Measuring and monitoring Skype for Business service health

Microsoft IT Showcase Course

Get ready to be what's next.

Microsoft

Agenda

- Measuring Skype for Business (SfB) service health
- Using monitoring tools
- Measuring audio quality
- Understanding the data
- Best practices

Measuring SfB service health

Defining telemetry

What do we look at?

Establishing service availability

Measuring service availability

Defining telemetry

Telemetry is the process of collecting and aggregating data for reporting purposes

Collect data from multiple sources

Aggregate data and provide actionable reports

What do we look at?

SCOM alerts

HPNA

Synthetic transactions

Client/server side logging

Data mining

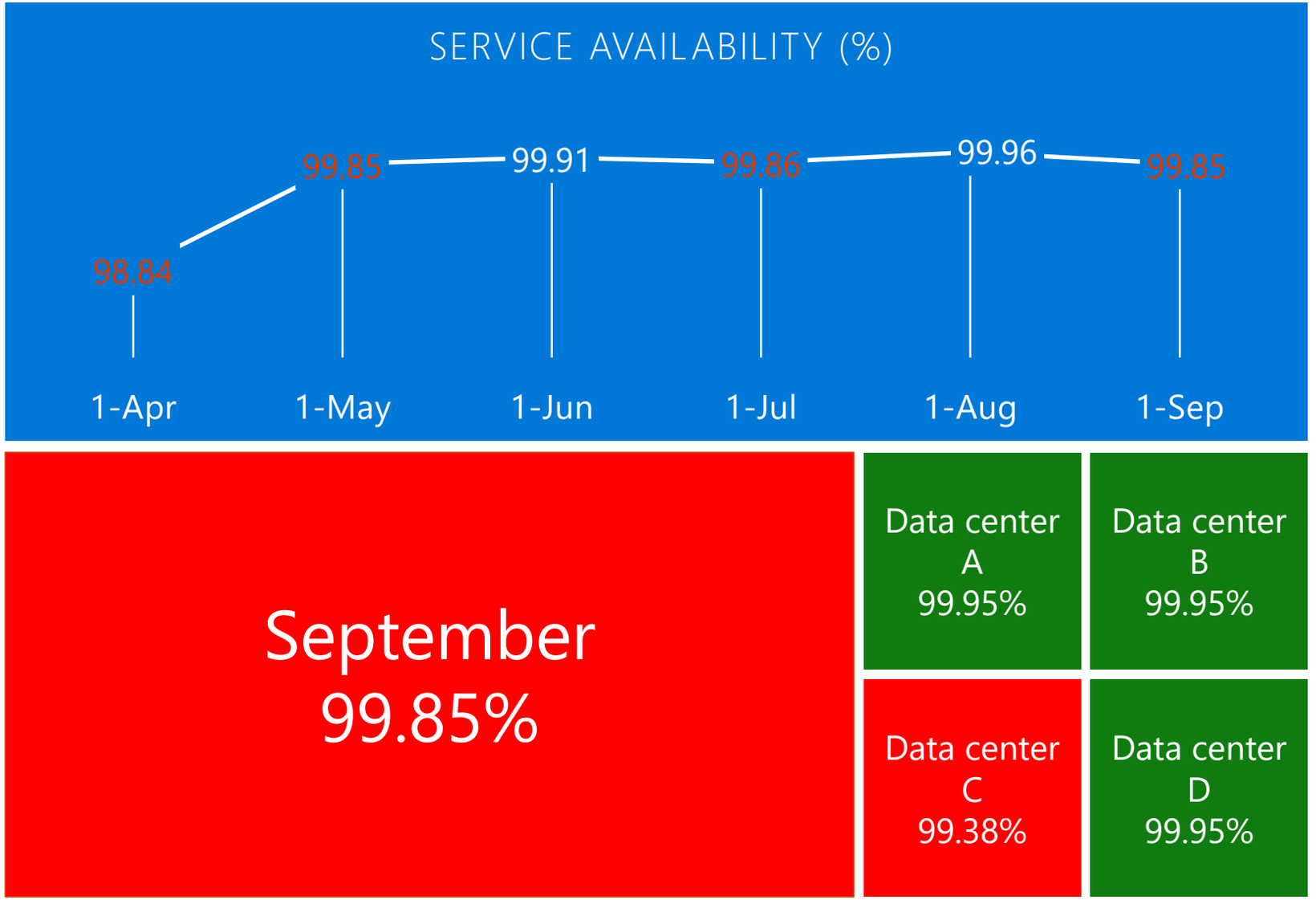
User NSAT reporting

Real-time

Incident

Tracking

Establishing service availability



Measuring service availability

SEPTEMBER	Target	Data center A	Data center B	Data center C	Data center D	Worldwide (weighted)
Core Infrastructure	99.90%	99.95%	99.95%	99.38%	99.95%	99.85%
Core SfB/Lync Conferencing	99.90%	99.90%	99.88%	99.38%	99.95%	99.81%
Enterprise Voice	99.70%	99.88%	99.86%	99.32%	99.91%	99.76%
Audio Conferencing	99.70%	99.89%	99.88%	99.33%	99.94%	99.80%
Online Meeting	99.90%	99.90%	99.88%	99.38%	99.95%	99.81%

Summary

Service availability is measured using a process called telemetry. Data is tracked using real-time measurements and paying close attention to incidents and or monitoring alerts.

Using monitoring tools

- Using System Center Operations Manager (SCOM)
- HP Network Automation (HPNA) reporting
- Establishing service availability
- SfB/Lync monitoring server

Using System Center Operations Manager

Alert/Bug Volumes

2013 September

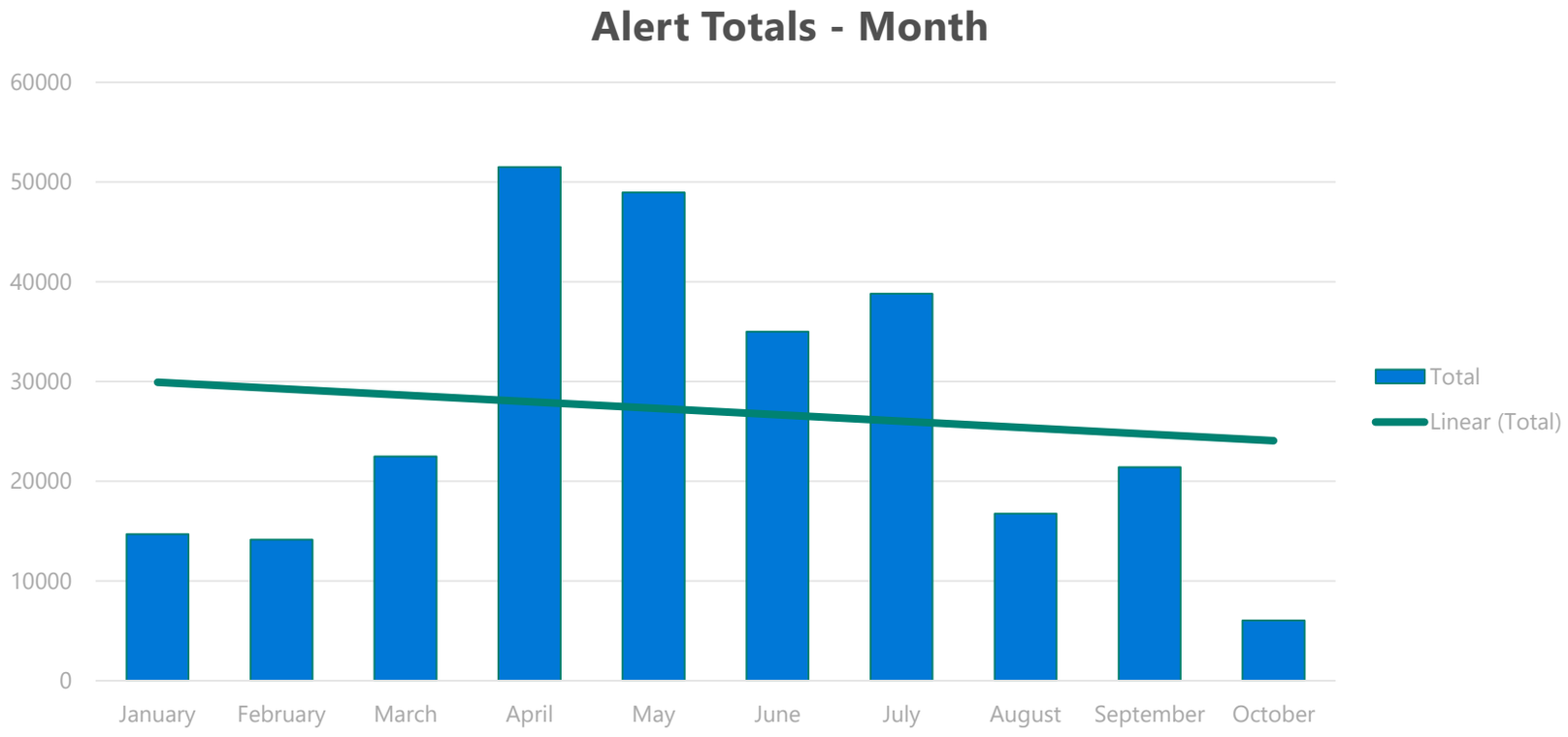
Corp

Total Alert Volume	
SOC Monitored Servers	167
Total Alerts	21361
Total Bugs	57
Alert:Server	127.9
Alert:Bug	374.8

