

# AE EHR Database Servers

Systems Maintenance

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# Agenda

- **AE EHR Databases:**
  - Dynamic data
  - Static data
- **Third Party Databases**
- **Server Specifications**
- **SQL Services**
- **Connectivity**
- **Tools/Jobs**

# AE EHR Databases: Dynamic data

- **Works**
  - Clinical data storage and processing
- **IDXwf**
  - Integrated IDX WebFramework
- **Impact**
  - Scan application Image Map
- ***Production instances of these databases should be set to Full Recovery***

# AE EHR Databases: Static data

- **AHSDelta** – Delta processing
- **AHSLibrary** – TW Library Titles management
- **AHSCharge** – LMRP; Advance Beneficiary Notice
- **AHSMessage** – Clinical/Patient Messaging Content
- **AHSOCD** – Care Plan Information

# Third Party Databases

- **chInfoscan:**
  - Formulary checking
- **chMedispan:**
  - Drug interactions
- **chMedcinSearch:**
  - Medcin templates; ICD9 Search

# Server Specifications v11.2.3 vs. v11.4

- **Windows 2008 Server Enterprise R2 x64-bit Edition**
- **Microsoft SQL Server 2008 R2 x64-bit Edition with SQL CU1 (10.50.1702)**
- **V11.4 Requires SQL Server 2008 R2 x64-bit Edition with SQL SP2 (10.50.2500)**

# Server Specifications (Cont.)

- **RAM based on annual Encounters**
- **CPU based on annual Encounters**
- **Disk requirements driven by I/O characteristic**

# RAM based on annual Encounters

- **6 GB of RAM base configuration**
- **Plus an additional 5 GB of RAM for every 500,000 encounters per year.**



# CPU based on annual Encounters

- **Encounters Per/Year=Processor**
- **<=500,000 4 Server Class Processor Cores**
- **<=1,000,000 6 Server Class Processor Cores**
- **<=2,000,000 8 Server Class Processor Cores**
- **<=3,000,000 10 Server Class Processor Cores**
- **<=4,000,000 12 Server Class Processor Cores**
- **<=5,000,000 16 Server Class Processor Cores**
- **<=6,000,000 20 Server Class Processor Cores**
- **<=7,000,000 24 Server Class Processor Cores**
- **<=8,000,000 28 Server Class Processor Cores**
- **ETC.**

# Disk requirements driven by I/O characteristic

- **Allscripts Enterprise production database LUN's are required to have their disk latency statistics (Performance Monitor AvgDisk Second Read and AvgDisk Second Write) consistently below .010 (10 milliseconds) during peak production usage. This requirement is taken from Microsoft's recommendation for SQL Server disk subsystems running OLTP applications.**

# Disk requirements driven by I/O characteristic

- **Although there are multiple ways to configure a Storage Area Network (SAN) disk RAID arrays our testing has shown that SAN LUNs configured to a RAID 5 or other parity based RAID configuration do not offer the random write capabilities needed to keep disk latencies consistently below the 10 millisecond range except within the smallest of implementations. Our testing has shown that RAID 1+0 drive arrays do have the throughput characteristics necessary to keep disk write latencies consistently below this 10 millisecond range.**

# SQL Services

- **SQL Server Service**
  - Application service for MS SQL Servers
- **SQL Agent Service**
  - Manages Scheduled SQL Jobs

# Connectivity

- **Key SQL Logins**
- **Web Server Connectivity: ODBC/VOE**
- **Message Server Connectivity: CSS Config**
- **Scan Server Connectivity: Impact.cfg**

# Key SQL Logins

- **Admin - Login for IDXwf**
- **CHVOE - Login for Works**
- **ImpactUser - Login for Impact**
- **ConnectR - Common Login for Interfaces connectivity**

# Web Server Connectivity: ODBC/VOE

- **ODBC Standard Config:**
  - IDXwf
  - Works
  - TWIS
- **VOE Standard Config:**
  - AHSWeb
  - Touchworks
  - TWIS

# Message Server Connectivity: CSS Config

- **Print Spooler(s) are configured to point at Web Server(s)**
  - Can take advantage of a load balancer address
- **Web Server(s) provide database connectivity**



# Scan Server Connectivity: Impact.cfg

- **ConProps.exe**
  - Management Tool for core database connectivity
- **NotePad**
  - File can be adjusted manually as well, for more fine tuned configuration.

