



IBM Software Group

The Value of WebSphere Portal in the Health Care Industry



CONNECTED PATIENTS FOR
BETTER CARE AND SATISFACTION



Joe Preston

Global Portal Sales Leader,
Healthcare Industry Solutions

Common Healthcare Provider Strategic Objectives...



...Are Patient-centric



...by communicating better with patients



...by improving the patient's experience



...by empowering patients and physicians



...by freeing people to focus more on care!



Healthcare Provider Key Business Challenges

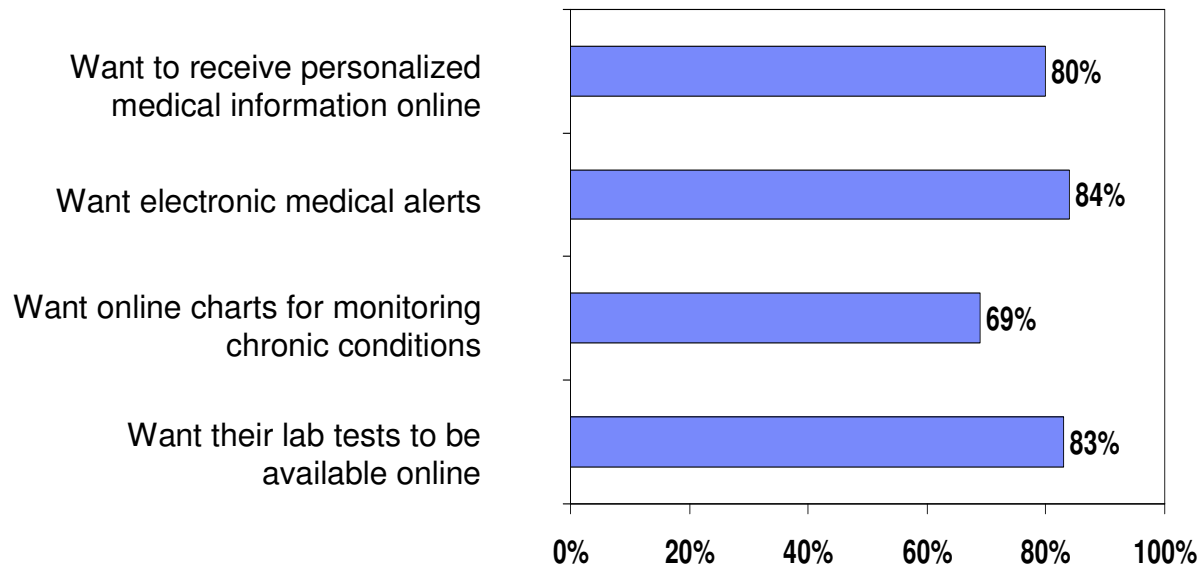
- Clinicians need real time, integrated **actionable data** to improve outcomes and reduce medical errors
- Access to information from **multiple applications** with different interfaces and log-ins
 - Lack of **interoperability, flexibility** and **openness** with legacy systems
 - Reduce patient and clinical information input **redundancies**
- Drive Strong Customer Service and Awareness
 - ▶ Online bills, scheduling, & check-in
 - ▶ Automated registration
 - ▶ Personal health records
 - ▶ Account Status and on line bill payment
 - ▶ Disease management delivery supplemented by focused portal content
- Apply analytics to realize value from data, such as outcomes
- Support **point of care** collaboration with clinicians
- Reduce call center burden and **costs**



Provider Services Expectations Keep Rising

Doctors and Patients are increasingly demanding greater access to information as they attempt to manage care in real time:

Percentage surveyed who:



Increasing need for “commercial grade tooling” to support these growing requirements

An Enterprise Portal for Patients, Employees and Physicians

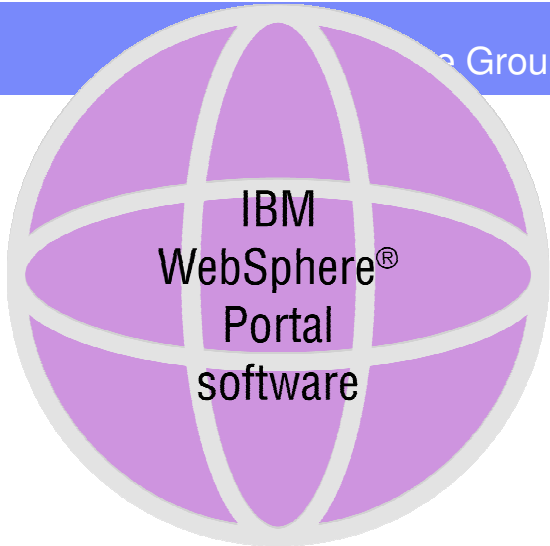
Patients

Employees

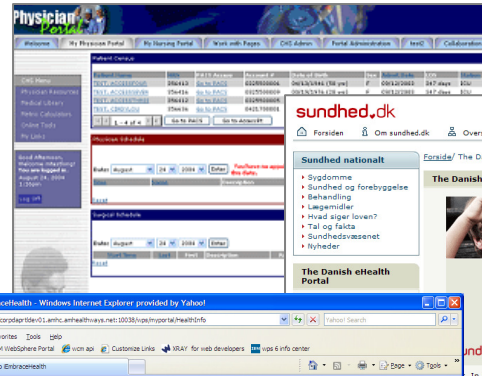
Clinicians

Enterprise Portal Framework
Common Infrastructure

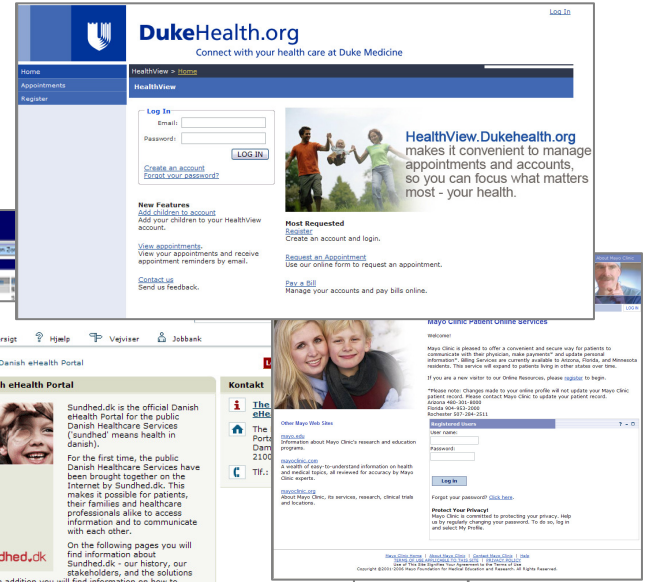




Physician Portals



Patient Portals

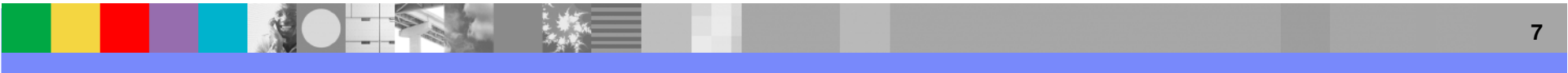
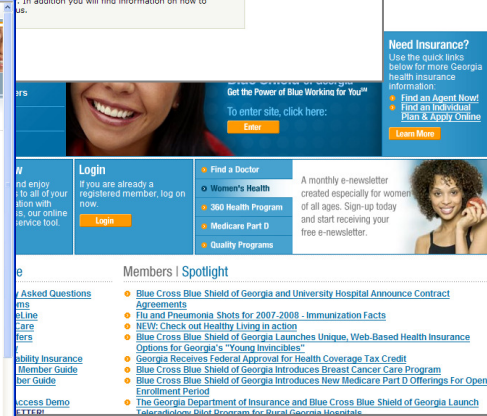


One Platform... For Different Healthcare Composite Application Needs

Hospital Website/Portals



Payer Portals



Elevate Web 2.0 Experiences

Web 2.0 + Collaboration + Social Tools

The collage features several overlapping windows and panels:

- Email:** A list of messages with columns for Sender, Subject, Date, and Size. Recent messages include "Heather Reed: Accepted: Customer Briefing Prep" and "Heather Reed: Re: Prepare for customer briefing...".
- Recent blog posts:** A list of posts with author avatars and names like Ling Shin, Lucille Suarez, and Gardner Raynes. Topics include "How to make savvy business connections" and "Finding inspiration for new sales techniques".
- Personal Advisor:** A section with a profile picture and options to "Click-to-call me", "Message me", "Want to meet?", and "Contact me".
- Experts on this Topic:** A list of experts with names like Vijay Nehry and links to their profiles.
- Open Financial Network Recommends...:** A panel with a search bar and various recommendation cards.
- Featured Video:** A video player showing a thumbnail for "OPEN FINANCIAL NETWORK FINANCIAL UPDATE".
- Related Content:** A list of articles such as "Building the Best Team", "Credit as Easy as 123", and "Developing your Inner Entrepreneur".
- My Workgroup:** A section with a "Post New" button and a list of items like "We need to add more recommendations" and "Customers loves the personalization!".
- Performance Charts:** Several bar and line charts showing data trends, such as "Performance Objectives" and "Weekly Meeting Schedule".
- Collaboration Tools:** Buttons for "Send", "Invite Others...", "Add Tools...", and "Close" are visible in a text entry window.