W15 Alert Volume	
W15 Server	64
W15 Alerts	19254
W15 No TSG	14252
W15 Bugs	36
Alert:Server	300.8
Alert:Bug	534.8

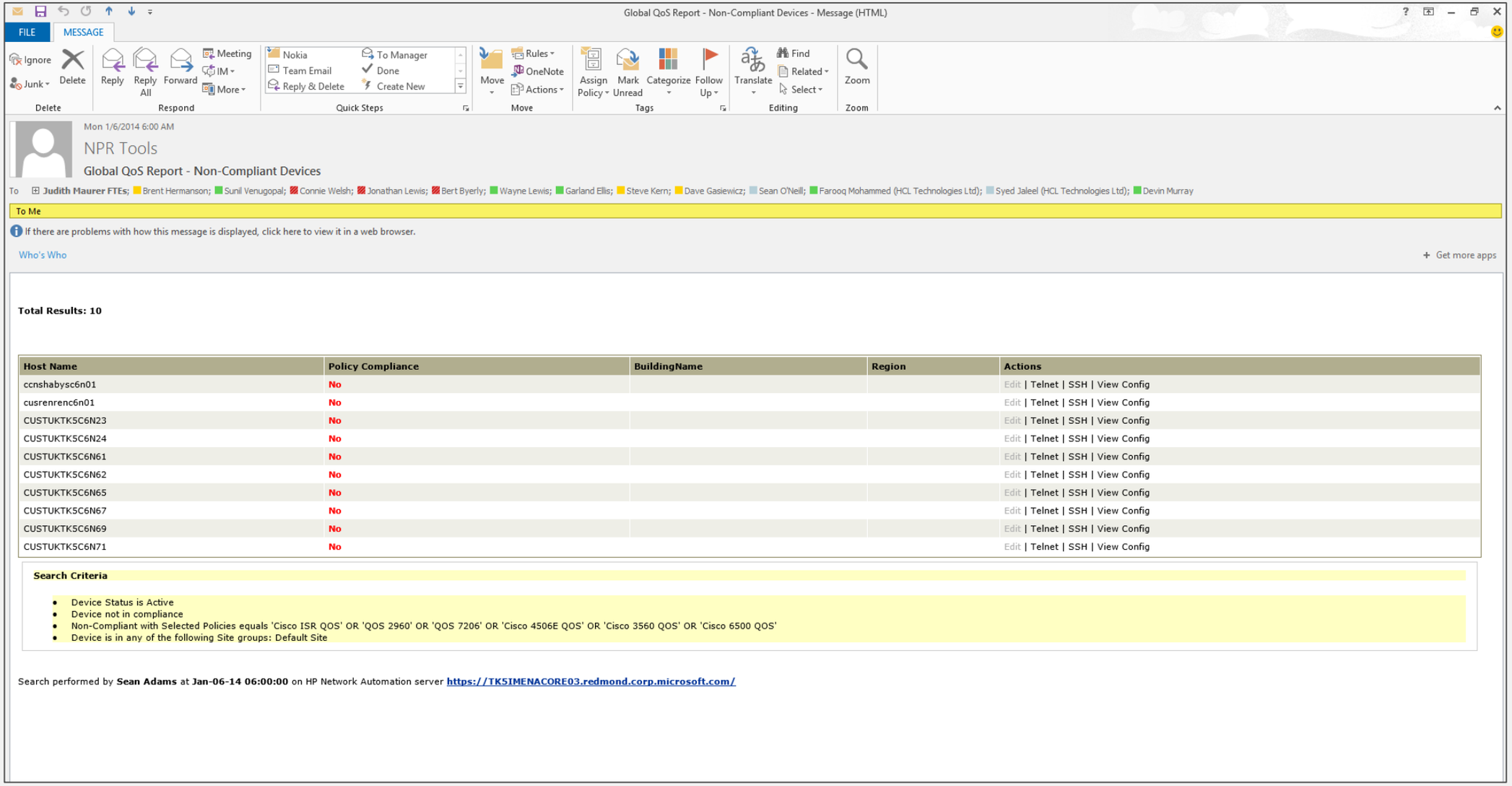
W14 Alert Volume	
W14 Server	103
W14 Alerts	1631
W14 No TSG	1541
W14 Bugs	8
Alert:Server	15.8
Alert:Bug	203.9

% Resolved By SOC	93



Top Alerts	Total Alerts	TSG
[LYNC] Connection attempt to at least one service in a pool failed.	7881	✗
[LYNC] The number of requests that were rejected because per-application queue limit was exceeded	2073	✓
[LYNC] Total number of Storage Service OAuth STS request failures.	1789	✓
[LYNC] The total number of requests currently being processed by application.	1340	✗
[LYNC] The average time (in seconds) the messages delayed in outgoing (send) queues.	1152	✗

HP Network Automation (HPNA) reporting



Total Results: 10

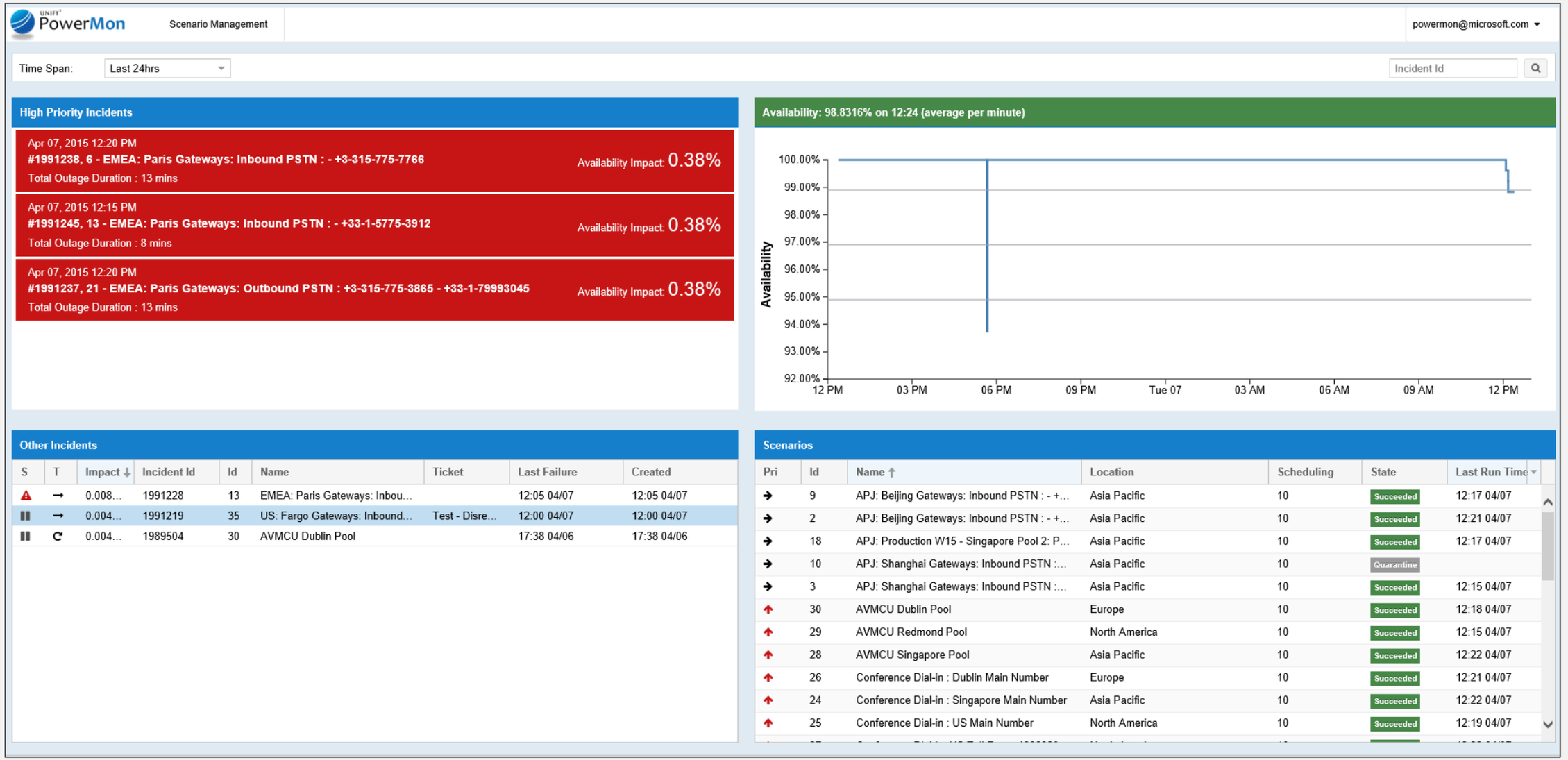
Host Name	Policy Compliance	BuildingName	Region	Actions
ccnshabysc6n01	No			Edit | Telnet | SSH | View Config
cusrenrenc6n01	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N23	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N24	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N61	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N62	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N65	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N67	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N69	No			Edit | Telnet | SSH | View Config
CUSTUKTK5C6N71	No			Edit | Telnet | SSH | View Config

