



Skylight Performance Management CUSTOMER USER GUIDE

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1. Introduction

Skylight is Colt's performance monitoring tool for network services, that offers real-time insights into data transmission, network latency, bandwidth usage, and overall network health. Its intuitive interface and comprehensive analytics empower network administrators to optimise performance, troubleshoot issues, and ensure seamless connectivity across your infrastructure.

1.1. Login

To login to the platform, sign into your Colt online account, select services and then click on "Network Services - Performance Reports." This must be enabled on your account. Once you have logged into your account, you will be presented with the Homepage Dashboard.

Login to Colt Online		
Customer@address.com		
••••••••••••••••••••••••••••••••••••••		8.6.7.*
Lforgot my password	Home Connectivity Quotes Orders Tickets Services	Billing Contacts Tools
Login	Services Reports My Active Services Network Services - Performance Reports Blacend Works On Damand	Voice Services My Voice Inventory
Register »	View Planned Works On Demand Portal	Quick Links
By logging in you agree to the <u>Terms Of Use</u> and to our <u>Privacy</u> and <u>Cookie Policy</u> . You may select to change your browser setting	Registration	Click to add new link + Connectivity Checker
and restrict cookies.	The Colt Online Webinar will show you the easiest way to manage your Colt services	Order Management
		0

1.2. User Interface Overview

The panel on the left hand side of the Homepage Dashboard is the Monitoring Icon. You can access the Dashboards for all the services from this location



Top right-hand icons seen on each screen and shown below (Left to Right)



On/Off:	Auto refresh page enabled or disabled – 5-minute refresh if on
Time Picker:	Example: 8H / 5M / 28 Feb 03:00 – 11:00 GMT - Current Period / Data Granularity / Date and Time
Circle clock icon:	Busy Hours option – not currently available
User Icon:	User account settings: light mode/dark mode for the UI, language and time zone for the user.
Export dashboard icon:	Saves a PDF of the current dashboard and Excel CSV of all data points
Reset dashboard icon:	Clears any active filters and reloads data

1.3. Dashboard

The Homepage dashboard is your homepage, and gives you an overview of your services on a single pane. In the example below, Ethernet services are shown.



The services overview and summary chart show the utilisation of your circuits. After clicking to select a specific circuit, you will be presented with the summary chart (below). This gives you more visual view of your circuit utilisation and availability.



Similarly, for multiple circuits, the circuit inventory table on the dashboard can be used to see all your circuits in a single table.

Circuit Inventory											
Circuit ID	Service	Product	Net ID	A City	B City	Service BW (kbps)	Utilisation (max) 🕘 🗄	Service Availability			
Hidden Customer Details	ethernetline	p2p		munich	berlin	100000	53.1%	100%			
Hidden Customer Details	ethernetline	p2p		munich	munich	1000000	18.9%	100%			
Hidden Customer Details	ethernetline	p2p		munich	munich	1000000	7.77%				
Hidden Customer Details	ethernetline	p2p		munich	hauzenberg	100000	7.06%				
Hidden Customer Details	ethernetline	p2p		munich	munich	1000000	6.28%				
Hidden Customer Details	ethernetline	p2p		munich	jena	1000000	6.04%	100%			

By clicking on one of the circuits in the inventory you will see a pop up for the table widget toolbar, the icons within this widget are as follows from left to right: Export data as csv; Set column order; Filter dashboard; Copy selected item to a clipboard for pasting; Close pop up widget bar.

								>80 (%) 2.390%	Dijon Napbox	Zurich
	Circuit Inventory									
_	Circuit ID	Order	Bill Cust. Ref.	Service	Product	Net ID	A City		Bandwidth (kbps)	Utilisation (avg) \oplus
	bnj/ber/le-	2: 9046738	61104	ethernetline	p2p		bonn	berlin	40000	52.3%
L	muchinucije.	235531868	'61231.002	ethernetline	p2p		munich	munich	1000000	5.80%
	muc/ber/le-	235530799	61231.006	ethernetline	p2p		munich	berlin	100000	5.57%
	str/qul/le-	236186555	[61245]_bitbw_pol	ethernetline	p2p		stuttgart		10000	4.31%

1.4. User Setting

Language

At the right top, the Account settings are available, here the Language can be adjusted:

C) On Off 8H 🕂 5M < >
Language setting Deutsch English	Terry Clark portal@accedian.com Account settings
Español Français Italiano	Free and open-source software licenses Dark mode
日本語 	Language English
Português	Time zone Europe/London (Default)
	Log out

Time Zone Setting

Under Account settings also the Time zone can be adjusted.

1.5. Measurement/Storage Periods

Service performance data is gathered from the network continuously and stored for display as required - this enables historical trends to be analysed. Data is fetched from devices every 5 mins (sampling rates within devices are shorter). Different display periods are selectable from the Reporting Tool Dashboard



	⊖ On Off 1H .	<mark>√ 5</mark> M < 45S	Default periods se
e	Nov 17 15:18	- 16:18 GMT	
Time range 1 hr Current time intervals provide the	latest available	data	Customisable perio
Hours Current Data 1 8	Days 1 Historical	-7 30	
Nov 17, 2022 15:18 - Nov 17, 2022 16:18			
Granularity Max Inte	rval (si	Precision ubject to data)	
5 minutes 1 day		1x	
×			

Display Period	Granularity
1 hour	5 mins
8 hours	5 mins
1 day	5 mins

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7 days	1 hour
30 days	6 hours

1.6. Circuit Filtering

To search for a specific circuit, you can filter using the search bar below. Type in your desired circuit ID to pull up the circuit.



Once you have selected your desired circuit, click to show its utilisation and heatmaps (below). You'll also see its termination points. You can also bookmark this to save the filter, meaning it does not need to be created again.

6	Ethernet Ho	mepage Shared w	⊖ On 28	○ On Off 8H ☆ 5M く > 28 Feb 03:00 - 11:00 GMT								
	√ √ Circuit muc/mu	iD c/le-									Color opti None	ion 🟦 🕑
	OCN	Customer	Utilisation (av	g) 쿡ļ Utilisa	ition (max)	Service Avai	lability (avg)	BORSTEI		• Utilisation (n	nax) ALL DS MAX	
			8.55%	73.0%		100%			LD SCHWABING WEST			
								NEUHAUSEN			Hon &	
								NYMPHENBURG German Heat Center Munic		p-Maximilians-	125	
	Summary (percentage of tin	ne within thres	holds)						lot /		
			Availability				Utilisation (avg)			17 An	PARE	
			>=0 (%)				<=60 (%)		Mun	ich LEHEL	STEINHAUSE	
			0% >=98.8 (%)				97.93% >60 (%)		UNISTANT			
			100%				2.073%			Raidhau		
								@ mapbox			0	
	Circuit Inv	rentory										
	Circuit ID	Order	Bill Cust. Ref.	Service	Product	Net ID	A City	B City	Bandwidth (kbps)	Utilisation (avg) 🗐	Utilisation (max)	
	muc/muc/le-	235531868	-	ethernetline	020		munich	munich	1000000	855%	73.05	

To clear the customer circuit id fliter applied to the dashboard, you can simply click on the X in the fliter bar at the top and this will revert the dashboard back to default view, removing the fliter that was applied.



2. Circuit and Port Utilisation

The Utilisation Dashboard presents information on (1) Traffic flowing through individual ports and (2) Traffic flowing on individual circuits. The Port Usage section displays statistics derived from the physical interfaces - here we can look at the interface speed as well as the average amount of traffic in and out of the interfaces at each access site.

colt	Ethernet Line P2P Utilisation Detail Shared with me				○ On Off 8H 28 Feb 04:14	☆ 5M く> 4 - 12:14 GMT	⊘ % ∷	x 8
	∇ OCN ∇ OCN ∇ OCN muc/ber/le-						Color option None	t C
	Port Traffic Rate - A End	Help >>	Port Traffic r	ate - B End				
	IN ⊕ [1] 4.2 Mbps OUT ⊕ [1] 2.49 Mbps ALL SD AVG AUG AVG 14.18 Mbps AVG AVG AVG		N ⊕ [1] ALL SD 14.03 Mbps	2.5 Mbps out ⊕ [1] AVG ALL SD	4.12 Mbps avg			
	10.00				. ^ _ ~	Λ	۸.	
		11:00 12:0	808.07		7:00 08:00	99:00 10:	00 ¹ 11:00	12:4
	Port Usage - A End		Port Usage	- B End	(A =			
	Circuit ID Bandwidth (kbps) A City Speed ⊕ In ⊕ 15↓ In X ⊕	Out 🕘 🛛 Out % 🕘	Circuit ID	Bandwidth (kbps) B	City Speed +		%r⊕ Out⊚	Out % 🕘
	muc/ber/le- 100000 munich 1.0 Gbps 4.2 Mbps 0.42% 2	2.49 Mbp 0.249%	muc/ber/le-	100000 bi	erlin 1.0 Gbps	2.5 Mbps 0.2	4.12 Mbps	0.412%

The Circuit Utilisation section shows the average traffic as well as the peak traffic that is flowing in both directions (In and Out) over the selected circuit.

Circuit Utilisation
Ublisation (parg) © traffic_diffection ALL DS AV0 Ublisation (marg) © traffic_diffection ALL DS AAX I in [1] 3.92% I out [1] 2.35% I in [1] 3.92% I out [1] 3.93%
145
Circuit Traffic Rate
Traffic Rate (ang) & traffic_direction ALL 05 AV3 Traffic Rate (ang) & traffic_direction ALL 05 MAX In [1] 3.9 Mitps I writing I writing I writing I writing I writing I writing
13.9 Mopa
100 A
ex15 8500 0650 0700 0800 0900 1000 1100 1200

3. Key Performance Indicators

3.1. Summary

The Performance Detail Dashboards provide detail on the following indicators for Ethernet Services:

Service Availability Measure of the availability of the selected service over a given time period. Traffic utilisation Traffic Utilisation (avg Measure of the traffic on the selected service over a given time period (in both directions) Round Trip Delay Measure of the Round Trip Delay (RTD) between the end points of the selected service Jitter Measure of the variation in the RTD (jitter) over time for the selected service Frame Loss Measure of the number of Ethernet frames dropped between the end points of the selected services (in both directions)

3.2. Service Availability

The Service Availability graphs provide information on the availability of a given service or group of services over the period defined in the time-picker. An example is shown below:

Service Availability					
Service Availability (avg) $\oplus 1 $ ALL SD 100%	100% AVG	Service Availability (min) 4 Sources SD	[1] 100% MIN		
80					
60					
50					
12:55	16:00		20:00	28 Feb 2024	'o

Information is presented on the average Service Availability over the period and also the minimum

3.3. Round Trip Delay (RTD) & Jitter

The Round Trip Delay is measure of the time taken (latency) for traffic to travel from A to B and back to A. Normally RTD is quoted in units of milliseconds (ms). Jitter is the variation in the RTD measurements over the given period and measurements are usually quoted in ms or microseconds (μ s). Examples of the parameters as shown on the Ethernet Services Performance Detail Dashboard are shown below. Both graphs show the average values over a given period and also the maximum reached.

.07 ms RTD (max) ⊕ [1] AVG ALL RT	11.07 ms MAX						
20	38:00	09:00	10:00	11:00	12:00	13:00	14:00
			🌣 🖞				
DO6 ms Jitter (max) ⊕ 1 AVG 3 Sources RT	0.008 ms MAX						
					~/		_
00	00:80	09=00	10:00	11:00	12:00	13:00	14:00
	27 ms RTD (max) © [1] AVD ALL RT 0	97 ms AVD 87D (max) o [1] 11.07 ms MAX 0 08:00 06 ms AVD 11ee (max) o [1] 0.008 ms MAX 0 05:000	97 Image: Market (Market (Mark	27 mg NTO (max) © [1] 1107 mg 0 08:00 08:00 10:00 _ 0 08:00 08:00 10:00 _ 06 mg 3 Sources [#T 0.008 mg 0 08:00 09:00 10:00 _	P7 mg N107 mg ALL RT 11.07 mg 0 06.00 0 06.00 06.00 0600 06.00 0600 06.00 0600 06.00 0600 06.00 0600 06.00 0600 06.00 1000 06.00 1000 0 06000	P7 mg N107 mg ALL RT 11.07 mg 0 0600 0 0600 0 0000	P7 mg N107 mg NALL FT 1107 mg 0 0600 0800 1000 _ 1100 1200 1300 06 1000 mg 1000 mg 1000 mg 1000 mg 1000 1300 06 13 Sources rft 0008 mg 0000 mg 1000 mg 1000 mg 1000 mg 0 1000 mg 1000 mg 1100 mg 1200 mg 1300

3.4. Frame Loss

Frame Loss indicates the number of Ethernet frames that are dropped between Source and Destination as well as the number of frames that are dropped from Destination to Source. The Source to Destination is identified as Far End (FE) Frame Loss and the Destination to Source is identified as Near End (NE) Frame Loss. The average and maximum values are quoted for both FE and NE.



It is possible to narrow down the time period being studied by simply hovering the mouse cursor over the graph and dragging across the period required. This becomes shaded in grey as shown in the example below

Round Trip Del	ay (RTD)				
RTD (avg) 🕀 [1] ALL RT	233.57 ms AVG ALL RT	233.57 ms MAX			
234.50			1		N I
234.00					Λ.
233.50					Λ
233.14					
21 Feb 2024	23 Feb 2024		25 Feb 2024 02:44	27 Feb 2024	
Jitter					
Jitter (avg) ⊕ [1] ALL RT	0.009 ms Jitter (max) @ [1] AVG 3 Sources [RT	0.556 ms MAX			
			Λ		
0.0			A		
21 Feb 2024	23 Feb 2024		25 Epb 2024	27 Feb 2024	

Once executed this period is then shown in more detail as highlighted below with the exact period shown in the time-picker area in the top right hand corner

Ethernet Line Performance Detail Shared with me		 分 Static 7D ☆ 1H Q Reset Q 24 Feb 2024 12:31 - 25 Feb 2024 03:04
∇ ∇ OCN ∇ ∇ OCN ∇ 𝔅 OCN ⟨ng/str/le-		Color optic
Round Trip Delay (RTD)	(C d www_x)	
RTD (avg) ⊕ [1] 233.35 ms RTD (max) ⊕ [1] 234.73 ms ALL RT AVG ALL RT MAX		
234.73 ms 234.50	~	
234.00		
233.50		
233.14		
12:17 16:00		25 Feb 2024
Jitter		
Jitter (avg) ⊕ [1] 0.012 ms Jitter (max) ⊕ [1] 0.556 ms ALL RT AVG 3 Sources RT MAX		
0.6 ms	^	
0.4		
0.2		
0.0 12:17 16:00	2000	25 Feb 2024

This simple feature is available on all graph related parameters

4. Generating Reports

From any dashboard users can generate a report. This can be generated for the entire dashboard or just for specific graphs / tables within it. Reports are generated using the 'Share dashboard' icon in the top right-hand corner of the screen as shown.