Video

Personalized Content

Patients Are Consumers; This Drives Expectations

- **Healthcare Savings Accounts (HSAs) are growing in popularity, giving consumers flexibility to shop for healthcare services**
- **Healthcare consumers are the same ones that can pay their phone, utility, car, and mortgage bills *online, anytime***
 - The Internet is the primary place consumers turn to for information, service requests, bill paying and questions/correspondence
 - *Banking & Insurance*
 - *Utilities*
 - *Travel*
 - *Government*
 - *Shopping*
 - *Education*
- **Millions of consumers research medical information on the Internet every day...*but can't schedule a medical appointment or pay a bill online***

Adopting the successful consumer-driven strategies of other industries is a must for every healthcare-delivery provider. Those that adopt and deliver upon this strategy, stand to ***increase patient loyalty & patient satisfaction; realize improved overall performance; and compete more effectively.***



Types of Portals Are Healthcare Organizations Implementing

Providers -- hospitals, independent facilities & clinics, integrated delivery networks

Patient Portal

Online bills, scheduling, & check-in
 Personal health records
 Automated registration
 Disease mgt delivery
 Marketing

Clinical Portal

Clinical information & context
 Collaboration
 Automated referrals
 Patient profile view

Operational Portal

HR functions
 Dashboards
 Facility views
 Compliance
 Alerts

Top sparkler: “Over 50 hospital systems and major healthcare providers worldwide rely on WebSphere Portal, including Duke Medical, Mayo, Kaiser-Permanente, Catholic Healthcare West, & Sweden’s eHealth system”

Payers -- medical insurers, government & other single-payer programs

Member Portal

Personalized plan & payment info
 Trusted health content
 Provider directory

Provider Portal

Claims processing
 Data access

Employer Portal

Reports
 Eligibility management
 HR support

Broker Portal

Customized product info
 Commission calculation
 Member data

Top sparkler: “4 out of the top 5 private US health insurers as well as Blue Cross Blue Shield providers in 22 US states rely on WebSphere Portal”

The Patient Portal Is A Compelling Starting Point

What Can It Do?

■ Increase Patient Loyalty & Satisfaction

- Patients are consumers and as such have an expectation to be able to do *everything* via the Web – including manage their healthcare

■ Help Providers Compete Better

- HSAs and other factors are allowing patients to shop for healthcare; how easy is it for current and prospective patients to do business with you?

■ Decrease Costs & Improve Efficiency

- Reduce call center and staff burden by allowing patients to schedule appoints, pay bills and obtain answers online
- Reduce or eliminate paper-based forms processing (manual recording, entry, filing and maintenance of forms)

The top screenshot shows the DukeHealth.org patient portal. It features a navigation menu on the left with links for Home, Appointments, and Register. The main content area includes a 'Log In' section with email and password fields, a 'LOG IN' button, and links for 'Create an account' and 'Forgot your password?'. Below this is a 'New Features' section with links for 'Add children to account', 'View appointments', and 'Contact us'. To the right, there is a 'Most Requested' section with links for 'Register', 'Request an Appointment', and 'Pay a Bill'. A banner image shows a family of four, and text reads: 'HealthView.Dukehealth.org makes it convenient to manage appointments and accounts, so you can focus what matters most - your health.' The footer contains links for 'Contact Us', 'Terms & Conditions', 'Privacy Policy', and 'WebSphere software'.

The bottom screenshot shows the iEmbraceHealth.com patient portal. It features a large banner image of a woman in a green tank top standing in a field of yellow flowers with her arms raised. Text on the banner reads: 'Choose to live a healthier life'. To the right of the banner is a 'User Name:' and 'Password:' login form with 'Forgot your User Name?' and 'Forgot your Password?' links, and a 'Sign In' button. Below the banner, there is a section titled 'Haven't Enrolled for iEmbraceHealth.com?' with text: 'To enroll, simply click the Enroll now button below. We will need to collect some demographic information to validate your eligibility.' and an 'Enroll now' button. The footer contains '©2007 Healthways, Inc. Terms of Use'.





IBM® Healthcare Accelerator

Patient Portal Package for Healthcare Providers

- **Increase Patient Loyalty**
 - ▶ *Via easily accessed services & information*
- **Improve Patient Satisfaction**
 - ▶ *Via anytime access to appointments, payments, medical records, etc.*
- **Increase Operational Efficiency**
 - ▶ *By empowering the patient to perform transactions directly*
- **Faster Time-to-Payment**
 - ▶ *Online payments reduce mailed payments*
 - ▶ *Can bypass a call center and manual handling*
- **Reduce Cost-to-Collect**
 - ▶ *Can eliminate paper invoices*
 - ▶ *Fewer manual touch points*
- **Single foundation investment (WebSphere Portal) to deliver multiple portals**
 - ▶ *Start with a Patient Portal; add profiles and capabilities for Physicians, Nurses, Analysts, Employees, etc.*

Home Log In

MY HOSPITAL

Welcome

- Medical Services
- Find a Doctor
- ▶ Patients & Visitors
- ▶ News & Events
- ▶ Health A - Z
- Related Web Sites
- Appointments
- Clinical
- Payment
- Profile
- Settings & Preferences
- Maps & Directions
- Phone Directory
- About Us

Welcome

Our Hospital

In May, we were able to largely extend our already exceptional equipment with two new investments which make us really proud:

 After 3 months of implementation we are glad to announce our new high quality consultancy process. The process guarantees that all patients are examined and treated with the same high standards, independent of the doctor with which they start their visit.

 The lab now has a brand new X-ray examination device that gives us special advantages in diagnosing Anterior cruciate ligament (ACL). Now we are the only hospital on the west coast that possesses such a device, only the XY Hospital far, far away has similar equipment.

 We now also offer laser surgery. With this low risk treatment you will get rid off your glasses forever. We can cure myopia as well as hyproopia with this new technology. Don't hesitate and make an appointment today. Do not consider this treatment if you Aflatoxin suffer from Aflatoxin intolerance.

Your Personal Portal!

We now offer personalized services online!

 Early this month, we launched our brand new Patient Portal. This portal greatly extends our offering for patients and visitors and we are sure: You will enjoy it!

On the new web pages, you will find a rich set of self-services. Besides paying bills and making appointments you can even examine your clinical tests and edit your profile. But don't forget, that you must login before you can access all this new functionality.

Be connected to our hospital from virtually everywhere.

[Click here to enter your personal portal.](#)

IBM® Healthcare Accelerator

Deliver In-Demand, High-Value Self-Service Capabilities

MY HOSPITAL

Welcome
Medical Services
Find a Doctor
Patients & Visitors
News & Events
Health A - Z
Related Web Sites
Appointments
View Appointments
Schedule Online
Request Appointment
Set Reminder
Clinical
Payment
Profile
Settings & Preferences
Maps & Directions
Phone Directory
About Us

Home Jerry Whitmore Log Out

View Appointments

Your upcoming appointments are shown below. You can also view past appointments by changing the date range.

Patient: Jerry Whitmore [\[Change patient\]](#)

From Date: 12/10/2007 To Date: 12/10/2013 [View Appointments](#)

Date & Time	Provider	Location
Saturday, March 1, 2008 08:00 AM	Dr. Ronald T. Barton Family Medicine	Department of Family Medicine Web site 14007 50 St NW Map Edmonton AB T5A 5E4 780-475-1562
Thursday, December 4, 2008 04:00 PM	Dr. Ronald T. Barton Family Medicine	Department of Family Medicine Web site Map
Thursday, December 11, 2008 12:00 PM	Dr. Michael Allan Family Medicine	Department of Family Medicine Web site Map

Appointments

- View
- Request
- Schedule
- Manage

Payments

- View History
- Submit Payment

MY HOSPITAL

Welcome
Medical Services
Find a Doctor
Patients & Visitors
News & Events
Health A - Z
Encyclopedia
Related Web Sites
Appointments
Clinical
Payment
Payment History
Make Payment
Profile
Settings & Preferences
Maps & Directions
Phone Directory
About Us

Home Jerry Whitmore Log Out

Make Payment

Use this feature to manage your accounts, 24 hours a day 7 days a week. To start over with another patient, select a different patient at any time.

Step 1 - Enter Your Payment

The Account Summary shows current balances for the selected patient's accounts. Only accounts that have an outstanding balance are listed.

To see all transactions for a specific account, click the account number. To make a payment using a credit card, simply click "Next" and follow the instructions. To make a partial payment, adjust the amounts in the *Your Payment* column and then click "Next".

Patient: Jerry Whitmore [\[Change patient\]](#)

Account Number	Service Date	Facility	Patient Balance	Your Payment
EAST CLINIC				
4587890031	01/01/2006	Department of Family Medicine	\$1500.00	<input type="text" value="1500.00"/>
4587890032	06/15/2006	University Health Service	\$2950.00	<input type="text" value="2950.00"/>
4587890033	06/15/2006	University Health Service	\$9800.00	<input type="text" value="9800.00"/>
Totals			\$14,250.00	\$14,250.00

[Next](#)

**Exact capabilities to be deployed are dependent upon customer-provided systems, repositories and data sources.*

IBM® Healthcare Accelerator

Provide Related Information/Services - Make the Portal a “one stop” for your Patients

MY HOSPITAL

Welcome
Medical Services
Find a Doctor
Patients & Visitors
News & Events
Health A - Z

ADAM Multimedia Encyclopedia

Anterior cruciate ligament (ACL) injury

Definition
An anterior cruciate ligament injury is extreme stretching or tearing of the anterior cruciate ligament (ACL) in the knee. A tear may be partial or complete.