Search Criteria

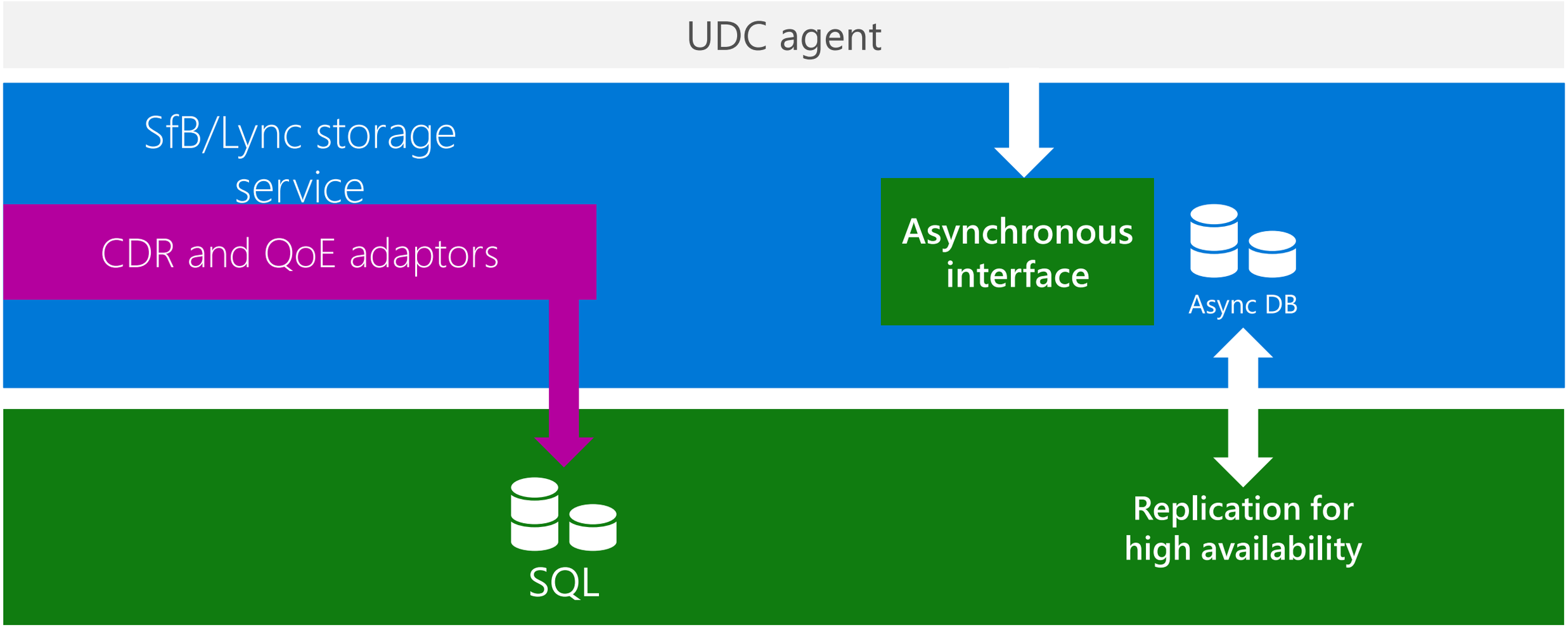
- Device Status is Active
- Device not in compliance
- Non-Compliant with Selected Policies equals 'Cisco ISR QOS' OR 'QOS 2960' OR 'QOS 7206' OR 'Cisco 4506E QOS' OR 'Cisco 3560 QOS' OR 'Cisco 6500 QOS'
- Device is in any of the following Site groups: Default Site

Search performed by **Sean Adams** at **Jan-06-14 06:00:00** on HP Network Automation server **https://TK5IMENACORE03.redmond.corp.microsoft.com/**

Establishing service availability



SfB/Lync monitoring server



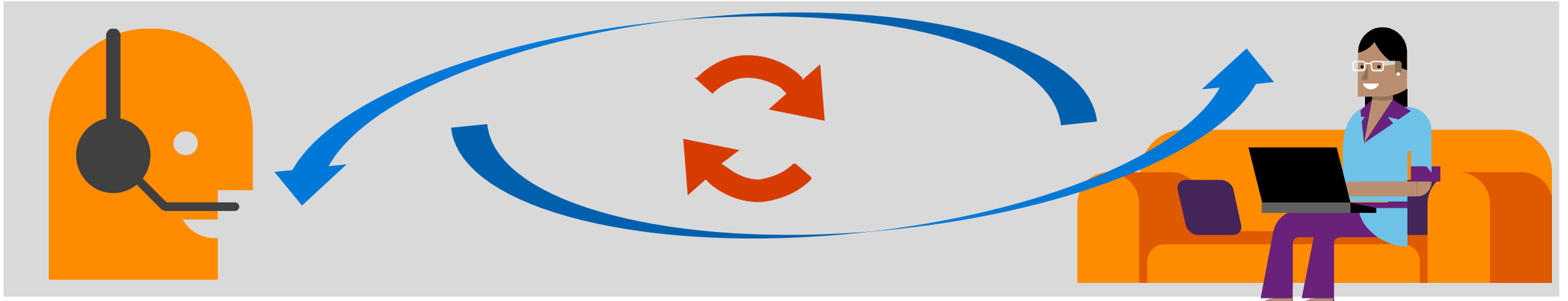
Summary

There are a number of monitoring tools used with Skype for Business. These include System Center Operations Manager (SCOM), and HP Network Automation (HPNA).

Measuring audio quality

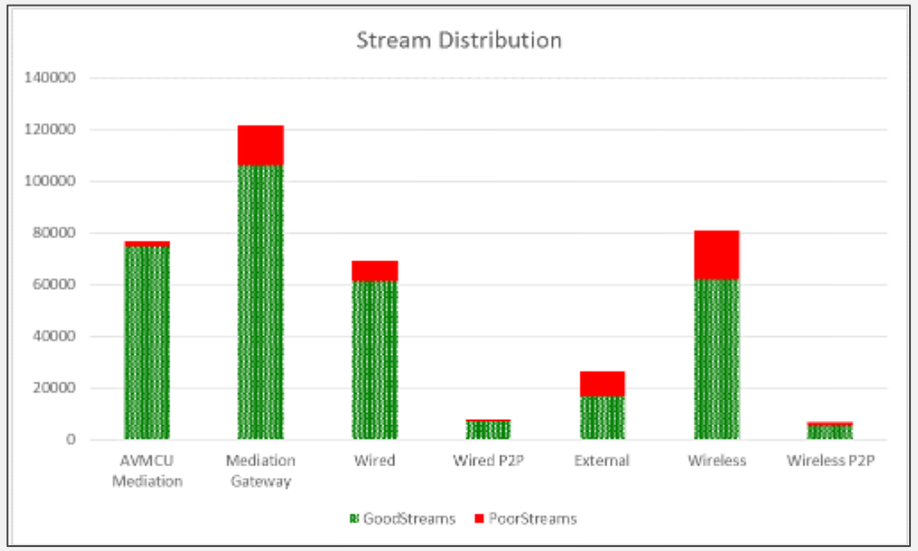
- Characteristics of a poor audio call
- SfB/Lync call quality methodology
- Call quality dashboard

