Texas Instruments 6.2 & 7.0 Usage Summary

Customer Insights Team

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- Interviewed Erick and Tim Anderson from TI on June 2018
- Attendees: Tracy Jiang, Jessica Rayno, Meng Yang

1. Executive Summary

Executive Summary

Customer Profile:

- Not a happy 6.2 customer, but like 7.0 better, especially the thin client design.
- Global team, but only one engineer is using Netbrain.
- 6 people in the team
  - Most of them are in US, 1 in China, 2 in India.
- His responsibilities include scripting automation, maintaining switches and routers.
- Nodes purchased: 4,000
- Updated total sale: $631,920.00
- NetBrain Customer Since 4/27/2010
- Devices : Cisco Only : IOS, CatOS, NXOS, IOS-XE, etc.
- NetBrain version: IE7.1
- QA version: IE7.1a
- Currently using tools:
  - TI homegrown (internal network management system)
  - Sevone (monitoring tool)
  - Cherwell (inventory management tool)
  - Viavi

Desired Features for v7.0:

- Hope to use API to retrieve everything they want
  - Like show device Mac, automate end station in TI group on the backend. If they can have this type of API call, then they can put automation around that.
- Download configurations, standards and push configuration changes.
- **Automate daily 'diff' report to email.**

Customer Use Cases:

- **Daily Benchmark**
  - "we were pulling all data from benchmark every day and that was the only way that we could have accurate data."
- **Embed Path Map in Sevone**
  - "Netbrain get back the result of that path such that in the list of devices and interfaces, but then I could turn around and take that list feed it straight into Sevone and have a dashboard dynamically created
- **Locate end stations**
  - This is so heavily used within the entire IT team, because they need this information "for knowing where stations are at on the network". But this tool had a hard time with firewalls.
- **Switches and devices Reports for maintenance**
  - This reports runs every other hour. "here's all my detail on whenever we're doing maintenance on a switch. a lot of our factories want to know what is on there"
- **Configuration Management**
  - Currently using scripting tool for configs management and diff reports everyday.
- **Inventory management**
  - Currently using Cherwell for inventory management and ticketing management
  - Hope to use API pull data out from NB to Cherwell for daily diff reports.

Issues of v6.2:

- Way too slow
  - "The biggest turtle is refreshing. When you do a refresh, this screen right here is locked and I'm not able to do anything. These maps were just so hard to keep up to date "

"It is like in football game, you took the tick return, you carried the ball all the way down to the one-yard line, then you'd have set the ball down and walk off the field."

- Eric

Use Cases and Support Status Check

No.	Category	Use Case	Service Gap	Product Gap
1	Auto Discovery & Documentation	He shared dynamics maps with his managers constantly. He wanted to always have accurate and up-to-date maps. Requests: • Automatically discover new end-stations and group end-stations • He does daily benchmark in NB • He wanted to have maps automatically up-to-date		
2	API Integration: Embed Path Map in **Sevone**	Everyone in TI uses SevOne (monitoring tool), so he wants to have NB integrated there • Sevone has path devices information and he wants NB to generate map out of those devices and show the map and dashboard in Sevone		
3	API Integration: Configuration Management with **Cherwell**	Generate an automatic diff report everyday and push it to Cherwell (ticketing and inventory tool) via API, he has been using a script he wrote for 17-20 years.		
4	Qapp	He hope to do routine checks of the devices with a dynamic list rather than a static list.		
5	Report: latest activities	• He need the ability to locate End Station by IP or Mac address to know where that station last was seen • He also want to sunset NetDisco because it has hard time with firewalls and Nexus device since they need privilege to login.		
6	Report: device details	automatically send report of the MAC address and the IP address to factory managers before scheduled maintenance of certain devices, because these devices are very important and can't go wrong.		
7	Report: Compare after benchmark	automatically do a compare after benchmark everyday and run benchmark against groups. He hope he can just click a bunch of GUI buttons		
8	Report: Audit	Need to easily know details about which device failed which audit, because there are currently 147 rules (standards) in the template which is roughly 5,000 lines long.		
9	Report: Daily Flash Copy??	need to check free space for a new inserted flash card in a device. ???? (NOT SURE)		
10	Report: debug disabled	need to check all routers/switches and looks if any debugs are enabled.		
11	Report: syslog	They have 5+ health scripts that parse network syslogs looking for things such as: Reoccurring events on devices (link up/down); MAC flapping, etc,; Error disabled interfaces and Module events (add/remove) occurring within the previous 24 hours		
12	Change Management	Scheduled password change; Ad-hoc 'temp password assignment'; Quarterly SNMP community string changes based on device groups; Selective QoS cofigs pushes		

Note: **Currently not support** **Partially support**

Salesforce Cases and Support Status Check

No.	Category	Case	Service Gap	Product Gap
13	Performance Issues	• Nexus switches was an end station as well as an actual nexus model • All CatOS devices were shown twice		
14	API Call	• Pull data from One-IP-Table using Restful API without upgrading from 7.1 to 7.1a • Get users list via API Call		
15	Search and Dynamic Search	• Add “shared Devices setting” in device search result to fix some device errors • Request to comprehensively support regular expression in dynamic search		
16	Inventory Report	• Request to support sorting by clicking any column header inside the inventory report • Request to support using right-click to get the menu inside Inventory report page		
17	Site Manager	• Request to support regex to create site or export filtered site list in Site Manager		
18	Virtual Devices	• Request to support NSX environments and virtual devices		
19	Notifications	• Request to get notification when tasks are done		
20	Design	• Request to change the background on map • Request to add Internet Boundary Interface • Request to add tips or lead guide in Desktop when the customer first time to login • Request to move DO NOT SCAN DEVICE TYPE to the top of the list • Request to hit "ESC" to close pop-up windows		
21	Bugs	• Request to have a button to end all user sessions • Mapping Tools didn't highlight when we select it • Interface with HSRP, JRRP(Juniper) applied show twice in neighbor table		

Note: **Currently not support** **Partially support**

See great potential in Netbrain but not satisfied with 6.2

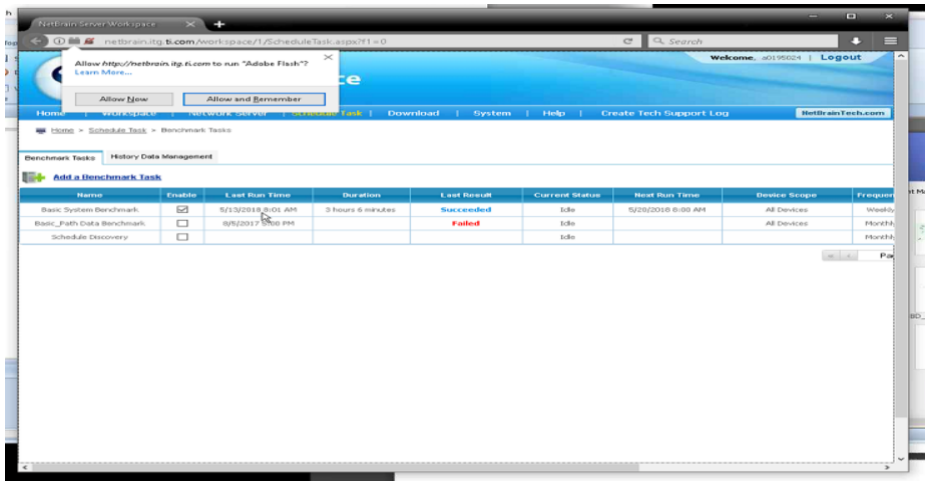
- Eric used Netbrain since version 3, but always disappointed about the ***SPEED***.
  - "I've always thought it was a great tool but performance has been lacking it's better and better every version but if you go from 2 miles an hour to 4 miles an hour yes you doubled your speed but you're still going to lose the race."
- Tried hard to push Netbrain around the company
  - "I have been pushing that brain around here for I don't even know how many years, but I don't have a lot of people that using Netbrain around here because it just in the version up to version 6.2 has not been speedy enough to justify its use."
- Biggest requirement is API integration
  - "I want to be able to have API calls for everything. I want to be able to let Netbrain show device Mac and I got all these things working, but there's so many more things that I want to do. I want to be able to say 'hey we got a new end station that's in the TI comm group'. I want to be able to automate that on the backend."
- Get data from Netbrain
  - "MAC query tool has a hard time with firewalls. Because for these firewalls you have to get to enable mode to pull them apart and Mac cables. Netbrain does that; Netbrain has the data. I just need a way to get this data and automate this via API call."
  - "I used to say you guys, you know in football, you took the tick return, you carried the ball all the way down to the one-yard line, then you'd have set the ball down and walk off the field. I do have all this data, and you have every single piece of this data, but I have no way to automate the reports around it"
- Need a list of devices as well as a dynamic map
  - "For the goal that was passed to me, what I need to know here is all the devices in the path right. These are my routers in the path and switches; here's the interfaces on those devices that we go through. So it would be textual file that I could then feed back. But I personally also like having the dynamic visual map."
- Hope Netbrain can replace several tools
  - "Monitoring tool: Sevone
  - Configuration management tool: Cherwell
  - Scripting for daily diff report and audit report"