Selecting this option presents a 'Download report' option



Once the report is downloaded a zipped file will appear in the download folder on your local machine

Ethernet_Line_Performance_Detail_-28_Feb_2024_1... 28-Feb-24 15:03

The Zip file contains Excel files with all the data for each of the parameters displayed on the screen as well as a PDF file showing a screen capture

(

Name	Туре	Compressed size
😰 Ethernet Line Performance Detail _Table_2	Microsoft Excel Comma Separ	1 KB
Frame Loss_Ethernet Line Performance D	Microsoft Excel Comma Separ	7 KB
Jitter_Ethernet Line Performance Detail _Ti	Microsoft Excel Comma Separ	9 KB
📴 report	Microsoft Edge PDF Document	1,186 KB
😰 Round Trip Delay (RTD)_Ethernet Line Perf	Microsoft Excel Comma Separ	10 KB
Service Availability_Ethernet Line Perform	Microsoft Excel Comma Separ	7 KB
Traffic Utilisation_Ethernet Line Performan	Microsoft Excel Comma Separ	15 KB

colt

Report for Ethernet Line Performance Detail By Malcolm Edwards

Report generated on 28 Feb 2024 15:02 GMT for dashboard Ethernet Line Performance Detail
Link to dashboard: https://analytics.colt.net/monitoring/E83B0E0B-C163-2209-8D98-2605D8A99047

Period 21 Feb 2024 14:56 to 28 Feb 2024 14:56 GMT

5. Services

5.1. Summary

This reporting is available for below services

Service	Description	Charge
Optical	 P2P Wave services – Ciena 6500 based for selected cards 	Orderable feature with associated charge
	 Service Availability; Traffic Utilisation 	
Ethernet	All topologies – E-Line, H&S, E-VPN	Bundled – No Charge
	Service Availability; Utilisation; Performance KPIs	
IP Access	 Services include Managed Router / Unmanaged Router / Wires Only 	Bundled – No Charge
	 IP Service KPIs including L3 devices 	
IPVPN	Meshed networks – similar to E-VPN	Bundled – No Charge
	 Performance KPIs, CoS plus L3 device 	
Voice	 SIP Trunking, Voice Line, Number Hosting 	Orderable feature with associated charge
	CDR Data and underlying IP statistics	

5.2. Optical Services

5.2.1. Optical Wave

For Wave, we have the following Metrics supported on selected Ciena hardware (for details check with Colt Optical Engineering team):

- Availability in % for all supported services (Ethernet and Fibre Channel)
- Utilisation in Mbps/Gbps or % of Port speed for Ethernet services only

Select the dashboard for Optical services:



From there, the metrics can be viewed, filtered and customised, as shown in previous sections of this document.

5.3. Ethernet Services

The following Ethernet services have associated Dashboards in the Skylight Tool.

Ethernet Line P2P

Ethernet Line H&S

Ethernet VPN (E-VPN)

with individual dashboards for Summary, Performance Detail & Utilisation as shown below. The user can move between dashboards by using the *Transfer to* icon highlighted in yellow.

Please note that the appropriate dashboard must be selected based on the service topology e.g. in order to show Utilisation for an E-VPN service then the Ethernet VPN Utilisation Detail Dashboard must be selected



5.3.1. Ethernet Line Summary Dashboard

The Ethernet Line Summary Dashboard is applicable for both P2P and H&S services. It shows the following:

- Utilisation Heat Map with the maximum utilisation for all circuits selected over the given period. The circuits themselves can be displayed as (i) Source (ii) Destination or (iii) Individual Links. If only 1 circuit is filtered then the information will be shown for that single circuit (this is often very useful)
- The Key Ethernet Performance metrics
 - Round Trip Delay (RTD) (average)
 - Jitter (average)
 - Far End Frame Loss (%)
 - Near End Frame Loss (%)
- Other circuit information in the inventory list e.g. Service Availability, A-End City, B-End City, Service Bandwidth etc.



The same dashboard for a H&S service would show the entire Hub & Spoke network with all connections and also the average values of the Ethernet KPIs

colt	Ethernet Line S	Summary Si	hared with me		thernet Line Summary Shared with me													
	Υ ^γ οcn γ _P hut	voduct 7	Net ID												Ħ	Color None		
	Utilisation Hea	it Map					I	Help >>	8		Service Summary							
	Q Search, e.g.		:I ···		Unterschieffinin.	ei Freising		Utilis	Bockhr ation (max) \oplus ALL	DS MAX	OCN Cut	stomer	Utilisati	Utilisation (avg) $\oplus \overline{\Xi}_{1}^{i}$ Utilisation (max) \oplus				
			Moosinning			31753 gtt-	emea limited	3.425	3	3.2%								
	Mammendorf		Iching		1 ummigan	Land				Iser								
	Fürst	enfeldbruck		-	- Manhaim D	Actives					Round Trip Delay AVO RT 1.41 ms	r (avg) & Round AvG P 0.30	Trip Jitter (avg) ⊤ 58 ms					
	Omaphore				-						Far End Frame L AVG_SD 0%	oss X o Near Er AVG D 0.00	nd Frame Loss 5 5 10%					
	Cinappoxee				Unterhachi	ing /		© Mapbox © Oper	StreetMap Impro	ve this map								
	Circuit Perfor	mance Sun	nmary						(ð E)									
	Circuit ID	Order	Bill Cust. Ref.	Product	Bandwidth (kbps)	Net ID	A City	B City	RTD 0	Jitter 👌	NE Frame Loss 0	FE Frame Loss 0	Availability \oplus	Utilisation (avg)	Utilisation (
	muc/muc/le	237451829	pon (2226993-41077	hub&spoke	1000000	hns-235033673	munich	nuemberg		0.013 ms	ox Pack	et loss %		25.4%	33.2%			
		238238508	pon (2466513-56465	hub&spoke					0.38 ms		0%	ox	100%	5.19%	31.9%			
	muc/muc/le	237960348	pon (2422959-4987)	hub&spoke	100000	hns-235033673	munich	munich	0.43 ms		os	ox	100%	7.20%				
			1982390-11044542	hub&spoke	1000000			aschheim		0.013 ms	ox	ox	100%	9.78%	25.0%			
	muc/muc/le	236812881	pon (2161842-32137)	hub&spoke	100000	hns-235033673	munich	munich	0.11 ms	0.013 ms	ox	ox	100%	1.35N	22.1%			
	muc/ger/le-	237328838	2316186-12705360	hub&spoke	500000	hns-235033673	munich	aschheim	1.37 ms	0.015 ms	ox	ox	100%	9.97%	16.1%			



General Note: The columns in the tables can be ordered top down based on the values. The example above shows the table ordered based on the Utilisation (max) parameter. This 'Top N' ordering is achieved by simply selecting the relevant parameter in the top row.

5.3.2. Ethernet Line Performance Detail Dashboard

The Performance Detail dashboard gives detailed graphical representation of the Ethernet KPIs showing both average and maximum values of the following parameters

- Service Availability this parameter is shown as average and minimum
- Round Trip Delay (RTD)
- Jitter
- Far End Frame Loss (%)
- Near End Frame Loss (%)
- Traffic Utilisation

Details are described in Sections 2 & 3 above

5.3.3. Ethernet Line P2P and Ethernet Line H&S Utilisation Dashboard

The Utilisation Dashboards present information on...

- Port Traffic traffic entering and leaving individual ports
- Circuit Traffic (Circuit Utilisation) traffic flowing in both directions for any given circuit

In the case of Ethernet P2P services this information will be shown for the A-End and B-End of the circuits. There is a separate Utilisation Dashboard for Ethernet H&S services where the utilisation is shown for the Hub at the A-End and the individual Spokes at the B-End. An example of a H&S Utilisation Dashboard is shown here.

Ethernet Line H&S Utilisation Detail Shared with me					C+ On Ultr BH אַ, 5M 28 Feb 07.47 - 15.4
V V CCN V Product V Net 8 https://www.sec.org/abs/sec					
	R				
Poor raffic Rate - Hub	Pap>>	Port Traffic Rate - Spok	ke		
Turine to e (r) 448.5 Mogis Arro Turine Core (r) 481.84 Mogis Arro Mick Maps Arro Arro		Truettic In e [22] 21.7 M ALL_100 35.34 Milps	Abps Truthe Out + [22] 20.70 Mbps Avg ALL 50 Avg		
		30.00			m
1976 0990 1900 1900 1900 1900 1900 1900 190					1300 540
	Buddham Barba				
Montusage-Hub	Ceruit ID Onter	BE Cust. Set. Bandwide	en anna - Net 10 City	0 E	AND
Nov. munich 10.0.00pt 448.3.00pt 8.47% 481.04.00p 8.82%		1001643-11176 200000	http://www.astorastan	10 CR44 0 0.00%	0.00 kps 0%
	mac/mac/e= 0 237688392	pon (2357102-48865, 1000000	2 http://doi.org/10.0000	10 Gilges 3.4 Khps 0.00%	4.73 Kbp 0.000%
11.1	mac/ger/e-1 237680054		100115033673 genging b. maint	N 10 Cliges 28.4 Khps 0.00%	
Hub	mac/mac/le-07 237380570	pon (2319687-39768) 10000	Spoke	SIGO MODE OS B KIDDE O BOOK	129.93 KI 1.50%
			http://doi.org/10.00011010000000000000000000000000000	10 Gaps 00.2 Kaps 0.01%	88.30 Kb 0.009%
	muc/muc/e-1007 236504747	pon (2124770-27638) 200000	hns-235033673 munich	1.0 Okps 270.3 Kbpr 0.03%	222.88 K 0.022%
	mucigede-t 235632111			c) 1.0 Gibps 556.8 Kbpr 0.04%	119 Mbpr 0.119%
Circuit Utilisation					
Utilization (ang) o traffic, direction ALL DE AVG Utilization (man) & traffic, direction ALL DE MAX					
out [27] 3.39% out [27] 33.2%					
³¹⁵	~	~~~			
	\sim			m	\sim
					~~~~
arso 6600 baso 1900 1900		1200	1300	1400	

### 5.3.4. Ethernet VPN

Ethernet VPN has a dedicated set of Dashboards for Summary, Performance Detail and Utilisation.



The data presented for the KPIs (RTD, Jitter, Frame Loss) represents the performance between individual Access Site end points and the Primary Site of the Ethernet VPN network. The Utilisation information is based on traffic flowing at each Access Site – this includes the port traffic at the access site and the IN/OUT traffic on individual circuits. An example of both the Summary Dashboard and the Utilisation Dashboard is shown below

### Ethernet VPN Summary Dashboard

colt	Ethernet VPN S	ummary s	hared with me											0.0	On Off 88 28 Feb 07:	H 🛃 5M 47 - 15:47 (	<> (	⊙‰ ₫	x 8
	$\nabla^{\nabla \operatorname{ocn}}$	V Net ID	⁷ Circuit ID 9 Selections															lor option	₫¢
	Utilisation Hea	t Map						Help		H		Servic	Service Summary						8
	Q. plugtas Un		: I					Gdansk	Glining	rad Illisation (	Window max) & ALL DS MAX	OCN	Customer	Utilisation (a	n ≣) wg) ≎ ₹]	Utilisation	(max) 👳		
а — ан	Uverpool WALES Cardiff			ietherlands 1 20	10 20 Magdeburg	8	aczecin Poz	Bydgosece ant Polai				E	lignig to de vice get	1.02%					
				gium Luxembourg	DO 10	10						Round 1 AVG R 8.91	frip Delay (avg) ⊖ MS	Round Trip Jitter (avg) ⊕ AVG RT 0.091 ms					
	() mapbox				20 Zurich			Bratislava Hung @ Mapb	jary ex 8 0	penStreet	Chernivial Sluj-Napoca Map Improve this may	Far End AVO SE 0.00	Frame Loss % N	Near End Frame Loss & NO DS 0.000%					
	Circuit Utilisa	tion Summ	ary								Circuit Perfor	mance Sur	nmary						
	Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Net ID F	lole	A City	Util. (avg) 🔅			Circuit ID	Order	Bill Cust. Ref.	A City		Jitter 🕁	NE Loss $\oplus$		Availability
	muc/muc/te-	235957914		2000000	lan03744 a	ccess	munich	2.93%		37.4%	ber/ber/le-633151	236922896	epn3	berlin	15.22 ms	0.001 ms	0%	0%	100%
	ham/ham/le-iiiiiiiiii	236323922		100000	lan03744 a		bremen	2.89%		86.0%	ber/ber/le-610646	236267695			14.97 ms		0%	0%	100%
	fra/fra/le-littiniti	236922978	epn3	4000000	lan03744 a	ccess	frankfurt	2.73%		37.5%	ber/ber/le-612851	236261601		berlin	14.93 ms	0.030 ms	0.001%	0%	100%
-	drs/fra/ie	212226169		100000	lan03744 a		dresden	2.40%		39.0%	ham/ham/le-611374				14.32 ms	0.959 ms	0.019%	0%	100%
	ham/ham/le	228474293		2000000	lan03744 a	ccess	hamburg	164%		19.6%	bfe/bfe/le-623824	236683446	epn 3 - dtag	bielefeld	13.46 ms	0.009 ms	0.003%	0%	100%
		237030899		1000000	lan03744 a		nuremberg	11216		16.5%	hajihajile-600946				11.06 ms		0%		100%

### **Ethernet VPN Utilisation Dashboard**



### 5.4. IP Services

### 5.4.1. IP Services Homepage Dashboard

Login into the Skylight tool via <u>https://performance.colt.net/</u> and go to the Monitoring Icon and under the IP Services 1.0 Section select the IP Services Homepage, this will display all your IP services.

