



# Survey Research Operations

Survey Research Center

Institute for Social Research

## Challenges and Lessons Learned Using Blaise IS with SQL Server

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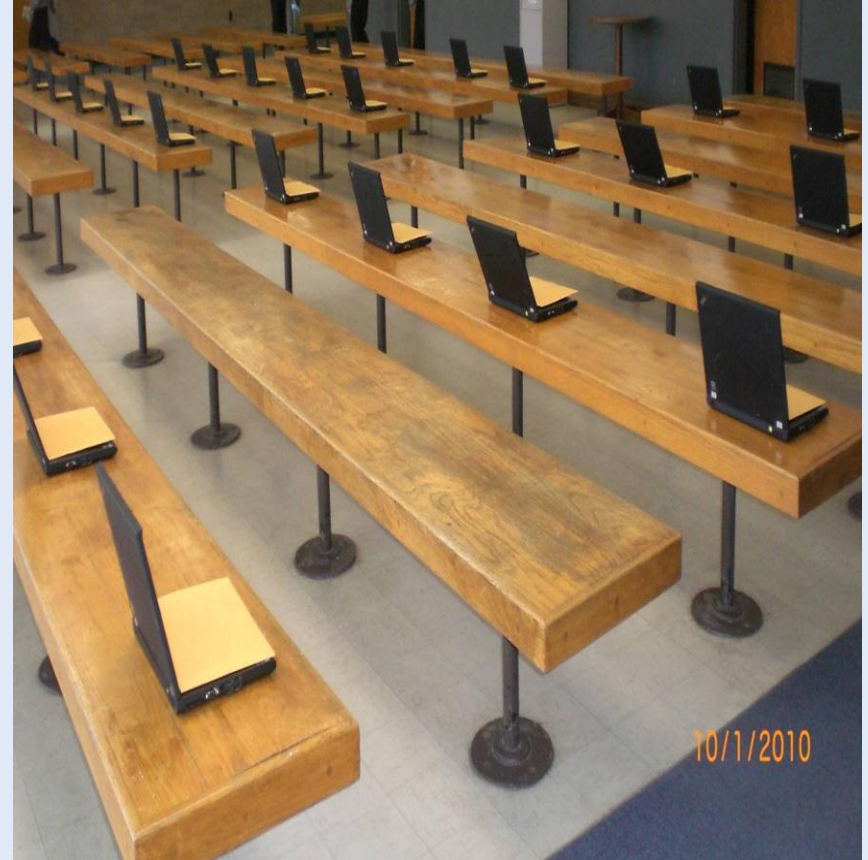
**IBUC 2012, London, England**

# Army STARRS Project

- **Goal: Collect data from 100,000 soldiers**
- **Computer Assisted Group Interview (CAGI) data collection**
- **Army Installations in remote locations**
  - **NO INTERNET!**
  - **Remote Deployable Solution**
- **Army STARRS Data collection started in winter 2010**