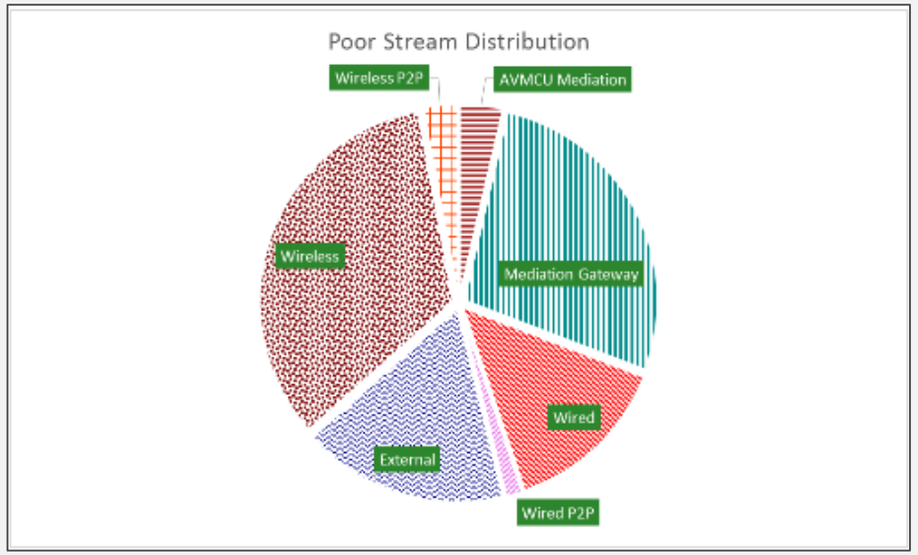
Characteristics of a poor audio call

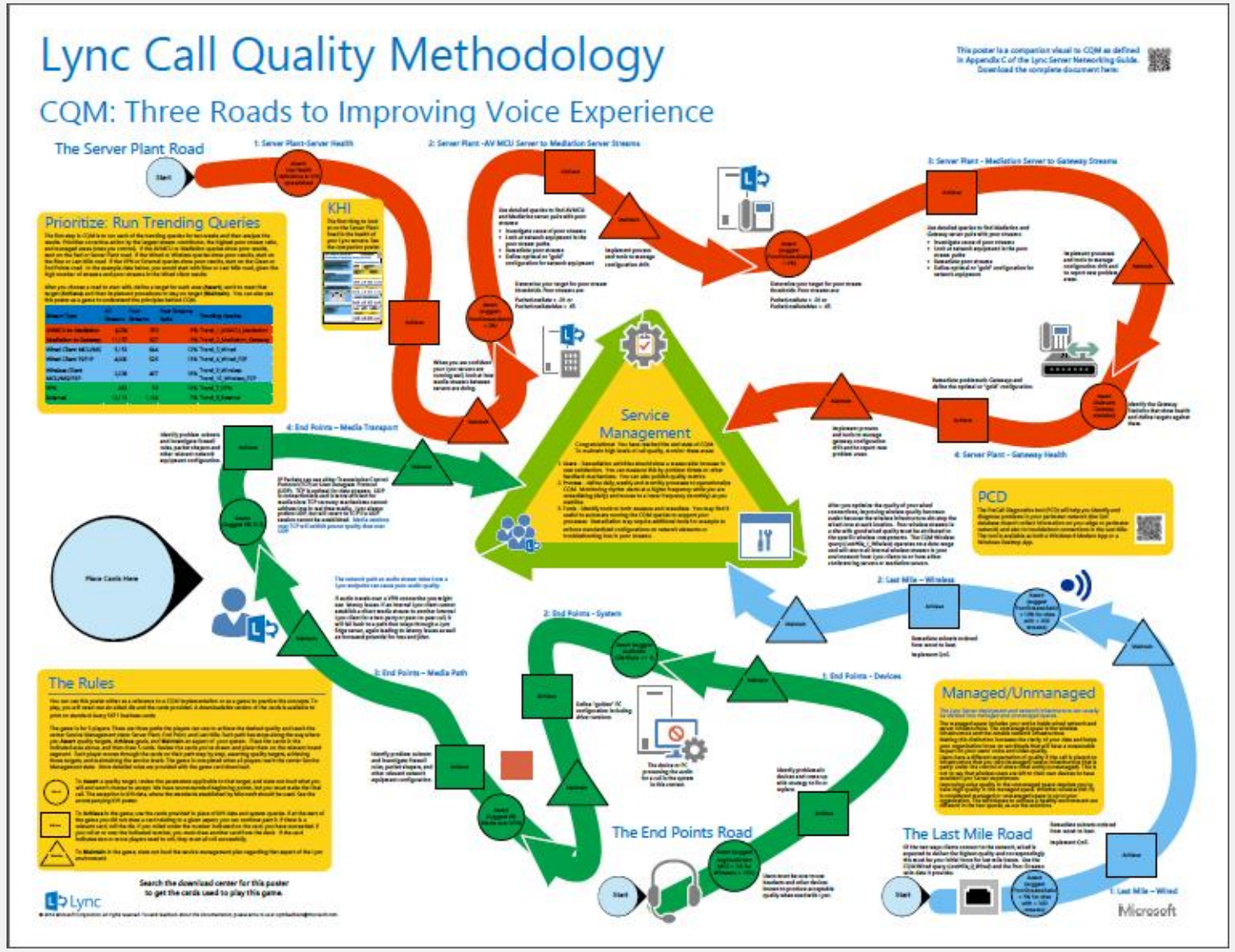


RatioConcealedSamplesAvg > 7% (0.07)	PacketLossRate > 10% (0.1)	JitterInterArrival > 30ms	RoundTrip > 500ms	DegradationAvg > 1.0

