

Approaches to Integrated Systems White Paper

Choosing the Best Path

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Choosing the best path

Integrating a PSAP's systems has many advantages, and there are several ways to make it happen. This document looks at the approaches to implementing an integrated system from a **commercial aspect**. We'll identify criteria used to evaluate the approaches, and identify the path that provides PSAPs with the **most value**.

Why Integrate?

Some of the motivations to adopt an integrated approach are:

- The desire to enter information once, and use it again and again.
- The desire to make applications easier to use and train on.
- The need to share information and updates automatically.
- Reducing the amount of equipment at a workstation.
- A single point of contact for system support and upgrades.

There are many motivators, but in a nutshell, Public Safety professionals expect an integrated system to provide **enhanced functionality** that is **easier to use and support**, at a **reasonable price**.

What are the criteria?

We'll first look at criteria that can be used to evaluate and compare the different commercial approaches to an integrated system.

Control over Features and Performance

This is a measure of a vendor's ability to add or enhance features to meet **current and future expectations**. The "performance" component addresses the ability to ensure **stability and responsiveness** of the integrated system. Vendors that are far removed from the design and engineering process of the products they sell have little if any such control.

What are the criteria? (continued)

Integration and Inter-Communication

This measures the degree to which different applications can **work together** and the **richness of information that can be shared** between them. These criteria are best met by vendors that build-in these capabilities at the earliest design stages of the application suite.

Commitment to Evolution and Support

Systems need to evolve to meet the **ever-changing demands of emergency response**. Vendors must have the ability to commit to **leading that evolution**, and possess the resources to **support** the system as it changes **over its lifetime**. Vendors integrating components designed by others lack these abilities, and are therefore likely to provide a stagnant system, severely limited in its ability to adapt to new requirements.

True Single Point of Contact

Emergency response systems require knowledgeable support for maintenance and system upgrades. A PSAP is better served by access to a **True Single Point of Contact**, where knowledgeable personnel have an in-depth understanding of each of the **individual components** and **how they work together**. Some vendors, notably System Integrators and Partnered Vendors, may provide an initial single point of contact, but **defer support of individual components** to the corresponding manufacturer, who in turn has little knowledge of the integrated functionality.

Ease of Use / Training

While the ability to run several applications together benefits users, there are **potential disadvantages** that must be dealt with. In a typical scenario, applications from different vendors have different keyboard shortcuts. "F12" may perform a search on the MAP, but in CAD perhaps "F12" disposes an incident response, or on 9-1-1 Telephony, "F12" might release a call. Which application responds to the "F12" keypress depends on which has the input focus.

Hopefully, the applications are customizable to work around such scenarios, but often they're not - training on these systems will be difficult to administer and retain. Having all applications **designed from the ground up to work together** allows this situation to be avoided altogether, and ensures training will be easier to administer and retain.

What are the criteria? (continued)

Ability to Meet Extensive Testing Requirements

Integrated systems require a higher level of testing to ensure correct operation. The provider of an integrated system must be able and committed to an in-depth testing process that spans not just the **operation** of the individual applications, but also (and more importantly) the **interaction** between the applications both from a **functional perspective** (i.e. sharing of information and control between the applications), and from a **stability perspective** (i.e. issues such as local area network bandwidth sharing, hard drive activity, processor and memory usage).

Such testing is costly, and must also be performed whenever any one component of the system is upgraded. Single-vendor solutions are greatly favored here, as both the upfront and ongoing testing are part of the **normal testing cycles** for the applications before they're released to the field.

Who are the players?

We'll now look at various players in the market, and how their approaches to integration measure up to one another in meeting emergency response needs. These include:

- Systems Integrators
- Multi-Vendor Partnerships
- Acquired Vendors
- Native Applications Vendors

Who are the players? (continued)

Systems Integrators

A **Systems Integrator** custom-assembles a PSAP system using components manufactured by **different vendors**. The Systems Integrator may at times manufacture one of the components being used, for example a small homegrown CAD system. While these vendors vary in their abilities, many in the small to mid size PSAP market are essentially multi-vendor resellers that **rely on the separate subcontracted suppliers** to make a system work.

Criteria

Control over Features and Performance	Little if any – System Integrators are furthest removed from the design and engineering of the components being integrated.
Integration and Inter-Communication	Limited / frozen in time – System Integrators are limited by existing capabilities of the components. Custom development may be required, and may have to be repeated every time any one of the components change (the alternative is equally unappealing: The system is frozen at initial functionality to avoid the cost of ongoing custom development).
Commitment to Evolution and Support	Many not capable – Evolution is not under the System Integrator's control, and subject to stagnation as described above. Even if the expense of system evolution is incurred, many System Integrators lack the bandwidth to adapt support to the changes.
True Single Point of Contact	Maybe at first – Once initial project management of the integration project has concluded, many small system integrators will defer further support to individual component vendors.
Ease of Use / Training	Poor – The applications, sourced from different vendors, are bound to have some degree of conflict or overlap in their HMI (Human Machine Interface) – a situation which requires more intensive user training (i.e. costlier and harder to retain training).
Ability to meet extensive testing requirements	Poor – Most System Integrators are unlikely to have the bandwidth or resources to perform the in-depth cross-application testing. Your PSAP may end up being their test lab.

Who are the players? (continued)

Multi-Vendor Partnerships

Multi-Vendor Partnerships consist of two or more vendors that have **teamed up** in order to increase their **market share**. The partnership allows the vendors to participate in projects where their particular core competencies alone cannot satisfy the requirements or entire scope of a project. The downside of course is that **no partnership is permanent** – consider who is partnered today, then look back a year or two - who were they partnered with then? Such partnerships tend to benefit the partners more than the emergency response customer.

