

# HOW DO YOU MEASURE UP? PSAP PERFORMANCE METRICS



APCO | NOV 4-7  
Canada | 2019

2019 Conference & Tradeshow  
Halifax, Nova Scotia  
Halifax Convention Centre



**NICE**<sup>®</sup>

# agenda

- Introduction
- Top Challenges for 911 Directors
- Performance Measurement & Reporting Challenges
- PSAP Performance Metrics & Reporting Benchmark Study Results
- Solving the Challenges
- Success Story
- Questions & Answers

# Introductions – About Me

## John Wynia, NICE Public Safety



- Graduate of NAIT (Northern Alberta Institute of Technology) with Diploma in Marketing
- Joined Dictaphone in 1986 and NICE Systems through acquisition in 2005
- Support all Tier 1 Public Safety throughout Canada and 5 US States
- Recently relocated to Penticton, BC from Calgary



# About NICE

- **Founded:** 1986
- **NASDAQ:** NICE
- **Revenue:** \$1.3 Billion+
- **Employees:** 6,500+
- **Public Safety Customers:** 3,000+
  - 17 out of 20 of the largest cities in US & Canada
- **R&D and Support**
  - Invented and Patented VoIP Recording
  - 80 dedicated R&D professionals
  - 75 NICE-certified implementation and support engineers, and dozens of regional partners
- **Countries:** ~150

## Public Safety Partnership



*Denise Amber Lee*  
F O U N D A T I O N



POLICE EXECUTIVE  
RESEARCH FORUM

# Exclusive Customer User Group

- Community Forum for sharing best practices, tips and tools
- Training webinars, videos & resources
- Searchable PUBNUG member database
- Jobs board
- 500+ members



# PUBNUG

PUBLIC SAFETY NICE USER GROUP

**Events**

Event Name	Date
NICE WFM Essential H...	Feb 23
VESTAB 9-1-1 NICE Ce...	Feb 23
TRITECH TRICON Las Vegas, Nevada	Feb 26
CALNENA 2017 Mission... San Diego, California	Feb 27

**Recent Discussions**

Topic	Replies
Topics? NICE is gearing up to prepare breakout sessions for INTERACTIONS 2016...	3
Interactions 2017- Keynote Speaker Who would everyone like to see as the Keynote Speaker in Interactions ...	11
smartsync and outlook integration Hi, looking for some info around potential for integrating WFM 4.6 a...	0
Smartsync Import Schedule Changes Hi, I'm hoping someone can help me. I'm trying to imp...	13

**Featured Chapters**

Topic	Replies
NICE Inform Users: What do you like most?	19
PubNug Webinar Topics - Tell Us Your Interests!	No Replies
Will You Be At These 2016 NICE Public Safet...	No Replies



Today, we'll be sharing results from the...

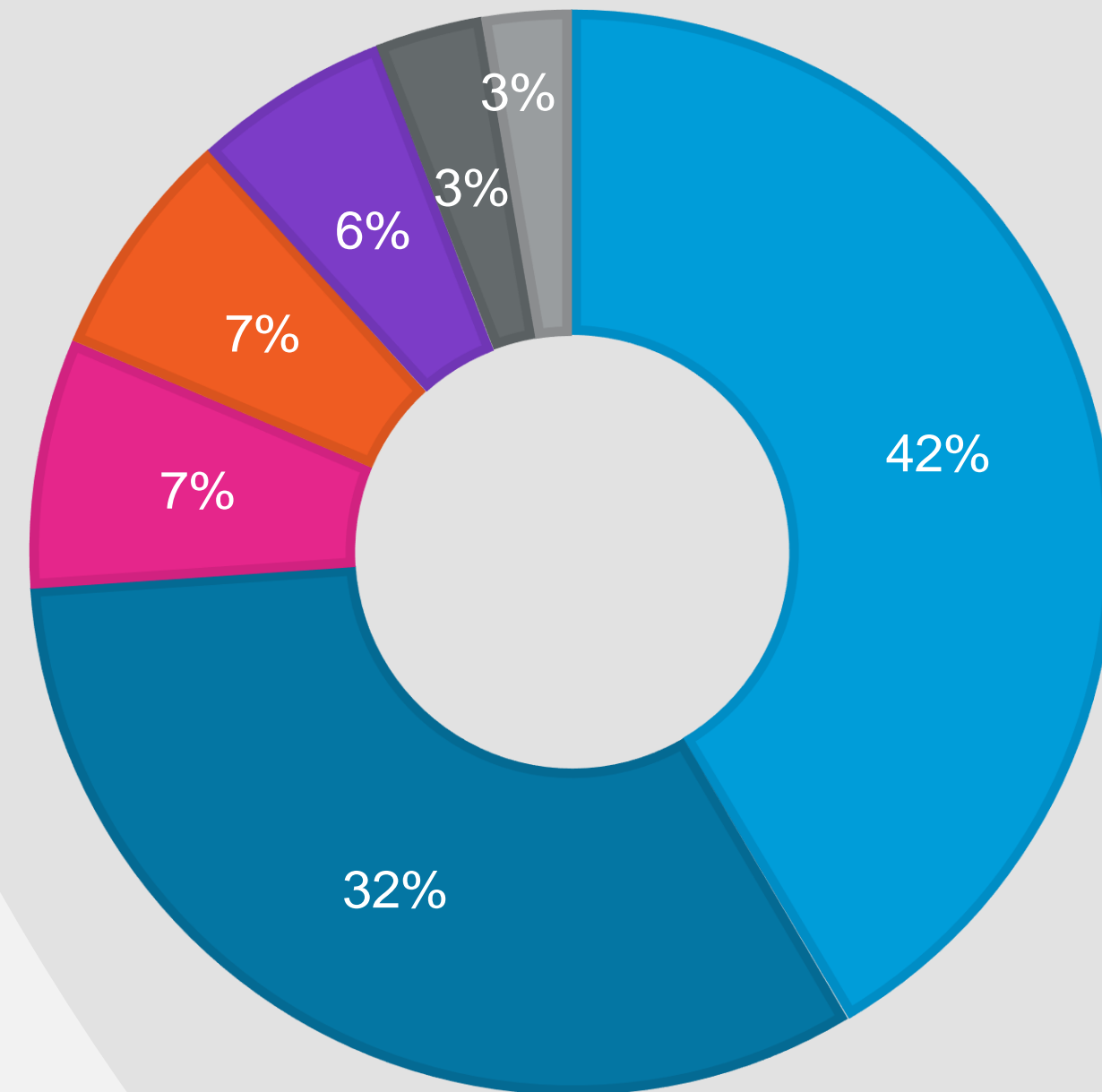
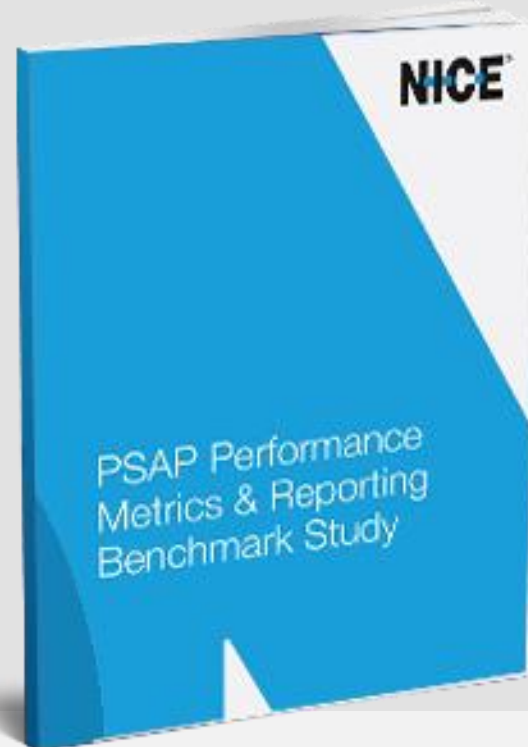
*Look for  
this icon*



## PSAP Performance Metrics & Reporting Benchmark Study

200 respondents from 190 unique agencies of all sizes

- Representing 5 countries and 40+ states/provinces
- 75% PSAP Director or Manager job role



- PSAP Executive/Director
- Other (please specify)
- Training Officer
- Telecommunicator
- Manager/Supervisor
- Quality Assurance Analyst
- IT Manager



The background features a light gray grid pattern overlaid on a white background. This is set against a backdrop of large, overlapping geometric shapes in shades of blue and green. The text is centered in the white area.

# Challenges for 911 Directors



# The Top Challenges for 911 Directors



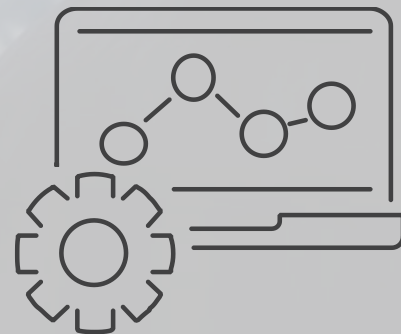
Turnover, Hiring & Staffing



How 911 Center  
is Performing Now



Funding



Understand the  
Incident Lifecycle



Social Pressure



Implementation & Adoption  
of Next Gen Technology





# Performance Measurement & Reporting Challenges



Good metrics are better than an educated guess. Wisdom dictates that Friday and Saturday nights are the busiest. But, with the advent of cell phones, you may find that Thursday drive time eclipses both.

-Barry Furey, Former director of four PSAP's including the Raleigh-Wake Emergency Communications Center



# Why Metrics?

- To understand what your organization, shift, or employee:
  - Is doing
  - How well they are doing it
- To benchmark against standards
- To validate external measurements
- To influence opinion and gain support
- To defend our actions
- To compare with other agencies
- To provide fair and consistent evaluations





What gets measured  
gets improved.

- Robin S. Sharma



# Limited Out-of-Date Performance Metrics



- Metrics about PSAP performance are often several days or weeks old and no longer actionable.
- Simple metrics (Time to Answer and Time to Enter) are available but more complex metrics that tell how the process is working during the entire incident lifecycle are not.
- Metrics are often based upon legacy concepts that have little influence in the real world.



Reporting on the ‘busy hour’ no longer reflects reality. The real measurement has become how your ECC survives the ‘busy minute’ when everyone seemingly calls to report the same event simultaneously.

-Barry Furey, Former director of four PSAP’s including the Raleigh-Wake Emergency Communications Center



# Totals: Everything You Do But Not Everything You Need

## Call Taking Metrics

- Time of day
- Day of Week
- Shift
- Employee
- Ten digit versus 9-1-1
- Protocol compliance



## Dispatch Metrics

- By agency
- By priority of call

## Staffing Metrics

## Fiscal Metrics

## Event Based Metrics

*How will Next Generation 9-1-1 change the way we manage metrics?*



NextGen 9-1-1 is no longer just a phone call. It is a multimedia event. As such, careful collection, curation and dissemination of a variety of media is required.

