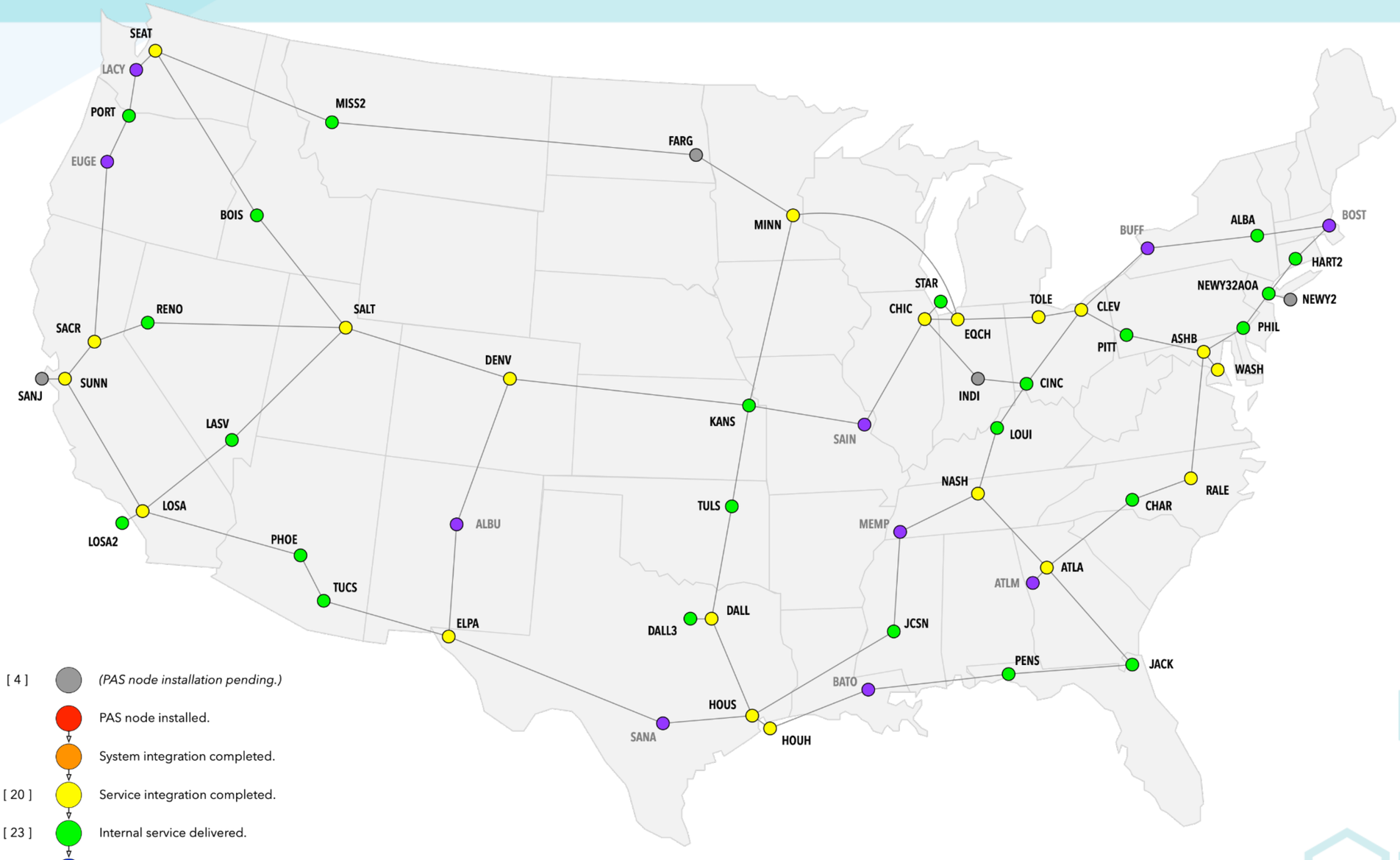
I2Console

A new end-to-end user experience

Christopher Green • 2021-12-16



[4] *(PAS node installation pending.)*

PAS node installed.

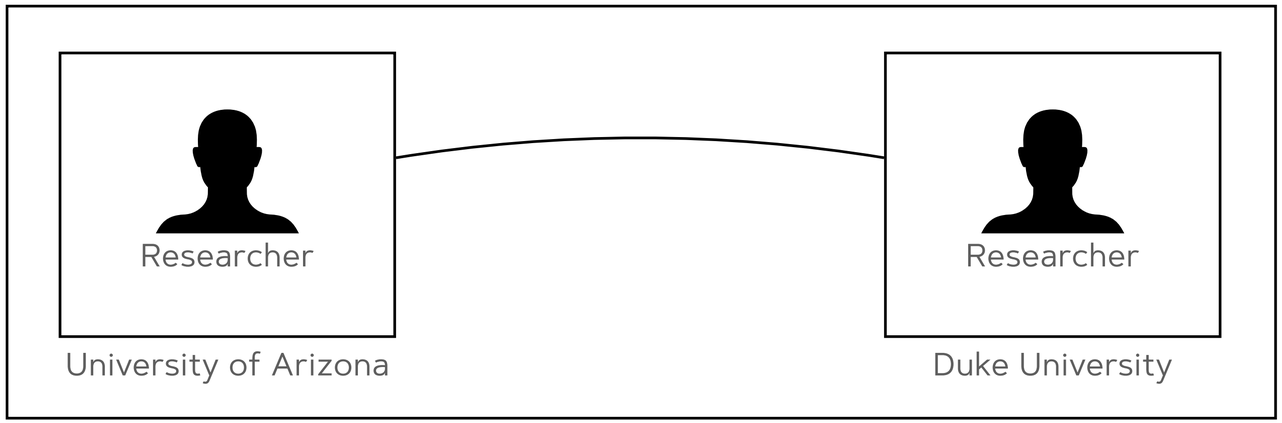
System integration completed.

[20] Service integration completed.

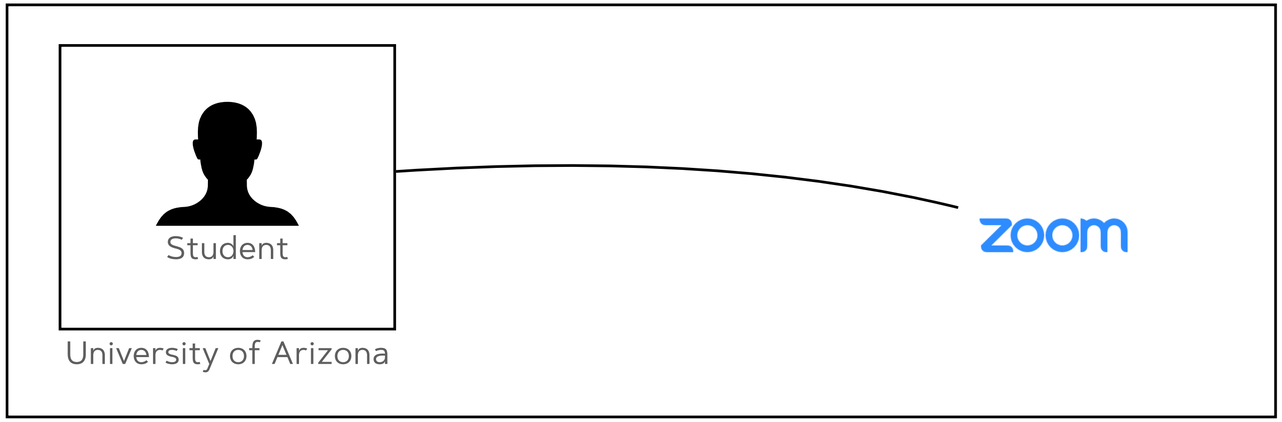
[23] Internal service delivered.