# Group Administered Interview Settings



# Challenges

- **Security**
- **CAGI Systems Solutions**
- **Blaise IS**
- **SQL Server**



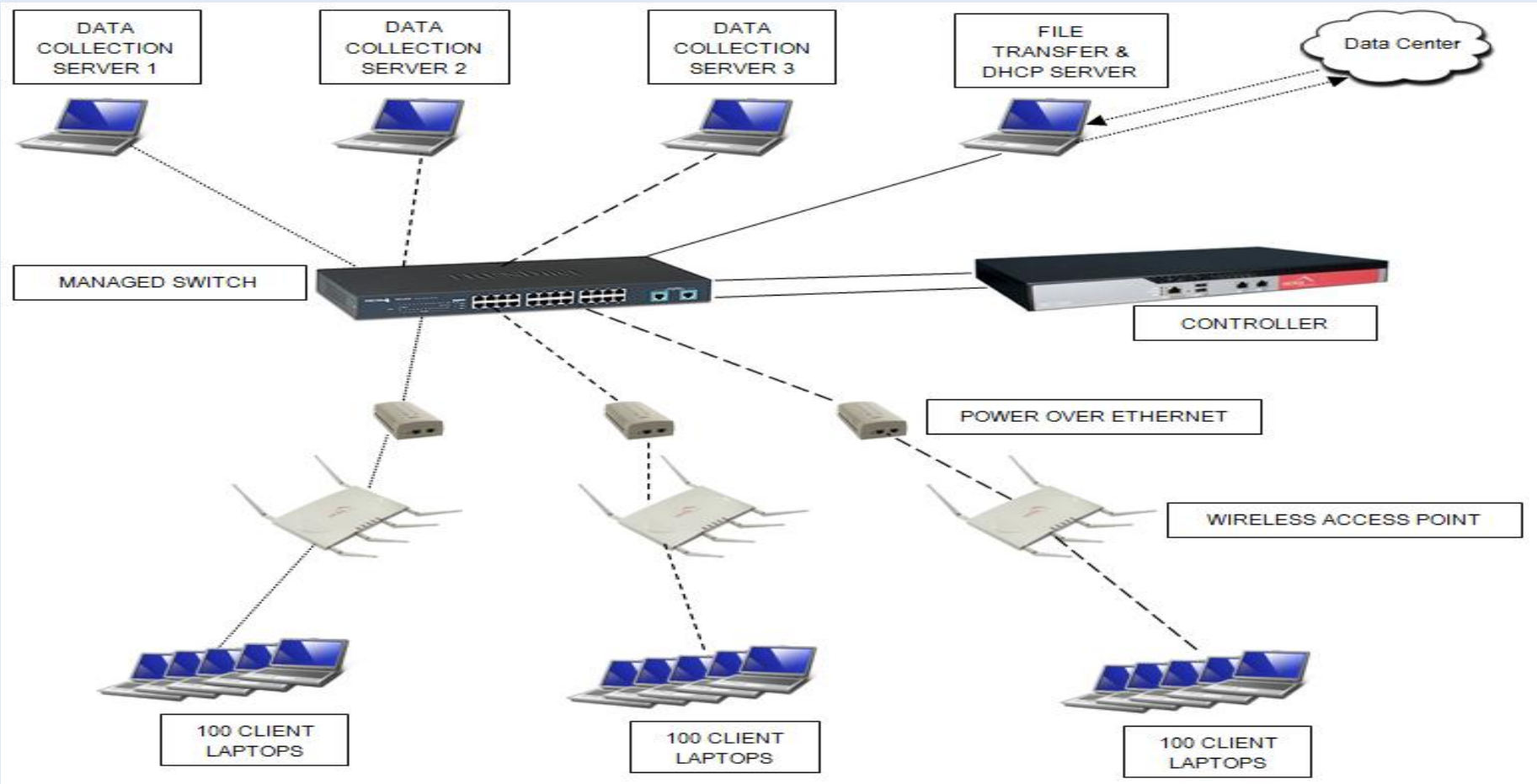
# Security Requirements Overview

- **Why SQL Server instead of Blaise DB?**
  - A secure relational database support Transparent Data Encryption (TDE)
- **Secure File Transfer Protocol (SFTP)**
- **Data deletion on remote servers**
- **Bitlocker Encryption with USB key**
- **FISMA**
  - **Enable FIPS**

Using Triple Data Encryption Standard (3DES)



# Systems Architecture...



# Major Issues

- 1. Blaise API Service (Datalink)**
- 2. Benchmark testing SQL Server vs. BDB**
- 3. Data Deletion Defect**
- 4. BOI File Corruption**
- 5. Survey Data Issue**



# 1. Blaise API (Data Link) Issue

- How do we know there is a Blaise API issue?

## **A system error occurred!**

### **The system replied:**

Could not connect to BlaiseAPIService3 (Socket Error # 10061-Connection refused.)  
Error number: -2147215301  
Error source: BIPgHn3A.BlaiseISSessionStarter