3. Use Cases

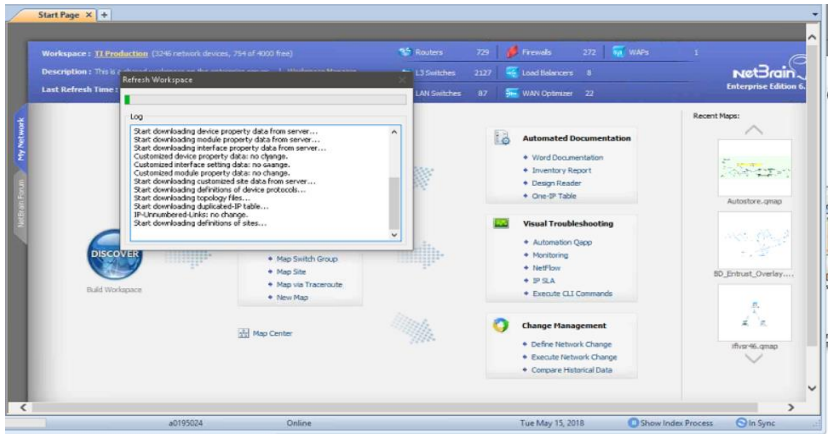
Use Case 1: Benchmark and refresh

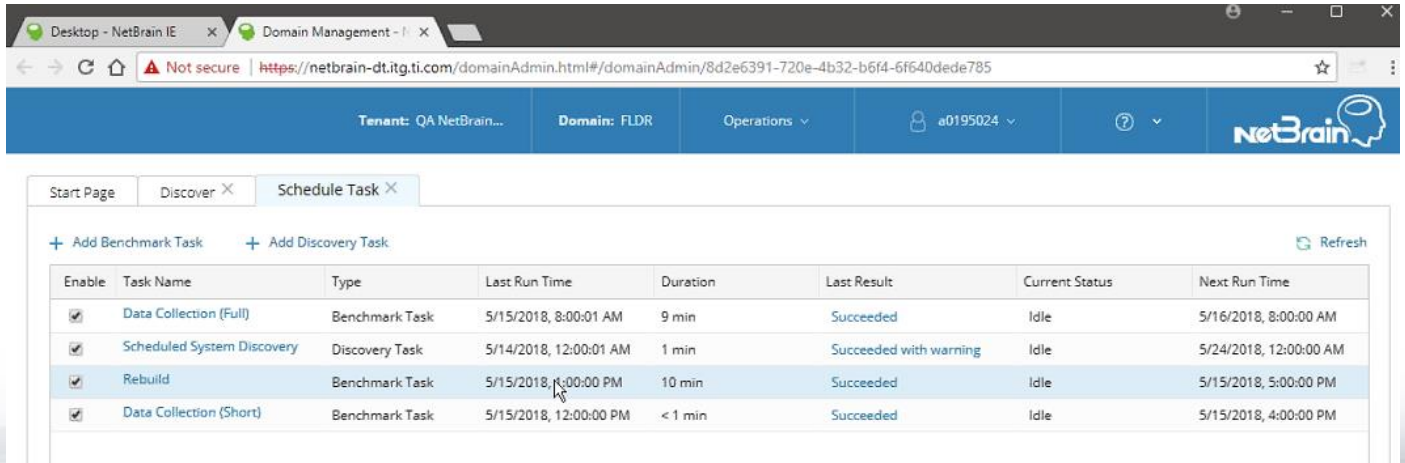
Not satisfied with 6.2 benchmark speed, but found it ok in 7.1

- Pull data everyday
  - “we were pulling all data every day and that was the only way that we could have accurate data.“



- Refresh and syn-up data everyday
  - “so if you don't launch that brain in the morning let it do a sync while you're going to get your coffee talk to people in the hall we'll eat a couple doughnuts come back to your desk and have it and think it's useless for the rest of the day.”



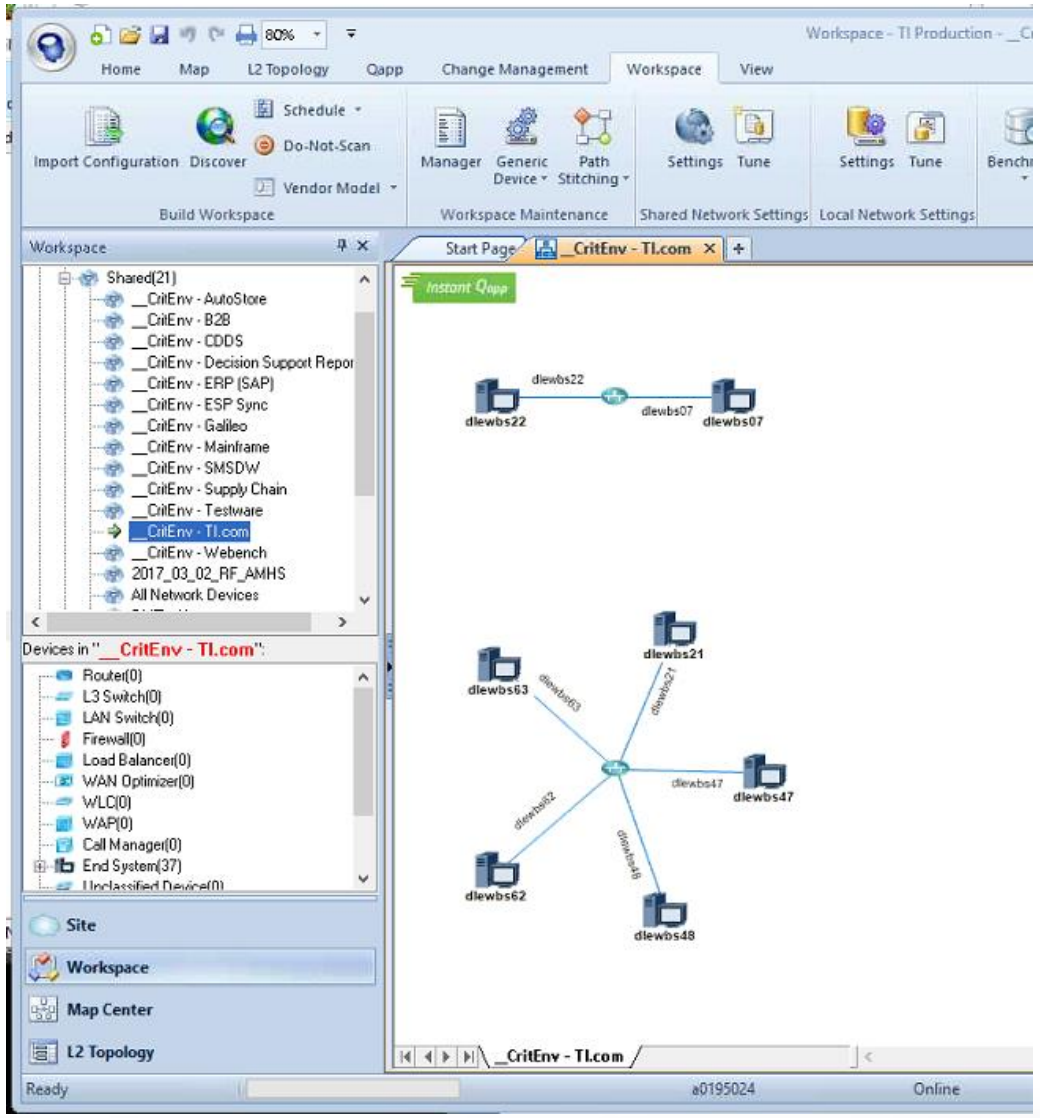


Use Case 2: Environment Map

Hard to automatically keep map up-to-date

- Currently create Visio maps and translate them into NetBrain maps manually

- **Pain point: automated map**
  - "we have critical environments map here, *but they're out of date because Netbrain doesn't collect a lot of data*. I have back-end processes in place where people go and add these end stations make up our TI.com environment. *It's a terrible design because it is out of date but these maps used to get management visibility,* but they were just so hard to keep up to date in an automated fashion"

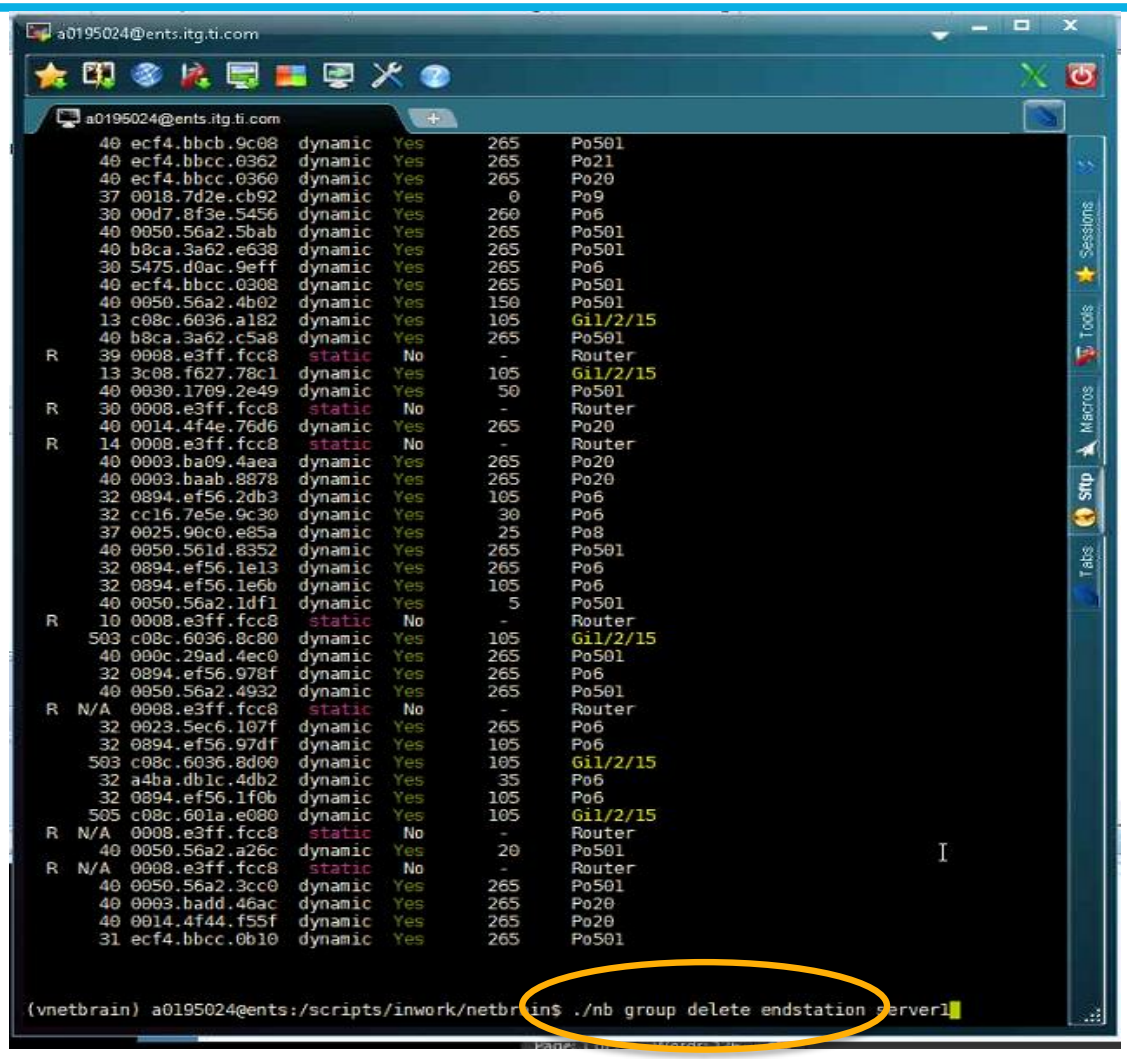


Use Case 3: Group devices and Discover new devices

Use API to group devices and discover new devices

- Pain point 1: use API to show Mac address and group end-station
  - “I want to be able to have API calls for everything and I want to be able to do ‘Netbrain show device Mac’ and I got all these things working. But there's so many more things that I want to do, like I want to be able to say hey we got a new end-station that's in the TI comm group and I want to be able to automate that on the backend so we can do something like ‘Netbrain group end-station server one’.”