External service delivered.

[10] *(Optical-only, no PAS node installed.)*



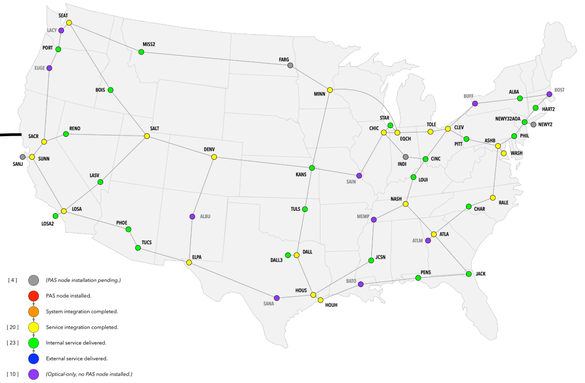
High-speed connections for sharing data



High-speed connections to cloud services

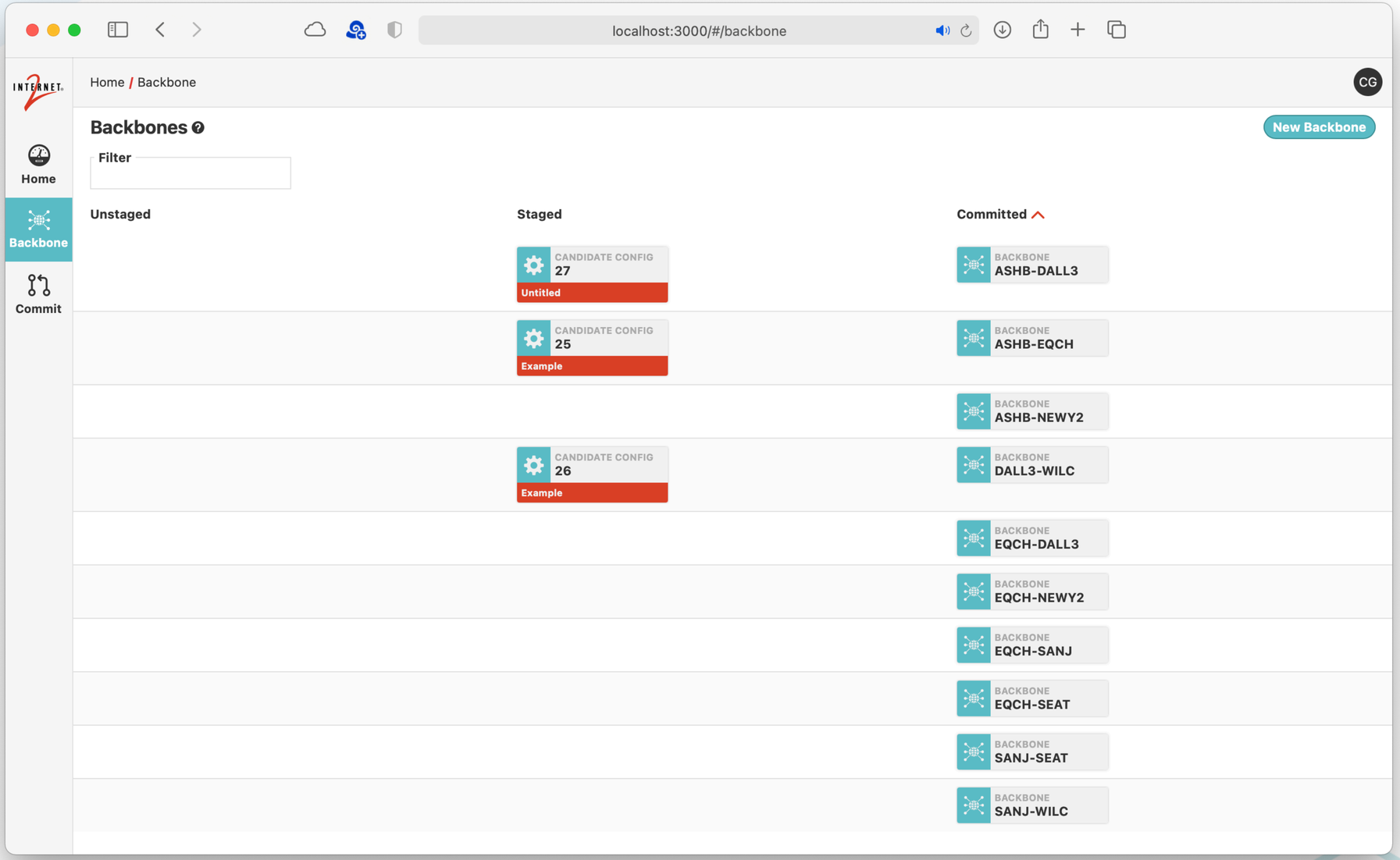
User Interface

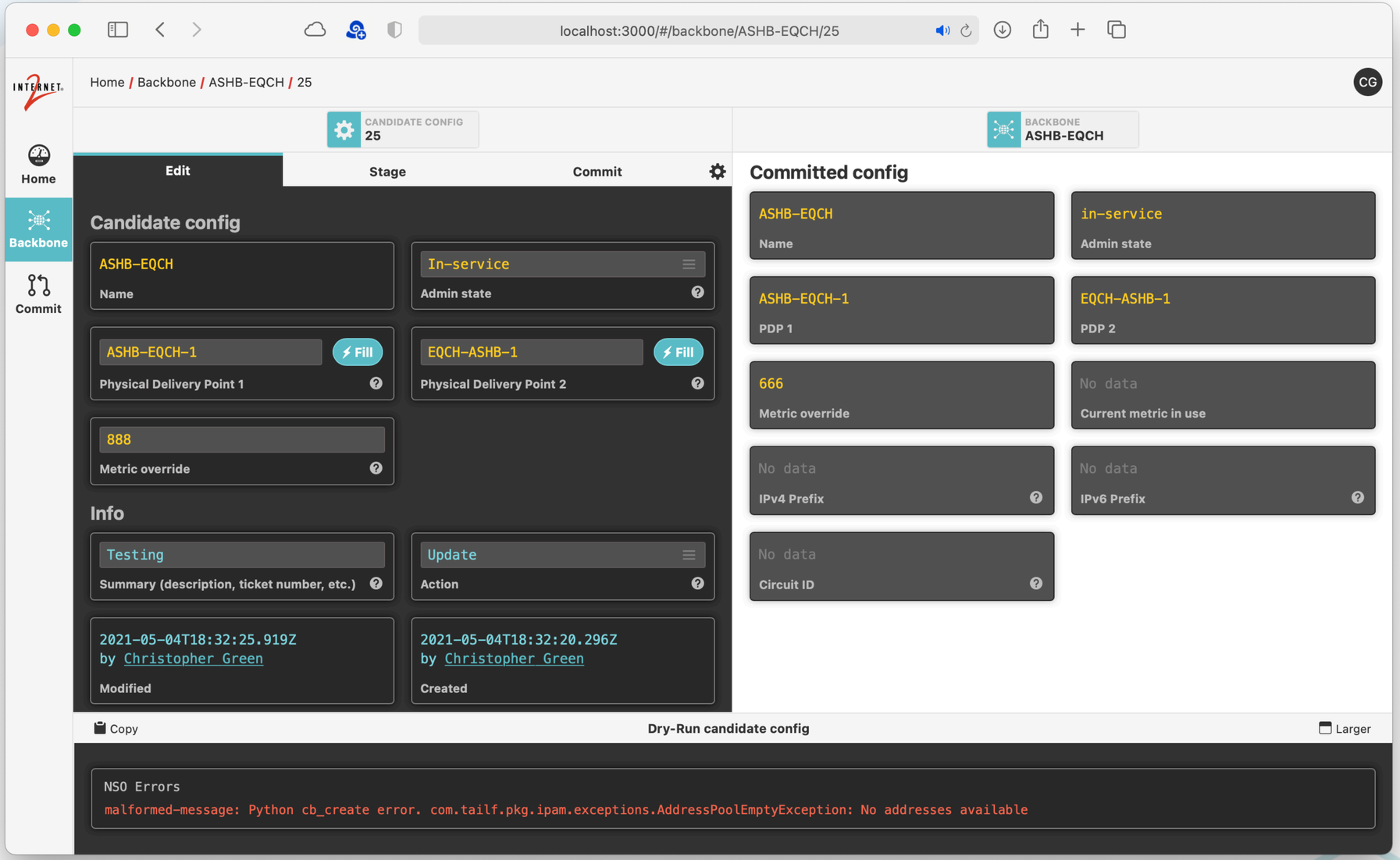
Software

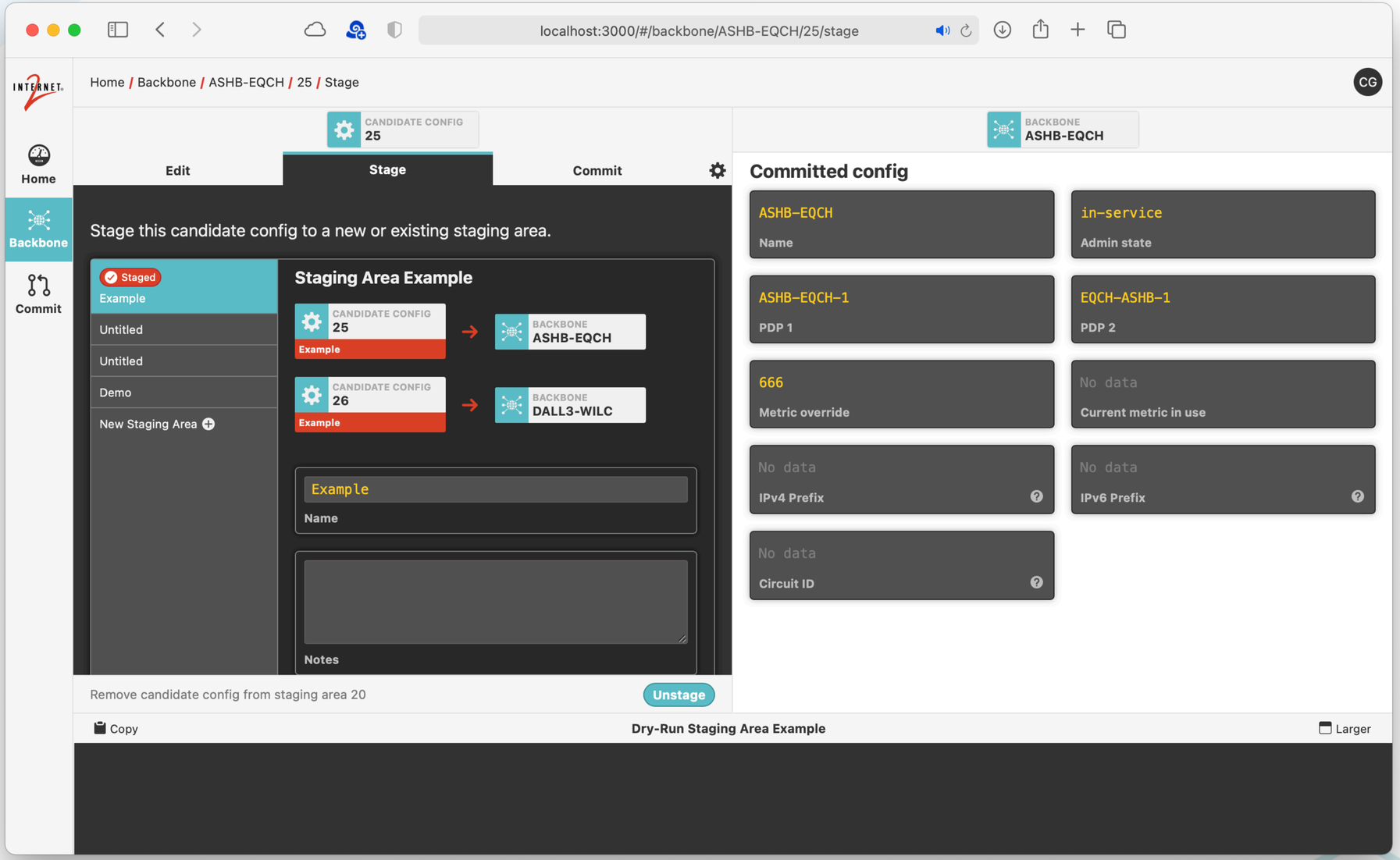


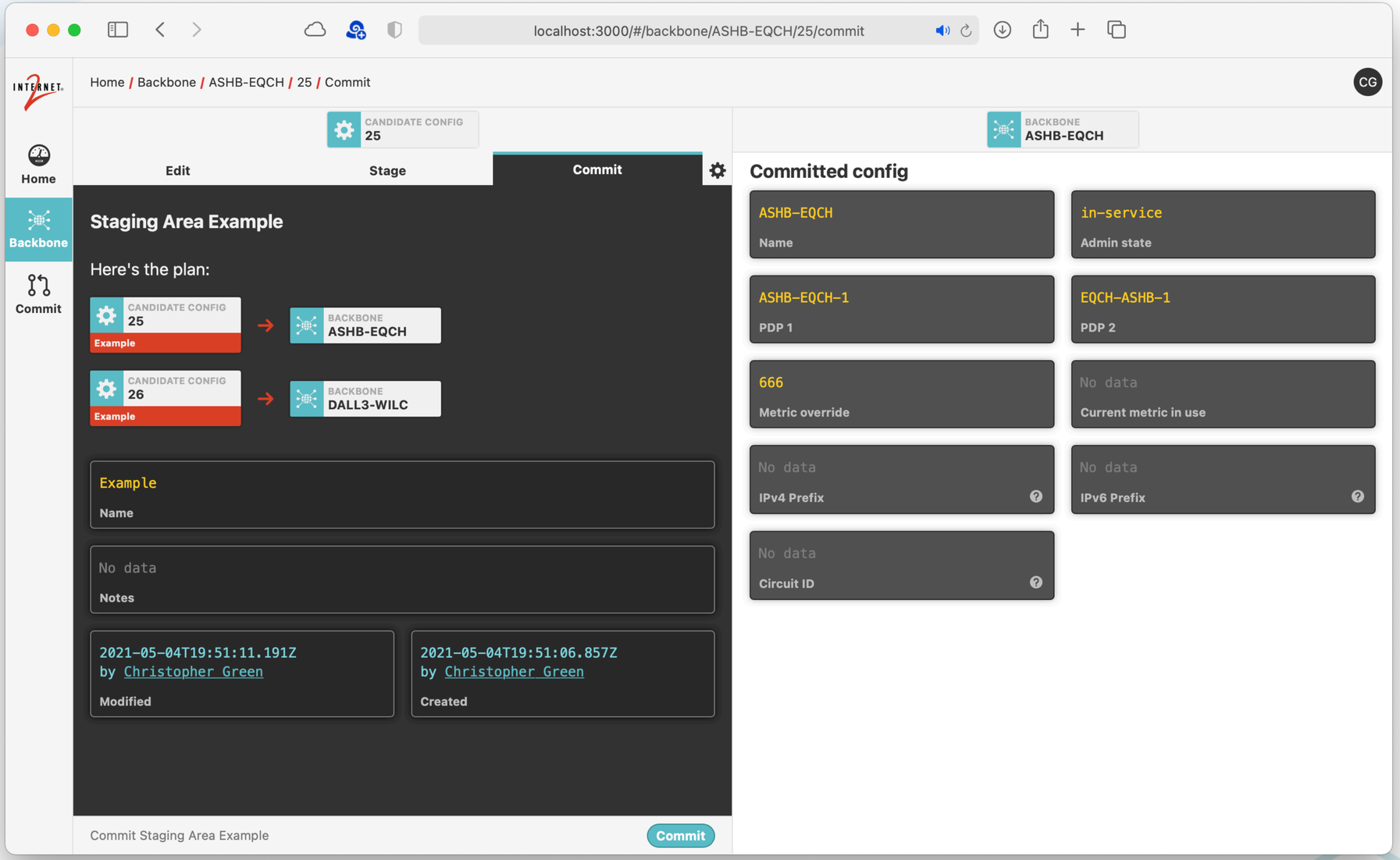
Personas

- Internet2 Staff
- Internet2 Members


localhost:3000/#/backbone
Home / Backbone
CG
Backbones
New Backbone
Home
Backbone
Commit
Filter
Unstaged
Staged
Committed
CANDIDATE CONFIG 27
