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Integrations Catalog

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Integrations: More Than the Sum of Their Parts

As healthcare technology markets evolve, one verdict is crystal clear: Integrations enable automation and more sophisticated workflows that drive greater satisfaction, impact, and outcomes.

According to data from KLAS Research, health systems with at least three integrations extract more value from their clinical communications platform, as evidenced by a vendor retention rate upwards of 90%. That rate grows to 100% for those with five-plus integrations and shrinks to 50% for those with two or fewer integrations. KLAS data also indicates that customers with more integrations achieve more positive outcomes, including improved staff safety, faster emergency response, less alert fatigue, improved patient throughput, and others.[1,2]

More than the sum of their parts, integrations elevate the utility and impact of both integrated applications. A few examples:

- Embedding PerfectServe in your EHR interface offers a more natural communication workflow that retains all of PerfectServe's advanced routing functionality without requiring clinicians to toggle between apps.

- Integrating your nurse call system with PerfectServe enables staff to accept, address, and automatically delegate select nurse call alerts on mobile devices.

- Integrating Lightning Bolt Scheduling and Epic OpTime makes provider schedules easily accessible for OR managers to guarantee efficient and accurate staffing when creating daily OR schedules.

- Integrating PerfectServe with your PBX enables a universal system-wide search field with one-touch calling and messaging, secures PHI, and masks provider numbers to ensure privacy.

By leveraging more of these capabilities, your organization can unlock improved efficiency and data integrity, enhanced user satisfaction, more punctual patient care, and so much more.

Partner with PerfectServe to plan your integration pathway, and allow the features and conveniences inherent in our technology to enhance your organization's most critical daily operations. Our "Better Together" approach can increase the return on your PerfectServe investment while leading to better patient outcomes delivered by more efficient—and more satisfied—care teams.

1. KLAS Report: Clinical Communications Interoperability 2024; March 2024
2. KLAS Customer Experience—clinicians. Insights; Prepared for PerfectServe November 2023

INTEGRATIONS

AnesthesiaGo

Overview

PerfectServe's integration with AnesthesiaGo leverages Lightning Bolt's scheduling data to enhance daily OR case schedule management. This integration allows data for anesthesiologists scheduled in Lightning Bolt to be used when creating daily case schedules in AnesthesiaGo.

Practical Benefits

Reduction of Duplicate Work:
Eliminates the need to manually enter working providers in both systems, saving time and reducing administrative burden.

Enhanced Workflow Efficiency:
Allows AnesthesiaGo to pull directly from the scheduling source of truth to ensure that the case schedule is built based on the correct providers and the correct shift times.

Reduction of Human Error:
Automated data transfer minimizes the risk of errors associated with manual updates, ensuring accurate on-call information.

Integration Protocols

1 **API-Based Integration:**
This integration uses Lightning Bolt's API to push the scheduled provider information directly to AnesthesiaGo. This information, in turn, is used when AnesthesiaGo creates daily case schedules.

2 **Personnel Mapping:**
AnesthesiaGo leverages the employee ID from Lightning Bolt to crosswalk personnel between the two systems.

3 **Assignment Mapping:**
AnesthesiaGo leverages the assignment ID from Lightning Bolt to crosswalk the assignments appropriately and assign the correct working hours. This allows administrators to determine which assignments should pass through to AnesthesiaGo and which should not.

INTEGRATIONS

Clinical Alerts: Critical Results

Overview

Interfaces to EHR, laboratory, and radiology information systems enable instant, reliable, and secure notification of a patient's critical or abnormal test results (including labs, pathology, images, and imaging reports) to the correct covering care team members.

Practical Benefits

Accelerates Time-Sensitive Critical Interventions: Simplifies ability to access, update, and view critical results on a mobile device to support workflow and facilitate rapid treatment.

Enables Dynamic Routing to the Assigned Role(s): PerfectServe's Dynamic Intelligent Routing® can automatically route critical results to a designated role or to a newly assigned care team member without explicitly identifying the individual with that role assignment.

Automated Escalations: The system can automatically escalate notifications if the initial recipient does not respond within a specified timeframe. This is particularly crucial for critical test results that demand rapid intervention.

Closed-Loop Process Confirms Message Delivery and Follow-Through: Transparent message delivery timestamps, read receipts, message acknowledgments, and next steps taken are all visible in the PerfectServe message thread.

Integration Protocols

1. **HL7 ADT** integration allows messages to deliver patient demographics.

2. **HL7 ORU** integration message contains information about a patient's clinical observations (results) and is used in response to an order generated in a clinical system.

INTEGRATIONS

Clinical Alerts: Order Notifications

Overview

PerfectServe's experienced clinical staff can work with your organization to determine orders that are appropriate for automated notifications, such as consult or STAT orders. When an in-scope order is placed in the EHR, PerfectServe will instantly and dynamically route a secure notification to the appropriate healthcare provider and/or nurse.

Practical Benefits

Real-Time Notifications: When an in-scope order is placed in the EHR, the PerfectServe integration means instant notifications are sent to relevant healthcare providers. This ensures that critical information reaches the right people without delay.

Automated Escalations: The system can automatically escalate notifications if the initial recipient does not respond within a specified timeframe. This is particularly crucial for STAT orders where immediate action is required.

Streamlined Workflows: Integration with the EHR eliminates the need for manual entry and follow-ups, reducing the risk of errors and saving time. Orders are communicated directly from the EHR to the PerfectServe platform, ensuring a seamless workflow.

Comprehensive Documentation: All communications and actions related to consult and STAT orders are documented, providing a complete audit trail for compliance and quality assurance purposes.