colt	Dashboards										C On O 02 I
		+ Create									
	Recently used	Show more		Helpss		Heat Man					
	C IP Services Homepage (1)	IP Services 1.0 Private		-	Availability	Treat Map					
	C IP Services Homepage	IP Services 1.0 Shared with me	/ו	<u>i</u> ,		, e.g. LA, LAINYC		Ander	am-Duskerst hHulland		Availat
	> Default (2)						8		2 10000.10	even	2
	> Customer Portal 0.11 (9)										
	> Ethernet Services 1.0 (9)										
	V IP Services 1.0 (7)				÷ /						
	C IP Access Performance Detail	IP Services 1.0 *** Shared with me			@ mapbo	×					© Mapbox © Ope
	C IP Services Help Page	IP Services 1.0 Shared with me		City	Country	Bandwidth (kbps)	Availability % 🗇	Traffic In ⊕ ≒]	Traffic Out 🕀	In Peak % 🕸	Out Peak % 💿
	C IP Services Homepage	IP Services 1.0 Shared with me	1	frankfurt	germany	100000000	100%	13.9 Gbps	2.45 Gbps	39.5%	7.03%
	ID Cardinas Hamanana (1)	ID Canalona 10	1	frankfurt		10000000	100%	13.8 Gbps	2.61 Gbps	39.9%	7.74%
	C IP Services Humepage (1)	Private	P 1	frankfurt	germany	100000000	100%	11.6 Gbps	9.41 Gbps	32.3%	27.3%
	IP VPN CoS Performance Detail	IP Services 1.0	3 1	frankfurt		100000000	100%	11.4 Gbps	6.50 Gbps	32.1%	18.6%
		Shared with me	5 1	amsterdam	netherlands	10000000	100%	9.2 Gbps	803.29 bps	12.8%	0.000%
	C IP VPN Jitter Network Performance	IP Services 1.0		hamburg		1000000	100%	7.9 Gbps	138.20 Mbps	98.0%	1.87%
				neufahm b. freising	germany	1000000	100%	7.3 Gbps	120.95 Mbps	85.0%	1.41%
	C IP VPN Performance Detail	IP Services 1.0 Shared with me		as rozas de madrid	spain	100000000	100%	6.0 Gbps	2.72 Gbps	13.9%	4.48%
				slough	united kingdom	10000000	100%	6.0 Gbps	1.03 Gbps	10.6%	1.80%
	> IP Services Custom Dashboard (1)		2 1	neufahm b. freising	germany	10000000	100%	5.8 Gbps	96.69 Mbps	96,1%	1.60%

Once the IP Services Homepage is presented, we can see under the Service Overview table associated Customer name with the Net ID and the Availability %. You can also see an Availability Heat Map with the associated services. Lastly you can see the Circuit Inventory table that displays a subset of the IP services that gives you associated statistics (Availability, Traffic In/Out - AVG and Peak % In/Out - MAX) based on date/time period selected.

colt	IP Service	is Homepage	Shar	ed with me										⊖ On O 02 F	f   8H 🕂 5M   く > Feb 02:45 - 10:45 JST	
															Д	C N
	Service C	)verview					Help>>	Availabilit	y Heat Map							Ŀ
	Service Overview           000         Outcome           020025         recorves medic oxdurt           020025         recorves medic oxdurt           020025         recorves medic oxdurt           020025         colligosod           0200205         colligosod				Net ID	Availability 5	:• ĘI	Q, Searc	🔍 Search, e.g. LA, LA:NYC				Availat	ility % 🗄 3 Sources SD A		
					ipa-228562604	100%				ntor, Alberta	Arreter	lem-Zukloost, h Holland				Aberte
		macro web medi			ipa-212160496	100%				Bay Street Contidor, Ontario		975 2 Ventor Ve				
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	Circuit I	nventory							-							
	Circuit ID	Order		Bill Cust. Ref.	Service	Net ID	City	Country	Bandwidth (kbps)	Availability % 🔿	Traffic in ⊕ 🗐	Traffic Out 🕘	In Peak % 🔿	Out Peak % 🔿		
	fra/fra/ia=624	456 236567	627		ip access	ipc04624	frankfurt	germany	10000000	100%	13.9 Gbps	2.45 Gbps	39.5%	7.03%		
	fra/fra/ia-624	457 236568								100%	13.8 Gbps	2.61 Gbps	39.9%			
	fra/fra/ia-624	455 236567				ipa-236567810	frankfurt	germany	10000000	100%	11.6 Gbps		32.3%	27.3%		
	fra/fra/ia-624	458 236568				ipa-236568073				100%	11.4 Gbps	6.50 Gbps	32.1%	18.6%		
	ams/ams/ia-6	29510 236822				ipa-236822375	amsterdam	netherlands	10000000	100%	9.2 Gbps	803.29 bps	12.8%	0.000%		
	ham/ham/ia-5									100%	7.9 Gbps	138.20 Mbps		1.87%		
	muc/muc/ia-5	67381 229039	060	neutahm		ipc04624	neufahm b. freising	germany	1000000		7.3 Gbps	120.95 Mbps		1.41%		
	mad/mad/ia-€	69964 237826		100229380		ipa-237826483				100%	6.0 Gbps	2.72 Gbps	13.9%	4.48%		
	Ion/lon/ia-540	211564	885		ip access	ipa-211564922	slough	united kingdom	10000000		6.0 Gbps	1.03 Gbps	10.6%	1.80%		
	muc/muc/ia-5	67381 229039	1060	neutahim	ip access	ipa-229038992	neufahm b. freising	germany	1000000	100%	5.8 Gbps	96.69 Mbps	96.1%	1.60%		

Click on the filter bar at the top of the screen, this will open a new pop up screen with multiple options that can be selected for filtering e.g Circuit ID, OCN, Net ID, Customer etc:

colt	IP Service	es Hom	epage Shari	ed with me											⊖ On 0 02	ff   8H ☆ 5M   く > Feb 02:45 - 10:45 JST
	7															
	Service C	Overvie	w				Help>>	6	Availability	/ Heat Map						E
	OCN	Custon	ier		Net ID	Availability %				, e.g. LA, LA:NYC	<b>.</b>		1		Availa	bility % 🗄 3 Sources SD AVG
					ipa-228562604						IOS ADATA	Amdard	larn-Zuidoost, h Holland			Edmonton, Alberta
					ipa-212160496						Bay Street Contidur, Ontanto		975 2 Televis Tele			) a
	02100503	colligo (	apa -										-			
		colligo a	iça		ipc04624											L.
	02100541	ringcan	tral, inc													
			ia telakom globa	i business solutions italiaisri	ipa-200618572											
	02100602	deutsch	a telekom globa	i business solutions italiaisri					6						- 6	Ъ.
			a telekom globa	i business solutions italiaisri												27
	02100602	doutsof	a telekom globa	i business solutions italiaisri	ipa-236012281				🕑 mapbo	x					© Mapbox © Op	anStreetMap Improve this map
	Circuit I	nvento	ry													
	Circuit ID		Order	Bill Cust. Ref.	Service	Not ID			Country	Bandwidth (kbps)	Availability % 🕀	Traffic In ⊙ 🗐	Traffic Out 🗇	In Peak % O	Out Peak % 🕀	
	fra/fra/ia-624	1456	236567627		ip access	ipc04624	frankfurt		germany	100000000	100%	13.9 Gbps	2.45 Gbps	39.5%	7.03%	
	fra/fra/ia-624						frankfurt				100%		2.61 Gbps	39.9%	7.74%	
	fra/fra/ia-624	1455	236567716			ipa-236567810	frankfurt		germany	100000000		11.6 Gbps		32.3%		
	fra/fra/ia-624		236568161			ipa-236568073							6.50 Gbps		18.6%	

For this example, we will use a customer Circuit ID to display the IP Access service for that customer in a single view, we can type Circuit ID and add the circuit ID into the search:

colt	IP Service	es Homepage Shared with me							○ On Off   8H ☆, 5M   く > 02 Feb 02:45 - 10:45 JST   0
	Service (	Dverview				Q, circuit		×	
	OCN	Customer	Net ID	Availability %	Ð	Bookmarked filters	✓ Categorical results		Availability % 🔶 3 Sources SD AVO
			ipa-2285626			Recently used			
		macro web media ced srl		100%		All	Circuit accadian_circuit	Circuit +	endem Zakkork. Edmonton allerte
		colligo s pe	ipa-21117069			Assets	Circula ID		775
		colligo s pe				Circuit	circuit_id	session +	2
		ringcentral, inc				Alert	nni.circuit.id	sassian (T-)	
		deutsche belekom global business solutions				Consion			
		deutsche telekom global business solutions	italia srl ipa-21014391	5 100%		actml62x_s_del	1		
		deutsche telekom global business solutions	italia si ipa-21117038	5 100%		actml62x_s_fl			
	02100602	deutsche telekom global business solutions	Italia sri lpa-2360122	100%		actml62x_s_ifc			@ Mapbox @ OpenStreetMap Improve this map
	Circuit I	nventory				actml64x_s_bw actml64x_s_del actml64x_s_fl			
	Circuit ID	Order Bill Cust. Ref.	Service	Net ID	City	actml64x_s_ifc			raffic Out ⊕ In Peak % ⊕ Out Peak % ⊕
	fra/fra/ia-624	456 236567627	ip access	ipc04624	frankfi	alu_s_env alu_s_ifc			45 Obps 39.5% 7.03%

Once this has been done, we can now add our Circuit ID into the search bar:

colt	IP Service	es Homepage Shared with me				C On Off IBH #, 5M < > ( 02 Feb 0245 - 1045 ⊔ST □ 0
	Service (	Overview		I	< ☆ Circuit 10 Include = ~ 🛛 🗙 🔽	l l
	OCN	Customer	Net ID	Availability % 0	Q fra/fra/io-624455	Availability \$ < 3 Sources SD AVG
			ipa-228562604	100%	Select all 1 Clear all Values from filtered dataset Selected only	a for the state of
				100%	fra/fra/ia-624455	antan-Salaton, Editority Alberta
	02100503	colligo spir	ipa-211170692	100%		975
		colligo spa		100%		
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		ceutache teleken global business solutions italis sri		100%		
	02100602	ceutache teleken global business solutions hala ert	ipa-210143915			
		ceutache telekam global business solutions italia art		100%		
	02100602	deutsche teleken global business solutions italia art	ipe-236012281	100%		@ Mapbox @ OpenStreetMap Improve this map

You now need to select the check box next to the circuit id and click the tick icon to apply the filter changes to the IP Services dashboard:

colt	IP Servic	es Homepage Shared with me						○ On Off   8H <del>r/</del> , 5M (
	<u>v</u>							W
	Service	Overview		ļ	$\sum_{i=1}^{N}$ Circuit ID Include = $\checkmark$			6
	OCN	Customer	Net ID	Availability % 🕀				Availability \$ ± 0.3 Sources SD AV0
			ips-228562604	100%	ielect all 1 Clear all 📃	Values from filtered dataset Sel	slected only 🕕	
22		TOTO WE BICK MOST		100%	fra/fra/ia-624455			and the second se
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				100%				2 2 8
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		dearse's telecon pot al testness soulices della sel		100%				
		counsel a failedan y bit of basinese so usions its least		100%				© Mapbox © OpenStreetMap Improve this map

As you can see below the dashboard has now been updated to only show this IP Access circuit:

colt	IP Services Ho V Circuit ID fra/fra/ia-63	omepage Share	ed with me										⊖ On O 05 I	ff Feb (
	Service Overv	view			Hel	lp>>		wailability H	eat Map					
	OCN Cust	tomer	line in	Net ID	Availability 9	κ		Q Search, e		IVC .			Av	ailab
							Indi	ustriepark Höche	HOCHS		NIED Strood Schwani SCHWANHE	sse straße GRII neimer Ufer M	FRI E SHEIM © Mapbox ©	EDRI BER EDLU
	Circuit Inven	tory												
	Circuit ID	Order	Bill Cust. Ref.	Service	Net ID	City		Co	intry	Bandwidth (kbps)	Availability % 🕀	Traffic In ⊕ ≒ļ	Traffic Out 🕀	In I
	fra/fra/ia-624455	236567716		ip access	ipa-236567810	frankfurt		gen	nany	10000000	100%	7.7 Gbps	6.20 Gbps	13.0

You can bookmark if required so this is always available without creating a new search every time.

		⊖ On Off │ 8H ; 02 Feb 02:4!	☆ 5M く > 5 - 1 <u>0:45 JST</u>
	Saved filters		Save
Availability Heat Map		No results	
Q Searchi, e.g. LA, LA:NYC			NG

Once this has been saved this will be in your bookmarks permanently until removed and can be used by selecting the bookmark and clicking on the saved filter:

			○ On Off   8H ☆ 5M   < > 02 Feb 02:45 - 10:45 JST
	Saveo	d filters	Save
Availability Heat Map	খি		
Q Search, e.g. LA, LA:NYC			

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You can look at the initial information presented on the screen based on the default date/time period last 8 hours with 5 minute granularity:

 ○ On Off
 8H ∴ 5M
 < 5S</th>

 04 Feb 16:08 - 05 Feb 2024 00:08 GMT

In the Service Overview table, you can see some associated metadata and Availability % taken from the network.

- OCN Unique Identifier of Customer
- Customer Customer Name
- Net ID VPN Identifier
- Availability Port availability

Service (	Dverview		Help>>	
OCN	Customer	Net ID	Availability % 🕀	Ę
100096803	soon video communications inc.	ipa-236567810	100%	-

In the **Circuit Inventory** table, you can see the below information including Metadata and Network data:

- Circuit ID Unique Identifier of Circuit
- Order Order number
- Bill Cust. Ref. Reference number of customer billing
- Service Name of Service (Product)
- Net ID VPN Identifier
- City
   Name of city where circuit is provisioned
- Country
   Name of country where circuit is provisioned
- Bandwidth Contracted Service Bandwidth
- Availability Port availability
- Traffic In Average traffic (Network to Customer)
- Traffic Out Average traffic (Customer to Network)
- In Peak Maximum % of service bandwidth (Network to Customer)
- Out Peak Maximum % of service bandwidth (Customer to Network)

Circuit Inventor	у											
Circuit ID	Order	Bill Cust. Ref.	Service	Net ID	City	Country	Bandwidth (kbps)	Availability % 🗇	Traffic In ⊕ 🗐	Traffic Out 🕁	In Peak % 🕁	Out Peak 9
fra/fra/ia-624455	236567716		ip access	ipa-236567810	frankfurt	germany	10000000	100%	7.0 Gbps	5.66 Gbps	13.0%	10.5%

The statistics you see in the Circuit Inventory table for this IPA service are all pulled from the same source, to understand the source data, hover over one of the metrics and click on the green arrow that you see.

