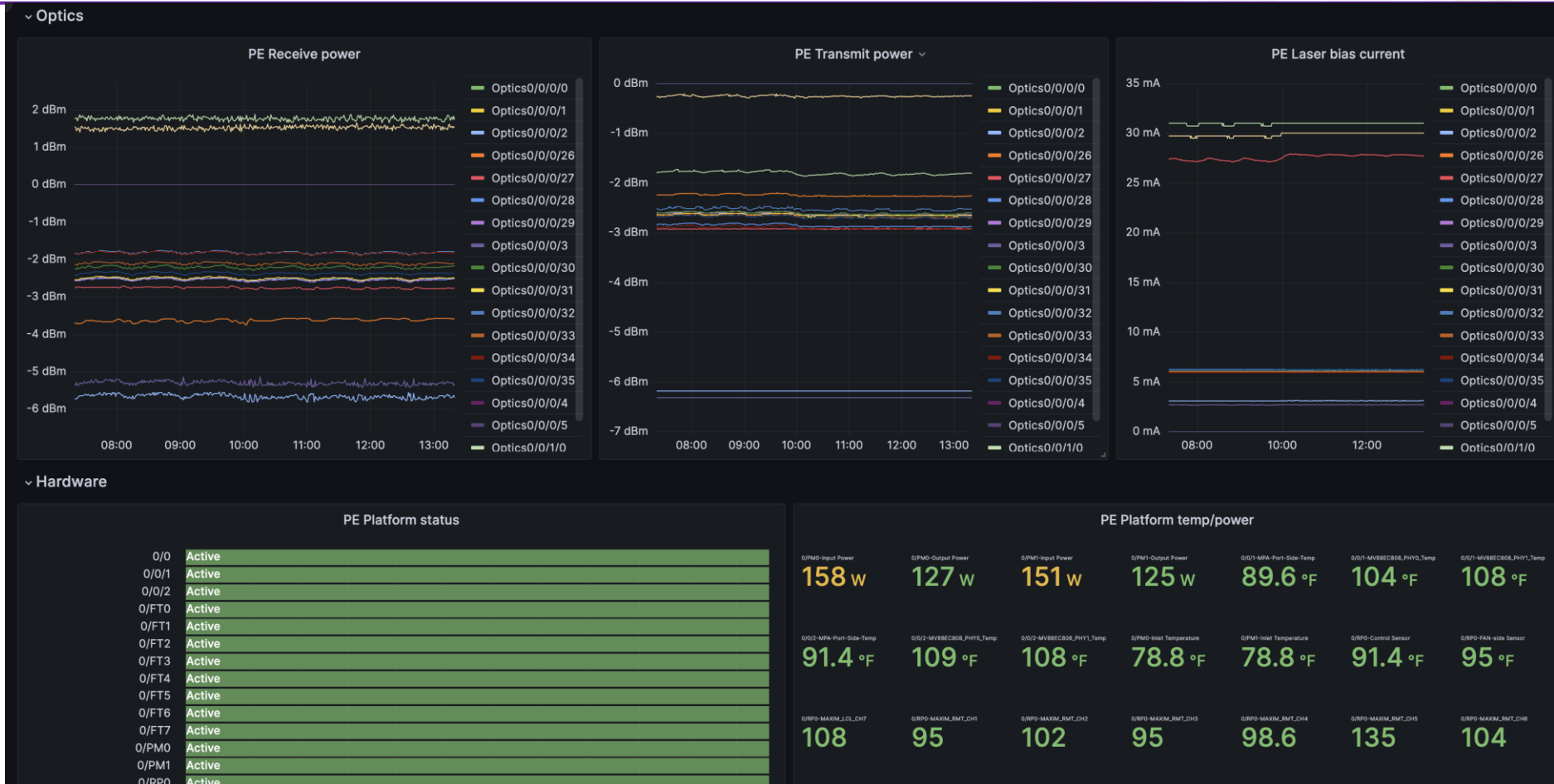
- Outside Devices
 - Directly attaches to the UEN Backbone