Enhanced Patient Outcomes: By ensuring timely and accurate communication, this integration can help to improve patient outcomes. Rapid response to STAT orders can be life-saving, while efficient handling of consult orders ensures that patients receive specialized care more promptly.

Integration Protocols

HL7 ORM Integration: This is a common message type that holds information about a request for materials or services. ORM messages can handle a variety of order types, including diagnostic tests (e.g., lab tests, imaging studies), medication orders, and procedures. This flexibility makes them widely applicable across different clinical scenarios.

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Clinical Alerts: Presenting Patient Notifications

Overview

When a patient meets preset criteria or conditions that indicate a change in patient status, PerfectServe will instantly and dynamically route secure notifications to inform caregivers in designated roles. Notifications can also be batched to minimize intrusions.

Practical Benefits

Enables Timely Intervention and Coordination:
Automated notifications triggered by specific patient clinical and demographic conditions help to ensure that caregivers in contact with the patient are coordinated, and collaborate to make proper clinical decisions.

Patient Transition Notifications:
Automated secure messages to notify PCPs, on-call hospitalists, administrators, or care teams of patient transitions (inpatient admission and discharge, ED arrival and discharge, observation arrival and discharge, etc.), thereby closing communication gaps across the extended care team.

EHR-Driven Best Practice Advisory Alerts: Custom flags in the EHR that call attention to specific patient conditions are routed to a designated role using PerfectServe's Dynamic Intelligent Routing® (e.g., PACE patient presents in ED or patient eligible for a specific clinical trial presents in ED).

Remote Triage Alerts: Automated notifications, sent to virtual triage personnel when qualified patients present in the ED, can reduce wait times and improve patient care.

Flexible Applications Offer Myriad Benefits:
Presenting patient notifications can increase referral revenue, improve chronic care management, prevent readmissions and unnecessary care, and improve patient satisfaction.

Integration Protocols

HL7 ADT feed allows messages to deliver patient demographics and provide information about trigger events, such as patient admit, discharge, transfer, registration, etc.

INTEGRATIONS

Demographic Importing

Overview

PerfectServe offers integrations with several partners to import demographic information into Lightning Bolt. This integration allows users to be consistently updated across several systems, ensuring that contact information and relevant unique identifiers are updated in Lightning Bolt when updated in the demographic source of truth.

Practical Benefits

Reduction of Duplicate Work: Eliminates the need to manually update demographic records for personnel across multiple systems, saving time and reducing administrative burden.

Reduction of Human Error: Automated data transfer minimizes the risk of errors associated with manual updates, ensuring accurate provider contact information.

Additional Notes

Data Management: The demographic file can be used to update one or several different demographic fields in the Lightning Bolt system, including unique identifiers, email addresses, cell phone numbers, pager numbers, etc.

Integration Protocols

1 **File-Based Integration:** This integration uses a file-based method where a .csv file is generated and transferred to an SFTP location on a recurring basis (typically once per day) for automatic import into Lightning Bolt.

2 **Personnel Matching:** Requires a unique ID for each provider in Lightning Bolt, which must match the corresponding provider account in the demographic information source of truth. This ID can be added to the 'UniqueID' or 'Custom1-4' fields in Lightning Bolt and will be used as a key in the demographic file.

3 **Automated Data Transfer:** A file will be sent daily to the SFTP. Lightning Bolt will ingest only matching provider records.

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INTEGRATIONS

Embedded Messaging

Overview

PerfectServe's embedded messaging integration enhances clinical communication by allowing clinicians to send and receive messages directly within the EHR environment, complete with patient context. This integration eliminates the need to switch between different applications, ensuring that critical patient information is always at the caregiver's fingertips. It also leverages PerfectServe's advanced Dynamic Intelligent Routing® technology to deliver messages to the right person at the right time, improving workflow efficiency and reducing errors.

Practical Benefits

Streamlined Communication: Embedding PerfectServe's messaging within the EHR saves time by reducing the need to toggle between different systems. Clinicians can stay within the EHR to send and receive important messages, enhancing workflow efficiency.

Increased User Satisfaction: Results from a customer's quality improvement initiative showed that integrating PerfectServe's messaging capabilities within the EHR significantly increased user satisfaction among both nurses and providers.

Faster Response Times: Dynamic Intelligent Routing® ensures that messages are directed to the appropriate team members quickly, facilitating faster decision-making and treatment times.

Enhanced Data Integrity: By keeping all communications within the EHR, the integration helps maintain data integrity and reduces the likelihood of errors that can occur when information is manually transferred between systems.

Reduced Click Fatigue: Clinicians benefit from a more seamless workflow with fewer interruptions, leading to improved satisfaction and reduced fatigue from constant application switching.

Integration Protocols

1 **HL7 ADT Interface:** This integration requires an HL7 ADT interface to ensure that patient data is consistently updated and accurate across both platforms.

2 **EHR User Name:** Each user must have their EHR user name configured in PerfectServe to enable embedded messaging functionality. This allows PerfectServe to accurately link user accounts between the two systems.

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Epic Deep Linking

Overview

Deep linking for Epic customers enhances clinical efficiency by providing a seamless connection between PerfectServe and Epic's mobile applications—Canto, Haiku, and Rover. With deep linking, users with the appropriate mobile application installed on their device can tap a context sensitive button in PerfectServe messages to quickly access patient records in Epic, ensuring that all relevant information for the specific patient in question is readily available.

NOTE: This functionality is only available for iOS users.