- Pain point 2: automatically discover new end-station in a group.
  - “Then that automatically goes into a group so that I can now have those maps dynamically generated and make managers happy that ‘this is what makes TI.COMC’ and if I have this type of API call I can put automation around that so that people don't have to keep talking to Eric to get things added ”



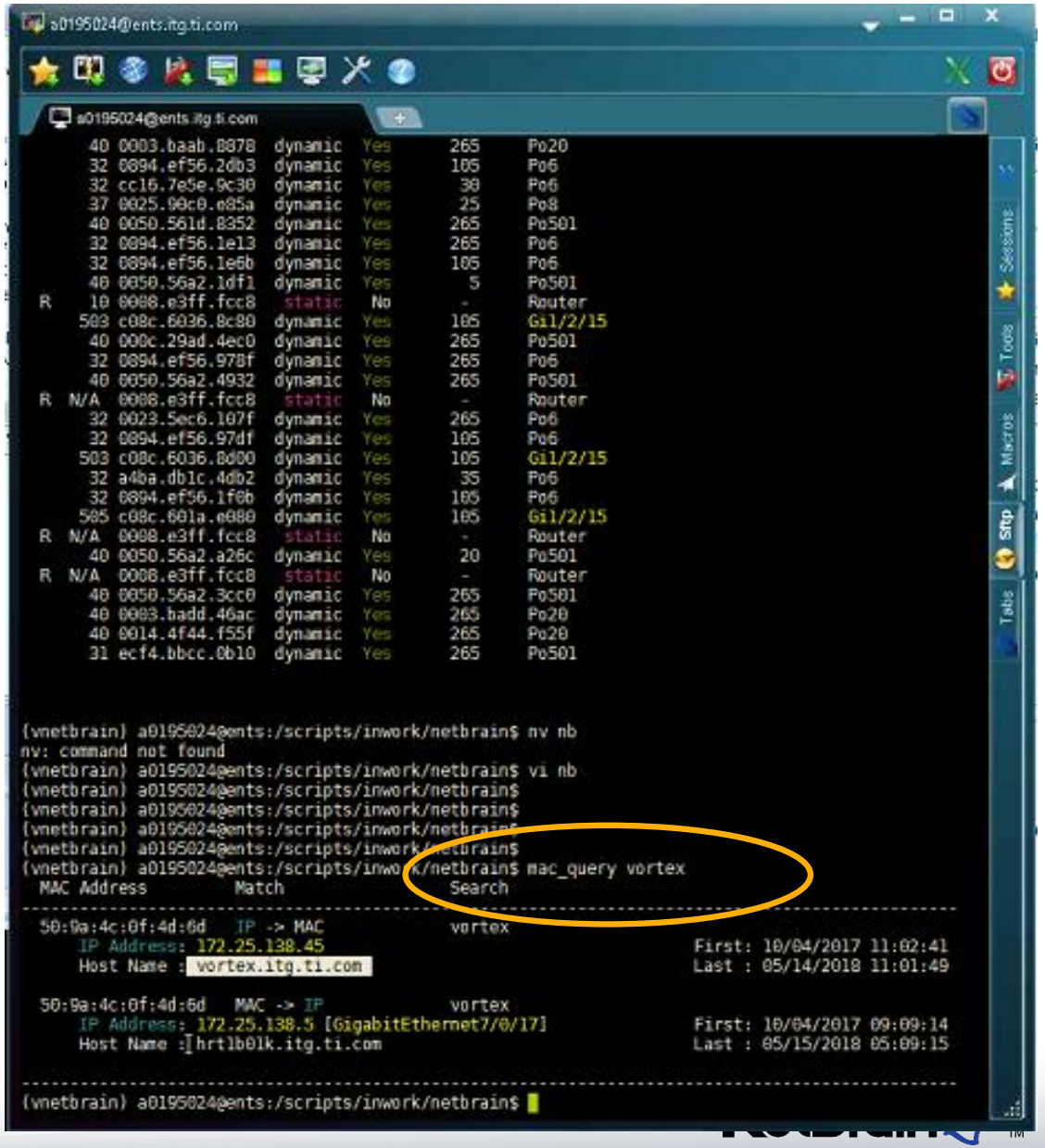
He hoped to use some queries like “nb group” to trigger API

Use Case 4: MAC query

Ability to locate End Station by IP or Mac address to replace the tool NetDisco

- Pain Point 1: need an API call to get MAC and IP address and DNS name as well as *their latest activities*
  - "I want to be able to say 'NB query n station". I want to be able to do that and get this formatted out. Because if I had a query mechanism to get this exactly, I don't care what the format is. But if I had an API call where I give you an MAC address and IP address a DNS name, you can query by MAC address you can query by IP address you can query by DNS name and then I know within a half a second where that station last was seen."

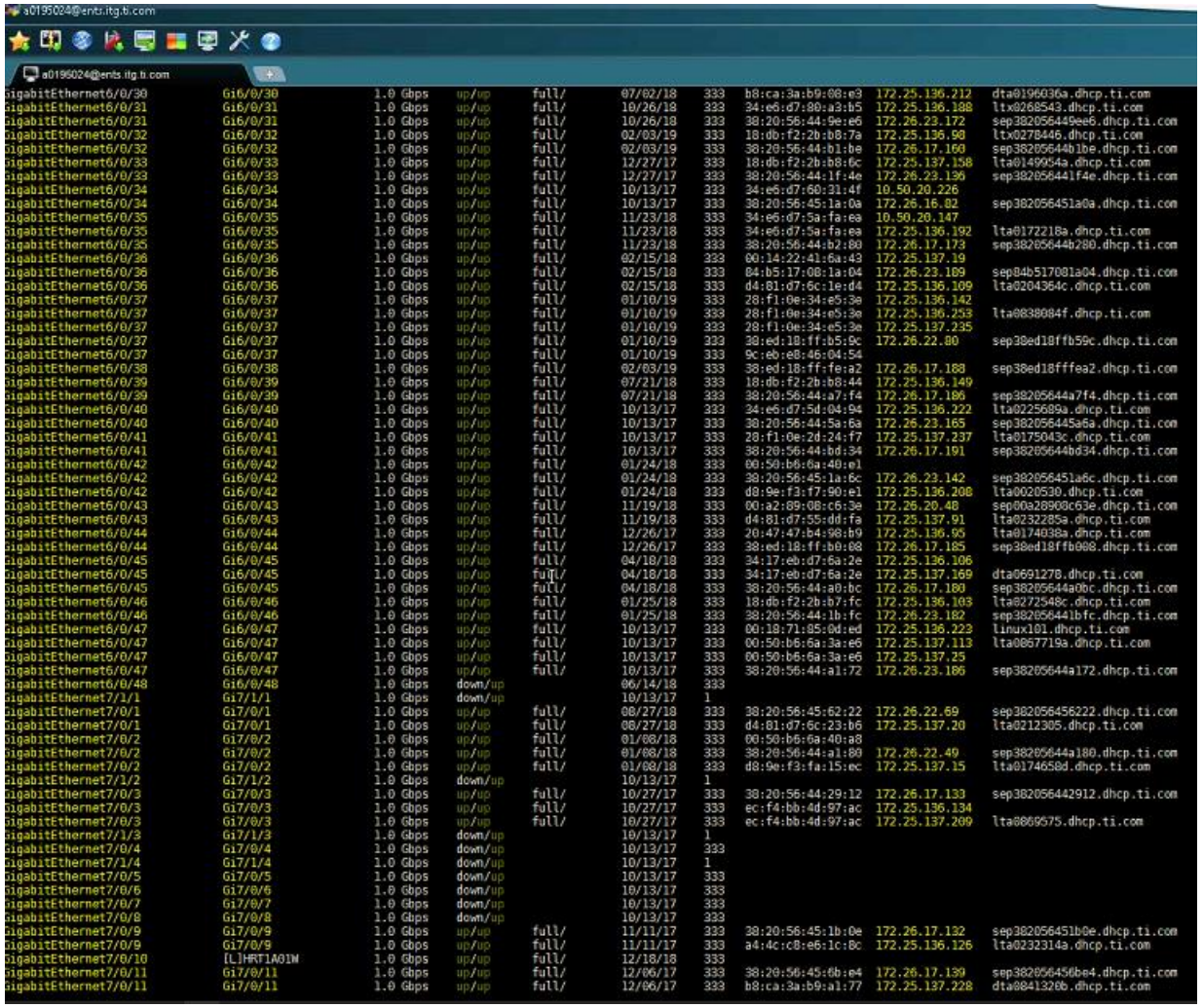
- Pain Point 2: knowing where stations are at in the network
  - "it's just so heavily used every team in IT uses this tool for knowing where stations are at on the network. *This is probably would be a huge win if I can sunset this tool because this tool has a hard time with firewalls and Nexus device*. Because these firewalls need privilege login to pull them apart and Mac cables, Netbrain does that. Netbrain has the data and I just need a way to get this data. I mean this tool has a hard time with Nexus and Netbrain has all the data, I'm just trying to figure out how to do it. "