Untitled
CANDIDATE CONFIG 25
Example
CANDIDATE CONFIG 26
Example
BACKBONE ASHB-DALL3
BACKBONE ASHB-EQCH
BACKBONE ASHB-NEWY2
BACKBONE DALL3-WILC
BACKBONE EQCH-DALL3
BACKBONE EQCH-NEWY2
BACKBONE EQCH-SANJ
BACKBONE EQCH-SEAT
BACKBONE SANJ-SEAT
BACKBONE SANJ-WILC

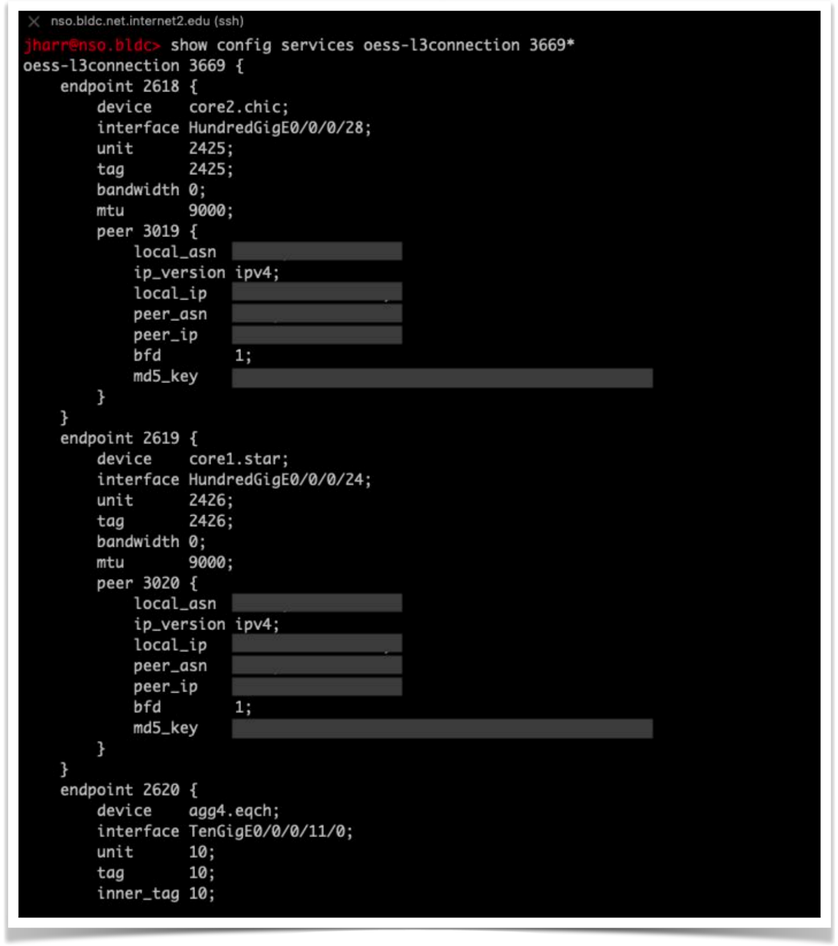

localhost:3000/#/backbone/ASHB-EQCH/25
Home / Backbone / ASHB-EQCH / 25
CG
Home
Backbone
Commit
CANDIDATE CONFIG
25
BACKBONE
ASHB-EQCH
Edit
Stage
Commit
Candidate config
ASHB-EQCH
Name
In-service
Admin state
ASHB-EQCH-1
Fill
Physical Delivery Point 1
EQCH-ASHB-1
Fill
Physical Delivery Point 2
888
Metric override
Info
Testing
Summary (description, ticket number, etc.)
Update
Action
2021-05-04T18:32:25.919Z
by Christopher Green
Modified
2021-05-04T18:32:20.296Z
by Christopher Green
Created
Committed config
ASHB-EQCH
Name
in-service
Admin state
ASHB-EQCH-1
PDP 1
EQCH-ASHB-1
PDP 2
666
Metric override
No data
Current metric in use
No data
IPv4 Prefix
No data
IPv6 Prefix
No data
Circuit ID
Copy
Dry-Run candidate config
Larger
NSO Errors
malformed-message: Python cb_create error. com.tailf.pkg.ipam.exceptions.AddressPoolEmptyException: No addresses available