Practical Benefits

Quick Access to Patient Information:

Deep linking allows clinicians to launch directly into Epic Canto, Haiku, or Rover from PerfectServe conversations with the patient context intact. This eliminates the time spent searching for patient records and ensures immediate access to critical information.

Integration Protocols

1 **HL7 ADT Interface:** This integration requires an HL7 ADT interface to ensure that patient data is consistently updated and accurate across both platforms.

2 **Epic Enterprise Patient ID:** For deep linking functionality, it's essential to have the Epic enterprise patient ID— also called the patient.1 ID. This unique identifier allows PerfectServe to accurately link to the corresponding patient records in Haiku, Rover, or Canto.

INTEGRATIONS

Epic On Call Finder

Overview

PerfectServe's integration with Epic On Call Finder leverages Lightning Bolt's scheduling data to enhance on-call management within Epic. This integration allows schedule data for on-call assignments in Lightning Bolt to populate directly into the Epic On Call Finder module, streamlining access to accurate on-call information and facilitating efficient communication and coordination.

Practical Benefits

Reduction of Duplicate Work: Eliminates the need to manually update on-call schedules in both systems, saving time and reducing administrative burden.

Enhanced Workflow Efficiency: Allows providers and operators to quickly find on-call providers within Epic, improving response times and operational efficiency.

Reduction of Human Error: Automated data transfer minimizes the risk of errors associated with manual updates, ensuring accurate on-call information.

Secure Messaging Integration: Enables easy and secure messaging directly from the Epic On Call Finder module, enhancing communication capabilities.

Additional Notes

Placeholders: This integration allows the use of unnamed records for specific call shifts, ensuring clear contact information is provided regardless of who's on call.

Slot Notes and Assignment Information: It also enables the inclusion of additional details from Lightning Bolt assignments, which is useful for admins and allows them to provide further context for each shift.

Emergency Updates: Slot notes can be quickly updated in Lightning Bolt to reflect changes, such as new contact methods for on-call providers, which will be reflected in Epic On Call Finder within minutes.

Integration Protocols

1 **File-Based Integration:** This integration uses a file-based method where a .csv file is generated and transferred to an SFTP location on a recurring basis (typically every five or ten minutes) for automatic import into Epic.

2 **Personnel Mapping:** Requires a unique ID for each provider in Lightning Bolt, which must match the corresponding provider account in Epic. This ID can be added to the 'UniqueID' or 'Custom1-4' fields in Lightning Bolt.

3 **Assignment Mapping:** Involves setting various fields for each Lightning Bolt assignment:

- Epic Team ID: Links the assignment to a specific facility in Epic.

- Team Name: An optional field for easier mapping searches.

- Role: Assigns an Epic "Role" to each shift, customized for each Epic customer.

- Note Prefix: Allows fixed text to be entered into the Notes section of the Epic On Call Finder record.

- Team Comment: Displays as a banner across the top of the team's page in Epic On Call Finder.

- Call Order: Denotes the order in which on-call providers should be contacted.

4 **Data Management:** Determines the amount of past and future data included in the file to prevent it from becoming too large, focusing on the most relevant data.

5 **Automated Data Transfer:** When a provider is scheduled on a mapped assignment, the data is included in the .csv file and transferred to the SFTP for import into Epic.

INTEGRATIONS

Epic OpTime

Overview

PerfectServe's integration with Epic OpTime leverages Lightning Bolt's provider scheduling data to enhance OR management. By pulling Lightning Bolt schedule data into the OpTime snapboard, OR managers can easily see which providers are scheduled to work, streamlining the creation of daily OR schedules and ensuring accurate and efficient staffing.

Practical Benefits

Unified Schedule Management: Eliminates the need to manage two separate systems to determine provider availability, saving time and reducing administrative burden.

Efficient Scheduling Workflows: Simplifies the scheduling process by providing a consolidated view of provider availability directly within the OpTime module.

Error Prevention: Prevents the scheduling of providers for surgeries when they're not available, enhancing operational efficiency and patient care.

Optimized Resource Utilization: Ensures that OR resources are allocated efficiently, minimizing downtime and improving overall productivity. PerfectServe can also document back to the record.

Integration Protocols

1. **Data Mapping:** Personnel and assignment mappings are utilized to determine which data points need to be sent to OpTime. Personnel mapping involves adding the Epic SER .1 ID to a user's personnel profile in Lightning Bolt via the 'UniqueID' or any of the 'Custom1-4' fields.

2. **File-Based Integration:** The integration operates through a file-based method where a .csv file is generated and transferred to an SFTP site for customers to download and import into Epic. This process can be automated by the customer's IT team.

3. **Assignment Mapping:** Assignment mapping includes setting fields such as:

   - Import Group: Links the assignment in Lightning Bolt to a facility in Epic.

   - Resource Type: The Epic Resource Type ID corresponding to the assignment (e.g., CRNA Resource Type ID for CRNA shifts).

   - Role: An optional field that ties to an Epic "Role," customized for each Epic customer.

   - Timezone: An optional field for translating start/stop times if OR facilities span multiple timezones.

4. **Automated Data Transfer:** Once providers are scheduled for mapped shifts, the records are pulled into a .csv file and transferred on a recurring basis to the customer, ensuring up-to-date schedule information in OpTime.

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Kronos Workforce Central Payroll

Overview

This integration leverages Lightning Bolt as the scheduling source of truth and transmits any mapped provider/ assignment combinations to Kronos to be used in payroll processing.

Practical Benefits

Reduction of Duplicate Work: This integration eliminates the need to manually transcribe Lightning Bolt scheduling data into the Workforce Central payroll platform.

