

Description:

This is a complete web based Meaningful Use Stage 1 Certified EHR/EMR application which provides comprehensive solutions to a physician's needs. The application provides means for storing and retrieving patient records across clinics. This is a robust system, which allows user-based permissions on modules, pages and even controls inside pages. Every page allows users to create their own lookup values and allows complete end-user customization. Some of the functionalities provided are

- Patient- Search based on multiple parameters,
- Patient dashboard which lists all vital information like demographics, active medical problems, current medications etc.
- Ability to create visits (encounters),
- Ability to assign/forward the visits to any physician/specialist in the hospital,
- Pulling out previous medical information from past encounters with just one click
- Ability to drill down to any past visit at any given time

The system is designed by keeping complete performance optimization in mind. This web application is comprehensive enough to compete with any conventional windows based EMR/EHR system. An automated billing application is also built into the system which allows claims to be sent to insurance companies, get real time verification done, and make it possible to receive payment electronically; doing away with the need of any paper work which was required earlier. The system is available in a variety of configurations to suit the needs of small practices as well as large organizations. Its architecture has been designed to allow for rapid adaptation for new requirements. The product concept embraces and supports the idea of health information exchange so that the EMR for any given office is no longer a barrier for forming a RHIO.

Technologies:

LAMP, JavaScript, jQuery, HTML5, web services, SOAP, TCP/IP, XML, Amazon S3, Amazon EC2, HL7, ANSI 5010

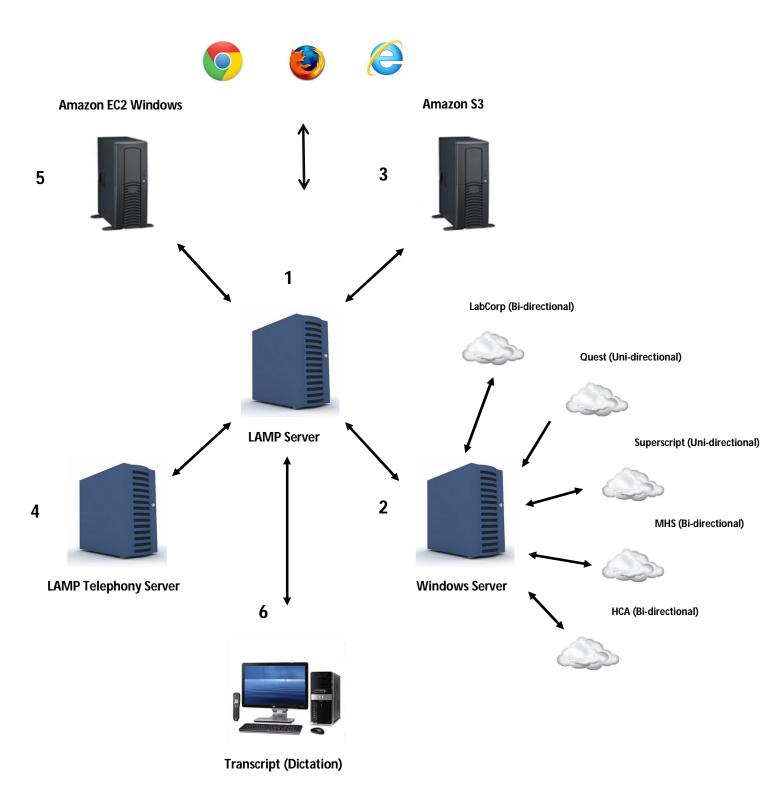


Features:

- Stage 1 Meaningful use certification under HITECH Act.
- Bi-directional Rx (order + refill requests) interface with Surescript using FDB (Drug Database)
- MdScript interface for Rx ordering.
- Uni-directional Lab interface for receiving Lab results from Quest.
- Bi-directional Lab interface for sending/receiving order/results with Labcrop(including 2D barcode certification and ABN API check implementation for Medicare).
- Uni-directional Lab interface for receiving Lab results from HCA(Hospital Corporation of America).
- HIE (Health Information Exchange) integration with MHS for sharing ADT, MDM, ORU etc.
- Transcription Interface with ability to Move recorded dictations from Asterisk to Amazon S3, Parse Word documents into server and store on Amazon S3, Auto-matching documents/Digital Signing of documents.
- Faxing service interface with sFax for exchanging patient records.
- HCFA 1500 Claim Form.
- 270 / 271 (Real time insurance Verification).
- 837 / 997 (Electronics Claims).
- 835 (ERA, insurance Payments).
- Google Map integration for showing the route direction for clinics.
- Tracking various trends including vitals, labs and drugs across all clinics.
- HTML5 videos for help and canvas to enable drawing on images and saving to S3.
- Migrating all doctor related features to Touch Enabled. We are currently using Apple iPads for doctors to enhance and speed up workflow and reduce visit time with doctors to let them see more patients.
- The Touch services implement JSON for data exchange and are also being used for interfacing with Droid and iPhone apps, on which we are currently working on.