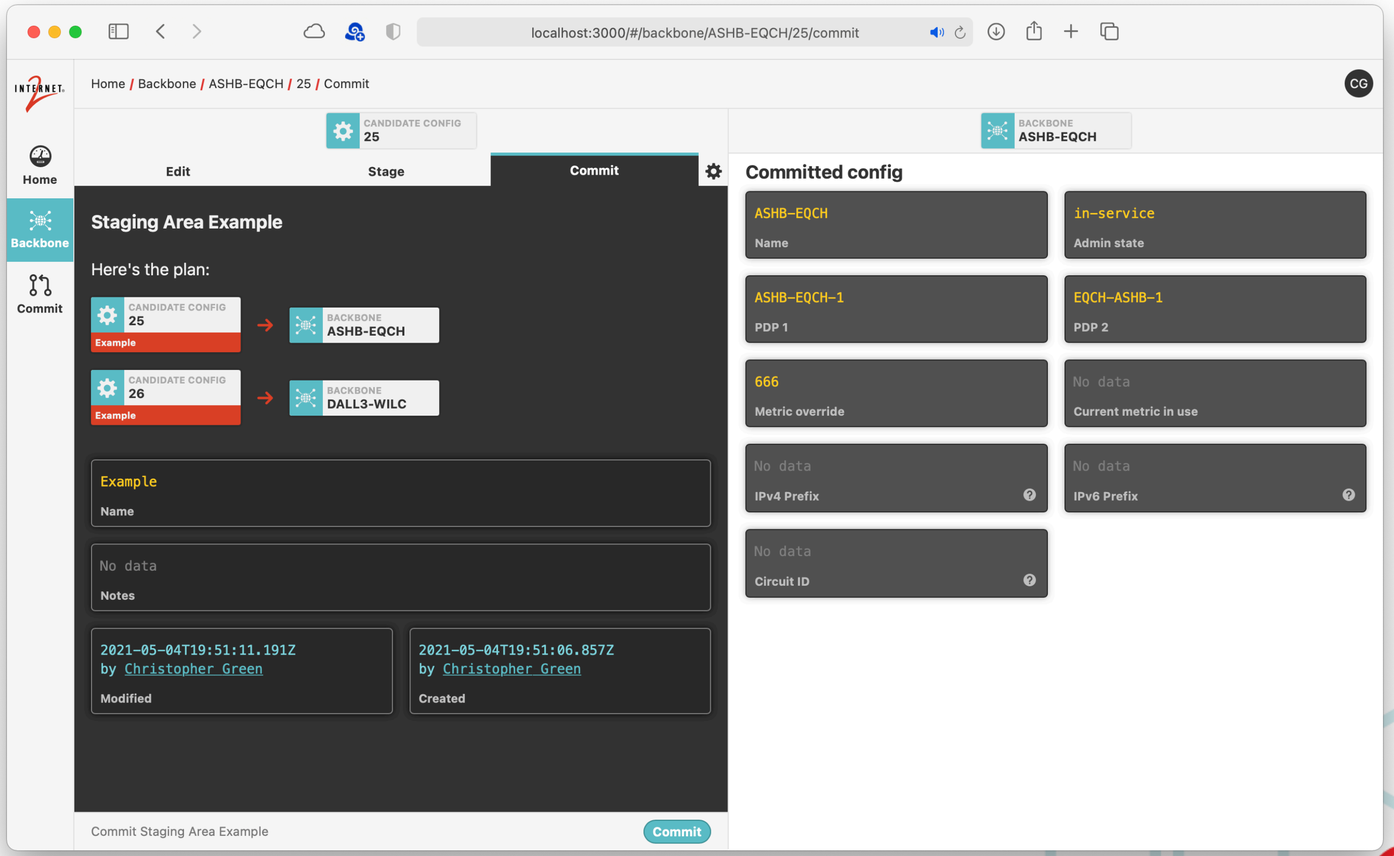

localhost:3000/#/backbone/ASHB-EQCH/25/stage
Home / Backbone / ASHB-EQCH / 25 / Stage
CG
Home
Backbone
Commit
CANDIDATE CONFIG
25
BACKBONE
ASHB-EQCH
Edit
Stage
Commit
Stage this candidate config to a new or existing staging area.
Staged
Example
Untitled
Untitled
Demo
New Staging Area
Staging Area Example
CANDIDATE CONFIG
25
Example
BACKBONE
ASHB-EQCH
CANDIDATE CONFIG
26
Example
BACKBONE
DALL3-WILC
Example
Name
Notes
Remove candidate config from staging area 20
Unstage
Committed config
ASHB-EQCH
Name
in-service
Admin state
ASHB-EQCH-1
PDP 1
EQCH-ASHB-1
PDP 2
666
Metric override
No data
Current metric in use
No data
IPv4 Prefix
No data
IPv6 Prefix
No data
Circuit ID
Copy
Dry-Run Staging Area Example
Larger


localhost:3000/#/backbone/ASHB-EQCH/25/commit
Home / Backbone / ASHB-EQCH / 25 / Commit
CG
Home
Backbone
Commit
CANDIDATE CONFIG
25
BACKBONE
ASHB-EQCH
Edit
Stage
Commit
Staging Area Example
Here's the plan:
CANDIDATE CONFIG
25
Example
BACKBONE
ASHB-EQCH
CANDIDATE CONFIG
26
Example
BACKBONE
DALL3-WILC
Example
Name
No data
Notes
2021-05-04T19:51:11.191Z
by Christopher Green
Modified
2021-05-04T19:51:06.857Z
by Christopher Green
Created
Commit Staging Area Example
Commit
Committed config
ASHB-EQCH
Name
in-service
Admin state
ASHB-EQCH-1
PDP 1
EQCH-ASHB-1
PDP 2
666
Metric override
No data
Current metric in use
No data
IPv4 Prefix
No data
IPv6 Prefix
No data
Circuit ID

Modes

Command-line VS Graphical





Process

- User Research
- Conversations with business units
- Collected data from previous working groups
- Identified most-used admin tools
- Low-fidelity prototyping
- High-fidelity implementation with fake data
- Usability testing
- Full implementation

Single integrated system

All Internet2 network services and utilities

Internet2 Router Proxy

A service of the Internet2 Network Operations Center

Core Routers

- rtsw.ashb.net.internet2.edu (Ashburn, VA)
- rtsw.atla.net.internet2.edu (Atlanta, GA)
- rtsw.bato.net.internet2.edu
- rtsw.chic.net.internet2.edu (Chicago, IL)
- rtsw.cinc.net.internet2.edu (Cincinnati, OH)
- rtsw.clev.net.internet2.edu
- rtsw.dall.net.internet2.edu (Dallas, TX)
- rtsw.denv.net.internet2.edu (Denver, CO)
- rtsw.elpa.net.internet2.edu
- rtsw.eqch.net.internet2.edu (Chicago, IL)
- rtsw.houh.net.internet2.edu (Houston, TX)
- rtsw.hous.net.internet2.edu
- rtsw.indi.net.internet2.edu (Indianapolis, IN)
- rtsw.jack.net.internet2.edu (Jacksonville, FL)
- rtsw.jcsn.net.internet2.edu
- rtsw.kans.net.internet2.edu (Kansas City, MO)
- rtsw.lasv.net.internet2.edu (North Las Vegas, NV)
- rtsw.losa.net.internet2.edu
- rtsw.loui.net.internet2.edu (Louisville, KY)
- rtsw.minn.net.internet2.edu (Minneapolis, MN)
- rtsw.miss2.net.internet2.edu
- rtsw.newy32aoa.net.internet2.edu (New York, NY)
- rtsw.phil.net.internet2.edu (Philadelphia, PA)
- rtsw.phoe.net.internet2.edu
- rtsw.port.net.internet2.edu (Portland, OR)
- rtsw.rale.net.internet2.edu (Raleigh, NC)
- rtsw.salt.net.internet2.edu
- rtsw.sanj.net.internet2.edu (San Jose, CA)
- rtsw.seat.net.internet2.edu (Seattle, WA)
- rtsw.star.net.internet2.edu
- rtsw.sunn.net.internet2.edu (Sunnyvale, CA)
- rtsw.tucs.net.internet2.edu (Tucson, AZ)
- rtsw.tuls.net.internet2.edu
- rtsw.wash.net.internet2.edu (McLean, VA)
- rtsw.wilc.net.internet2.edu (Los Angeles, CA)
- rtsw2.ashb.net.internet2.edu
- rtsw2.sanj.net.internet2.edu (San Jose, CA)
- rtsw3.eqch.net.internet2.edu (Chicago, IL)