Alternative Names
Cruciate ligament injury - anterior, ACL injury; Knee injury - anterior cruciate ligament (ACL)

Considerations
The knee is essentially a modified hinge joint located where the end of the femur (thigh bone) meets the top of the tibia (shin bone). Four main ligaments connect these two bones:

- Medial collateral ligament(MCL) – runs along the inner part of the knee and prevents the knee from bending inward.
- Lateral collateral ligament (LCL) – runs along the outer part of the knee and prevents the knee from bending outward.
- Anterior cruciate ligament (ACL) – lies in the middle of the knee. It prevents the tibia from sliding out in front of the femur, and provides rotational stability to the knee.
- Posterior cruciate ligament (PCL) – works in concert with the ACL. It prevents the tibia from sliding backwards under the femur.

The ACL and PCL cross each other inside the knee forming an “X.” This is why they are

Health Reference

- Present and/or link to general healthcare resources

MY HOSPITAL

Welcome
Medical Services
Find a Doctor
Patients & Visitors
News & Events
Health A - Z

Medical Services

We offer a large selection of different medical services:

- Allergy / Immunology
- Anesthesiology
- Blood Bank
- Bloodless Medicine
- Cancer Care
- Cardiology
- Dentistry
- Dermatology
- Dialysis
- Emergency Care
- Endocrinology
- ENT
- Fertility
- Gastroenterology
- General Surgery
- Geriatrics
- Gynecology
- Hematology
- Hyperbaric Medicine
- Infectious Diseases
- Internal Medicine
- Plastic Surgery
- Robotically Assisted Surgery

MY HOSPITAL

Welcome
Medical Services
Find a Doctor
Patients & Visitors
News & Events
Health A - Z

Find a Doctor

Please check our list of physicians. Feel free to call by using the listed Phone Extensions. We have a free physician referral service as well. Call 877-422-1233 for a referral to a physician who will meet your medical needs.

Specialty	Secondary Specialty	Physicians Name	Office	Phone-Ext 877-422-xxxx
Allergy	Dermatology	Dr. Bettina Hauser	F3 - 321	2001
Allergy	Immunology	Dr. Jan Meiser	F3 - 322	2002
Cardiology		Prof. Walter Hanel	H1 - 101	2003
Cardiology		Dr. Bernard Gerge	H1 - 102	2004
Cardiology	Homeopathic	Dr. Julia Maser	H1 - 103	2005
Gyneology		Dr. Walter Hauser	H1 - 104	2006

Physicians & Expertise

- Empower Patients to easily find doctors
- Comprehensively present services available to patients

*Exact capabilities to be deployed are dependent upon customer-provided systems, repositories and data sources.

IBM® Healthcare Accelerator- Summary of All Features

Pre-Built, Customizable, Portal Pages

Welcome	Main greeting page contains information of general use to all patients such as "Latest News", "Upcoming Events" and "Find a Doctor".
Medical Services	Content page summarizing the services provided by the hospital
Find A Doctor	Content page listing Physicians by specialty
Patient & Visitors	Content page of information pertinent to patients & visitors to the hospital
News & Events	Content page with latest news & events summary portlets
Health A - Z	Content page with sample health encyclopedia articles
Related Web Sites	Content page with links to other pertinent healthcare sites/resources
Appointments	View, Schedule and request upcoming appointments.
Clinical	Page that may be used to present allergy information
Payments	View past payments and submit a payment.
Profile	Create/update general patient information.
Settings & Preferences	Page with tools for users to manage their preferences including passwords and security questions.
Maps & Directions	Page intended to display driving directions and maps.
Phone Directory	Page with list of all pertinent telephone numbers.
About Us	Page providing overview of the hospital

The screenshots illustrate the user interface of the My Hospital patient portal. The top view shows a 'Welcome' message and a navigation menu with options like 'Medical Services', 'Find a Doctor', 'Patients & Visitors', 'News & Events', 'Health A - Z', 'Related Web Sites', 'Appointments', 'Clinical', 'Payment', 'Profile', 'Settings & Preferences', 'Maps & Directions', and 'About Us'. The middle view shows a detailed article from the 'ADAM Multimedia Encyclopedia' about 'Anterior cruciate ligament (ACL) injury', including a definition, alternative names, and considerations. The bottom view shows the 'Make Payment' page, which includes instructions for making a payment and a table of account balances.

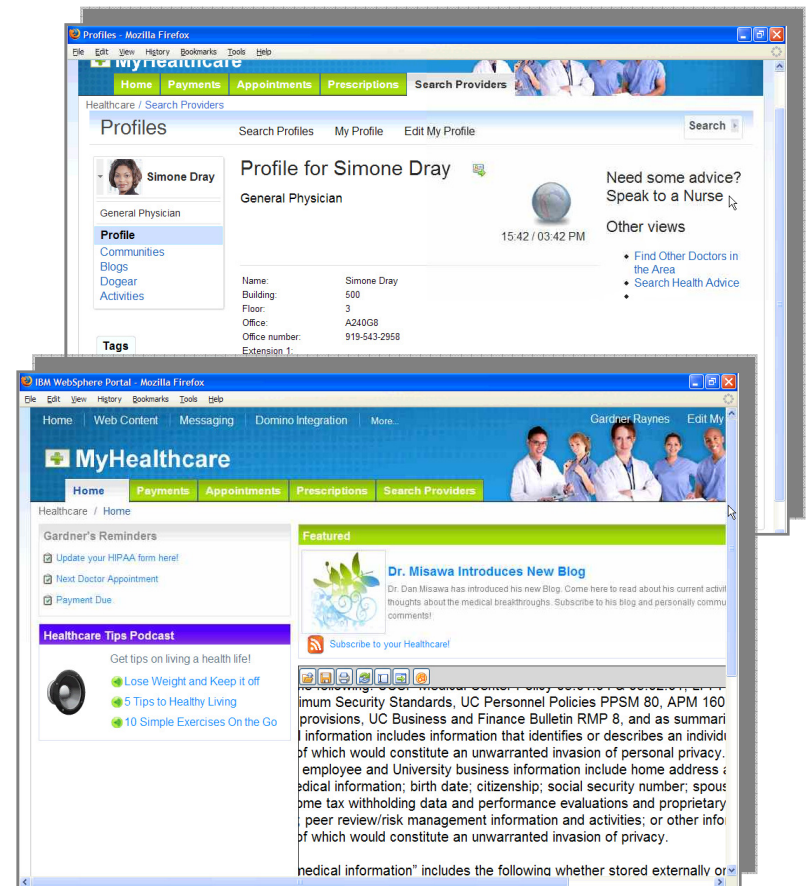
	Account Number	Service Date	Facility	Patient Balance	Your Payment
EAST CLINIC	45823890001	01/01/2008	Department of Family Medicine	\$1500.00	1500.00
	45823890002	08/15/2008	University Health Service	\$2500.00	2500.00
	45823890003	08/15/2008	University Health Service	\$8000.00	8000.00
Totals				\$14,250.00	\$14,250.00

*Exact capabilities to be deployed are dependent upon customer-provided systems, repositories and data sources.

Consider Adding Online Provider-Patient Collaboration

Virtual Office Visits Reduce Costs & Further Increase Patient Satisfaction

- **Find-A-Doctor “Profiles”**
 - Supercharge “find a doctor” to include detailed physician information from online profiles
- **Provider “Blogs”**
 - Latest medical news, tips and information from doctors, nurses, specialists to the broad community
- **“Ask-A-Nurse” (or doctor/specialist)**
 - Real-time instant messaging
- **Web Conferences**
 - Preventative care: Health, Nutrition, Diet, Exercise, etc.



WebSphere Portal Case Study: Duke Medicine

Patient Portal Increases Patient Satisfaction, Reduces Costs

- **Duke Medicine** provides a complete range of medical and surgical specialties to meet patient needs across several academic and community facilities in the central North Carolina (US) area
- **Duke Medicine is a consortium of:**
 - Duke University Health System
 - Duke University School of Medicine
 - Duke University School of Nursing
- **Of these, Duke University Health System is the largest, with:**
 - \$1.7 billion in annual revenues
 - 12,037 full-time employees
 - 60,935 inpatients
 - 1,417,723 outpatients
 - 83,000+ annual surgical procedures

The screenshot shows the HealthView patient portal interface. At the top, the URL is healthview.dukehealth.org. Below the navigation bar, there are tabs for Home, Appointments, and Register. A prominent 'Log In' section includes fields for Email and Password, a 'LOG IN' button, and links for 'Create an account' and 'Forgot your password?'. To the right, a main content area features a headline: 'HealthView makes it easy to request appointments and manage accounts, so you can focus on what matters most — your health.' Below this is an image of an elderly couple and three links: 'Appointments' (Request an appointment online...), 'Account Management' (Log in to view account balances and itemized statements, make payments, and manage your profile...), and 'Deducting Health Care Expenses?' (Visit "Payment History" for information you need if you're itemizing health care expenses on your taxes...). At the bottom, there is a 'DukeHealth.org' link and a footer with copyright information (© 2007 Duke Medicine), navigation links ([Contact Us], [Terms and Conditions], [Privacy Policy]), and a note 'Powered by WebSphere software'.