Reduction of Human Error: Automating the process of inputting working times reduces the likelihood of mistakes, ensuring providers' payroll is accurately reflected.

Additional Notes

Publishing Schedules: In order for the data to transmit to Kronos properly, Lightning Bolt schedules must be set up with start and end dates that are identical to the pay period for each group that is integrated.

Kronos Resourcing: A Kronos representative will need to set up the ETL process, validate the data is mapping appropriately to a Workforce Central test environment, help complete the User Acceptance Testing, and ensure the job is set up to push to production environment at go-live.

Integration Protocols

1   **File Transfer via SFTP:** Files are generated every day throughout the pay period and are shipped to an SFTP site where a job is typically set up to automate the Extract, Transform, and Load (ETL) process to ingest the data into the Kronos system.

2   **User Identification:** The integration uses a unique value that exists in Kronos assigned to each user's Lightning Bolt personnel file to crosswalk the correct user.

3   **Personnel and Assignment Mapping Matrix:** Assignments are mapped based on a matrix that indicates which personnel types and which assignment types should be included in the file. For instance, if we have a matrix that includes a Non-Exempt personnel type and the Call assignment type, any Non-Exempt provider who works a Call assignment type will be included in the file. However, if an Exempt provider is working a Call shift, they will not be included in the file.

4   **Department IDs:** Each shift in Lightning Bolt is scheduled in a particular department. The Kronos Department IDs are included at the Lightning Bolt department level to indicate in the file where the assignment was scheduled in Lightning Bolt. This helps identify which cost center is responsible for paying out that shift.

5   **Personnel Home/Away COIDs:** Entering the home and away COIDs for a user allows the file to determine if the pay code associated with the worked assignments for each provider should be paid at their home cost center or a separate cost center.

INTEGRATIONS

Kronos Workforce Dimensions Payroll

Overview

This integration leverages Lightning Bolt as the scheduling source of truth and transmits any mapped data to Kronos to be used in payroll processing.

Practical Benefits

Reduction of Duplicate Work: The integration eliminates the need to manually transcribe Lightning Bolt scheduling data into the Workforce Dimensions payroll platform.

Reduction of Human Error: Automating the process of inputting working times reduces the likelihood of mistakes, ensuring providers' payroll is accurately reflected.

Additional Notes

File Recurrence: Kronos Workforce Dimensions integration files run daily and cohere to a recurrence that is set up at the integration level. This is typically set up to recur on a bi-weekly basis to correspond with pay periods. On the first day of the pay period, Lightning Bolt will include all of the data for all mapped shifts throughout the pay period. Each file beyond the first file will include only the changes that have been made for that pay period since the last file was run.

Kronos Resourcing: A Kronos representative will need to set up the ETL process, validate the data is mapping appropriately to a Workforce Dimensions test environment, help complete the User Acceptance Testing, and ensure the job is set up to push to production environment at go-live.

Integration Protocols

1 **File Transfer via SFTP:** Files are generated every day throughout the pay period and are shipped to an SFTP site where a job is typically set up to automate the Extract, Transform, and Load (ETL) process to ingest the data into the Kronos system.

2 **User Identification:** The integration uses a unique value that exists in Kronos assigned to each user's Lightning Bolt personnel file to crosswalk the correct user.

3 **Assignment Mapping:** Assignments are mapped from Lightning Bolt based on the following properties:

- **Work Rule Transfer:** Optional field that indicates if there's a work rule that needs to be associated with the shift.

- **Pay Code Edit:** Optional field that indicates if the assignment needs to be reflected with a special pay code edit for any out of office time.

- **Segment Type:** Required field that indicates what type of shift is being worked. The options are Required, Transfer, or Break.

- **Open Shift:** Optional checkbox that indicates to create an Open Shift in Kronos if a provider's incoming data from the integration overwrites a previously existing shift in Kronos.

- **Business Structure:** Optional job transfer applied to the scheduled shift segment or pay code edit.

- **Cost Center Transfer:** Optional cost center transfer applied to the scheduled shift segment or pay code edit.

- **Labor Categories:** Optional list of Labor Category Entries separated by predefined delimiter. The delimiter is "|" by default, but it can be configured.

- **Comment:** Required comment to attach to the shift segment or pay code edit. Must match a valid comment in UKG Dimensions.

New Innovations Duty Hours

Overview

PerfectServe's integration with New Innovations leverages Lightning Bolt's scheduling data to populate duty hours for residents within New Innovations. This integration allows schedule data for mapped assignments in Lightning Bolt to populate directly into the Duty Hours module, streamlining access to accurate shift information to promote more efficient operations.

Practical Benefits

Reduction of Duplicate Work: Eliminates the need to manually update duty hours schedules in both systems, saving time and reducing administrative burden.

Enhanced Workflow Efficiency: Allows providers and operators to quickly find working providers within New Innovations, improving operational efficiency.

Reduction of Human Error: Automated data transfer minimizes the risk of errors associated with manual updates, ensuring accurate scheduling information.

Additional Notes

Data Management: The first file that is sent to New Innovations will contain all published schedule records. From that point, each new daily file will contain only the records for the mapped assignments that have changed from the previous file generation.

Integration Protocols

1 **File-Based Integration:** This integration uses a file-based method where a .csv file is generated and transferred to an SFTP location on a recurring basis (typically once per day) for automatic import into New Innovations.

2 **Personnel Mapping:** Requires a unique ID for each provider in Lightning Bolt, which must match the corresponding provider account in New Innovations. This ID can be added to the 'UniqueID' or 'Custom1-4' fields in Lightning Bolt.