NGI Routers

- agg1.ashb.net.internet2.edu (Ashburn, VA)
- agg1.dall3.net.internet2.edu (Dallas, TX)
- agg1.eqch.net.internet2.edu
- agg1.losa2.net.internet2.edu (Los Angeles, CA)
- agg1.newy2.net.internet2.edu (New York, NY)
- agg1.sanj.net.internet2.edu
- agg1.seat.net.internet2.edu (Seattle, WA)
- agg2.ashb.net.internet2.edu (Ashburn, VA)
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- agg4.dall3.net.internet2.edu (Dallas, TX)
- agg4.sanj.net.internet2.edu (San Jose, CA)
- core1.alba.net.internet2.edu (Albany, NY)
- core1.atla.net.internet2.edu (Atlanta, GA)
- core1.bois.net.internet2.edu (Boise, ID)
- core1.chic.net.internet2.edu (Chicago, IL)
- core1.cinc.net.internet2.edu (Cincinnati, OH)
- core1.dall.net.internet2.edu (Dallas, TX)
- core1.denv.net.internet2.edu (Denver, CO)
- core1.eqch.net.internet2.edu (Chicago, IL)
- core1.hart2.net.internet2.edu (Hartford, CT)
- core1.hous.net.internet2.edu (Houston, TX)
- core1.indi.net.internet2.edu (Indianapolis, IN)
- core1.jcsn.net.internet2.edu (Jackson, MS)
- core1.kans.net.internet2.edu (Kansas City, MO)
- core1.losa.net.internet2.edu (Los Angeles, CA)
- core1.loui.net.internet2.edu (Louisville, KY)

Confluence Spaces Search Log in

All updates

Chris Hyzer (upenn.edu)
- Install the Grouper v2.5 container maturity level -1 quick start v2.6.5+ Updated about 8 hours ago (view change)
- Grouper container documentation for v2.5 Updated about 9 hours ago (view change)
- Install the Grouper v2.5 container maturity level -1 quick start v2.6.4 and prior Updated about 9 hours ago (view change)
- image2021-11-17_9-29-31.png Attached about 9 hours ago

Sean O'Brien (internet2.edu)
- Cloud Storage Working Group Updated yesterday at 09:43 PM (view change)

Internet2 Website | InCommon Website

Welcome to Internet2's federated wiki, where you'll find collaboration spaces to support the activities of Internet2 projects and working groups.

For general information on how to access content, create an account or request membership in a particular user group, see Getting access to the Internet2 federated wiki.

Supported by the GlobalNOC at Indiana University

SEARCH...

INTERNET2

ternet2 Network NOC

NETWORK STATUS
ORT
E NETWORK

NCED LAYER 2 SERVICE
LAN ANA-100 WEEKLY

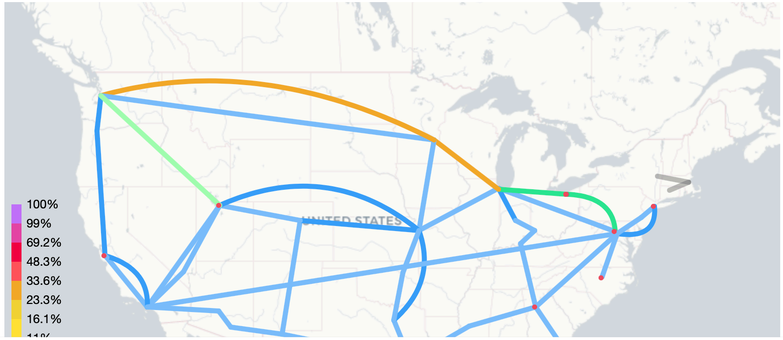
RTS

Internet2 Network NOC

Internet2 Network is both a high quality production service platform for advanced networks and a proving ground for advanced network research services. The national optical backbone enables innovative network applications using multiple 100G wavelengths, advanced layer 2 and layer 3 services.

Get live network status data, reference static maps and documentation, or contact our support team.

Internet2 Network Map



INTERNET2 Cloud Connect New Connection Explore Workgroup cgreen@internet2.edu / Internet2

Layer 3 Connections

There are no Layer 3 Connections currently provisioned. Click here to create one.

Layer 2 Connections

Test
Owner: Internet2 **Created on:** Tue Nov 14 2017

ICN - management net LOSA(1002) - UCSU(3629)
Owner: Internet2-CTO **Created on:** Fri Aug 17 2018

ICN - management net LOSA(950) - UMICH(3139)
Owner: Internet2-CTO **Created on:** Thu Sep 13 2018

ICN - management net LOSA(951) - CLEM(2659)
Owner: Internet2-CTO **Created on:** Thu Sep 13 2018

INTERNET2

Internet2 Prefix Request

Internet2 Connector or Participant with direct

Select a Choice

Internet2 classification of the prefix being req

Select an institution type

Institution of the prefix being requested*

Select an institution type above to populate this

Prefix:*

/1 The whois fo

Select a choice **Routing Table to add the requ**

IP (R&E)

Add another prefix

Short Description *

Please provide a single line summary of the issue.

Description *

5000 characters remaining

- automatic failover and restoration to and from backup path
- work groups for shared managment of resources
- admin web interface for service management
- switch and topology discovery
- IDCP based inter-domain circuit provisioning
- PefSONAR data export
- NSI based inter-domain circuit provisioning
- QinQ Tagged Endpoints
- Quality of Service (QoS)

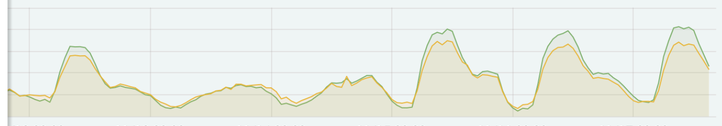
---

s Aggregation average

ironment. This dashboard provides users with the ability to search interface data stored in

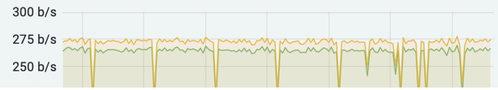
e to control what data you are viewing. It will show you the selected number results of a search, as well as a rollup of all