### **Information**

- Date: 8/25/2011
- Time: 6:13:44 PM

### **Resolution**

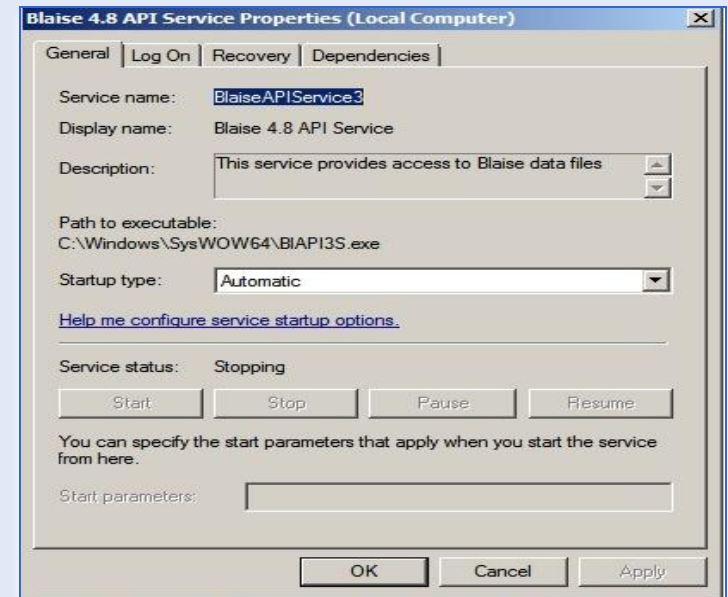
- Please contact your administrator and forward this error information.





# Blaise API Service

- 100, 200, or 300 Soldiers with Problems
- Simultaneous lockup for a set of users
- Client / Server Identification and Isolation
- Blaise API Service Hang - manual restart



# Blaise API Service

- **Restarting Blaise API causes session data to disappear**
  - Client Browser retains asp session
  - Refresh page (F5) - returns to the first page
  - Empty key value
  - Save action to working database fails
- **The Solution**
  - Exit the browser and restart survey



# In-depth Blaise API Service troubleshooting

The screenshot shows the Windows Event Viewer interface. The left pane displays the 'Event Viewer (Local)' tree with 'Applications and Services Logs' expanded. The main pane shows a list of events for 'BlaiseAPService3'. An error event (ID 1001) is selected, and its details are shown in the bottom pane. The error message is: '2006-25:098 TBMAPManager.PerformActions.: Error processing <BlaiseRequest Versions="2" ProcessID="" DictionaryFileNames="%BLAISESRULESROOT%\Questionnaires\A\_STARRS\_NSSB\Data\A\_STARRS\_NSSB.bmi" LayoutSetIndex="1" ToggleSetIndex="1" LanguageIndex="1" ParallelIndex="1" IsInternetActive="true" DataFormat="CompleteRecord"><Actions><FileAction Action="DeleteRecord" DataFileName="C:\inetpub\wwwroot\BlaiseSAB\Questionnaires\A\_STARRS\_NSSB\Data\Working\boi" FormID="74" KeyValues="1071342" Reposition="false"/><RoutingAction Action="ClearORRouteData" PageIndex="0" QuestionIndex="0"/></Actions><DataStorage SessionID="MOMDEV2162757682" Usages="init"/></Record/></BlaiseRequest>'. The error source is 'Database: 22468292 Catastrophic: false'.

Level	Date and Time	Source	Event ID	Task Category
Information	6/3/2011 3:07:02 PM	Security-SPP	903	None
Information	6/3/2011 3:07:01 PM	Security-SPP	16384	None
Error	6/3/2011 3:06:25 PM	BlaiseAPService3	1001	None
Information	6/3/2011 3:05:08 PM	SQLSPackage 300	12289	None
Information	6/3/2011 3:05:08 PM	MSSQLSERVER	18270	Backup
Information	6/3/2011 3:05:07 PM	MSSQLSERVER	18270	Backup
Information	6/3/2011 3:05:06 PM	MSSQLSERVER	18270	Backup
Information	6/3/2011 3:05:01 PM	SQLSPackage 300	12288	None
Information	6/3/2011 3:00:07 PM	SQLSPackage 300	12289	None
Information	6/3/2011 3:00:07 PM	MSSQLSERVER	18270	Backup

**Event 1001, BlaiseAPService3**

General | Details

2006-25:098 TBMAPManager.PerformActions.: Error processing <BlaiseRequest Versions="2" ProcessID="" DictionaryFileNames="%BLAISESRULESROOT%\Questionnaires\A\_STARRS\_NSSB\Data\A\_STARRS\_NSSB.bmi" LayoutSetIndex="1" ToggleSetIndex="1" LanguageIndex="1" ParallelIndex="1" IsInternetActive="true" DataFormat="CompleteRecord"><Actions><FileAction Action="DeleteRecord" DataFileName="C:\inetpub\wwwroot\BlaiseSAB\Questionnaires\A\_STARRS\_NSSB\Data\Working\boi" FormID="74" KeyValues="1071342" Reposition="false"/><RoutingAction Action="ClearORRouteData" PageIndex="0" QuestionIndex="0"/></Actions><DataStorage SessionID="MOMDEV2162757682" Usages="init"/></Record/></BlaiseRequest>'.  
: ErrorMessage: Unrecognized exception: External exception ID6D7363 E.ErrorCode: -2047192832 E.ErrorSource: Database: 22468292 Catastrophic: false