Project: EMR with Health Information Exchange Support





System Architecture



Server 1

It is a LAMP server which communicates with all other servers. The Code and the database are hosted here.

<u>Server 2</u>

This is a windows server and all .NET services are running on it to communicate with all other external services. All services running on this server connects to server 1's DB.

LabCorp service is running for bi-directional lab order and result communication. HL7 data communicates using TCP/IP between LabCorp and the application.

Quest service is running for receiving only lab results from Quest in HL7 format using TCP/IP. Surescript services are running for pharmacy list update, physician registration, new Rx and refill requests using http.

MHS services are running for bi-directional data exchange (ADT, ORU, MDM) in HL7 format using TCP/IP.

HCA services are running for receiving lab, radiology, transcription in HL7 format using file dropping mechanism.

<u>Server 3</u>

This server is used for storage purpose like storing voice files, transcript documents, patient documents etc.

<u>Server 4</u>

This is a LAMP telephony server where Asterisk code is running for patient reminder calls and voice recording.

<u>Server 5</u>

This is a windows server. Mirth server is running over here. Mainly, this server is use for staging.

Server 6

This is a system where word parser is running and is used by people doing the transcription job. They put the word document in a folder post which the parsing occurs. The server needs MS Word installed in it.



Screenshots:

	Monday Apr 02, 2012 [54]	Tuesday Apr 03, 2012 [40]	Wednesday Apr 04, 2012 [46]	Thursday Apr 05, 2012 [45]	Friday Apr 06, 2012 [34]	Saturday Apr 07, 2012 [0]	Sunday Apr 08, 2012 [0]	
11ам	11:00 am to 11: TRENTON TRAUE 11:15 am to 11: LESA SHIPPY 11:10 am to 11:10 am to 11: PREDA STOVATOR TRENT TRUL SCOVA TRENT TRUL	11:00 am to 11:11:00 am to 11:1 DEEGHT with LEAM 11:15 am to 11:00 am BERTHA RATCHORD 11:10 am to 12:01:00 am to 12:0 MARY 11:45 am to 12:01:45 am to 12:0 FRED NAMO	11-00 are to 11-01-00 are to 11-0 12-04-0 12-05 are to 11-0 12-05 are to 12-0 12-06 are to 12-06 are	11115 and to 11071115 and to 110 DOMOLAS ELECTRONIC 1100 and to 111100 and to 110 ESA BLACK CONSTRUCT DENSE STATES	11:00 are to 11:11:00 are to 11:1 DEFENSION 11:13 are to 11:10 11:15 are to 11:1 2000 11:10 are to 11:10 11:10 are to 11:1- 2000 2000 11:03 are to 11:01:10 are to 11:0 2000 11:03 are to 11:01 are to 11:00 2000 11:03 are to 11:00 are to 11:00 2000 2			
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Screen 1: Scheduler used to schedule and track appointments of patients. It offers many features like setting reminders, searching for slot availability, checking insurance coverage eligibility etc.