-Barry Furey, Former director of four PSAP's including the Raleigh-Wake Emergency Communications Center



# Current Industry Standards



## NENA Call Answering Standard/Model Recommendation 56-005

- 90% of all 9-1-1 calls arriving at the PSAP shall be answered within 10 seconds **during the busy hour** (i.e. greatest call volume).
- 95% of all 9-1-1 calls should be answered within 20 seconds.



## NFPA® 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems

- 95% of alarms received on emergency lines shall be answered within 15 seconds, and 99% within 40 seconds. [7.4.1]
- Where alarms are transferred from primary to a secondary PSAP, the transfer procedure shall not exceed 30 seconds for 95% all alarms processed. [7.4.4]



## CALEA Standards for Public Safety Communications Agencies

- The agency has established performance measurements for processing times for all incoming emergency lines.



**Our Mission:**

Emergency help. Anytime. Any where.  
Any device.

**Our Challenge:**

Figuring out what the next device will be.

# A Caution About Comparisons

- “Events” and “incidents” are not universally defined
- Different municipalities attribute costs differently:
  - Benefits
  - Brick and Mortar
  - Utilities
  - Depreciation
- Make sure it’s “apples to apples”







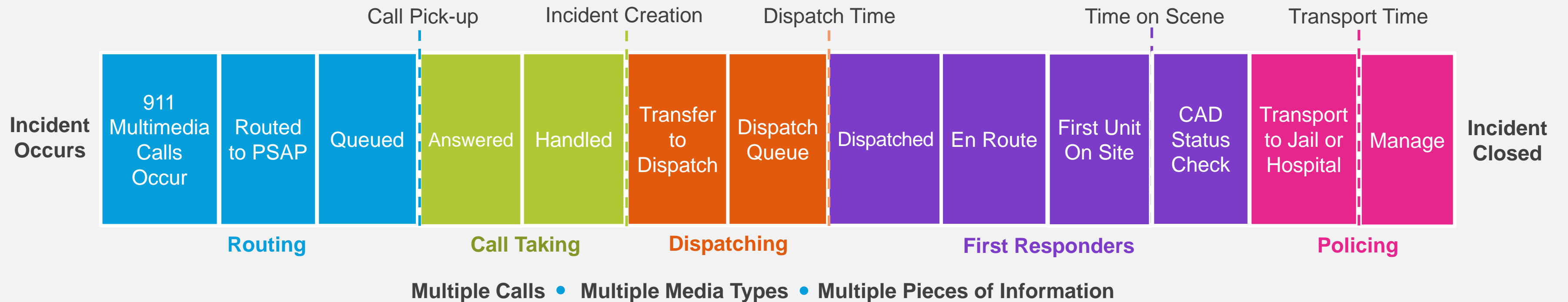
Having worked both sides of the microphone I can attest to the fact that it takes a lot of well documented and professionally presented facts to win the budget battle against a shiny new hook and ladder.

-Barry Furey, Former director of four PSAP's including the Raleigh-Wake Emergency Communications Center

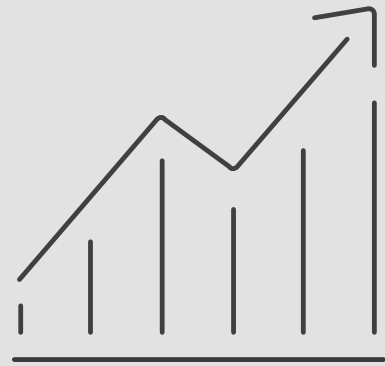
# Incident Lifecycle Becoming More Complex



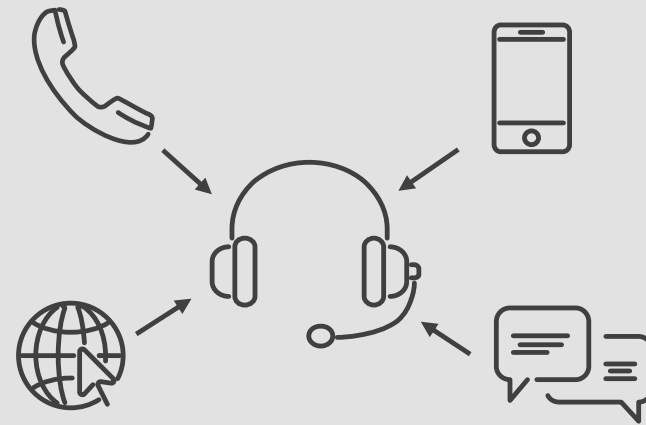
## INCIDENT LIFECYCLE



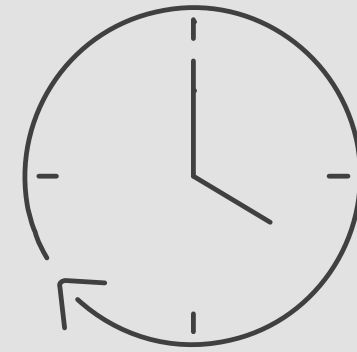
# Complexity of Incident Lifecycle Raises *Important Questions*



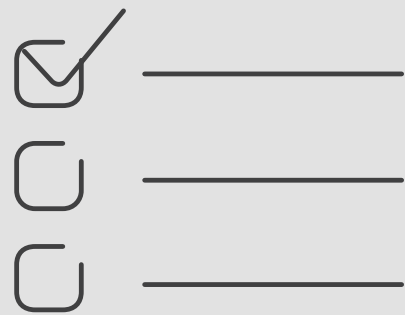
What is our 911 call volume by incident type? Does it match to what we are being funded for?



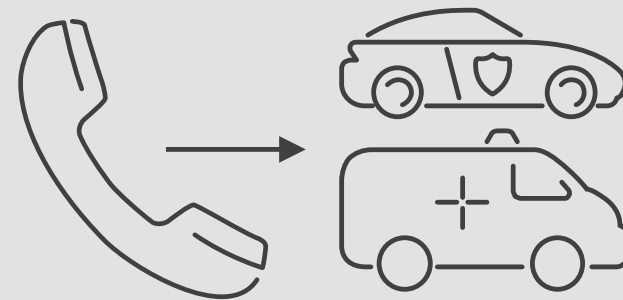
Are we meeting our 911 call answering goals? If we aren't, where is the problem?



Are we meeting our call processing (time to enter, time to dispatch) metrics? Are we better at certain situations?



Are we meeting our Quality Assurance metric goals? If not where are the gaps?



What is our Hello-to-Hello time (time from call answer to on-scene arrival)?



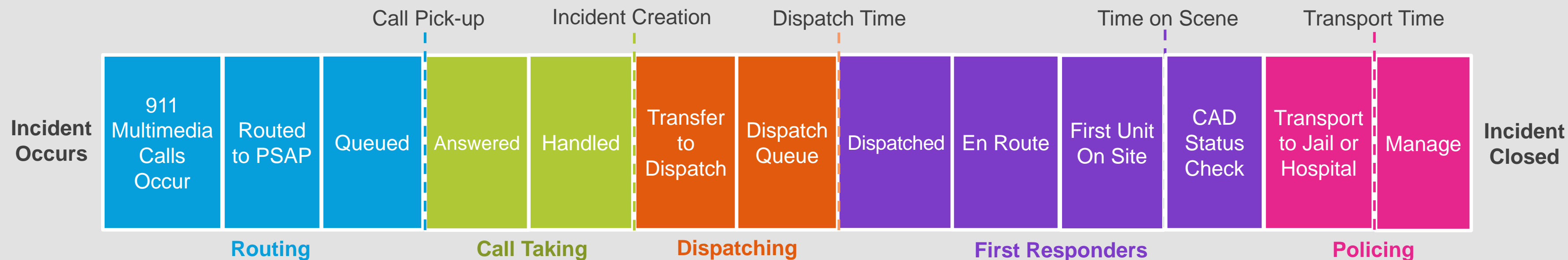
Are we meeting accreditation (e.g. CALEA) requirements?



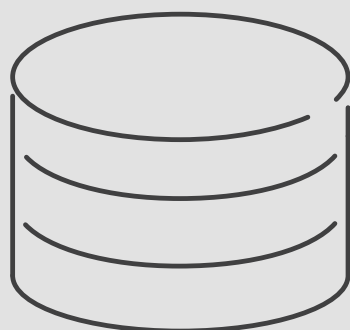
# Difficult to Answer Those Questions Because Data Resides in Different Systems



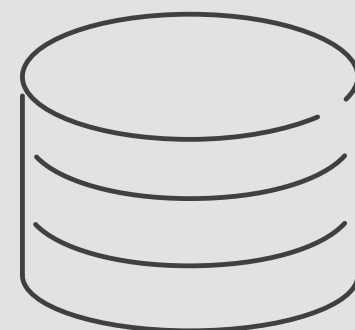
## INCIDENT LIFECYCLE



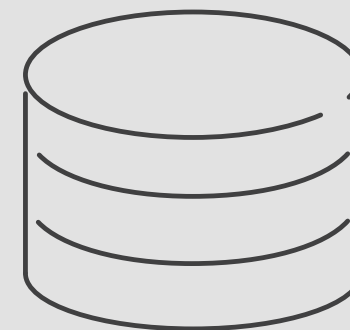
Multiple Calls • Multiple Media Types • Multiple Pieces of Information



911 Telephony



Radio



Computer Aided Dispatch (CAD)



Quality Assurance

# Current Metrics Tell Me What's Wrong But Not Why



- The data is there, but:
  - Focus is placed on traditional metrics
  - Information is maintained in disparate systems
  - Reporting formats are often incompatible
  - No way to easily and accurately assemble comparisons and reports
- Oftentimes we fail to understand how and when to use this data



If you don't have a defensible QA program, then you don't really have EFD, EMD, or EPD. In the real world, performance without documentation doesn't exist.

-Barry Furey, Former director of four PSAP's including the Raleigh-Wake Emergency Communications Center



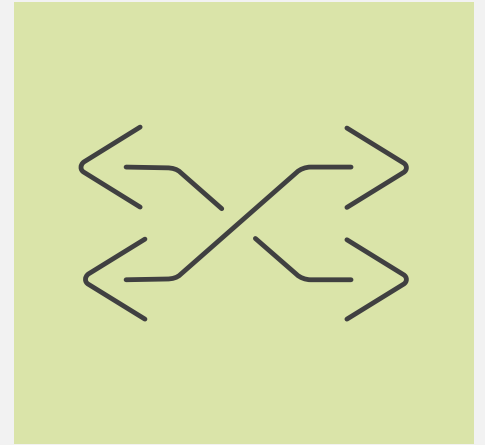
# It's All in the Presentation

- Does the actual *number* or *percentage* of impact make a better impression?
- Can you “package” your numbers in an easily relatable fashion?
  - Calls equivalent to one year’s work of average employee?
  - Impact per day?
  - Month?
  - Shift?
  - Double the workload?



# Limited visibility into handoff of emergency response between agencies, and the causes of delayed handoffs

- Interaction with secondary PSAPs
- Single service ECCs
- Mis-routed 911 calls
- Non-specific delivery of wireless 911





Since NG 9-1-1 is truly borderless, we need to be able to collect incident data across every agency touching the event in order to obtain an accurate view.