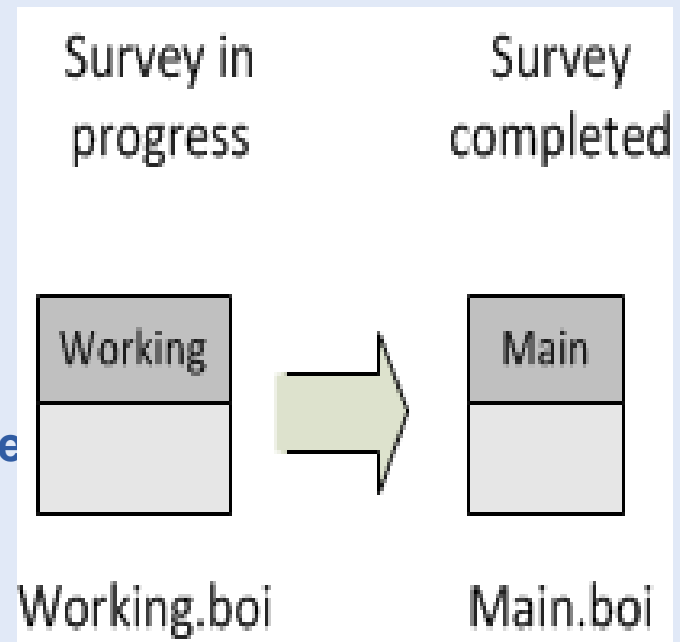
Log Name: Application  
Source: BlaiseAPService3  
Event ID: 1001  
Level: Error  
User: N/A  
OpCode:  
More Information: [Event Log Online Help](#)

Logged: 6/3/2011 3:06:25 PM  
Task Category: None  
Keywords: Classic  
Computer: MOMDEV2



# 2. Data Deletion Defect

- **Data not deleting**
  - **The way Blaise Works**
  - **Not getting deleted from working.boi when completed and transferred to main.boi**
  - **Event Log Errors**
- **API service Crashing**
  - **400<sup>th</sup> record**
  - **Utility developed and forwarded to the Blaise Team**
- **Resolution: Datalink uses now smaller chunks of grouped SQL statements.**



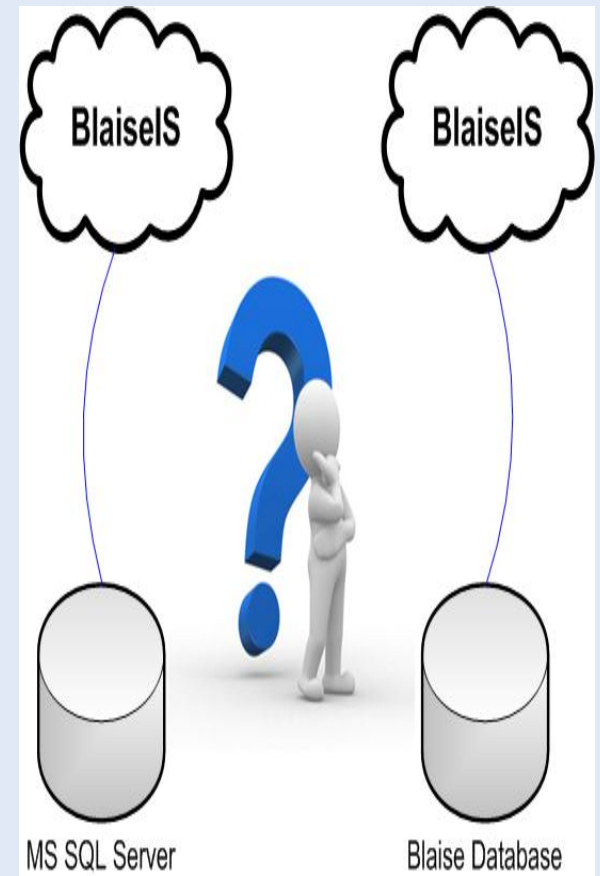
# 3. BDB vs. SQL Server

- **Benchmark testing**

- Manual
- Testing tools

- **Differences:**

- No lockups with BDB's
- Better Performance with BDB's



# 4. BOI File Corruption

- Working.boi corruption
- Possible cause: 'Old version of the .BOI file got restored by the Registry Service'
- Working.boi file restored from main.boi file