Use Case 5: Switches Maintain

Maintain switches and send report to factory managers

- Pain point: automatically send report to factory managers before scheduled maintenance.
  - “here's all my detail on whenever we're doing maintenance on a switch. A lot of our factories want to know what is on there. Well here's the MAC address here's the IP address here’s the end station. That was on there. *Before we do scheduled maintenance on this switch, we can send this output straight to the factory managers and they can say that ‘oh this can't go down’ you guys can't do your maintenance and stop*, because this box can't go down. Netbrain has this information, and I just need a way to get this data out of it. *if I can automate this via API call, it's all there.*

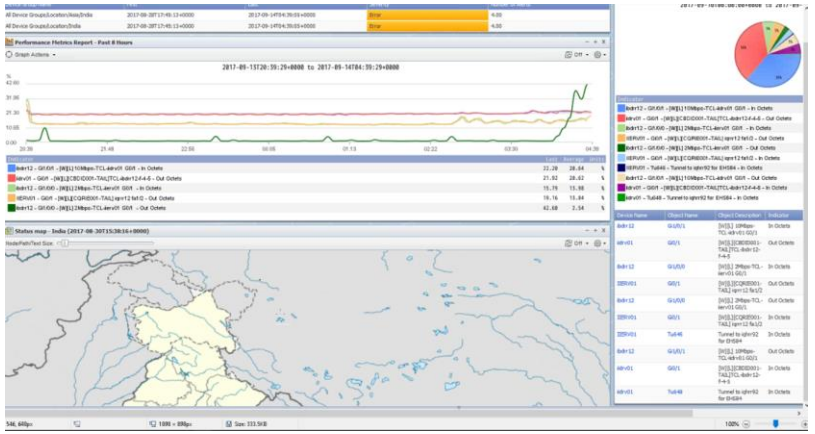


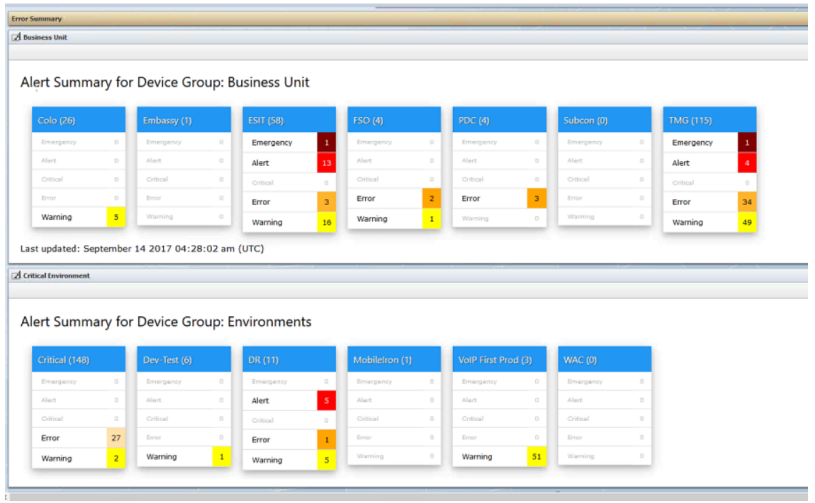
Use Case 6: Tie NetBrain in to Sevone

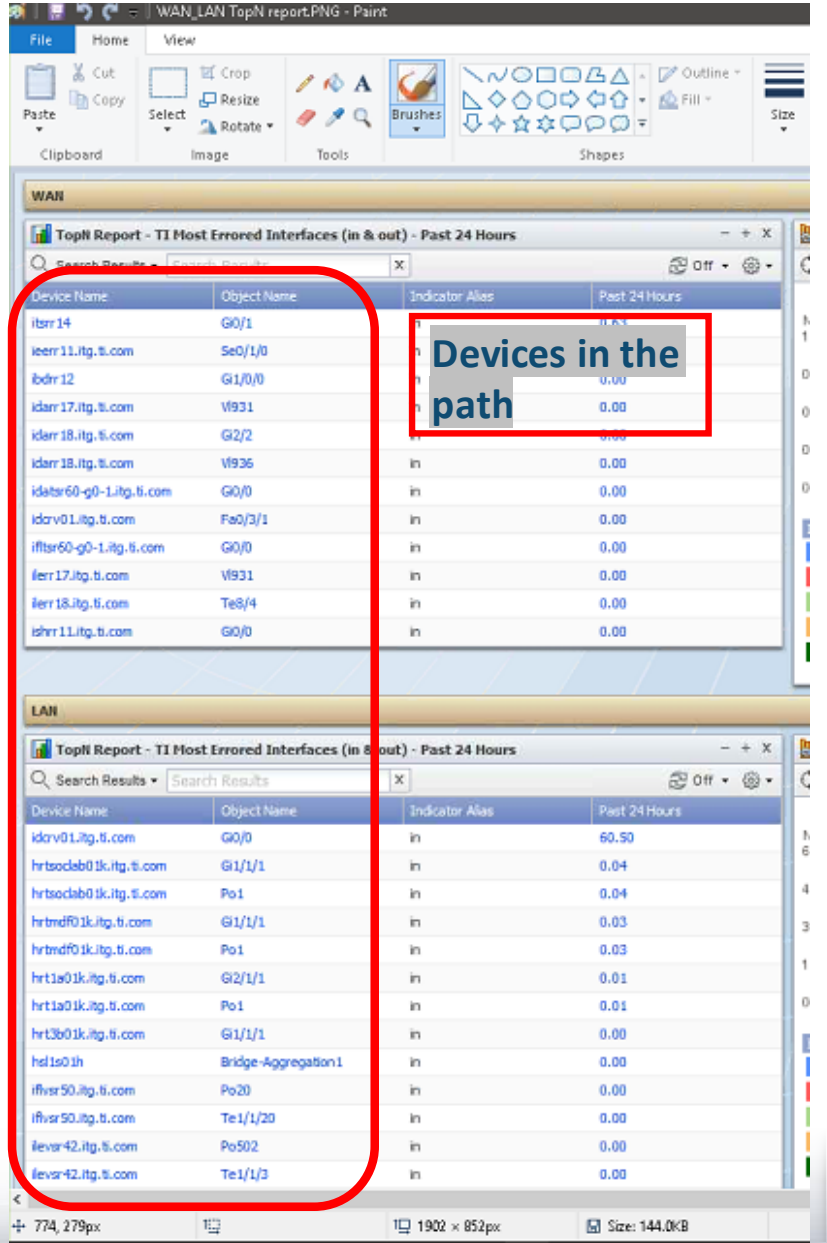
Need to see devices list and dynamic maps in Sevone with NB data

- Pain point: tie Netbrain into Sevone, a monitoring tool, and have Sevone return devices information and dynamic map
  - "For the goal that was passed to me, what I need to know here is all the devices in the path and these are my routers in the path and switches and here's the interfaces on those devices that we go through. So it would be textual file that I could then feed back. But I personally also like having the dynamic visual map. So Eric's preference would be both because I would like to have a dynamic visual map for people to see."

Update: He usually uses Sevone for triggered diagnosis, but since we don't have a lab for Sevone, there isn't any progress yet.





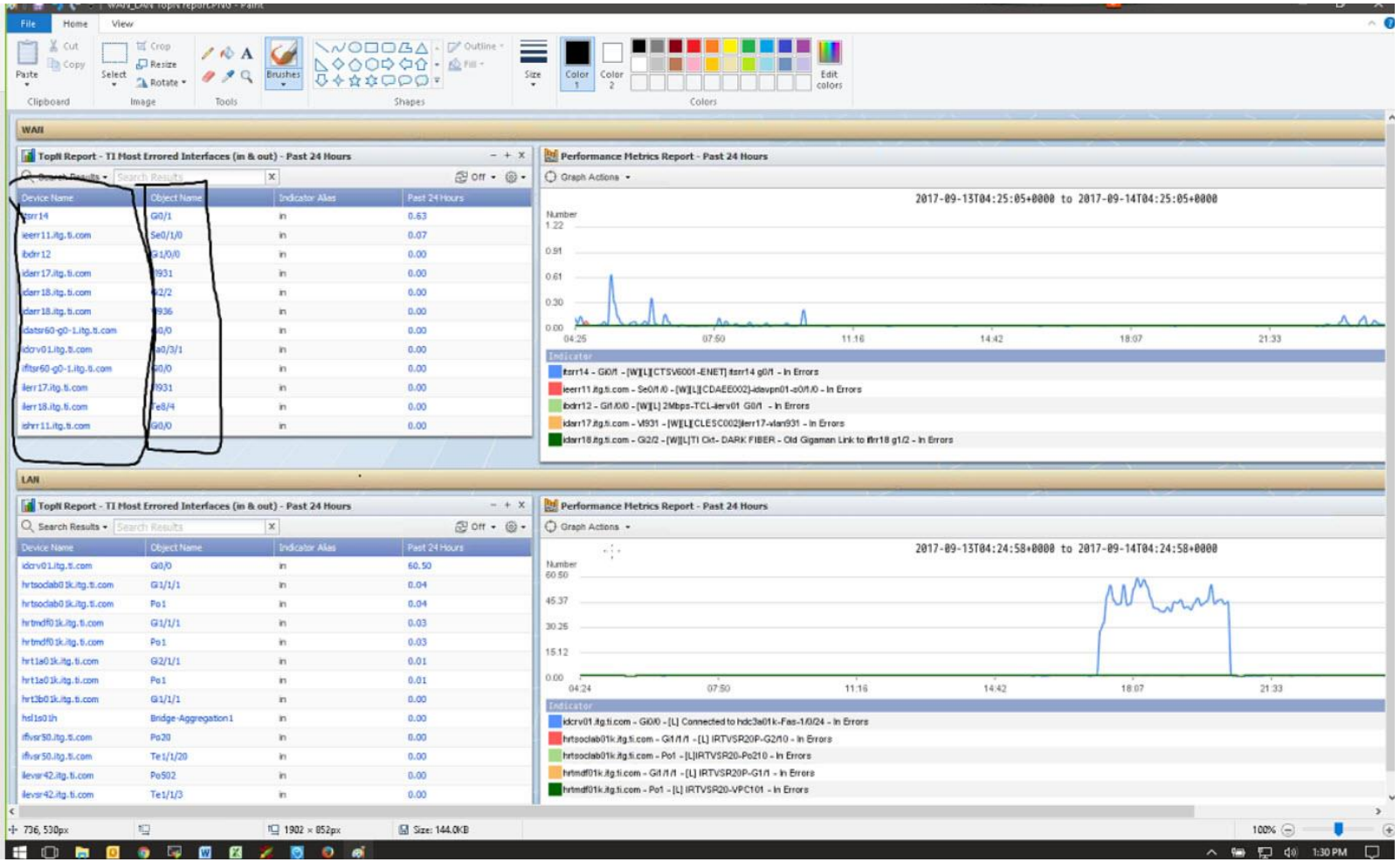


Send API to NB and NB responds with an A to B path

SevOne sees a bandwidth threshold break

Expectation:
a. Send API call to NetBrain with two end points in the threshold
b. NetBrain responds with an A to B path
c. SevOne uses that path to generate a dynamic (automated) dashboard

