

The Middle of a MEDITECH Environment

Delivering Value with an Interface Engine

About the Author:

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Jenny Gilberg is an interface analyst for SISU Medical Systems, a consortium of Minnesota medical centers working together to share information technology resources since 1982. She began her career in medical practice and research, transitioning to serve in several IT and technical capacities, including technical writing. She now develops and implements numerous healthcare interfaces for 16 hospital sites.

MEDITECH meets the informational needs of healthcare organizations by providing software with integrated solutions. Its application environment passes medical data via HL7 messaging, following patient care from module to module (e.g. Admissions (ADM) to Laboratory (LAB) to BAR (Billing and Accounts Receivable). With LSS (clinical) and a long-term care module, a MEDITECH system has large integrated delivery networks to support the entire continuum of healthcare. At the same time, it supports the financial and business side of the healthcare enterprise. With these abilities to deliver patient care safely and efficiently, MEDITECH achieves high customer retention rates with the healthcare organizations that make it their software choice.

Interfacing with MEDITECH

Although MEDITECH is a fully encompassing healthcare information solution, there is still a need for interfacing to and from MEDITECH. The reasons are many.

- Sending orders out to an outside healthcare facility (e.g. Pathology)
- Flowing patient data into a non-LSS clinical system (EMR) or vice versa
- Accepting lab orders from another healthcare facility and sending lab results back
- Troubleshooting current patient data flow in your own system
- Back-filling patient data into an outside healthcare system (e.g. MEDITECH to GE)
- Connecting a non-MEDITECH module to the MEDITECH system (e.g. Lab)
- Fulfilling state or federal requirements for electronic patient data transfer

These issues address just a few of the challenges we face in an ever-changing healthcare world. They are common, only solved through the use of interfacing.

Interfacing creates a common bond or connection to share information between systems that are not integrated and operate on their own derivative of an HL7 standard. What works for one system most likely will not work for the next. What is required or optional in one may not be in the other.

Other healthcare application vendors refer to MEDITECH as a closed system. Because it is monolithic in nature, MEDITECH's many modules and components act as a uniform system. This is one of MEDITECH's greatest strengths to be so fully integrated. However, it is also one of our greatest challenges to interoperability and interfacing. Because of its internal full functionality, MEDITECH interfaces require extended processing with customizing, specific to the project, module and vendor involved. This process can cause extended interface timelines and increased cost. These circumstances may result in other organizations being hesitant to develop working relationships with us.

Connectivity and Interfacing

It is not unlikely that connectivity and interfacing might be one of the last things considered in your healthcare organization when obtaining new software or modules. Most important is patient care and safety along with our ability to offer more effective

and efficient services. We listen to our physicians' input on what systems they see as having the greatest ability to support them in providing the best possible patient care. We listen to our staff of experts who review the available options. Throughout this process, we strive to maintain a delicate balance in staying competitive while maintaining our budget. When the decision is made to purchase and work with another vendor, we have been assured of the other vendor's ability to operate with our system. Everything is compatible at a brochure level. Now we pursue the connectivity question in greater depth and the communication process begins.

There are several challenges in a direct point-to-point interface with time being one of the largest obstacles. Currently, interface communication is done via MEDITECH's website. By opening a help ticket/task on their website, we may inquire as to the feasibility and cost of a stated interface scenario. As our assigned representative updates the task, we receive email alerts containing web links to view our open task on their website. At some point, there may be conference calls arranged and further details discussed. Continual email updates are given until MEDITECH obtains the information required to make a decision on the plausibility of our requested interface. If it is possible, we are informed of estimated interface cost and delivery date if we are to proceed. After several months, the interface is delivered into our test environment. As we test our interface, we discover the interoperability details and make changes via the help ticket process. With proper testing, we are able to request the necessary changes to create a successful interface and change control to live. This entire process at its minimum may be completed in a few months.

Once change control to live has occurred, there may be further modifications needed. Workflow issues may arise and with them a number of additional data modifications required. This is all done via the same task requests. Hopefully, at the end we have the complete operative interface that is needed to accommodate both systems in full functionality without additional compromise.

Interfacing with MEDITECH: Using an Interface Engine

An interface engine serves as a data negotiator. It allows disparate systems to operate independently of each other while at the same time sharing information via one or multiple interfaces. This provides full functionality without system compromise. There are many reasons a MEDITECH environment would utilize an interface engine. Two of the primary reasons are the substantial savings in time and cost. These savings are made possible through an interface engine's ability to effectively map data in a way that allows each system to operate the way it is designed. Because data changes and customizations are made in the engine, the sending application does not have to make any changes systematically and neither does the receiving. This differs from a point to point interface scenario where one vendor must customize their interface to create data compatibility. With interfacing using an interface engine, the customizing of medical data all occurs in the engine. This allows the receiving system to simply process the data according to its design, providing full functionality.

Creating interoperability between MEDITECH and an other vendor (OV) with a point to point interface is similar to interfacing with the use of an interface engine. The difference is in the possibilities, the details, and the time it takes to resolve issues and complete an interface. Using an engine still requires the use of MEDITECH interfaces to pass data in and out of our system. Therefore, we must communicate with MEDITECH via the same help ticket/task process. That being said, if there already is a MEDITECH interface in place, the interface engine can use it for more than one purpose (e.g. using a current ADT feed). By directing the current interface into the engine, multiple HL7

messages can be created and directed to other vendors through mapping and routing in the engine.