-Barry Furey, Former director of four PSAP's including the Raleigh-Wake Emergency Communications Center



# Limited or No IT Capability to Organize Data and Analyst Capability to Manipulate the Data to Produce Insights



Item	2020	2021	2022	2023
Item 1	100	100	100	100
Item 2	200	200	200	200
Item 3	300	300	300	300
Item 4	400	400	400	400
Item 5	500	500	500	500
Item 6	600	600	600	600
Item 7	700	700	700	700
Item 8	800	800	800	800
Item 9	900	900	900	900
Item 10	1000	1000	1000	1000



CUT



COPY



PASTE



Item	2020	2021	2022	2023
Item 1	100	100	100	100
Item 2	200	200	200	200
Item 3	300	300	300	300
Item 4	400	400	400	400
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Item 8	800	800	800	800
Item 9	900	900	900	900
Item 10	1000	1000	1000	1000

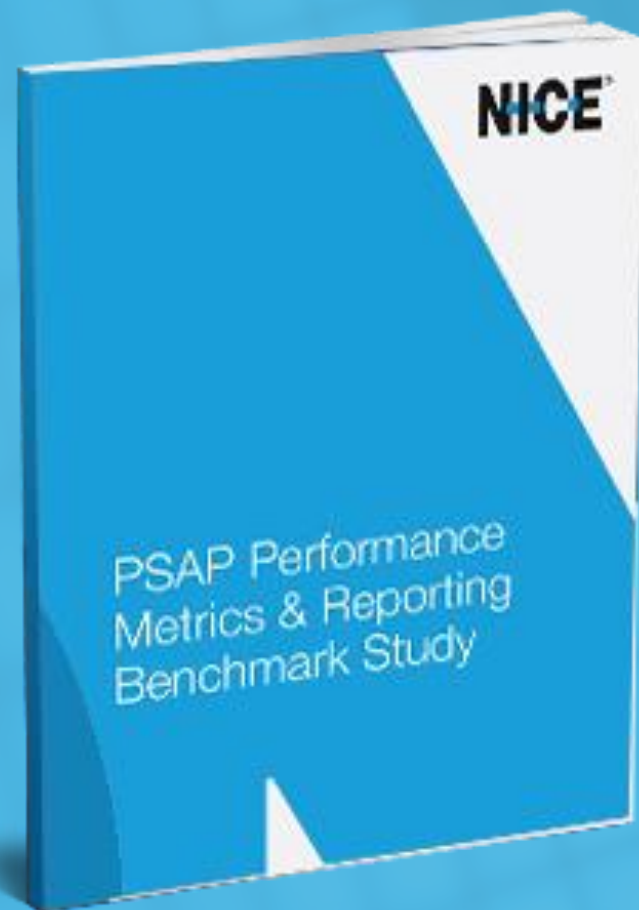


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Item 6	600	600	600	600
Item 7	700	700	700	700
Item 8	800	800	800	800
Item 9	900	900	900	900
Item 10	1000	1000	1000	1000

Beginning of Next Month



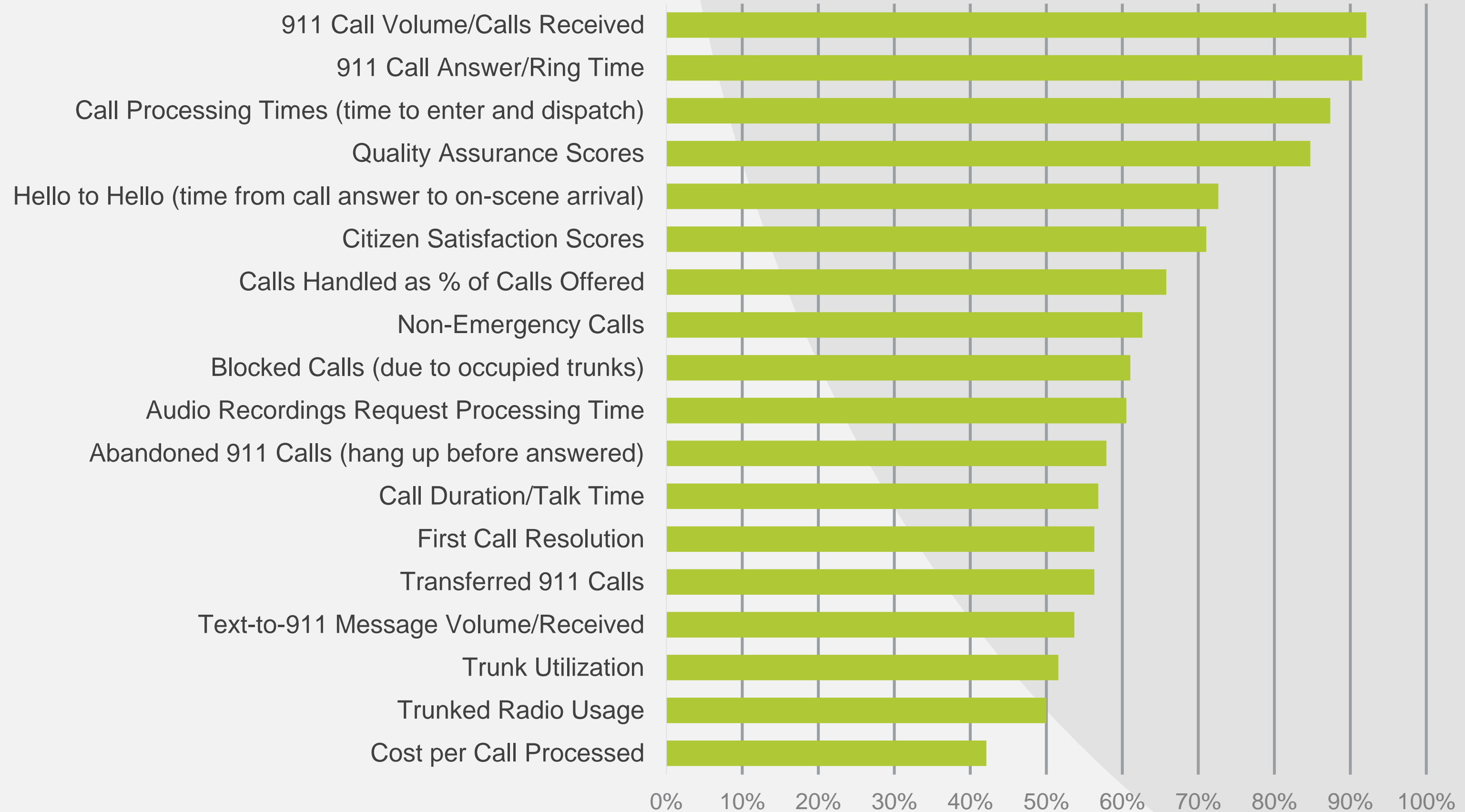
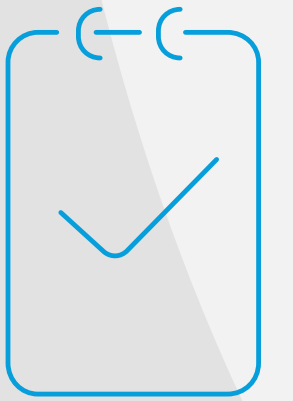
# PSAP Performance Metrics & Reporting Benchmark Study Results



200 respondents from 190 unique agencies of all sizes

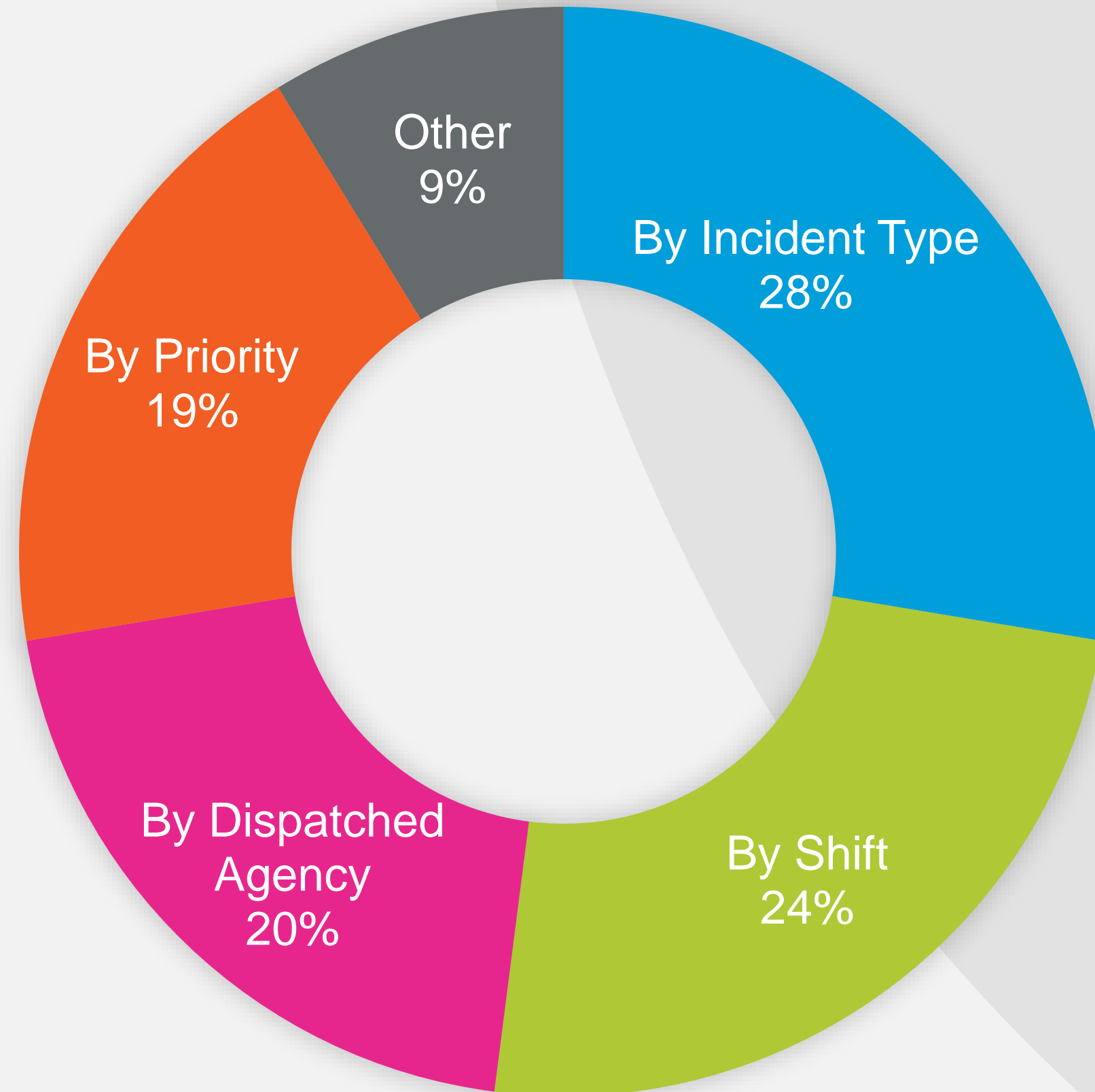
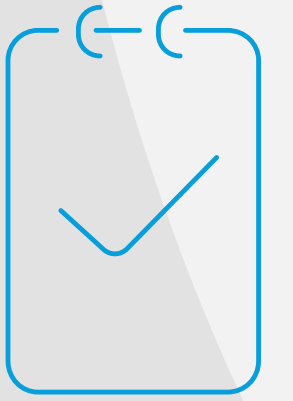
- Representing 5 countries and 40+ states/provinces