Telly – District Dashboards



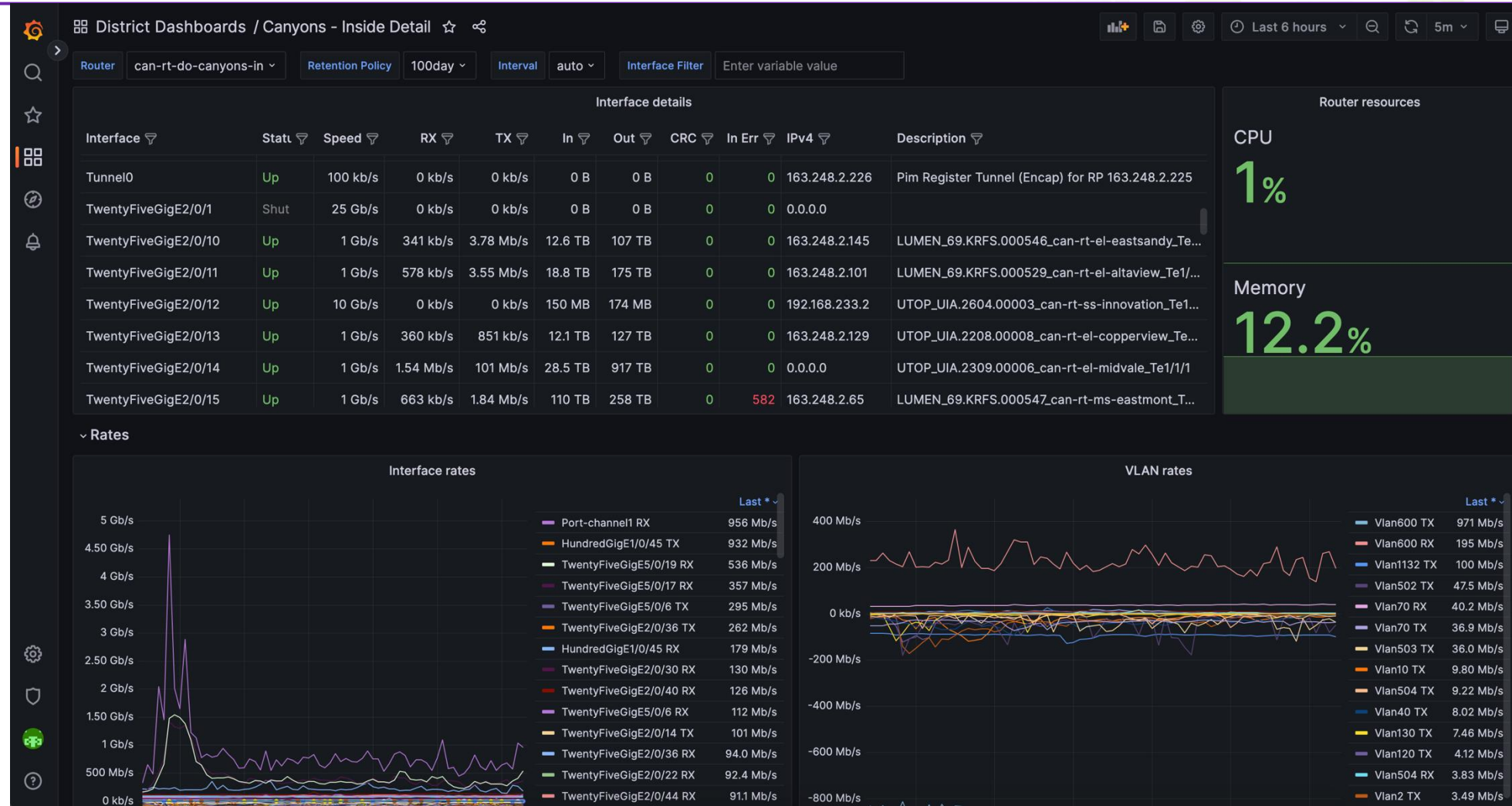
- Outside Devices
 - Directly attaches to the UEN Backbone