General P/	Paging	Preferences Trans	cripts Labs	Rx Rep	iorts To Do		
MAIN MyPage	Audit Trails	CMS Messages	Patient Access		Admit U	Ipdate Patient Add Patient R	teminder Touch
PatientID: ••••• Insurance: FIRST CHOI	Patient Name CE	Smoking: SMOKER, CURRENT	Sex: F C	008: 07/01/1961 (50) SSN: *** **	5555 Phone: (889	998-9999
Patient Search		Quicknote				Rx M.O.	/Disp. D My List
Patient ID		MARY DEMO					
		B / U Code LN VS Save Pr	int Fax DME/O2 T D DOCS S	can Draft(17)		Walgreens Drug Store 04379	
mary						Select Medicine	
demo		C. JOANNE BROWNLEE					Order
Date Of Birth							
Date Of Birth						Medlist	C 12 12
Insurance ID		Notes			MY CLINIC 🖃 🔍 🗹	Medlist Archive	
SEARCH		Created By	Date	Туре	Hospital	Meds	Date
SEARCH		C. JOANNE BROWNLEE, MD	02/27/2012 12:00 PM	Draft		Lortab	02/04/2012
Patient Name	PatientID SSN	C. JOANNE BROWNLEE, MD	09/22/2011 04:22 PM	Progress Note		Cipro 500 mg Tab	02/04/2012
HARY DEHO	1958 xxx-xxx-5555	C. JOANNE BROWNLEE, MD	04/24/2011 10:55 PM	Draft		Benicar 40 mg Tab	02/04/2012
		C. JOANNE BROWNLEE, MD	04/24/2011 10:27 PM	Draft		View All	
Today R	toom Status Print Superbill	C. JOANNE BROWNLEE, MD	10/28/2010 04:13 PM	Progress Note			
Select location:	coom status (Print Superbili					Order Labs	My List
Select location:		Radiology					
56667 6000000					Order		Order
Select a	Location	Order Radiology:			Order		
						Labs	MU
All Drafts		No Radiology Found				Labs	MU
						Results Orders	
Patient Name	PatientID	РМН			¢ 🛛	No Labs Found	
AARON DAVIS (1)	84737	PMH Archive					
ABBEY SHITH (1)	67249	РМН			Date	Allergies	
ADAM ROSS (1)	86743	Acidosis			09/30/2011	Allergy	Added On
ADDEE GOOD (2)	62067	Diabetes, Insulin Dependent			09/30/2011	Xarelto	12/28/2011
ADELA ROBINSON (2)	67240	401.0-MALIGNANT HYPERTENSI	DN		09/20/2011	dander Aspirin	08/18/2011

Screen 2 : Patient dashboard which lists all patient records including medication, lab results, allergies, diagnosis, vitals, radiology reports etc. all in a single window



Labs Unmatched Labs	Orphan Labs	Pending Labs									
lew Results		Result Details									
FOR: My Labs PMH/Meds		Patient Name:	Patient Name: DOB: 04/20/1945 SEX: F PHONE: (Specimen Number: Fasting Status: No								
Patient Name	Date Received	Check this n	ote to send this not	te as message							
Pages: 1	Received	Note:					Done				
MARGARET NELSON (F)	03/30/2012	Date and time o		Date and time reported:		Date entered:	Physician	name:			
KATHE DAVES (F)	03/29/2012	03/27/2012 10	:38 am	03/30/2012 05:37 am		03/28/2012 04:05 pm	BROWNLE	6.3			
RUFUS DAVIS (F)	03/29/2012	REPORT STATUS	: Final								
	03/29/2012	Test Name		In Range	Out of Ra	ange Refer	ence Range	Lab			
	03/30/2012	Urine Culture, I									
	03/30/2012	Urine Culture, R	outine	Final report				BN			
SHORLEY PENNONGTON (F)	03/30/2012										
JOHNNY GINN (F)	03/30/2012	Performing Lab	oratory Informa								
Pages: 1		B1 LabCorp Burlington HD William F Hancock 1447 York Court Burlington NC 2721223341									
		1447 York Court I	Burlinghan NC 27213	12045							
		REPORT STATUS									
		Test Name	In Range	Out of Range		Reference Range		Lab			
		Result 1	Pending								
				ws less than 10,000 colony for	ming units	s of bacteria per					
			milliliter	of urine. This colony count is	DOT Gener	rally considered					
				or arriver many county county in	nee yene						

Screen 3: Lab Screen which shows all lab results received in detail, pending labs results and all lab orders sent.

