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Objectives

• Understand the hardware and software requirements for Centricity EMR (CEMR) 9.5 & 9.7 and Centricity Practice Solution (CPS) 10
• Discuss customer roles and responsibilities in coordination with vendors
  • GEHC, Kryptiq, Biscom, etc.
• Flow of the upgrade process
Terminology

- **x64**: Windows x86 64-bit Operating System
- **x32**: Windows x86 32-bit Operating System
- **UNIX**: IBM AIX or HP-UX
- **XenApp**: Presentation Server
- **RDS**: Remote Desktop Services
  - Terminal Services is dead... Or is it...
- **VMware vSphere/Hyper-V**: Virtualization Platforms
- **jBoss**: Java EE-based application server
Topics

- Product Lines, Product Lines
  - CPS and EMR
  - Software Changes, and how they affect you
- Roles and Responsibilities
- Supported Platforms
- Upgrade Paths
  - EMR 9.5, 9.7
  - CPS 10
- CCC
History of Platforms

EMR 5.6
- Windows 2000/2003 (x32)
- UNIX

EMR 2005
- Windows 2000/2003 (x32)
- UNIX

EMR 9.x
- Windows 2003 (x32 or x64)
- UNIX

EMR 9.5/9.7
- Windows 2008R2
- UNIX

PM ’04
- Windows x32
- SQL Server 2000

CPS 2006
- Windows x32
- SQL Server 2005

CPS 9.0.x
- Windows 32 or x64
- SQL Server 2005

CPS 9.5/10
- Windows 2008R2
- SQL Server 2008 (R2)
Things to know about EMR and CPS

The 9.5 and above releases for both CPS and EMR are certified to meet the Meaningful Use criteria

- CPS 10 is required for 5010 compliance starting Jan 1\textsuperscript{st}, 2012
- Both are CCHIT 2011 Certified

CPS 10

- New User Interface
- Added stand alone “application based” security model
What is supported?

What’s In?

• Windows 2008 R2
• UNIX:
  • HP-UX: 11.31*
  • AIX: 5.3* and 6.1
• Citrix XenApp 6.0
  • XenApp 6.5*
• Desktops:
  • Windows Vista Business and Ultimate (x32 and x64)
  • Windows 7 Ultimate, Enterprise and Professional (x32 and x64)
  • XP SP3 (x32)
• VMware vSphere 4.x
• Microsoft Hyper-V
  • For Limited Configurations*

What’s out?

• Windows 2000 (Workstation and Server)
• Windows 2003
• AIX 5.2 and 5.3*
• HP-UX 11i v1 and v2 (11.11 and 11.23)
• Any XenApp prior to 6.x

***Subject to change, check documentation on Centricity Support site for more details***
## Operating systems & component versions

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<thead>
<tr>
<th>Component</th>
<th>Supported Version</th>
<th>OS Support</th>
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<td>EMR 9.5: Oracle 11.2.0.2</td>
<td>Windows 2008 R2</td>
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<td>EMR 9.7: Oracle 11.2.0.3</td>
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</tr>
<tr>
<td></td>
<td>CPS 10: SQL Server 2008R2</td>
<td>HP-UX* or AIX (EMR Only)</td>
</tr>
<tr>
<td>DES</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Vista Business &amp; Enterprise**</td>
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<td></td>
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<td>Windows 7**</td>
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<td>Service Layer</td>
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<td>XenApp 6.0 – EMR 9.5 and CPS 10</td>
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</tr>
<tr>
<td></td>
<td>XenApp 6.5 – EMR 9.7 and CPS 10*</td>
<td></td>
</tr>
</tbody>
</table>

*SQL Server 2008 R2 support for CPS 9.5 is currently planned to be supported for Service Pack 1.

** Windows 7 and Vista will be supported in smaller configurations for running the DES (within limits of file sharing restrictions.
Why 2008R2 Only?

Following Microsoft Roadmap

2008 R2 is a new OS – Not a service pack
  • 32bit platforms Cannot upgrade – must install fresh
  • 64bit platforms can upgrade, but would you?