Eg: If end station A and end station B has any issues, they can call API and generate A-B path with both L2 and L3 path, it also includes devices, interfaces information, and then transfer that information to SevOne to create a dashboard there, so that they can easily monitoring those devices CPU, memory... and track the root cause.

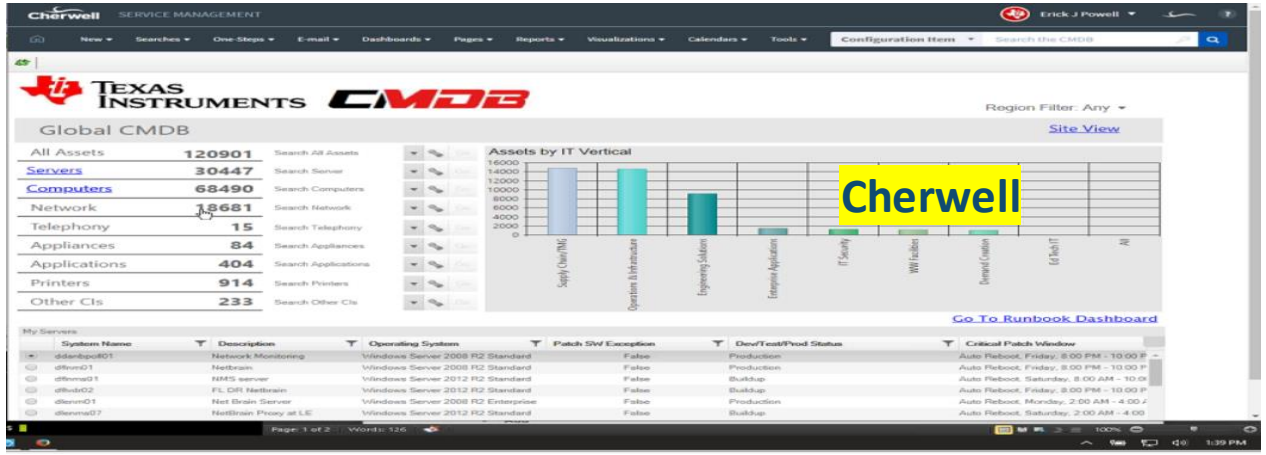


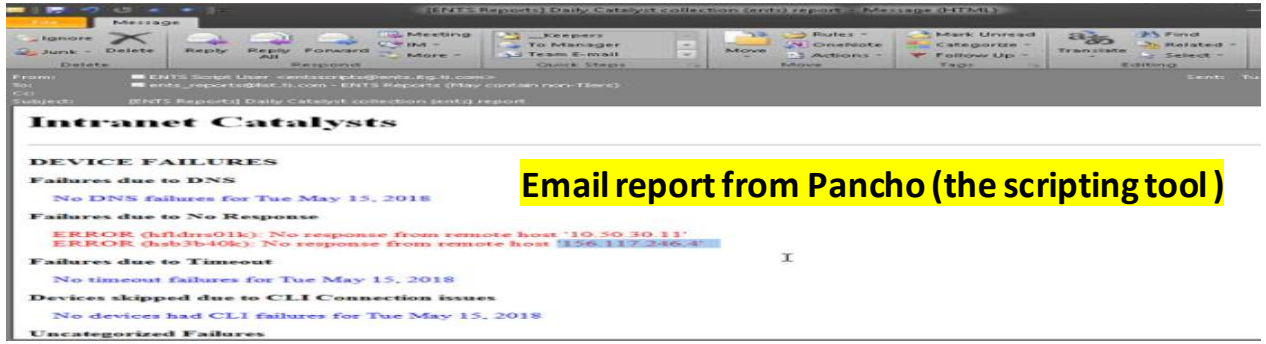
Use Case 7: Configuration Management

Used Self-created Scripting Tool for Configuration Management

- Pain point: generate an automatic diff report everyday and push it to Cherwell (A ticketing and inventory system) via API, instead of using scripts (Pancho) to push it to email.
  - "I want you guys download configs, and I have my API calls written that I can shove the configs on to my server. *I want a way to generate an automatic report everyday and I've been asking for email so every day you guys can give me different points based on groups of devices, all DMZ switches, all DMZ routers, all DMZ firewalls and all intranet Aps."*
  - Currently, *Erick generates HTML pages on his server and save the diff reports for easy viewing*, after install NetBrain they will disable that HTML and train folks how to use NetBrain once 7 version installed on production.
  - "if I can attach files to Cherwell because there's not the size limitation now, I don't have to have my server as an intermediary device. *I can just let Netbrain tool talk to a Cherwell tool, and I'm trying to step out of maintaining all these things"*

Update: Cherwell is used as the Single Pane of Glass, but currently we don't have Cherwell integration.



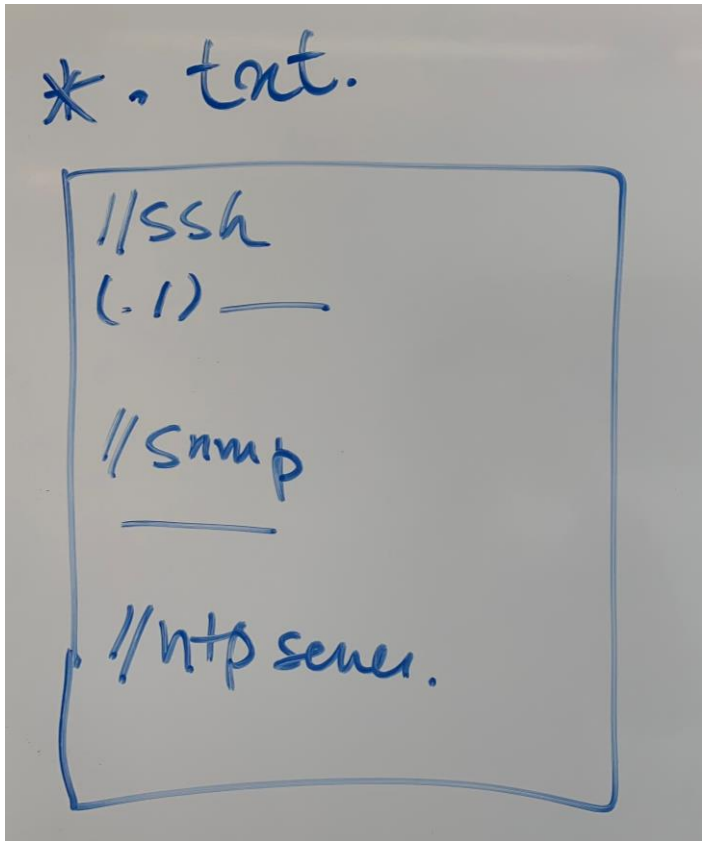


Note: From the report we should know which device login failed? With what kind of reason?

Use Case 8: Configuration Check

Used Self-created Scripting Tool for Configuration Management

- Pain point: Writing parsers and maintaining them is too tedious because *he'd like to have a dynamic device list rather than a static device list*
  - We suggested Qapp, but it cannot satisfy him because sometimes he might have 10 checks and sometimes he might have 13 checks. Currently he is still using his own scripting as showing on the right***.
  - We can also do something like golden compliance check, but there is some problems:
    - Only works for Cisco devise.
    - Have to specify a static device list.
    - This particular Qapp doesn't support device group.