Telly – District Dashboards



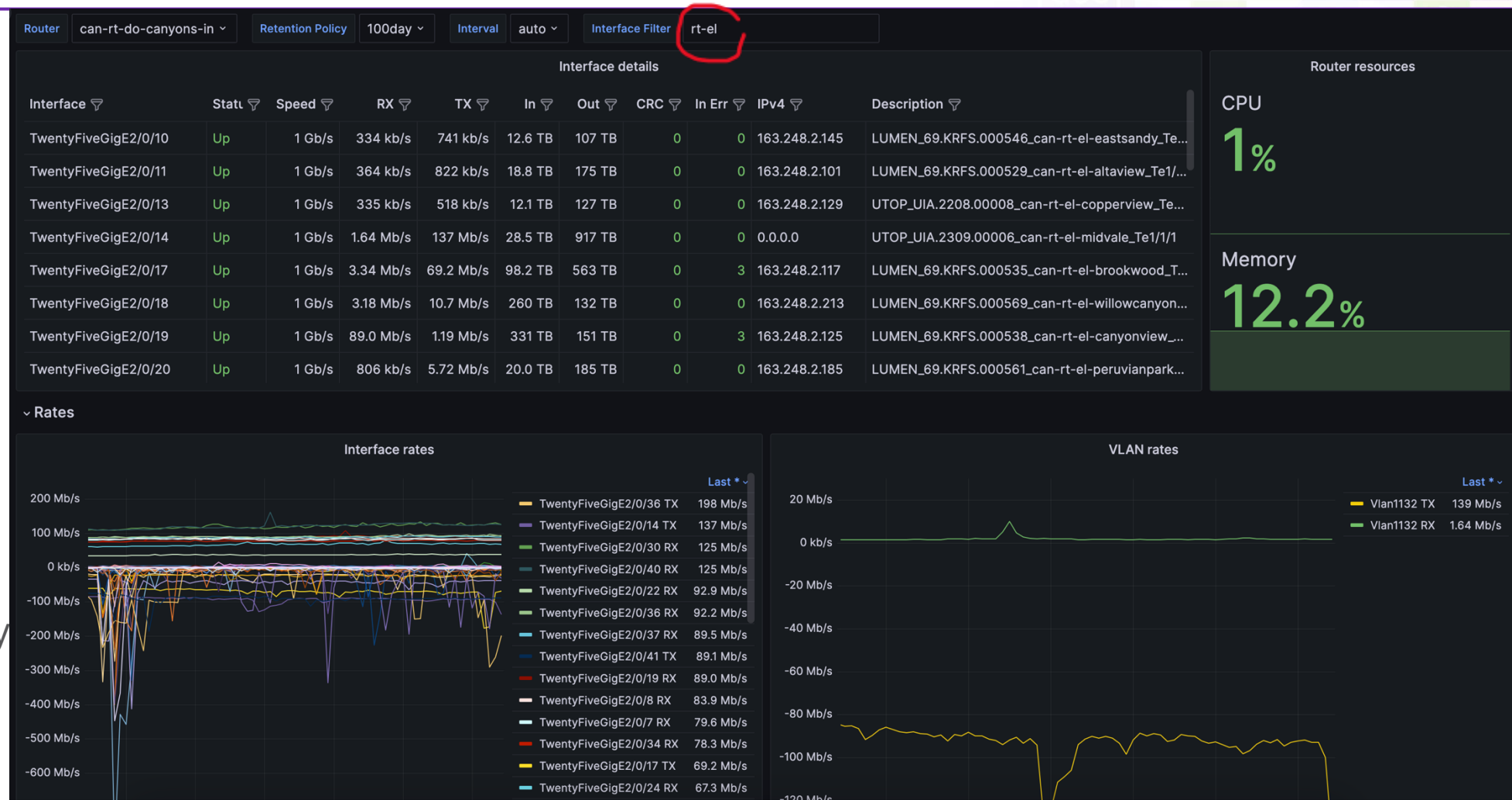
- Inside Devices
 - Sits behind your firewall/filtering



