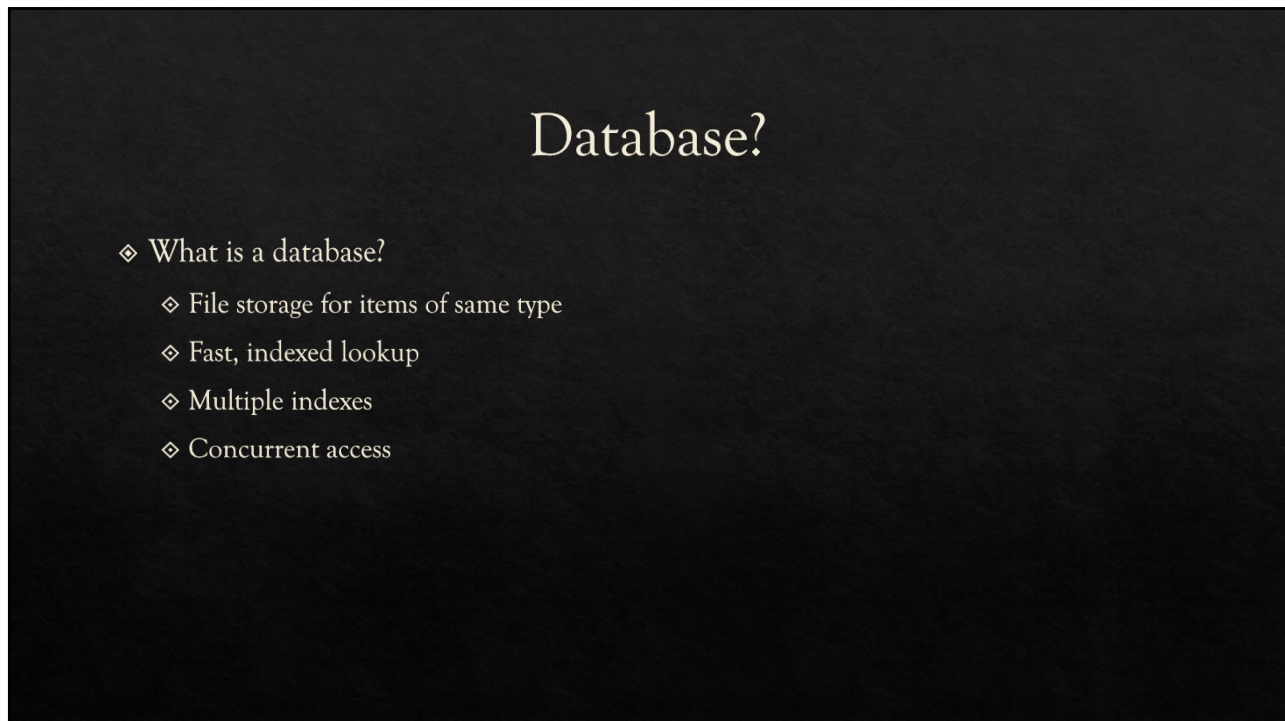




1



2

## New Database Requirements

- ◇ Server  $\geq$  2016
- ◇ Ample hard drive space (3-4 times as much free space as used space)
- ◇ Port 37628 open for UDP & TCP

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## Database File Structure

- ◇ Pages – fixed-length sections of file
  - ◇ Header page
  - ◇ Index pages
  - ◇ Pages for fixed-length data (e.g. an invoice number)
  - ◇ Pages for variable-length data (e.g. a job note)

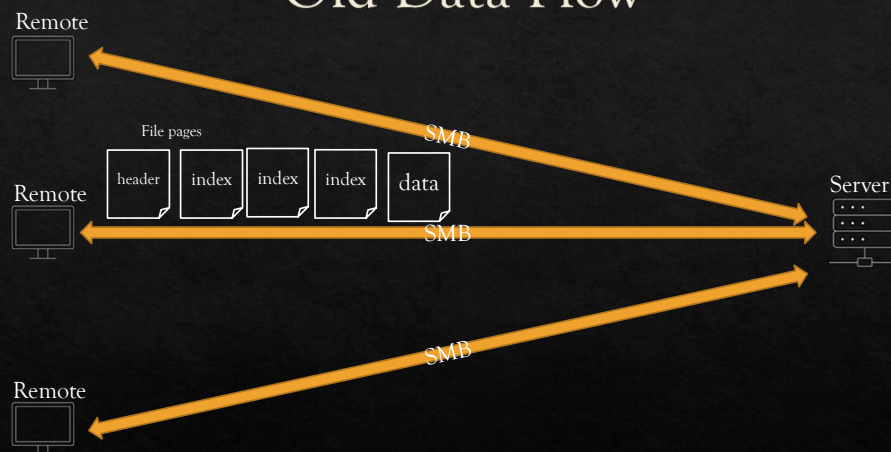
4

## Old Database Model

- ◆ Clients are smart (they know the file structure and how to update it)
- ◆ Clients take turns writing multi-page updates to file
- ◆ Clients manage contention (negotiate access to pages)
- ◆ Microsoft SMB network file access protocol