SfB/Lync call quality methodology

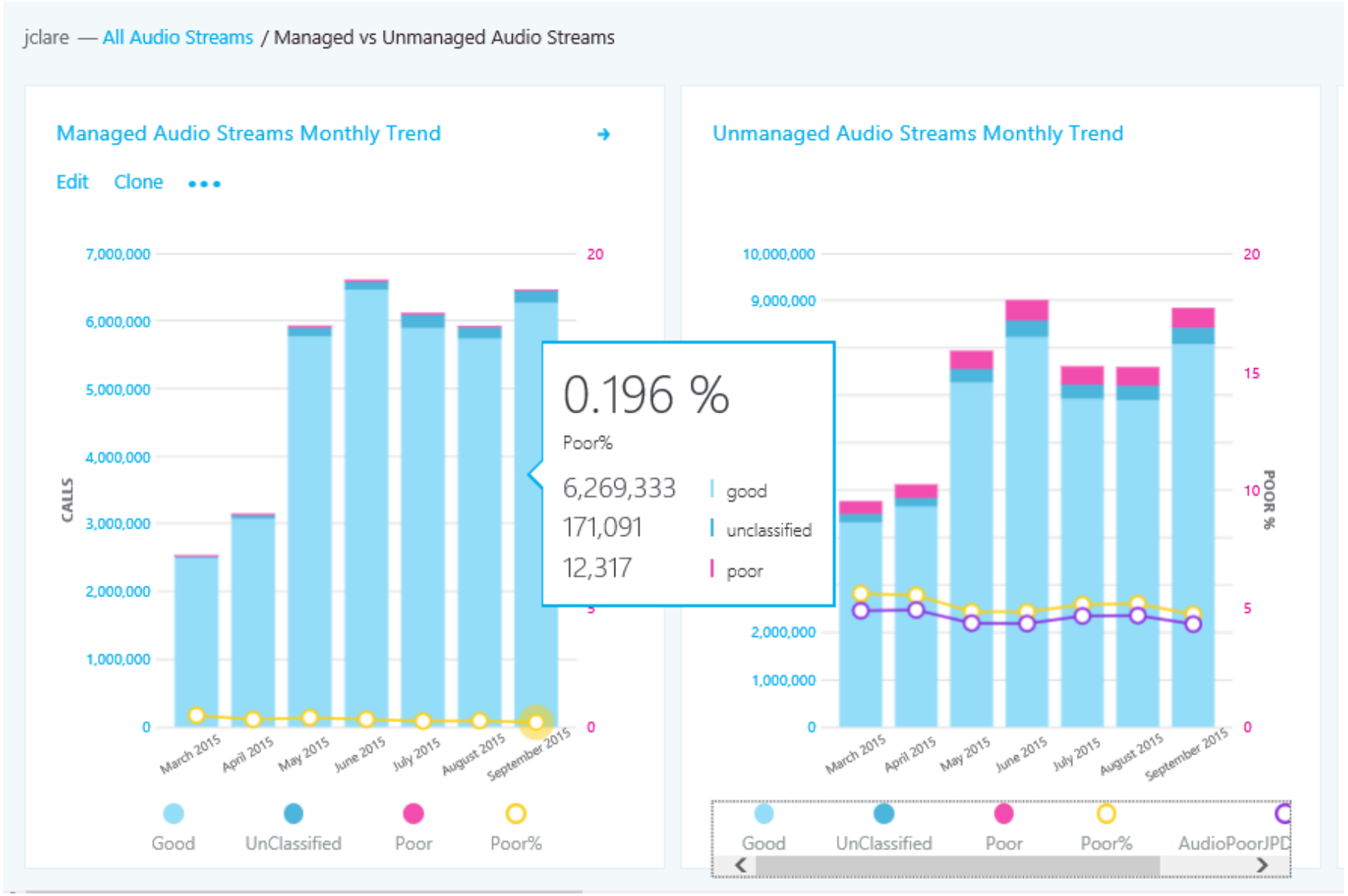




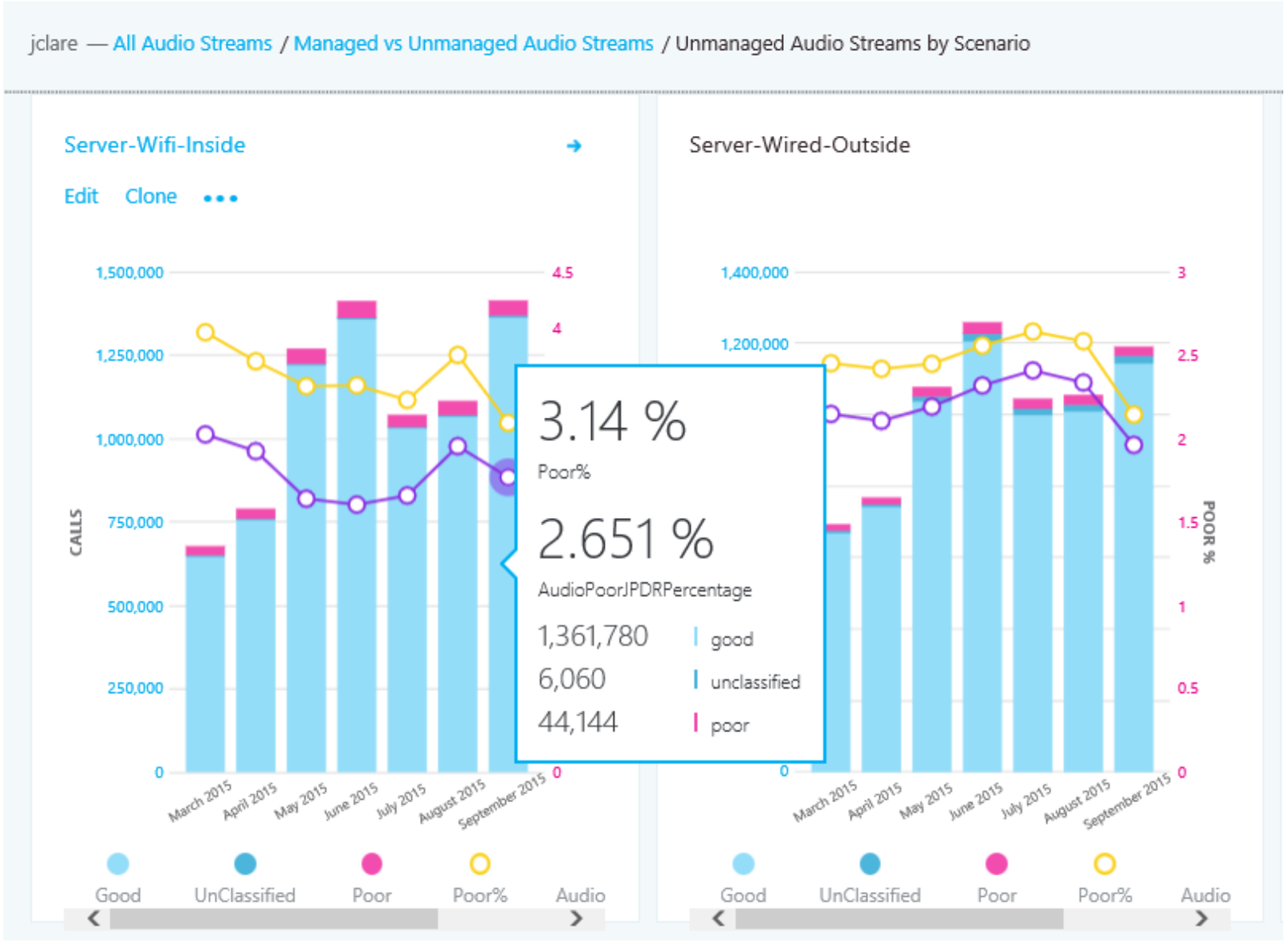


Call quality dashboard

Call quality dashboard



Call quality dashboard



Call quality dashboard

Server-Wifi-Inside - Best Subnets

Edit Clone Add Sub-Report •••

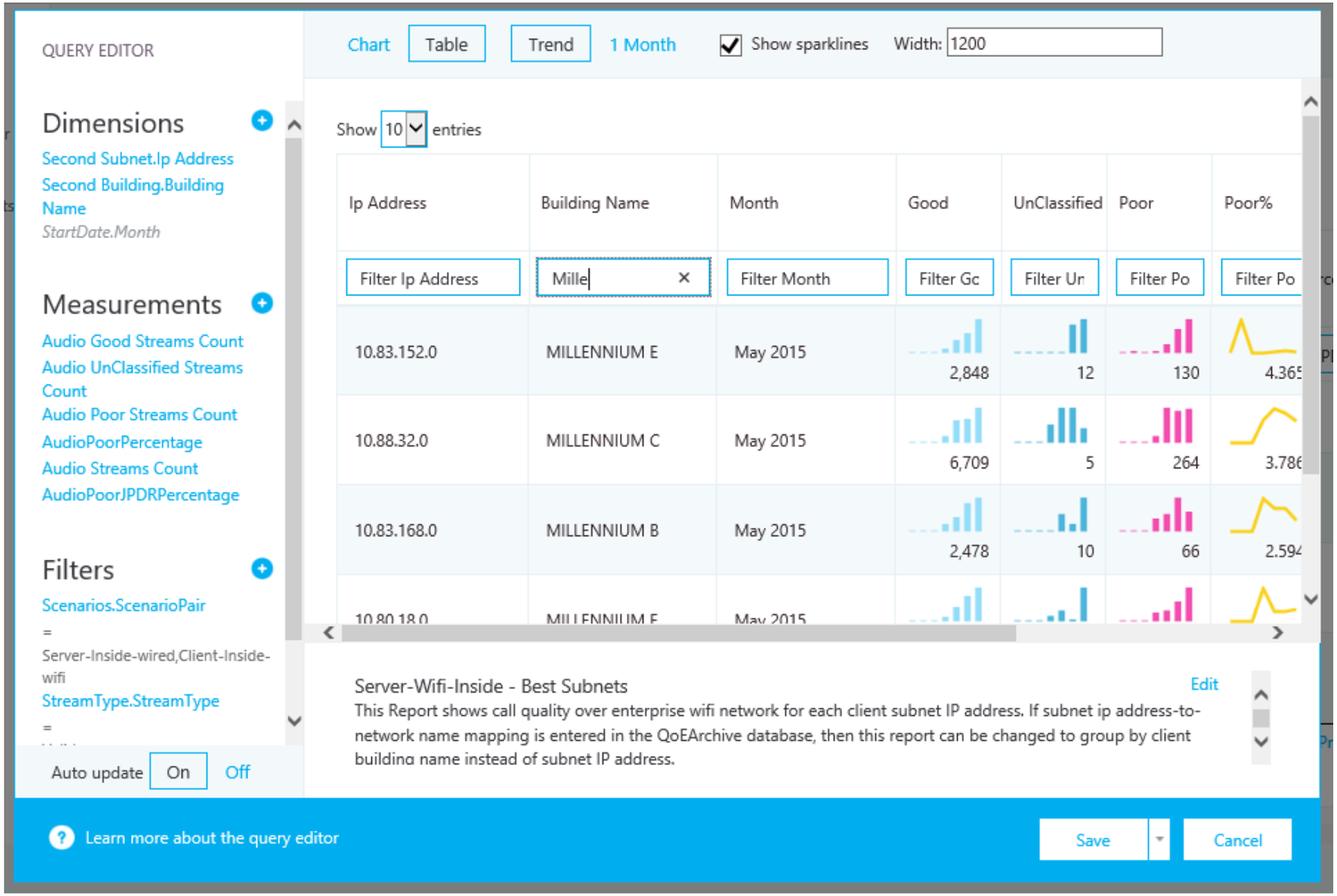
Show 10 entries

Ip Address	Building Name	Month	Good	UnClassified	Poor	Poor%	Audio Streams Count	AudioPoorJPDRPercentage
Filter Ip Address	Millennium	Filter Month	Filter Gc	Filter Un	Filter Po	Filter Po	[0-9][0-9	Filter AudioPoorJPDRPe
10.80.18.0	MILLENNIUM F	September 2015	5,069	29	108	2.086	5,206	1.893
10.83.152.0	MILLENNIUM E	September 2015	2,216	8	40	1.773	2,264	1.596
10.82.108.0	MILLENNIUM A	September 2015	766	4	8	1.034	778	1.034

Showing 1 to 5 of 5 entries (filtered from 6,341 total entries)