# How important are the following performance metrics? [Extremely or Very Important]

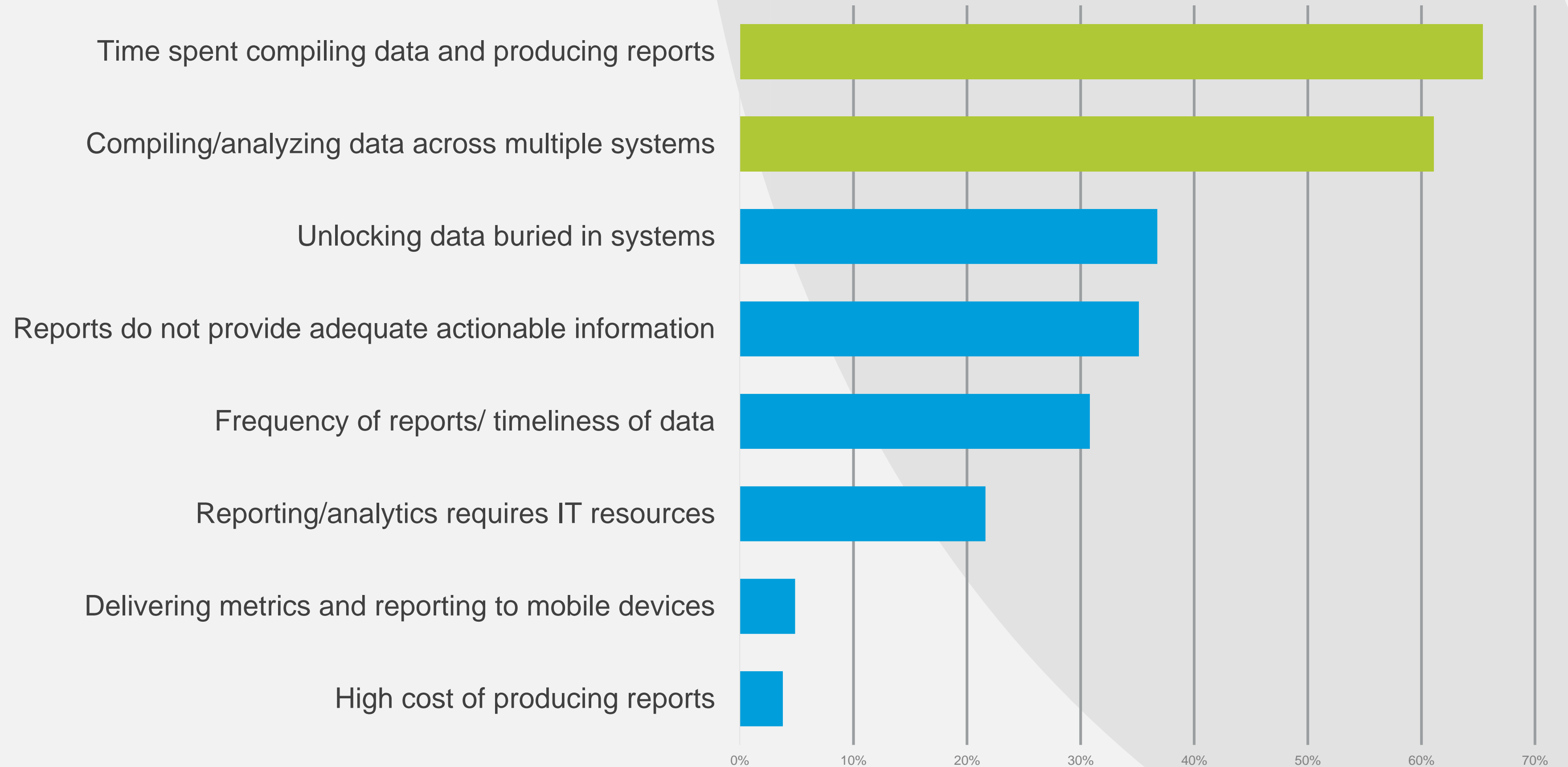




# How would you like to be able to break out metrics?

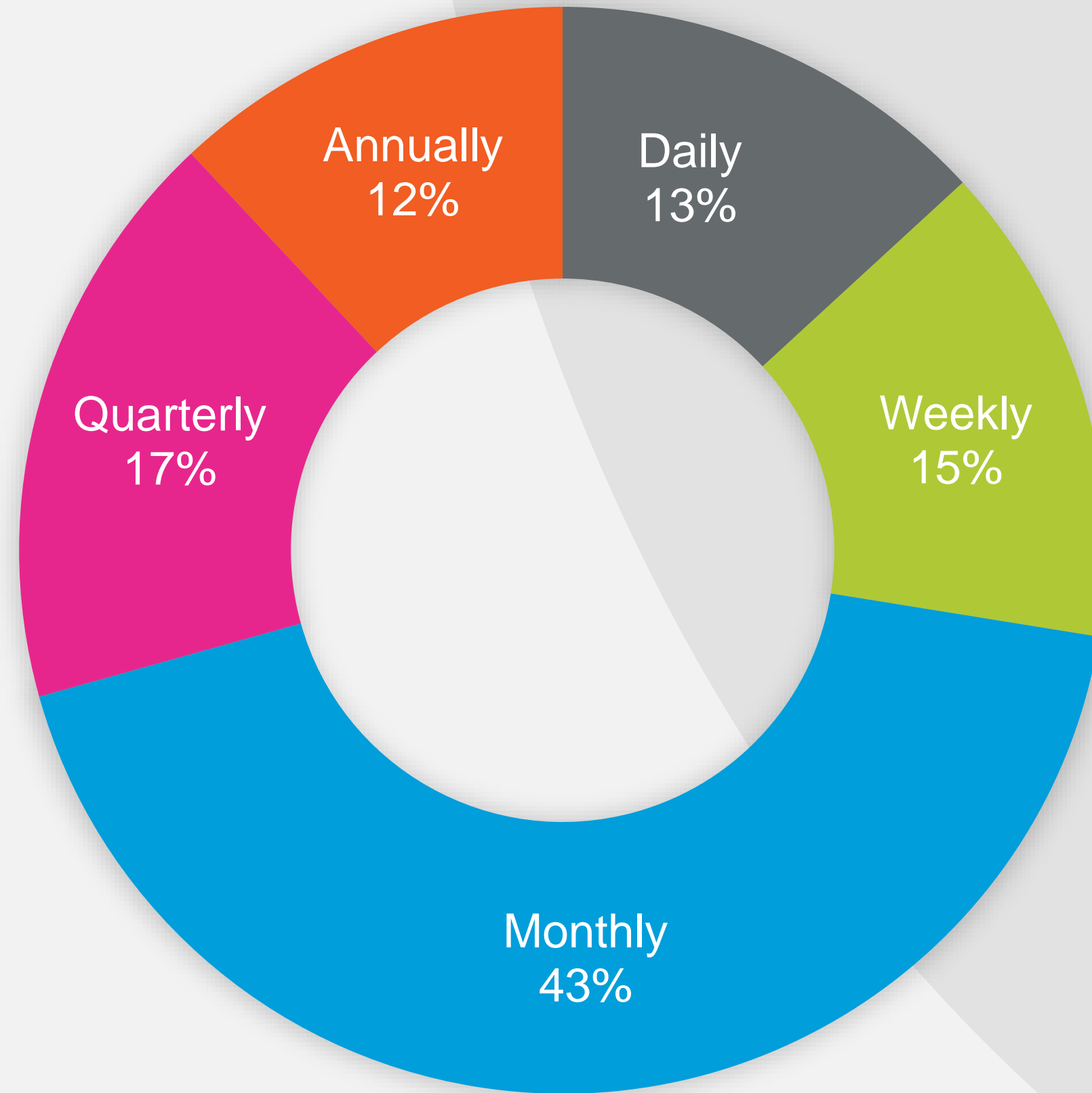


# What are your biggest reporting challenges? (select all that apply)



# How often do you compile PSAP performance reports?

*How does your agency compare?*



What impact would near real-time reporting have on your PSAP operations?

## Better Decision Making

Identify Problems Faster

## Easily address issues in a timely manner

Pinpoint and narrow down what areas of improvement need attention

More effectively isolate and respond to areas where service needs to improve

## Better Accountability

Proactive Adjustments and Change vs. Reactive After-the-fact

## Staff Peak Times/Shifts Better

Ability to reallocate personnel as needed

Have Enough Personnel on Duty

Greatly increase our ability to staff to call volume at the last minute

Easier to see workloads and identify potential problems

The ability to adjust staffing – if we identify a steady increase in calls we can work to get more people in our center earlier

Free up time to perform other essential functions.

Double QA Coordinators' Work Performance

Invaluable to measure customer service, operator performance and help better evaluate call volume



The image features a central globe with a white grid pattern, set against a background of blue and green geometric shapes. The globe is positioned in the center, and the text "Addressing The Challenge" is overlaid on it. The background consists of a large blue triangle on the left, a large green triangle on the right, and a white grid pattern that covers the entire background. The text is in a bold, black, sans-serif font.

# Addressing The Challenge



# Not Enough to Know What You Need to Know Why

What Happened?



What people said, heard, did and information they had access to

*At the time of the incident*

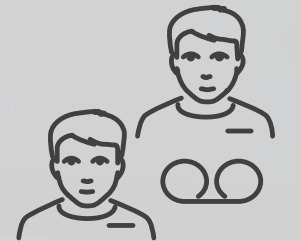
What is Happening Now?



Where to make adjustments now to improve execution

*At this moment in time*

How it Happened?