Telly – District Dashboards



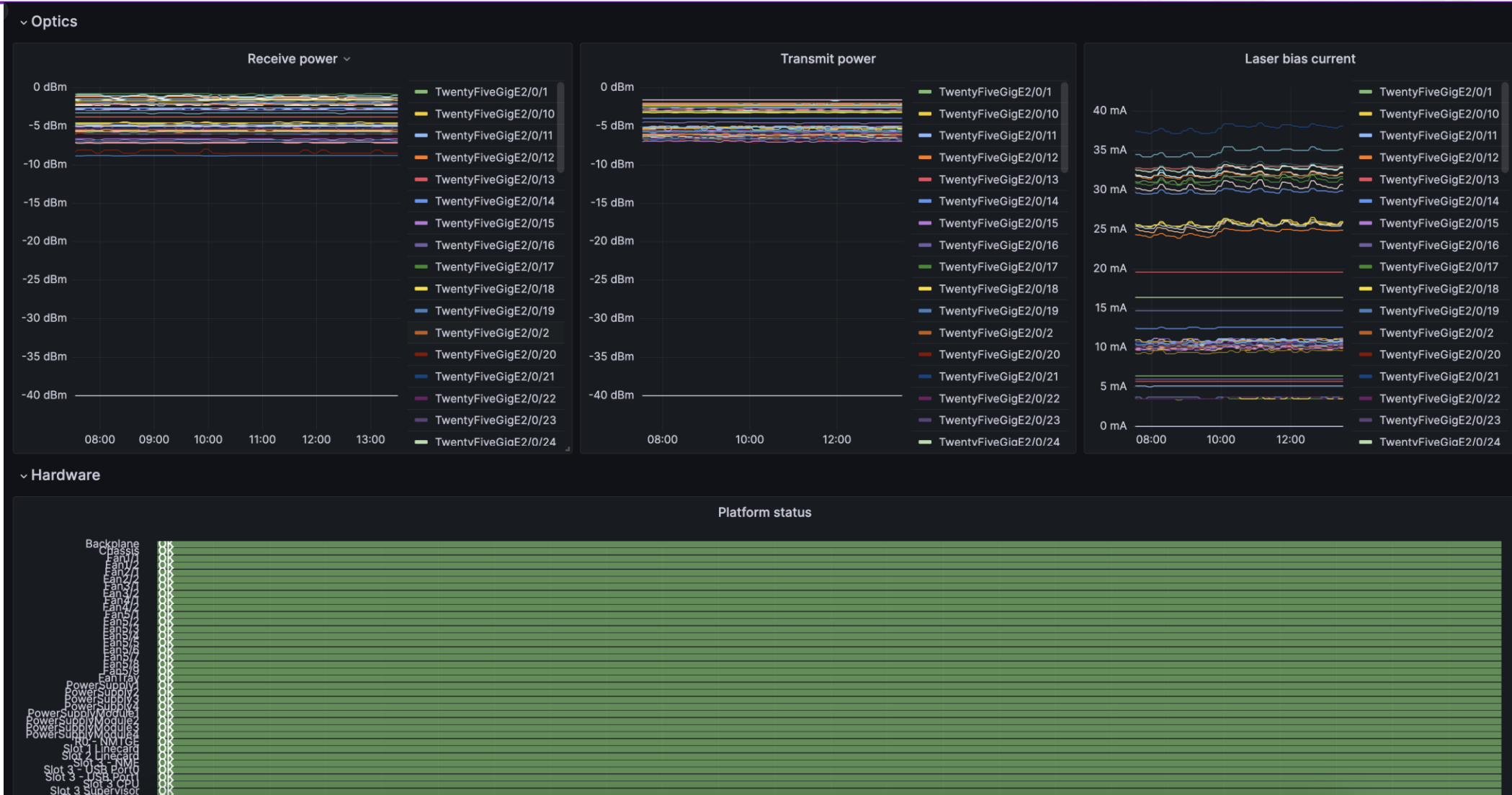
- Inside Devices
 - Filtering
- Tips & Tricks
 - Elementary: **rt-el**
 - Middle/JH: **rt-ms** or **rt-jh**
 - High: **rt-hs**
 - Tech/Community/Other: **rt-ss**



