

PUBLIC SAFETY

ANSWERING POINT CONSOLIDATION

The Benefits of PSAP Consolidation in the US





Executive Summary

Public safety radio systems and dispatch centers, also referred to as public safety answering points (PSAPs), were historically built and operated by single agencies for their own users.

However, with newer technology entering the market, these systems often suffered from incompatibility with one another, leading to the use of numerous disparate applications and systems within a PSAP.

To keep up with technological changes and increased costs of specialized equipment and procedures, PSAPs were faced with little opportunity to benefit from economies of scale.

Public safety communication evolved into a profession that employs highly skilled individuals with extensive, ongoing training in advanced technology. As this evolution progressed, PSAP managers and administrators found that as training and technology needs increased, so did operational costs.

One of the leading trends for the past 20 years has been the combining of public safety agencies and related functions and resources, which includes PSAPs.

Today, advanced technologies have made it more feasible and beneficial than ever before to consolidate. The result has been greater economies of scale, more efficient use of resources, and improved interoperability, according to the Communications Security, Reliability and Interoperability Council (CSRIC) in its October 2010 final report to the U.S. Federal Communications Commission (FCC). ¹

The most significant potential benefits received from consolidating PSAPs include:

- Coordinated emergency responses
- Increased interoperability among agencies
- Eliminating duplicate costs to provide a more efficient service

Through consolidation, information flows seamlessly between jurisdictions, agencies, counties, and

cities. Using a common platform from a single software vendor helps streamline the flow of mission-critical data by eliminating third-party disparate systems.

As the public safety industry moves forward, agencies will continue to examine the use of inter-agency shared facilities, networks and applications, technologies, staffing, and more to provide communities with the latest technologies.

Historical Background of PSAPs

Emergency call taking and dispatching evolved at a local level. Minimal technology was required, with only telephones and a radio system to meet operational needs. Calls for service were received via phone lines, information was gathered from the caller, and an emergency responder was dispatched via the local radio system.

With the emergence of 911, call answering and dispatch services were handled by small PSAPs. The PSAPs became a common part of a larger law enforcement, fire, or emergency medical services (EMS) agency. These PSAPs were typically made up of a small staff using rudimentary technology to answer all 911 calls and dispatch field units for a single agency. Little specialized training was necessary to perform these functions and advanced technology was not yet available. Sworn personnel with minimal 911 training routinely fulfilled the duties in the PSAP.

These early PSAPs often functioned without the benefit of a computer-aided dispatch (CAD) system capable of the many functionalities available today, such as interoperability with other systems, GIS mapping and routing capabilities, or advanced functionality. Individual features were often completely disparate and lacked any ability to function together.

However, over the last quarter-century, advances in technology helped public safety communications evolve. Those managing PSAPs found that as training and technology needs increased, so did the costs associated with operating a PSAP. Like many tax-funded government agencies, PSAPs operate with a lean budget. Rising costs to keep up with technology and related training placed a financial hardship on many communities. The continual evolution of the industry is evident even today, as 911 services work to incorporate the ability to utilize text messages, video, and photos over IP-based networks — also known as Next Generation 911 (NG911).

Constantly changing technology mandates those agencies maintaining individual PSAPs will be required to hire employees with increasingly higher levels of

training, as well as procuring new technology necessary to meet the needs of the community.

The Driving Forces Behind PSAP Consolidation

Despite the constantly changing technology demands of 911 systems, limited financial resources have made it difficult for public agencies to keep up. Instead, many are seeking out opportunities to share services — and the associated financial burdens—through the consolidation of emergency communication operations.

The Marion Area Multi-Agency Emergency Telecommunication Center (METCOM 911) in Woodburn, Oregon, consolidated its two dispatch centers to be on one CAD system, which allowed them to better meet the needs of the community and improve response times.

“Some benefits of PSAP consolidation include continuous funding options, increased stability with more agencies, and more efficiencies with service delivery to the community and users’ agencies through technology efforts,” METCOM 911 Executive Director Gina Audritsh said.

Driving forces from political, economic, and service quality factors are increasingly demanding that public safety officials consider consolidation with neighboring communities of interest. Sharing resources can help agencies eliminate duplicate costs, support coordinated responses, provide greater interoperability, and ultimately provide more efficiency.

Nine Reasons to Consolidate

The technological landscape has drastically changed. This can be challenging for a local PSAP to remain current with the latest technology, especially considering the rising cost of all public safety-related equipment and the pace at which new innovations are developed.