All incident metadata from CAD, 911 and radio to understand HOW it happened

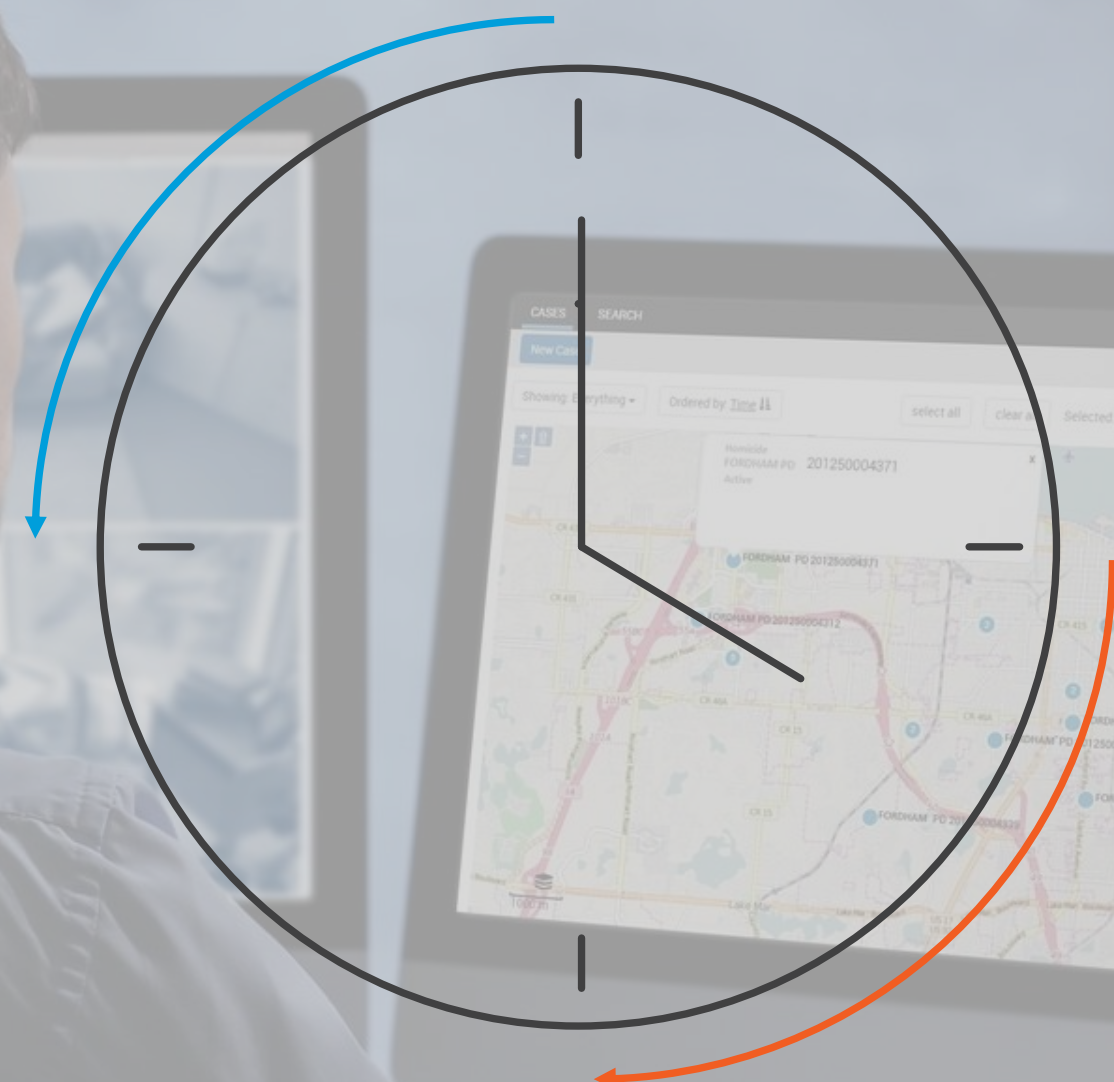
*Look back in time*

Who and What Is or Isn't Performing?

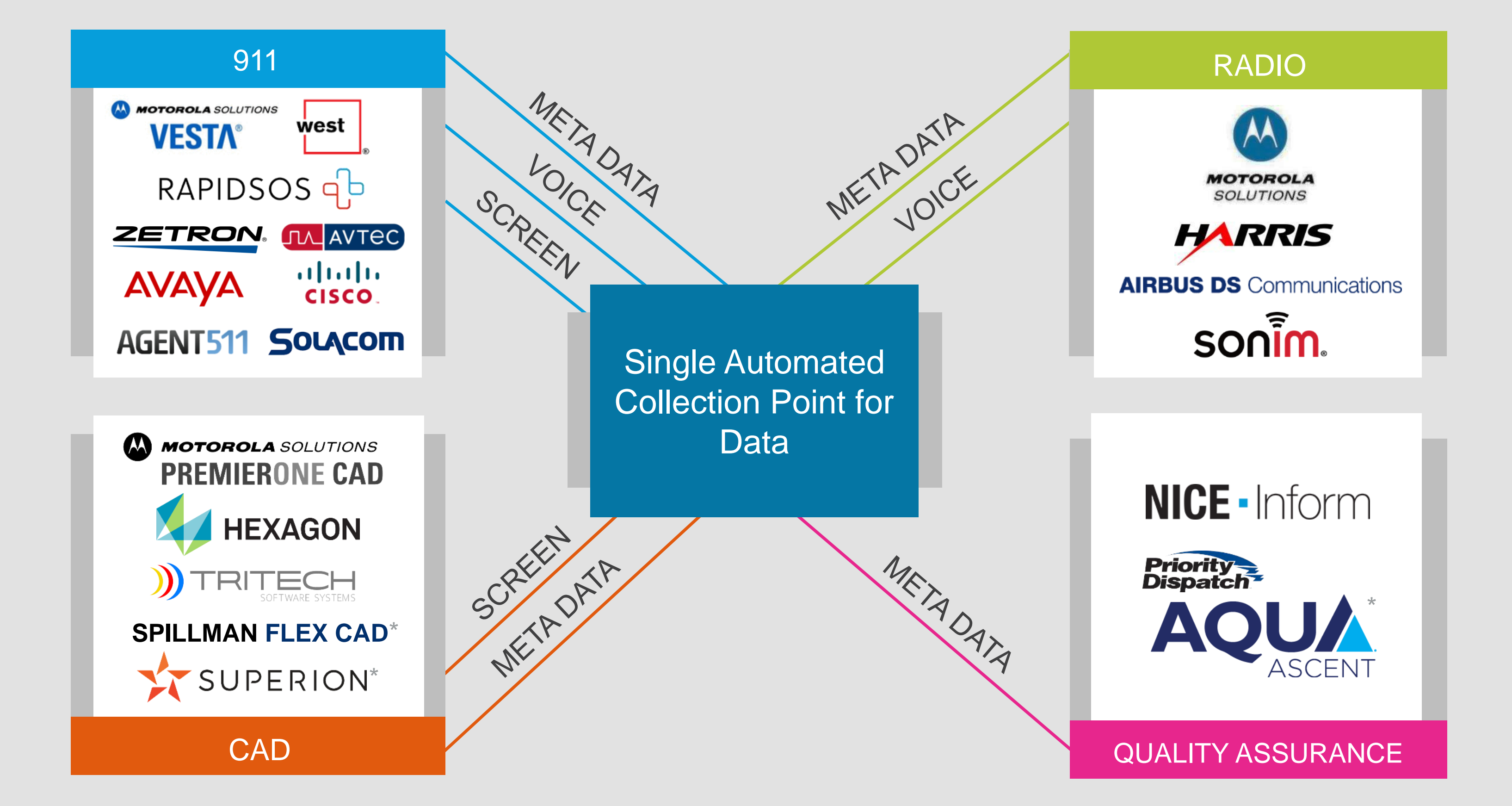


For higher quality of service and process improvements

*Look for improvements in future times*



# What Needed: A Single Automated Collection Point for Data



\* Integration In Progress / Planned



# How it Happened and What's Working, What's Not

**911**

**RADIO**

**CAD**

**QUALITY ASSURANCE**

**Incidents by age**

**Incidents by priority**

**Incidents by type - 50**

- ROAD CLOSURE
- TRANSPORT
- EMS
- ALARM
- THREATENED SUIC...
- AIRCRAFT HAZARD
- INVESTIGATION
- AUTO ACCIDENT
- ATTEMPTED SUICI...
- ACTIVE SHOOTER ...
- CURFEW VIOLATION

**Average time to answer 911 calls**

**7.533**  
Average time to answer 911 calls

**Time to Enter Metric**

**100.553**  
Average Time to Enter

**Average time to dispatch**

**0:10:08**  
Average time to dispatch

**Average time to on-scene**

**0:40:04**  
Average time to on-scene

**Transmission Locations**

**Time to dispatch (count by minutes)**

**Time to on-scene (count by minut...)**



# Essential Metrics

911 CALLS SUMMARY

NON-EMERGENCY CALLS

CALL DURATIONS: INCIDENT RELATED

CALL DURATIONS: NON-INCIDENT RELATED

RADIO TRANSMISSIONS

QUALITY ASSURANCE\*



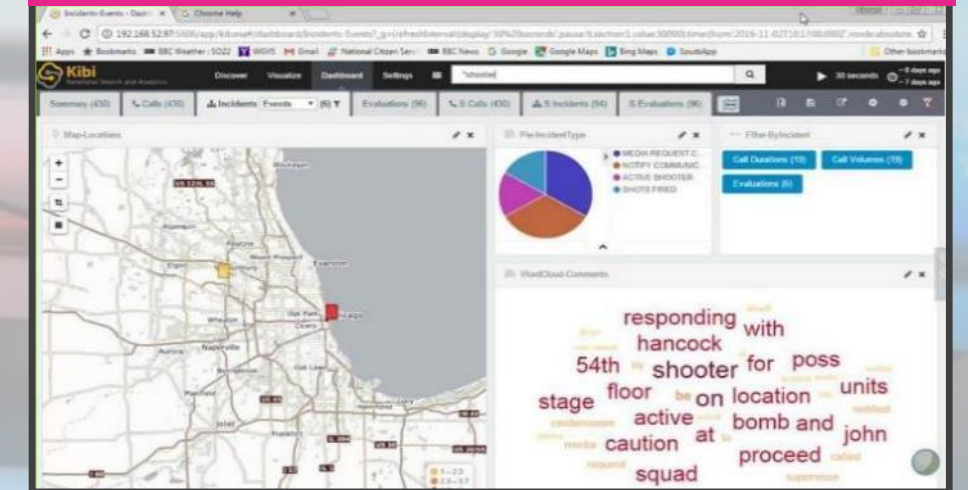
INCIDENT LIFECYCLE

TIME TO ENTER

TIME TO DISPATCH

TIME TO ON SCENE

INCIDENTS



View metrics by

OPERATOR

AGENCY

INCIDENT TYPE

PRIORITY

# Essential Metrics: Digging Deeper

## CALL VOLUME

- # of 911 Calls
- # of Abandoned 911 Calls
- # of Transferred 911 Calls
- # of Non-Emergency Calls
- # of Text-to-911 Messages \*

## CALL ANSWERING

- Average Time to Answer
- % of 911 Calls answered within 10 Seconds

## CALL DURATIONS

- Avg. Call Duration
- Avg. Duration per Day of Week
- Avg. Duration per Hour of Day

## QUALITY ASSURANCE

- # of Evaluations by Status \*
- Avg. % Score per Operator \*
- Avg. % Score per Group \*
- Avg. Score per Question \*