Telly – District Dashboards



- Inside Devices

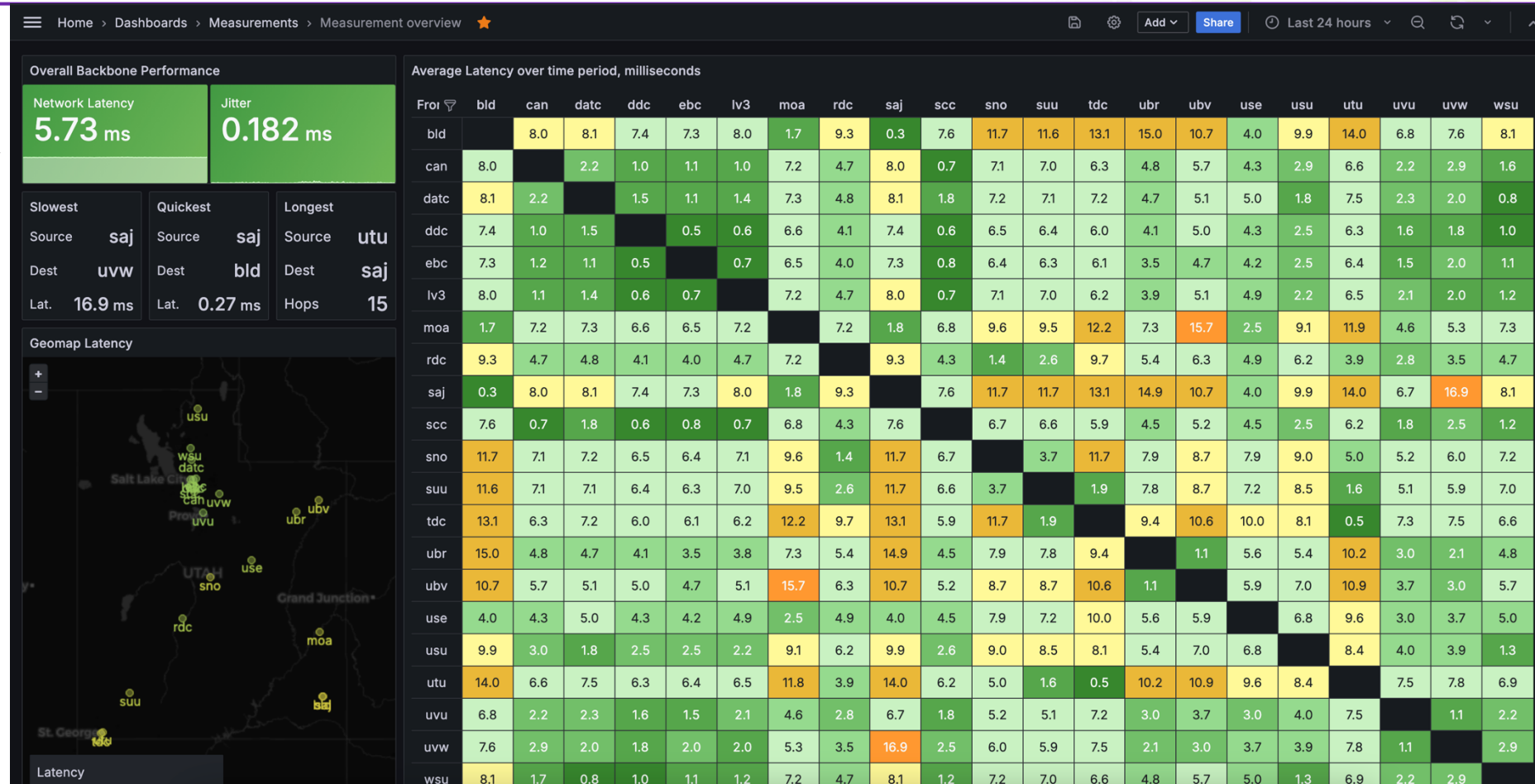


Perf – Network Performance Measurement



- <https://perf.uen.net>

- Same login as Telly
- Tracks latency, packet loss, throughput, and traceroute data on the UEN backbone



Perf – Network Performance Measurement



- <https://perf.uen.net>
 - Same login as Telly
 - Tracks latency, packet loss, throughput, and traceroute data on the UEN backbone



Perf – Network Performance Measurement



- <https://perf.uen.net>
 - Same login as Telly
 - Tracks latency, packet loss, throughput, and traceroute data on the UEN backbone

mean Loss																					
From\To	bld	can	datc	ddc	ebc	lv3	moa	rdc	saj	scc	sno	suu	tdc	ubr	ubv	use	usu	utu	uvu	uvw	wsu
bld		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
can	0%		0.00499%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.198%	0.191%	0%	0%	0%	0%	0%	0%
datc	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.221%	0.250%	0%	0%	0%	0%	0%	0%
ddc	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0.113%	0.151%	0%	0%	0%	0%	0%	0%
ebc	0%	0%	0.00490%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0.240%	0.201%	0%	0%	0%	0%	0%	0%
lv3	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0.180%	0.199%	0%	0%	0%	0%	0%	0%
moa	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0.167%	0%	0%	0%	0%	0%	0%	0%
rdc	0%	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0.163%	0.145%	0%	0%	0%	0%	0%	0%
saj	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
scc	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%	0%	0.141%	0.231%	0%	0%	0%	0%	0%	0%
sno	0%	0%	0%	0%	0%	0%	0.00353%	0%	0%	0%		0%	0%	0.118%	0.146%	0%	0%	0%	0%	0%	0%
suu	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0.250%	0.226%	0%	0%	0%	0%	0%	0%
tdc	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0.203%	0.270%	0%	0%	0%	0%	0%	0%
ubr	0%	0%	0%	0%	0%	0%	0%	0.00992%	0%	0%	0%	0%	0%		0%	0%	0.00502%	0%	0%	0%	0%
ubv	0%	0.177%	0.139%	0.155%	0.140%	0.189%	0%	0%	0%	0%	0.00518%	0%	0%	0%		0.220%	0%	0%	0%	0%	0%
use	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.250%	0.180%		0%	0%	0%	0%	0%
usu	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.359%	0.286%	0%		0%	0%	0%	0%
utu	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.299%	0.190%	0%	0%		0%	0%	0%
uvu	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.214%	0.278%	0%	0%	0%		0%	0%
uvw	0%	0%	0.00493%	0%	0%	0%	0%	0%	0.205%	0%	0%	0%	0%	0.293%	0.173%	0%	0%	0%	0%		0%
wsu	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.232%	0.213%	0%	0%	0%	0%	0%	