Previous Next

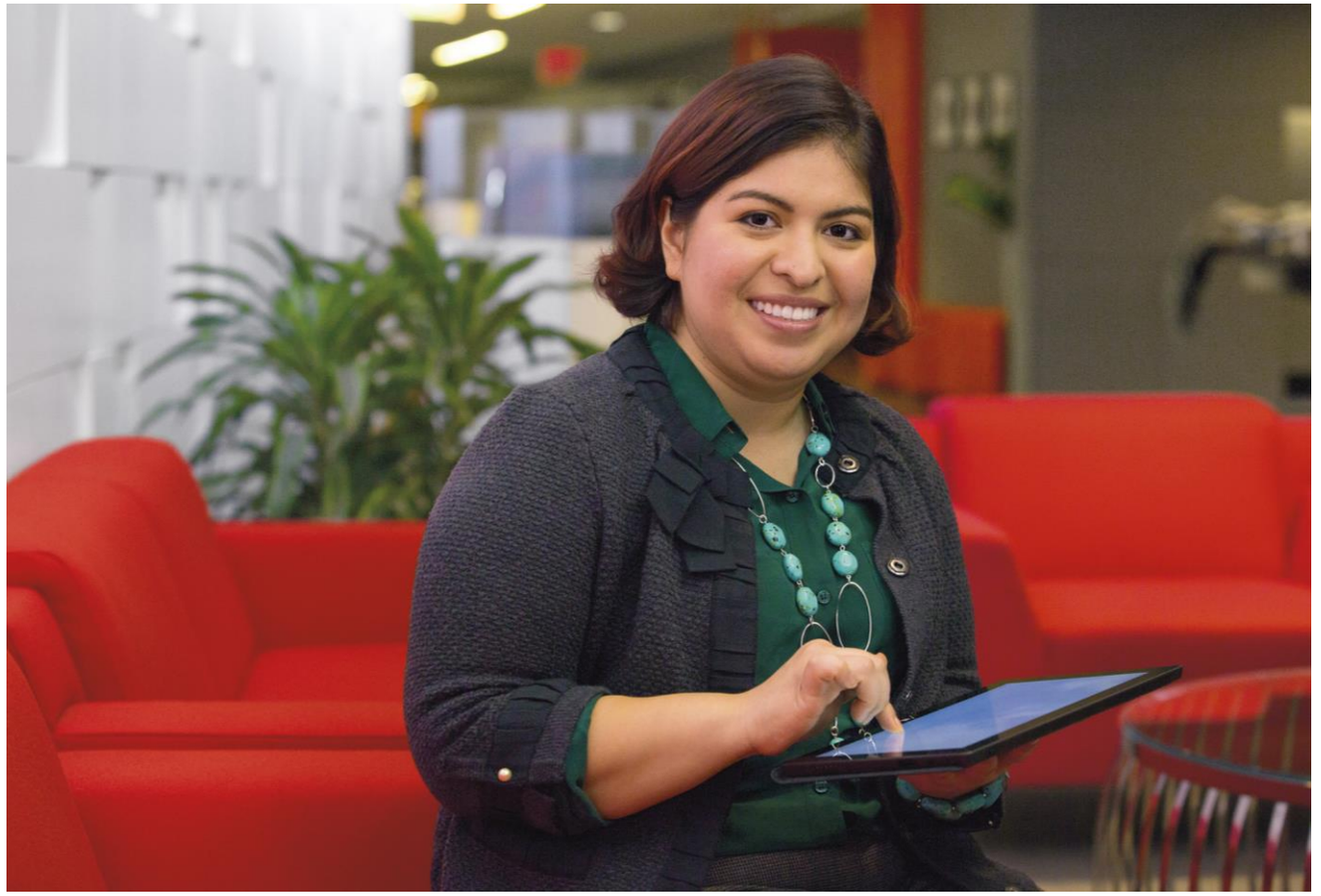
Call quality dashboard



Summary

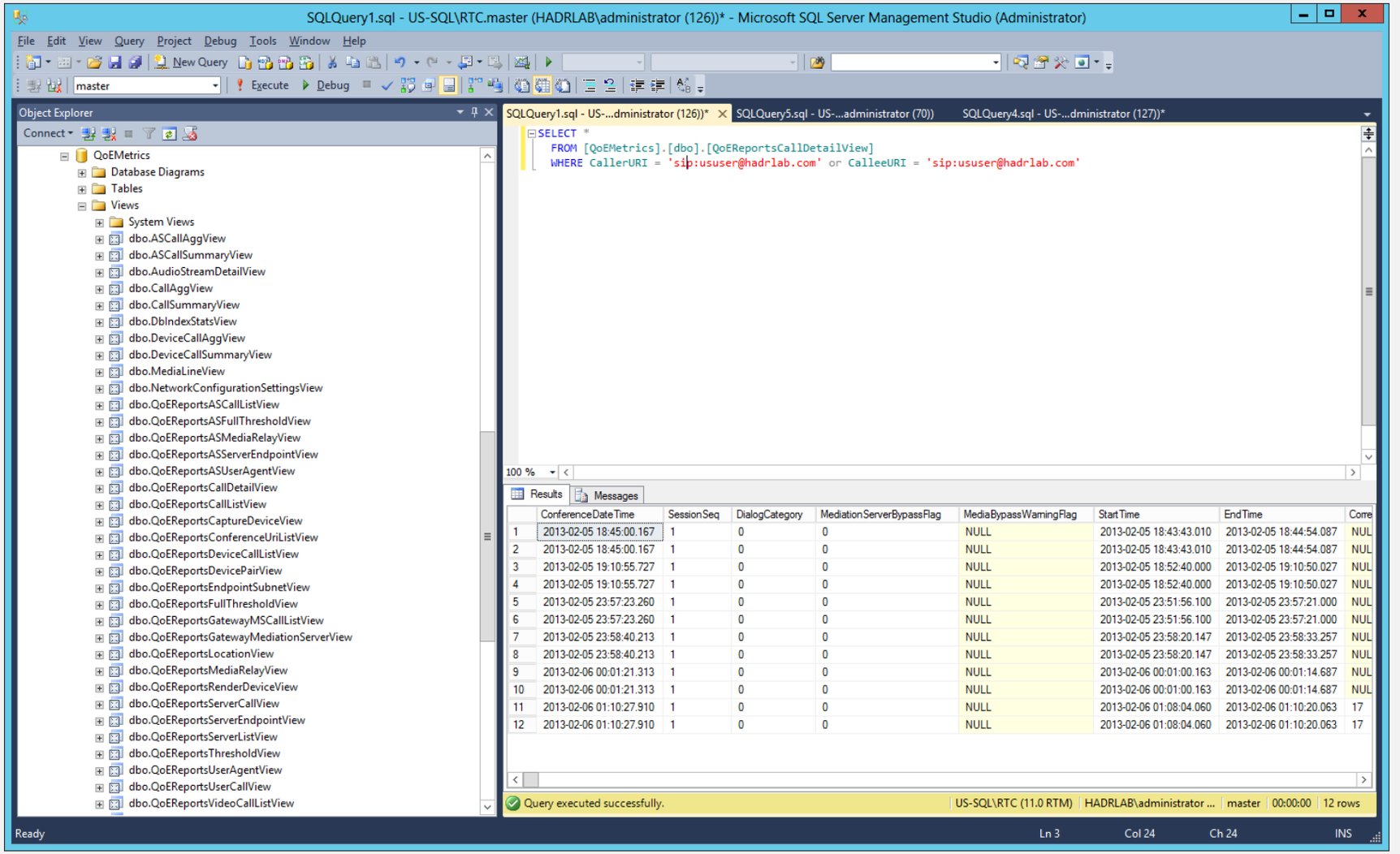
The call Quality Dashboard follows the Call Quality Methodology (CQM) and provides an alternative to the scorecard included in the Lync Networking Guide.

Understanding the data

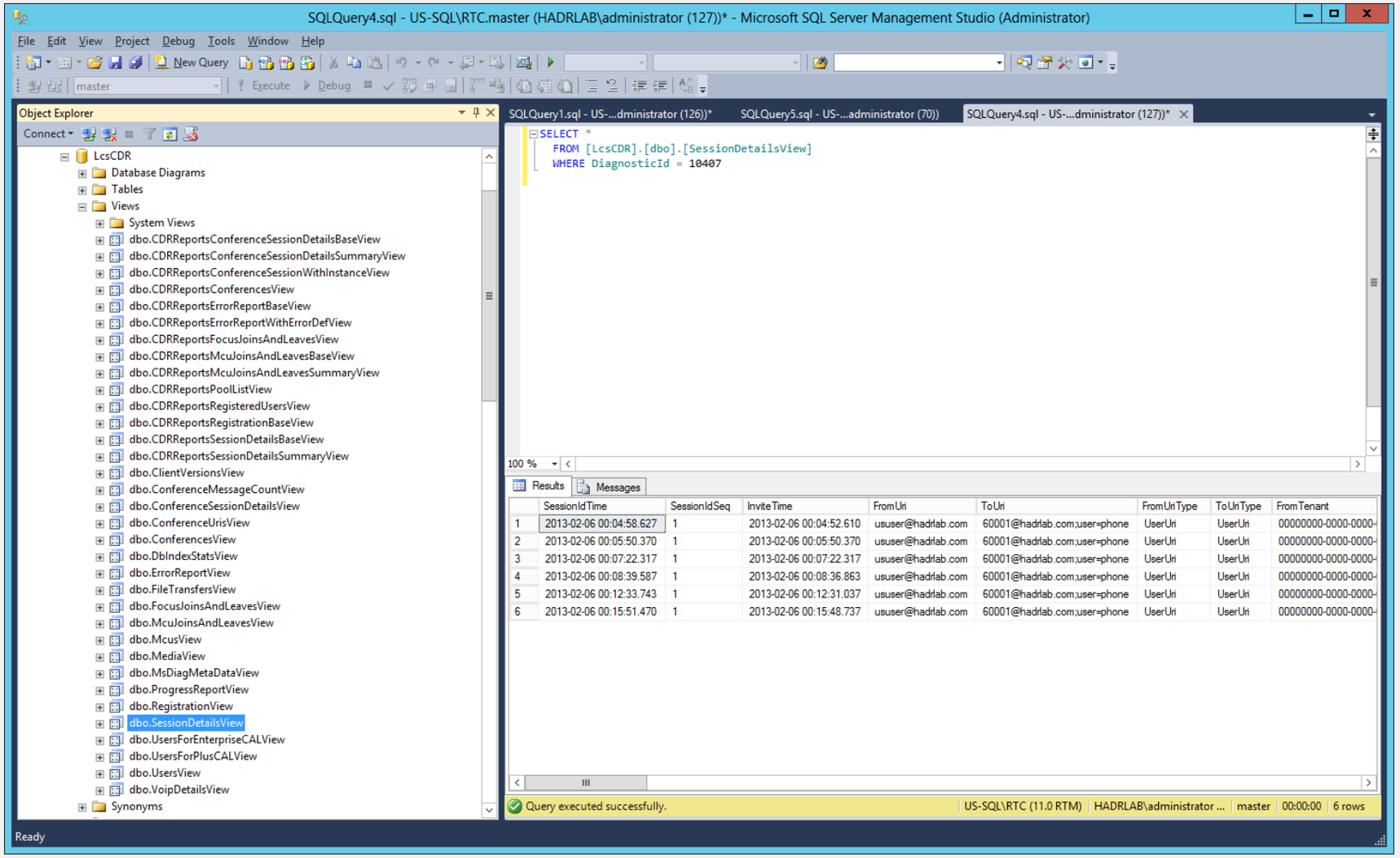


- QoE queries and data collection
- CDR queries and data collection
- Trend analysis
- Diagnostic logs
- Custom SQL Reporting Services Reports

