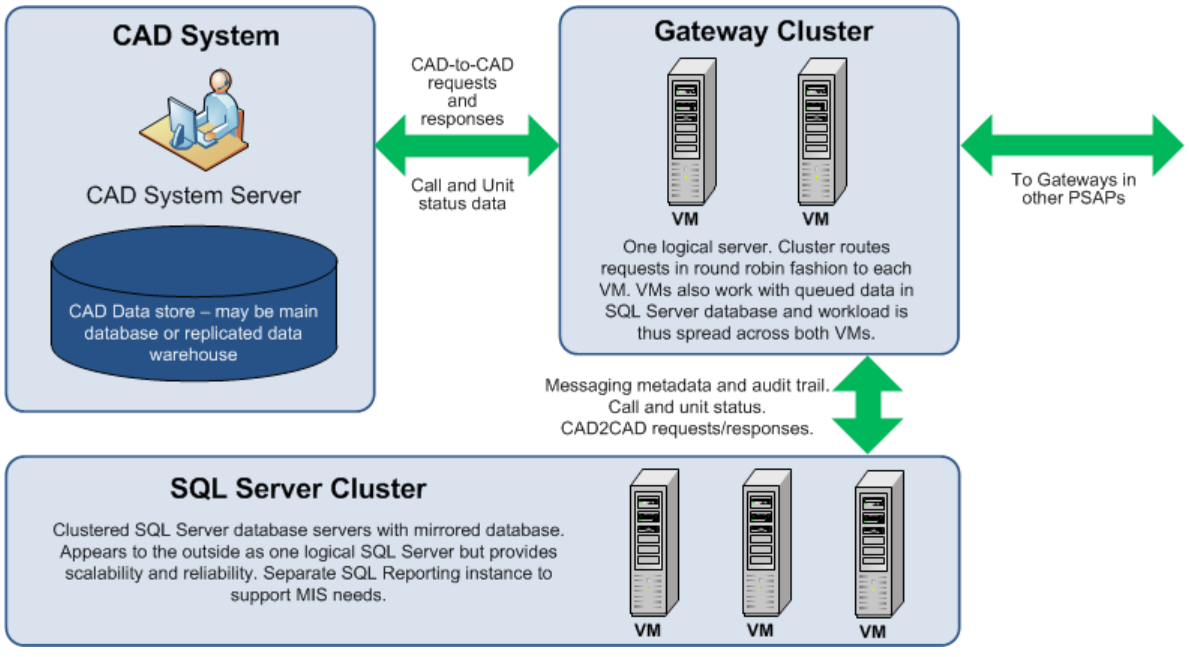
THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

First Responder Solutions

ViewPoint™ CAD-to-CAD

ViewPoint™ CAD-to-CAD is an innovative distributed Enterprise Service Bus (ESB) solution that is capable of serving every level of interoperability required to meet the vision of NG9-1-1 by interconnecting Computer-Aided Dispatch systems. This solution provides maximum flexibility for each agency and a path to increase scale to meet needs of regional larger agencies using low-cost commodity hardware and networking solutions. The solution can be hosted or deployed on premise, and is able to be scaled based on each participating system's call volume and level of interaction with external system's. ViewPoint™ has solutions to cover every scenario regardless of whether you have a Northrop Grumman Computer-Aided Dispatch (CAD), another vendor's CAD, or no CAD at all.



Level 1 Interoperability – No local CAD Integration

Level 1 Integration is sometimes called the "Swivel Chair Integration" due to the practice of Emergency Services personnel having a neighboring agency's system running side-by-side with their own system and swivel their chair back and forth as they manually transfer information. This is not an optimal solution if both agencies have CAD systems, however it is still better than no communication at all. In the case where an agency either has no CAD system, or integration to their CAD cannot be immediately accomplished, ViewPoint™ provides an immediate improvement in response coordination at a very low cost point.

By setting up Agency A as a "disconnected agency" on Agency B's ViewPoint™ Server, Agency A can configure resources it would like to make available for regional support so that they show up as resources for Agency B and other surrounding integrated agencies. Agency A can then operate one or more stand-alone ViewPoint™ clients that allow it to have regional situational awareness as well as requesting, receiving, and responding to requests for their resources. Since ViewPoint™ holds the complete picture of neighboring agency incidents, Agency A is able to enter those details into local systems without needing to contact those agencies by phone to get the details.

Level 2 Interoperability – View-Only Situational Awareness

Level 2 Integration is the most common starting point for agencies because of the lower cost point and little to no reliance on regional governance or CAD vendor support. Level 2 provides a full regional situational awareness picture where agencies can pick and choose information they want to make available to support regional coordination. This picture provides immediate operational benefits when dealing with large scale incidents or by allowing agencies to anticipate and prepare for incoming aid requests.