2008 R2 is 64bit only
  • No x32 OS after Windows 2008
  • Verify Hardware is x64 capable
  • Stronger security requirements
    o No Service Interaction with desktop (DES running as Service)
    o Firewall automatically on – Do you turn off or leave on?
RDS and XenApp

RDS feature set almost there with XenApp
  • Rather than seeing entire desktop, can use RemoteApp for ‘publishing’ applications

XenApp 6.0/6.5 is only supported version for 2008R2
  • Overhaul from previous releases
  • Limitations are critical:
    o No Mixed Mode Farm (XenApp 4.5/5 cannot join 6.x farm, and vice versa
    o Program Neighborhood is gone
  • Migration from 4.5 to 6.0 can be done thru PowerShell migration, 6.5 has GUI
  • No upgrade path from 6.0 to 6.5
  • Citrix provides a Upgrade utility
    o Uninstalls 6.0, installs 6.5, and rejoins farm as worker
XenApp

Benefits are enormous!

- Policies can now be done through Group Policy
- Worker groups allows server silo’s
- Single console for management
- Streamline installation process
- XenApp migration center – GUI based, 6.5 specific

<table>
<thead>
<tr>
<th>Source farm</th>
<th>New Farm</th>
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<tbody>
<tr>
<td>XenApp 6.0</td>
<td>XenApp 6.5</td>
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<td>XenApp 6.5 deployed in a test/pilot farm</td>
<td>XenApp 6.5 deployed in a production farm</td>
</tr>
</tbody>
</table>
Middleware & components

Service layer

- Service-oriented architecture
- Java-based application server – jBoss
- Incorporates Legacy CWS functions from previous versions, as well as easily adding future functionality
  - Hosts Browser Client
- With 9.5 runs as a true 64bit JVM
Middleware & components

Centricity Clinical Gateway (CCG)
  • Cloverleaf Interface Engine
  • Required for new specialized interfaces (Orders Export and Immunizations)

DES (Data Exchange Server)
  • Hosts the DTS software and optionally CCG
Customer & GE Healthcare upgrade roles

**EMR** - Customers can perform the 2005, 9.2 and 9.5 upgrades on the current hardware without GEHC involvement

- If currently on x32 platform, requires GEHC involvement
- If currently on x64 platform, does not require GEHC involvement
- Requires staff knowledge of database backup and restore
Customer & GE Healthcare upgrade roles

CPS – DB / Service Layer / DES

- GEHC ITPS services can be contracted for upgrade services if required. 
  *Documentation available if customer chooses to self upgrade.*
Customer & GE Healthcare upgrade roles

Custom Reports
- Customer is responsible for identifying all custom reports and for operation. This includes SQL Stored Procedures.

3rd party applications*
- Customer is responsible for coordinating all 3rd party application support post upgrade.

Interfaces
- Customers are responsible for testing and verifying interfaces post upgrade. This includes any lab, demographic, etc interfaces customers have built.

*GE Healthcare supports Kryptiq products and will be tested post upgrade. Support services are available if needed during normal business hours.
How will you get to 2008 R2?

New hardware or utilize existing hardware?

- New hardware
- Size for Growth – 3-5 years
- GE specifications are considered MINIMUM
- Allows for test upgrade / training
- Preliminary work can be done in advance

Utilizing existing hardware

- Verify hardware meets requirements
- Requires greater coordination and no testing
- Customer responsible for OS and DB load
- Backup
- Very difficult rollback if even feasible
Centricity Practice Solution
Hardware & software specifics, upgrade process
CPS 10 Identified Upgrades

Following CPS upgrade paths are identified

• CPS Upgrades
  – PM ‘04 to 10
  – CPS ‘06 to 10
  – CPS 9.0.x to 10

Other considerations

• x32 database to 10
• x64 database to 10
Upgrading from PM 04 to CPS 10

Requirement:
During this process, a x64 server environment will be built prior to migration

- SQL Server 2008 (R2) x64 and Windows 2008R2
- Post DB upgrade, Security Migration tool must be ran if using AD Security. Only required on PM04 to CPS 10 upgrade.
Upgrading from CPS 06 to CPS 10

