



Hocus Pocus!

The New “Magic” Behind FOCUS

Frank Fortner / David Reed – Iatric Systems, Inc.



Objectives

Acquire a basic understanding of MEDITECH's newest proprietary technology platform called FOCUS.

Contrast the basic differences between FOCUS and previous technologies and become better equipped to understand the benefits and challenges of a future migration to FOCUS.

Defining NPR...

- **“Pre-FOCUS” Client/Server technology**
- **Includes ALL 5.x versions (5.0 – 5.6)**
- **Is a technology, not a report writer!**



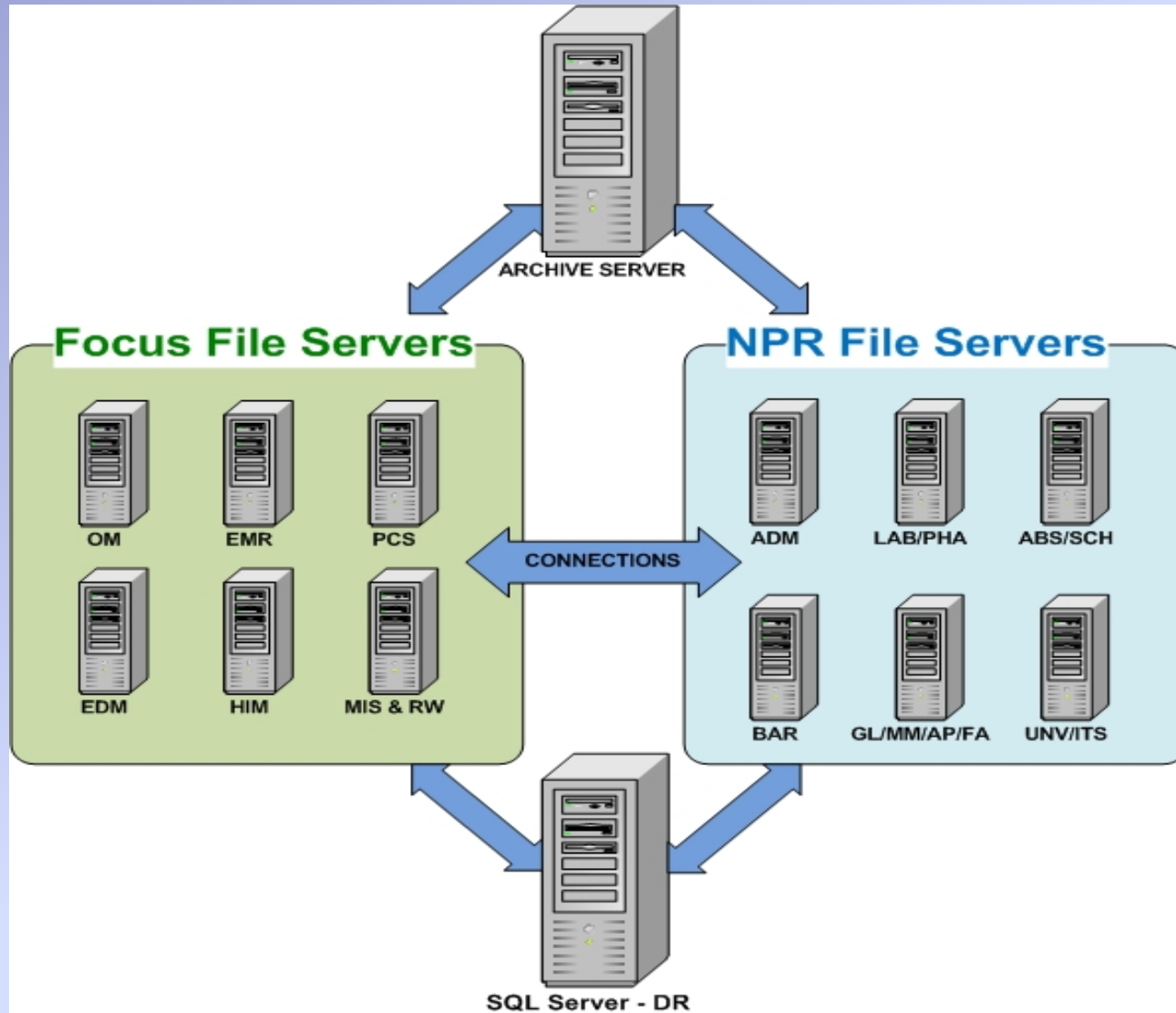
TECHNOLOGY



What Is Client/Server 6.0?

- **Hybrid of NPR and new FOCUS Applications**
- **In 6.0 Adv. Clinicals are written in FOCUS (EMR, PCS, ED, OM - along with HIM and MIS)**
- **Everything else in 6.0 (for now) is NPR**
- **Communication between FOCUS and NPR**
- **Very Similar UI across FOCUS and NPR**

What Is Client/Server 6.0?