Perf – Network Performance Measurement



- <https://perf.uen.net>
 - Same login as Telly
 - Tracks latency, packet loss, throughput, and traceroute data on the UEN backbone

Source	All ▾	Dest	8.8.8.8 ▾	Host Type	hostname ▾	Traceroutes													
Started ▾	Src ▾	Dest ▾	Hop 1 IP ▾	Hop 2 IP ▾	H2 ASN ▾	Hop 3 IP ▾	H3 ASN ▾	Hop 4 IP ▾	H4 ASN ▾	Hop 5 IP ▾	H5 ASN ▾	Hop 6 IP ▾	H6 ASN ▾	Hop 7 IP ▾					
2026-06-09 08:57:01	ddc	8.8.8.8			210/UEN	hundredge-0-0-0	11164/I2	fourhundredge-0-		fourhundredge-0-			15169/GOOG						
2026-06-09 08:55:51	moa	8.8.8.8	moa-pep-b-37	use-pe-b-38	210/UEN	use-pe-a-30	210/UEN		210/UEN	uvu-pep-c-142-pc	210/UEN		210/UEN						
2026-06-09 08:54:21	usu	8.8.8.8	usu-pep-b-239		210/UEN	fourhundredge-0-	11164/I2	fourhundredge-0-		fourhundredge-0-		fourhundredge-0-							
2026-06-09 08:52:01	uvu	8.8.8.8	fw4.uen.net	uvu-pep-c-142-pc	210/UEN		210/UEN		210/UEN	hundredge-0-0-0	11164/I2	fourhundredge-0-		fourhundredge-					
2026-06-09 08:48:01	vm2	8.8.8.8	ddc-p-a-140		210/UEN	hundredge-0-0-0	11164/I2	fourhundredge-0-		fourhundredge-0-			15169/GOOG						
2026-06-09 08:44:18	datc	8.8.8.8	wsu-pep-b-219	ddc-p-b-143	210/UEN		210/UEN	slc2-edge-05.inet	209/LUMN	dvr3-edge-01.inet	209/LUMN	ae16.540.edge8.d	3356/L3						
2026-06-09 08:42:17	ubr	8.8.8.8	uvw-pep-b-39		210/UEN	uvu-pep-c-142-pc	210/UEN		210/UEN		210/UEN	slc2-edge-05.inet	209/LUMN	dvr3-edge-01.i					
2026-06-09 08:41:05	suu	8.8.8.8	suu-pep-b-79	utu-pep-a-58	210/UEN	utu-pep-b-59	210/UEN	tdc-beibr-b-170	210/UEN	tdc-beibr-a-169	210/UEN	hundredge-0-0-0	11164/I2	fourhundredge-					
2026-06-09 08:39:51	lv3	8.8.8.8	hundredge-0-0-0	fourhundredge-0-		fourhundredge-0-		fourhundredge-0-											
2026-06-09 08:38:51	tdc	8.8.8.8	hundredge-0-0-0	fourhundredge-0-		fourhundredge-0-			15169/GOOG										

Looking Glass – Backbone visibility



- URL TBA – almost ready!

Network Utility ToolSet UEN Looking Glass Logged in as debling Log out

UEN Looking Glass

show bgp neighbor brief Filter Optional filter... Replace Execute

Devices

Search devices X

- alp-pe-a-125-lindon
Alpine School District Lindon
Support Center NIF
- alp-pe-c-104-westlake
Westlake High School
- bev-pe-a-77
Beaver High School
- bld-pep-a-32
BLD
- bld-pep-b-35
BLD
- box-pe-a-241
Box Elder School District Office
- cac-pe-a-240
Cache School District Office
- can-pe-a-163
Canyons Facility Building NIF
- can-pe-b-124-brighton
Brighton High School
- dat-pep-a-198
Davis Technology College
- dat-pep-b-199
Davis Technology College
- dav-pe-a-200-farmington
Davis School District Farmington
Data Center
- dav-pe-b-81-layton
Davis School District Layton Data
Center

can-pe-a-163

Tue Jun 9 14:06:55.456 MDT

Neighbor	Spk	AS	Description	Up/Down	NBRState
140.197.243.66	0	64655	eBGP-can-rt-do-canyons-in	1w1d	Established
140.197.255.82	0	210	tdc-rr-a-82	18w6d	Established
140.197.255.201	0	210	ddc-rr-a-201	42w4d	Established
140.197.255.220	0	210	usu-rr-a-220	42w4d	Established

can-pe-b-124-brighton

Tue Jun 9 14:06:55.710 MDT

Neighbor	Spk	AS	Description	Up/Down	NBRState
140.197.255.82	0	210	tdc-rr-a-82	42w4d	Established
140.197.255.201	0	210	ddc-rr-a-201	42w4d	Established
140.197.255.220	0	210	usu-rr-a-220	42w4d	Established
163.248.3.222	0	64655	eBGP-Can-rt-do-brighton-in	3w2d	Established

Looking Glass – Backbone visibility



- URL TBA – almost ready!