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## Old Data Flow



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## Issues with the Old Model

- ◆ Clients excluded from simultaneous access/modification
- ◆ Slow client slows down others
- ◆ Therefore wireless access wasn't allowed
- ◆ Bad remote can wreck a file's index structure
- ◆ Unable to enforce graceful, fast shutdown (due to multiple access points)

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## More Issues (SMB)

- ◆ SMB is a black box, outside of DVI control
- ◆ Upgrades to SMB could break the database
- ◆ SMB caching can corrupt the database
- ◆ SMB can trigger antivirus scan, compounding the previous problems

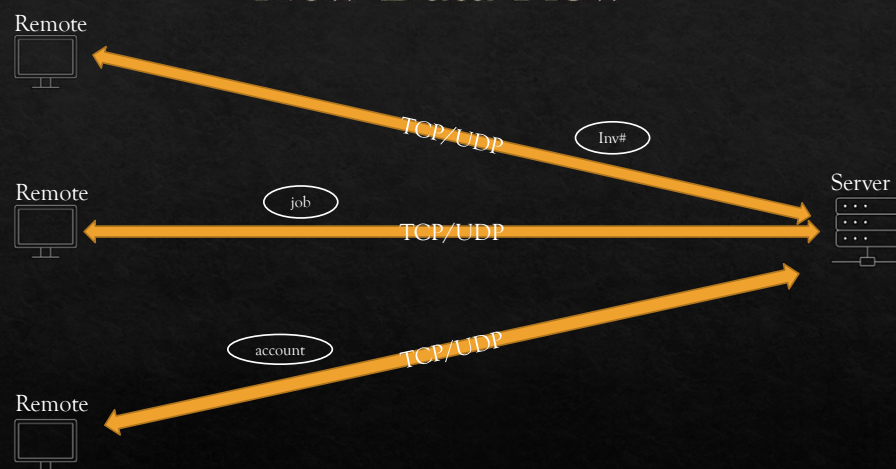
8

## New Database Model

- ◇ Database service runs on VISION server
- ◇ Single control point
- ◇ Only the server manipulates files
- ◇ The service is the brain, not the clients
- ◇ The service queries/updates data records on behalf of the client
- ◇ Clients transmit data records/keys (e.g. "Fred"), not pages