Through consolidation, agencies can share facilities, networks, and applications, as well as staff and equipment. In addition, consolidation can lead to substantial improvements in responder safety and performance, though the true benefit is the level of service provided to residents when efforts are coordinated between agencies.

Below is a comprehensive look at why many public safety agencies around the United States are using PSAP consolidation to improve service levels; reduce 911 transfers; improve communication; make better use of resource management during large-scale incidents, natural disasters, and multi-agency incidents; and capitalize on long-term cost savings, operation process improvements, and standardization of training.

1. Potential for Cost Savings

Implementing NG911, while essential in modern society, creates significant costs for many PSAPs. This technology upgrade brings with it the need for highly skilled personnel trained in handling this type of messaging.

The shared purchase and support of technology systems are key in considering the consolidation of PSAPs. Experience in other consolidations has shown that sharing the purchase, maintenance, and support of PSAP core technologies such as NG911 equipment, logging recorders, and CAD systems provides the greatest potential for cost savings. ³

However, beyond the initial equipment expenditure, agencies maintaining individual PSAPs will have to either retrain or hire employees with specialized training, often at a higher wage. Consolidating human resources can help maintain a highly skilled workforce at a fraction of the cost.

“PSAP consolidation has demonstrated cost savings among political entities via shared equipment, personnel, and physical facilities,” Donald Harpster, communications officer and IT coordinator for the Stark County Sheriff’s Office in Ohio said. ⁴

Emergency calls are routed from the 911 call center at the Stark County Sheriff’s Office to the Regional Emergency Dispatch Center in the county. More than 87,000 calls for service are performed each year.

Because the creation of new regional centers often requires initial equipment expenditures and startup costs, lawmakers have set up grant funds to help shoulder the costs, including funding for feasibility studies.

These grants allow municipalities to recognize the operational savings from consolidation without having to incur the initial capital expenditures.

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—Gina Audritsh, Executive Director,
METCOM 911

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—Donald Harpster, Communications Officer and IT Coordinator, Stark County Sheriff's Office, Ohio

2. Service Level Improvements

A joint communications center, with proper implementation, offers significant service improvements over a singly operated PSAP. Consolidated sites have the potential to establish high standards of performance, simplify staffing, and improve operational efficiencies. With a shared center, consistency in administrative and specialized support is enhanced in individual agencies even with changes in administrative duties due to promotions, turnover, and retirements.

A consolidated dispatch center is often better prepared to handle a surge in call volume than an independent PSAP. This leads to a faster and more efficient response to a large-scale crisis as well as a common event.

Operational improvements in a two-PSAP consolidation include:

- Consistent radio communications
- CAD integration for participating communities
- Inter-agency information sharing
- Opportunities to pool financial and human resources
- Reduction of the transfer of 911 calls between PSAPs
- Increased information flow
- Improved large incident management
- Improved 911 call processing during high-volume periods
- Quicker call processing and dispatch times
- Improved communications through sharing of physical space

3. Improved Communication

The least quantifiable but often the most significant benefit of any PSAP consolidation is the improvement of inter-agency communication.

For example, in a scenario where multiple PSAPs are operating independently in a fire incident with mutual aid responses, dispatchers from each PSAP would be required to coordinate efforts via radio or telephone.

Sharing of physical space enables communication between call takers, law enforcement, fire, and EMS dispatchers to be virtually instantaneous.

Incident management, notifications, and the dissemination of information to field personnel and all levels of government response are significantly improved.

This improved communication enables field personnel to receive information more quickly and accurately, which is particularly important in multi-jurisdictional incidents.

Information is more readily available, having everyone communicating and operating within the same center. Less time is wasted transferring information outside of the consolidated PSAP, resulting in a faster public safety response and workflow.

—Donald Harpster, Communications Officer and IT Coordinator, Stark County Sheriff's Office

4. Standardized Training

In a community where PSAPs operate independently, training may vary from agency to agency. The inconsistency in processes can lead to service inefficiencies. The availability of training budgets and differing individual agency opinions on the importance of PSAP training are two examples of issues that affect service levels. In a consolidated environment, training is more common to be uniform and all agency disciplines receive the same high level of dispatch services.

Another training factor is the evolution of NG911. As time progresses, those agencies that maintain individual PSAPs will be faced with supplying even higher levels of training to meet 911 service level expectations. Key public safety industry organizations recognize the ongoing evolution of NG911 requires establishing minimum standards for PSAP employee training, operations, technology, and facilities.