This is accomplished by setting up read-only interfaces into local CAD and Automated Vehicle Location(AVL) solutions to provide a real-time picture of everything happening in the region. Agencies have the option of running ViewPoint™ as a separate application, or directly integrating it as a CAD mapping solution.

Level 3 Interoperability – Assisted CAD Integration

Level 3 Integration provides agencies the ability to enable two-way electronic communication with CAD systems that have limited ability to share information or handle advanced workflows that become possible with electronic cross-jurisdictional coordination. This solution provides the full benefits of real-time electronic coordination completely removing the need for inter-agency phone calls while avoiding costly changes to CAD systems that are not ready for NG9-1-1.

This is accomplished by including the ViewPoint™ Client and the ViewPoint™ Gateway as part of the CAD-to-CAD work flow. Work flows and data elements not supported by the Agency CAD can all be accomplished in the ViewPoint™ client. For example, if a CAD system cannot support a resource request, then the request can be displayed and approved in ViewPoint™. Once approved, the two-way interface generates the event in the agency CAD and automatically dispatches the approved units without additional work required by the agency staff.

Level 4 Interoperability – Full CAD Integration

Level 4 Integration is the full end-to-end integration with native CAD system capabilities that requires no additional software to be installed at the CAD workstations. The ViewPoint™ Gateways handle all field mappings, business rules, data filtering, and code translations required to ensure each CAD receives only the data it needs, when it needs it.

This is accomplished by a full commitment from all vendors to be engaged and up to date with National Emergency Number Association (NENA) and Association of Public-Safety Communications Officials (APCO) standards. Northrop Grumman is an active participant in the development of these standards and is part of the Integrated Public Safety Technology Standards Committee and Board of Directors for the Integrated Justice Information Systems (IJIS) Institute who maintains the National Information Exchange Model.

CAD-to-CAD Capabilities

Each CAD system is interfaced to the CAD-to-CAD Gateway using the ViewPoint™ National Information Exchange Model (NIEM) application programming interface (API) or a CAD provided API.

The CAD-to-CAD Gateway server supports the following transactions:

- **Transaction Acknowledgments** – All transactions between Gateways and other components are always paired with an acknowledgment response to confirm the transaction was successful and assist in system performance monitoring. In the event that a transaction fails to be acknowledged it is be declared a "Dead Letter", logged in the Gateway exception tables, and an error transaction back into the sending system is generated in order to alert the user through any means implemented by the source system such as audible or visual cues.
- **Unit Status Update** – When a unit status is updated in an agency CAD, the CAD system notifies the Gateway. The Gateway then notifies all other Gateways that are subscribed to the unit of the new status. Receiving Gateways notify their CAD of the new status.
- **Unit Location Update** – When a unit location is updated in an agency CAD or AVL system, the CAD/AVL system notifies the Gateway. The Gateway then notifies all other Gateways that are subscribed to the unit of the new location. Receiving Gateways notify their associated CAD of the new location.
- **Resource Request** – When a CAD system needs a resource that is not owned by that CAD, it sends a resource request to its Gateway. The Gateway logs and routes the request including related Incident data to the appropriate Gateway. If the request is not answered within a configurable time, the Gateway notifies the requesting CAD system that the response has been delayed.
- **Resource Response** – When a CAD has received a request for assistance, it can either accept the request as is and dispatch the requested resource, substitute an alternate resource, or deny the request. If a request is denied, it is often accompanied by an Incident Update initiated by the dispatcher that explains why the request was denied.
- **Resource Cancellation** – When a resource is cancelled from a call or preempted, the CAD sends a message to the Gateway. The Gateway then sends the update to all other subscribed Gateways or CAD systems.
- **Incident Transfer** – An incident can be transferred based on business rules, manual request, or as part of a resource request. The detailed Call for Service data is sent from the CAD to its Gateway. The Gateway forwards the transaction to the appropriate external Gateway.
- **Linked Incident Update** – Any time there is an update to an active incident, the CAD sends a message to the Gateway. If the CAD system is the owner of the incident, then all updates forward to Gateways and CAD systems that are subscribed to the incident. If the CAD is a subscriber to another agency's incident, then only allowed fields are passed back to the incident subscribers.
- **Messaging** – A message from a CAD that has a recipient outside of the CAD domain sends a Message Transaction to the Gateway. The Gateway routes the message to the appropriate destination Gateway or CAD.