Circuit Invento	ry											
Circuit ID	Order	Bill Cust. Ref.	Service	Net ID	City	Country	Bandwidth (kbps)	Availability % 🕘	Traffic In ⊕ ≒ļ	Traffic Out 💿	In Peak % 🕀	Out Peak % 🐁
fra/fra/ia-624455	236567716		ip access	ipa-236567810	frankfurt	germany	10000000	100%	5.8 Gbps	4.68 Gbps >	13.0%	10.5%

As you can see in this example our source monitoring point is the interface of the L3 CPE, we are using port Te0/0/3. (We also monitor other types of interfaces for other services e.g Unmanaged IP Service source monitoring point may use SR PW-ether interface, this would impact the In and Out directions so please be aware of the source you are looking at

Session - device_interface	> 1€				× ¥ §
	Circuit ID Se a/fra/ia-624455 ip ac	rvice cess	∑ Net ID ipa-236567810 f	City     Country     Bandwidth       frankfurt     germany     100000000	0 (kbp Objects 100%
Table Showing top 1 se	essions				
Session	Out 3 Sources SD AVG	Ęļ	Out 3 Sources SD AVG	Topology	Source Location
sr1.FRA_PW-Ether267.2	4.68 Gbps			dummy, sr1.fra	50.09754, 8.587309

You can now go into the **IP Access Performance Detail** Dashboard to see the information presented in a graph format. You can transfer to this Dashboard directly by using the transfer dashboard icon as per below:

colt	IP Services H	omepage Share	ad with me								On Off 04 Feb 17:	8H 🕂 5M 02 - 05 Feb 2024 0	<> 1:02 GMT	) % 📺	x 8
	\     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \     \    \	524455												lor option	₫0
	Service Over	view			Hel		Availability Heat Map			L.		eess Padamaa	o Detailt		
	OCN Cu	stomer		Net ID	Availability %		Q Search, e.g. LA LAS	wo fi			ansfer to "IP V	PN Performance D	e Detail*		
	100398333 avv	ni video communica	ilona, inc.	ipa-236567810	100%	_		3 7	AN V		ansfer to "IP V ansfer to "IP V	PN Jitter Network PN CoS Performar	Performance		
							носня		NIED	T			ALLUS OU MARADA U	a T Inh	
							Industriepark Hochst	3.	Stroel Schwan SCHWANHE	lstraðvi heimer Uter TM	ESHEIM	Nie Nie			
							Omapbox	/			© Mapbox C	OpenStreetMap Im	prove this ma	P	
	Circuit Inver	ntory													
	Circuit ID	Order	Bill Cust. Ref.	Service	Net ID	City	Country	Bandwidth (kbps)	Availability % 🗢	Traffic In ⊕ 🗐	Traffic Out 0	In Peak % 🔿	Out Peak %		
	fra/fra/ia-624455	236567716		ip access	ipa-236567810	frankfurt	germany	100000000	100%	5.8 Gbps	4.68 Obps	13.0%	10.5%		

#### 5.4.2. IP Access Performance Detail Dashboard

The **IP** Access Performance Detail Dashboard is shown below, scroll down through the graphs to see the different metrics displayed in a graph format. The graphs are displaying some of the information based on the table above the graphs with the exception of the Traffic errors graph (Not seen in the table), also we do not see a graph for In/Out Peak %.

colt	IP Access Perf	ormance De	tail Shared with me									ć	Static   05 Fel	4H 24M ๙, 5M b 00:00 - 04:24		0 % 🔝	x 8
	\7 Circuit ID     mad/mad/ia	-236													Д	Color option None	đ
	Circuit List - T	op N				l	Help >>	8									
	Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Net ID	City		Country	Availability % $\oplus$		↓ Out ⊕		Out % 🔿	in Peak % $\oplus$	Out Peak	<b>x</b> •	
	mad/mad/ia-236751	210466820		2000000	ipa-210466799	madrid		spain	100%	942.2 Mbp	s 704.79 M	47.1%	35.2%	88.0%	70.8%		
	Traffic Rate																
	Traffic In (avg) & ALL SD	942.2	Mbps Traffic In (peak) - AVG ALL   SD		Traffic Out (avg		04.79 Mbps	fraffic Out (peak) +⊳  1 \LL   SD	I 1.42 Gbps MAX								
	1.76 Gbps																
			$\sim$														
							~			~							
	432.92						02:00			03:00	$\sim$			04:0	0		

You can filter this view for historical data by using the date and time picker in the top right of the screen, this can be up to 60 days for data in 5min intervals and up to 1 year for hourly intervals. If you try to go back to far, you will see no data for that service for the period you are looking at:

x 8	) % <u>:::</u>	п 🤆	< 5M 12:23 GM	D 12H 🕂 1H - 05 Feb 2024	Static Feb 00:00	€ 04											ail Shared with me	ormance Det	IP Access Perf	colt
	lor option ne	Col Nor																236	V Circuit ID mad/mad/ia	
												- Ei	Help >>					op N	Circuit List - T	
	1	kX∂.	Out Peak	in Peak % 🕁	but % 🕕	ln%t⊕ (		.↓ Out ⊚		lability% ⊕	Av	Country		City	Net ID	Bandwidth (kbps)	Bill Cust. Ref.	Order	Circuit ID	
	1				8.1%	86.5% 6	3 Gbps 8	1.36 G	1.7 Gbps		101	spain		madrid	ipa-210466799	2000000		210466820	mad/mad/ia-236751	
																				-
																			Traffic Rate	
										4.66 Gbps MAX	ak) ⇒ [1]	Traffic Out (pe ALL   SD	1.36 Gbps AVG	) ⊕ [1]	ALL SD		Gbps Traffic In (peak) () AVG ALL SD		Traffic In (avg) 4 ALL   SD	
													4							
																			2.00	
									_										100	
			•				_												404.10	
				09:00			eb 2024	05 Feb								09-00			00:00	
				09:00			ер 2024	05 Feb :		4.66 Gbps MXX	<b>k)</b> ⇒  1  	fraffic Out (pe ALL   SO	1.36 Gbps Avg	0 ↔ [1] 15:00	AL 50	11 <b>3.8</b> Gbps MAX	Gbps <b>Traffic In (peak)</b> & ALL   SD	11 <b>1.7</b> 03:00	Traffic Rate	

Click on the time picker as per above. We will set this to 3th February 2024 all day and set for 5 min intervals as per below, click on pencil icon where the date is seen and select start date and end date and 5 min granularity, click out of the menu to apply this:

colt	IP Access Perfo	ormance De	tail Shared with me										🕆 Stat 04 Feb	ic   1D 1 00:00 - 0	2H 🕂 1H 5 Feb 2024		0%	<u>.</u> 7
	∀ Circuit ID     mad/mad/ia-	236								Time range Current time i							Color option None	đ
	Circuit List - To	op N				l	Help >>			Hours Current Data			l	Days Historical				
	Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Net ID	City		Country	Availability % 🕀	03 Feb 2024	4 00:00 - 0	)3 Feb 202	4 23:59			~	<b>%</b> 🕀	
	mad/mad/ia-236751	210466820		2000000	ipa-210466799	madrid		spain	100%			Febru:	iry 2024					
-															3			
															10 17			
	Traffic Rate																	
	Traffic In (avg) +		Gbps Traffic In (peak) &	1  <b>3.8</b> Gbps MAX	Traffic Out (avg		1.35 Gbps	iraffic Out (peak) ⊕   ↓↓   SD	1 <b>4.66</b> Gbj M									
	4.66 Gbps 4.00							$\land$		)3 Feb	00:00			03 Feb		23:59		
							Ø			Granularity		Max	nterval			Precision at to data)		
	1.00									1 day 6 hours		180 30	days days			-288x -72x		
				09:00						1 hour		7	tays			-12x		
	Traffic Rate %									5 minutes			day			1x		
	Traffic In % (avg) ALL   SD		86.3% Traffic In % (per AVG ALL   SD	ik) ⇔ [1] 1	91% Traffic Out	<b>% (avg)</b> 🕁 [1]	67.41 AV	G ALL SD	<b>∋eak)</b> ⊕ [1]	233% MAX								

We can now look at the information presented based on the date/time and granularity selected in the time picker. Below shows the table/graph detail for the relevant metrics for the date and time period selected

colt	IP Access Perfe	ormance De	tail Shared with me										G Static 03 F	: 23H <mark>୷</mark> 5M eb 00:00 - 23:59	< > GMT	⊘ % ∷	
	\7 Circuit ID     mad/mad/ia	-236														Color option None	t) ()
	Circuit List - T	op N				ļ	Help >>	Ę									
	Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Net ID	City		Country	Availability % $\diamond$		Out 🕁		Out % 🔿	In Peak % 🔿	Out Peak 9	<b>6</b> (b)	
	mad/mad/ia-236751	210466820		2000000	ipa-210466799	madrid		spain	100%	2.0 Gbps	1.42 Gbps	99.3%	71.1%	175%	164%		
_																	
	Traffic Rate																
	Traffic In (avg) -		Gbps Traffic In (peak) -		Traffic Out (avg)		1.42 Gbps T AVG A	iraffic Out (peak) ⊕  1 ⊥L   SD	3.28 Gbps MAX								
	3.49 Gbps 3.00										- 5	$\sim$	mo	~~~~	$\sim$		
						~	.~~~	M	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\sim$	R	~~`	~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
	100	~	m	~~~~~				$\sim$									
	0.00	 	3:00	07:00													

We can then see the Traffic Rate Speed (In and Out) AVG and MAX and Traffic Rate % (In and Out) AVG and MAX graphs for the date/time period selected, hovering over Traffic In and Out rate or % will show you the peak and low for the date/time period.

colt	IP Access Performance Detail Shared with me	⑦ Static   23H A. 5M   < > 03 Feb 02:00 - 04 Feb 2024 01:59 GMT
	$\nabla^{\mathbb{V} ext{Clicut ID}}_{ ext{mad/mad/is-236}}$	Roler option None
	Traffic Rate	
	Traffic in (eng) ⊕ [1] 2.0 ( ↓ Traffic in (eng) ⊕ [1] 3.5 Clops ↓ Traffic in (eng) ⊕ [1] 3.5 Clops ↓ Traffic in (eng) ⊕ [1] 3.5 Clops ↓ Traffic in (eng) ⊕ [1] 3.2 Clops ↓ Traffic in (eng) ⊕ [1] 3.5 Clops	
	3.49 Opps 3.00	m
	200	and the second sec
	02.00 03.00 01.00 01.00 19.00 19.00 19.00	23:00
	Traffic Rate %	
	Traffic in % (avg) ◊ [1]         99,9%         Traffic in % (peak) ◊ [1]         175%         Traffic in % (avg) ◊ [1]         71,7%         Traffic in % (avg) ◊ [1]         164.%           ALL SD         AVG         AUG         AVG         AUG         AVG         AUG         AVG         AUG         AVG         AUG         AUG         AVG         AUG	
	175% 150	fund
		and the a

If we scroll down, we can see the Availability % and Traffic errors graphs In and Out / % for the date and time period selected, we can see that this service has 100% Availability and no Traffic errors seen.

Availability %								
Availability % (avg) ⊕ [1] 16 Sources  SD	100% Availability % AVG 16 Sources S	(min) ⊕  1  100% D MIN						
100%								
80								
60								
50								
14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	
J								
Traffic Errors								
Error In % @ [1] ALL   SD	0% Error Out % ⊕ [1] AVG ALL   SD	0% Error In ⊕ [1] AVG ALL SD	0 Error Out ⊕ AVG ALL SD					
1.0 🔻								▼ 1.0%
0.6								
0.3								
0.0								
14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	
J								

If we go back to the Traffic Rate graph. You can hover your mouse over any of the graph lines to see the data updated under the metric output as well as the date and time displayed on the line graph:

Traffic Rate			(¢ d)			
Traffic In (avg) 参  1  ALL   SD	2.8 Gbps AVG ALL SD	2.8 Gbps MAX ALL   SD	1.54 Gbps AVG ALL SD	1.54 Gbps MAX		
3.49 Gbps 3.00						~~~
2.00			Marin	m	min	My -
1.00			m			$\sim$
0.00						
00:00	03:00	07:00	11:00 03 Feb 2024 12:51 15	5:00	19:00	23:00
						-

Alternatively, you can click and drag over a period to zoom in more to that period:

Traffic Rate			<b>C</b>			
Traffic In (avg) ⊕ [1] ALL   SD	2.6 Gbps AVG ALL SD	2.6 Gbps MAX ALL SD Traffic Out (avg) ⊕ [1]	1.61 Gbps Traffic Out	(peak) ⊕  1  1.61 Gbp M/	os XX	
3.49 Gbps						
3.00					$\sim$	mann
2.00			$\wedge$	· ·····		and the second s
100				~~~~		$\sim$
0.00						
00:00	03:00	07:00	11:00 _	03 Feb 2024 14:28	19:00	23:00
l I						
_						-

Once done the date and time will be updated based on the highlighted area and all the graphs will be updated to reflect that period:

Color option None	
$\sim$	
$\sim$	
	>

To reset the zoom in you can simply click the reset icon next to the date and time period picker, this will reset back to your original query of 3rd February all day 5 min intervals:

colt	IP Access Performance Detail	Shared with me			6	Static 23H 🕂 5M 🖸 Reset	0 % 🚉 🖍 🛞
	√ Circuit ID mad/mad/ia-236						one
	Traffic Rate						
	Traffic In (avg) ⊕ [1]         2.0 Gbp:           ALL   SD         AVC	s Traffic In (peak) 1 [1] 2.8 ALL   SD	Gbps         Traffic Out (avg) ⊕ [1]         1.33           MAX         ALL   SD	Gbps         Traffic Out (peak) ⊕ [1]         1.90 G           AVG         ALL   SD         Initial SD         Initial SD	bps MAX		
	2.78 Gbps 2.50			$\frown$	_		
				$/ \sim$	$\sim$	$\sim$	
	1.50	$\sim$		$\sim$	$\sim$		
	967.45		$\sim$				
				<b>"</b> 13:00			)
	Traffic Rate %						
	Traffic In % (avg) + 11 10	2% Traffic In % (peak) 🕂 🔢	139% Traffic Out % (avg) 🕁 🔢	66.7% Traffic Out % (peak) 🕂 🔢	95.1%		
	ALL SD A	WG ALL SD	MAX ALL SD	AVG ALL SD			
				$\bigwedge$	- /	$\sim$	
	90	$\sim$	$\sim$			~	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\sim$	$\sim \sim$	$\sim$		
	49	11:00	12:00				
				1			

Once this has been reset you will see the time picker reset as per below.