“Consolidation provides an opportunity for PSAPs to establish the ultimate ‘do over’ to establish consistent procedures for all disciplines,” Audritsh said. “This established a single way of doing business and improved the training time for staff and provided a consistent and efficient method of delivering service.”

A consolidated PSAP has additional staffing that provides for the ability to focus on NG911 requirements that you would not be able to devote to if you were a small entity.

—Gina Audritsh, Executive Director, METCOM 911

Consolidation has a positive impact on staff training and professionalism, which improves service levels overall. Standardized training provided by consolidation positively impacts service levels and consistency across the region or service area. In many cases, consolidation also provides a better career path for staff in smaller agencies, which aids in employee retention.

“Consolidation develops dispatchers who understand what every agency does from the police, fire, and EMS sides,” according to Alan Stahl, training officer for the Topeka Fire Department in Kansas. “Dispatchers are incredibly well rounded and know every agency.”

5. NG911

As NG911 technology and the ability for PSAPs to accept images, audio, video, and text messages becomes a reality, it is becoming apparent that implementation challenges lie ahead for many agencies.

For example, the technology needed to receive these new data forms must be in place. Equipping a primary PSAP with the appropriate machines and software comes at a significant cost and is possibly even cost prohibitive for smaller agencies on their own.

In addition, secondary PSAPs require a compatible IP-based system to receive the new data forms from the primary PSAPs and forward them to field units as needed. The proposed new architecture has been termed Emergency Services IP Network (ESInet). This type of interoperability gives PSAPs the opportunity to share data across dispatch centers as a redundant or backup data location.⁶

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6. Interoperability

In a report issued in 2003, the National Task Force on Interoperability defines interoperability as the ability of public safety service and support providers — law enforcement, firefighters, EMS, emergency management, public utilities, transportation, and others — to communicate with staff from other responding agencies to exchange voice and/or data communication on demand and in real time.⁷

The lack of interoperability is cited by some national and state public safety and emergency response organizations as a persistent problem in emergency

response and disaster planning.

Working on the same tasks and objectives requires cooperation and coordination. Building functional interoperability between agencies during routine events enhances operational interoperability at larger, more complex events.

Consolidation of PSAPs creates a level of interoperability between the various jurisdictions dispatched. When dispatchers, call takers, and all emergency services communicate with each other over a common radio system and channels, and share the same databases and software applications such as mapping, interoperability is greatly improved.

7. State Laws and Mandates

Since 2010, many states have issued mandates requiring PSAPs to be compatible with enhanced 911 technology. Enacted primarily to improve the quality of service, these requirements increased the local costs of maintaining small PSAPs to comply with standards.

Some states, including Oregon, Maine, Indiana, and Illinois, went a step further and passed statutes requiring PSAP consolidation.⁸ Consequently, many small PSAPs were prompted to investigate merger opportunities to comply.

In addition to increased costs associated with municipalities maintaining independent dispatch centers, a 2013 policy brief prepared for the Ohio Department of Administrative Services⁹, reported that more calls were transferred, leading to increased response times and a higher potential for error.

“By more closely tying dispatch and primary PSAPs in the legislation or by using cost pressures to encourage voluntary consolidation of both primary PSAPs and dispatch operations, the state might have achieved more significant savings and better service quality,” according to the brief.⁹

8. Coordination & Compliance

Consolidation supports coordinated responses and greater interoperability among agencies and systems, leading to more efficient service. This includes the ability to centrally manage compliance and performance across regions to better coordinate large, multi-agency events.

This may be the most important change impacting first responders and includes the procedural uniformity of having call takers and dispatchers trained to consistently deliver information when and how first responders need it. It is

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—Alan Stahl, Training Officer,
Topeka Fire Dept.

further enhanced by having telecommunicators able to share incident data using the same record databases within the same environment.

Additionally, the operational impact of NG911 will require changes to internal protocols and skill sets, likely in addition to more intense oversight and coordination among applications and interconnected systems.

“A consolidated PSAP improves major incident response by providing the ability to look at the community as a whole, from a communications standpoint,” Stahl said. “Everyone is on the same CAD and mobile device. It gives the location of every unit and an improved ability to coordinate using one system. It is a true instant picture of what is going on.”

As the PSAP span of control (geography and agencies) increases, coordination of multiple agencies improves. This means an elevated level of regional awareness and the ability to better coordinate multi-jurisdictional and mutual aid responses.

9. Major Incident Response

Effectiveness decreases in managing a major incident when multiple points of control must be contacted, even with excellent technology in place.