Aggregate

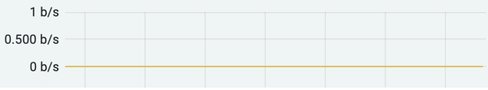


	min	max	avg
	54.6 Gb/s	257 Gb/s	129 Gb/s
	65.8 Gb/s	224 Gb/s	125 Gb/s

acp.denv.net.internet2.edu - eth0 -



acp.denv.net.internet2.edu - lo -



INTERNET2

New function =
New software application

New function =
New feature in familiar context

routerproxy.net.internet2.edu/routerproxy/

Internet2 Router Proxy

A service of the Internet2 Network Operations Center

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- core1.chic.net.internet2.edu (Chicago, IL)
- core1.cinc.net.internet2.edu (Cincinnati, OH)
- core1.clev.net.internet2.edu (Cleveland, OH)
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- core1.denv.net.internet2.edu (Denver, CO)
- core1.elpa.net.internet2.edu (El Paso, TX)
- core1.eqch.net.internet2.edu (Chicago, IL)
- core1.hart2.net.internet2.edu (Hartford, CT)
- core1.houh.net.internet2.edu (Houston, TX)
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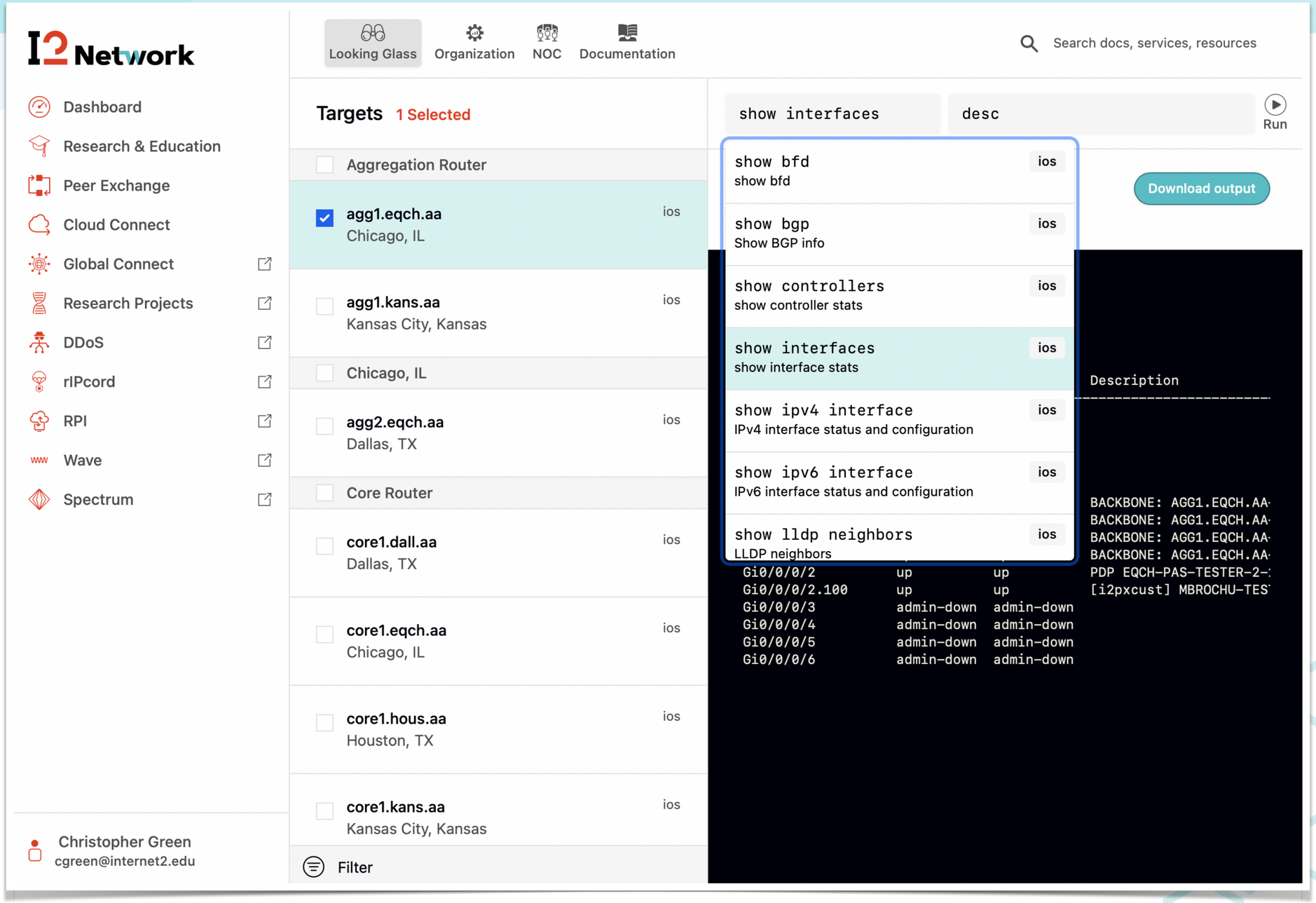
- core1.loui.net.internet2.edu (Louisville, KY)
- core1.minn.net.internet2.edu (Minneapolis, MN)
- core1.miss2.net.internet2.edu (Missoula, MT)
- core1.nash.net.internet2.edu (Nashville, TN)
- core1.newy32aoa.net.internet2.edu (New York, NY)
- core1.pens.net.internet2.edu (Pensacola, FL)
- core1.phil.net.internet2.edu (Philadelphia, PA)
- core1.phoe.net.internet2.edu (Phoenix, AZ)
- core1.pitt.net.internet2.edu (Pittsburgh, PA)
- core1.port.net.internet2.edu (Portland, OR)
- core1.rale.net.internet2.edu (Raleigh, NC)
- core1.reno.net.internet2.edu (Reno, NV)
- core1.sacr.net.internet2.edu (West Sacramento, CA)
- core1.salt.net.internet2.edu (Salt Lake City, UT)
- core1.seat.net.internet2.edu (Seattle, WA)
- core1.star.net.internet2.edu (Chicago, IL)
- core1.sunn.net.internet2.edu (Sunnyvale, CA)
- core1.tole2.net.internet2.edu (Toledo, OH)
- core1.tucs.net.internet2.edu (Tucson, AZ)
- core1.tuls.net.internet2.edu (Tulsa, OK)
- core1.wash.net.internet2.edu (McLean, VA)
- core2.ashb.net.internet2.edu (Ashburn, VA)
- core2.atla.net.internet2.edu (Atlanta, GA)
- core2.chic.net.internet2.edu (Chicago, IL)
- core2.cinc.net.internet2.edu (Cincinnati, OH)
- core2.clev.net.internet2.edu (Cleveland, OH)
- core2.dall.net.internet2.edu (Dallas, TX)
- core2.denv.net.internet2.edu (Denver, CO)
- core2.elpa.net.internet2.edu (El Paso, TX)
- core2.eqch.net.internet2.edu (Chicago, IL)
- core2.hous.net.internet2.edu (Houston, TX)
- core2.kans.net.internet2.edu (Kansas City, MO)
- core2.losa.net.internet2.edu (Los Angeles, CA)
- core2.nash.net.internet2.edu (Nashville, TN)
- core2.newy32aoa.net.internet2.edu (New York, NY)
- core2.sacr.net.internet2.edu (West Sacramento, CA)
- core2.salt.net.internet2.edu (Salt Lake City, UT)
- core2.seat.net.internet2.edu (Seattle, WA)
- core2.sunn.net.internet2.edu (Sunnyvale, CA)
- rr1.ashb.net.internet2.edu (Ashburn, VA)
- rr1.chic.net.internet2.edu (Chicago, IL)
- rr1.dall.net.internet2.edu (Dallas, TX)
- rr1.losa.net.internet2.edu (Los Angeles, CA)
- rr1.wash2.net.internet2.edu (McLean, VA)