3 **Assignment Mapping:** Involves setting various fields for each Lightning Bolt assignment:

- NI Duty Hour Name: Optional field to match a Lightning Bolt assignment with the Duty Hour Name in New Innovations.

- NI Assignment Name: Optional field to match a Lightning Bolt assignment with the Assignment Name in New Innovations.

- Notes: Optional free text that can be added to each slot when passing from Lightning Bolt to New Innovations.

- Location: Optional field that allows assignments to be tied to specific locations in New Innovations.

4 **Automated Data Transfer:** When a provider is scheduled on a mapped assignment, the data is included in the .csv file and transferred via SFTP for import into New Innovations.

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INTEGRATIONS

Nurse Call

Overview

PerfectServe receives information from nurse call systems and routes each data element to the most appropriate care team member. Data contained in the call header or message body determines where the call is coming from and to whom it should be routed. This integration enables mobile management of alerts and alarms, including one-click calls to patient bed speakers and the ability to accept/reject alarms.

Practical Benefits

Mobile Access Reduces Burnout: Integrating nurse call gives staff the ability to answer, prioritize, and assign nurse call alerts from a mobile device. This improves efficiency and alleviates burnout by reducing repeated and unnecessary trips to the patient room.

Different Alert Tones Signal Urgency: At both the user and organization level, alert tones and visual indicators can be customized to indicate urgency, escalation, message type, or other category based on message metadata.

Real-Time Intervention Accelerates Care: Nurse call alerts ring to the specific device associated with the target user's active login, including personal or shared iOS and Android devices as well as workstations. Select alerts give staff one-click dial access back to a bed speaker while other alerts require an in-person response.

Automatic Routing Enables Top-of-License Practice: Select calls and message types are automatically routed to the most appropriate caregiver for intervention. Lower-intensity calls like water requests route directly to techs, while higher-intensity nurse calls route to staff with proper training and skills.

Other Routing Options Facilitate Team-Based Care: Select calls and message types can escalate to an overhead page, route automatically to a defined team or a manager landline (VoIP), or route/reroute to any other user or group as designated in your PerfectServe system.

Integration Protocols

1 **Two-Way Voice Communication:** Requires a SIP (Session Initiation Protocol) trunk connection between the nurse call SIP server and the PerfectServe SIP server, enabling two-way voice communication between the PerfectServe app and patient bed speakers.

2 **WCTP Nurse Call Alerts:** Alerts contain information about the event type, which is used to route the alert accurately to the appropriate caregiver.

INTEGRATIONS

Outlook

Overview

PerfectServe's integration with Outlook leverages Lightning Bolt's scheduling data to populate scheduled events directly into each user's Outlook calendar. This integration makes scheduled assignments more accessible for providers, and it also helps staff who don't have access to Lightning Bolt accounts.

Practical Benefits

Ease of Access: Providers can quickly access their Lightning Bolt schedules directly from Outlook. This integration also enables administrative staff to easily view daily shifts through the Outlook calendar, simplifying the scheduling of meetings and other non-clinical work.

Reduction of Human Error: Automated data transfer minimizes the risk of errors associated with manual updates, ensuring accurate work hours pass through to Outlook.

Additional Notes

Mapping Limitations: There is no way to determine who should receive Outlook updates at the assignment level. If a provider has their Microsoft ID or UPN added to their account, any assignments that have Outlook mapping will pass through to Outlook once scheduled on a published Lightning Bolt schedule.

Opt-Out: If certain providers don't want to integrate their Lightning Bolt schedules with Outlook, we shouldn't enter their Microsoft ID or UPN in their Lightning Bolt personnel profile. This will cause the integration to omit sending the events to Outlook when these providers are scheduled.

Integration Protocols

1 **API-Based Integration:** This integration leverages the Microsoft Graph API to post data directly to each user's Outlook calendar as soon as the shift data is added to a published Lightning Bolt schedule.

2 **Personnel Mapping:** Requires a unique ID for each provider in Lightning Bolt, which must match the user's corresponding Microsoft account. This ID can be added to the 'UniqueID' or 'Custom1-4' fields in Lightning Bolt.

3 **Assignment Mapping:** Involves setting various fields for each Lightning Bolt assignment:

- Send to Outlook: A true or false value to indicate if the shift in context should be shared with Outlook when scheduled.

- Include Schedule Notes: An optional field that will allow schedule notes to pass through to the event body in Outlook when added to the Lightning Bolt shift.

- Include Assignment Information: An optional field that includes the shift name in the body of the Outlook event.

- Send as Free: A true or false value that will determine if the event should be sent to Outlook marked as free or busy. The default is that each event sends as busy time.

4 **Data Availability:** All schedule data that appears on published schedules in Lightning Bolt will pass through immediately to Outlook once the schedule is published.

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Pager Networks

Overview

PerfectServe's integration with paging networks allows users to send and receive pages without the need for multiple devices, facilitating a smooth transition from legacy infrastructure. Unique pager addresses can be assigned to specific PerfectServe users or groups, eliminating the need for traditional paging hardware. This integration also supports advanced escalation rules, ensuring urgent messages are rerouted to alternate care providers as needed, improving response times and ensuring messages are attended to quickly.

Practical Benefits

Cost Savings: Eliminates the need for traditional pager hardware to reduce costs.

Advanced Routing Functionality: Integrating with PerfectServe provides advanced message routing capabilities.

Consolidated Device Usage: All pages are received through the PerfectServe app, reducing the number of devices users need to carry.

Minimal Change for Users: Users can maintain their existing communication processes, minimizing disruption.