											03 F	eb 00:00 - 23:5	GMT	⊘ % <u>∷</u>	8 77
D /ia-236													Ħ	Color option None	t) (-)
Top N				ļ	Help >>	8									
Order	Bill Cust. Ref.	Bandwidth (kbps)	Net ID	City		Country	Availability % \oplus		Out 🕁		Out % 🔿	In Peak % O	Out Peak %	ф.	
751 210466820		2000000	ipa-210466799	madrid		spain	100%	2.0 Gbps	1.42 Gbps	99.3%	71.1%	175%	164%		
е															
a)⊕ 1 2.0	O Gbps Traffic In (peak) ⊕ AVG ALL SD		Traffic Out (avg)		1.42 Gbps	iraffic Out (peak) ⊕ 1 ⊥L SD	3.28 Gbps MAX								
									,	~~		~~~~	•		
						۸		~~~	A	~~>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m.			
				~~~~	~~~	Jun							$\sim\sim$		
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				_~~~										
		07:00								19:00					
b	P Ble=236 - Top N Croter 2701 210466820 Mat ⇔ (1) 2.0 6	0 5/0-236 - Top N Coder Bill Cout, Het: 271 : 210466230 Bill e 1 2.0 Clops Traffic in (peak) + AVC TALL SD 	D Sto 236 TO D N Croler Bit Cust. Ref. Bundwidth (Abpo) 271 10466820 200000 Ref Bit (1) 2.0 Orgos Traffic In (peek) ← (1) 3.5 Orgos Auto Tall. ED Stat. ED Coood (2700)	D Star 236 + Top N Croter Bill Coust. Het: Bandwidth fistore) Net 10 271 110466820 2000000 (ex-210466796 Star 2.0 Olippia Traffic in (peek) + [1] 3.5 Olippia Multi Multi SD Multi SD Coust of the star	D 200 236 TOP N Croter Bit Cast. Ref. Rendwidth Atken) Net D City 270 210466290 200000 (ex-210460796 madrid 2000000 (ex-210460796 madrid Mattiso Not Statistic to (peak) ⊕ 11 3.5 Objest Mattiso Social Statistic to (peak) ⊕ 11 3.5 Objest Statistic to (peak) ⊕ 11 3.5 Objest Mattiso Social Statistic to (peak) ⊕ 11 3.5 Objest Mattiso Social Statistic to (peak) ⊕ 11 3.5 Objest Statistic to (peak)	P To 236 → Top N File Cust. Ref. Randowlah (Aloga) Net D City Total 20446620 (sub-200466796 (madrid 200000 (sub-200466796 (madrid Ref. 1 20 Object Totalic In (pead) + 1 35 Object Totalic Out (single + 1 142 Object Totalic In Content) + 1 42 Object Totalic In Content + 1 42 Object Totalic	De 298 Heip >> Image: block flag Heip >> Image: block flag Image: block flag Image: block flag Country Order Bit Cust. Ref. Bandwidth (blops) Heit D City Country 751 210466820 2000000 Lex-210466796 modeld spain Ref 32.0 Objects Traffic In (peak) ← II 33.5 Objects Traffic Out (reg) ← II 14.2 Objects Traffic Out (reg) ← II Aut I: SD Mult. ISD Mult. ISD Traffic Out (reg) ← II Aut I: SD Traffic Out (reg) ← II Cocco loc 20 12.0 Objects Traffic Out (reg) ← II 14.2 Objects Traffic Out (reg) ← II	De 298 Help >> Image: Country Augustaing 5 @ Torder Bil Cost. Ref. Bandwidth (blags) Help O Chy Country Augustaing 5 @ 731 210466820 5000000 Les-21046679@ medid sepain 500% 86 Mage 111 2.0 Opena (Theffic to (pena) + 1)1 3.5 Grapper (Hitting - Hitting -	Bit Cust. Not. Banchwicht (https://www.science.org//wwwwww.science.org//www.science.org//www.science.org//www.science.o	De 298 Top N Help >> Image: Construct of the construction of the const	Bit Cust. Not. Bancheidh Bit Donit. Help >> Image: Country Austability 5:0 in :0 1; Out : In :0 In :0	De 296 Top N Help >> Image: Construct of the second and the secon	Pho Differ Help >> Image: Control of the control of	Dr. bit 236 Top N Help >> Image: Source of the sourc	Dot Control Control <thcontrol< th=""> <thcontrol< th=""> <thcontr< td=""></thcontr<></thcontrol<></thcontrol<>

5.4.3. IPVPN Performance Detail Dashboard

There are three different Performance Dashboards besides apart from the Services Homepage, that indicates specific KPS regarding Traffic, Jitter, Packet Loss, Latency, CoS, etc.

The Performance Details dashboard is accessed through the Monitoring link (as first step in section 3), or through the Dashboard quick link on Help Page:



Figure: IP VPN Performance Detail link



The Performance Details dashboard provides high level overview statistics of both interface and network performance activity. Total daily throughput information for the whole network is available with percentage errors and discards for that day. With regard to network performance, the target SLA is provided with details of how Colt is performing against SLA for Availability, Packet Loss and Round Trip Time.

Once on Performance Details dashboard, there is plenty of information related to the performance of the Service, as the Top Circuit List, with Data about:

- Circuit ID
- Order number
- Billing Customer Reference
- Bandwidth (Kbps)
- Network ID (IPC)
- City
- Country
- CoS
- Availability
- Traffic In (total)
- Traffic Out (total)
- Traffic In (percentage)
- Traffic Out (Percentage)
- Traffic In (Peak %)
- Traffic Out (Peak %)
- RTD
- Packet Loss

Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Submitted Traffic \oplus	Net ID	City	Class	Transmitted Traffic 🕘 🗐	Dropped Traffic 🕁	Transmitted % \oplus	Submitted % 🕀	Dropped %
nld/nld/ia-603466	235510081	covid-19	1000000	74.3 Mbps	ipc03526	nieuwegein	premium	74.3 Mbps	o	7.43%	7.43%	0%
nld/nld/ia-603466	235510081	covid-19	1000000	37.1 Mbps	ipc03526	nieuwegein	standard	371 Mbps		3.71%	3.71%	0%
lon/lon/ia-663002-a	237707779		200000	29.5 Mbps	ipc04431	london	standard	29.5 Mbps	o	14.7%	14.7%	0%
muc/muc/ia-584646-a	235372954		400000	26.9 Mbps	ipc03206	munich	standard	26.9 Mbps	344 bps	6.73%	6.73%	0.000%
mad/mad/ia-630321-a	236853197		200000	24.8 Mbps	ipc-103152	alcobendas	standard	24.8 Mbps	<u>o</u>	12.4%	12.4%	0%



Main performance KPIs of the inventory selected. These KPIs include:

- Availability (reachability) Percentage of time or total time when source or destination device was down
- **Packet Loss** Percentage of data transmitted from an originating device not arriving at the intended destination

• **Round Trip Delay** – Measured via ICMP echo between the CPE spoke and hub. The value given is a two way value to include return transit time from the customer hub site

Traffic Rate over the selected period, including Traffic In, Traffic Out, Traffic average and Traffic Out avg:

Traffic Rate								
Traffic In (avg) ⊕ 832 3 Sources SD	2.7 Mbps Traf AVG 3 Sc	fic In (peak)	5.1 Gbps Traffi MAX 3 Sou	c Out (avg)	2.76 Mbps AVG	Traffic Out (peak) ⊕ 83: 3 Sources SD	2 1.59 Gbps MAX	
5.10 Gbps								
4.00								
2.00						\land		
624.30	~~~~		~~~~	\sim	\sim	Alan	~~~~	~~~~
18:00	Jan 12, 2024	Jan 16, 2024	Jan 20, 2024	Jan 24,	2024	Jan 28, 2024 Jar	ו 31, 2024	Feb 04, 2024

Figure: Traffic Rate

User can access the results on an Interface basis by clicking on the licon we have already seen before:

Session - device_interface				<u>ू</u> हा ×
∑	omer_portal			Objects 8.92%
Table Showing top 100	0 sessions			
Session	Traffic Out %	⊒੍ਰੀ Traffic Out % ⊪ੁ	Тороюду	Source Location
cpefr_edm000017_Fa4	76.2%		cpefr_edm000017,dummy	41.203323,-77.19453
cpecn_chn000441_Gi0/0/1	54.3%	- And the second	cpecn_chn000441,dummy	34.168472,108.86867
cpecz_cze000039_Gi0/1	53.2%	K	cpecz_cze000039,	49.443016,12.908073
cpefr_vaf000030_Fa4	51.3%	VV.L~	cpefr_vaf000030,dummy	45.119843,4.974556
cpede_kel043762_Gi5	51.0%		cpede_kel043762,	54.314377,10.132563
cpede_ger000316_Gi8.177	47.3%	M	cpede_ger000316,	48.14594,9.48365
cpenl_nld000977_Fa4	43.9%	E A A A A A A A A A A A A A A A A A A A	cpenl_nld000977,dummy	50.84778,6.008309
cperu_rus000011_Gi0/1	42.7%	Hanna	cperu_rus000011,cpech_lug00	55.75836,37.62622
			٨٨	

Figure: Results zoom in

Traffic Utilisation shown on the second chart:

Traffic Utilisation							
Traffic In % (avg) ⊕ 832 3 Sources SD 10204%	1.14% AVG 3 S	ffic In % (peak)	10204% Traffic Ou MAX 3 Sources	t % (avg)	1.17% Traffic Ou AVG 3 Sources	t % (peak)	535% MAX
					٨		
6000							
3000							
18:00	Jan 12, 2024	Jan 16. 2024	Jan 20, 2024	Jan 24. 2024	Jan 28. 2024	Jan 31, 2024	Feb 04, 2024

Figure: Traffic utilisation



Interface Errors, were we can easily identify any:

Figure: Interface Errors

And accordingly any drop in availability figures:

Availability %								
Availability % (avg) 👳 🛛 3 Sources SD	715 99.3% AVG	Availability % (min) 💀 715 3 Sources SD		0% MIN				
100%								
60								
30								
18:00 Jan	31, 2024	Feb 04, 2024	Feb 08, 2024	Ļ	Feb 12, 2024	Feb 16, 2024	Feb 20, 2024	Feb 24, 2024

Figure: Availability

Round Trip Delay



Figure: RTD

Packet Loss

Packet Loss	Packet Loss										
Packet Loss % (av 3 Sources SD	g) ⊕ 955 7.939 AV0	% Packet Loss % (max) ⊕ G 3 Sources SD		100% MAX							
100%											
60											
30											
5 18:00	Jan 31, 2024	Feb 04, 2024	Feb 08, 2024		Feb 12, 2024	Feb 16, 2024	Feb 20, 2024	- Feb 24, 2024			

Figure: Packet Loss

5.4.4. IPVPN Jitter Network Performance Dashboard

To access the Jitter Network Performance dashboard go to top right link "Return to Dashboards" and click on the selected one:

Return to	
Dashboards >>	Transfer to "IP Services Homepage"
	Transfer to "IP Access Performance Detail"
	Transfer to "IP VPN Performance Detail"
	Transfer to "IP VPN Jitter Network Performance"
	Transfer to "IP VPN CoS Performance Detail"

Figure: Jitter Network Performance link

Within this dashboard there is useful information about Jitter details and summary, together with the measured Availability and Packet Loss figures.

It is important to stress that Packet Jitter can be guaranteed if class of service (CoS) with full delay guarantees is enabled. <u>Packet jitter is guaranteed only for conforming Premium CoS traffic.</u>

Jitter is measured from any CPE to the hub site CPE. In case there is no hub site, the first site is considered as the hub site. At the moment we can measure and report jitter on all Cisco CPEs (Huaweis if existing are not supported).

By default, for any new customer (i.e. a new installation) delivered on a Cisco CPE, Jitter reporting is enabled. For current customers (i.e. already installed) jitter reporting will only be enabled if the customer/sales request it explicitly via the Change Order form, if not requested before.

Jitter is the variance in one-way latency and is calculated based on sending and receiving time stamps of consecutive packets sent out. E.g.:

Time Stamp	Sender Responder
T1 (0ms)	Send packet1
T2 (20ms)	Receive packet1
T3 (40ms)	Send back reply forpacket1
T4 (60ms)	Receive reply for packet1
T5 (60ms)	Send packet2
T6 (82ms)	Receive packet2
T7 (104ms)	Send back reply forpacket2
T8 (126ms)	Receive reply for packet2

For packet 1 and packet 2 above, jitter is calculated as follows: Jitter from source to destination (JitterSD) = (T6-T2) - (T5-T1)Jitter from destination to source (JitterDS) = (T8-T4) - (T7-T3) Jitter is calculated using time stamps of every two consecutive packets. For example:

Router1 send packet1 T1 = 0 Router2 receives packet1 T2 = 20 ms Router2 sends back packet1 T3 = 40 ms Router1 receives packet1 response T4 = 60 ms Router1 sends packet2 T5 = 60 ms

Router2 receives packet2 T6 = 82 ms Router2 sends back packet2 T7 = 104 ms

Router1 receives packet2 response T8 = 126 ms

Jitter from source to destination (JitterSD) = (T6-T2) - (T5-T1) = (82 ms - 20 ms) - (60 ms - 0 ms) = 2 ms positive jitter SD

Jitter from destination to source (JitterDS) = (T8-T4) - (T7-T3) = (126 ms - 60 ms) - (10 4ms - 40 ms) = 2 ms positive jitter DS

Jitter KPI(Premium Class)												
Circuit ID	Band	Net ID	City	Reachability % 👳	Packet Loss % 💿	Negative DS ⊕ =]	Negative SD 🕀	Positive 🗉	Positive SD	Response Time 🕀	Transit Time Đ	MOS 🕀
lon/lon/ia-622241	12000	ipc05343	london	100%	0%	1.04 ms	1.05 ms	1.03 ms	1.06 ms	3.16 ms	1.71 ms	0
bou/bou/ia-586018	16000	ipc-102720	bourges		0%	1.04 ms				6.30 ms	3.89 ms	
nue/nue/ia-595354-a	60000	ipc-101982	nuremberg		0%	1.04 ms	1.06 ms	1.05 ms	1.07 ms	8.71 ms	4.05 ms	
par/par/ia-652222	10000	ipc05457	paris		0%	1.03 ms		1.04 ms	1.00 ms	22.0 ms	9.77 ms	
dus/dus/ia-609521	20000	ipc-101473	dusseldorf	100%	0%	1.03 ms	0.997 ms	1.03 ms	0.996 ms	11.0 ms	3.23 ms	o

Figure: Jitter KPI

Jitter details include the following values:

- Circuit ID
- Bandwidth (Kbps)
- Network ID (IPC)
- City
- Availability
- Packet Loss
- Negative DS
- Negative SD
- Positive DS
- Positive SD
- Response time (ms)
- Transit time (ms)

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• MOS

On the next dashboard we can find the Jitter summary (including DS (destination to source) and SD (source to destination) values for Jitter calculation).

jitter-ds: Specifies destination-to-source delay jitter of each probe packet as the monitored element. **jitter-sd**: Specifies source-to-destination delay jitter of each probe packet as the monitored element. **jitter response time**: Specifies the time in miliseconds for one-way delay jitter in each test.