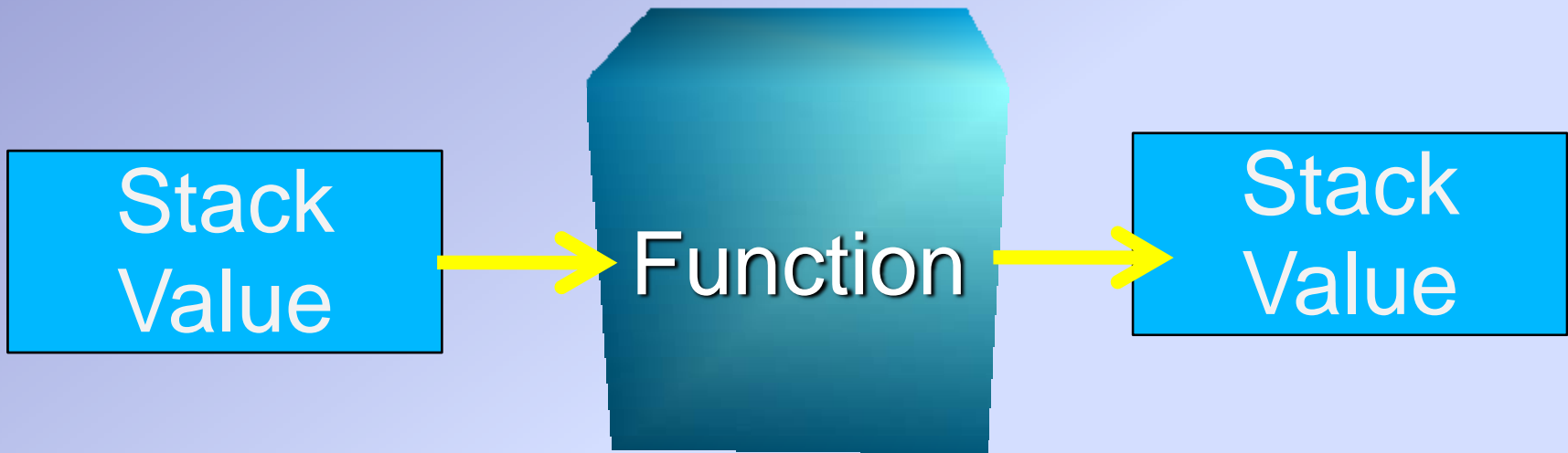




What is FOCUS?

- **Development environment built for FS**
- **FOCUS is to FS what NPR Magic was to \$T Magic**
- **“Chronological” Database Technology**
- **Optimized Network Management**
- **Updated Interface Tools for Screens / Reports**

- **FS = new(er) programming language**
- **Stands for “Functional System”**
- **Interpreted language with lots of function calls**
- **Emphasis on client-side processing**
- **Very little support of Data Defs & Variables**





CODE COMPARISON

Hello World Code in Magic

```
T( "" ) ^# ,
```

```
N( "Hello World!" ) ^# ;
```

```
:Code Main ← Name of Function  
`200,300'@Iw@OW, ← Create a window  
"My First App"@Ih ← Add a title to the window  
"Hello World!!"@Wb, ← Output string in the foreground  
DO{@RK~ = 27}@CW; ← Exit when user presses 'ESC'  
Close the Window
```



Hello World in FOCUS

#Translation

:Options	
Result	MSFile
:Product	
Type	Unstructured

#Preamble

:Options	
Type	Process

#Magic

```
:Code Main
`200,300'@Iw@OW,
"My First App"@Ih
"Hello World!!"@Wb,
DO{@RK~=27}@CW;
```



Hello World in FOCUS

#Translation

```
:Options  
  Result           MSFile  
:Product  
  Type            Unstructured
```

#Preamble

```
:Options  
  Type            Process
```

#Magic

```
:Code Main  
`200,300'@Iw@OW,  
"My First App"@Ih  
"Hello World!!"@Wb,  
DO{@RK~=27}@CW;
```

← Same as FS code in the Main body



Hello World in FOCUS

```
#Translation
```

```
:Options
```

```
Result
```

```
:Product
```

```
Type
```

```
MSFile
```

```
Unstructured
```



Used to determine "run-time" behavior

```
#Preamble
```

```
:Options
```

```
Type
```

```
Process
```

```
#Magic
```

```
:Code Main
```

```
`200,300'@Iw@OW,
```

```
"My First App"@Ih
```

```
"Hello World!!"@Wb,
```

```
DO{@RK~=27}@CW;
```



Hello World in FOCUS

```
#Translation
```

```
:Options  
  Result          MSFile  
:Product  
  Type           Unstructured
```

```
#Preamble
```

```
:Options  
  Type           Process
```

← **Defines the Object type
i.e. how this object will be "called"**

```
#Magic
```

```
:Code Main  
`200,300'@Iw@OW,  
"My First App"@Ih  
"Hello World!!"@Wb,  
DO{@RK~=27}@CW;
```




USER INTERFACE



New Screen Technology

- **Menu Navigation**
- **Desktop Screen Regions**
- **Data Entry Screens**
- **FOCUS vs. NPR**
- **Lookups**
- **History / Audit Trail**