## RADIO TRANSMISSIONS

- # of Transmissions per Radio ID
- # of Transmissions per Resource (Talkgroup / Channel)
- Radio Transmissions by Duration
- Radio Transmissions by Location
- Emergency Events by Resource \*

## CALL PROCESSING

- Time to Enter
- Time to Dispatch
- Time to On-Scene (Hello to Hello)

## INCIDENTS (CAD)

- Incident Volume
- Incident Locations
- Scene Clear Time (Close Out)
- Transport Time
- Incident Comments

View metrics by

OPERATOR

LOCATION

AGENCY

INCIDENT TYPE

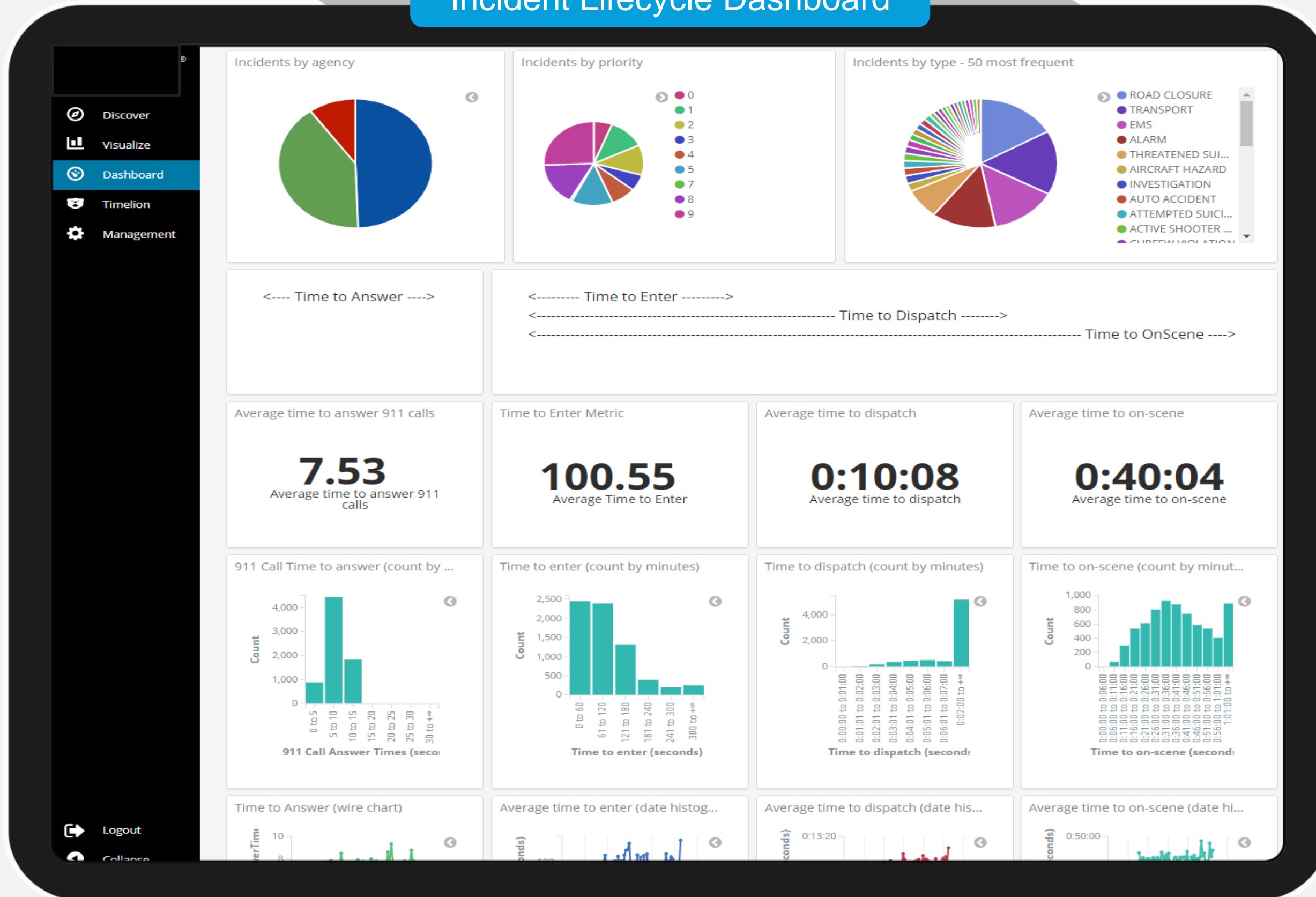
PRIORITY

\* Available Q1 2020

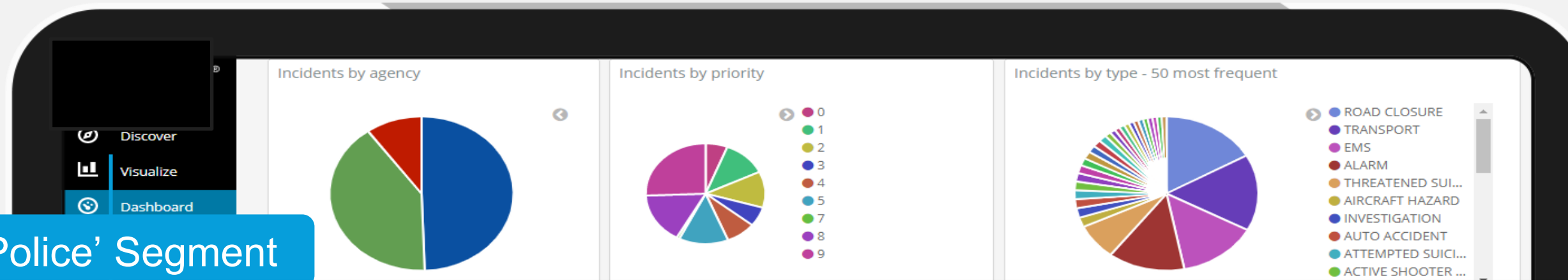


# Real-time Information vs. Stale Data?

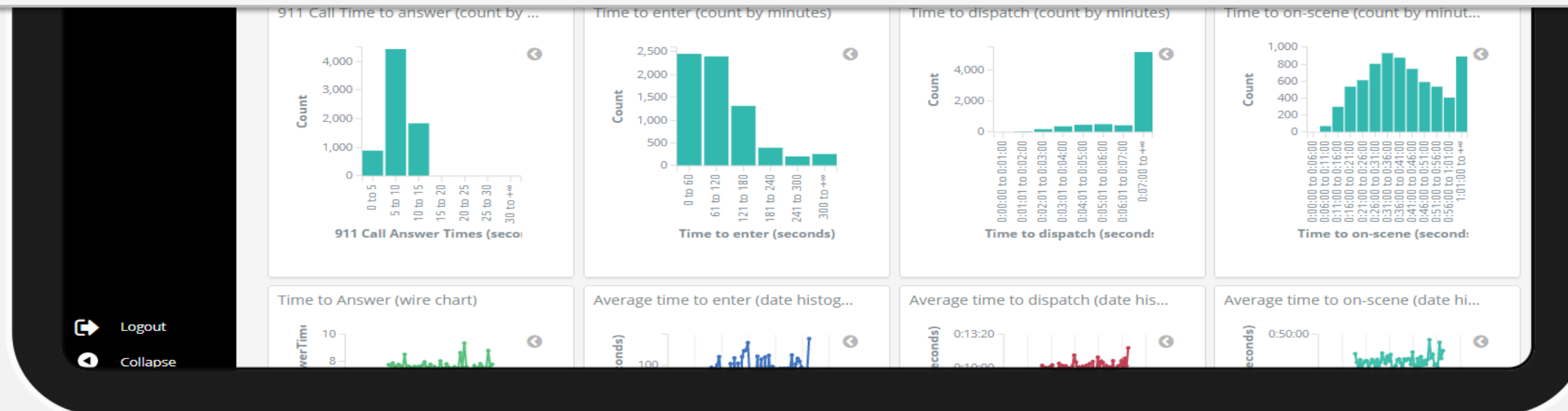
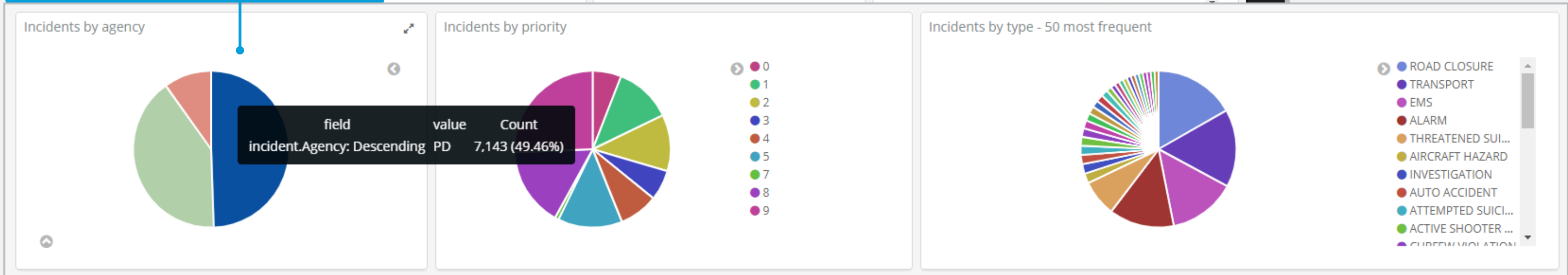
## Incident Lifecycle Dashboard