QoE queries and data collection



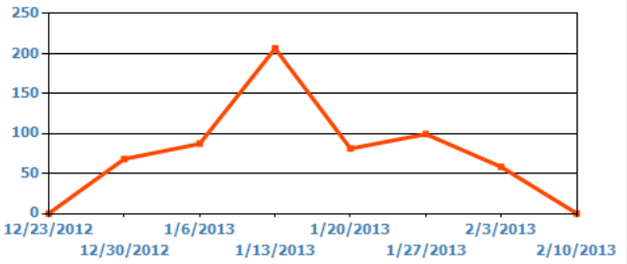
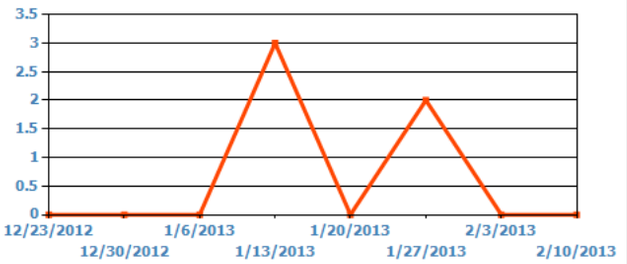
CDR queries and data collection



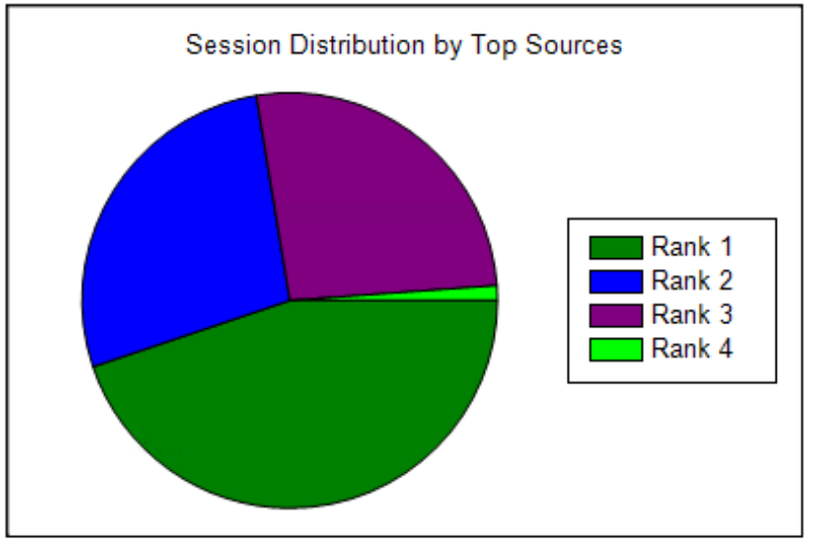
Trend analysis

Top Failures Report

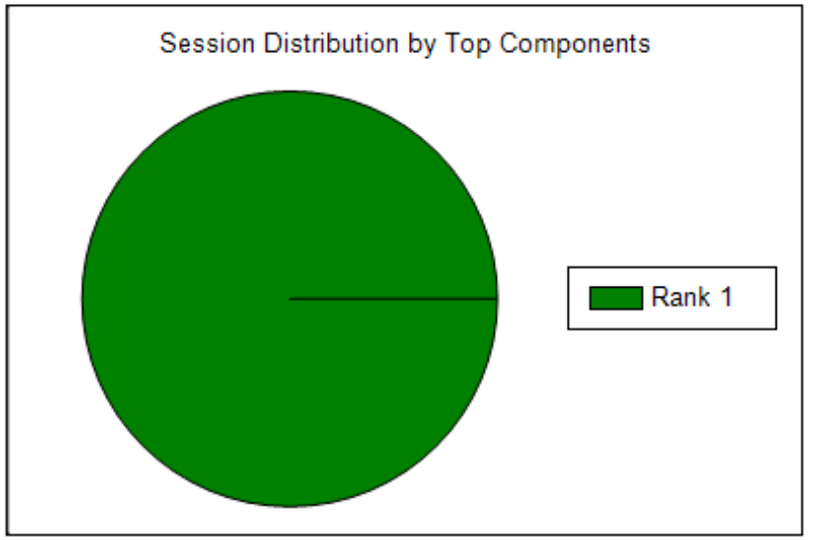
From: 1/18/2013 11:40:00 AM
To: 2/13/2013 11:40:00 AM

Rank	Reported sessions	Users impacted	Failure information	Weekly volume trend in the past
1	261	138	**Request:** INVITE; **Response:** 503 **Diagnostic ID:** 12000; **Category:** Unexpected **Component:** VoIP Outbound Routing: Front End Server **Reason:** Routes available for this request but no available gateway at this point **Description:** The user's call could not be routed because all available PSTN gateways have been marked as down. Administrators should check the caller's voice policy to see where the dialed number would be routed, and verify that specified gateways are all functioning properly. Diagnostics sent in provisional responses may contain more information on the failures received from the gateways.	
2	2	2	**Request:** NONE; **Response:** 503 **Diagnostic ID:** 12000; **Category:** Unexpected **Component:** VoIP Outbound Routing: Front End Server **Reason:** Routes available for this request but no available gateway at this point **Description:** The user's call could not be routed because all available PSTN gateways have been marked as down. Administrators should check the caller's voice policy to see where the dialed number would be routed, and verify that specified gateways are all functioning properly. Diagnostics sent in provisional responses may contain more information on the failures received from the gateways.	

Trend analysis

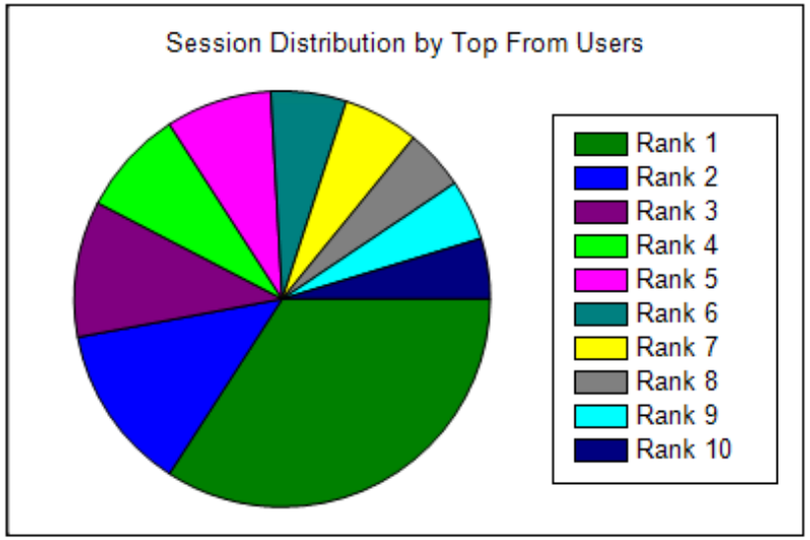


Rank	Top sources	Sessions
1	FrontEnd3.contoso.com	117
2	FrontEnd2.contoso.com	72
3	FrontEnd4.contoso.com	69
4	FrontEnd6.contoso.com	3