Test System - (TEST 6.04) - Reed,David Iatrics

Facility: **IAT** 05/16/08 14:14 EDT

Mix of FOCUS and NPR Routines

- MIS**
 - Data Repository (Focus)
 - Data Repository (NPR)
 - Customization
- Analyst Desktop (NPR)
- Alerts
- Background Jobs
- Connections
- Report Queues
- Activity Logs
- Archived Documents
- Reports
- Word Processing
- Dictionaries**
- My Settings
- Emulate Person
- Parameters (Focus)
- System Preferences (NPR)
- Administrative
- Alerts
- Clinical
- Coding
- Communication
- Customer-Defined Data
- Document
- Financial
- General Ledger
- Person/Profile**
- Person**
 - ESignature Alternates
 - ESignature Co-Signers
 - Access
 - Person Location
 - Person Profile
 - Person Security Group
 - External Link
 - External Link Group
 - Provider Group
 - Provider Type
 - Provider Download File
 - Web User

Bolded Selections; Creates "Visual Pathway"

Back Home Recent Frequent

Facility

Analyst Desktop - (Test) - User Iatrics

“Analyst Desktop” Last Update: 05/18/08 - 2114

System Information		
<input checked="" type="radio"/> File Servers	<input checked="" type="radio"/> Network	<input checked="" type="radio"/> SAN Backup
<input type="radio"/> Background Job Clients	<input checked="" type="radio"/> Print Servers	
<input checked="" type="radio"/> Application Servers	<input type="radio"/> Alert Service	

Application Information		
<input checked="" type="radio"/> Accounts Payable	<input type="radio"/> Fixed Assets	<input checked="" type="radio"/> Payroll/Personnel System
<input checked="" type="radio"/> Admissions Module	<input type="radio"/> General Ledger	<input checked="" type="radio"/> Pharmacy Module
<input type="radio"/> Authorization & Referral Manag...	<input type="radio"/> Health Information Managemen...	<input type="radio"/> Quality/Risk Management
<input checked="" type="radio"/> Billing/Accounts Receivable	<input checked="" type="radio"/> Laboratory Module	<input checked="" type="radio"/> Radiology And Departmental Mo...
<input type="radio"/> Case Mix Abstracting Module	<input type="radio"/> MEDITECH Healthcare Informati...	<input type="radio"/> Registration (Focus)
<input type="radio"/> Conversion Utilities	<input checked="" type="radio"/> Materials Management Module	<input checked="" type="radio"/> Scheduling
<input checked="" type="radio"/> Cost Accounting	<input checked="" type="radio"/> Medical Records Indexing Module	<input type="radio"/> The HUB
<input type="radio"/> Data Repository (Focus)	<input checked="" type="radio"/> Medical Records Management	<input type="radio"/> UPgrade Tools
<input type="radio"/> Electronic Medical Record (Focus)	<input type="radio"/> Meditech Healthcare Informatio...	<input type="radio"/> Universe (Focus)
<input type="radio"/> Emergency Department Manage...	<input type="radio"/> Order Management (Focus)	
<input checked="" type="radio"/> Executive Support System	<input type="radio"/> Patient Care System (Focus)	

Appl Status

All Alerts

Alert Snapshot

Unique Jobs

All Bkg Jobs

Bkg Clients

Archive Docs

ES Activity

Rpt Scheduler

Interface Mgr

Change HCIS

Cancel Refresh ?

Desktop Screen Regions

Physician Care Manager - (TEST 6.04) - Reed,David iatrics

9 M 12/05/1998 Emr# 100000145
 5S 506-A Adm Inpatient 1000000000156
 Allergy/AdvReac: Not Recorded

TEST,LAB

Clinical Legal/Indicators Demographics Referrals

HEADER →

Problem	Curr Visit	Status	Diagnosis Date

Allergy/AdvReac	EDIT	Type	Severity	Reaction	Status	Date

Home Medication	EDIT	Instructions	Last Confirmed	Status

Patient Pharmacy	EDIT

Procedure	Code	Last Date

Diagnosis	Code	Last Date	Visits

BODY →

MENU →

- My Notices
- Patient Lists
- Next Patient
- Select Visits
- Summary
- Review Visit
- Notices
- New Results
- Clinical Panels
- Vital Signs
- I & O
- Medications
- Laboratory
- Microbiology
- Blood Bank
- Reports
- Patient Care
- Notes
- Orders
- Amb Orders
- Document
- Preferences

FOOTER →

Archive

Group Response Dictionary - (TEST 6.04) - Iatrics,User

LABPTPTT - PT/PTT RESPONSES Last Edit: 09/13/07 07:02

Main Elements ← **Multi-Page Controls**

Element Mnemonic	*Element Name	Rank	Value
A	ASPIRIN	1	
C	COUMADIN	2	
H	HEPARIN	3	
HB	HEAPRIN-BOLUS	4	
HC	HEPARIN/COUMADIN	5	