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## New Data Flow

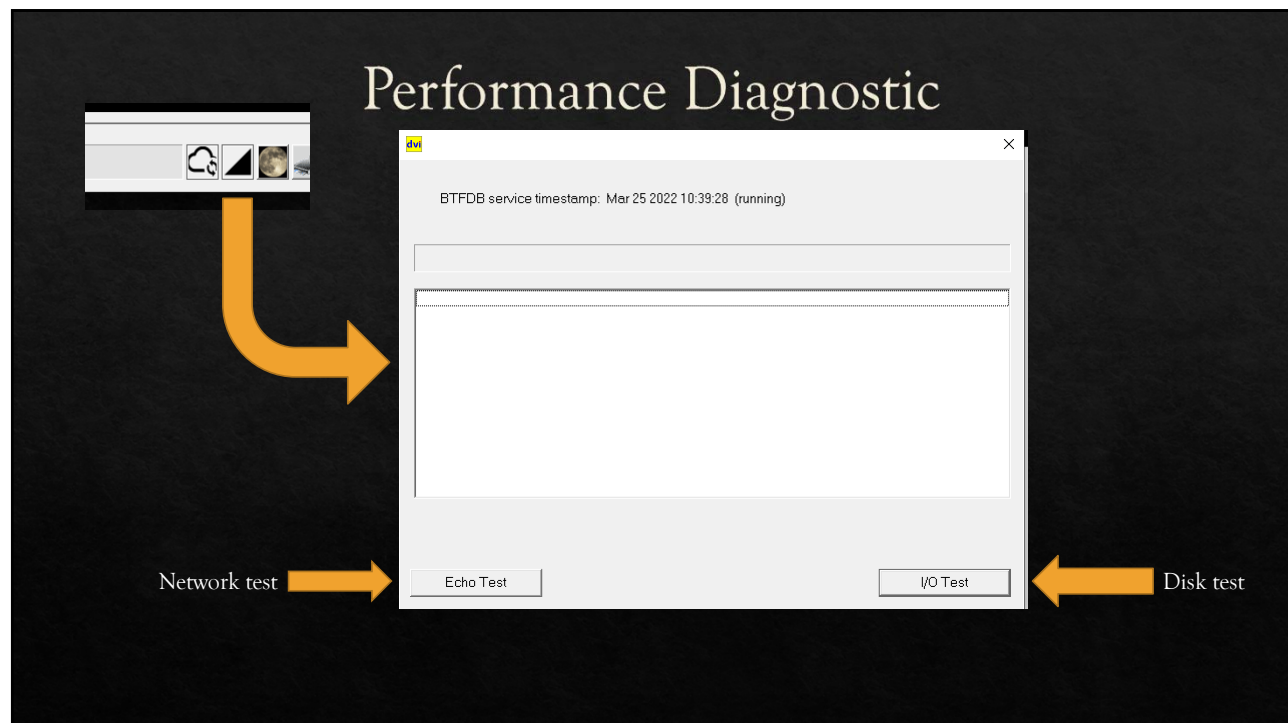


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## Advantages of the New Model

- ◇ Better performance
  - ◇ Small network utilization
  - ◇ Database requests handled concurrently
  - ◇ File updates don't invalidate the file cache
- ◇ Wireless access is allowed
  - ◇ Slow remotes don't impact others
- ◇ More secure
  - ◇ Unstable/infected remote doesn't corrupt the database
  - ◇ Remote access to files not required
- ◇ Centralized access control allows more intelligent backups (discussed soon)

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## Day-End Cycling

- ◇ Continuing efforts to reduce lab downtime
  - ◇ Good “hardware” is the most important factor!
  - ◇ New database model improves backup & restore speed
  - ◇ Software refactoring
  - ◇ Machinery Cycling reduces production downtime in some labs

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## Cycling Speed

- ◇ Machinery Cycling reduces production downtime
  - ◇ Interfaces come back up sooner but other systems functions are down longer
  - ◇ Email notification for production staff
- ◇ New database: cycling no longer waits for files to be copied to the backup server
- ◇ Restart-able mode reduces instances of restore downtime

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## Average Production Downtime

| Lab / Server            | #Labs | Traditional Cycling | Machinery Cycling |
|-------------------------|-------|---------------------|-------------------|
| Big lab & fast server   | 44    | 6:10                | 3:32              |
| Big lab & slow server   | 37    | 8:58                | 7:43              |
| Small lab & Fast server | 26    | 3:50                | 1:46              |
| Small lab & Slow server | 52    | 6:14                | 2:33              |
| All labs                | 160   | 6:46                | 4:21              |

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## Day-End Cycling

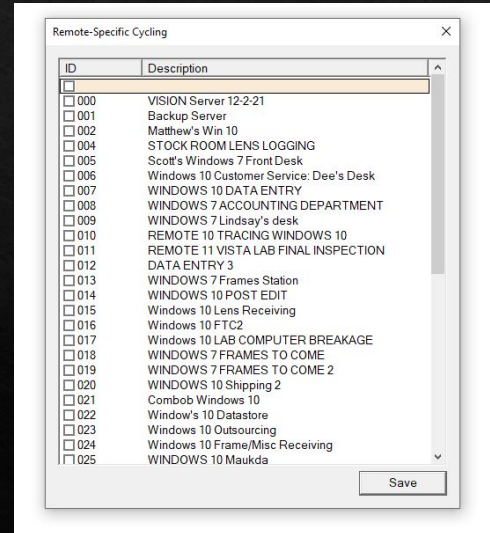
- ◇ Increasing reliability
  - ◇ Ensure running on true server, not decommissioned
  - ◇ Warn if cycling was run within last hour
  - ◇ Warn if server service not present (autocycling)
  - ◇ Don't run if user is running programs on server
  - ◇ Kick out programs running standalone on redundant server

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## Other Cycling Upgrades

- ◆ Remote - specific Cycling Switch <519>
  - ◆ Kick out a single remote for maintenance & testing
- ◆ New Report Streams
  - ◆ USRCYCLE.DAT runs with all files closed in all configurations
  - ◆ USE2\_QRT.DAT runs quarterly
- ◆ Graceful handling of “morning cycling”