Duke Medicine - *Stated Vision*

“To transform the way we communicate and interact with our patients.”

*“In the process we will **build closer relationships, increase loyalty and satisfaction, improve safety and care, and reduce costs and complexity** – all so that we can further our mission of care, teaching, and research.”*



HealthView.Dukehealth.org

makes it convenient to manage appointments and accounts, so you can focus what matters most - your health.



Duke Medicine – *Vision vs. Reality*

VISION

- Create a single, personalized and simple-to-use access and information point via the Web for our patients (and internal users, eventually)

REALITY

- Duke is a complex multi-hospital, multi-vendor, specialized-system environment.
 - Multiple billing and patient management systems
 - GE, Siemens, Meditech
 - Over 100 clinical systems
 - McKesson, Cerner, GE
- Real-time multisystem, multivendor integration is critical
 - Abstract all systems through web services (SOA)
- Comprehensive solution critical for full vision
 - Portal, content management, eForms, collaboration, workflow directory services, development tools.



Duke Medicine – Business Benefits

Increased Revenue via Online Payments

- ≈\$1.2M in billings collected via Web in year 1 (≈18% increase over non-Web method)
- **≈\$216,000 increase in revenue** (due to avoidance/reduction of lost bills & missed payments)

Reduced Burden on Call Center Operations

- 20,000 calls typical in 4 peak months
- **50% reduction in calls during peak months after portal implementation**
 - Frees up time, allowing call center staff to focus on more value-added questions
- **≈\$200,000 annual net savings** (assumes the fully loaded cost to handle each call is \$20)

Reduced Cost to Collect

- **≈82% cost savings per collection** (≈\$6 cost-to-collect via Web versus \$33 for manual method)
- **≈\$10,800 annual net savings** (per every 10,000 collections)

Source:

The Total Economic Impact Of IBM Patient Portal Powered By WebSphere
 Published by Forrester Research, October 2007
http://t1d.www-03.cacheibm.com/industries/healthcare/doc/content/bin/hc_te_i_of_ibm_patient_portal.pdf

Table 7: Total Benefits

Benefit	Year 1	Year 2	Year 3	Total	Present value
Increased revenue from Web-based channel	\$216,000	\$216,000	\$216,000	\$648,000	\$537,160
Reduced burden on call center operations	\$200,000	\$200,000	\$200,000	\$600,000	\$497,370
Reduced cost to collect	\$10,800	\$10,800	\$10,800	\$32,400	\$26,858
Total savings	\$426,800	\$426,800	\$426,800	\$1,280,400	\$1,061,388

Source: Forrester Research, Inc.

Duke Medicine – *Return on Investment (ROI)*

- Duke’s estimated break-even (payback) point is **1.68 to 2.17 years**
- “Organizations may also realize more significant, albeit long-term, benefits in the form of **increased patient satisfaction** and **higher retention rates** and **an improvement in the quality of data** through consolidation across corporate silos.”

Table 1: Customer Organization ROI, Original And Risk-Adjusted

	Original	Risk-adjusted
Total cost (PV)	\$785,995	\$867,663
Total savings (PV)	\$1,061,388	\$965,562
Net impact (PV)	\$275,393	\$97,899
ROI	35%	11%
NPV	\$275,393	\$97,899
IRR	40%	20%
Payback (years)	1.68	2.17

Source: Forrester Research, Inc.

Source:

The Total Economic Impact Of IBM Patient Portal Powered By WebSphere
 Published by Forrester Research, October 2007

http://t1d.www-03.cacheibm.com/industries/healthcare/doc/content/bin/hc_te_i_of_ibm_patient_portal.pdf



Duke Medicine – *IT Benefits*

- Duke's portal connects exclusively to the back ends via SOA Web services
- Using SOA, Duke saved time and effort by leveraging prepackaged portal functionality, rapid application development tools, as a framework for managing user access and Web services support*
- Using Web services as the universal adapter for legacy custom-built and vendor provided applications and the new portal technology reduced the programming complexity*
- Technology was used to hide IT complexity. The approach of creating a single portal across multiple applications enabled Duke users, consumers and eventually referring physicians to see a single user interface and a consistent view of the data and business logic, even though they are accessing information from multiple applications sold by different vendors and running in widely varying environments*

*Even though this project touches many applications, the IT staff finds itself able to add the functionality faster than the users can absorb it. This is a reversal of the typical condition in healthcare organizations, where IT development bandwidth is the rate-limiting step in improving user processes. Furthermore, the ability to take the project in small bites and implement rapidly helped to minimize the danger of IT building an application that did not meet user needs.**

***Source:**

Case Study: Duke University Health System Finds Excellent Productivity Using SOA
A report by Gartner, Inc, October 2007.

http://www-03.ibm.com/industries/ca/en/healthcare/files/gartner_report-duke_u_health_sys_soa_case.pdf

Duke Medicine – Reports & Case Studies

The Total Economic Impact of IBM Patient Portal powered by WebSphere

A report by Forrester Consulting

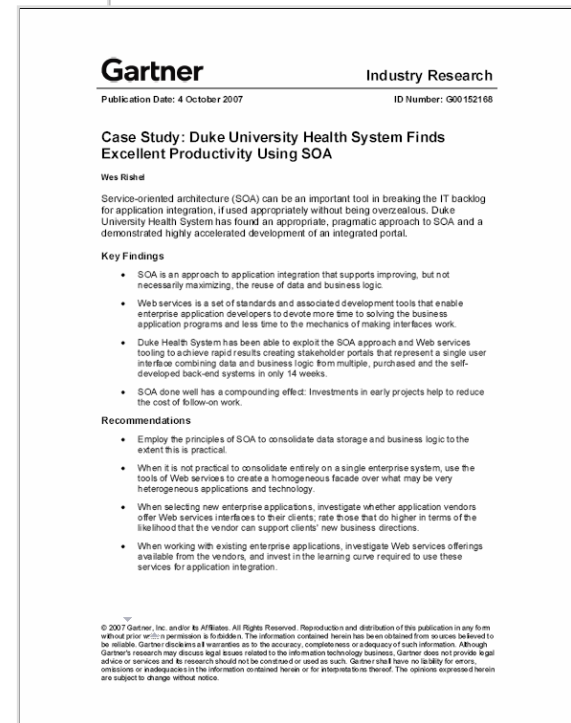
[http://t1d.www-](http://t1d.www-03.cacheibm.com/industries/healthcare/doc/content/bin/hc_tei_of_ibm_patient_portal.pdf)

[03.cacheibm.com/industries/healthcare/doc/content/bin/hc_tei_of_ibm_patient_portal.pdf](http://t1d.www-03.cacheibm.com/industries/healthcare/doc/content/bin/hc_tei_of_ibm_patient_portal.pdf)

Case Study: Duke University Health System Finds Excellent Productivity Using SOA

A report by Gartner, Inc.

[http://www-03.ibm.com/industries/ca/en/healthcare/files/gartner_report-
duke_u_health_sys_soa_case.pdf](http://www-03.ibm.com/industries/ca/en/healthcare/files/gartner_report-duke_u_health_sys_soa_case.pdf)