Criteria

Control over Features and Performance	Partial – While each partner has control over his core business, the ability of the vendors to coordinate their efforts depends on their relationship and its longevity.
Integration and Inter-Communication	Partial – Partnered applications will seldom provide significant interaction at the outset. Better information sharing can evolve between both vendor applications, given time and mutual commitment.
Commitment to Evolution and Support	Partial – Members of a partnership must exercise a commitment to product evolution that goes beyond their own core application plans. Such strategic tasks are unlikely with short-lived partnering agreements.
True Single Point of Contact	As long as the partnership lasts – As partnerships dissolve, the potential for finger-pointing grows.
Ease of Use / Training	Poor – User interface consistency between partnered vendor's applications is unlikely at the outset of the partnership. Both parties must commit to adapt their core applications, requiring time and development. The duration of the partnership impacts here as well.
Ability to meet extensive testing requirements	Poor – Partnered vendors remain two separate entities, with separate testing methodologies and resources.

Who are the players? (continued)

Acquired Vendors

One vendor may **acquire** another in order to attain technology and a body of knowledge needed to meet the needs of its customers, or to quickly acquire an installed base. Further to the acquisition, engineering **development time** is typically required to achieve real integration between products.

Criteria

Control over Features and Performance	Good – Full ownership of the acquired vendor provides the control necessary for integration between each vendor's applications.
Integration and Inter-Communication	Good – With some initial development, the acquired applications can be integrated into the product suite's information workflow.
Commitment to Evolution and Support	Good – With proper management, the acquired vendor's core competencies and support infrastructure can be effectively merged with acquiring vendor's.
True Single Point of Contact	Yes – The PSAP deals with one vendor through the life of the system.
Ease of Use / Training	Good - With some initial development, the acquired applications can be adapted for consistency with the rest of the application suite.
Ability to meet extensive testing requirements	Good – With proper management, the acquired vendor's testing methodology can be effectively merged with acquiring vendor's.

Who are the players? (continued)

Native Applications Vendor

This is a vendor that has natively created the various applications needed in an emergency response environment. A **Native Applications Vendor** controls an entire integrated product family through all its phases, from conception through delivery and ongoing support. This is the only path to applications designed to work **seamlessly** together, both at initial implementation and **over the life of the system**.

Criteria

Control over Features and Performance	Excellent – The vendor has complete engineering control over the entire integrated suite of applications.
Integration and Inter-Communication	Excellent – Applications can be built to work together from the initial design stages.
Commitment to Evolution and Support	Excellent – Control over the entire suite allows the vendor to evolve the suite of applications as a whole. The vendor is also able to prime its support organization with a roadmap of the integrated system's evolution.
True Single Point of Contact	Yes – The PSAP deals with one vendor through the life of the system. The vendor's support organization fully understands each application, how the applications work together, and defers support to no one.
Ease of Use / Training	Excellent – The integrated applications are designed from the ground up to have a consistent user interface. A common look and feel makes the integrated system easier to use and easier to train on.
Ability to meet extensive testing requirements	Excellent – Extensive testing of the applications and their mutual interactions is part of the normal everyday product cycle.

Summary: How do the players measure up?

	Control over Features and Performance	Integration and Inter-communication	Commitment to Evolution and Support	True Single Point of Contact	Ease of Use / Training	Ability to Meet Testing Requirements	
Native Applications Vendor	EXCELLENT	EXCELLENT	EXCELLENT	YES	EXCELLENT	EXCELLENT	BEST APPROACH
Acquired Vendors	GOOD	GOOD	GOOD	YES	GOOD	GOOD	GOOD APPROACH
Multi-Vendor Partnerships	PARTIAL	PARTIAL	PARTIAL	AS LONG AS PARTNERSHIP LASTS	POOR	POOR	POOR APPROACH
Small Systems Integrators	LITTLE IF ANY	LIMITED / FROZEN IN TIME	MANY NOT CAPABLE	MAYBE AT FIRST	POOR	POOR	HIGH RISK APPROACH

The Positron Approach

Positron Public Safety Systems is the only true **Native Applications Vendor** that covers emergency response from start to finish.

Positron's **End-to-End suite** of applications span the **entire workflow** of an emergency response organization, from call handling via **Power 911 IWS**, geographic location display via **Power MAP**, Dispatching via **Power CAD**, **Power MOBILE** and **Power RADIO**, through to reporting on system personnel and system performance using **Power MIS**, and downstream records management via **Power RMS**.

Positron applications are built upon a common platform, and use an advanced information sharing mechanism - the **Positron Information Bus**. The PIB allows rich bidirectional sharing of information between applications on a same workstation, and between applications on different workstations. Applications "publish" their information over the bus, and "listen" for information from other applications that is of interest to them. This in-depth level of information sharing is **unique in the Public Safety industry**, and is a result of Positron's **development** of the applications **together from the ground up**.

Positron's commitment to evolving the integrated application suite is driven by a desire to **build a better 9-1-1**, drawing from our 20+ years of experience with the needs and direction of public safety response.

Positron systems do more, share more and work together more, **right out of the box**. They offer the benefits of the richest call handling and dispatch experience available, without costly and potentially ongoing post-development integration.

Positron's approach is the only path to an affordable, feature rich and evolving system – with a single number to call when you need support or expansion.