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## Cycling Takeaways

- ◆ Good hardware pays dividends
- ◆ Use machinery cycling if appropriate
- ◆ Don't kill executables – talk to DVI if possible
- ◆ Make sure users have server access and know how to get access for DVI support
- ◆ Get converted to the new database model for the backup speed upgrade

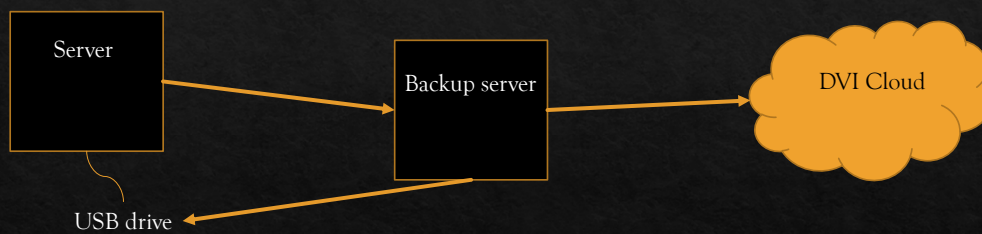
18

# Backups

- ◇ Database service can instantly lock out access to files while ensuring they remain in a consistent state
- ◇ Allows creation of system snapshots
- ◇ “Live” mid-day backup

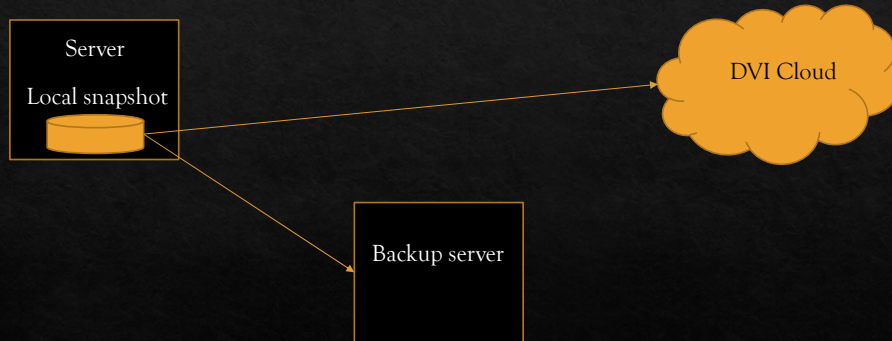
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# Old Backup Model



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## New Backup Model



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## Advantages

- ◇ Mid-day backup without setting the cycling switch
- ◇ Day-end backup takes a few seconds at start of cycling
- ◇ Restores are fast (coming from local data)
- ◇ Restore is safe (automatically saves files replaced during restore)

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## PULSE Backups

- ◆ Works with new database
- ◆ Uploads database log files
- ◆ 5 minute incremental (back to last full backup)
- ◆ Could be used to reconstruct database state after hardware failure/ransomware attack

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## New Backup Menu



- Backup
- Restore from Local Snapshot
- Restore from DVI Cloud Vault
- Restore from DVI Cloud Vault, and Reconstitute Databases from Pulse Backups

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## 6-Digit Tray Numbers

- ◆ Supports larger WIP with less frequent rollover
- ◆ No more alphanumeric tray#s
- ◆ Tray# gets assigned when job is created
- ◆ Avoids tray# vs invoice# confusion
- ◆ Requires AGT (no labels)

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## Email Log Viewer

| Date              | Remote | To                   | Subject                                     | Success | Attachment |
|-------------------|--------|----------------------|---|---------|------------|
| 4/7/2022 12:00 PM | 111    | brlan@glasses.com    | Rx Delay Notice - 04/07/22 - Invoice 854383 | Y       | Y          |
| 4/7/2022 12:00 PM | 111    | 5557712370@fax.com   | Rx Delay Notice - 04/07/22 - Invoice 852294 | Y       | Y          |
| 4/7/2022 11:54 AM | 111    | lab@laborders.com    | Job Modification Requests                   | Y       | Y          |
| 4/7/2022 11:52 AM | 111    | 555245678@fax.com    | Rx Delay Notice - 04/07/22 - Invoice 854273 | Y       | Y          |
| 4/7/2022 11:44 AM | 111    | office@newincome.com | Rx Delay Notice - 04/07/22 - Invoice 852394 | N       | Y          |
| 4/7/2022 11:44 AM | 111    | 5558785432@fax.com   | Rx Delay Notice - 04/07/22 - Invoice 845495 | Y       | Y          |
| 4/7/2022 11:27 AM | 111    | doug@eyeyyi.com      | Rx Delay Notice - 04/07/22 - Invoice 852219 | Y       | Y          |
| 4/7/2022 11:27 AM | 111    | joe@greatoptical.com | Rx Invoice                                  | N       | Y          |