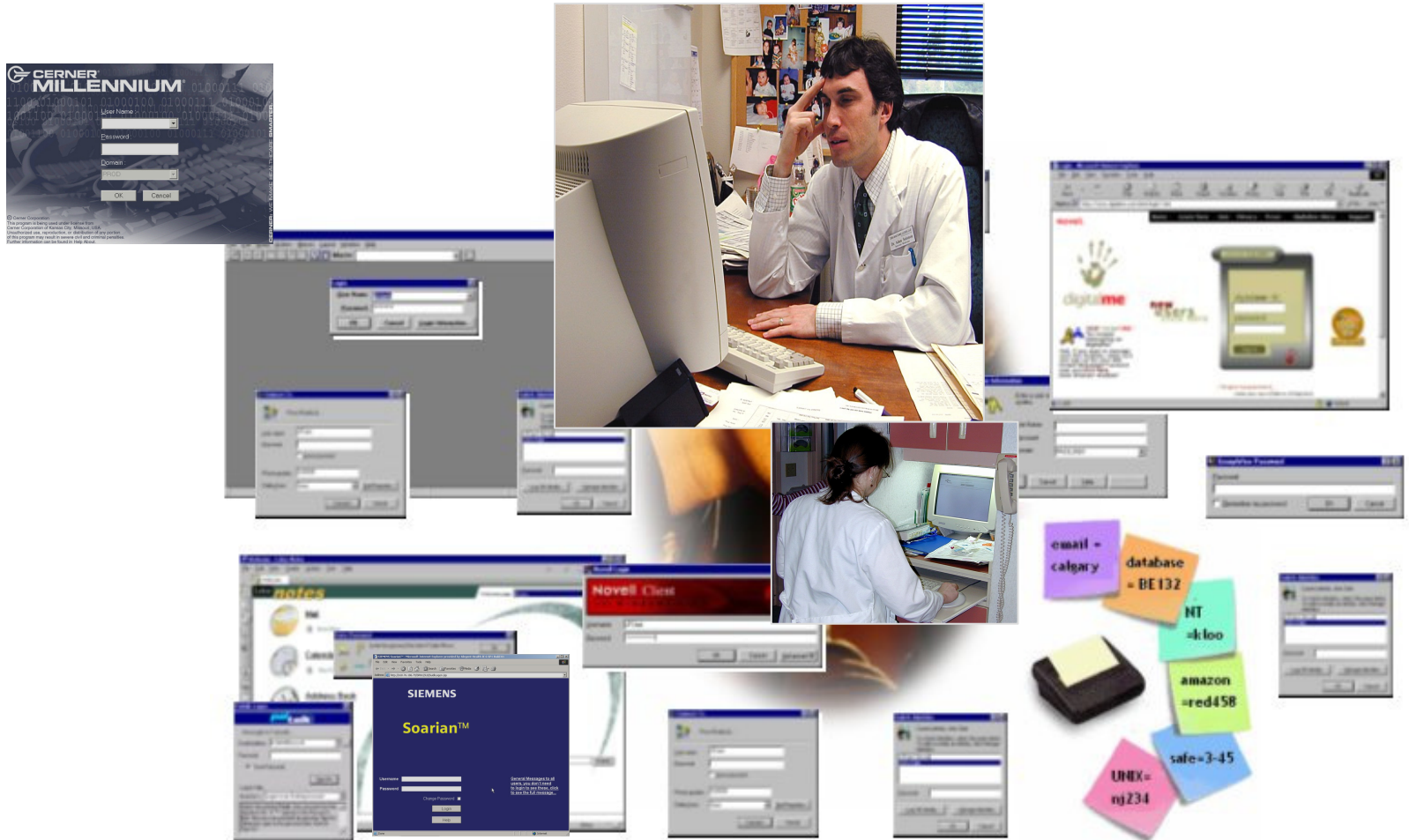
The Clinical Portal:

Physicians/Clinicians/Hospitalists want to devote more time to patient care and patient safety. They want a high quality, single view Portal that will:

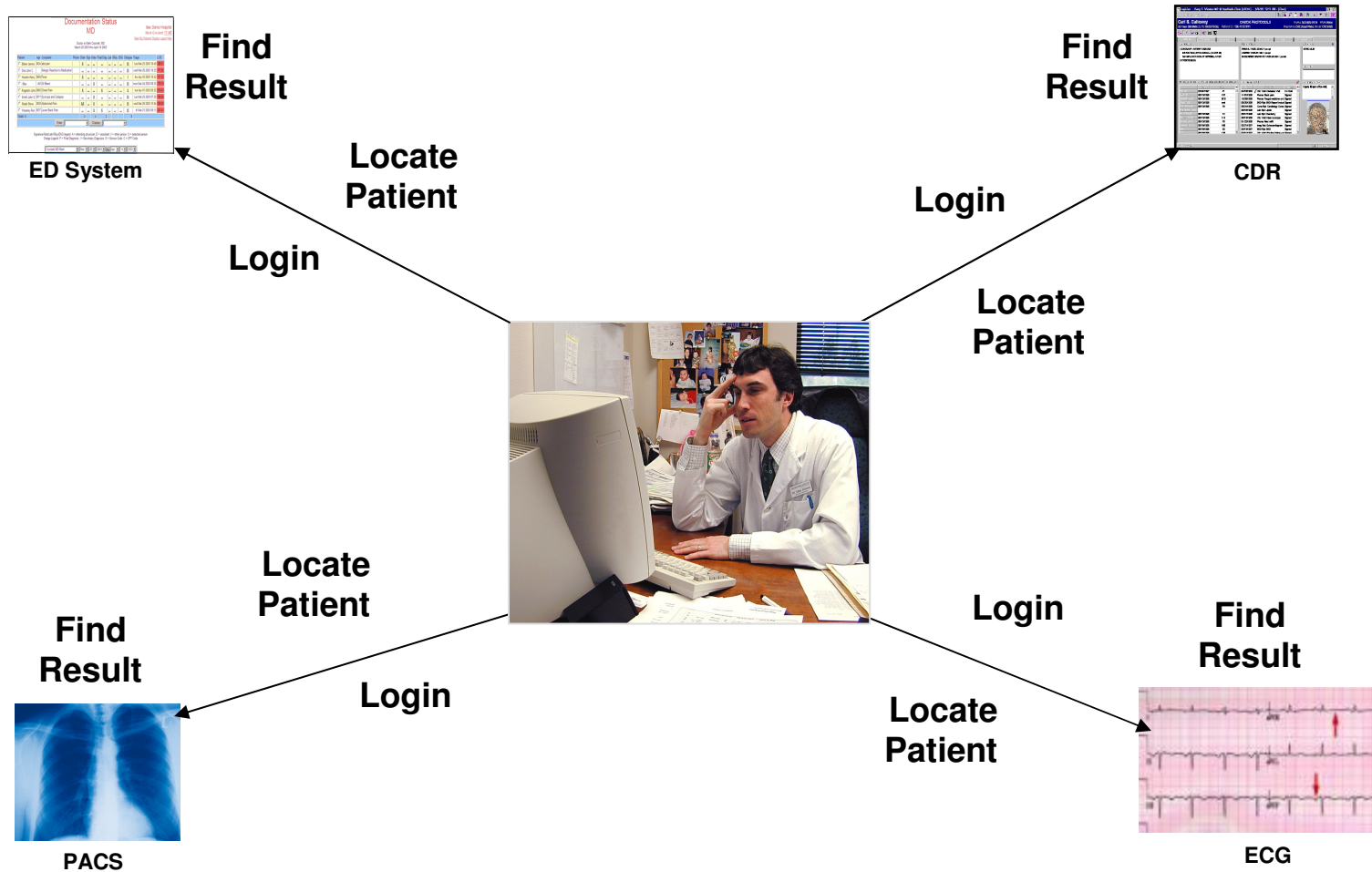
- **Provide everything they need**
 - on-demand
 - in real-time
 - in support of Patient Care
 - for continuing education
 - of the latest research information
 - for effective communication with the entire care team



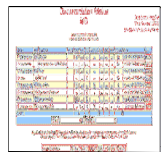
Technology “drag” on medicine



Increasing technology “drag” on clinician



The Solution



ED System



CDR Viewer



PACS Viewer



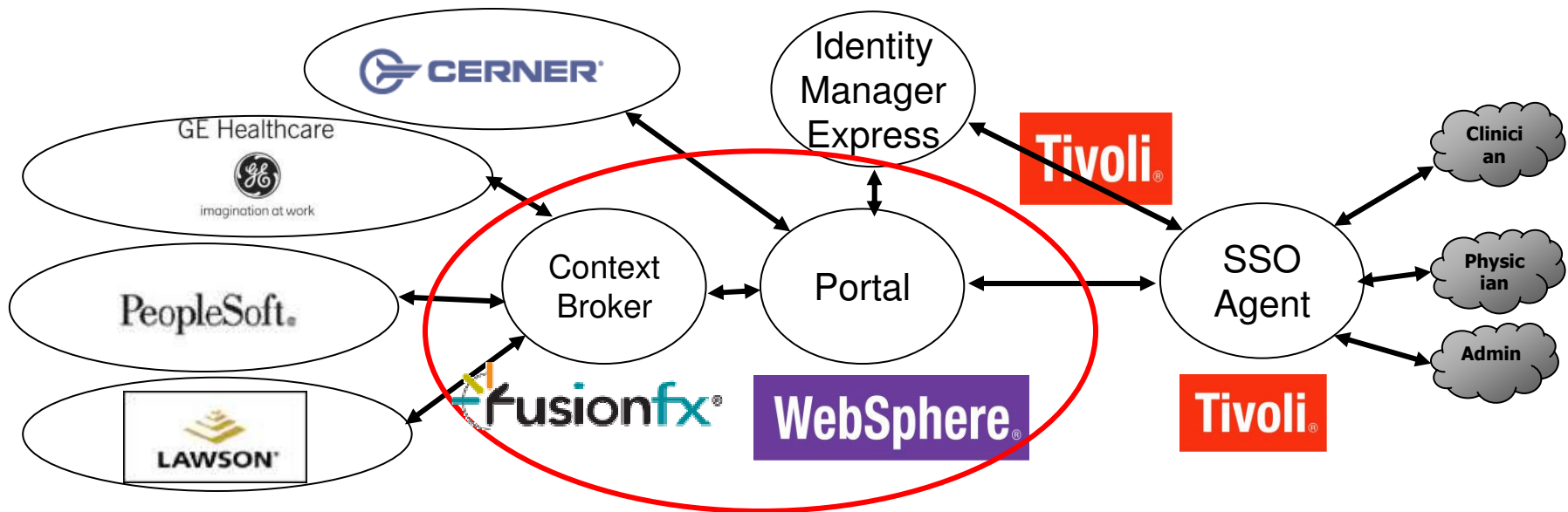
ECG

Sign-on once...
Locate patient once...
Auto-navigate to Result
Audit usage
For all applications