Network Utility ToolSet UEN Looking Glass Logged in as asdebling [Log out](#)

UEN Looking Glass

traceroute

Devices

- alp-pe-a-125-lindon
Alpine School District Lindon
Support Center NIF
- alp-pe-c-104-westlake
Westlake High School
- bev-pe-a-77
Beaver High School
- bld-pep-a-32
BLD
- bld-pep-b-35
BLD
- box-pe-a-241
Box Elder School District Office
- cac-pe-a-240
Cache School District Office
- can-pe-a-163
Canyons Facility Building NIF
- can-pe-b-124-brighton
Brighton High School
- dat-pep-a-198
Davis Technology College
- dat-pep-b-199
Davis Technology College
- dav-pe-a-200-farmington
Davis School District Farmington
Data Center
- dav-pe-b-81-layton

uvu-be-ibr-zayo-96

Tue Jun 9 22:13:38.754 MDT

Type escape sequence to abort.
Tracing the route to 8.8.8.8

```
1 100.et-5-0-5.mpr1.slc2.us.zip.zayo.com (209.249.74.69)
2 *
  ae9.cs4.slc2.us.zip.zayo.com (64.125.22.204) [MPLS: La
3 * * *
4 * * *
5 * * *
6 142.250.175.226 27 msec 30 msec 31 msec
7 * * *
8 dns.google (8.8.8.8) 32 msec 33 msec 34 msec
```

ddc-be-ibr-lumen-121

Tue Jun 9 22:13:38.829 MDT

Type escape sequence to abort.
Tracing the route to 8.8.8.8

```
1 slc2-edge-05.inet.qwest.net (67.128.147.213) 1 msec 7
2 dvr3-edge-01.inet.qwest.net (205.171.210.9) 13 msec 1
3 ae16.540.edge8.den1.sp.lumen.tech (4.68.110.73) 11 mse
4 * * *
5 * * *
6 dns.google (8.8.8.8) 11 msec 11 msec 11 msec
```

usu-be-ibr-syringa

Tue Jun 9 22:13:38.860 MDT

Type escape sequence to abort.
Tracing the route to 8.8.8.8

```
1 ip-161-115-208-57.syringanetworks.net (161.115.208.57)
2 * * *
3 ip-208-98-167-125.syringanetworks.net (208.98.167.125)
4 * * *
5 dns.google (8.8.8.8) 24 msec 23 msec 23 msec
```

lv3-beibr-a-184

Tue Jun 9 22:13:38.953 MDT

Type escape sequence to abort.
Tracing the route to 8.8.8.8

```
1 hundredge-0-0-0-24.701.core1.salt.net.internet2.edu (1
2 fourhundredge-0-0-0-1.4079.core1.seat.net.internet2.ed
3 fourhundredge-0-0-0-48.4079.agg1.seat.net.internet2.ed
4 72.14.203.202 17 msec 18 msec 18 msec
5 * * *
6 dns.google (8.8.8.8) 19 msec 17 msec 17 msec
```

tdc-beibr-a-169

Tue Jun 9 22:13:38.939 MDT

Type escape sequence to abort.
Tracing the route to 8.8.8.8

```
1 hundredge-0-0-0-24.702.core1.lasv.net.internet2.edu (1
2 fourhundredge-0-0-0-2.4079.core1.salt.net.internet2.ed
3 fourhundredge-0-0-0-1.4079.core1.seat.net.internet2.ed
4 163.253.1.163 26 msec 26 msec 26 msec
5 72.14.203.202 26 msec 26 msec 26 msec
6 * * *
7 dns.google (8.8.8.8) 26 msec 28 msec 28 msec
```

Looking Glass – Backbone visibility



- URL TBA – almost ready!

