Laboratory

Practice

Payer

Medical Devices/
Equipment

Pharmacy

HIE

eiPlatform
Interface Engine

Reporting
& Analytics

Solution
Provider

XML

Population
Health

eiConsole for Healthcare
Developer's Workstation IDE

eiDashboard
Operational Interface Management

EHR / HIS

EMR Integration – an Evolving and Challenging Integration Environment

The approach to EHR data integration continues to vary greatly between health systems. Evolving integration capabilities among EHR vendors means an everchanging ecosystem of data formats and connectivity methods, leaving little consistency for an integration approach. With PilotFish's vendor agnostic platform, solution providers have the capability to streamline an otherwise challenging process and exchange data with any system that can send and receive data, regardless of format.

Why do solution providers select PilotFish? Simply put, ease-of-use. PilotFish provides a component-driven solution that automates the entire process of configuring, managing and maintaining interfaces. This solution, using a consistent, repeatable and self-documenting assembly line process, vastly speeds up implementations and enables solution providers to make their offering instantly "interop-capable" out-of-the-box.

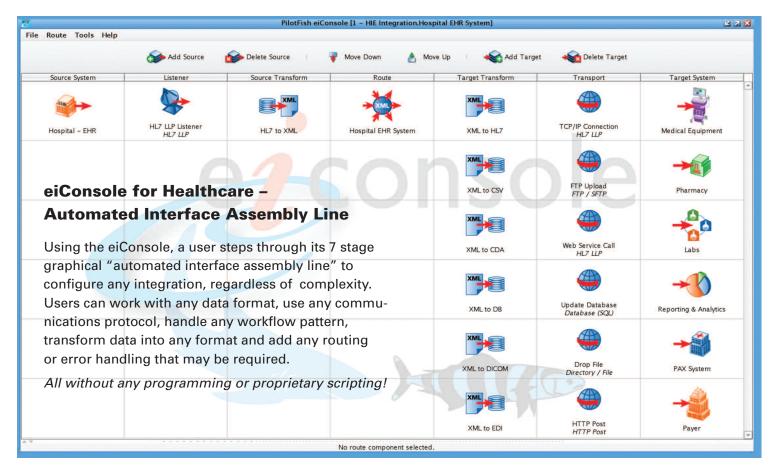### Is Your Integration Solution up to the Task?

Solution providers have unique requirements which cannot be solved with cookie cutter solutions. That's why PilotFish has architected its solution to be highly flexible and infinitely extensible. Adding support for new requirements, whether to support a new standard, communications protocol or new workflow, is accomplished often in as little as a few hours.

PilotFish makes it easy by automating the entire integration process. Dozens of built-in adaptors allow for establishing connec-

tivity by simply filling in a few fields. Built-in transformation modules and format builders allow for instantly reading in data from a proprietary format or one exported by a Source system. Perform compression, encryption, authentication, etc. with over 100 built-in processors. Other productivity enhancing features include:

- Adeptly handling not only large batch-oriented data and HL7 2.x messaging, but highly conversational interactions with RESTful APIs, such as FHIR services.

- The ability to leverage a "lenient" HL7 2.x parser capable of immediately ingesting virtually any version or interpretation of an HL7 message (meaning no more cumbersome modeling of messages).

- For those EMRs offering lightweight, RESTful APIs, PilotFish's new and novel API XL architecture is a means to encapsulate entire API-driven business processes.

- A template-based approach (with graphical data mapping for those utilizing CCDs or other complex XML formats) for dramatic improvements in productivity over solutions requiring scripting, coding or drawing "spider webs" of interconnecting lines between fields.

- A component-driven architecture where each component and individual mapping can be duplicated, tweaked in minutes and used to speed-up creating new interfaces.

Due to the ease-of-use of PilotFish, solution providers can utilize non-developers for 80-90% of the interface work, thus freeing-up scarce IT talent for other projects.