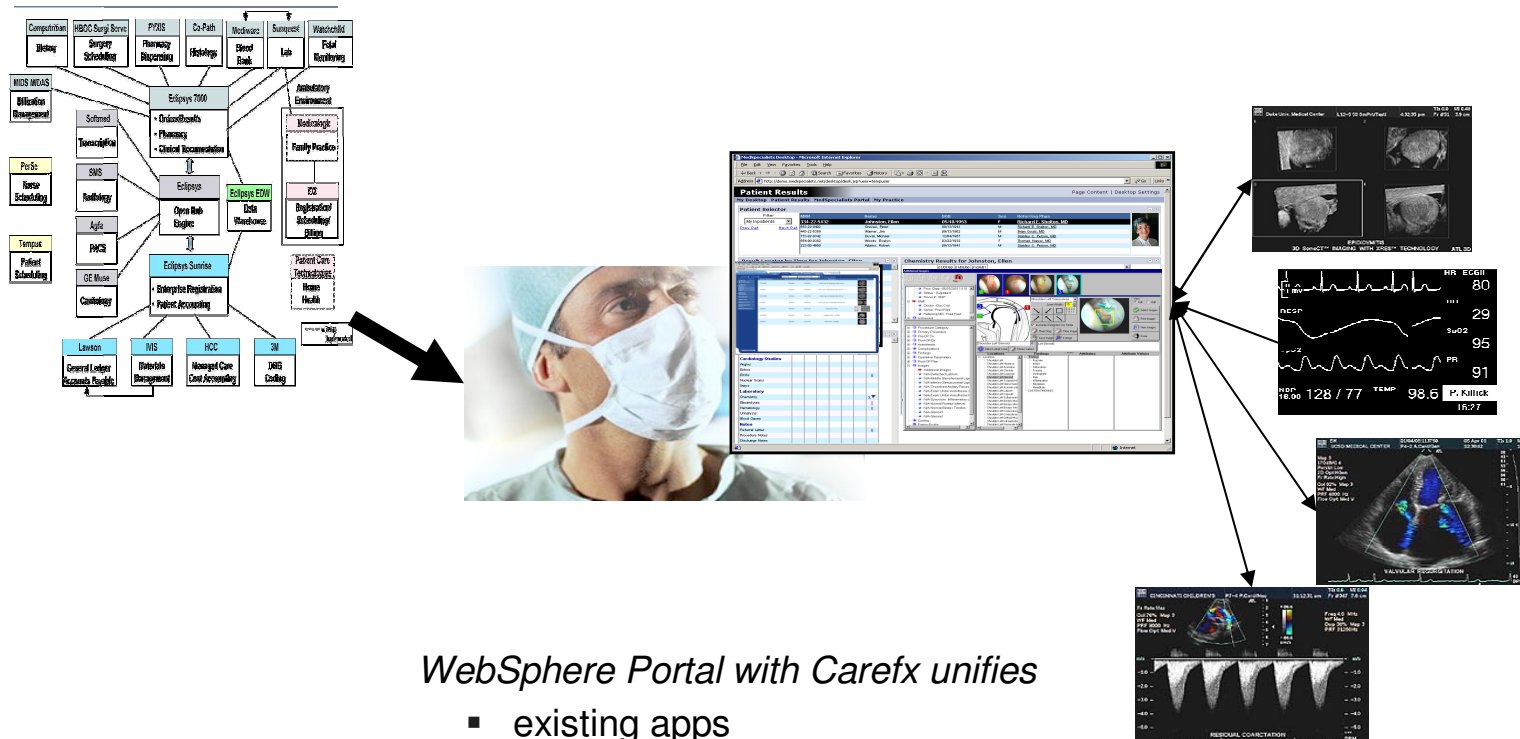


Portal and Context Management

- Provides consistent “content” no matter what the backend clinical system
- Providing information sources from:
 - CCOW and non-CCOW participating applications (Web Services and CCOW calls)
 - HL7 event persistent stores
 - Clinical information databases (JDBC, ODBC, etc....)
- Customized access based upon user, role, physical location
- Partner portlets for back-end systems (Meditech, Eclipsys, etc.)
- Carefx (running on WebSphere) for Context Management



Empowering Informed Decisions



WebSphere Portal with Carefx unifies

- existing apps
- fast login
- patient data access
- application auditing
- ...through native and web access

Clinical Portal: Catholic Healthcare West CHW Connect



Goals

- Areas of focus, resources, tools & applications, training & development
- Personal user preferences - role & facility
- Online community integration
- Integrated search and web content mgt
- 5,000+ users (CHW is the 7th largest healthcare provider in the US, with 40 hospitals)

Business Drivers

- Better recruit and retain clinicians and physicians
- Provide a comprehensive and efficient channel for distributing standard information



Clinical Portal Examples: Catholic Healthcare West



Challenges	Solution: Combined SSO, Context Management & Portal
40,000 User Deployment of Portal, Context Management and Identity Management	
Multiple login id's, passwords and shared passwords	Reduce number of logins from an average of 5 to 1, eliminated multiple / shared passwords
Cerner rollout dependencies on interfaces for deployment	Through WebSphere portal deployment, act as a bridge from legacy applications to Cerner, eliminate interfaces and reduced Cerner deployment lifecycle
Remote access to legacy applications non-existent	Provide Web based remote access to disparate legacy applications
Business office process requires access to as many as 11 different applications and multiple log-ins	Reduce the number of logins to 1 and provide context management at the account and encounter level for fast access to information
HIM experiences multiple logins to as many as five applications for chart completion and coding	Reduce the number of logins to 1 and provide context management at the MRN and physician level for fast access to information

Catholic Healthcare West Testimonials (ROI):

“I’m saving 2-3 hours a day. This increases the time that I can spend with patients and increases patient satisfaction.”

—Dr. Nick Caputo, Hospitalist

“I won’t need a chart ever again. I now have flow-sheets that I could never get before.”

—Dr. Mahmood Shahlapour, Hospitalist

“...Our physicians are very excited.”

—Dr. Terry Ambus, Chief of Staff

“This frees up nursing time because Dr’s can get the information they need quickly without nursing assistance. We don’t have to write down all of our passwords now... **It’s a big time saver.”**

—Joe Healey, RN, Director of Medical-Surgical Unit



What Types of Portals are Healthcare Payers Spending On?

Member Portal

- **Self service** and access to personal information
- Personalized plan & payment info
- Trusted health content
- Provider directory
- Compare Plans

Provider Portal

- Integrated and seamless access to data
- **Self service** and access to member information
- Fast, accurate processing of claims

Consumer Portal

- Compare plans
- Network information
- Provider Directory

Broker/Producer Portal

- **Self Service** for simplified processes to speed enrollment and renewals
- Customized product info
- Member data
- Support for their book of business

Employer Portal

- Simplified benefits administration
- Reports and seamless access to data
- Plan eligibility management
- Health care partner links for cost management

Employee Portal

- HR Self service
- Composite applications
- Fast, accurate processing of claims



What does Lotus Forms do?

- Automates business processes that are “forms-based”
- Collects data accurately and completely, with straight through integration to one or more back end systems.
- Creates an auditable, compliant record of a complete business transaction
- eForm solutions for both LOB and Enterprise (Simplest to most complex forms)

The image displays four overlapping screenshots of Lotus Forms applications:

- Top Left:** A form titled "Health Insurance Information" with sections for "PERSONAL ADDRESS" and "LEGAL ADDRESS".
- Top Right:** A form titled "PROPERTY SECTION" with a table for listing property details.
- Bottom Left:** A form titled "ADT SETUP" with fields for "IR ID Number", "Client Name", "Product", and "Type of ADT".
- Bottom Right:** A form titled "VEHICLE INFORMATION" featuring a car image and fields for "Make", "Model", "Year", and "Vehicle Information Number".

Lotus Forms: eForm Components

Mountain-Sure INVESTMENTS Brokerage Account Application

INVESTMENTS Check Mailing Account? Yes No Portfolio Account? Yes No

Account Type Individual Estate* Partnership* Custodian for a Minor Collateral *Additional Documents Required
 Joint Tenants Trust* Corporation* Charitable Organization* Investment Club

Applicant Information Required by MSRB Rule 5-5(A)(2) and NASD Rule 2210

First Name: Richard Middle Initial: Smith Last Name: Smith SSN: 999-99-9999 Date of Birth: 04-15-1964 Business Phone: () -
 Mailing Address: 123 Electric Form Ave Springfield MA 01111
 Legal Street Address (Required in addition to P.O. Box #): 123 Electric Form Ave Springfield
 Employer: PureEdge Solutions Occupation: Doctor City: Springfield

Are you or joint applicant employed by a member firm of a stock exchange, a national securities dealer or other securities organization?
 Yes, Co. No

Financials

Flowchart Logic:

- Application Requires Docs: do / show attachments button, do / pop up instructions dialog
- Application Needs No Docs
- Unsigned
- Approving Principal Signature Enabled
- Approving Principal Signature Disabled

XML Data:

```
<name>PureEdge Solutions</name>
<address>
  <street>123 Electric Form Ave</street>
  <city>Springfield</city>
  <state>MA</state>
  <zip>011111234</zip>
</legalAddress>
</address>
<employer>
  <name>PureEdge Solutions</name>
  <address>
    <street>123 Electric Form Ave</street>
    <city>Springfield</city>
    <state>MA</state>
    <zip>011111234</zip>
  </address>
  <occupation>Doctor</occupation>
</employer>
</applicant>
```

Bylaws of the American Institute of Organbuilders
 as amended October 10, 2001

Article I
 Name
 The name of this organization shall be: American Institute of Organbuilders (AIO)

Article II
 Objectives
 The objectives of this organization shall be: to advance the science and practice of research, experiment and other means, to disseminate knowledge regarding pipe...