***Input of his script

Use Case 9: Compare after Benchmark

Automatically do a compare after each benchmark (GUI needed)

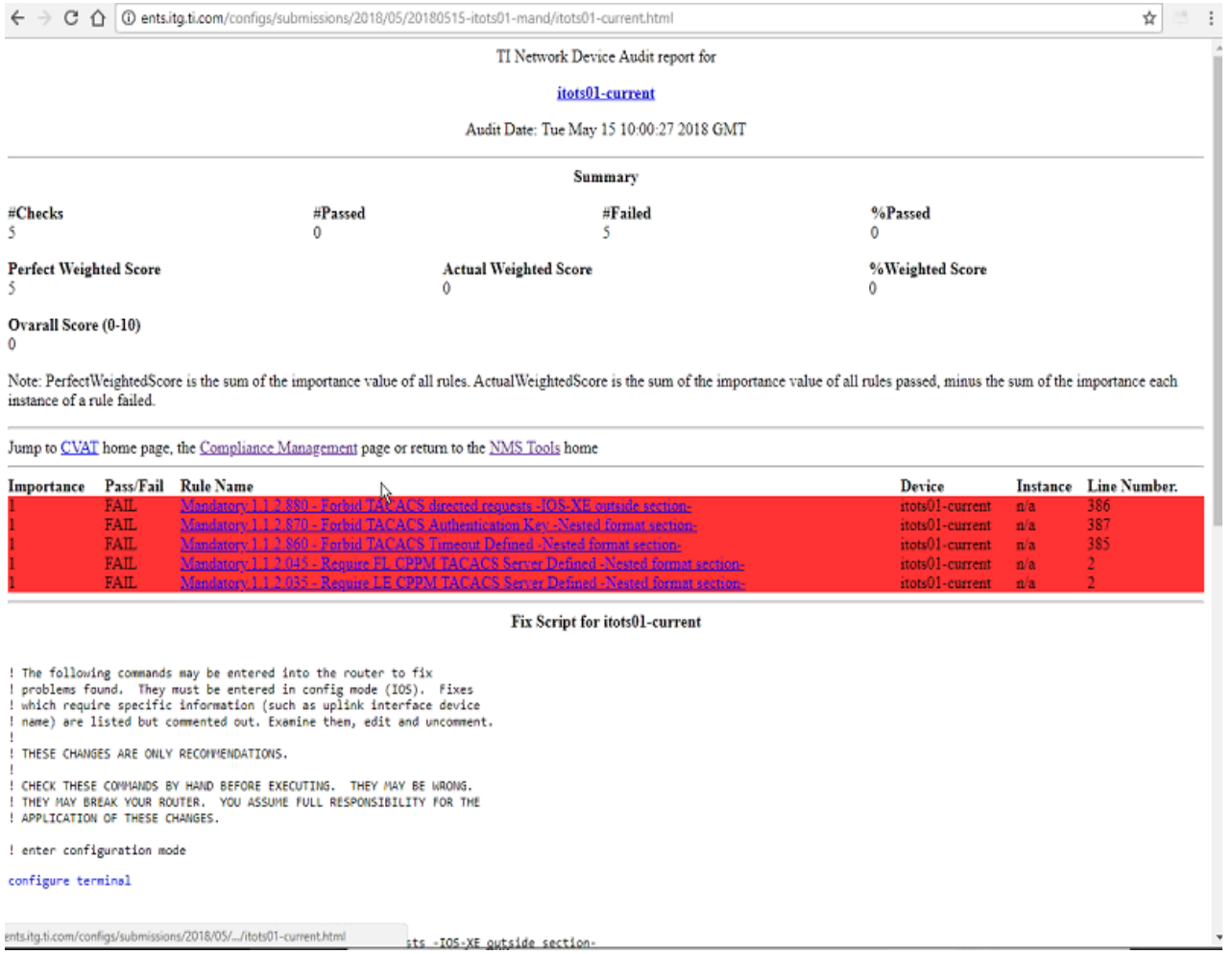
- Pain point 1: automatically do a compare after benchmark everyday
  - " if I could get rid of this script and not have to maintain this script and *then let Netbrain do a diff because Netbrain pull the configs down every day*. Netbrain pull our tables, Mac tables, canned tables and rout tables. Netbrain have these. I can go in through the GUI and I can say show me yesterday's config versus today's config. How do I automate that GUI human interaction. *This is just an automation around someone clicking a bunch of GUI buttons*."

- Pain point 2: run benchmark against groups
  - "*I just need to create the groups and then I can run benchmarks against groups playing with it version 7*. I can create tasks like run against individual groups so it's there. I just need a way to pull the data out.

Use Case 10: Compliance Management and Audit Report

Know details about which device failed which audit

- Pain point: need compliances and audit report to build server
  - "I can look at this device and look at this audit report and I can see this device failed these audits and then down here is what needs to fix those audits. Now I'll probably have to do some scripting around it but this is a day dream of mine to have net brain replacement replace this tool."
  - Every day Erick audit all configs based on a standard template Erick created. *There are currently 147 rules (standards) in the template which is roughly 5,000 lines long.*
  - " *I need the ability to download config which you guys have, and I need the ability to upload configs and then I need the ability to enforce the audit rules that everyone agreed upon*."



Use Case 11: Change Management

Change management module request

- The customer never use/test this module before. He requests to:
- Quarterly password changes based on device groups
- Quarterly SNMP community string changes based on device groups
- Ad-hoc ‘temp password assignment’
  - Allow NOC to push a button and assign a temp password for 24 hours to a device for troubleshooting
  - We use this many times per week for folks outside my team
- Selective QoS config pushes
  - Adjust ACLs
  - Adjust policies

Performance Issues Case

Wrong path with CatOS devices. (#00084012)

Description:

I have been getting really weird trace paths inside NetBrain and more than once I find a Nexus switch as both an end station and an actual Nexus model – both with the same IP. I noticed that ALL my CatOS switches were in the NB batabase twice

1) Switch

a. with the IP under the model like an IOS device

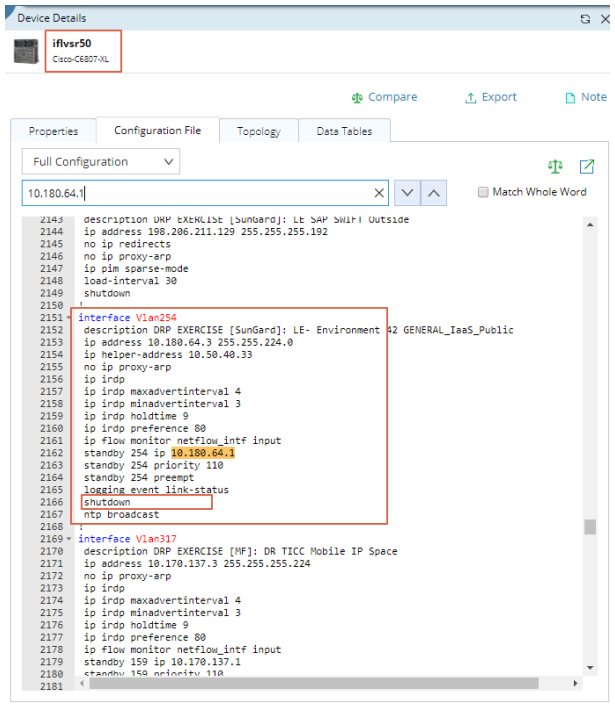
2) Switch(1.2.3.4)

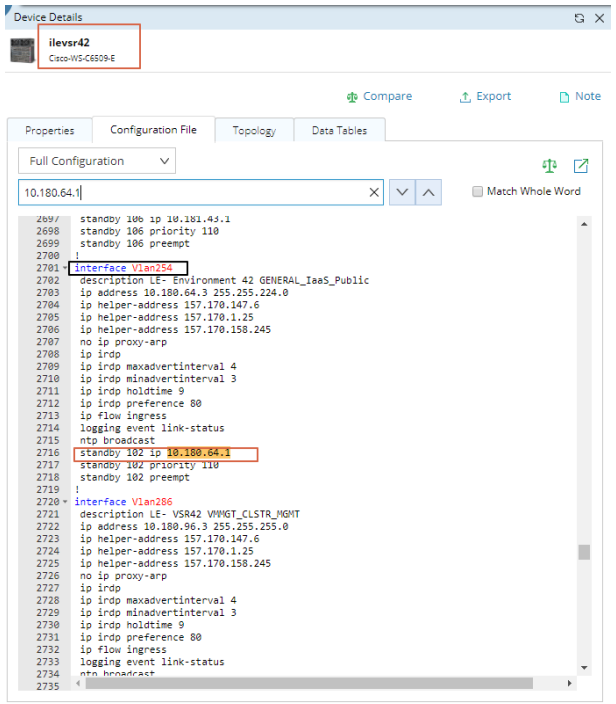
a. with the IP under the model like a CatOS device

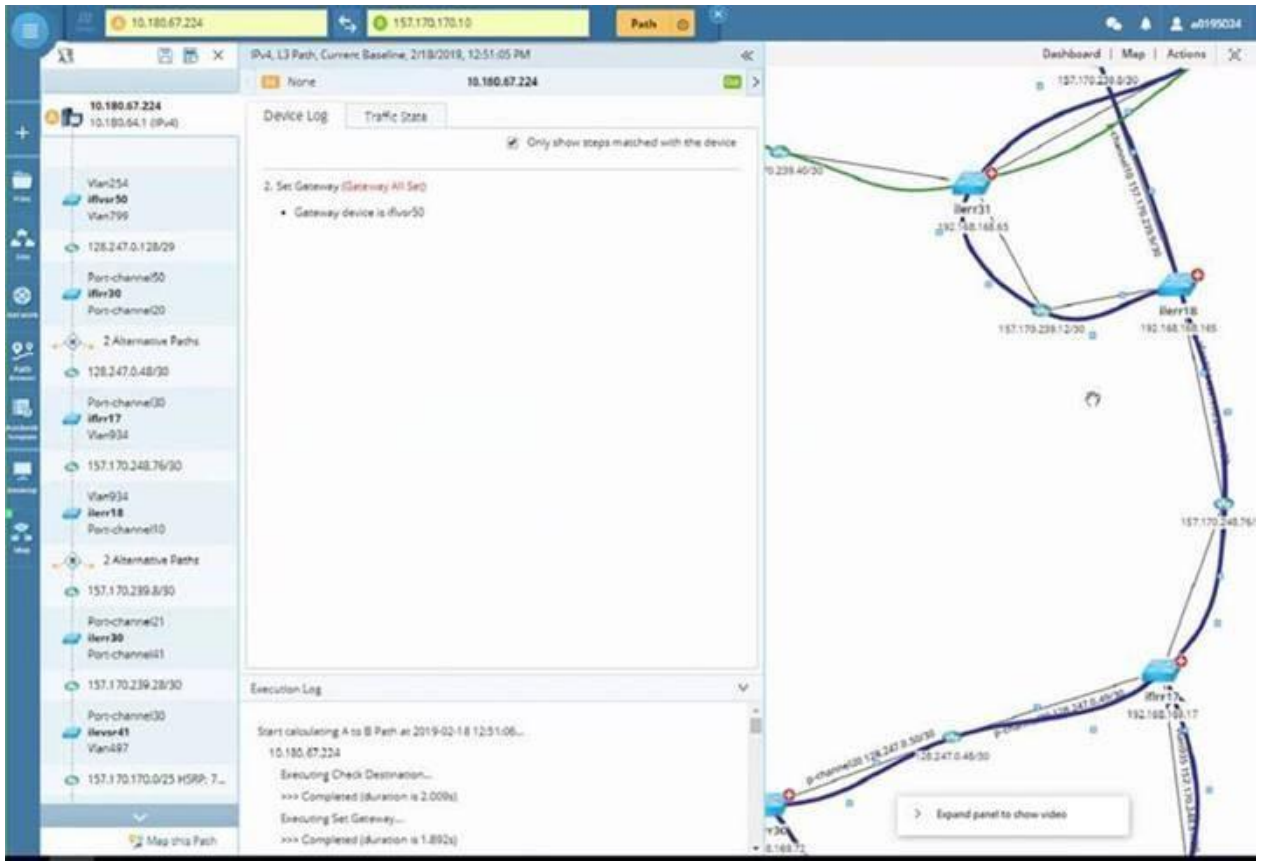
3) Same IP model in NB in #1 && #2

Last night I deleted all of these duplicated models, both the IOS and CatOS looking models. I still find Nexus switches with an actual model and end station design – multiple days which means multiple benchmark tasks for
topo table re-builds
data collections
etc – everything is enabled and runs daily

Looking at the attached map the path is wrong. This is after deleting all CatOS and letting the benchmarks run. The path was WAYYYYYY more incorrect with the CatOS devices in NB – path went across the ocean and back to a switch totally not involved (while also not having a L3 route to those two switches), both ways.