← **Navigation (Scroll) Bars**

Mnemonic E & M Coding Bullet Name

Chosen Menu Option

Document Comment Text

View

New

Edit

Report

Historical Audit Trail

New Cancel & Save Buttons

History Cancel Save

Group Response Dictionary - (TEST 6.04) - Iatrics,User

LABPTPTT - PT/PTT RESPONSES

Dictionary History

Transaction

Date/Time	User	Client
09/13/07 07:02	Iatrics.User	MIMIS
07/23/07 17:32	Mt,Meditech	MTBJP11
05/22/07 15:29	Mt,Meditech (meditech)	MTFS07

Record Type

- Main
- HhInput
- Identifiers
- Words
- GroupElements

Instances

- ElementMnemonic
- A
- C
- H
- HB
- HC
- N

History

When	Action	ElementResponse	ElementRank	ElementValue
09/13/07 07:02	edit	ASPIRIN	1	
07/23/07 17:32	edit	ASPIRIN		
05/22/07 15:29	new	ASPIRIN		

Annotations:

- Choose Record (Segment) - points to GroupElements
- Choose Entry - points to ElementMnemonic
- Lists changes over time - points to the History table



FOCUS vs. NPR

Order Dictionary - (TEST 6.04) - Reed,David Iatric

CBC - Cbc Without Diff Last Edit: 05/16/08 14:14

Main General Info Options Queries Associations Printing Billing

Order: Cbc Without Diff

Mnemonic	CBC
Active	Yes
Name	Cbc Without Diff
Used In	Orders
Type	Procedure
Lab Profile	Yes

Category	Hematology
Category Group	

View
New
Edit
Report

History Cancel

FOCUS Enter/Edit Order Dx

Order Entry **TEST**/Site: IAT - IATRICS IATRICS

Enter/Edit OE Procedure Dictionary

General Information Printing/Billing

Category LAB Mnemonic CBCCD Name COMPLETE BLOOD CNT-DIFF

Number 100.0000 Active Y Alias

Interface Mnemonic
Interface Argument

Ordering

Duplicate Order Hours	Ask Quantity	Location	Dft Pri	Rest To Site
Turnaround-time Hours	Default Quantity	Standard	R	
ED Overdue Time	Quantity Limit	DRYSUR	S	
Restorable Statuses	Series Days Limit	EM	S	
Inventory Status	Continuous?	EXER	S	
Dflt Svc Time to Now? Y	Confidential?			
LIS Test View Group	Include in Stats			
	View-only?			
	Orderable From?			

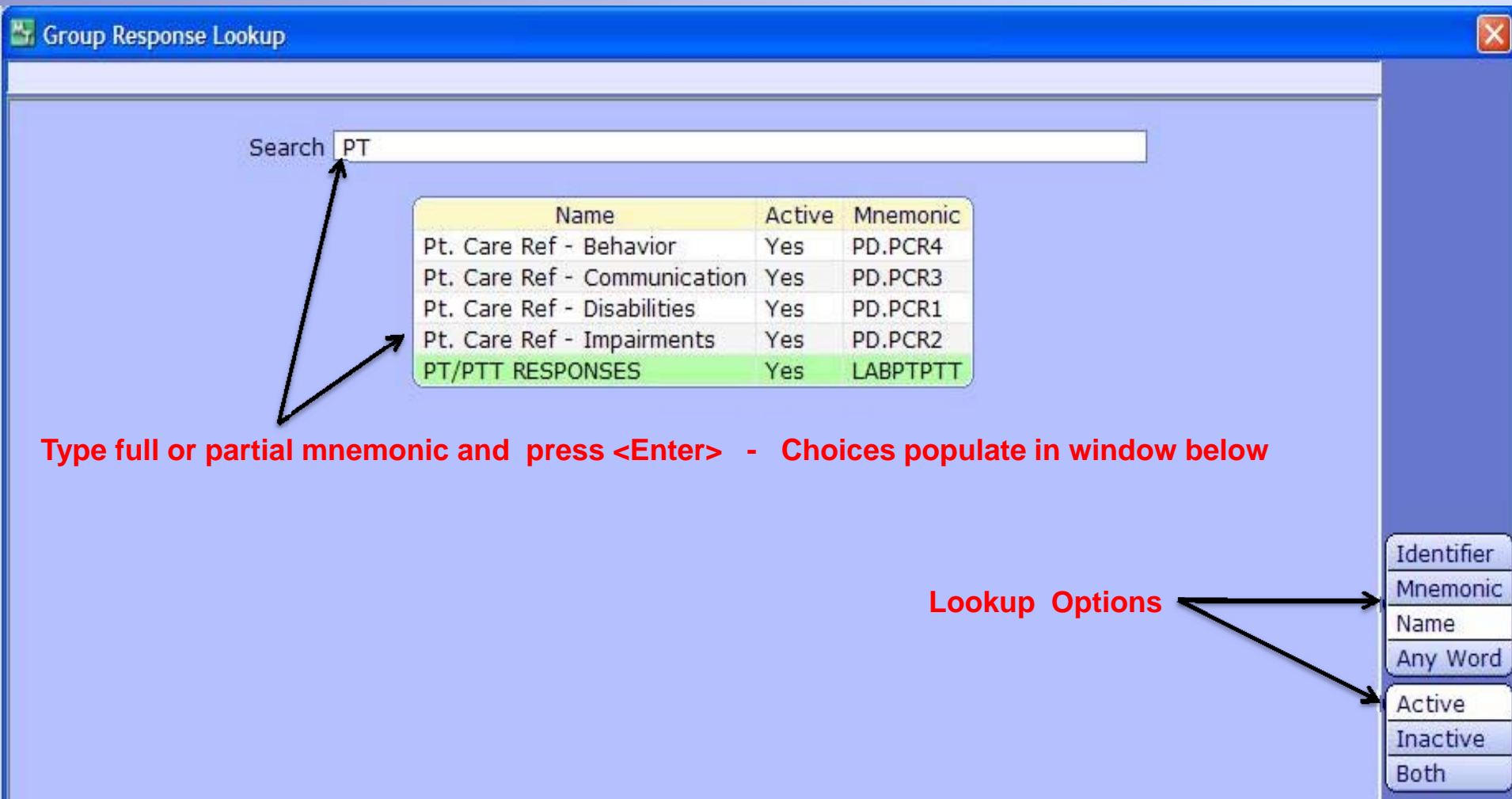
Display on Path Intervention Hdr
Renewable Order Period