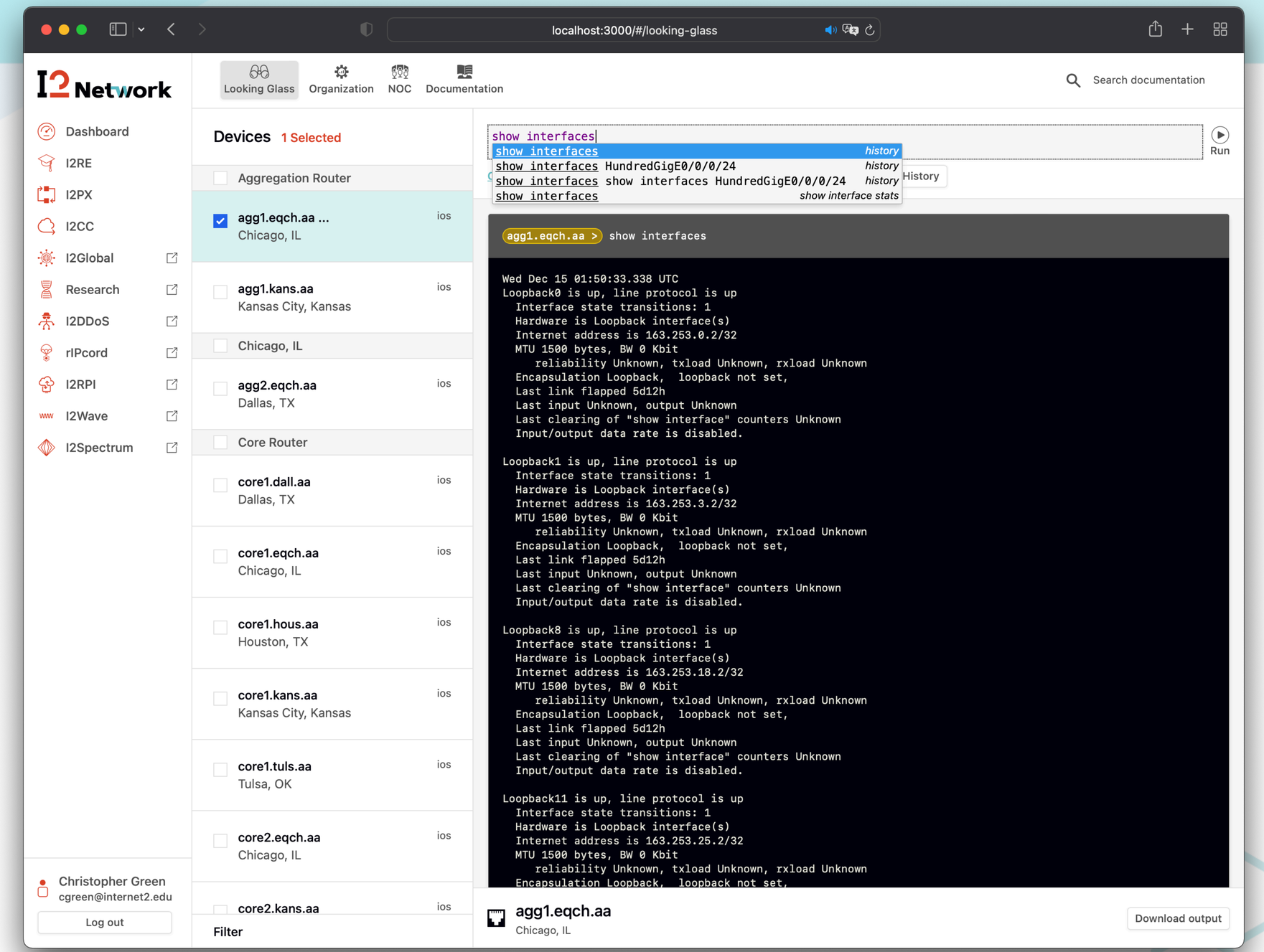
Observatory / RackLAN Switches

- lan.chic.net.internet2.edu (Chicago, IL)
- lan.kans.net.internet2.edu (Kansas City, MO)
- lan.losa.net.internet2.edu (Los Angeles, CA)
- lan.seat.net.internet2.edu (Seattle, WA)
- lan.sunn.net.internet2.edu (Sunnyvale, CA)
- lan.wash.net.internet2.edu (McLean, VA)
- lan2.wash2.net.internet2.edu (McLean, VA)

Optical Gear

WIX Switches


I2 Network
Looking Glass
Organization
NOC
Documentation
Search docs, services, resources
Dashboard
Research & Education
Peer Exchange
Cloud Connect
Global Connect
Research Projects
DDoS
rIPcord
RPI
Wave
Spectrum
Christopher Green
cgreen@internet2.edu
Targets 1 Selected
Aggregation Router
agg1.eqch.aa
Chicago, IL
ios
agg1.kans.aa
Kansas City, Kansas
ios
Chicago, IL
agg2.eqch.aa
Dallas, TX
ios
Core Router
core1.dall.aa
Dallas, TX
ios
core1.eqch.aa
Chicago, IL
ios
core1.hous.aa
Houston, TX
ios
core1.kans.aa
Kansas City, Kansas
ios
Filter
show interfaces
desc
Run
show bfd
show bfd
ios
show bgp
Show BGP info
ios
show controllers
show controller stats
ios
show interfaces
show interface stats
ios
show ipv4 interface
IPv4 interface status and configuration
ios
show ipv6 interface
IPv6 interface status and configuration
ios
show lldp neighbors
LLDP neighbors
ios
Download output
Description
BACKBONE: AGG1.EQCH.AA
BACKBONE: AGG1.EQCH.AA
BACKBONE: AGG1.EQCH.AA
BACKBONE: AGG1.EQCH.AA
PDP EQCH-PAS-TESTER-2-
[i2pxcust] MBROCHU-TES
Gi0/0/0/2 up up
Gi0/0/0/2.100 up up
Gi0/0/0/3 admin-down admin-down
Gi0/0/0/4 admin-down admin-down
Gi0/0/0/5 admin-down admin-down
Gi0/0/0/6 admin-down admin-down


localhost:3000/#/looking-glass
I2 Network
Looking Glass
Organization
NOC
Documentation
Search documentation
Dashboard
I2RE
I2PX
I2CC
I2Global
Research
I2DDoS
rIPcord
I2RPI
I2Wave
I2Spectrum
Devices 1 Selected
Aggregation Router
agg1.eqch.aa ...
Chicago, IL
ios
agg1.kans.aa
Kansas City, Kansas
ios
Chicago, IL
agg2.eqch.aa
Dallas, TX
ios
Core Router
core1.dall.aa
Dallas, TX
ios
core1.eqch.aa
Chicago, IL
ios
core1.hous.aa
Houston, TX
ios
core1.kans.aa
Kansas City, Kansas
ios
core1.tuls.aa
Tulsa, OK
ios
core2.eqch.aa
Chicago, IL
ios
core2.kans.aa
ios
Filter
Christopher Green
cgreen@internet2.edu
Log out
show interfaces
show interfaces history
show interfaces HundredGigE0/0/0/24 history
show interfaces show interfaces HundredGigE0/0/0/24 history
show interfaces show interface stats
Run
History
agg1.eqch.aa > show interfaces
Wed Dec 15 01:50:33.338 UTC
Loopback0 is up, line protocol is up
Interface state transitions: 1
Hardware is Loopback interface(s)
Internet address is 163.253.0.2/32
MTU 1500 bytes, BW 0 Kbit
reliability Unknown, txload Unknown, rxload Unknown
Encapsulation Loopback, loopback not set,
Last link flapped 5d12h
Last input Unknown, output Unknown
Last clearing of "show interface" counters Unknown
Input/output data rate is disabled.
Loopback1 is up, line protocol is up
Interface state transitions: 1
Hardware is Loopback interface(s)
Internet address is 163.253.3.2/32
MTU 1500 bytes, BW 0 Kbit
reliability Unknown, txload Unknown, rxload Unknown
Encapsulation Loopback, loopback not set,
Last link flapped 5d12h
Last input Unknown, output Unknown
Last clearing of "show interface" counters Unknown
Input/output data rate is disabled.
Loopback8 is up, line protocol is up
Interface state transitions: 1
Hardware is Loopback interface(s)
Internet address is 163.253.18.2/32
MTU 1500 bytes, BW 0 Kbit
reliability Unknown, txload Unknown, rxload Unknown
Encapsulation Loopback, loopback not set,
Last link flapped 5d12h
Last input Unknown, output Unknown
Last clearing of "show interface" counters Unknown
Input/output data rate is disabled.
Loopback11 is up, line protocol is up
Interface state transitions: 1
Hardware is Loopback interface(s)
Internet address is 163.253.25.2/32
MTU 1500 bytes, BW 0 Kbit
reliability Unknown, txload Unknown, rxload Unknown
Encapsulation Loopback, loopback not set,
agg1.eqch.aa
Chicago, IL
Download output

Demo