Integration Protocols

1 **Out-of-the-Box Integration:** PerfectServe provides a ready-to-use solution for paging integration.

2 **Virtual Pager Numbers:** Once PerfectServe is live, virtual pager numbers can be assigned to users, schedules, groups, and menus. These numbers function like traditional pager numbers and can be dialed, used for voice numbers, or emailed via SMTP.

3 **Number Allocation:** Each customer is allotted a certain number of virtual pager numbers.

4 **SMTP Support:** PerfectServe natively supports SMTP for email-to-pager functionality.

5 **Vendor Integration:** PerfectServe integrates with major paging networks such as Spok, American Messaging, and Midwest Paging.

INTEGRATIONS

Patient Census and Associated Care Team

Overview

When your staff searches for a patient, PerfectServe will automatically present the patient's assigned panel of care team members, dynamically updated in near real time, enhancing communication efficiency and accuracy.

Practical Benefits

Maintains Patient Context for Messaging
With patient context automatically included in messages, clinicians no longer have to worry about transcription errors. Communication audits are also easier to conduct because all messages are associated with the appropriate patient's record.

Enables Dynamic Routing to Assigned Role
PerfectServe's Dynamic Intelligent Routing® can automatically route messages to a designated role or to a newly assigned care team member without requiring users to explicitly identify the individual with that role assignment. This can alleviate message fatigue and reduce provider burnout.

Ensures Staff Assignment Accuracy
The patient's care team is always up-to-date in PerfectServe, empowering clinicians to collaborate effectively with the right team members at the right time.

Foundation for Advanced Integrations
Integrated census and care team data is fundamental to effective care team collaboration and serves as the cornerstone for more advanced PerfectServe features like embedded EHR messaging, order and result notifications, nurse call integration, and more.

Integration Protocols

PerfectServe must have access to patient information and staff assignments to facilitate the census and care team integration. PerfectServe draws patient information from the EHR via ADT or SFTP, and draws staff assignments from the EHR via ADT, SFTP, or Rauland Sync.

1 **HL7 ADT** feed is the preferred and most effective option for an easily supportable, real-time integration.

2 **Rauland Sync** integration is an option for clients who rely on Rauland as the source of truth for nursing assignments.

3 **Flat File Transfer (SFTP)** is also an acceptable option and will update staff assignments in regular intervals (e.g., 30 minutes), but not in real time.

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Schedule Backup File

Overview

PerfectServe's schedule backup file integration provides extra security against potential downtime by shipping Excel files with currently scheduled providers across the health system on a recurring interval.

Practical Benefits

Redundancy for Downtime:
Receiving schedule data via a flat file allows health systems to leverage the Lightning Bolt data during instances of unexpected downtime.

Additional Notes

Scope of Data:
The backup file pulls data from today and the next three days to account for the possibility of an outage spanning multiple days.

Integration Protocols

1 **File-Based Integration:**
This integration uses a file-based method where a .csv file is generated and transferred to an SFTP location on a recurring basis (typically once per day) for automatic import into Lightning Bolt.

2 **Automated Data Transfer:**
Each day, a file will be sent via SFTP to be picked up by the customer's IT team to be ingested into their data warehouse. We can determine a drop interval as frequent as every 10 minutes. That way, if downtime occurs, the most recent file will contain data that was current no more than 10 minutes ago.

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Scheduling Solutions

Overview

PerfectServe integrates with third-party scheduling solutions like Amion, QGenda, and ShiftAdmin to streamline the management of on-call schedules. We also have our own provider scheduling solution called Lightning Bolt, which can be tightly integrated with PerfectServe. By centralizing scheduling information within PerfectServe's communication platform, healthcare organizations can ensure that changes to schedules are automatically reflected across all systems, reducing administrative burden and enhancing clinical workflows. This integration provides a unified directory, making it easier for clinicians to access up-to-date on-call schedules while supporting both basic and advanced clinical workflows.

Practical Benefits

Unified Directory: This integration gives clinicians a single place to access on-call schedules, and it eliminates the need to enter scheduling information in multiple systems.

Automated Schedule Updates: Changes to schedules are automatically synchronized across all platforms, ensuring consistency and reducing the risk of errors associated with manual updates.

Enhanced Clinical Workflows: The integrated directory supports a range of clinical workflows, from basic scheduling needs to more complex tasks like delivering radiology or critical lab results efficiently.

Improved Efficiency: By automating the synchronization of schedules, staff can save time and focus on patient care rather than administrative tasks.

Integration Protocols

1 **Manual Entry and User Mapping:**

- **Amion, QGenda, ShiftAdmin:** Initial setup requires manual entry of assignment information and mapping of users. This ensures that the schedules from these systems align correctly within PerfectServe.

- **Lightning Bolt:** Offers more automation in the integration process, reducing the need for manual setup.

API Integration:

2
- PerfectServe can configure a call to the source vendor's scheduling API to pull necessary scheduling information.

- After obtaining API credentials, PerfectServe can set the integration up to retrieve and update schedule data.

Synchronization Frequency:

3
- **Amion, QGenda, ShiftAdmin:** These systems sync with PerfectServe every 15 minutes, pulling data for the next 48 hours.

- **Lightning Bolt:** Syncs in near real time, providing the most current scheduling information available.

perfect**serve**

INTEGRATIONS

Secure Messaging

Overview

Lightning Bolt integrates with a number of clinical communication and collaboration (CC&C) partners to facilitate seamless communication between users and scheduled providers. There are small differences in configuration for each vendor, so please reach out to your consultant to better understand start-to-finish workflows.