Scheduling

Facility	Appt. Type	ADM Facility	Location	Appt. Type

ADM Scheduling

NPR Enter/Edit OE Procedure Dx



Search

Name	Active	Mnemonic
Pt. Care Ref - Behavior	Yes	PD.PCR4
Pt. Care Ref - Communication	Yes	PD.PCR3
Pt. Care Ref - Disabilities	Yes	PD.PCR1
Pt. Care Ref - Impairments	Yes	PD.PCR2
PT/PTT RESPONSES	Yes	LABPTPTT

Lookup Options

- Identifier
- Mnemonic
- Name
- Any Word
- Active
- Inactive
- Both

Type full or partial mnemonic and press <Enter> - Choices populate in window below

Favorites
Category
Name
0 Queued

Orders by Name

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
																					Del	Clear	List		

Order

Stylus-Input Keyboard

TYPE-AHEAD TECHNOLOGY

	Tra
<input type="checkbox"/>	Tracheostomy Tray
<input type="checkbox"/>	Tracker Infus Catheter [RAD]
<input type="checkbox"/>	Transbronchial Biopsy
<input type="checkbox"/>	Transcath Thrombolization [RAD]
<input type="checkbox"/>	Transesophageal Echo
<input type="checkbox"/>	Transferrin [RL]
<input type="checkbox"/>	Transforam Lum Single [RAD]
<input type="checkbox"/>	Transforaminal Lum Add [RAD]