Requirement:
During this process, a x64 server environment will be built prior to migration

- SQL Server 2008 (R2) x64 and Windows 2008R2
Upgrading from CPS 9.0 (x32) to CPS 10

Requirement:
During this process, a x64 server environment will be built prior to migration

- SQL Server 2008 (R2) x64 and Windows 2008R2
Upgrading from CPS9.0 (x64) to CPS 10

Live CPS 9.0.X Environment → Install new staging directory x64 Server → Backup Database from current x64 server → Restore database to new x64 server → Run ServerSetup to upgrade database on new x64 server

Requirement:
During this process, a x64 server environment will be built prior to migration

- SQL Server 2008 (R2) x64 and Windows 2008R2

Additional Work:
- Rebuild Website
- Upgrade Clients
- Upgrade DTS
Upgrading from CPS9.5 (x64) to CPS 10

**Requirement:**
During this process, the existing CPS9.5 DB server can be utilized.

- SQL Server 2008 will need to be upgraded to SQL Server 2008 R2.

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- **Live CPS 9.5 Environment** ➔ **Backup CPS Staging Directory and Production DB** ➔ **Run ServerSetup to upgrade database** ➔ **Install CPS10 Staging Directory** ➔ **Remove CPS9.5 Website and JBoss** ➔ **Additional Work:**
  - Rebuild Website
  - Upgrade Clients
  - Upgrade DTS
Centricity EMR
Hardware & software specifics, upgrade process
Centricity EMR 9.5 Hardware

EMR 9.5 specifications are very similar to 9.2, and does not require any additional servers than what is currently used for 9.2

- Hardware must meet specifications for 9.5, specifically for the x64 processor support

The majority of hardware purchased and used for EMR 9.2 will be sufficient for use with 9.5

*EMR 9.7 hardware specifications needed from Engineering*
EMR Identified Upgrades

Following EMR upgrade paths are identified

EMR Upgrades
- EMR 5.6 to 9.5
- EMR 2005 to 9.5
  - 6.0 and 6.1
- EMR 9.2 to 9.5
- EMR 9.5 to 9.7

Other considerations
- x32 vs. x64 DB to 9.5
EMR 5.6 to 9.5 Upgrades

- Live 5.6 Environment
- Upgrade 5.6 to 2005
- Upgrade 2005 to 9.2
- Build New Server or Wipe of Current Server
- Installation of 9.5 on new server
- Upgrade 9.2 to 9.5
- Migration/Restore of 9.5 x32 database to x64 database
- Install Clients, jBoss and DTS
  - Ensure Llogic is moved from DB to DES Server
EMR 2005 to 9.5 Upgrades

1. **Live 2005 Environment**
2. **Upgrade 2005 to 9.2**
3. **Upgrade 9.2 to 9.5**

- **Install Clients, jBoss and DTS**
  - Ensure Llogic is moved from DB to DES Server

- **Migration/Restore of 9.5 x32 database to x64 database**

- **Build New Server Or Wipe of Current Server**
EMR 9.2 to 9.5 Upgrades

1. Live 9.2 Environment
2. Upgrade 9.2 to 9.5
3. Build New Server or Wipe of Current Server
4. Installation of 9.5 on new server
5. Migration/Restore of 9.5 x32 database to x64 database
6. Install Clients, jBoss and DTS
   - Ensure Llogic is moved from DB to DES Server
UNIX EMR Upgrade Routes

- Upgrade 5.6 to 2005
- Upgrade 2005 to 9.2
- Install Clients, jBoss and DTS
- Upgrade 9.2 to 9.5
9.7 Upgrade Path

Live 9.5 Environment → Upgrade 9.5 to 9.7
CCC 8.3.7.3 Upgrade

- CCC Upgrade for enhancements of forms to meet Meaningful Use
- Recommended to upgrade CCC sometime after version upgrade
- Version supported only for EMR/CPS 9.5 and above
  - Cannot upgrade with previous versions

Customers should review CCC forms to confirm appropriateness.
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Date: TBA
Location: San Diego, California
http://beattygroup.com/ctc.htm
Submit Idea Topics!!
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Thank you for joining us.

Questions