# Interface Server Connectivity

- **ODBC**
- **VBScript**
- **SP Calls**

# Connectivity Demo

# Tools

- **SQL Management Studio:**
  - Administrative tasks
    - Databases settings
    - Backups
    - User management
  - Query databases
  - Manage jobs

## Tools (cont.)

- **SQL Server Profiler**

- Find underlying code when issues arise
- Example: Filter for long running queries

- **PerfMon**

- Can be run concurrently to tie into Profiler trace data in order to review resource issues associated with long running queries

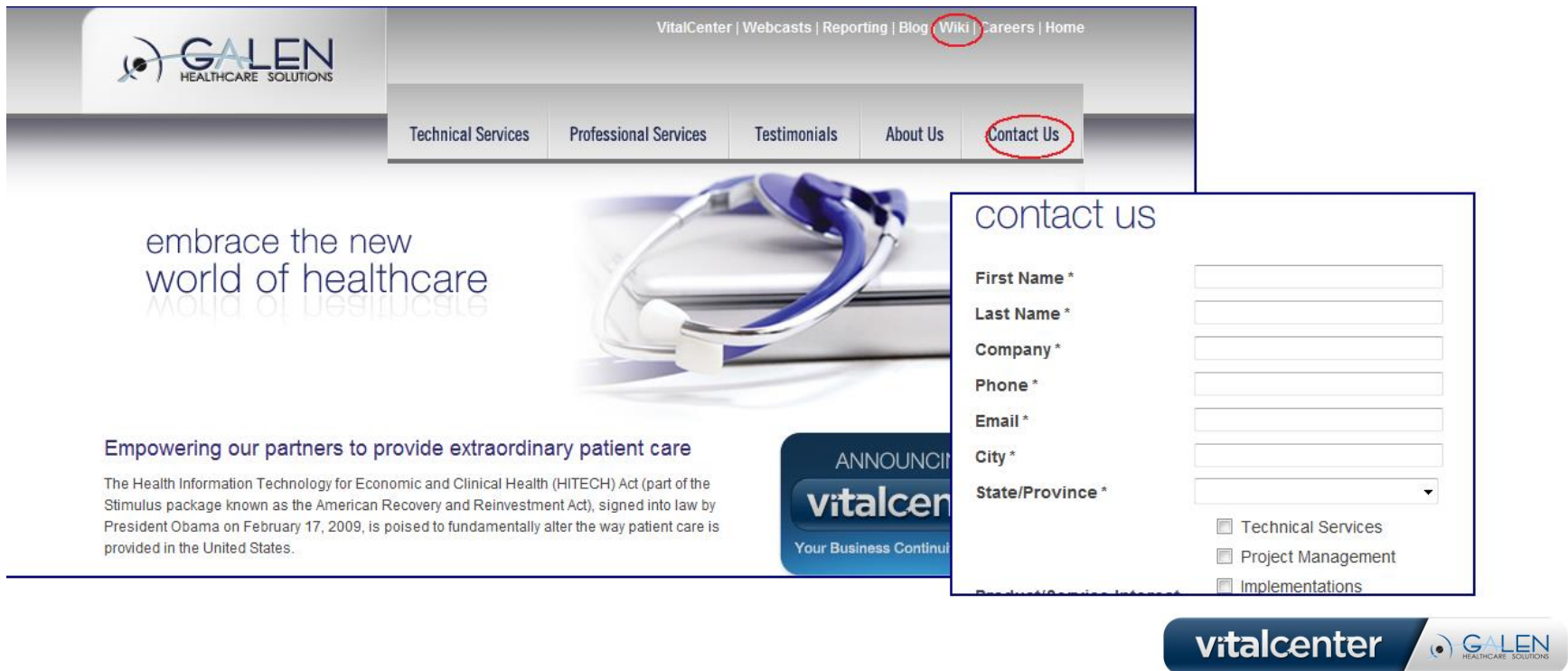
# Jobs

- **Backup Jobs**
  - Full Backups
  - Log Backups
- **Re-indexer Job**
  - Scheduling concerns

# Tools and Jobs Demo

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