HARDWARE

Typical Configuration

6 NPR and 3 Focus File Servers

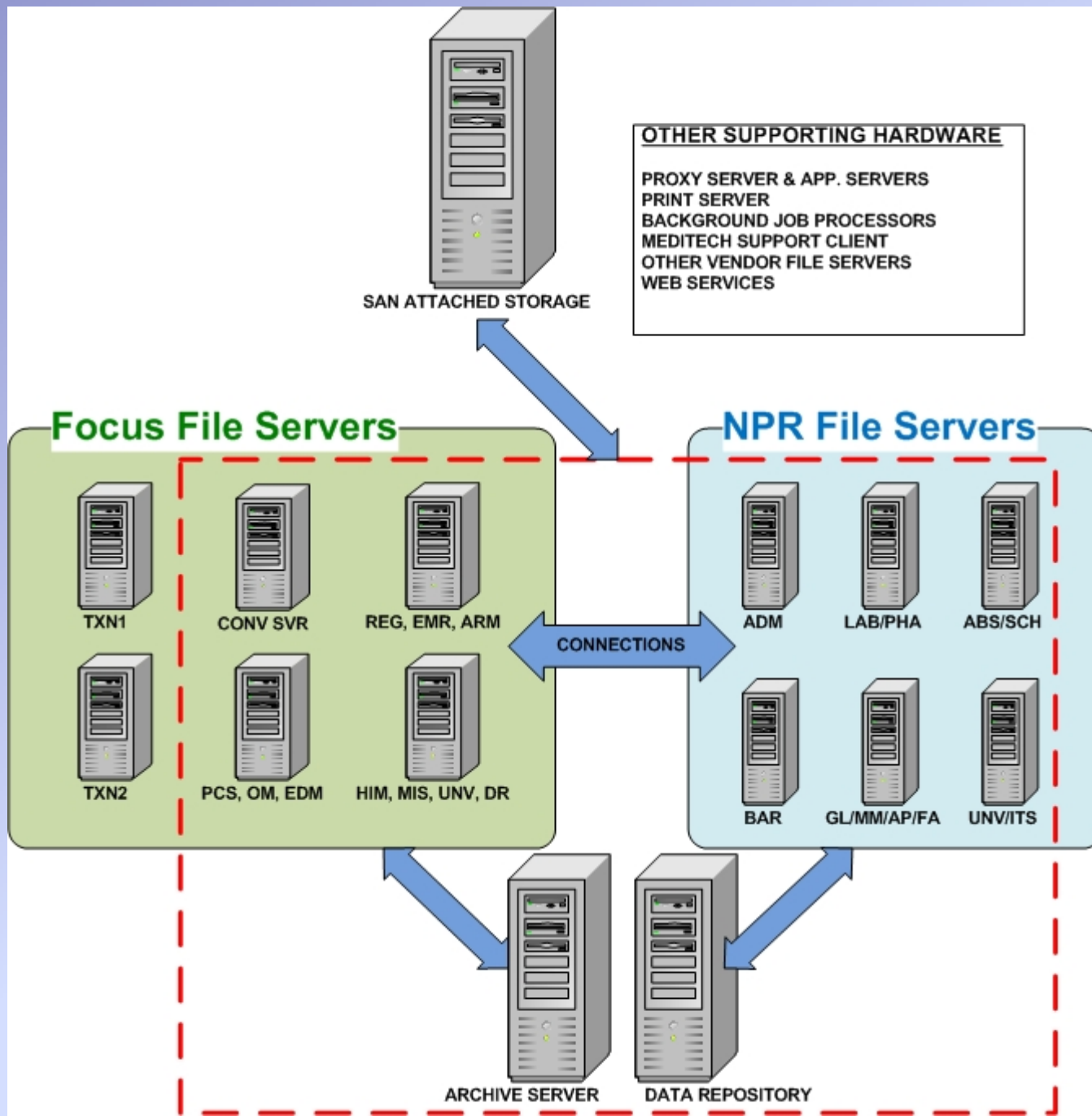
SAN attached storage

2 Transaction Servers

11 Background Job Processors

Other needed machines

Cost vs. Under Configuring?



- **Careful application design allows correctly-grained network usage**
- **Network protocols allow efficient transfers**
- **Minimized effect of high latency or slow bandwidth**
- **Small runtime footprints**

Transaction Server

- **Controls all database writes**
- **Protects database from client/user failure**
- **Backups are transactionally aware across servers**
- **Roll-forward a database from a prior backup**

Conversion Server

- **Limit Downtime**
- **Allow for database file conversions to be performed offline**
- **Transactions can be rolled in and also converted offline**

Chronological Database

- Append Only
- **Reliable**
- Natural complete historical audit



FOCUS Database

```
{MsGrpGe | A| {{ASPIRIN}|~}}
{MsGrpGe | C| {{COUMADIN}|~}}
{MsGrpGe | H| {{HEPARIN}|~}}
{MsGrpGe | HB| {{HEAPRIN-BOLUS}|~}}
{MsGrpGe | HC| {{HEPARIN/COUMADIN}|~}}
{MsGrpGe | N| {{NONE}|~}}
{MsGrpHi | {~|~}}
{MsGrpIds | M| LABPTPTT| {~|~}}
{MsGrpIds | N| PT/PTT RESPONSES| {~|~}}
{MsGrpMn | {{LABPTPTT|Y|PT/PTT RESPONSES|10|3}|~}}
{MsGrpwds | LABPTPTT| {~|~}}
{MsGrpwds | PT| {~|~}}
{MsGrpwds | PTT| {~|~}}
{MsGrpwds | RESPONSES| {~|~}}
{!bt| {{{20070522.192937|1529|R|+}| |MTFS07|meditech| |{MT|}| |MT|Mt,Meditech (meditech)}|{|1}}
{MsGrpGe | A| {{ASPIRIN| |}|{|1}}
{MsGrpGe | C| {{COUMADIN| |}|{|1}}
{MsGrpGe | H| {{HEPARIN| |}|{|1}}
{MsGrpGe | HB| {{HEAPRIN-BOLUS| |}|{|1}}
{MsGrpGe | HC| {{HEPARIN/COUMADIN| |}|{|1}}
{MsGrpGe | N| {{NONE| |}|{|1}}
{MsGrpHi | {{{A|C|H|HB|HC|N}}|{|1}}
{!bt| {{{20070723.213241|1732|R|+}| |MTBJP11|meditech| |{MT|}| |MT|Mt,Meditech}|{|1}}
{MsGrpGe | A| {{ASPIRIN|1|}|{|1}}
{MsGrpGe | C| {{COUMADIN|2|}|{|1}}
{MsGrpGe | H| {{HEPARIN|3|}|{|1}}
{MsGrpGe | HB| {{HEAPRIN-BOLUS|4|}|{|1}}
{MsGrpGe | HC| {{HEPARIN/COUMADIN|5|}|{|1}}
{MsGrpGe | N| {{NONE|6|}|{|1}}
{!bt| {{{20070913.70242|0702|R|+}| |MIMIS|iatrix| |{iatrix|}| |iatrix|Iatrix,User}|{|1}}
```