Practical Benefits

Communication Speed: By utilizing Lightning Bolt scheduling data as the single source of truth, you can ensure that you're always contacting the right person at the right time. This enhances the accuracy of reaching on-call doctors and improves the speed of care for patients.

Seamless Workflow: Rather than having to execute a series of cumbersome steps—looking up who's on call in one application, opening another application, remembering who was on call, looking that person up, then sending a message—users with a Lightning Bolt + CC&C integration can readily find the correct on-call provider within the CC&C application itself.

Bigger Than Lightning Bolt: This integration serves more than just the Lightning Bolt users—this is a major tool for the entire health system. By populating your CC&C platform with the appropriate users based on Lightning Bolt schedules, your nursing teams, operators, call centers, and even satellite locations can easily find the correct person who's scheduled to cover call.

HIPAA Compliance: All of our vendor partners have HIPAA-compliant secure messaging tools. When you navigate from Lightning Bolt to an app from one of these partners, you can be sure that patient information is protected.

Additional Notes

Error Handling: Lightning Bolt can automate email notifications to administrators or customer IT centers to alert when transactions fail due to mismatched IDs, inaccurate assignment mapping, or connection issues.

Integration Protocols

1 **Data Push via API:** Lightning Bolt pushes data to the vendor API each time a mapped assignment is scheduled on a published schedule, ensuring real-time updates.

2 **User Identification:** The integration uses a unique value that exists in the vendor's system that is assigned to each user's Lightning Bolt personnel file to crosswalk the correct user.

3 **Mapping Assignments:** While the data required to map assignments between vendors will vary, each integration has a mechanism to ensure that only the data tied to specific assignments is transmitted to the CC&C platform. This prevents clutter to ensure that users only see the information they need.

4 **One-To-Many Mapping:** One assignment in your Lightning Bolt schedule may be used across several sites or teams for your CC&C platform.

5 **Background User:** A background user is created in the vendor's platform to allow Lightning Bolt to sign in and update the on-call provider based on changes that originate in the Lightning Bolt schedule.

Integration Partners:

PerfectServe: Clinical Collaboration
Spok: Medicall
Amtelco: 1Call
Baxter: Voalte
Stryker: Vocera
Epic: Secure Chat

INTEGRATIONS

Shared Enterprise Device Management

Overview

If your staff share devices like phones and computers, PerfectServe can integrate with several device management solutions to help with the administration and control of these devices. This promotes better overall security and usability.

Practical Benefits

Cost Efficiency: Instead of purchasing individual devices for each user, shared device management allows organizations to optimize resources and reduce costs by sharing devices among multiple users. As organizations grow or change, shared device management allows for easy scalability by adding or removing devices from the shared pool as required.

Resource Optimization: Devices are utilized more efficiently as they are not idle when not in use by one specific user. Additionally, users can access shared devices as needed, promoting flexibility in scheduling and usage. This is particularly beneficial in environments with shifting work patterns or where not every user requires constant access to a device.

Centralized Management: Administrators can centrally manage devices, which simplifies tasks such as updates, security patches, application installations, and configurations. With centralized management, administrators can enforce security policies consistently across all shared devices. This reduces the risk of unauthorized access or data breaches and allows a consistent experience for end users across all shared devices.

Integration Protocols

1 **Shared Devices:** Imprivata is the recommended system for managing shared devices.

2 **Non-Shared Devices:** If your organization has devices that **are not** shared but still needs a mobile device management system, Azure Intune, JAMF, Airwatch, and Mobile Iron are recommended options.

INTEGRATIONS

Telemetry

Overview

PerfectServe receives information from telemetry systems and routes each data element to the most appropriate care team member. Data contained in the message determines where the call is coming from and to whom it should be routed. This integration enables mobile management of alerts and alarms, including mobile access to live waveforms.

Practical Benefits

Mobile Access Reduces Burnout:
Integrating telemetry gives staff the ability to accept or reject (for immediate escalation) telemetry alerts from a mobile device. This improves efficiency and alleviates burnout by reducing repeated and unnecessary trips to the patient room.

Different Alert Tones Signal Urgency:
At both the user and organization level, alert tones and visual indicators can be customized to indicate urgency, escalation, message type, or other category based on message metadata.

Real-Time Intervention Accelerates Care:
Telemetry alerts alert the specific device associated with the assigned user's active login, including personal or shared iOS and Android devices as well as workstations.

Automatic Routing Enables Top-of-License Practice:
Select alerts and alarms are automatically routed to the most appropriate caregiver for intervention.

Other Routing Options Facilitate Team-Based Care:
Select alerts and alarms can route automatically to a defined team or route/reroute to any other user or group as designated in your PerfectServe system.

Integration Protocols

1 **WCTP Telemetry Alerts:** Alerts contain information about the event type, which is used to route the alert accurately to the appropriate caregiver.

2 **EHR Assignments:** Assignments from the EHR can be leveraged to route alerts and alarms to the appropriate caregiver.

INTEGRATIONS

Telephony

Overview

PerfectServe offers VoIP calling as part of our core solution, and we integrate with several industry-leading PBX vendors. By pulling the CC&C clinical directory into the hospital's dial plan, short codes can be used to simplify dialing back and forth. Any new PerfectServe extensions will become part of the customer dial plan so calls can be seamlessly transferred internally and externally.

Practical Benefits

Communication Without Bounds:
PerfectServe routes extensions to and from devices running the PerfectServe app regardless of location (inside or outside of the hospital), and includes any landline or other number in the directory. Additionally, because PerfectServe has a speech-driven interface, it can support devices without keypads.