# Supporting Your Stakeholders

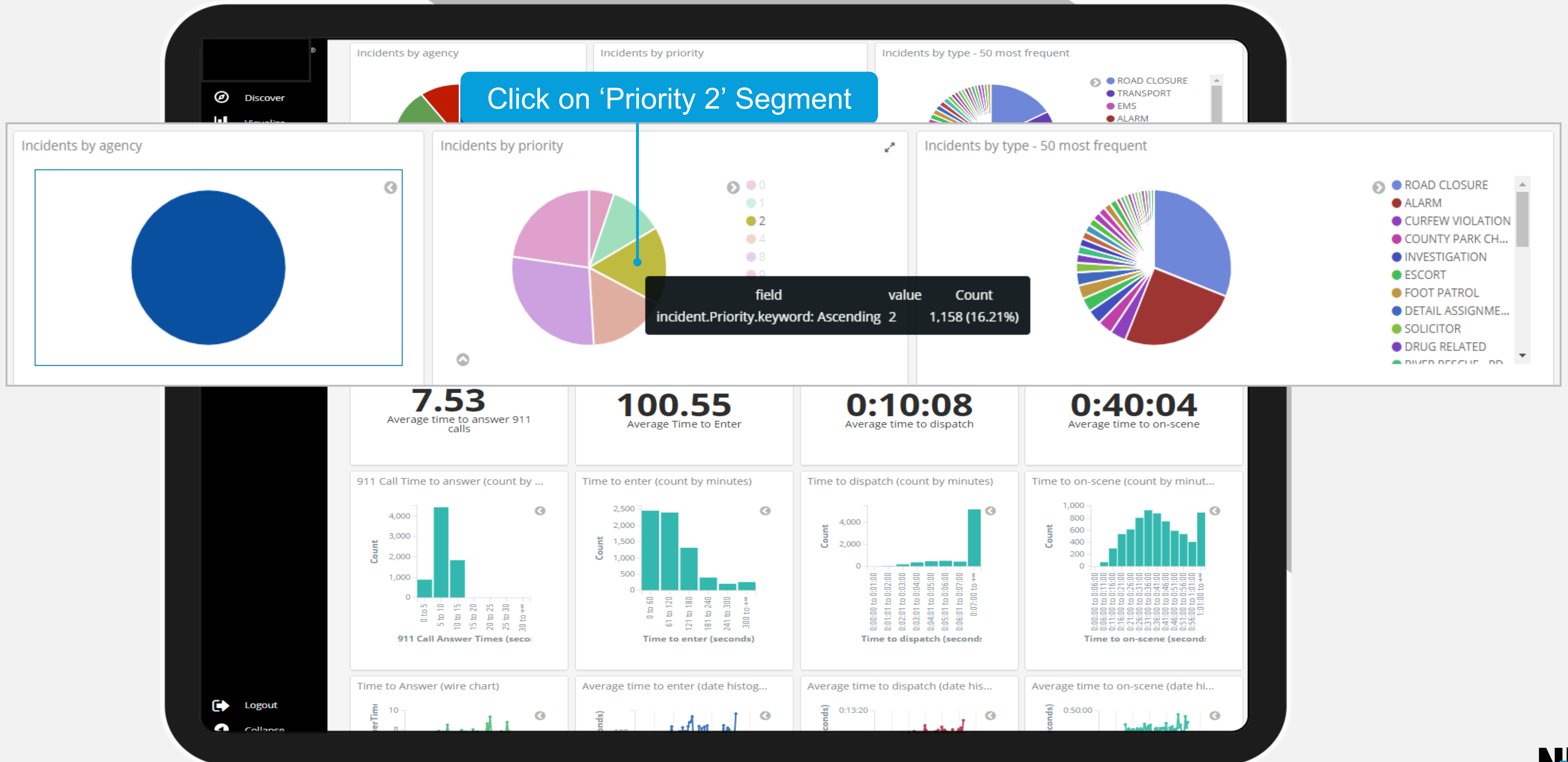


Click on 'Police' Segment

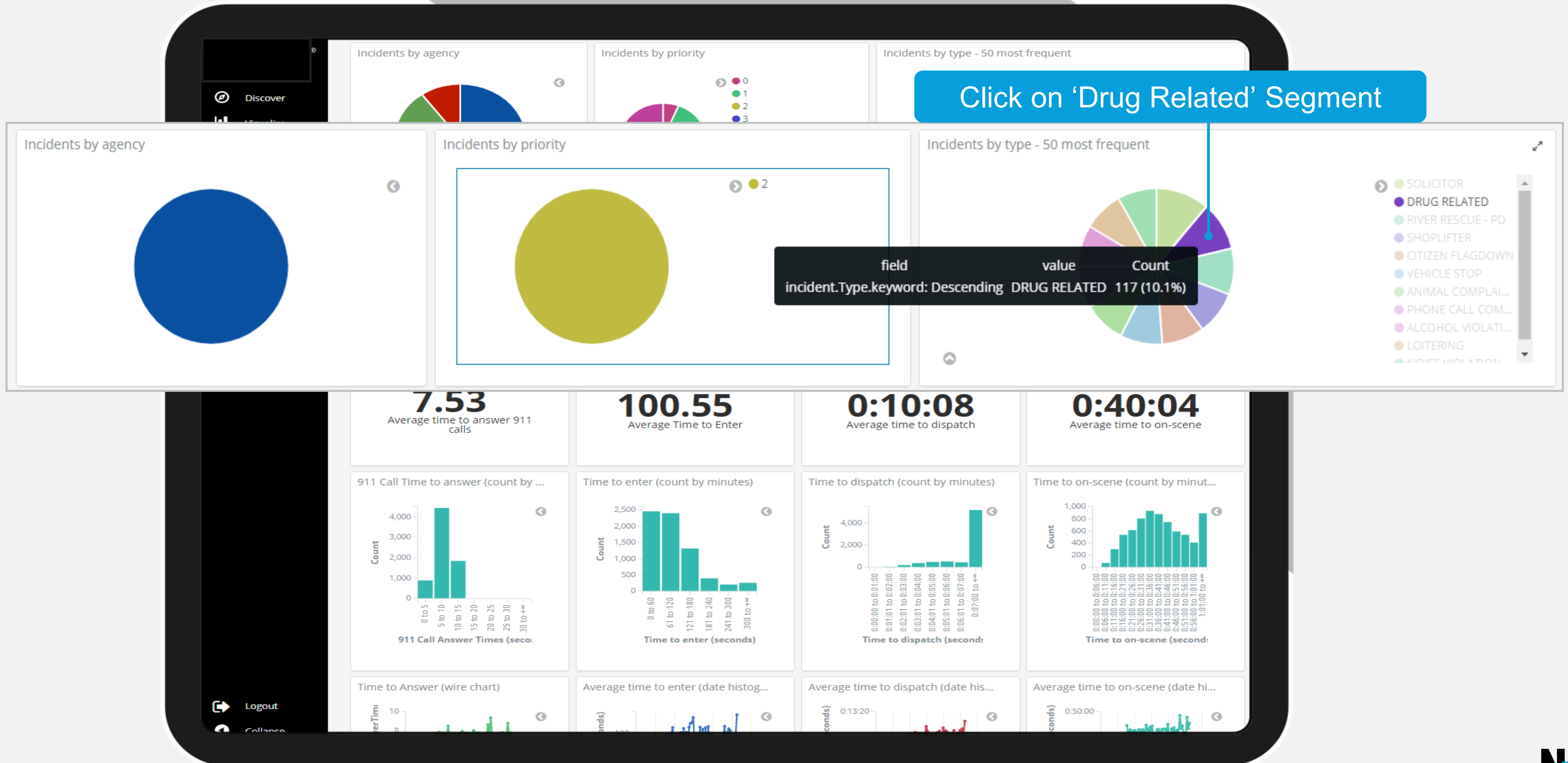




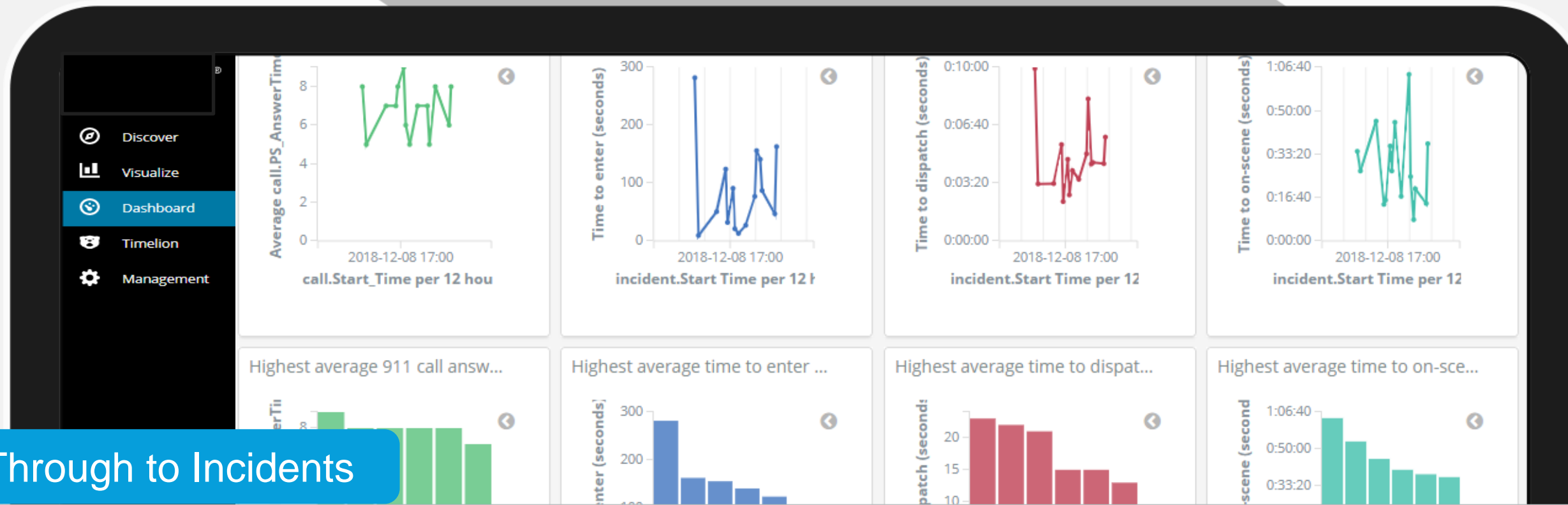
# High Priority Incidents and Critical Performance Factors



# Another Dimension: Performance by Incident Type



# It's Not Enough to Understand What Went Wrong: You Need to Know How to Fix It



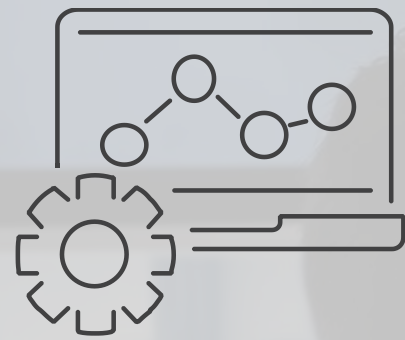
Drill Through to Incidents

Incident Details Search 1-50 of 117

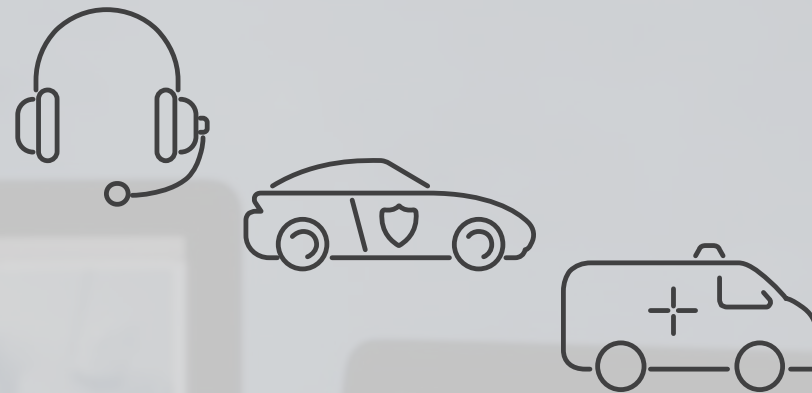
Time ▾	incident.Agency	incident.Priority	incident.Type	incident.Audio
▶ December 24th 2018, 06:11:15.164	PD	2	DRUG RELATED	<a href="https://icdemo.nidemo.com:9443/incident/1634987.PD18032300145872">https://icdemo.nidemo.com:9443/incident/1634987.PD18032300145872</a>
▶ December 22nd 2018, 18:07:50.996	PD	2	DRUG RELATED	<a href="https://icdemo.nidemo.com:9443/incident/1630628.PD18032300141513">https://icdemo.nidemo.com:9443/incident/1630628.PD18032300141513</a>
▶ December 22nd 2018, 10:06:03.254	PD	2	DRUG RELATED	<a href="https://icdemo.nidemo.com:9443/incident/1630557.PD18032300141442">https://icdemo.nidemo.com:9443/incident/1630557.PD18032300141442</a>
▶ December 22nd 2018, 09:42:27.863	PD	2	DRUG RELATED	<a href="https://icdemo.nidemo.com:9443/incident/1630469.PD18032300141354">https://icdemo.nidemo.com:9443/incident/1630469.PD18032300141354</a>
▶ December 22nd 2018, 09:04:58.890	PD	2	DRUG RELATED	<a href="https://icdemo.nidemo.com:9443/incident/1630683.PD18032300141568">https://icdemo.nidemo.com:9443/incident/1630683.PD18032300141568</a>