Jitter Summary(Prem	ium Class)							
Jitter_Negative_DS 102 CISCO_S_JITTER DS	0.941 ms Jitter_ AVG CISCO	Negative_SD 102 D_S_JITTER SD	0.908 ms AVG	litter_Positive_DS 102 CISCO_S_JITTER DS	0.951 ms AVG	itter_Positive_SD 102 ISCO_S_JITTER SD	0.909 ms AVG	Jitter_response_Ti CISCO_S_JITTER
17 ms								
15								
1								
00:00 23:00	Nov 24, 2023	Nov 28, 2023 No	w 30, 2023	Dec 04, 2023	Dec 08, 2023	B Dec 12, 202	23	Dec 16, 2023

Figure: Jitter Summary

Availability (reachability): Percentage of time or total time when source or destination device was down, during the monitored timeframe:

Availability %						
Reachability % (avg) ⊕ 102 CISCO_S_JITTER SD	94.2% Re AVG C	eachability % (min) ⊕ 102 ISCO_S_JITTER │SD	0% MIN			
95%						
60						
30						
00:00 23:00	Nov 24, 2023	Nov 28, 2023 Nov 30, 2023	Dec 04, 2023	Dec 08, 2023	Dec 12, 2023	Dec 16, 2023

Figure: Availability

Packet Loss: Percentage of data transmitted from an originating device not arriving at the intended destination



Figure: Packet Loss

5.4.5. IPVPN Class of Service Performance Details Dashboard

KPIs are measured against Cisco Committed Access Rate (CAR) configuration.

The displayed data is traffic travelling in and out of each interface. Outbound traffic is further defined for each class available with the IP VPN service. The available classes are:

- Standard All traffic that is not specifically assigned to a higher class and therefore designated as non-critical such as web-browsing or email
- Business 1, 2 and 3 Prioritised business-critical or delay-sensitive traffic such as SAP and Citrix
- Premium Used specifically for voice and video applications that are particularly delay-sensitive

cos												
Circuit ID	Order	Bill Cust. Ref.	Bandwidth (kbps)	Submitted Traffic 💿	Net ID	City	Class	Transmitted Traffic 💿 🗐	Dropped Traffic 👳	Transmitted % 🕁	Submitted %	Dropped % 👳
bcn/bcn/ia-585128	235489316		100000	671.4 Gbps	ipc04590	cerdanyola del valles	standard	664.9 Gbps	6.5 Gbps	2438%	2460%	5079%
bru/bru/ia-580898	235316321	100100761	80000	332.9 Gbps	ipc05258	heverlee	premium			984%		0%
par/par/ia-580107-a	235288637	ts vocalcom paris	100000	322.7 Gbps	ipc-102368	paris	standard		1.8 Mbps	676%	676%	165%
bru/bru/ia-580898	235316321	100100761	80000	166.5 Gbps	ipc05258	heverlee	standard	166.5 Gbps		492%	492%	0%
xbg/xbg/ia-577762	235230302		40000	156.9 Gbps	ipc-102348	aubervilliers	standard	156.7 Gbps	210.4 Mbps	656%	656%	11869%

Figure: Class of Service summary

For further information, user can distinguish between Transmitted, Submitted and Dropped traffic for each corresponding Class:

COS Traffic Tra	nsmitted				
Transmitted Traffic 🕁	Class ALL SD AVG 8.0 Gbps business-3 19	6.0 Gbps 🏮 premium 276	2.1 Gbps 🏮 business	-1 58 658.6 Mbps 💧 busin	ess-2 36 3.3
261.8 Gbps					
200.0				\square	
100.0					
28					
00:00 23:00	Nov 24, 2023	Nov 30, 2023 D	ec 04, 2023 Dec 08, 2	023 Dec 12, 2023	Dec 16, 2023

Figure: Class of Service Traffic Transmitted

pped					
s ALL SD AVG 37.3 Mbps business-1 58	8.8 Mbps 🏮 premium 27	76 8.1 Kbps	business-3 19	6.8 Kbps 💧 busi	ness-2 36
				\wedge	
Nov 24, 2023	Nov 30, 2023	Dec 04, 2023	Dec 08, 2023	Dec 12, 2023	Dec 16, 2023
	opped s ALL SD AVG 37.3 Mbps business-1 [58]	ss ALL SD AVG 37.3 Mbps business-1 58 8.8 Mbps premium 27	oped s ALL SD AVG 37.3 Mbps business-1 58 8.8 Mbps premium 276 8.1 Kbps vov 24, 2023 Nov 30, 2023 pec 04, 2023	ss ALL SD AVG 37.3 Mbps business-1 58 8.8 Mbps premium 276 8.1 Kbps business-3 19 Nov 24, 2023 Nov 30, 2023 Dec 08, 2023 Dec 08, 2023	so ALL SD AVG 37.3 Mbps business-1 business-1 58 8.8 Mbps premium 276 8.1 Kbps business-3 19 6.8 Kbps business-3 0 0

Figure: Class of Service Dropped traffic

Submitted Traf	fic					
Submitted Traffic ⊕ C Standard 685	lass ALL DS AVG 8.0 Gbps business-3 19	6.0 Gbps 🏮 premium 27	76 2.1 Gbps	business-1 58	667.5 Mbps 🏮 business-2 36	3.3
263.1 Gbps						-
200.0					\land	
100.0						
28	Nov 24, 2023	Nov 30, 2023	Dec 04, 2023	Dec 08, 2023	Dec 12, 2023 Dec 1	16, 2023

Figure: Class of Service Submitted traffic

6. Voice Service Analysis

6.1. IP Services

Please note: For Voice/VoIP services, Performance Monitoring is a billable feature and must be ordered explicitly for the Voice service. In case you are missing the reporting functions and dashboards described below, it is most likely that this feature is not enabled for your service. In this case, please ask your Colt account executive to place an order to enable VoIP Performance Reporting for your VoIP service.

Please also note: Dashboards are subject to changes, however the underlying information around tool navigation and data sources remain as described in the sections below and can be applied to any updated dashboards

6.2. Voice Service Homepage

In the Skylight tool, access to the VoIP dashboards is through the monitoring icon, there are 4 dashboards to pick from relating to the two parts of a SIP service. The first set of dashboards are based on Call Detail Records (CDR's) and cover SIP Trunking and Wholesale SIP Trunking only, they consist of the following.

- Voice Service Homepage Summary of services covering a variety of voice statistics taken from CDR's.
- VoIP Trunk Details Subset of performance data providing more detail mainly in a graphical format

The second set of dashboards cover IP statistics for customers with Colt provided connectivity and consist of the below.

- IP service details dashboard
- IP service CoS bandwidth dashboard.

These contain details around packet loss, latency, jitter, round trip delay for the underlying IP service. However, these dashboards are not used yet and will not be covered here. Please refer to the separate IP dashboards in the Performance Monitoring tool to obtain further information around the health of any Colt provided underlying IP service for VoIP products.

1. Login to the Skylight tool via <u>https://performance.colt.net/</u> and click on the Voice Service homepage, you'll find it under the section Voice Services 1.0 via the monitoring icon.



Depending on any filters set when you first login to the voice dashboard you'll see that no data is displayed as statistics are derived from call detail records (CDRs), which are only available after 24 hours.

Using the time picker select the previous 24-hour period and you will see the data displayed for the previous day. You can look at any historical data in the same manner by selecting the date and time that you're interested in, as long as it's at least 24 hours old. The recommendation in order to show valid data is to select a time range of at least 7 days (some CDRs can take up to 30 days to appear) but as long as it's not in the current 24-hour period you can find the data you're interested in.

						-			
Voice Service Homepage 0.2 Shared with me					00 On 0	Dec 00:51	- 08:51 GMT	Ø % <u>ii</u>	S 22 S
7		Time range Current time inte						Color option None	đC
Service Overview Help >> 👘 Note: To	o show valid data please select a time range of	Hours Current Date 1			Day Hist	rs 1 orical 1			Ę
OCN Customer Total Cate \diamond Network Effectiveness Ratio (NER)	Mean Call Duration	05 Dec 2023 0	0:00 - 12	2 Dec 2023 23					
No data No data View details	No data View details	« Sun 26 3	Mon 27 4	December Tue Wed 28 29 5 6 12 13	2023 Thu 30 7 14	Fri Sa 1 8 15	» t 2 16		
Total Call Counts		17 24	18 25						
No data			1 00:00				23:59		
y me data		Granularity 6 hours		Max inter 30 day	val s		Precision subject to data 12		7 7 7
Ma data									

Once a valid time has been selected, the Voice Service homepage will be populated with data from that period. Anything less than 24 hours will not be displayed and any date ranges that include the current 24-hour period will have gaps.

(note dates > 60 days @ 5 mins intervals will not be displayed as historical data so pick another date <60 days or a longer period e.g., 1 hour - to view valid data up to 1 year in the past).

colt	Voice Service Hom	nepage 0.2 Shared wit	h me /							① Static 7D 23H A, 6H < 05 Dec 00:00 - 12 Dec 2023 23:58) Down © % 🚉 🕫 🛞
											Color option
	Service Overview			l	Help >>	Note: To show va	lid data please select	t a time range of at I	east 7 days		
	OCN Customer	Total Ca	n•∘ 1]	Network Effecti	veness Ratio (NER)) Intwork Effectiveness (NER) o	Mean Call Durati	on	Mean Call Duration ©	Mean Holding Time	Mean Hold Time o
					× :	UR NON			DUR NON		DUR NON
			2			< 80 4.828%			< 15 32.00N		< 15 37.60%
		1,618,104		I I I		>= 80 1164X			15 - 60 16.93%		15-60 21.22%
		1,376,151			/ i	>= 90		×	>= 60		>= 60
		1,072,73		-					U STOPA		1 41205
	✓ Total Call Count:	5									
	Tetal - Stati Index 18,390,076	Answered a SUM NON 11,821,465	Unanswered o Solid Hole 6,253,179	Failed a strike room 315,432	ASR - and non 1,862	NER o And Hom 96.0	Mean Call Dura	Mean Hold Time () AVC NON 158	Total Call Durat	Total Hold Time of SUM NON 321,925,378	
	> Call KPIs per Co	untry									
	Call KPIs per Tru	ink									7
	ID Service KDIe										X
	P IP Service KPIS										

From the top left of the screen the **Service overview table** contains details surrounding your Colt customer number (OCN), your company name and the total calls over the time period selected. In case you own multiple OCNs, e.g. due to multiple services in different countries, these will all be shown on the left, if the Voice/VoIP services are enabled for the Performance Monitoring feature. Initially the list will show your 'top 25' services (or the bottom 25 if you alter the total calls column direction). It is however possible to search and filter for a specific customer / OCN / trunk.

The three histograms to the right contain information around the Network Effectiveness Ratio (NER), the mean call duration and the mean holding time, which is most useful when filtered for a specific OCN or trunk. The data here is an average of a subset of the overall information displayed on the dashboard.

Below that, you can see a **total call counts table**, which includes details around the total number of calls currently displayed on the dashboard, this is a subset of data and is taken from the top 1000 sessions. It provides information on how many calls were answered and unanswered and how many failed along with other CDR information.

Below the total call counts table, we have call **KPI's per country, call KPI's per trunk and IP service KPI's** for underlying Colt Connected IP links. To better make sense of the data lets filter out an individual OCN.

2. Click on time picker at the top of the screen and then select the edit icon (pencil), the calendar will appear. It takes at least 24 hours for data to appear so if you select a range which has 'todays' date within it (i.e., select the last 7 days as shown) you'll see the message 'Latest data may not be available due to processing delay' displayed.



3. In the example, we look at data from period 5th – 12th December. (note dates > 60 days @ 5 mins intervals will not be displayed as historical data so pick another date <60 days or a longer period e.g., 1 hour - to view valid data up to 1 year in the past). Click once to select your start date and click again to select your end date, this time the message reflects this is a valid selection as shown in the screenshot.</p>



4. Filter on one of your OCNs and save it as a bookmark. To do this select the Filter icon at the top of the page, search for 'OCN' and then click on it, you can also search for trunk groups if required in a similar manner.

Voice Ser	rvice Homepage 0.2 SI	nared with me				
7						
Service	Overview					×
OCN	Customer	Total Calls ⊕ 📮	Network Effectiven	Assets	✓ Categorical results	
47100103	stations	4,167,101		Circuit Node		
-		1,946,496		Alert	OCN ocn	session +
-		1,618,104		Session		
-		1,376,159		anteritiba a dat		
100710894		1,073,737		activities, s. 8		
✓ Total C	all Counts			activities, s. for activities, s. for activities, s. for		

5. Type in the OCN number, select the check box next to the OCN number displayed and click the tick icon to apply the filter changes.

Voice Se	ervice Homepage 0	.2 Shared with me		
7				
Service	Overview		$< \frac{1}{14}$ ocn include = \vee	×
OCN	Customer	Total Calls ⊕ = =	Network Effectiven Q. X	
		4,167,101	Select all 1 Clear all	Selected only 🔵
		1,946,496		
		1,618,104		
		1,376,159		
		1079 737		

6. The page will update displaying this OCN only on the dates selected.

Voice Service Ho	mepage 0.2 Shared	with me							(1) Static 7D 23H #, 6H 05 Dec 00:00 - 12 Dec 2023 23:	хомт 0 % ≝, х 8
$\mathbb{A}_{A \text{ ocn}}$										None
Service Overview	N.			Help >>	Note: To show va	ild data please selec	t a time range of at l	least 7 days		
OCN Custome	r Total 6436	Cana ⇒ द्] s	Network Effec	tiveness Ratio (NER	() Network Effectiveness (NER) ↔ DUR NON < 800 2.000% > 80 0.07003% > 90 90.63%	Mean Call Durat	ion	Mean Call Duration ⊕ DUR NON < 15 2.4.47% 15 - 60 9.8.83%	Mean Holding Time	Mean Hold Time ⊕ OUR NON < 15 7x4.97x 13-60 2013% >+ 60 53.36%
✓ Total Call Cour	ıts									Y
Total _e SUM NON 64,140	Answered () SUM NON 41,749	Unanswered a SUM NON 21,106	Failed o stud non 1,285	ASR ¢ AVG NON 475	MER & AUG NON 98.1	Mean Call Dura	Mean Hold Time _@ ave: won 189	Total Call Durat	Total Hold Time () State HON 4,649,190	
Call KPIs per C Call KPIs per T IP Service KPIs	runk									У У У

7. You can bookmark this page by clicking the bookmark icon and then 'save', it will remain here until you wish to remove it but will come in handy when navigating through the system. You can save multiple filters in this manner.