As per customer, the devices ilevsr42 and iflvsr50 have the same configuration and they are using iflvsr50 as Disaster recovery device (Most of the interfaces on this device is down). With respect to this path, when HSRP is used, the device ilevsr42 should be used as the gateway but for an unknown reason, the NB is using iflvsr50 as the gateway.

Verified the HSRP status on both the device – It's active on ilevsr42 and INIT state in iflvsr50.

API Call Cases

Case 1: Request a patch to use Restful API-One-IP Table on 7.1 version (#78829)

Description:

The customer is really need to pull the data from one-IP table by using the Restful API. Currently, they cannot easy to upgrade from 7.1 to 7.1a since they have cross data center deployment. Can we provide a patch on 7.1 version to support One-IP table API?

Case 2: Get user list via API call (#74444)

- **Description:**

I have a question about listing users via API call. I can successfully pull a list of all devices using the GetGroupDevices:

https://www.netbraintech.com/ftp/IE70b/OnlineHelp/index.html?getgroupdevices.htm

But I cannot find a similar function to list users inside NetBrain. I see:

· DeleteUser

· AddUser

· ModifyUser

· AddUsers/DeleteUsers: FromDomain

· AssignUserForTenant

How can I verify if a user exists before attempting an Add or a Delete?

There does not appear to be a Query single user or list all users API call.

GetGroupDevices

This API call is used to get devices in a device group.

Resource Information

Method	URL	Authentication
Get	http(s)://IP address of NetBrain Web API Server/ServicesAPI/API/CMDB/device/getGroupDevices	Yes

Request Information

Parameter	Type	Description
groupName	string	The name of the device group.

- **Update:**

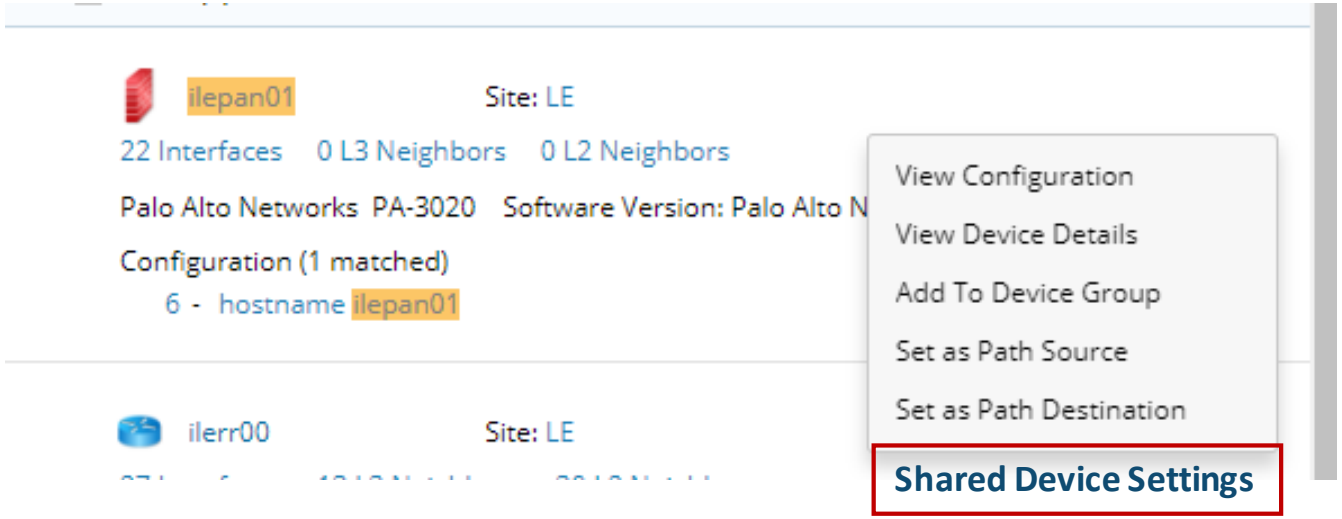
we don't have API to GET users currently, but it will be in our road-map for v7.1a

Search and Dynamic Search Cases

Case 1: Request to add "Share Device Setting" option in device searching result (#74461)

- Description:

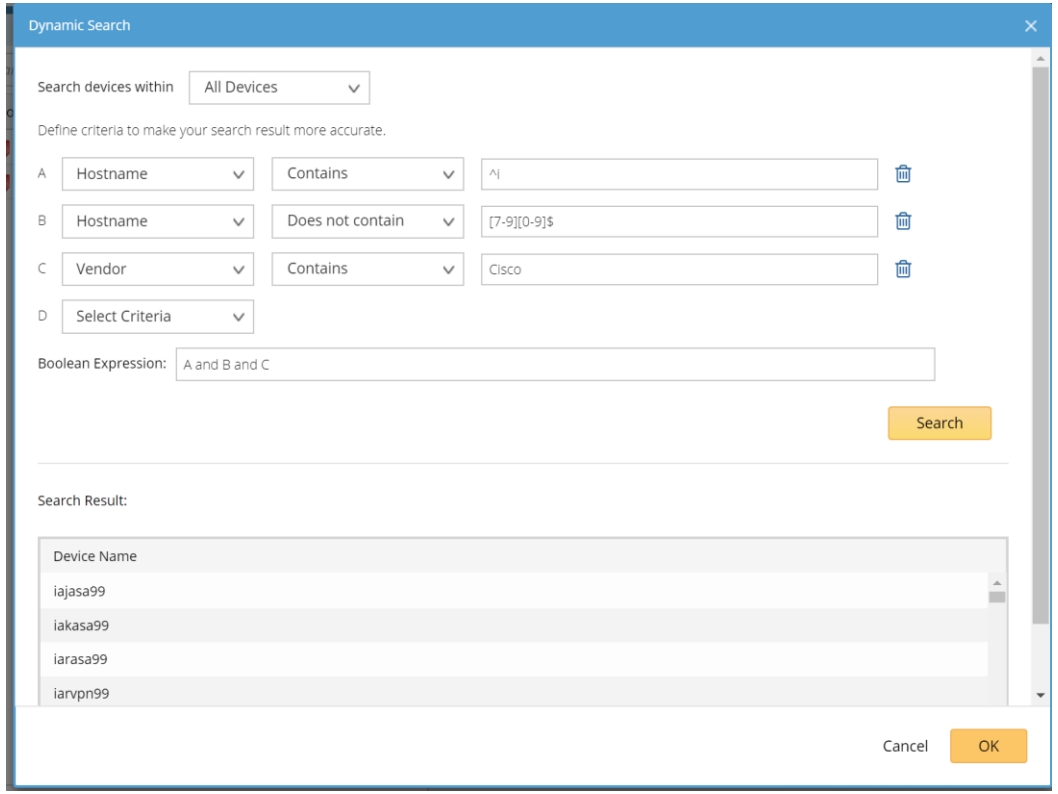
"I am fixing some devices in my dev/test which I realize are not correct. As a short cut would it be possible to add "Shared Device Settings" to the drop down in the find a device search?"



Case 2: Request to comprehensively support regular expression for dynamic search (#72509)

- Description:

“This would match device irtsr20 but not match device irtsr74. The "does not contain seems to be flipped? Look at the search results below. Is what I am seeing expected behavior?”



Updated:
Right now dynamic search only supports limited metacharacters of regular expression, request to comprehensively support regular expression in dynamic search.

Inventory Report Cases

Case 1: Request to support sorting by clicking any column header inside the inventory report (#72692)

- **Description:**
  - » “Inside the Inventory reporting page I notice that I am unable to sort by clicking any column header. Other pages allow me tosort tables based on the column headers. Inside the Inventiry report I can sort based on some (Hostname and Asset Tag work) but the numerical values below do not let me sort. ”
  - » “I was actually trying to make a shorter version of the summary report that could be exported. We have an old Perl script which generates a “Stale Port Report” to a web page. The goal is to know how many unused interfaces are on switches and generate a:

~top 10 switches with USED interfaces (switches needing upgraded)

~top 10 switches with UNused interfaces (switches which are over provisioned

As part of that I made an inventory using the built in features, not a Qapp: Built in Group: “All Network Devices”

To me it makes perfect sense to sort a column based on the number counts but there may be reasons this is not there.”