- ◆ Easy access from the main menu <5237>
- ◆ All email communication logged
- ◆ Color coded and filterable
- ◆ Mail server feedback available

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## Mail Server Feedback

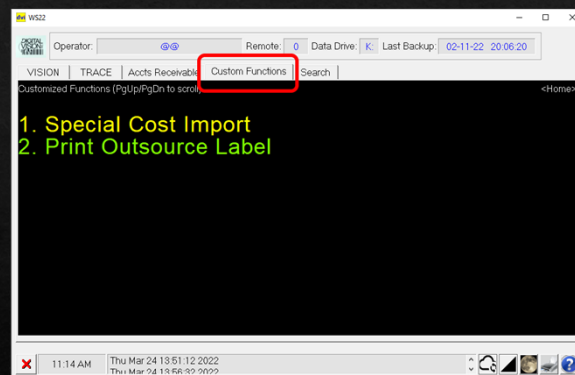
- ◆ Double click on a line to get “debug” information
- ◆ Useful for troubleshooting emails that fail to arrive
- ◆ Bad password, cap on amount of emails, invalid email address format, etc.
- ◆ Not DVI errors
- ◆ Copy/paste this to your IT / email admin

```
Log:
07-Apr-2022 11:44:20.808: mailsend v@(#) mailsend v1.20b
07-Apr-2022 11:44:22.465: Error: Expected smtp code 250, got 450
07-Apr-2022 11:44:22.465: Could not send mail
```

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## Custom Menu Functions

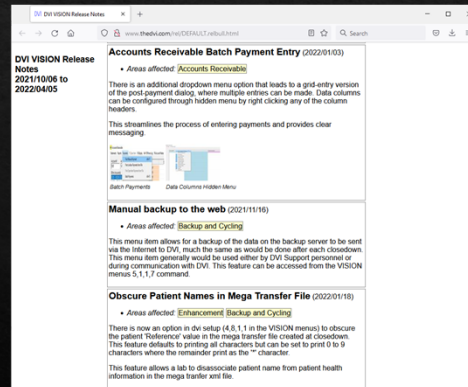
- ◆ Appears in own dedicated tab, inline with other standard menu tabs
- ◆ Replaces old console screen



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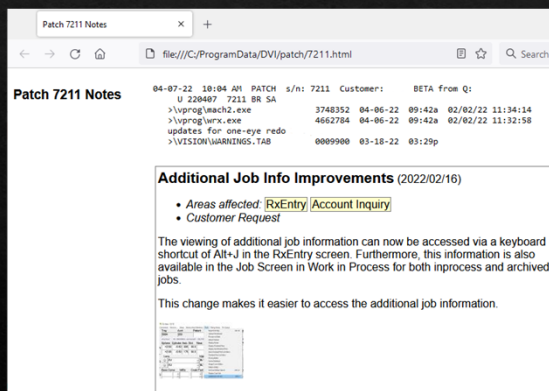
# Release Bulletin Revamped

- ◆ DVI software updates (new features & improvements)
- ◆ “Realtime” notes created by DVI
- ◆ Clean presentation, viewable in web browser
- ◆ Categorized by area of system affected (“tags”) – Ctrl+F to find
- ◆ Graphic example links when available
- ◆ Custom website link unique for each lab



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# Patch Release Notes



- ◆ Prompt to view when installing
- ◆ Viewable later in Downloaded Files tab > View Patch button
- ◆ Patch email notifications

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# Automated Tasks

- ◆ Replaces Windows Task Scheduler tasks
- ◆ Set up in System Setup <4811>
- ◆ Run on server for speed
- ◆ Co-exists with cycling
- ◆ Stall notifications are available <5237>

Auto Tasks  
F1:Save and Close F3:Remove Task(s) F5:Run Now F7:Notifications F9:View Log

**Task Configuration**

Name: Custom Breakage Report  Disabled

Command: custbrkempl.bat

Every  minutes. Valid values are between 5 and 1440.

At 23:56

Comma-delimited list of times in 24-hour hhmm format.  
For example: "6:30,10:30,14:30,16:30"

Mon Tue Wed Thu Fri Sat Sun

---

Task List (dbl-click to edit) | [Log File](#)

Custom Breakage Report - Tue - Fri (custbrkempl.bat) at 23:56, TUE, WED, THU, FRI

Custom Breakage Report - Mon (custbrkemplmon.bat) at 23:57, MON

WarnCredits (warncred.bat) at 16:45, MON, TUE, FRI

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# Thank You

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