8. Under the Service Overview table, we can see this OCN's total calls amounted to 64,140. By hovering over the total number of calls a green arrow will appear.

Service	e Overview		
OCN	Customer	Total Calls	Ę
-	-	64,140	>

9. Click on the arrow, another window will pop out displaying where that OCN's total calls data were sourced from. We can see here it displays 76.9% of the total of sessions (776 of 1009 sessions). The remaining sessions either collected no data or the CDR's were not yet available at the time they were selected (they could take up to 30 days to appear), therefore depending on the time chosen the value you see here may change.

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Session - cvoip	✓ 200				× F .
	ier				C Objects
Table Showing top 776	sessions				
Session	total_calls CVOIP NON SUM	탃	total_calls CVOIP NON SUM	Topology	Source Location
IE	18,147		~~	\sim	missing
IE, JRL-JC	18,115		m	\sim	missing
IEIRLOG	3,853		A	~	missing
IEIRLOG	3,834		A	\sim	missing
IEIRL-MOBV	2,051		m /	\sim	missing
IE JIRL-MOBV.	2,045			\sim	missing
UKIRL-MOB	2,039		m /	\sim	missing
UK, JIRL-MOB'	2,037		m /	\sim	missing
			~~~~ /	17	

- 10. The session column in the screen above lists the country code, the trunk and destination prefix in the trunk group and a suffix of either IC (incoming calls) or OG (outgoing calls), e.g., IE_ABCDEFGHI1234_IRL-_IC
- 11. Scrolling along the bottom bar of this window enables you to see a selection of the meta data, for example you can see things like destination name, provider, OCN and order numbers, origin country, service type, switch ID, tier, trunk group and net ID. You can select any of the sessions and open up an inventory view to look at the data in more detail, something we'll do later. Close the window using the X at the top right-hand corner.
- 12. Under the total call counts you can see various statistics in a single snapshot, but these are also reflected on a separate dashboard in a little more detail.

imes Total Call Counts									
^{Total}	Answered ⊕	Unanswered ⊕	Failed ⊕	asr.⊕	ner ⊕	Mean Call Dura 🔉	Mean Hold Time	Total Call Durat ⊕	Total Hold Time ⊕
	SUM NON	SUM NON	SUM NON	avg. non	avg: non	AVG NON	AVG NON	SUM_NON	SUM NON
	41,749	21,106	1,285	475	98.1	221	189	11,065,985	4,649,190

- **Total** Total calls attempted including answered calls, unanswered calls and failed calls over the time period specified.
- **Answered** Number of calls with a conversation time > 0.
- **Unanswered** Number of calls with a Conversation Time = 0
- **Failed** Number of calls which failed due to the inability of a network to deliver calls to the far-end terminal. There is a list of reasons as to why the call failed which will not be covered here.
- ASR Answer Seizure Ratio calculated by taking the number of successfully answered calls and dividing by the total number of calls attempted (seizures) – shown here as an average across all trunk groups for this specific customer.
- NER Network Effectiveness Ratio is a measure of the quality of the network, its designed to
  express the ability of networks to deliver calls to the far-end terminal. It is calculated by the number
  of seizures compared to the total number of successful call deliveries (answered calls, user busy,
  ring no answer and terminal rejections) combined. Unlike ASR, NER excludes the effects of
  customer behaviour and terminal behaviour.
- Mean Call Duration Defined as the Time/Number of Answered Calls displayed in seconds.

- Mean Hold time The Holding Time of a call is defined as the Call Set-up Time + Ringing Time + Conversation Time + Release Time, i.e., it is the total time a call "holds the circuit". It is calculated per call as the sum of the CDR DURATION (in 0.1s) and UNANSWERED_TIME_DR (in s). The Mean Holding Time per Seizure calculation only considers calls with a Holding Time > 0. For the reported period it is defined as sum (Holding Time) / (Number of calls with a Holding Time >0) displayed in seconds
- **Total Call Duration** Defined as the sum of the duration of all calls within the time interval reported. The result is displayed in seconds.
- Total Hold Time sum of the holding time of all calls.

It is possible to see where the data for each value was derived from, by hovering over the value and clicking the green arrow to open the data set as per step 9.

13. Looking at the Histograms to the right of the page, we can see that the histogram for NER tells us that for 96.63% of the time NER was >= 90%, it was >80% for 0.7105% of the time and network effectiveness was <80% for 2.660% over the time period. We can see the majority of mean or average call duration was >=60 mins and <15 mins duration accounted for 24.41% of all calls. Mean holding time was <15 mins for 26.49% of the time, but it averaged over 60 mins for 53.36% of the time.



14. As with the total calls data you can hover over any of the figures on these histograms, click the green arrow and see how that value was calculated.



15. In the example of mean call duration, we can see that 8 calls fell within the 0-15 min area for the first session, with the overall mean call duration for that session displayed in the next column in seconds, the figure in the histogram is taken from the average of all sessions combined, click the X at the top right to exit this screen.

Session - cvoip	×		1	× [] []
	N			Objects 23.8%
Table Showing top 240	sessions			
Session	Mean Call Duration ⊚ = = ≥0 & <15	Mean Call Duration 🕀	Mean Call Duration 🗇	Topology
IEFRA-MOBI	8	933	н	
UK FRA-MOE	8	933	H.	
IEROM-MOE		844		
UK, _ROM-MO		844		
IECANOG	9.50		s 🗸	
UKCANOG	9.50		s 🗸	
DENLD-MOI		760	в	
IE _NLD-MOB			в	
_				

- 16. There are three collapsed columns below the total call counts table, two relating to the KPI's for Voice and another for the underlying IP service. Presently there is no automatic correlation between the two sets of data, but there are ways to find out how one relates to the other manually.
- 17. The Call KPI's per country shows the Key Performance Indicators gathered from each country. It's possible to filter for specific destinations, trunk groups or direction from here. In example, if you filter for the destination of Ireland and direction IC, note all the data on the page will be updated to reflect the filters in place. You can filter by selecting the values of interest in the Call KPI's per Country table and clicking the filter icon which appears as a pop up in the window, as shown below.

✓ Call KPIs per Co	buntry	(ð 🖬 🟹	2 ×									
Destination	Trunk Group	Direction	Total Calls 🕀	Answered 🕀	Unanswered - ㅋ니	Failed $\oplus$	ASR 1	NER 🕀	Mean Call Duration 🕀	Total Call Duration	Mean Hold Time 🕀	Total Hold Time
ireland	ie	ic	18,473	10,731	7,734	8	2,887	100.0	253	3,358,622	143	542,623
ireland	le	ic	18,478	10,784	7,668	26	2,737	99.9		3,428,577	122	538,639
ireland	le	og	3,853	2,626	1,041		808			523,111	92.7	235,855
ireland	ie	og	3,835	2,735	955		745	98.2		549,041		247,821
ireland-mobile-vodafone	le	og	4,082	3,262	772	48	445	98.8		593,840		
ireland-mobile-vodafone	le	og	4,090	3,294	744	52	454	98.5		568,765		554,420
ireland-mobile-o2	le	og	1,267	1,005	235	27	334			192,740		184,159
ireland-mobile-o2	le	og	1,310	1,066	228	16	340		200	219,148		211,239
ireland-mobile-meteror	le	og	516	384	124		222	99.3		74,945		75,468
ireland-mobile-meteror	le		535	408	123		230	99.5		80,682		81,260
united kingdom	le	og	850	496	86		382	85.5		131,418		113,297

Note - the selected filters will be displayed at the top of the page.

Voice Service He	omenane 0.2. Sharen	with me									① Static 7D 23H ☆ 6H < 2 05 Dec 00:00 - 12 Dec 2023 23:59	) GMT (0 % 🚉 🖍 (S
₩ ^V Customer	Ƴ OCN Y Desting ireland	ition 7 Direction									<u>م</u>	Color option Difference
Service Overvie	w.				Help >>		Note: To show val	id data please seler	ct a time range of at	t least 7 days		
OCN Custome	v Tota 34,5	el Carlis 中 मृ] महत		Network Effectiv	veness Rati	lo (NER) Netwo DUR H 4 011 >= 011 >= 011 >= 011 >=	nk Effectiveness (NER) ⊕ NON 10 7613 80 90 6273	Mean Call Durat	lon	Mean Call Duration ⊕ DUR NON < 15 10.74% 15 - 60 26.23% >= 60 63.03%	Mean Holding Time	Meen Hold Time ↔ DUR NON < 15 13-278 15-60 42,61% >> 60 36,03%
✓ Total Call Coul	ints											
Total e SUM NON 36,951	Answered e SUM NON 21,515	Unanswered SUM NON 15,402		Failed ₄ . SUM NON 34	ASR () AVG NOT 2,810	0	NER () AVG. NON 99.9	Mean Call Dura	Mean Hold Time () AVG: NON 132	Total Call Durat	Total Hold Time $_0$ SUM: NON 1,081,262	
∨ Call KPIs per C	Country											
Destination	Trunk Group Direc	tion Total Calls +	Answered +	Unanswered ⊕ ≒]	Failed 0 A	ASR ⊕ NER	• Mean Call Duration •	Total Cell Duration 🕀 🔰	Mean Hold Time 🔅 🛛 Total (	Hold Time 🕂		
ireland	ю	18,473	10,731	7,734	. 2	,887 100.0	253	3,358,622	43 542,6	13		
ireland			10,784	7,668	26 2	737 99.9	245	3,428,577		19		

18. The second dropdown menu contains Call KPI's per Trunk. This has similar data to the call KPI's per country, but this time consolidated over each trunk group itself rather than a country split. Instead of Destination and Direction (incoming or outgoing) columns we have a 'related Service column', which, when populated, contains information relating to the underlying IP transport service. Note this is not always populated as it's based on the underlying customer connectivity.

One thing to note for former Infovista users is that in Infovista the Trunk Group will be visible even if no reports are available, however in Skylight **the trunk group will not be visible if there are no call records**.

$^{\vee}$ Call KPIs p	per Trunk										
Trunk Group	Related Service	Total Calls 👳	Answered 👳	Unanswered ⊕ ≒ļ	Failed 🕀	ASR ⊕	NER 🕀	Mean Call Duration 🖗	Total Call Duration 🕀	Mean Hold Time 🗇	Total Hold Time 👳
ie		18,473	10,731	7,734	8	2,887	100.0	253	3,358,622	143	542,623
ie		18,478	10,784	7,668			99.9	245	3,428,577		538,639

(This table also now includes additional metadata - Order and Bill Cust Ref)

19. The last menu on the homepage is the IP Service KPI's, the intention being users can view the KPI's of the associated IP services. However, there is **no automatic correlation to the associated voice service** as the IP service objects do not contain metadata from the OSS Wrapper to identify that traffic as being voice traffic. As a result, the table shows <u>all IP services</u> belonging to customers on the dashboard and does not relate specifically to any underlying IP voice connection itself. Furthermore, we only see data under this menu if there is no filter in place, once we filter anything out we don't see any data here as there is no correlation to the voice service. So, we have to remove all the filters before opening up the IP Service KPI's. Then, we can manually correlate these IP services to Voice services.

$\sim$ IP Service KPI	s											
Circuit ID	Order	Bill Cust. Ref.	City	CoS	Packet Loss % 🕀	Reachability % 🕘	RTT 🕀	MOS ⊕ ≒ļ	Jitter Neg. DS 🕀	Jitter Pos. DS 🕀	Jitter Neg. SD 🕀	Jitter Pos. SD 🕀
agb/fra/ia-			augsburg	У	0.013%	100.0%	25.7 ms	0	1,11 ms	1.09 ms	1.09 ms	1.10 ms
alc/mad/ia			alicante		0%		18.3 ms		1,07 ms	1.08 ms		
alc/mad/la			madrid		0%		18.5 ms		1.01 ms	1.02 ms		
anr/ams/la			antwerp		0%		50.6 ms		1,01 ms	101 ms		
anr/bru/la-			antwerp		0%		45.4 ms		1.00 ms	1.00 ms		1.00 ms
anr/bru/la-			mechelen		0%		4.83 ms		1.06 ms	1.06 ms		

20. To identify the underlying IP service, you could look at the related service column under the KPIs per Trunk section and compare with the IP service KPI's table. However, please note this column is not always populated, e.g. if the transport link is offnet through other providers. Furthermore, this needs the users to look through the data manually and compare the related services in the call KPI's per trunk with those in the IP Service KPI's table. However, as the dashboard only displays the top

25 sessions its more than likely that none of these are related to an underlying IP connection for Voice.

$^{\vee}$ Call KPIs p	[/] Call KPIs per Trunk										
Trunk Group	Related Service	Total Calls 🕀	Answered 💿	Unanswered ⊕ ≒	Failed $\Phi$	ASR 🕀	NER 🕀	Mean Call Duration 🕘	Total Call Duration 👳	Mean Hold Time 👳	Total Hold Time 🕀
delimitati		20,050	12,172	7,792	86	5,709	99.8	195	1,808,132	139	320,903
de	fra/fra/ia-	50,976	42,586	7,558	832	1,216	94.0	37.2	2,276,014	27.8	267,618
dependentiti		23,632	15,791	7,306	535	1,953	89.8	112	3,131,844	55.8	314,974

21. Therefore, in order to find out more detail around an underlying IP service we need to copy the related service under the call KPI's per trunk menu, if displayed, to the IP service homepage as shown below. The IP service, even if captured here, may not always be present on the IP dashboard i.e. if it is an offnet connection. Please refer to the <u>IP section</u> in the guide for more information around how to navigate through these dashboards. As an example, we have used a Trunk Group in the filter under the voice service homepage, using related service ID, identified by its typical format, e.g. **fra/fra/ia-123456**.

	noniepage th	and extends									01.Dec 60.00 - 17.Dec 2013
Y bullets	-										
Service Ov	rvice				Halpon	Autoria	ity Heat Map				
	-		Net D	-		9	SILVAN-T	11 - II			Antonya
				-							
						Ome					encon Mat
Cinul In-	eriury.					Ornet	ben				terraria
Circuit Inv Investill	erlery See	And Content of	lana (	***		O mige	ten Arsten basi	 2	-	-	

### 6.3. Voice Trunk Details Dashboard

 Go back to the Voice Service Homepage. Filter once more for one of your customer numbers (OCN) or use your saved bookmark. Use the 'transfer to dashboard' icon on the right-hand corner of the screen, then select 'Transfer to "VoIP Trunk Details". Note that transferring to either of the IP dashboards will result in no data. You can return to homepage at any time by clicking the icon once again and select transfer to Voice Service Homepage.

Voice Service Homepage Shared with me $\overline{\gamma}^{r} \bigtriangledown \overline{\text{con}}$			Stattic 7D 23H +, 6     OS Dec 00:00 - 12 Dec 20	H くう 23 23:59 GMT ⑦ % 近 パ ⑧ Color option 面の
Service Overview	Help >> 🕞 Note: To show val	id data please select a time range of at least 7 days		Transfer to "VolP Trunk Details"
000 Outomer Totel Calls 등 립니 84,340	Network Effectiveness Ratio (NER) Memory State (NER) DB Hol DB Hol 2 e80 2 - 80 2 - 80	Mean Call Duration         Mean Call Duration 0           URI NON         <15	Mean Holding Time	Transfer to "IP Service CoS Bandwidth" ( 15