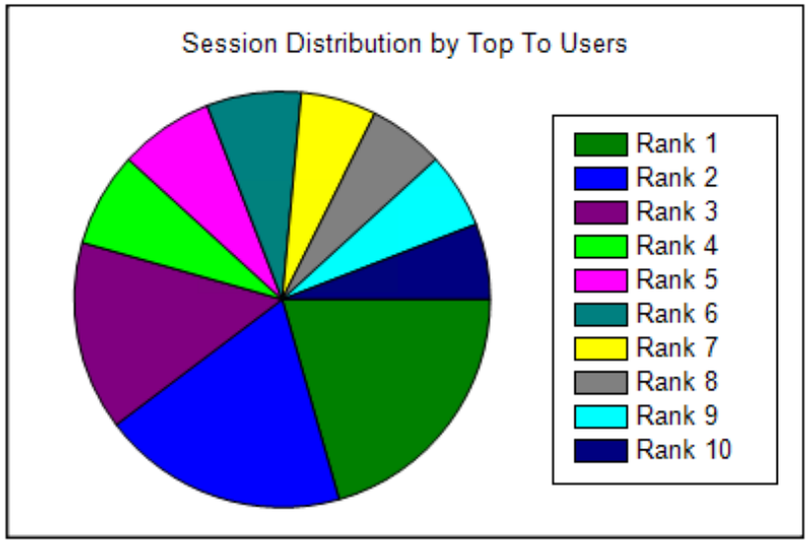


Rank	Top components	Sessions
1	OutboundRouting	261

Trend analysis

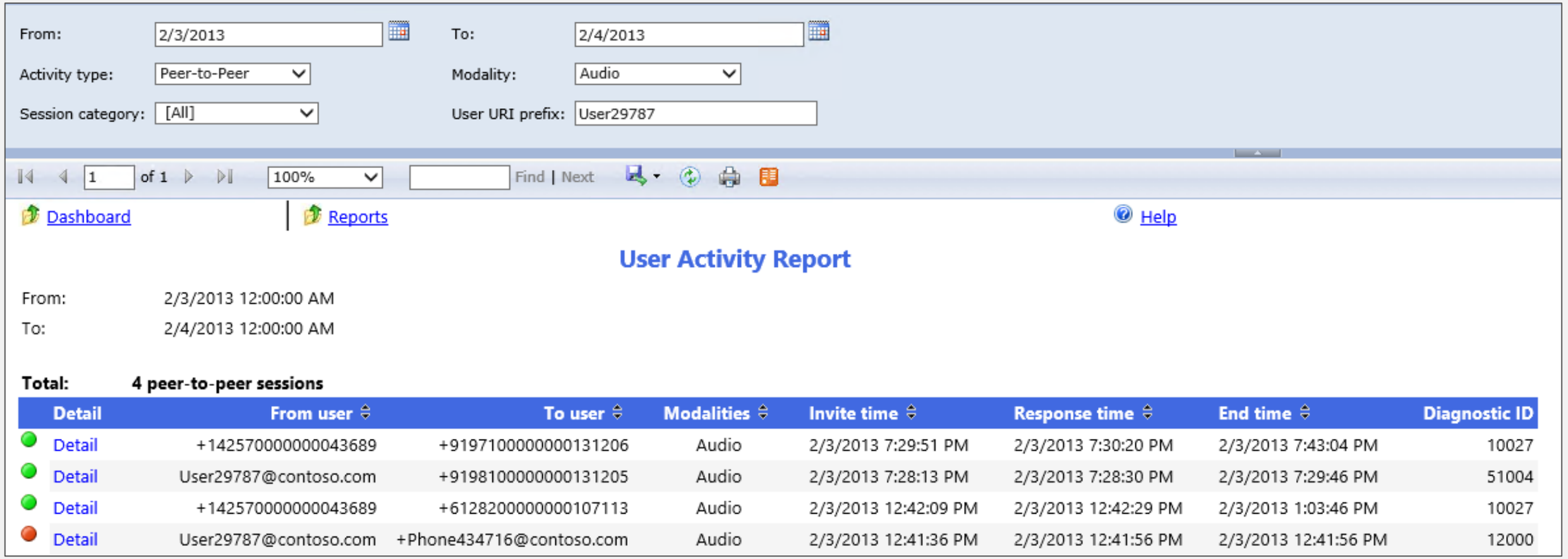


Rank	Top from users	Sessions
1	User29787@contoso.com	29
2	User52957@contoso.com	11
3	User28818@contoso.com	9
4	User26655@contoso.com	7
5	User96454@contoso.com	7
6	User29999@contoso.com	5
7	User89049@contoso.com	5
8	User13189@contoso.com	4
9	User43399@contoso.com	4
10	User43916@contoso.com	4



Rank	Top to users	Sessions
1	+Phone512438@contoso.com	14
2	+Phone434716@contoso.com	13
3	+Phone1592899@contoso.com	10
4	+Phone290927@contoso.com	5
5	+Phone449376@contoso.com	5
6	+Phone89885@contoso.com	5
7	+Phone135413@contoso.com	4
8	+Phone1376585@contoso.com	4
9	+Phone532616@contoso.com	4
10	+Phone950132@contoso.com	4

Diagnostic logs



From: 2/3/2013 To: 2/4/2013

Activity type: Peer-to-Peer Modality: Audio

Session category: [All] User URI prefix: User29787

1 of 1 100% Find | Next

Dashboard | Reports Help

User Activity Report

From: 2/3/2013 12:00:00 AM

To: 2/4/2013 12:00:00 AM

Total: 4 peer-to-peer sessions

Detail	From user	To user	Modalities	Invite time	Response time	End time	Diagnostic ID
Detail	+142570000000043689	+9197100000000131206	Audio	2/3/2013 7:29:51 PM	2/3/2013 7:30:20 PM	2/3/2013 7:43:04 PM	10027
Detail	User29787@contoso.com	+9198100000000131205	Audio	2/3/2013 7:28:13 PM	2/3/2013 7:28:30 PM	2/3/2013 7:29:46 PM	51004
Detail	+142570000000043689	+6128200000000107113	Audio	2/3/2013 12:42:09 PM	2/3/2013 12:42:29 PM	2/3/2013 1:03:46 PM	10027
Detail	User29787@contoso.com	+Phone434716@contoso.com	Audio	2/3/2013 12:41:36 PM	2/3/2013 12:41:56 PM	2/3/2013 12:41:56 PM	12000

Diagnostic logs

Peer-to-Peer Session Detail Report

Session Information

Pool FQDN:	pool1.contoso.com	**Front end:**	FrontEnd3.contoso.com
Invite time:	2/3/2013 12:41:36 PM	**Capture time:**	2/3/2013 12:41:36 PM
Response time:	2/3/2013 12:41:56 PM	**End time:**	2/3/2013 12:41:56 PM
From user:	User29787@contoso.com	**To user:**	+Phone434716@contoso.com
From user agent:	UCCAPI/4.0.7577.4103 OC/4.0.7577.4109 (Microsoft Lync 2010)	**To user agent:**	OutboundRouting/5.0.0.0
From edge server:	Edge1.contoso.com	**To edge server:**	
Is From user internal	No	**Is To user internal:**	Yes
Is From user integrated with desk phone:	No	**Is To user integrated with desk phone:**	No
Session Priority	Normal	**Is retried session:**	No
Response code:	503	**Diagnostic ID:**	12000

Modalities

Audio

⊞ Media Quality Report

⊟ Diagnostic Reports

Detail	Report time	Request	Response	Diagnostic ID	Content type	Reported by
Detail	2/3/2013 12:41:36 PM	INVITE	503	12000	multipart/alternative	Server
Detail	2/3/2013 12:42:20 PM	INVITE	503	12000	multipart/alternative	Client

Custom SQL reporting services reports

Gateways With The Most Poor Streams

From: Aug 15, 2013

To: Aug 16, 2013

Gateway	Location	Streams			Dur <= 30 s		Dur 31 - 60 s		Dur 61 - 90 s		Dur 91 - 120 s		Dur 121+ s	
		All	Poor	Poor %	Streams	Poor %	Streams	Poor %	Streams	Poor %	Streams	Poor %	Streams	Poor %
Gateway2	New York	14,254	541	3.8 %	6,043	0.2 %	1,716	1.6 %	570	3.0 %	276	6.5 %	5,649	8.3 %
Gateway1	Redmond	2,656	524	19.7 %	1,256	1.3 %	124	8.1 %	46	28.3 %	12	41.7 %	1,218	39.4 %
Gateway3	London	9,417	303	3.2 %	3,865	0.2 %	1,064	1.5 %	382	2.9 %	192	4.2 %	3,914	6.6 %
Gateway4	Brazil	522	164	31.4 %	166	20.5 %	90	37.8 %	38	39.5 %	20	30 %	208	36.1 %
Gateway5	Atlanta	468	142	30.3 %	168	20.8 %	62	30.6 %	40	32.5 %	30	46.7 %	168	36.3 %
Gateway6	Las Vegas	76	14	18.4 %	46	17.4 %	14	14.3 %	2	50 %	2	50 %	12	16.7 %
Gateway10	Spokane	698	7	1.0 %	316	0 %	46	0 %	46	0 %	14	0 %	276	2.5 %
Gateway25	Moscow	574	7	1.2 %	330	0 %	96	0 %	22	0 %	4	0 %	122	5.7 %

Summary

There is a large amount of data gathered during monitoring. It's critical that you understand how to read the data and reports so that you maintain high quality communications for the end user.

Microsoft IT best practices

Microsoft IT best practices

Additional resourses

Microsoft IT best practices

What	Establish parameters for call quality and service availability
Why	Maintain reliability and predictability of collaboration services
How	Collect QoE and CDR data Monitor frequently Maintain visibility of stats

Additional resources

Find CQM and the SfB/Lync Network Guide here:
http://blogs.office.com/2014/07/01/call-quality-methodology-scorecard-for-lync-server/

Find Call Quality Dashboard (CQD) here:
http://www.microsoft.com/en-us/download/details.aspx?id=46916