Interfaces are created in the engine by establishing communication protocol with the sending and receiving parties. Messages travel through the inbound connection(s) into the engine where they are processed through mapping and routing rules, as established in an action list, and, sent through the outbound connection(s). Sample messages, either downloaded in MEDITECH MIS or collected from the other vendor, are then used to easily create and test this message mapping and routing logic in the development engine (testing environment). Connections and action lists can be created in as little time as an hour, depending on the depth of the logic required. Even with challenging issues, mapping logic takes only as long as the user needs to configure a solution. When the message mapping is complete, the interface is then tested and the data examined to see if it meets the need for each system. Adjustments are made and the testing continues until the interface is ready to go live and change control to live is requested via a MEDITECH task. The entire interfacing solution process could take less than a month's time.

Even with the best planning, there are always unexpected issues caused by workflow or undocumented system requirements. When interfacing with the use of an interface engine, data is quickly modified (depending on the issue, possibly within minutes) and testing can resume or changes can be posted to live. At this point, the interface should be fully functional without changing any of the systems involved.

The Value of Each Interfacing Approach

The strength of a point to point interface is that it is point to point. Either it is working or it is not. Operating logic is working on one side or the other. Patient data is flowing directly from one system to another. If data is not flowing, it can only be one of two possibilities. Either MEDITECH is experiencing difficulty or the other vendor is. MEDITECH is also responsible for the proper functioning of the interface. If there needs to be an accommodation or an issue of any sort, by the simple act of opening a MEDITECH task, they take on the responsibility of figuring out the logic to create functionality. The healthcare facility is responsible for only the testing and giving the change control.

The value of using an interface engine is that it is not point to point. All of the logic and responsibility for full functionality of the interface is located in one place. Therefore, complete control and responsibility for interoperability is now with the facility that has the interface engine. This translates into direct control over the implementation timeline. Not only does this mean large savings in time and expense but there are other advantages as well.

- **Use a MEDITECH interface for multiple purposes.** Fully utilize the same outbound interface for more than one other vendor interoperability application. Flow one interface into many or many into one. The interface engine becomes the other vendor in the MEDITECH inbound or outbound interface process.
- **Monitor both sides of an interface in the engine's monitoring tool.** The interface engine makes troubleshooting easy with the monitor's use of color to show the connectivity status of all interfaces. With one glance at the engine monitoring screen, see what the connection issue is and how many messages have been queued. This is especially beneficial when troubleshooting to be able to tell if the problem lies on the MEDITECH side or on the side of the other vendor.

- **Prove patient data was sent.** Detailed logs show every message that passes through the interface, reporting raw connection information and documenting what, when and where a message was sent. By setting connections to send messages on an acknowledgement basis empower your hospital with documentation (including date and time) of what patient data was sent and when the receiving application acknowledged its acceptance.
- **Set log file parameters.** Choose what information the interface engine will capture (connection status, message before and after engine processing, etc.). Each interface connection also has its own set of log file management properties that remove aged log files. These properties can be changed at any time. Just type in the number of days, save and re-start the connection.
- **Customize alerting for each interface.** Be proactive, instead of reactive. Receive emails based on custom thresholds of inactivity, connection states, types of messages processed, etc.
- **Send data to the pace of the other vendor using acknowledgements.** Because messaging is sent on an acknowledgement basis, the engine will only send the next message when receipt of the current message has been received. This is highly advantageous because each connection is then customized to the pace of a particular vendor or facility. The interface maintains itself and greatly reduces any downtime from too great of a workload.
- **Empower each application involved to operate independent of the other.** An interface engine operates independently. Of great value is its ability to queue messages. If one receiving system is experiencing downtime, the engine will simply queue messages until the receiving system is reconnected. The source, or sender side of the interface, will never realize that there is any connectivity problem. The engine will continually attempt to reconnect and send pending messages, without messages timing out or registering a failed send. At the same time, the engine will continue to acknowledge the sender as new messages are received, allowing for normal interface operations with the source system interface. This is highly beneficial and resolves issues of multiple messages being received during connectivity problems.
- **Experience little to no interface downtime.** The interface engine has an available fail-over solution, using a primary and backup server. Both servers act in tandem so what happens in the primary, is duplicated in the backup server. The interface engine is assigned a static IP address apart from the hardware IP addresses of the primary and backup servers. Messages enter through the interface engine IP address. The backup server is tasked with monitoring the heartbeat of the primary engine server.

Should the primary server fail, the backup server will automatically take over engine processing for the primary while maintaining the original IP address for the interface engine. Interface processing will continue on the backup server until the fail-over is manually halted and assigned fail back to the primary server. The fail-over transition is seamless. Setting live connections to auto-start allows them to start automatically as if there were no changes. For our facility and those of the other vendors, this means no interruptions in services.

Summary

There is great value in adopting an interface engine in a MEDITECH environment when considering your interface requirements. An interface engine places control and responsibility in your hands. It enables you to:

- Quickly adapt logic to suit workflow needs and physician requirements, creating a fluid testing environment.
- Prepare for go live as soon as the logic in the engine is in place.
- Use the engine to troubleshoot current connectivity and MEDITECH issues.
- Add additional functionality and enhance MEDITECH with detailed logs, monitoring and advanced alerting.
- Be proactive, instead of reactive. Protect your patient data but also protect your healthcare organization.
- Greatly reduce implementation time and cost through the engine's flexibility.

If there isn't integration, then we must find a way to have interoperability. When using an interface engine to solve interoperability, the only limits are the ones you set. MEDITECH meets the informational needs of healthcare organizations by providing software with integrated solutions. With an interface engine, MEDITECH's application now becomes an even greater solution, making a strong healthcare environment even stronger and providing solutions for not only integration but interoperability as well.

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