UEN Looking Glass

Devices

 X

- alp-pe-a-125-lindon
Alpine School District Lindon
Support Center NIF
- alp-pe-c-104-westlake
Westlake High School
- bev-pe-a-77
Beaver High School
- bld-pep-a-32
BLD
- bld-pep-b-35
BLD
- box-pe-a-241
Box Elder School District Office
- cac-pe-a-240
Cache School District Office
- can-pe-a-163
Canyons Facility Building NIF
- can-pe-b-124-brighton
Brighton High School
- dat-pep-a-198
Davis Technology College
- dat-pep-b-199
Davis Technology College
- dav-pe-a-200-farmington

show bgp ⇄ 163.248.0.0/17 Filter ⇄ Optional filter... Append ⇄ Execute

can-pe-a-163

Tue Jun 9 14:06:55.456 MDT

Neighbor	Spk	AS	Description	Up/Down	NBRState
140.197.243.66	0	64655	eBGP-can-rt-do-canyons-in	1w1d	Established
140.197.255.82	0	210	tdc-rr-a-82	18w6d	Established
140.197.255.201	0	210	ddc-rr-a-201	42w4d	Established
140.197.255.220	0	210	usu-rr-a-220	42w4d	Established

Tue Jun 9 14:32:15.246 MDT

BGP routing table entry for 163.248.0.0/17

Versions:

Process	bRIB/RIB	SendTblVer
Speaker	35343502	35343502

Last Modified: Jun 1 03:17:15.096 for 1w1d

Paths: (1 available, best #1)

Advertised IPv4 Unicast paths to update-groups (with more than one peer):

0.3

Path #1: Received by speaker 0

Advertised IPv4 Unicast paths to update-groups (with more than one peer):

0.3

64655, (aggregated by 64655 140.197.243.66)

140.197.243.66 from 140.197.243.66 (140.197.243.66)

Origin IGP, metric 0, localpref 100, valid, external, atomic-aggregate, best, group

Received Path ID 0, Local Path ID 1, version 35343502

Community: 210:210 210:400

Origin-AS validity: (disabled)

can-pe-b-124-brighton

Tue Jun 9 14:06:55.710 MDT

Neighbor	Spk	AS	Description	Up/Down	NBRState
140.197.255.82	0	210	tdc-rr-a-82	42w4d	Established
140.197.255.201	0	210	ddc-rr-a-201	42w4d	Established
140.197.255.220	0	210	usu-rr-a-220	42w4d	Established
163.248.3.222	0	64655	eBGP-Can-rt-do-brighton-in	3w2d	Established

Tue Jun 9 14:32:15.215 MDT

BGP routing table entry for 163.248.0.0/17

Versions:

Process	bRIB/RIB	SendTblVer
Speaker	35129457	35129457

Last Modified: Jun 1 03:17:14.947 for 1w1d

Paths: (4 available, best #1)

Not advertised to any peer

Path #1: Received by speaker 0

Not advertised to any peer

64655, (aggregated by 64655 140.197.243.66)

140.197.255.163 (metric 101) from 140.197.255.82 (140.197.255.163)

Origin IGP, metric 0, localpref 100, valid, internal, atomic-aggregate, best, group

Received Path ID 0, Local Path ID 1, version 35129457

Community: 210:210 210:400

Originator: 140.197.255.163, Cluster list: 140.197.255.82

Path #2: Received by speaker 0

Not advertised to any peer

64655, (aggregated by 64655 140.197.243.66)

140.197.255.163 (metric 101) from 140.197.255.201 (140.197.255.163)

Origin IGP, metric 0, localpref 100, valid, internal, atomic-aggregate

Received Path ID 0, Local Path ID 0, version 0


Community: 210:210 210:400

Originator: 140.197.255.163, Cluster list: 140.197.255.201

Looking Glass – Backbone visibility

- Work in progress – looking glass chat agent

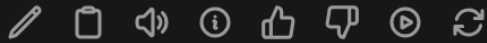
Is BGP working on R06-540?

 **Looking Glass Chatbot (Prompt2)** Today at 3:51 PM

Thought for 16 seconds ▾

BGP is partially working on R06-540. One BGP neighbor (140.197.255.5, identified as R05-9000V-RR) is in an Established state and has been up for over a year, actively exchanging routes and accepting prefixes for various address families `lookingglass-la...xecute_get`. However, another neighbor (140.197.253.42, identified as TEST-FW-PEER) is in an Idle state with no active sessions or prefix exchanges `lookingglass-la...xecute_get`.

1 Source



Thank you!



daniel@uen.org

Help with logging in: noc@uen.org

Weathermap – <https://weathermap.uen.net>

Telly – <https://telly.uen.net>

Perf – <https://perf.uen.net>

Looking Glass – TBA (bookmark <https://lg.uen.net> just in case)