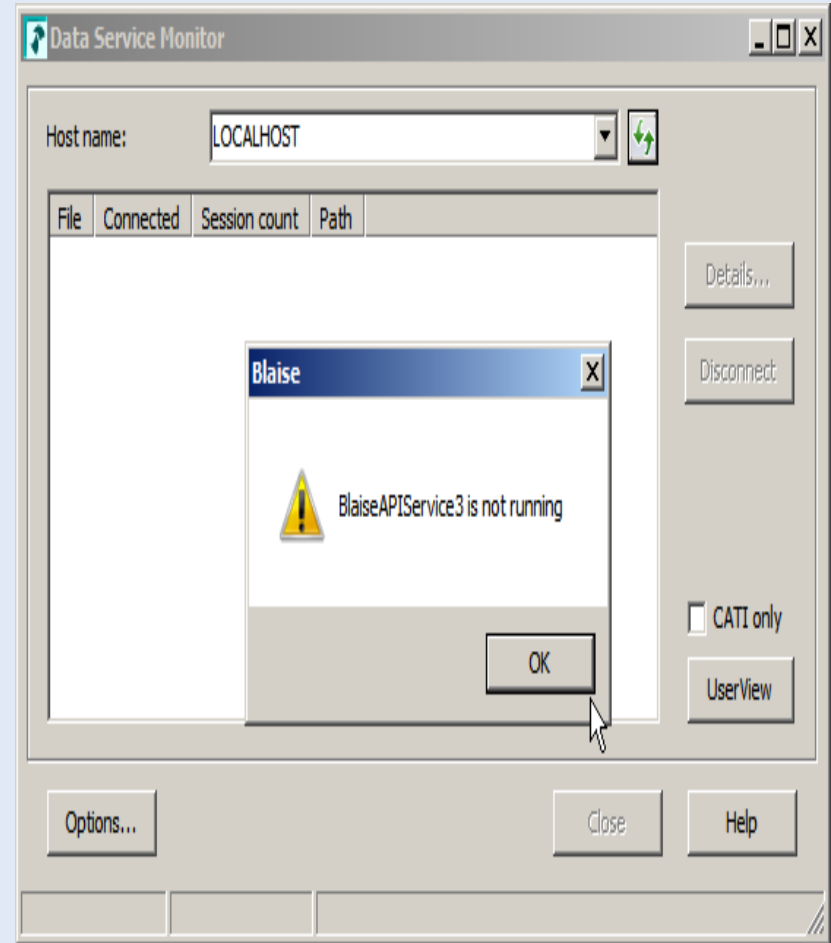
# 5. Survey Data Issue

- **Survey Data / Missing Paradata present**
  - **Data Reconstruction**
    - Time consuming
- **Survey data present / Paradata missing**
- **BiPagHan.asp file Modifications**
  - **Original - Set Journal =**  
**Server.CreateObject("BIJour3A.Journal")**
  - **Create Paradata\_Alternate table**
    - Use Microsoft ActiveX Data Object
    - Modified -Set cnn = Server.CreateObject("ADODB.Connection")



# Garbage.log and Blaise “Monitor Service”

- Garbage collection
  - Created file Blapi3s.sup saved to C:\Windows\SysWOW64
    - <ServerSettings  
GarbageWaitInterval="300"  
GarbageMaxConnectionsCount="0"  
GarbageSavePath="C:\Temp" />
- Blaise Monitor Service





# Summary

- **Met Security Requirements**
- **Supported Architecture**
- **One known Issue**

- 4.8.2.1589
- 4.8.2.1606
- 4.8.2.1618
- 4.8.2.1639
- 4.8.2.1649
- 4.8.2.1653
- 4.8.2.1656 ← **Currently in Production**
- 4.8.2.1700
- 4.8.3.1717
- 4.8.3.1735
- 4.8.4.1737
- 4.8.4.1742Beta
- 4.8.4.1745
- 4.8.4.1749Beta
- 4.8.4.1751Beta
- 4.8.4.1752Beta
- 4.8.4.1756 ← **Testing in progress**



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