FOCUS Database

```
{MsGrpGe|A|{{ASPIRIN|~}}}  
{MsGrpGe|C|{{COUMADIN|~}}}  
{MsGrpGe|H|{{HEPARIN|~}}}  
{MsGrpGe|HB|{{HEAPRIN-BOLUS|~}}}  
{MsGrpGe|HC|{{HEPARIN/COUMADIN|~}}}  
{MsGrpGe|N|{{NONE|~}}}  
{MsGrpHi|{~|~}}  
{MsGrpIds|M|LABPTPTT|{~|~}}  
{MsGrpIds|N|PT/PTT RESPONSES|{~|~}}  
{MsGrpMn|{{LABPTPTT|Y|PT/PTT RESPONSES||10|3}|~}}  
{MsGrpwds|LABPTPTT|{~|~}}  
{MsGrpwds|PT|{~|~}}  
{MsGrpwds|PTT|{~|~}}  
{MsGrpwds|RESPONSES|{~|~}}  
!bt|{{{20070522.192937||1529|R|+}}|MTFS07|meditech||{MT|}|MT|Mt,Meditech (meditech)|{|||1}}}  
  
{MsGrpGe|A|{{ASPIRIN||}}|{{1}}}  
{MsGrpGe|C|{{COUMADIN||}}|{{1}}}  
{MsGrpGe|H|{{HEPARIN||}}|{{1}}}  
{MsGrpGe|HB|{{HEAPRIN-BOLUS||}}|{{1}}}  
{MsGrpGe|HC|{{HEPARIN/COUMADIN||}}|{{1}}}  
{MsGrpGe|N|{{NONE||}}|{{1}}}  
{MsGrpHi|{{A|C|H|HB|HC|N}}|{{1}}}  
!bt|{{{20070723.213241||1732|R|+}}|MTBJP11|meditech||{MT|}|MT|Mt,Meditech|{|||1}}}  
  
{MsGrpGe|A|{{ASPIRIN|1|}}|{{1}}}  
{MsGrpGe|C|{{COUMADIN|2|}}|{{1}}}  
{MsGrpGe|H|{{HEPARIN|3|}}|{{1}}}  
{MsGrpGe|HB|{{HEAPRIN-BOLUS|4|}}|{{1}}}  
{MsGrpGe|HC|{{HEPARIN/COUMADIN|5|}}|{{1}}}  
{MsGrpGe|N|{{NONE|6|}}|{{1}}}  
!bt|{{{20070913.70242||0702|R|+}}|MIMIS|iatrixs||{iatrixs|}|iatrixs|Iatrixs,User|{|||1}}}
```

Initial Entry 5/22/07

Edit on 7/23/07

Edit on 9/13/07

Abstraction – Application tools enforce abstraction

- **Screen Design can allow for web-based display and data entry**
- **Database file distribution design allows for scalability**
- **User Interface enforces consistency**
- **Modern look and feel**



IMPROVEMENTS

- **Built-in audit trails of everything**
- **Improved network performance**
- **Reduced downtime; increased reliability**
- **Data corruption virtually eliminated**
- **Modern screen technology & workflow**

- **Easier for MEDITECH to support**
- **A LOT less “locking” issues in FOCUS**
- **The concept of multiple databases is gone**



REPORT WRITER

- **Good News!! There is a Report Writer!!**
- **Terminology has changed a little...**
 - **DPMs are now called Objects**
 - **Segments are now called Records**
 - **Data elements are now called Fields**
- **No fragments, macros or *current* ability to use FS code inside computed fields**

Report Writing in FOCUS

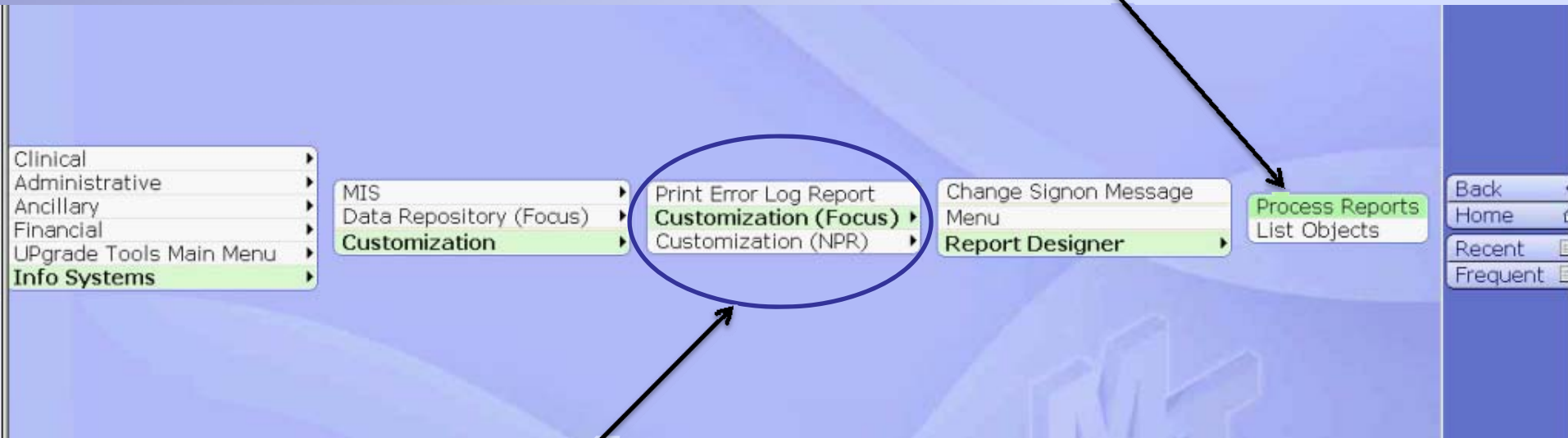
- Rule Editor / Wizard *may* eliminate need for code
- No abbreviations (e.g GE, LE, EQ)
- All FOCUS application data is available with no special “tricks” needed
- No current plan to allow FOCUS to get NPR data
- Output is via “Frames” – one per region