PilotFish eiConsole [1 – HIE Integration.Hospital EHR System]

eiConsole for Healthcare – Automated Interface Assembly Line

Using the eiConsole, a user steps through its 7 stage graphical "automated interface assembly line" to configure any integration, regardless of complexity. Users can work with any data format, use any communications protocol, handle any workflow pattern, transform data into any format and add any routing or error handling that may be required.

All without any programming or proprietary scripting!

PilotFish – Meeting All Your Integration Needs, Today and Tomorrow

Solution providers, health organizations, HIEs, medical and clinical reference labs, revenue cycle / analytics firms and medical equipment / device makers are among the PilotFish clients experiencing amazing productivity gains, speeding up integration timelines and realizing faster revenues.

The PilotFish Interface Engine Solution Suite includes:

1. eiPlatform (Interface Engine)

The PilotFish eiPlatform is a high performance Interface Engine utilizing a Java-based framework which is:

- Flexible – you can expose both modern (e.g., API, web services) and legacy endpoints and data formats.

- Modular – each step in the "assembly line" (listeners, processors, transformations, etc.) are extensible and pluggable.

- Compatible – PilotFish supports all of the popular application servers, operating systems and platforms, so it is certain to work within your IT infrastructure.

- Versatile – it can be deployed on a virtual machine, on the cloud, standalone, clustered or using a federated model.

- Performant – often handling hundreds of messages per second and/or multi-gigabyte batch payloads on modest computing power.

2. The eiConsole for Healthcare (Interface Engine IDE)

An integrated development environment designed for developers and non-technical resources to build, manage and maintain interfaces using a consistent and configurable, graphical "automated interface assembly line". The eiConsole:

- Utilizes W3C standards instead of proprietary technology thus allowing you to hire from a large pool of available resources, not just those trained on specific engines.

- Offers extreme flexibility as it was designed to work with any data format including: HL7 2.x, EDI, XLS, CSV, flat files, JSON, DICOM as well as XML standards such as HL7 3.x, CCDA and FHIR (easily extended to support new standards as they are widely adopted).

- Is self-documenting and standardizes interface development for easy knowledge transfer between resources. Eliminates dependencies on that "one guy who built it".

- Allows capable teams to be trained to high levels of efficiency in days and adds accessibility to non-technical staff. Most interfacing work can be offloaded from engineers to those that understand the business side of the data.

- Dramatically enhances traditional HL7 2.x interface development through a collection of innovations, including a:

  - Lenient HL7 parser that can read in any HL7 2.x message whether it conforms to the standard or not.

  - HL7 Differencing Engine that can mediate the differences between slightly variant HL7 2.x implementations.

  - "Friendly Names" option that allows any HL7 message to be transformed into a human-readable XML representation at a click of a button.

Automation Makes eiConsole Users More Productive

The eiConsole is also designed to make users more productive with features that automate interface creation (leverage configuration versus coding). Features include:

- Drop-down menus to select from a list of built-in connectors that establish connectivity with source and target systems
- Built-in transformation modules and format readers to read in and work with data instantly
- Pre-built modules that support common workflow patterns typical to more complex business process modeling (BPM) scenarios
- Pre-built configuration panels to quickly set up Transaction Monitoring such as error reporting and logging
- An exclusive graphical data mapper with built-in transformation modules and format builders to automate building any mapping, no matter how complex, using drag & drop (no scripting required)
- Automated testing with an inline end-to-end graphical testing tool – start and stop at any stage, view output and any errors (saving hundreds of hours)

3. The eiDashboard (Operational Interface Management)

Take control and graphically monitor and manage your interfaces with the eiDashboard. This browser-based application can be used on any desktop or smart device with network access, thereby giving you 24/7 visibility. With the eiDashboard, you:

- Can make better and faster decisions with consolidated view of system performance, overall interface health, operational statistics and throughput, error rates and much, much more.
- Get to view and act on detailed interface activity from high-level message orchestrations all the way down to discrete transaction details specific to each stage of processing.
- Examine throughput during any time interval to determine when activity is highest so that hardware resources can be properly allocated to better manage load.
- Gain insight by being able to view the total number of transactions for the selected time frame per route or interface to quickly identify which routes are causing errors and may need to be modified.
- Monitor the health of any interface based on customized "health rules" which can define expected volume thresholds (low and high), acceptable failure rates and performance / service level expectations.