Presentation Layer

- Pixel-perfect for duplicating paper forms
- Guided-interview, or wizard, driven

Business Logic

- Capture forms processes in the form
- Integrate business process workflows

Data Instances

- Based on W3C XForms specification
- Multiple XML payloads for integration
- Validate against external XML Schemas

File Attachments

- Capture complete transaction
- Supplemental or associated eForms
- MS Office, videos, faxes, etc.

Lotus Forms: eForm Components



Credit Application

Signatures

Digital Signatures in Secure "E-Envelope"

- Sign multiple, overlapping sections or complete form
- Use built-in signing, digital certificates (with certificate authority), signing pads, biometrics
- Significantly smaller file sizes compared to proprietary binary formats

Bylaws of the American Institute of Organobulls
as amended October 10, 2001

Article I
Name
The name of this organization shall be: American Institute of Organobulls (AIO)

Article II
Objectives
The objectives of this organization shall be: to advance the science and practice of research, experiment and other means, to disseminate knowledge regarding pipe to publications and exchange of information; to establish an organized training program; to disseminate information of degree of proficiency.

FLORIDA DEPARTMENT OF HEALTH
BIRTH RECORDS
CERTIFICATE OF LIVE BIRTH

Presentation Layer

- Pixel-perfect for duplicating paper forms
- Guided-interview, or wizard, driven

Business Logic

- Capture forms processes in the form
- Integrate business process workflows

Data Instances

- Based on W3C XForms specification
- Multiple XML payloads for integration
- Validate against external XML Schemas

File Attachments

- Capture complete transaction
- Supplemental or associated eForms
- MS Office, videos, faxes, etc.

Lotus Forms: eForm Components



Presentation Layer

Business Logic

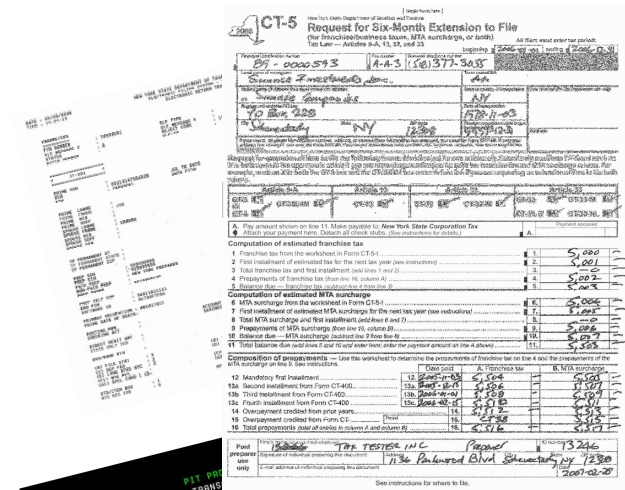
Data Instances

File Attachments

The Impact of eForms on paper-based Processes

- Obvious costs...
 - Paper and printing, transmission
 - Unused form disposal
 - Archival and storage costs

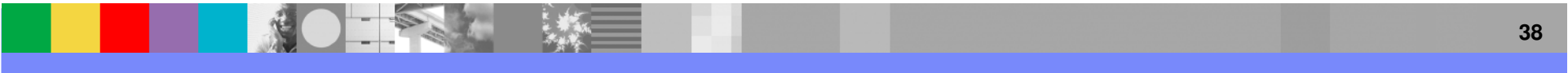
- ...Hidden inefficiencies that can paralyze organisations
 - Lengthy process cycles
 - Incorrect and incomplete data
 - Data re-keying
 - Physical routing time
 - Complex approval chains
 - Data aggregation across forms
 - Inaccessible data
 - Stove-pipe solutions for each process



Cost of Paper:

Paper	\$30,000
Printing	\$105,000
Copying	\$135,000
Faxing	\$20,000
Mailing	\$27,000
Courier	\$50,000
Storage	\$70,000
Disposal	\$10,000
Total	\$447,000

Typical 100 Person Office



“ Today’s economy will force decisions around IT cost cutting and optimization. There aren’t many technologies that enterprises can implement with relative ease to generate value almost immediately. But, given the costs of paper production, processing, delivery and integration...

Electronic forms will always save money, always save paper and the environment, always create more productive, happier users and always make data more accurate.

Data accuracy alone can save millions of dollars in most business processes. The world has been waiting for this technology.”

- Toby Bell, Gartner Group, November 2008

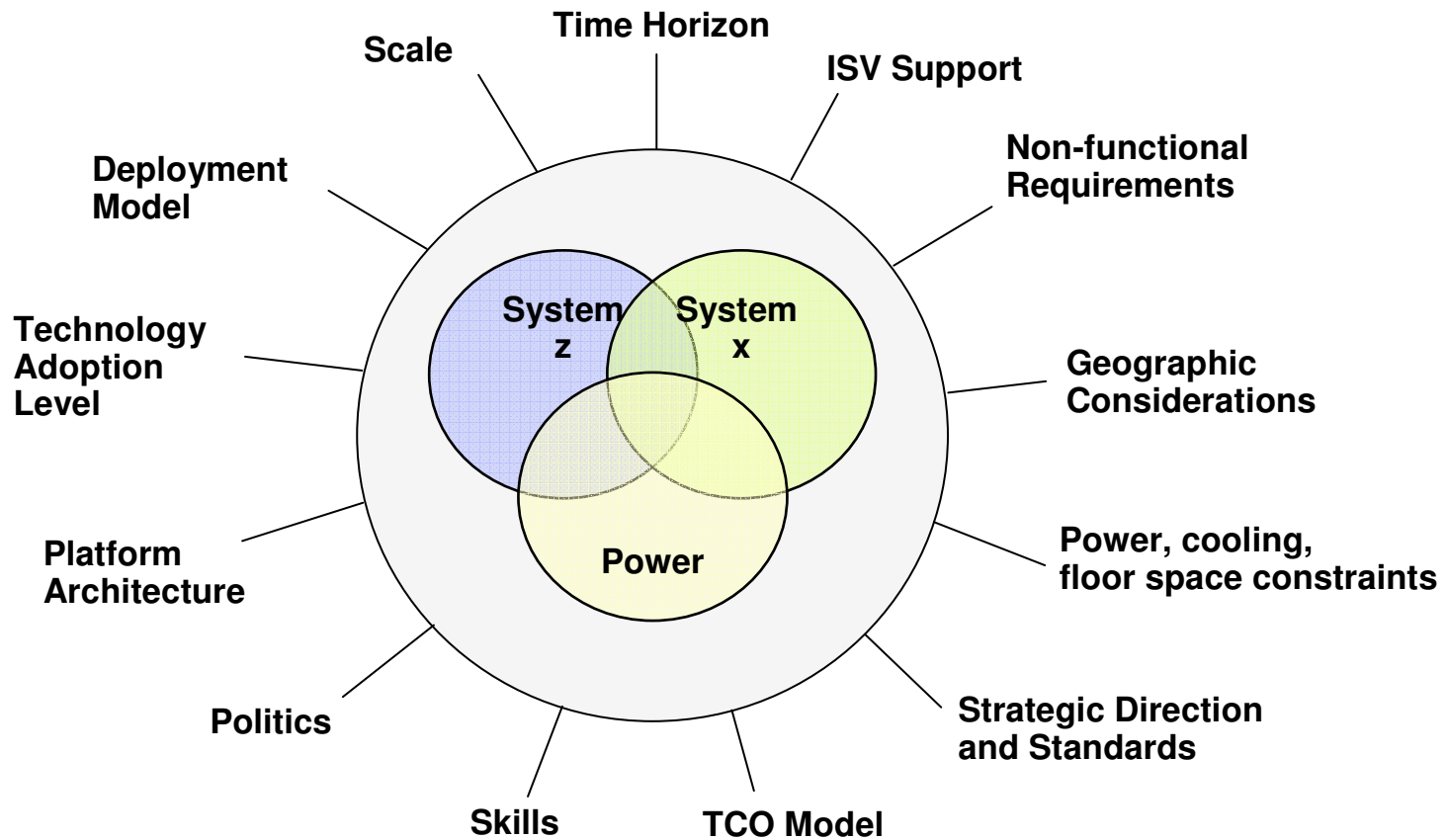


Where Should I Run WebSphere Portal?