Mask Personal Numbers to Ensure Privacy:
Clinicians can use their own personal devices and mask their personal phone numbers when calling patients, providing a truly unified communication experience in a single application.

Seamless, Secure Shared Device Experience:
Phone numbers and extensions are tied to individuals, roles, groups, or teams, and PHI remains on our network rather than user devices. Numbers follow a user's login and are not tied to specific devices. A user can be logged into a smartwatch or smartphone, and immediately shift focus to a workstation if desired.

Enable Unified Enterprise Search and Messaging:
This integration allows the facility to maintain their current phone extensions within the CC&C platform. Extensions can be assigned to individuals, roles, groups, and schedules to enable accurate call and message routing and redirection based on parameters defined by your team, even across entities.

Integration Protocols

1 **VPN for SIP Traffic:** PerfectServe typically uses VPN for SIP traffic. VoIP calls are routed between users and integrate directly with VoIP systems via a SIP trunk.

2 **SIPS/SRTP Encryption Option:** PerfectServe also offers an option called SIPS/SRTP, which encrypts SIP traffic over the public internet. This is more performant and stable since it doesn't require a dedicated VPN.

3 **Smartphone Extension Dialing:** End users can dial extensions from their smartphones without having to join a VPN, needing only an internet connection.

INTEGRATIONS

User Authentication (Single Sign-On)

Overview

PerfectServe supports multiple ways for organizations to integrate their own identity provider (IdP) to streamline access management, enhance security, and improve user satisfaction.

Practical Benefits

More Convenient Access Experience:
Single sign-on (SSO) simplifies the login process for users by allowing them to access multiple applications with just one set of credentials. This eliminates the hassle of managing multiple usernames and passwords, providing users with a smoother and more convenient access experience.

Enhances Security:
SSO enhances security by enforcing stronger authentication methods, such as multi-factor authentication (MFA), which adds an extra layer of protection beyond passwords. Additionally, since users have fewer passwords to manage, they are less likely to resort to insecure practices (e.g., using the same password across multiple accounts).

Reduces Support Team Demand:
With SSO, users spend less time dealing with login issues and password resets, allowing them to focus more on their tasks and increasing overall productivity. Additionally, this allows support teams to focus on higher-tier issues by reducing password-related support requests.

Integration Protocols

SSO protocols are mechanisms that enable users to authenticate once and gain access to multiple applications or services without the need to re-enter credentials. There are several types of SSO protocols commonly used in various environments:

1 **OAuth 2.0** is an authorization framework that enables third-party applications to access resources on behalf of a user without requiring the user's credentials to be shared with the application. It's widely used for delegated access scenarios, where users grant permissions to third-party applications to access their resources. Supported identity providers using OAuth 2.0 include Azure Entra, Okta, Ping, and more.

2 **SAML** (Security Assertion Markup Language) is an XML-based standard for enabling SSO between identity providers and service providers. Users authenticate once with an identity provider, which generates a secure assertion containing identity and authorization data. This assertion is then passed to service providers, allowing users to access resources without repeated authentication. SAML offers strong security features and is widely used for seamless SSO experiences in enterprise environments. Supported identity providers using SAML include Azure Entra, Ping, and more.

INTEGRATIONS

User Provisioning

Overview

If your organization already manages a database of users who need access to applications, PerfectServe can integrate with that database to seamlessly create, update, and remove users in our applications in real time.

Practical Benefits

User Life Cycle Management:
User provisioning encompasses managing user accounts throughout their life cycle within the organization. This includes updating user information, modifying access rights as roles change, and deprovisioning accounts when users leave the organization or no longer require access to certain applications.

Time and Cost Savings:
User provisioning automation offers tangible time and cost savings to your organization by reducing manual labor and administrative overhead and improving operational efficiency by cutting routine tasks and consolidating user information in one place.

Unified Corporate Directory:
This integration consolidates user information into a single, unified corporate directory, making it easier to manage and access user data across multiple systems. This unified approach enhances data accuracy, reduces redundancy, and simplifies the management of user identities and access rights.

Integration Protocols

1 **SCIM** (System for Cross-domain Identity Management) is a standardized protocol for automating the management of user identities and resources across different systems and applications. It enables seamless provisioning, updating, and deprovisioning of user accounts and access rights through a RESTful API.

2 **Active Directory LDAP** (Lightweight Directory Access Protocol) is a protocol used for accessing and managing directory services, such as user authentication, authorization, and information storage. It provides a hierarchical structure for organizing data and allows clients to query and change directory information stored on LDAP servers.

The Connective Tissue for Effective Collaboration

Integrations are a vital part of optimizing your PerfectServe investment, acting as the connective tissue that binds diverse systems into a cohesive, powerful platform. By connecting our solutions to key hospital, IT, and telecom systems, we can help you unlock enhanced capabilities, streamline workflows, and foster seamless communication. This interconnected approach not only improves efficiency and reduces administrative burdens, but also drives better patient outcomes and clinician satisfaction.

Embrace the power of integrations with PerfectServe to transform your healthcare delivery, prioritize clinician wellness, and achieve unparalleled collaboration.

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PerfectServe accelerates speed to care by optimizing provider schedules, streamlining clinical communication, and engaging patients and their families in the care experience. Our cloud-based software simplifies complex clinical workflows and schedules with secure and timely communication by dynamically routing messages to the right person at the right time. We drive more efficient care collaboration in all settings to improve patient outcomes and bring joy back to caregivers. PerfectServe has 25 years of experience and is a trusted partner to more than 500 hospitals and 30,000 medical practices.

To learn more or schedule a demo, please contact us:

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