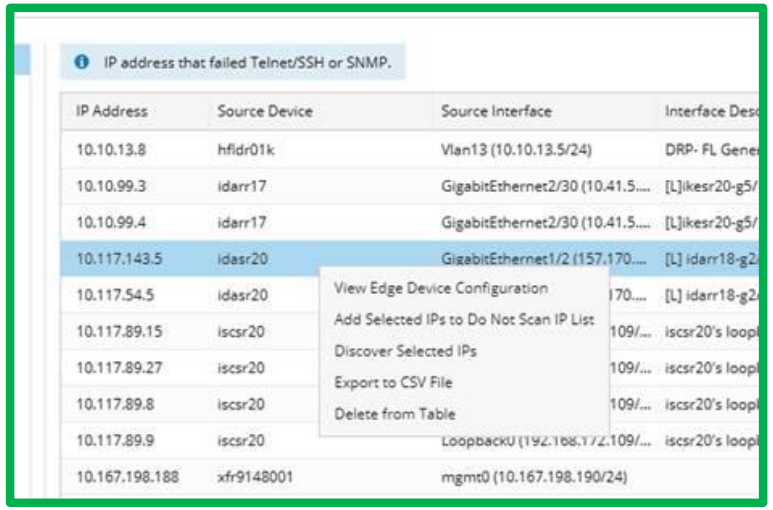
Hostname	Asset Tag	Total # of Interface	# of admin down	# of down/down	# of up/down	# of up/up
HFLDCAT1K		362	8	303	0	51

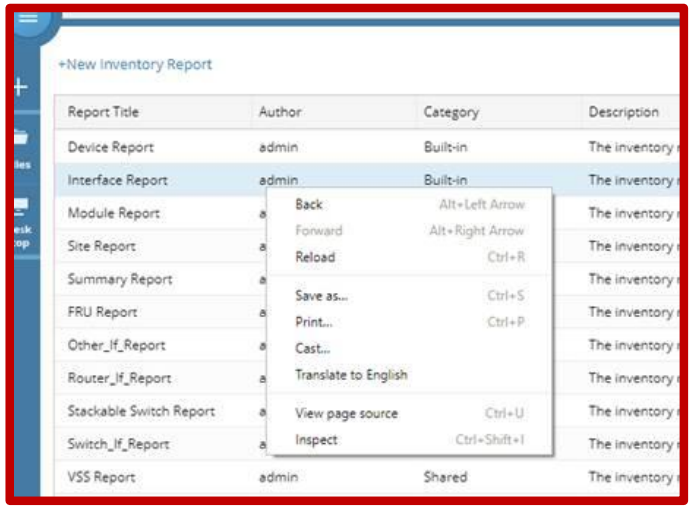
Case 2: Request to support using right-click to get the menu inside Inventory report page (#72691)

- Description:

"I have noticed that in most menus, all so far as best I can tell, I am able to right click and get the menu that is available via the down arrow all the way on the end of the lines. This lets me not have to go click the little down arrow (which is not always visible due to window size) and then pick "edit" or whatever I am looking at, very nice. But inside the Inventory report page the right click does not seem to function."

Ideal:
With right click, users can see the menu.





Issue:
In inventory report, users cannot get the menu by right click.

Update:
Right click inside Inventory report page doesn't have similar behaviors with the domain manager pages currently.

Site Manager Cases

Request to support regex to create site or export filtered site list (#72507)

- Description

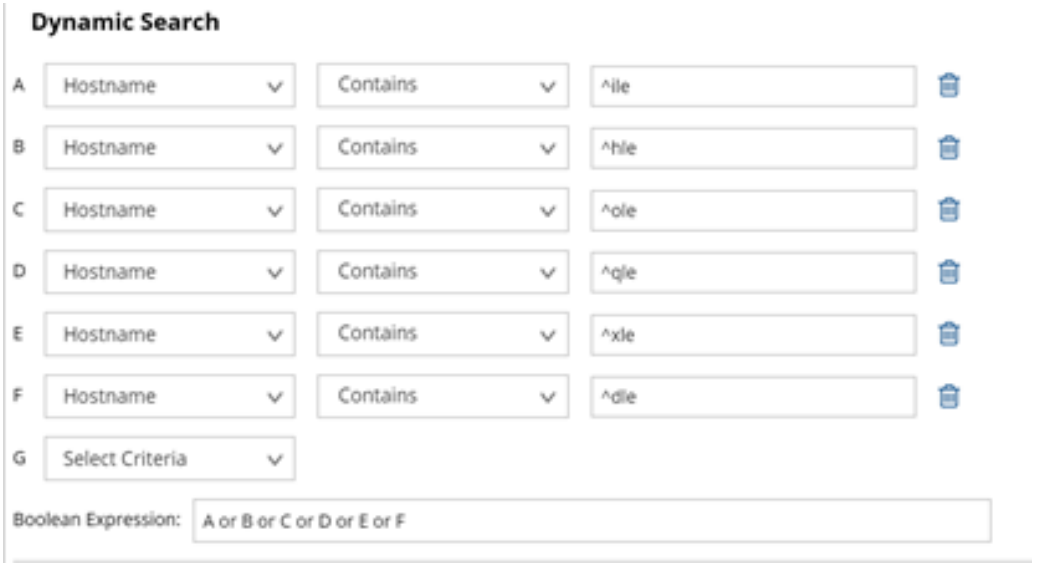
“I am trying to play with the site manager and it would be much easier to edit the data in Excel then import. What I am seeing is that when I try to export the site list the resulting XLS file does not include the actual matches. So I am getting something like:

Level3
Level2
Level1
Device Hostname
Device IP Address
RT
Texas
USA

irtlabpan92
irtlabpan93
irtlabpan94
irtlabpan98
irtlabpan99

RF
Texas
USA”

“Where I want something like: ”



“Yes, I could combine those hostnames into "ile;hle;qle;..." but since NetBrain dies not have full regex support yet I am doing multiple lines such that I can make it easier for others to understand my logic and define a standard 'leaf site' style.
To that end, how can i put the above pic into an excel file and import? ”

Virtual Devices Cases

Request to support NSX environments (#67317)

- Description:

  “Does NetBrain, ver 6.x or 7.x, have support for VMWare NSX environments? The virtual routers, virtual switches and virtual firewalls?”

Update (from Tracy):

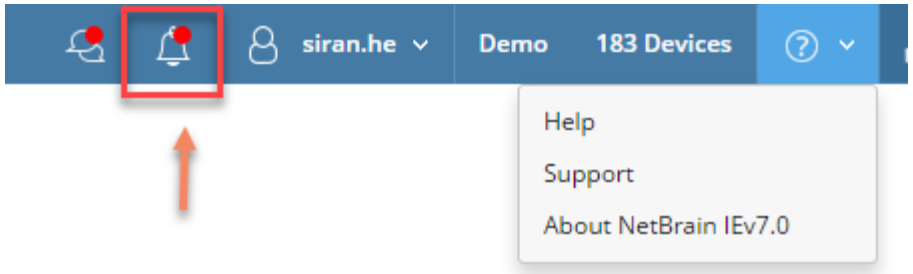
In general, we will model the virtual devices – routers, switches, etc. in a similar way as we do for physical devices as they do not fundamentally change how network works, but will create more flexible mapping capabilities to allow user more easily navigate the physical vs. virtual layers during design and troubleshooting time …

Notification Cases

Request notification when tasks are done (#64107)

- Description

  “We have an Event button on the top. The customer would like to use it to create notification or tasks and then share to the team. If any task need to be done, he will create a notification on it, once any engineer finish that, the task can be marked as “Done”.”



Update:
Feature request status changed to No planned

Design Cases

Design Cases

- **Case 1: Request to change the background on map (#64106)**

  "Currently, we can only change the background on desktop, the customer would like to *change the background for all places* which include map, Runbook, etc. The default background is pure white which is too white and too bright"

- **Case 2: Request to add Internet Boundary Interface (#64105)**

  Update: Changed Request Status to Under consideration.

- **Case 3: Request to add tips or lead guide in Desktop when the customer first time to login (#64089)**

  "Discovery and Fine tune was a bit challenging to locate and help files do not have an easy to find way to locate 'Discovery'. Once you know where it is easy to locate, just not intuitive. We can add some tips or lead guide in Desktop to lead customer to the Domain Management page. "

  Update: Changed Request Status to Under consideration.

- **Case 4: Request to move DO NOT SCAN DEVICE TYPE to the top of the list (#68117)**

  "Is it possible to move all the do not scan Device Types which are selected to the top of the list? A sort list type of idea. Simply to make it easier see what is selected instead of scrolling through the entire list.

- **Case 5: Request to hit "ESC" to close pop-up windows (#64108)**

  "It would be nice if hitting "ESC" would close pop-up windows. Ex. "Compare Historical Data" and "Neighbors of …", "Discovery Report", etc. Currently, it works on some of pop-up windows but not all of them. Eg: Compare Historical Data. "

Use Case 12: Unspecified use cases

Check space for new flash card and check routers/switches debug

- Pain point 1: need to check free space for a new inserted flash card in a device.
  - Erick walk the network looking at every device we have, if that device has a flash card inserted, need to check the free spaœ, if space is low, need to format the flash card and copy the running config to the flash card.

- Pain point 2: need to check all routers/switches and looks if any debugs are enabled.
  - Eric is currently using a script which walks all routers / switches and looks if any debugs are enabled on every Friday, if found it, manually disable the debug.
  - He also generates a report and see what devices had what debugs disabled and simply log what the debug was and then 'unde all'
- Pain point 3: They have 5+ health scripts that parse network syslogs looking for things such as:
  - Reoccurring events on devices (link up/down), MAC flapping, etc
  - Error disabled interfaces
  - Module events (add/remove) occurring within the previous 24 hours

4. Netbrain Desired Features From Eric

Netbrain Desired Features From Eric

One IP Table

*** REPLACES EXISTING TOOL ***

Ability to locate End Station by IP or MAC address

- Ability to query via API

Show entire device (switch) interface → end station table

Configuration Management

*** REPLACES EXISTING TOOL ***

Download configurations

Automated daily 'diff' report

- Email | API push to Cherwell

Group devices

Standards enforcement

Push configuration changes

- By device type | version
- Smart enough to understand QoS limitations

API integration

Main tools are

- Homegrown (TI)
- SevOne
- Cherwell
- Viavi (limited)

Generate an A to B path from two passed end stations and return

- L2 exact path
- L3 exact path

Device

- Add
- Delete
- Query
  - Config | ARP | MAC | route | CDP/LLDP | Custom fields
- Modify

User

- Add
- Delete
- Query
- Modify