



*Presented by* Davide Magni and Andrea Ceiner



# The proposal



A complete suite of tools  
open source & open standard  
for Model-Design-Generate healthcare enterprise applications

# Topics

- phi Technology Definition
- phi Designer short overview
- Simple use case: “Patient Creation”
- phi Designer extra capability
- phi Technology architecture
- phi Technology and OHT

# phi Technology definition

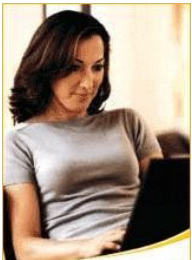
- PHI Technology is
  - ❑ A **process oriented** e-Health Designer and a Runtime Environment for e-Health applications.
  - ❑ Based on **Model-Driven-Architecture** and **Service-Oriented-Architecture**
  - ❑ Based on **open source** software and **open model** !
  - ❑ Oriented to a **large community of users** not necessarily computer experts

# phi Technology

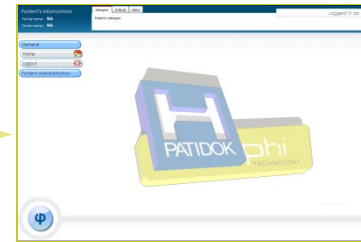
Healthcare Professionals



Healthcare Process Specialist

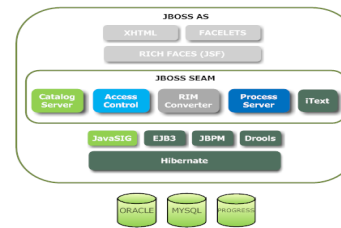


PHI Solutions



PHI R E

PHI R.E. Technology Stack



PHI Technology



# PHI DESIGNER

PHI Designer - PROCESS\_REPOSITORY/PHI\_SOLUTIONS/PHI\_TEST/CREATE Inpatient Enc DSL/processdefinition.xml - Eclipse SDK

File Edit View Navigate Search Project Catalog Explorer Run Window Help

Team Synchr...

GUI Explorer Navigator

PHI\_TEST [PHI\_TEST]

- images
- modified\_by\_hand
- output
- build.properties 93 11/7/08 12:30 PM dmagn...
- build.xml 293 11/7/08 12:30 PM dmagn...
- f\_create\_encounter\_resource.mmgp
- f\_doctors.mmgp 37 11/19/08 11:31 PM
- f\_encounter\_ambulatory\_list.mmgp 293 11/19/08 11:31 PM

PHI SOLUTION

PHI CATALOG

- Common Message Element Types
- Shared Messages
- Account and Billing
- Claims & Reimbursement
- Message Control Act Infrastructure
- Transmission Infrastructure
- Master File - Registry Infrastructure
- Shared Messages
- POCD
- Clinical Genomics
- Immunization
- Laboratory
- Medication
- Observation
- Orders
- Regulated Products
- Public Health
- Regulated Studies
- Pharmacy
- Specimen Domain

PHI TEST

Diagram Deployment Design Source

Process selected: Project: PHI\_TEST > Process: Create Inpatient Enc DSL

Processes Available

- INFRASTRUCTURE\_MANAGEMENT
- NAPOLI\_DUE
- ORDER
- PHI\_ADMIN
- PHI\_TEST
  - Complete Inpatient Enc
  - Create Ambulatory Enc
  - Create Inpatient Enc
  - Create Inpatient Enc DSL
    - processdefinition.xml 495 1/12/09 1
    - OPERATIONS
      - create('Encounter\_PRPA\_MT
      - create('EncounterNoVS\_PRP
      - create('VitalSignObs\_REPC\_I
    - Create Inpatient Enc ESB

Node list

Type	Name	Container
start-state	start-state1	root
decision	is patient select...	root
process-state	search patient	root
process-state	search doctor	root
end-state	end-state1	root
super-state	super-state1	root
node	create encounter	super-state1
node	create obs vital ...	super-state1
node	create enc no vs	super-state1
task-node	super-state1-de...	super-state1
task-node	create obs vital ...	super-state1
decision	is urgent?	super-state1

Security Multi Language Picture

User groups allowed:

ADMIN

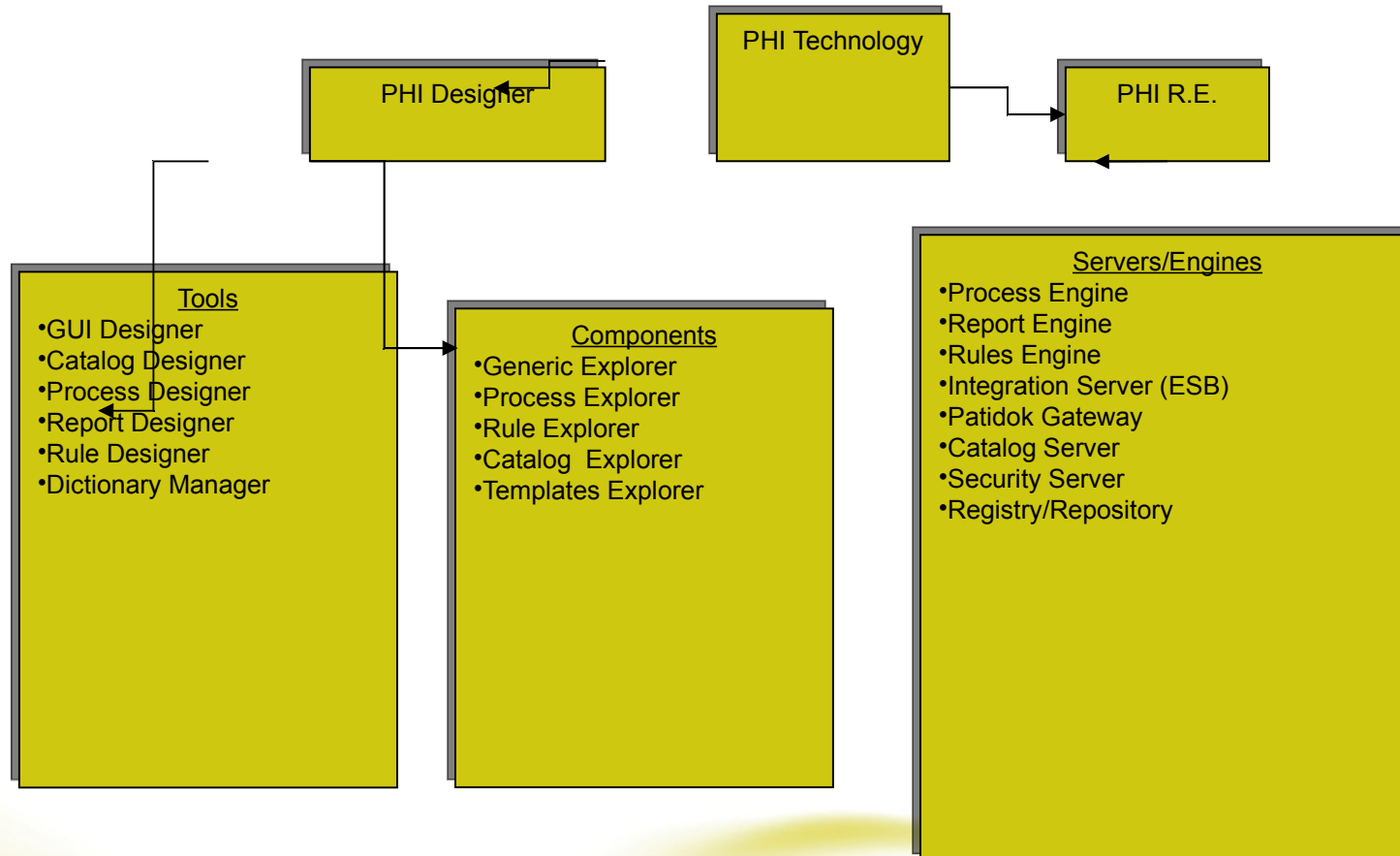
PROCESS

LIST OF PROCESSES

start

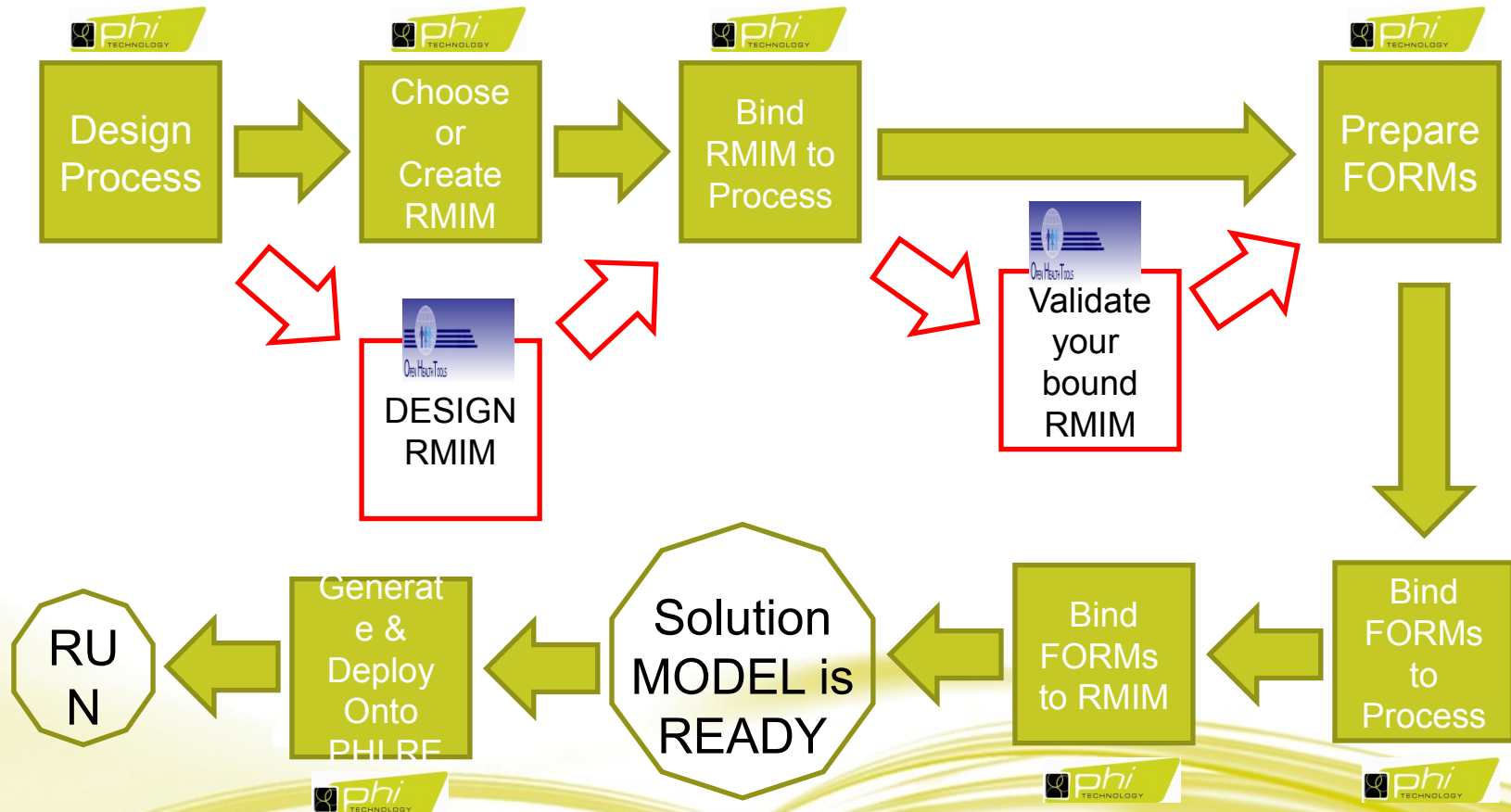
18.57

# phi Technology



# Simple Use Case: Patient "Creation"

Build a "SOLUTION" to collect patient data (family name, given name, ...).





# **phi Designer capabilities overview**

## Design a REPORT likewise a FORM

The screenshot displays the PHI Designer application within the Eclipse SDK. The title bar reads "PHI Designer - PHI\_TEST/r\_encounter\_discharge.report - Eclipse SDK". The menu bar includes File, Edit, Diagram, Navigate, Search, Project, Catalog Explorer, Run, Window, and Help. The toolbar contains various icons for file operations, editing, and navigation. The font is set to Tahoma, size 9. The interface is divided into several panes:

- GUI Explorer:** Shows a tree view of project files, including templates and reports.
- Navigator:** Shows the current report file, "r\_encounter\_discharge.report".
- Report Design Area:** Displays the visual design of the report. It features a header section with the text "0 PATIENT DISCHARGE;" and a main content area with three data fields:
  - A text field containing "C:\PHI\DESIGNER\W..."
  - A text field containing "DEMO-HOSPITAL, 34100 ..."
  - A text field containing "12324123412"
- Section Header:** Below the data fields, there is a section header "PRACTITIONER;" in blue text.
- Form Elements:** At the bottom, there is a text field labeled "FAMILY NAM..." and a button labeled "<...>".