omi	ng						
	Patient	Clinic	RxType	RxInfo	Pharmacy	MessageId	Received Time
(+)	ANNETTE CHILDERS	GaffreyFamilyPhys	RefReq	SYNTHROID 75 MCG TABLET	CVS/pharmacy #2555	5000176038	4/3/2012 12:17:57 AM
(+)	CLAUDE NANCE	GatheylamiyPhys	RefReq	LEVOTHYROXIN 50MCG TAB	Wal-Mart Pharmacy 638	00638169842	4/2/2012 8:15:46 AM
(+)	CLAUDE NANCE	GafneyfamiyPhys	RefReq	DOXAZOSIN 1MG TAB	Wal-Mart Pharmacy 638	00633169843	4/2/2012 8:15:45 AM
(+)	LINDA RAMSEY	Gefreyfamlythys	RefReq	AMITRIPTYLIN 25MG TAB	Wal-Mart Pharmacy 638	00638169839	4/2/2012 8:10:26 AM
(+)	CLAUDETTE FOWLER- BRATTON	GafrayfamiyPhys	RefReq	LORAZEPAM 1MG TAB	Wal-Mart Pharmacy 638	00638170181	4/2/2012 7:30:15 PM
(+)	VICTOR MCDOWELL	Gathey/amights	RefReq	BISOPROLOL-HCTZ 2.5-6.25 MG TB	CVS/pharmacy #2555	5000173402	4/2/2012 6:47:05 PM
(+)	HOUSTON DICK CRATER	GalineyTamiyPhys	RefReq	TAMSULOSIN HCL 0.4 MG CAPSULE	RITE AID-1320 W. FLOYD BAKER	1160101021332012-04-02165154573232	4/2/2012 3:52:01 PM

Screen 4: **Rx Screen** lists all pending e-prescription for physician approval, success/error sending list and refill requests.



arch Patient	Visit Info						Insurance Details			Claim Details			
dd/Edit Visits	Physician(Box 33): ALFRO MOSS										Jaim No Ins. Name Status Comments		
sit Information							SC MEDICARE PART B (J11) \$140			11886 SC MEDICARE PART B (J11) Accepted Comments			Commence
sit List	Symtoms/Illness(Box 14): Prior Auth. No(Box 23): © Update Patient @ Add Visit @ Add Auth.No @ Save						re re Page 1 of 1 in in						
oprove Visits													
enerate Claims											is a Page 1 of 1 as as		
	ICD Codes	TCD Codes for Visit											
ces			CD2: 493.90-AS1			ure une ten		ul repr. In		ICDC -	CD 2 .	LCDD .	
Prepay: \$60.00		CHR AIRWA	CD2 : 493.90-AST	HM ICD3 :	UGAB	USE NEC ICD	4: V58.83-THE	ICDS : V	58.69-LONG-1	ICD6 :	ICD7 :	ICD8 :	
Patient: \$47.10	Ø Save												
surance: \$1 086.82	CPT Codes for Visit									0			
Current: \$0.00 1 Month: \$500.00	CPT	Start Dat	e End Date	Fee(\$)	Unit	Charge(\$)	Rem.Amt(\$)	Modifier	Pointers	Insurance	POS	TOS	Pay(\$)
+ Days: \$358.77	99213	03/01/201	2 03/01/2012	75.00	1	75.00	61.77		1,2	SC MEDICARE PART B	(11-Office	1-MEDICAL C	
+ Days: \$0.00	© G0434	03/01/201	2 03/01/2012	65.00	1	65.00	65.00	QW	3,4,5	SC MEDICARE PART B	(11-Office	S-LABS	
+ Days: \$207.00										SC MEDICARE PART E	11-Office 💌	1-MEDICAL	
+ Days: \$68.15										SC MEDICARE PART E	11-Office	1-MEDICAL	
Total: \$1 073.92										SC MEDICARE PART E	11-Office	1-MEDICAL	
										SC MEDICARE PART E	11-Office	1-MEDICAL	
		a Delete	Approve A			Claim a MD	C		of 1 and and				View 1 - 6 of 6
	Patient Pay		Approve (P A	pprove a:	send e-		U 14 44	Page 1	n l es ei		T ₂₂	sit Balance	View 1 - 6 of 6
	Patient Pay		Patient Payment				Amount(\$):						nce:\$140.00
	Payme	ent Type :											nce: \$140.00
						Note :			Balance Due : Ins. Balance :				
	Paym	ent Date :	03/01/2012										nce:\$-13.23
	P Save												

Screen 5: Billing screen is used for visit's code (CPT & ICD) entry and real-time claim sending to clearing house