SNEAK PREVIEW... shhh!

Report Writing in FOCUS

Familiar "Process Reports" Menu



Two Report Writer Options

Report Writing in FOCUS

Report

Report

Copy From

*Active

*Name

On which data do you need to report?

Application

Object

Record

Data Field

How do you want to select records?

Application

Object

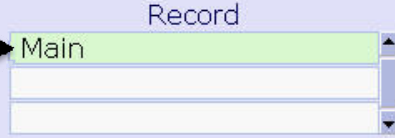
Record

Data Field

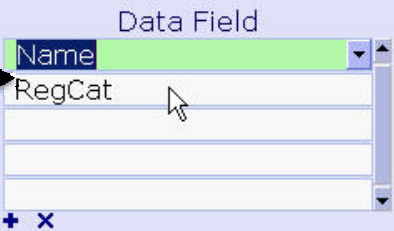
The new "ADM.PAT"



a.k.a. main "segment"



"Basic" Report Mode





Report Writing in FOCUS

*Title Line 1

Title Line 2

Title Line 3

*Orientation

Default Font Type

Default Font Size

Include Outside Border

Include Standard Banner

Banner Type

Compress Banner after page 1

Paper Width (Inches)

Paper Height (Inches)

Top Margin (Inches)

Bottom Margin (Inches)

Left Margin (Inches)

Right Margin (Inches)

Lines Per Inch

Lines Per Page

*Detail Record Primary

▲

▬

▼

Define Main Record (aka "Segment") ←

Attribute	Value	Rule

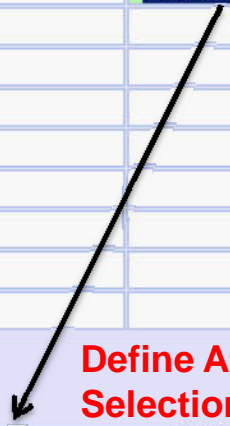
Report Writing in FOCUS

Select Field	Screen Label	Operator	New Block	Hide
DischDate	Discharge Date	Greater than or equal to	<input type="checkbox"/>	<input type="checkbox"/>
DischDate	Discharge Date		<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

+ → ↑ ↓ ×

Attribute	Value	Rule
Datatype	DATE	
Font Style	VariableSansSerif	
Font Size	2	
Justify	Left	

Define Attributes for Selection Fields



Index
RegAcct.ProviderX

Define Index





Report Writing in FOCUS

Define Output Regions

Code	Region	Active
BR	Banner Region	✓
PH	Page Header	
RH	Report Header	
KH1	Header for RegAcct.RegDate	
KH2	Header for RegAcct.AbsCptCode	
DR1	Detail #1	✓
DR2	Detail #2	
KT2	Trailer for RegAcct.AbsCptCode	
KT1	Trailer for RegAcct.RegDate	
RT	Report Trailer	
PT	Page Trailer	

Attribute	Value	Rule



Report Writing in FOCUS

Code	Region	Active
BR	Banner Region	✓
PH	Page Header	
RH	Report Header	
KH1	Header for RegAcct.RegDate	
KH2	Header for RegAcct.AbsCptCode	
DR1	Detail #1	✓
DR2	Detail #2	
KT2	Trailer for RegAcct.AbsCptCode	
KT1	Trailer for RegAcct.RegDate	
RT	Report Trailer	
PT	Page Trailer	

Attribute	Value	Rule

<	HCIS Header	>	Reg List For Training	Page <Page #>
<	up to three text lines	>	Line Two of Title	Date: <Date and Time>
<	or an icon	>	Line Three of Title	User: <User Name>
name	address		phone number	
RegDate	Name		AcctNumber	
acct number				
+				



THE FUTURE



Rumors, Future Possibilities...

- **Phased approach for 6.x / FOCUS**
- **Scripting in 6.0 / FOCUS?**
- **Alternate Hardware Configurations?**
- **Greater use of web technologies?**
- **Habla espanol?**



THANK YOU!!!!