✓ Total Call Counts				V

### 6.3.1. Summary KPI's

1. Once in the VoIP Trunk Details dashboard, you'll be greeted with the Summary KPI's table along with a number of graphs using the extrapolated data from the table. The summary KPI's display the same data as that from the Voice homepage's total call counts table, but this time they are represented graphically through various charts on the dashboard. Once again, we can filter any of the metadata displayed on the chart i.e., trunk group, destination, or direction, which will then be reflected on the dashboard.



(This table also now includes additional metadata - Order and Bill Cust Ref)

22. In the example, we filter for the country Ireland and one of the listed trunk groups, we're now only viewing incoming and outgoing calls for that destination on a specific trunk over the time period specified.

VolP Trunk D	VolP Trunk Details 0.2 Shared with me											
$\mathbb{V}^{\mathbb{V}_{OCN}}$	[¬]											
Summary KP	Summary KPIs Help >> 🗐 Note: To show valid data please select a time range of at least 7 days											
Trunk Group	Destination	Direction	Total Calls 🕁	≒ļ Answere	I 🗄 Unanswered	a Failed ⊕	ASR 🕁	NER 👳	Mean Call Duration 🗇	Total Call Duration 👳	Mean Hold Time $\Phi$	Total Hold Time
ie.	ireland	7,668	26	2,737	99.9	245	3,428,577	122	538,639			
ie	ireland		3,853	2,626	1,041		808	97.7	160	523,111		235,855

(This table also now includes additional metadata - Order and Bill Cust Ref)

### 6.3.2. Total Call Counts

1. The total call count graph displays data relating to answered, unanswered and failed calls. The data displayed at the top changes, based on where you hover your mouse on the graph. It's possible to zoom into any area to look into it in more detail based on the granularity in the time picker, but a warning at the top of the page states the granularity should be at least 7 days. Also note **this data could change as more CDR's are captured over time.** 



2. In this example, at the period of time the dashboard was accessed, we see a peak of unanswered calls around midday on the 5th of December (we can see this if we hover the mouse over the unanswered calls figure at the top of the graph). we can zoom into that area on the graph or use the time picker to select a specific period. Note the graph details may show gaps or even disappear completely but the table under summary KPI's will still be updated with the specific data.



3. Here we have used the time picker and filtered for the following time period of 11:50am – 13:21pm. We can see that over that period we saw 609 calls incoming, of which 301 were answered and 308 were unanswered.



(This table also now includes additional metadata - Order and Bill Cust Ref)

4. We can gather a little more information if we navigate to the source data. Firstly, reset the filter at the top of the screen as we need to look at a bigger period to in order to display data in the inventory



menu we are going to access, i.e., we won't initially see a graph displayed in the next screen if the period we're viewing is too small.

5. Hover over any of the data fields, e.g., unanswered calls, the green arrow will appear, click on that to see the dataset table. Select the top session where we see the vast majority of incoming unanswered calls and click the inventory icon.

Session - cvoip	>		× G ø
∑ ⁷ Customer	⑦ OCN         ⑦ Destination         ⑦ Trunk Ground           ireland         ie	p	Objects 100%
Table Showing	top 9 sessions	√1 71 Ē ×	
Session	Unanswered Calls 👳 🗧 Unans	wered Calls 👳 Topology	Source Location
IE. JF	IL-JC 7,713 B	$\sim$	missing
IE. JF	ILOG 954	$\sim$	missing
UK	RL-JC 16	$\wedge$	missing
FR	RLJC 5	$\wedge  \wedge $	missing

6. You'll be taken to the inventory screen, click on the session.

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colt	Inventory Sessi	ons Assets		
	Q Search or paste ter		$\nabla \cong \mathbf{IE}_{\mathbf{z}}$	Type State All Ø 499,418  ☐ 0
൦ഁ		IRLIC		

- 7. You'll be taken to the 'sessions' screen, once here select the 'performance' tab.
- 8. Once here we can view all the source data for the trunk by selecting the variable on the left-hand side of the screen, the graph will be updated based on the selection made.



The following parameters can be selected on the graph which will be displayed as different lines, these consist of basic Metrics from CDRs and Custom Metrics

- Average Call Duration
- Total Call Duration (averaged over time period)
- Holding time of Call this is the total time a call "holds the circuit" (= call set-up + ringing + conversation+ release time), displayed in seconds
- Answered Call Count
- Unanswered Call Count
- Failed Call Count
- Number of Calls with non-zero duration
- Total number of calls = SUM (Answered, Unanswered, Failed)
- Total number of Seizures = SUM (Answered, Unanswered)
- Mean Holding Time = Holding Time/Number of Calls with non-zero duration
- Answer Bid Ratio = (Answered/Total number of calls) *100

- Answer Seizure Ratio = (Answered/SUM (Answered, Unanswered, Failed))*100
- Answered Call Holding Time = Answered Time/ Answered calls
- Network Effectiveness Ratio = (SUM (Answered, Unanswered) /SUM(Answered, Unanswered, Failed))*100
- 9. We can affect the information seen by clicking on the "**untitled view**" dropdown on the right-hand corner of the screen and selecting from AVG, MAX, MIN or SUM. Once selected the data on the graph will change to reflect the selection made.

	1 Static 7 05 Dec 00:00	7D 23H ☆ 6H   < > - 12 Dec 2023 23:59 GMT ◯	** 🛋 🖍 🛞
Equatorial Guinea rincipe Port-Gentil Cabon Cabon Cabon	Democratic Republic of the Congo	Bunia Uganda Rivanda Anandoor diorensia	Analyze Eldoret Kenya Ranobi Ranobi Ranobi
		* un	titled view (default) 🔨
Views (1)		Aggregation: AVG V	Save as Save
* untitled view (default) tol NO	al_calls average_call N NON	_dur it failed_call_cour MAX failed_call_cour MAX failed_call_cour MAX failed_call_cour SUM	wered_call_co
		answered_call_count	AVG     <b>59.9</b> AVG

### 6.3.3. Answer Seizure Ratio

Through the monitoring icon return the VoIP Trunk Details dashboard. Note that any filters which were set will be lost, which is why it's a good idea to have bookmarked them initially. Set the filters as desired and scroll down to the answer seizure ratio graph. This shows the average ASR figure over the time period and once again hovering over the ASR value shows us the peak figure over the period, which is also reflected by the top line figure on the graph itself.



#### 6.3.4. Network Effectiveness Ratio

In the example, we can see the NER figure dropped to around 96.2 (bottom line of graph) but averaged out at 98.1.



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### 6.3.5. Mean Call Duration and Holding Time

The Mean Call Duration in this example averaged out at 221 seconds, with the longest call being 494 seconds long. The average hold time was 189 seconds.



### 6.3.6. Total Call Duration and Holding Time

The total call duration relates to the average time of all calls combined, made over the period, in the example working out at 2016 seconds. The average hold time for the same period was 847 seconds.





It's possible to generate reports by hovering over any of the graphs and selecting the icon that appears next to the cog, this will **download an excel sheet** you can view. Alternatively, you can report on the entire dashboard by clicking the icon shown below and selecting download report, which provides both **excel sheets and a PDF** of the data shown in a zipped file. We can return to the voice homepage through the transfer dashboard icon seen below next to '**download report**'.

### 6.3.7. Reporting

For reports, please refer to Section 4.

### 7. Customer Fault Reporting

Generally, Skylight issues can be broadly categorized as

- 1. Access Related
  - a. New user not able to access the PM tool
  - b. Existing user not able to login into the PM tool
- 2. Service/Circuit Related
  - a. Service/Circuit not available on PM tool
  - b. Service/Circuit available but having trouble with the performance KPIs
  - c. Data/Metrics not available in dashboard
  - d. Data/Metrics not correct in dashboard

### 7.1. Fault Reporting Procedure

- 1. There are various ways in which the end customer can report any issue and these steps are applicable for Europe as well as Asia
- 2. Customer should report an issue via the Colt Online portal for all types of faults, including the one related to performance monitoring
- 3. Customer can also directly call / email on the mentioned details. Please refer the link here, for details <u>https://www.colt.net/support/</u>
- 4. After visiting the link, User can click on
  - a. Colt Online Log in to Colt Online
  - b. Call us See our numbers
  - c. Email us Create a ticket
- 5. How to raise a fault using Colt online is explained in the following section
- 6. For calling and reporting a fault, the user can click on 'See out numbers'. Select the country and use the provided number for making a call
- 7. For email, the user can click on 'Create a ticket'
  - a. Select, whether you are 'Colt Customer' or not
  - b. Select the Country
  - c. Select the type of support
  - d. Email Id and Phone number will be available
  - e. The customer can choose to write an email with the fault details on the provided email id

### 7.2. Reporting a fault from Colt Online

1. Login to Colt Online Portal using the existing login credentials

Login to Colt Online
User Id
Password Ø
l forgot my password
Login
Login with your company credentials
Register »
By logging in you agree to the <u>Terms Of Use</u> , <u>API Terms Of Use</u> and to our <u>Privacy and Cookie Policy</u> . You may select to change your browser setting and restrict cookies.

2. Click on 'Tickets' and then on 'Service Issues and Outages'

colt								
Home	Connectivity	Orders	Tickets	Services	Billing	Contacts	Tools	
Service Ticke	ets			Billing & Accour	nt Tickets			Planned Work Tickets View Planned Works
Raise Ticke	ets			Raise Tickets				Track Tickets
Service	Issues & Outages			Billing & Ac	count Enquiri	es		Raise Tickets
Other Te	echnical Request (Fo /Request Only)	r Techinical Servi	ice	Novate Ser	vice			
- Gueries/	ricequest only			SLA Compe	ensation			

- 3. The next steps and selected values are the most near ones for reporting a 'Performance' issue. For any other others, Users are free to select other values based on the issue observed on their services
- 4. Select 'My service is currently not working as expected' and then click on 'Next' at the bottom right corner

1 Enquiry Type Choose your Enquiry Type	2 Select Items Choose your service	3 Provide Details Enter Information	4 Review & Submit Verify ticket details				
Refine your Enquiry	ine your Enquiry         Image: Service Issues & Outages         Raise Ticket related to Service Performance         Ineed information about a recent outage on my service Select if you require a reason for a recent outage.         I am experiencing an issue whilst using the On Demand Portal						
Previous			Cancel Next				

5. On the next page, select the service on which the issue has to be reported and then click on 'Next'

Home /	Tickets / Raise Ticket											
~	Enquiry Type Choose your Enquiry Type	2 Select Items Choose your ser	vice	3 Provi	3 Provide Details Enter Information 4 Review & Submit Verify ticket details							
313 Reco	ords						Search	Q	T			
	Circuit ID/Service Identifier	Service Order ID	Your Reference	Customer Number	Customer Name	Billing Account Numb	er Service Type		s			
0									С			
0												

- 6. User to fill all the mandatory and any other relevant information, that would be required for troubleshooting the issue. List of 'Attribute Values are provided here', which can be tentatively used
  - a. Your Reference: User should explain the issue in brief
  - b. Service Impact*: Any if the below values can be selected
    - i. I am able to use my service, but support is required. No intrusive testing allowed
    - ii. My service is partially affected and/or Colt resiliency is down, but can still be used. No intrusive testing allowed
  - iii. My service is partially affected and/or Colt resiliency is down. Intrusive testing allowed
  - c. Business Impact*:
    - i. My business is not currently affected by this issue and not likely to become critical
    - ii. My business is not currently affected by this issue but will become critical if not restored
  - d. Has this service ever worked?*
    - i. Yes
    - ii. No
    - iii. Selection is dependent on the user If a User selects YES, then Time Zone and Start Date/Time of the service has to be provided
  - e. Please provide a brief summary of your issue*: User has to provide details
  - f. Can we perform service affecting tests?:
    - i. Yes
    - ii. No
    - iii. Provide comments, if required
  - g. Have you carried out any changes on your service before or during this outage?*
  - i. Yes Provide details accordingly
  - ii. No
  - h. Click on "Next' to navigate to the next page

colt									
Home	Connectivity	Orders	Tickets	Services	Billing	Contacts	Tools		
Home / Tickets ,	/ Raise Ticket								
Choose	r <b>y Type</b> your Enquiry Type		<ul> <li>Second second sec</li></ul>	Select Items Choose your service		3	Provide Details Enter Information		
Refined Enquiry My service is cur Service Order ID Your Reference:	rrently not working a	as expected	Customer Customer	r Number r Name		Circu	it ID/Service Identifier		
Maximum 30 (	Characters								
Service Impact: *									
Please Sele	ect							~	
Business Impact	:*								
Please Sele	ect							~	

7. The last step is to review the provided details and then 'Submit' the details

colt												0	6	?	\$
Home	Connectivity	Orders	Tickets	Services	Billing	Conta	icts	Tools							
Home / Tickets	s / Raise Ticket														
Choos	<b>iiry Type</b> e your Enquiry Type		Cho	ect Items ose your service			~	Provide Details Enter Information		• 4	Review & Sul Verify ticket det	o <b>mit</b> ails			
Review the details below and click submit to create the ticket											● Add	Conta	act		

8. Ticket is created



9. If the Skylight Incident affects more than one circuit or the tool itself, then the same process for reporting an issue should be followed. Additionally, the user should pick any circuit in step 5 and 6. Also mention in the comments section about the actual impact of the issue