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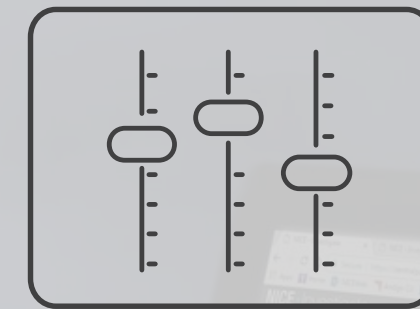
# What PSAPs Need



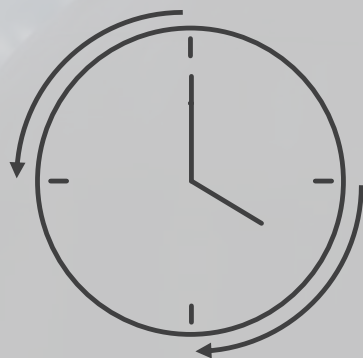
Consolidates Data Siloes  
into One View



Reports on All Phases of  
the Incident Lifecycle



Multi-Dimensional



Real Time!



No Data Manipulation  
Required



Actionable Data  
Tells You WHY



# **911 Performance Metric Success Story:**

***Transforming Data into  
Action***



# Staffing Shortages Resolved

## BEFORE:

- Patterns in call volumes were not aligned to shift scheduling
- Limited ability to predict the location and type of incidents based on dates and times
- Reports were inadequate to demonstrate the need for overtime and additional full time staff

## AFTER:

Existing staff now aligned to anticipated call volumes

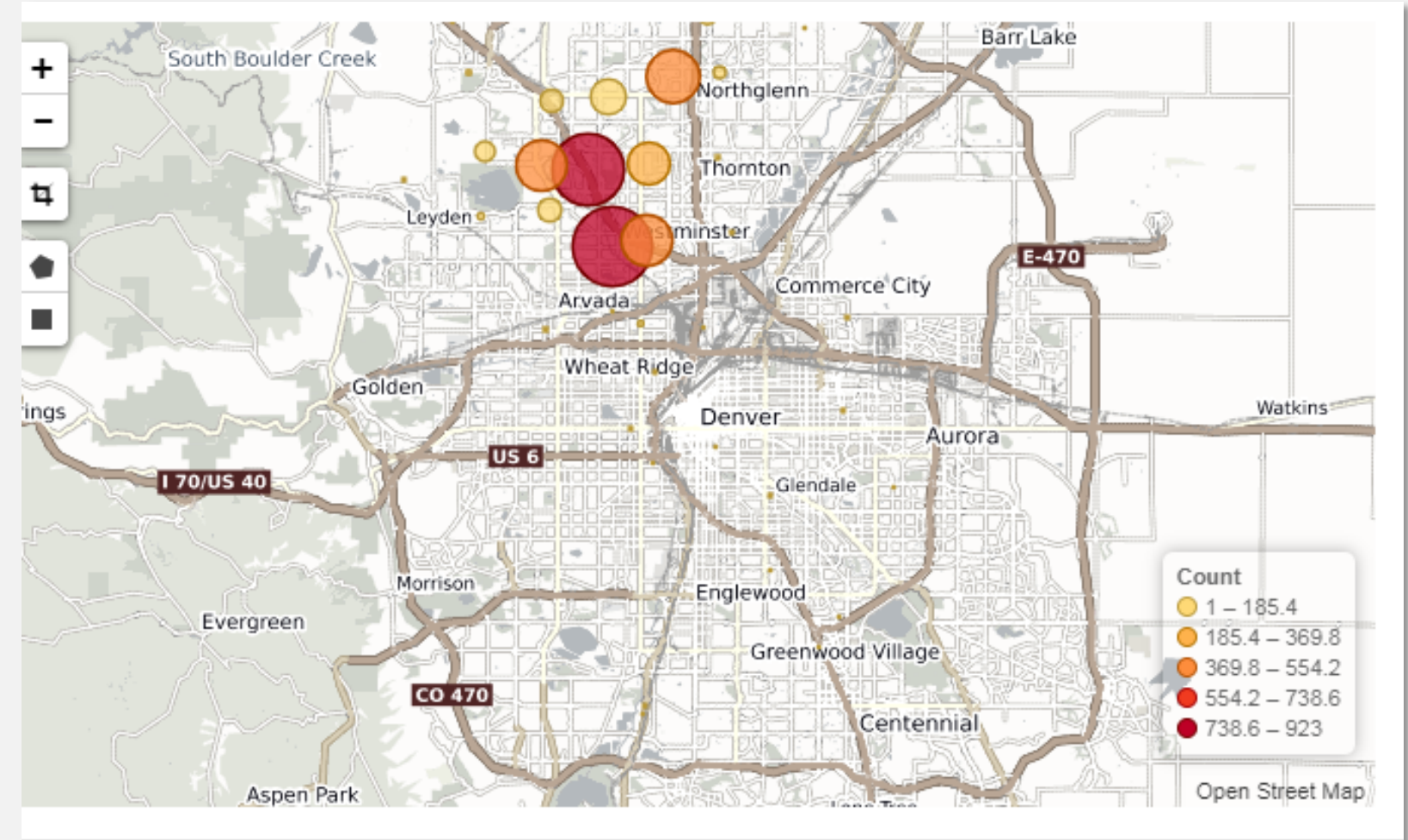
Used reports to justify and get approval for additional staffing



# Excessive Dispatch Time Resolved

## BEFORE:

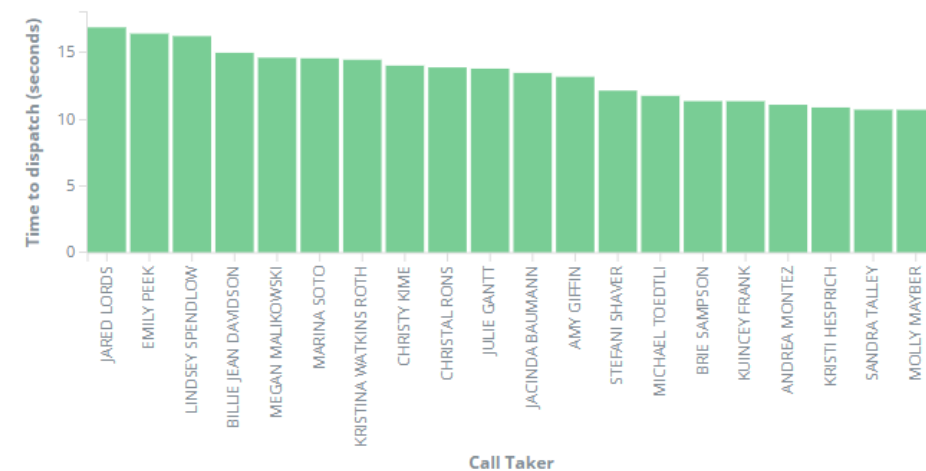
- Most excessive during specific time ranges
- Caused by a law enforcement staffing gap – dispatchers had to wait with callers until officers became available
- Aggravated by inadequate distribution of patrol beats – stationed in wrong places
- Dispatchers had to hold calls until law enforcement became available to respond



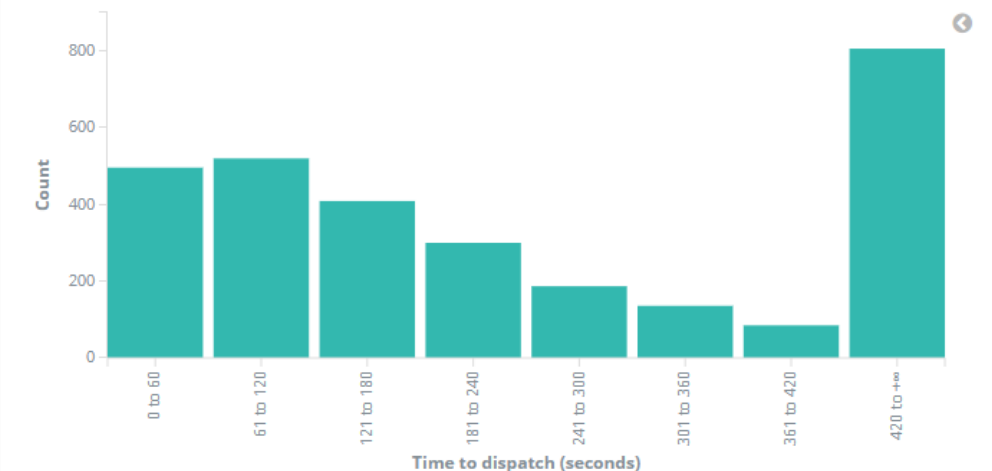
## AFTER:

**Patrol Beats now re-aligned, staffing adjusted, dispatch times shortened**

Highest average time to dispatch per CAD call taker (20 highest)



Time to dispatch (count by minutes)



# Improved 911 Calls Taking, Dispatch and First Response

## 911 Operations

- Quicker, better decision making
- Identify and close training gaps quicker
- Improved dispatch scheduling
- Able to justify overtime & additional staffing
- Better equipped to request funding
- Defend decisions and against complaints with facts
- Supervisors save hours per week

## Collaboration with Law Enforcement

- Better prioritize teams for onsite response
- Realigned patrol beat structure
- Resolved scheduling misalignment between 911 and patrol shifts
- Adapted staffing for individual beats per incident stats

## Collaboration with EMS & Fire Response

- Improved dispatch with closest unit information based on heat maps
- Now have clear, accurate mutual aid documentation



Questions?



# Thank You!

**John Wynia**

NICE Public Safety  
John.Wynia@nice.com



[www.nice.com/public-safety](http://www.nice.com/public-safety)



[PSInfo@nice.com](mailto:PSInfo@nice.com)