- **Selecting a Platform and Total Cost of Ownership**
- Deployment Options
- Why System z as a Deployment Option



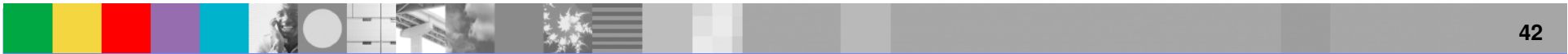
Selecting a Platform



There are many factors that influence platform selection making it difficult to develop a simple platform selection matrix

How do companies select a platform for their applications?

- First question is
 - ▶ “Will it run there?”
- Second question is
 - ▶ “How much does the hardware cost?”
- Done!
- But this is just a TCA view.....Is that all we should be thinking about?



What did we miss? Non-Functional requirements

- Shouldn't they have asked some questions about:
 - ▶ Scalability? Availability? Backup? Site Disaster Recovery?
 - ▶ Security? Reliability? Data Integrity? Maintainability?
 - ▶ Volumes and Service Levels?
 - ▶ Space? Power? Cooling?
 - ▶ Operations? Scheduling? Monitoring? Server Management?
 - ▶ Integration? Performance and Value of Data Proximity?

- That leads us to a more complete TCO view?



Platform Selection Discussion

- Selecting a Platform and Total Cost of Ownership
- **Deployment Options**
- Why System z as a Deployment Option



System z Resiliency

Avoiding the cost of downtime

Ensuring access to critical applications

Maintaining productivity of users

Open to clients 24/7

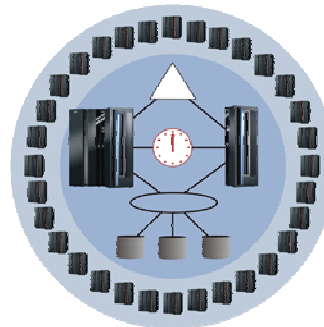
- Resiliency built in across the system to deliver availability at the application level
- Outstanding availability delivers consistent service to users
- Designed to help mitigate the risk of failure

Single System z



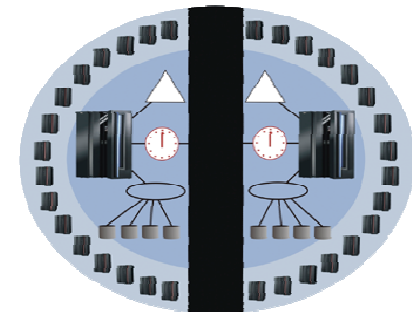
Where mean time between failure is measured in decades

Parallel Sysplex



Designed for application availability of 99.999%

GDPS



Industry leading solution for disaster recovery

WebSphere Portal on System z Options

Linux deployment: Distributed Consolidation

- ✓ Applications from multiple **under utilized** distributed servers
- ✓ **Higher utilization** than distributed servers
- ✓ **Green advantages** of power, cooling and floor space
- ✓ Implement multi-tier applications in a single System z for **better data proximity** exploiting hipersockets
- ✓ **Lower TCO** with IFLs
- ✓ **Speedy deployment** – cloning/server provisioning
- ✓ Higher QoS than distributed
- ✓ Less stringent requirements than z/OS deployment
- ✓ Alignment with distributed WebSphere family
- ✓ **Unrivalled virtualization** with **centralized management**
- ✓ **No z/OS Skills**
- ✓ Web Serving infrastructure consolidation
- ✓ Presentation Services
- ✓ Flexible, virtualized **Test/Migration/Prototyping** Platform
- ✓ ISV products not available on z/OS

Perfect for the System z customer requiring speedy deployment with less stringent QoS/integration requirements

z/OS deployment: Integration Option

- ✓ Highest **QoS** production environment
- ✓ Lower **TCO** with **zAAPs**
- ✓ Full exploitation of System z and z/OS
- ✓ **Tight integration with DB2, CICS, IMS** for chatty applications to **eliminate network latency** for **best data and transactional proximity**
- ✓ **“Spikey”, unpredictable** workloads
- ✓ **Service level agreement** management
- ✓ Dynamic load balancing, prioritization
- ✓ Strict security requirements
- ✓ Highest availability, reliability, scalability
- ✓ **Disaster recovery** and autonomic function
- ✓ Dynamic I/O configuration
- ✓ Storage management
- ✓ Capability/tools to modernize and integrate existing System z applications
- ✓ Migrate applications from another platform that require additional scalability and integration

Perfect for the System z customer requiring high QoS and significant integration with CICS, IMS or DB2



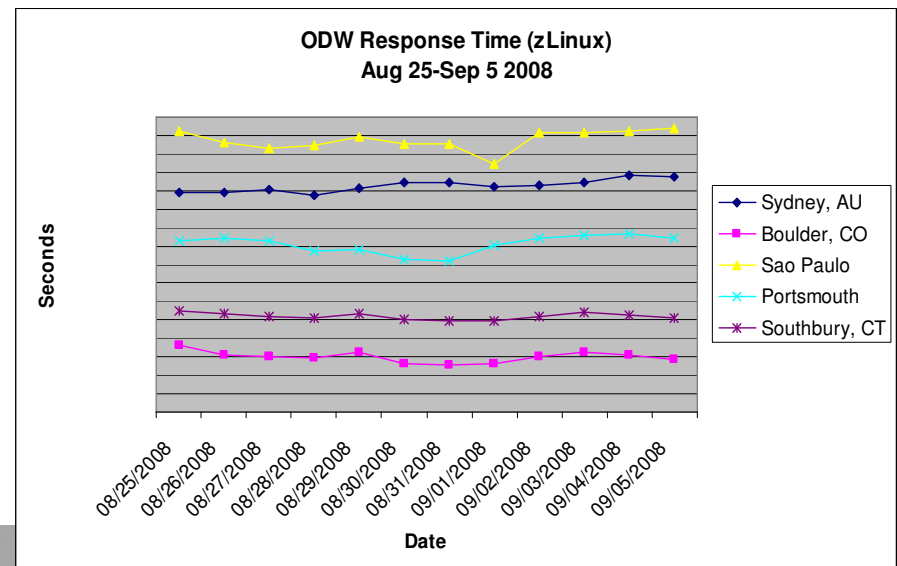
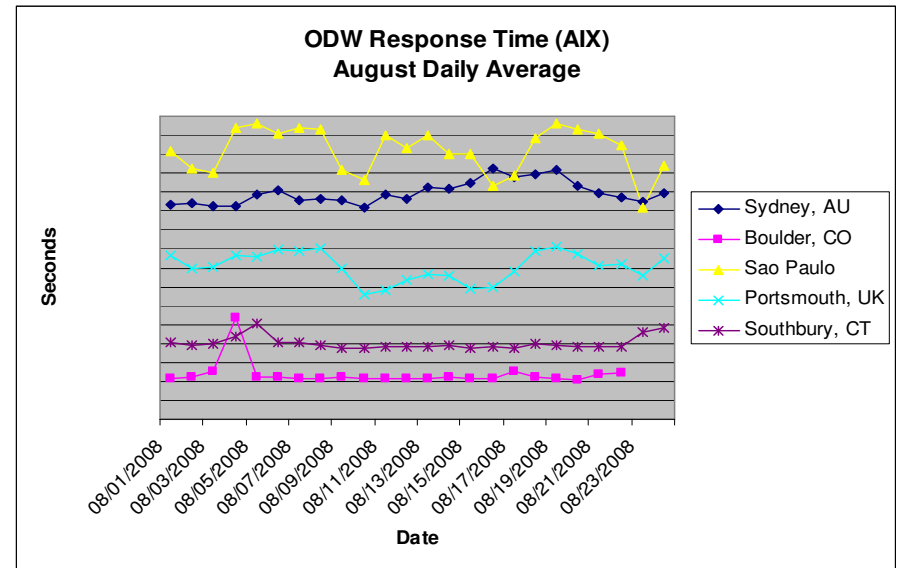
Topics for today's discussion

- Selecting a Platform and Total Cost of Ownership
- Deployment Options
- **Why System z as a Deployment Option**



IBM Case Study – WebSphere Portal on System z Benefits Realized in first month

- Performance:
 - ▶ More consistent response times on ODW
 - ▶ Average 2 seconds quicker for our BluePages application
 - ▶ Higher Utilization
- Scalability:
 - ▶ Immediate results to add CPUs to environment
 - Task completed in hours; labor cost minimal
- Go Green!
 - ▶ Energy Efficiency Certificates verify savings
 - ▶ Estimated Power savings of 119,000 MWH/yr (Approximately 9,000 Average US Homes)
- Consolidation of 3900 distributed servers to 33 System z Servers.
- Increased Availability



Summary

- Not All Hardware Platforms are created equal. When choosing a Hardware Platform, take into consideration the entire TCO picture.
- IBM System z Servers have the lowest TCO
 - ▶ Green Servers – Lower costs for energy
 - ▶ Lower Maintenance and Administration Costs
 - ▶ Best In Class Security, Scalability and Availability
- IBM Can Help you choose the right Portal Solution and Hardware Platform
 - ▶ Business Value Assessments
 - ▶ TCO Studies - Scorpion and zRace Studies



धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบพระคุณ

Thai

Спасибо

Russian

Gracias

Spanish

Dziękuję

Polish

Thank You

English

شكراً

Arabic

Obrigado

Brazilian Portuguese

多谢

Simplified Chinese

Danke

German

Grazie

Italian

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

감사합니다

Korean