Other System Support

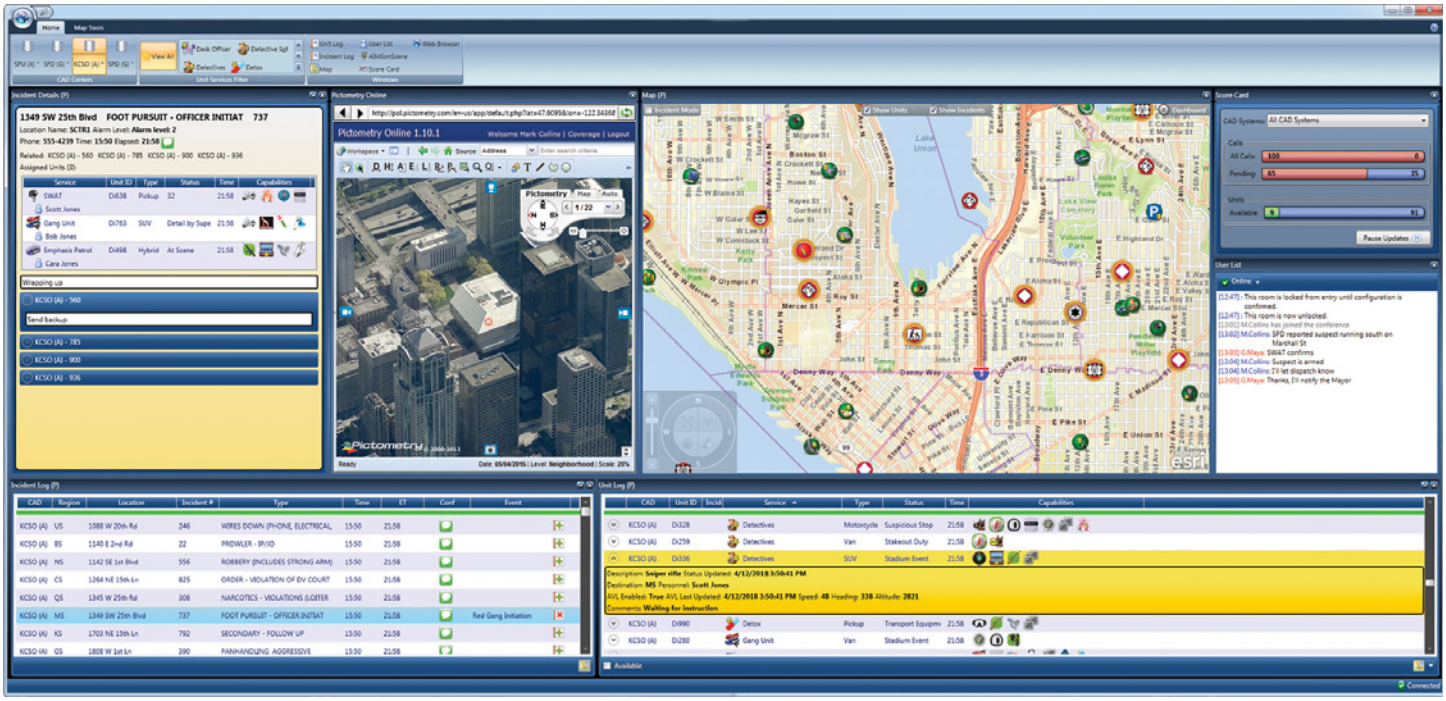
The ViewPoint™ messaging system was designed to handle a wide variety of public safety information and to interface with virtually any kind of system. Custom interfaces can be provided to allow virtually any kind of data exchange. Sometimes adding additional systems requires adding Gateways co-located with those systems, but many times only a new interface is needed. Potential examples include Records Management Systems, Regional Reporting systems, and Web-based Emergency Operations Center (WebEOC).

Code Translations

Gateways can be configured to translate codes between the local agency's codes and a common code set. This allows each agency to continue to operate with existing code configurations in their CAD systems and still share data with surrounding agencies that employ different code sets. Code translations support a wide array of fields including geospatial data, resource IDs, nature or incident types, response priorities, and cancellation codes. The system can even support the translation of key words inside incident narratives so dispatcher shorthand is usable by other agencies (i.e. "SA" could be translated to "Staging Area"). The interface actively pulls the list of each code set from each CAD system to provide a means for a system administrator to cross-link the data elements for each CAD system and the common codes.

Graphical User Interface (GUI)

ViewPoint™ CAD-to-CAD includes a WPF.NET desktop client and an HTML5 Web client that support all standard Windows user interactions. The desktop application is targeted at power users using at fixed workstations who wish to integrate with rich data and supports the flexibility of multiple monitors and keyboard shortcuts. Both applications support standard Windows interaction including keyboard, mouse, the ability to resize windows, and filtering/sorting list views



Browser Support

The ViewPoint™ Web Client is available on a Web platform that is available to users in real-time inside or outside of each Public Safety Answering Point (PSAP) via a browser. The following browser platforms are supported:

Desktop Device

- Chrome (latest version)
- Firefox (latest version)
- Internet Explorer 11 (64 bit)
- Safari (latest version)

Mobile and Tablet

- Android (latest version)
- iOS (latest version)

For more information, please contact:

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