# Template Explorer for saving your UI

SAVE your UI

REUSE your UI

The screenshot displays the Eclipse IDE interface for PHI Designer. The main window shows a GUI form with three input fields labeled SURNAME:, NAME:, and doc;. A yellow arrow points from the GUI Explorer to the Template Explorer. The Template Explorer shows a tree structure of templates, with 'f\_search\_doctor.mmgp {1}' highlighted. The GUI Explorer shows a tree structure of GUI components, with 'f\_search\_doctor.mmgp {1}' highlighted. The Catalog Explorer shows a tree structure of catalog items, with 'f\_search\_doctor.mmgp {1}' highlighted.

**GUI Explorer**

- PHI\_TEST [tag/\_V1.1.0.GA/PHI\_TEST]
  - images
  - modified\_by\_hand
  - output
  - war
    - AAA\_TEST.mmgp
    - build.properties 2865 8/28/09 5:07 PM mfr
    - build.xml 2908 9/2/09 1:35 PM sgaion
    - f\_create\_employee.mmgp 2863 8/28/09 5:07 PM mfr
    - f\_create\_human\_resource.mmgp 2725 8/24/09 11:58 AM sgaion
    - f\_doctor\_list.mmgp 2381 6/5/09 5:05 PM d
    - f\_encounter\_ambulatory\_list.mmgp 2863 8/28/09 5:06 PM mfr
    - f\_encounter\_completed\_list.mmgp 2725 8/24/09 11:58 AM sgaion
    - f\_encounter\_list.mmgp 2863 8/28/09 5:06 PM mfr

**Template Explorer**

- Template Explorer
  - ALARM
    - alam\_basic\_data\_1.mmgp {0}
    - alam\_basic\_data.mmgp {0}
    - alam\_contact\_party\_basic\_data.mmgp {0}
    - alam\_patient\_address.mmgp {0}
    - alam\_patient\_basic\_data.mmgp {0}
    - alam\_tesan\_mesure\_table.mmgp {0}
  - DOCTOR
    - f\_doctor\_list.mmgp {0}
    - f\_MD\_list.mmgp {2}
    - fc\_doctor\_search.templates\_diagram {0}
  - EMPLOYEE

**Templates Tree**

- Template Explorer
  - ALARM
  - DOCTOR
  - EMPLOYEE
  - ENCOUNTER
  - OBSERVATION
  - PATIENT
    - btn\_monitor.mmgp {0}
    - call\_report\_using\_jolly\_widget.mmgp {0}
    - chart\_btn.mmgp {0}
    - f\_home.mmgp {0}
    - f\_search\_doctor.mmgp {1}
    - home.templates\_diagram {0}
    - jw\_iframe.mmgp {0}
    - show.mmgp {0}
    - tmp\_bp\_search\_fom.mmgp {0}
    - tmp\_pertc.mmgp {0}

# Business Rule

## RULE

### List of BASIC EXPRESSIONS

### USE your RULE

The screenshot displays a business rule editor with the following components:

- Diagram:** A state machine diagram for 'super-state1-default'. It starts with a decision node 'is urgent?'. If 'urgent', it transitions to 'create enc no vs'. If 'notUrgent', it transitions to 'create obs vital signs UI'. From 'create obs vital signs UI', it transitions to 'create obs vital signs'. From 'create obs vital signs', it transitions to 'create encounter'. Both 'create enc no vs' and 'create encounter' transition to the final state 'end-state1'.
- Node list:** A table listing the nodes in the diagram.
- EL Editor:** A panel for defining business rules, showing available rules and a table of associations.

Type	Name	Container
start-state	start-state1	root
decision	is patient selected?	root
process-state	search patient	root
process-state	search doctor	root
end-state	end-state1	root
super-state	super-state1	root
node	create enc no vs	super-state1
node	create obs vital signs	super-state1
node	create encounter	super-state1
task-node	create obs vital signs UI	super-state1
task-node	super-state1-default	super-state1
decision	is urgent?	super-state1

Transition name	Transition to	Rule
notUrgent	create obs vital signs UI	NotUrgentEncounter
urgent	create enc no vs	UrgentEncounter