The presence of multiple PSAPs, especially when police, fire, and EMS are separated, can cause delayed responses, poor decision-making, and an increase in miscommunications and/or human error.

A single regional PSAP allows resource management during major incidents from a single point of control rather than fragmenting control among multiple PSAPs.¹⁰ When scene commanders can communicate updates and requests to a single point of contact, the PSAP can maintain the larger picture and more effectively respond to requests, anticipate future needs, and efficiently line up resources.

With built-in tools and responses in CAD that provide for an effective level of resources to be dispatched upon receipt of the call and notification to multiple jurisdictions, PSAPs experience overall improved effectiveness.

—Gina Audritsh, Executive Director METCOM 911

Consolidated PSAPs help increase effective resource management during large-scale incidents, natural disasters, and multi-jurisdiction/multi-agency incidents from a single point of control rather than fragmenting control among multiple PSAPs.

“There is a reduction of communicating between PSAPs, whereas the same dispatcher can provide all information to all disciplines and resources,” according to Audritsh.

Important Features of an Effective Shared CAD System

Administrators need to begin considering how new data will affect their PSAP. There will be a need to interface the NG911 applications to any CAD systems in use or being planned, and have systems in place to ensure enhanced communications, interoperability, and integration with the following features:

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| Embedded Esri® | Proximity dispatching capabilities | Capability to establish a CAD-to-CAD interface |
| Evolving technologies, such as NG911 and CAD-to-CAD | Full integration vs dependence on interfaces | A system that seamlessly handles heavy call loads during emergencies |
| Geofencing capabilities | Call association | Multi-jurisdictional support |
| Mutual aid | Flawless transfer of information from dispatch through disposition | Fully integrated features that reduce the need for disparate systems |
| Cross-staffing | Chat/Messaging | Ability to receive IP-based 911 embedded and reference location data |
| Ability to transfer all incident record attachments to a mobile data device | CAD as a collaborative system | Screen configurability |
| Ability to attach all data to a CAD event, including streaming and fixed video, and audio, telemetric and other data | | |

In Conclusion

Consolidation continues to impact PSAPs throughout the U.S. as agencies and jurisdictions grapple with the rising costs of operations and technology.

PSAP consolidation mitigates these challenges by pooling financial, technological, and staffing resources.

As the industry continues to move toward NG911, the benefits associated with consolidated PSAPs such as technology, service, communication, interoperability, coordination, and incident response may accelerate the trend.

To better utilize the benefits of consolidated PSAPs, many agencies are implementing a common software platform capable of interoperability within an entire suite of public safety solutions.

The New World Solution

Only New World™ solutions from Tyler Technologies provide the enhanced communications, feature integration, and improved efficiency that public safety can rely on.

New World was developed from the ground up to be a completely integrated suite of software. It provides accurate and secure information for dispatchers, officers in the field, firefighters, EMS, corrections officers, and command staff. New World information flows effortlessly between all applications, ensuring that mission-critical data entered into the system is easily and securely available at a moment's notice.

Notes:

1. The Communications Security, Reliability and Interoperability Council (CSRIC). (2010) Key Findings and Effective Practices for Public Safety Consolidation: Final Report. Washington, DC.
2. (G. Audritsh, Personal Communication, November 30, 2017)
3. State of Iowa. (2016). 911 Consolidation Study. Philadelphia, PA. L.R. Kimball
4. (D. Harpster, Personal Communication, December 11, 2017)
5. (Stahl, Personal Communication, November 16, 2017)
6. Cuyahoga County, Ohio. (2013). 9-1-1 Consolidation Plan. Cuyahoga County, OH. Executive Edward FitzGerald
7. The Capital Wireless Integrated Network (CapWIN). (2003). Working Together To Bridge the Communications Gap To Save Lives: A Guide for Public Officials. College Park, MD. National Task Force on Interoperability.
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9. Ohio Department of Administrative Services. (2013). Public Safety Answering Point Consolidation. Columbus, OH. L.R. Kimball
10. Office of Statewide Emergency Telecommunications State of Connecticut. (2012). Consolidation Feasibility Study. Connecticut. L.R. Kimball

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Tyler Technologies singularly focuses on delivering essential software solutions that empower the public sector. More than three decades of stability, innovation and public sector focus has made Tyler Technologies one of the most trusted public sector software companies in the market. More than 14,000 public sector organizations nationwide rely on our solutions to enhance service and create efficiencies.