SUPPORTED PLATFORMS
Windows
Linux / Unix / AIX / HP-UX
Mac OSX

SUPPORTED APPLICATION SERVERS
Windows Service
Apache Tomcat
JBoss / WildFly
WebSphere Application Server (WAS)
Glassfish
WebLogic
Any Other Java Container

SUPPORTED DATABASES
Any JDBC DB
    (MS SQL Server / Oracle / DB2 / Postgresql /
    MySQL / MariaDB / Java DB / Derby / H2)
MS Access
MongoDB

SUPPORTED FORMATS
HL7 2.x / 3.x / FHIR
CCD / CDA
EDI X12
Positional Flat Files
Delimited Files (CSV / Custom)
Key / Value
XLS / XLSX
DICOM
XML
JSON
PDF
NCPDP
Binary (.wav / .jpg)

SUPPORTED PROTOCOLS
Database (JDBC)
Email (IMAP / POP3 / SMTP)
Local / Network File System
FTP / SFTP / FTPS
TCP / UDP Sockets
HL7 LLP
HTTP/S
OAuth2 (JWT / Token Introspection)
Messaging (JMS / MQ / MSMQ / RabbitMQ / Kafka)
EMR API Call
Web Services (SOAP / RESTful)
Command-Line Invocation (CLI)
Active Directory / LDAP
Custom Connectors
IoT (Serial / MQTT)
VistA RPC
AS2
Cloud Storage (S3 / Google / Azure)

ARCHITECTURE
Consistent "Assembly Line" Pattern
Configuration Over Code
Component Driven
Extensible Via Open APIs

HL7 FEATURES
HL7 Differencing Engine (Mediate Differences Between
    HL7 Message Versions)
HL7 Friendly Name Option
HL7 Lenient Parser
Ability to Read Any Version of HL7
Inline HL7 Documentation
Transaction Templates for HL7, FHIR and CDA

EDI X12 FEATURES
Parse any EDI X12 Transaction
EDI Friendly Name Option
SNIP Validation (Types 1-3)
Inline Code Set Definitions
Transaction Templates for EDI

DATA TRANSFORMATIONS
Graphical, Drag & Drop Data Mapping
No Coding or Custom Scripting Required
Standards Compliant (W3C XSLT)
Computationally Complete

WORKFLOW PATTERNS SUPPORT
Sequencing
Splitting / Merging
Process Orchestration
Branching
Conditional Logic
Iteration

ERROR HANDLING
Easy, Hook-Based Customized Error Handling
Configurable Text-Based Logging
Flexible Proactive Notifications
Extensive Operational Visibility Framework

VALIDATION
Schema (XSD)
Structural Format Conformance (HL7, EDI, etc.)
Business Rules
External Lookups

TESTING
Instant (No Compilation or Deployment)
Graphical, Step-By-Step Debugging
End-to-End or Stage-by-Stage
IDE-Resident Server Emulation

ANALYTICS
Robust Real-Time REST API
Flexible Reporting
On-the-Fly Break-Fix
eiDashboard Multi-Instance Monitoring
Splunk Integration

DEPLOYMENT MODELS
On-Premises
AWS / GCE / Azure
Lightweight / Bundled
Docker / Containerization

LICENSING MODELS
End-User Licenses
Product Bundling Licenses
Reseller Licenses

(Licenses include an unlimited number of dev, test and cold back up)

APPLIED
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Healthcare Integration™

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